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CONTENTS

The Current Research Issues of Retail Internationalization <i>Miao Miao</i>	1
Employees' Satisfaction of Government Organization in Tangail City, Bangladesh <i>Sayed Mohibul Hossen, Md. Takrib Hossain, Md. Masud Rana, Mohd Tahir Ismail</i>	15
Brand Personification: A Study on Humanizing Personal Care Products in Sri Lanka <i>A.A.S.N Munasinghe</i>	21
Simplified Machine Diagnosis Techniques under Impact Vibration Using Higher Order Cumulants with the Comparison of Three Cases <i>Kazuhiro Takeyasu</i>	30
Financial Performance of Banks in Lebanon: Conventional vs Islamic <i>Boutheina HASHEM, Hiyam SUJUD</i>	40
The Impact of Using Analytical Procedures on Reducing the Cost of Tax Audit "The Jordanian Income and Sales Tax Department" <i>Israa Mansour, Mutasem Kalib</i>	52
Mobilizing Volitional Capacities to Enhance Entrepreneurial Process <i>Samuel Nyock Ilouga</i>	66
Managerial Style – A Literature Review and Research Agenda <i>Kerstin Lopatta, Sebastian Tideman, Katarina Böttcher, Timm Wichern</i>	80
Impact of Work-Life Balance, Happiness at Work, on Employee Performance <i>Khaled adnan Bataineh</i>	99
Comparative Advantage and Trade Specialization of East Asian Countries: Do East Asian Countries Specialize on Product Groups with High Comparative Advantage? <i>Eva Ervani, Tri Widodo, Muhammad Edhie Purnawan</i>	113
Value Knowledge, Institutional Essence and Economic Growth <i>Shangyi Zhang</i>	135
The Extent to which Jordanian Organizations Are Committed to Implementing Knowledge Management According to Jordanian Government Standards <i>Khaked M. Aldiabat, Shireen M. AlAli, Yasser I. Momani</i>	143
Factors Affecting the Intention to Adopt M-Learning <i>Sanduni I. Senaratne, Samantha M. Samarasinghe</i>	150
Microfinance Institutions: It's Role in Palestine Economic Development <i>Sharif M. Abu Karsh, Anan Y. Deek</i>	165
Statistical Analysis of Long-Term Trends of Trade Relations between Georgia and Canada <i>Simon Gelashvili</i>	174
The Increase of Organizational Citizenship Behaviour (OCB) Through Islamic Work Ethics, Affective Commitment, and Organizational Identity <i>Wuryanti Kuncoro, Gunadi Wibowo</i>	181
Reviewer Acknowledgements for International Business Research, Vol. 12, No. 2 <i>Kevin Duran</i>	191

The Current Research Issues of Retail Internationalization

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Abstract

Retail internationalization has always attracted interest from both academics and practitioners. Although many retailers have developed international markets successfully by adopting an agile global supply chain, offline and online channels, and various store formats, some cases indicate that barriers and difficulties which retailers face when entering the foreign markets still exist. Thus, the very simple question of how to succeed in implementing retail internationalization calls for more research which investigates this question regarding different cultural contexts and industries from various perspectives. This paper is concerned with retail internationalization and the current issues affecting it. In this paper, we adopt an organizing framework to deepen the understanding of the retail internationalization process, summarize the new issues at the firm and store-level, and intend to provide a theoretical framework for further research.

Keywords: retail internationalization, current issues, capability, resource, profitability

1. Introduction

Retailers are playing an important role in connecting manufacturers to consumers. However, the dynamic changes such as the presence of technology and consumer's purchasing behavior are forcing retailers to come up with new strategies to respond to these challenges. For example, many retailers have created private label products by cooperating with manufacturers and have had intentions to use multiple channels to induce more opportunities to make a deep commitment with consumers. Meanwhile, the fierce competition of domestic markets reduces growth and margins of retailers, which forces retailers to move to new geographical markets (Kumar et al., 2017). That is how retail internationalization has always been a crucial issue to both academics and practitioners.

One of the reasons to consider is the big benefits of retail internationalization. Deloitte (2016) showed that 66% of the top 250 retailers are operating in at least one foreign market. An average of 23.4% of revenues that are collected from retailers is a result of overseas operations. These retailers on average operate in 10.4 countries. These facts indicate that internationalization improves retailers' financial performance and brand awareness (Moore & Burt, 2007).

Other crucial reasons to consider would be a firm's anxiety from entering the local market, the attractiveness of building a global network, greater economies of scale, and new opportunities for expanding an existing business (Corstjens & Lal, 2012). Furthermore, we can see many successful examples in implementing internationalization. For instance, some fashion retailers internationalized rapidly by adopting an agile global supply chain (Brun & Castelli, 2008), offline and online channels (Wrigley & Currah, 2006; Premazzi et al., 2010), and various store formats (Dawson & Mukoyama, 2014; Miao, 2017). And the fact that there are even some small and medium sized (SME) retailers that have developed international markets successfully shows that firm size is not a significant factor anymore when internationalizing (Vida et al., 2000).

However, some cases still indicate that internationalization does not have a significant impact on a retailers' returns, growth rates, or/and profit margins. This is because some barriers and difficulties exist which retailers face when entering a foreign markets, such as estate cost, rivalry among retailers; lack of experience, resources, and capabilities, regarding internationalizing (Clercq, et al., 2005; Forsgren & Hagstrom, 2007; Alimadadi et al., 2018). Thus, how to succeed in implementing retail internationalization calls for more research in different cultural contexts and industries from various perspectives.

Previous research provided several frameworks and perspectives about retail internationalization, such as a retailer's capabilities and resources including global networks of sourcing, selling operations, and management knowledge, influence and limit the decisions of timing a firm's internationalization, entry mode, and market choice (Johnson & Tellis 2008; Frasquet et al., 2018). In order to investigate these capabilities and resources in international expansion, some frameworks have been provided in international marketing research. For example,

the framework of dynamic capability (Frasquet et al., 2013; Easterby-Smith & Prieto, 2008; Winter, 2003), and embeddedness (Wood et al., 2014; Burt et al., 2015). These research frameworks offered new insight on studying the process of internationalization by looking at how retailers are gaining new capabilities for adapting to the changing environment. As Frasquet et al. (2018) presented, research should consider the role of dynamic capabilities within embedded environments, such as social, network, and territorial.

Based on these previous research, this paper is concerned with retail internationalization and the current issues affecting it. We intend to provide a theoretical framework for deepening the understanding of retail the internationalization process by adopting an organizing framework from Kumar et al. (2017).

2. Organizing Framework

2.1 Retail Internationalization

Internationalization has been defined as “the process of increasing involvement in international operations” (Welch & Luostarinen, 1988). “The discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services” are described as the activities that international firms are concerned with (McDougall & Oviatt, 2000). In these activities, retail internationalization focuses on the process of providing goods or services to a new market or to a wider section of a market that already exists (Kumar et al., 2017, p.102). Most research on retail internationalization has been focusing on analyzing the entry mode, market choice, and the speed of expansion in foreign markets (Frasquet et al., 2013).

As the missions of the internationalization process, retailers need to adopt appropriate strategies and modes of foreign operation that will ensure that the business can minimize risk while maximizing the potential for success (Deloitte, 2009). The strategies are following retailers’ international marketing policy, for example, underlying retail format and marketing strategy, and the goods produced or services offered by the retail (Goldman, 2001). Thus, we can see that many researchers pay attention to (1) the factors affecting the decisions of internationalization, and (2) when and how retailers should implement these strategies within international markets.

In our organizing framework (figure 1), we discuss retailers’ decisions of the timing of internationalization, entry and expansion mode, market choice, and store-level strategies. All these decisions are based on retailers’ capabilities and resources in implementing international marketing. Also, we intend to show the impact of these decisions on retailers’ profitability at both firm and customer levels.

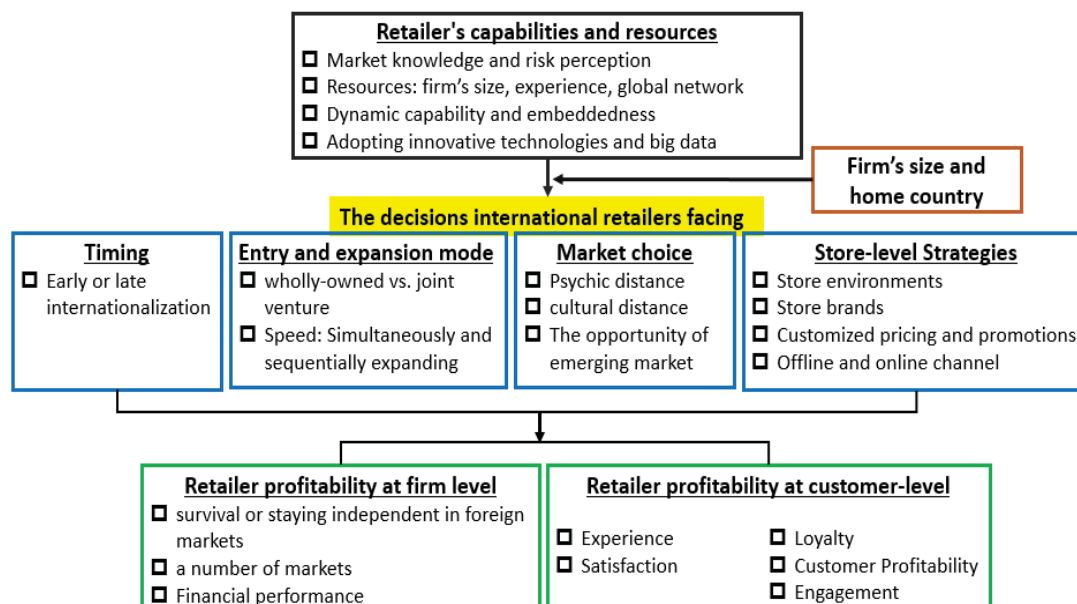


Figure 1. Organizing framework

2.2 Impacts of Retailer's Capabilities and Resources on Internationalization Decisions

When a retailer decides to go abroad, there are five strategic entry decisions the retailer needs to face. They are entry scale, entry mode, entry order, retail format adaptation to the local market conditions, and the familiarity of the format of the store to the parent company (Gielens & Dekimpe, 2001). Each of these five decisions is made by considering the firm’s capabilities and resources in the internationalization process (Chang & Rhee, 2011; Jain et al., 2019).

Researchers have highlighted several important capabilities and resources in retail internationalization from different perspectives. For example, first, the firm's level of market knowledge and risk perception limit its internationalization activities (Forsgren & Hagstrom, 2007). This is because firms prefer to select a well-known foreign market with a similar culture and that are near the home country in order to reduce risk and uncertainty (Alimadadi et al., 2018).

Second, according to a resource-based view, resources such as firm's size, experience in internationalization, and their global network largely impact the propensity, mode, and the method of entry while entering the target foreign market (Morgan & Katsikeas, 1997; Burt et al., 2003; Clercq et al., 2005; Javalgi et al., 2003). For instance, a lot of research in this field has focused on large firms, but not small and medium-sized firms (SMEs). This is because generally, SMEs' foreign market knowledge and resources are more limited than large firms' and thus have a more limited range of entry modes from which they can choose (Leondiou, 1995; Hutchinson et al., 2006). Furthermore, resources are also considered as part of the firm's characteristics which represent the firm's unique capabilities of entering new markets (Childs & Jin, 2015).

Third, dynamic capability has also been considered as an important framework in internationalization studies. It has been defined as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environment" (Teece et al., 1997; Frasquet et al., 2013). It emphasized that firms are required to learn and develop their capabilities for making decisions at different developmental stages within environments that are fast-moving. According to Winter (2003), the competence process involves operational capabilities (zero-level), dynamic capabilities (first-order), and learning capabilities (second-order). These competency processes are related to each other. In these processes, the importance of accumulating information and learning has been outlined in different studies (Frasquet et al., 2013).

Beyond that, current research has presented some other important capabilities in the internationalization process. For example, the capability of adopting innovative technologies and big data may affect retailers' organizational routines which can influence the overall performance (Zhu & Kraemer, 2005; Kumar et al., 2017). Bagheri et al. (2018) also examined the effective impact of technological innovation on the relationship between the activities of internationalization and performance of SME retailers. The findings suggested that retailers can improve their internationalization by implementing technological innovation activities, such as introducing new products to the market, upgrading existing products, and adopting big data to meet the market needs. Gandolfi & Strach (2009) and Childs & Jin (2015) also pointed out that offering functional products by adopting technological innovation can make retail be more flexible in foreign markets.

2.3 The Impacts of Firm Size and Home Country on Internationalization

Despite some research showing that firm size is not a significant factor in influencing international performance (Vida et al., 2000), large multinational retailer successes are well known. Additionally, only a few research paid attention to SME retailers (Hutchinson et al., 2006)—especially retailers which are in emerging countries. However, SMEs practically have great potential and capabilities in international markets with strong concepts, store formats, and merchandise assortments (Alexander & Quinn, 2001; Hutchinson et al., 2006; Miao, 2017). Thus, instead of questioning whether or not small retailers can implement their internationalization, academic and practical researchers should investigate how small retailers could develop international marketing better in diverse industries and markets.

According to Morgan & Katsikeas (1997) and Hutchinson et al. (2006), the variances between big and small firms are not only the physical size, such as the number of employees, stores, and annual turnover, but also in terms of managerial characteristics, financial characteristics, and operational characteristics. Compared with large firms, although the SME retailers have limited financial, operational, logistical and learning resources, they have some competitive advantages such as entrepreneurial vision and networks. For these SME retailers, Hutchinson et al. (2006) suggested that government export assistance programs could be a crucial factor for enhancing SMEs' international development effectively. It requires the government to provide support with channel relationships, network contacts, as well as information programs. This issue should be studied more in future, especially for some emerging markets like China and Africa which the export assistance program has been implemented during this decade (Jain et al., 2019).

One of the reasons is that SMEs in emerging countries have very limited governmental and political ties which encourage them to access overseas (Sharma, 2011; Deng & Zhang, 2018). Also, the emerging markets actually internationalize more rapidly than developed markets (Deng & Yang, 2015; Sun et al., 2012). This is because the firms in emerging markets have a higher motivation to catch-up with the established mature multinationals (Kumarasamy et al., 2012).

Crucially, most research have investigated the impact of host country and firm's capabilities and resources on the firm's internationalization process and performance, very limited studies focus on the important role of the home

country in a firm's internationalization (Cuervo-Cazurra et al., 2018). Some current research revealed the impacts of home country's institutional changes, turbulent environment, policies on firms' decisions on internationalization (Yan et al., 2018; Fathallah et al., 2018; Barnard & Luiz, 2018). This finding offered a direction for further research.

3. International Marketing Decisions and the Influence Factors

As shown in figure 1, the timing of internationalization, entry mode, market choice, and the retail store strategies are the important decisions for success in retail internationalization (Johnson & Tellis 2008). These decisions are not only driven by firms' capabilities and resources, but also by the host country's culture, policy, local customers' preference, purchase habits, and sensitivity about new products and prices (Kumar et al., 2017).

3.1 The Timing of Internationalization

Some firms started internationalizing earlier in their lifecycles than other traditional, slow-paced firms. The importance of deciding when to internationalize has been addressed in previous research (Knight & Cavusgil, 2004); however, there is not much research focusing on the antecedents of timing decision and its outcomes and implications (Jones & Coviello, 2005; Ciravegna et al., 2018a).

One entry point of understanding the timing of internationalization is the identified perceptual and non-perceptual variables (Ciravegna et al., 2018b). The perceptible variables include perceptions of risk, size of the domestic market, and the profitability of international markets. Non-perceptual variables include the desire to exploit underutilized capacity from the resource-based view perspective and the consideration of competitors (Westhead et al., 2001). Also, a firm's background characteristics (Dimitratos, et al., 2016), such as entrepreneurial, serendipitous, and strategic internationalization were found in competing theory, which could influence the timing and type of international expansion (Ciravegna et al., 2018b; Cavusgil & Knight, 2015).

Other drivers can be observed by looking at the challenges when retailers internationalize early, such as the limited availability of financial resources, human resources, network resources, and legitimacy (Mathews & Zander, 2007; Bembom & Schwens, 2018). Bembom & Schwens (2018) emphasized three key network dimensions within the internationalization process: (1) the manner in which organizations access different types of resources, (2) an organization's utilization of governance mechanisms for the purpose of resource exchange, and (3) the diversity as well as amount of resources exchanged. Thus, we can see that resources and the capability of dealing with resources became the key points of the success of early internationalization.

Also, motives and behaviors of entrepreneurs may influence the timing in internationalization (Sommer, 2010). The correlation between innovativeness and the timing of internationalization of small retailers has been presented by Augusto & Coelho (2009). Similarly, Efrat et al. (2017) showed that the firm with three high capabilities which include market intelligence generation, team cohesion, and marketing adaptability, might choose to internationalize early.

Although previous research have already shown different outcomes by choosing the timing to internationalize, there is still limited information about the reason of leading to different outcomes (Ciravegna et al., 2018b; Cavusgil & Knight, 2015), and challenges from the characteristics of industry and product categories (Ciravegna et al., 2018a).

3.2 Entry Mode Choice

Entry mode choice is considered as foreign operation mode (FOM) -- "the organizational arrangement that a company uses to conduct international business activities" (Picot-Coupey et al., 2014; Benito et al., 2009, p.1458). FOM was categorized into wholly-owned operation (flagship stores), and joint venture (shop-in-shops, franchised stores). The mode of entry that is wholly owned has a higher level involvement/control and gains more returns compared to franchise, while franchise carries lower investment cost (Ekeledo & Sivakumar, 1998).

Based on the eclectic framework, Nakos & Brouthers (2002) examined the factors influencing entry mode, which are ownership, internalization, and pioneering advantage. From the resource-based view, Park & Sternquist (2008) presented the impact of resource availability on retailer's entry mode choice. Thus, we can see that the characteristics of retailers' resource, advantages, and capabilities might lead to different choice of entry mode. For example, retailers with a unique capability and competitive advantage in the management or production of private label products prefer wholly-owned entry mode. On the other hand, the retailers who have abundant access to relational resources but do not have informational, managerial or capital resources will opt to utilize franchise mode (Park & Sternquist, 2008).

Additionally, some research have presented the different entry modes by classifying internationalization speed that engages in international expansion simultaneously or entry to new markets in a short period (Birchall, 2008; Dawson & Mukoyama, 2014; Mohr & Batsakis, 2014). For example, based on resource-based view, Mohr & Batsakis (2018) compared simultaneously and sequentially expanding retailers, and presented that if the firm is

able to (1) draw on assets that are intangible, (2) be strong financially, as well as (3) have gained international experience, it has the intension to get involved in simultaneous international expansion.

Furthermore, Picot-Coupey et al. (2014) emphasized the difference between retailers' entry and expansion modes. It suggests a dynamic perspective to look at FOM as a distinct stage within the internationalization process. At the different stages, there are different factors related to the characteristics of the organization and environmental characteristics that determine the appropriate choice of FOM.

3.3 Market Choice

Which countries are being selected, and what factors can explain the choice of market, have been investigated in some research. The factors leading retailers to make a choice of market were considered to be the country's economic situation (Dunning, 2000), the purchasing power (Alexander, 1990), the size of the market (Mitra & Golder, 2002), and distance between home market and selected market (Evans & Mavondo, 2002). These research provided foundational factors that could influence retailers' decisions on market choice.

Especially, current research has been focused on the impact of distance between home and host markets including geographic and psychic distance. Alexander et al. (2007) and Evans & Mavondo (2002) emphasized that psychic distance may produce more difference in financial results. The reason is that if a firm chose to enter a market with high perceived differences to the firm's home market, the firm would take a lot of effort and time to understand the market which might lead to improved financial performance. Also, Mohr & Batsakis (2018) found a restraining effect of cultural distance in regard to the relationship between retailers' international experience and their simultaneous international expansion.

Furthermore, some case studies showed that firms offering products which are more connected to home country may receive higher risks if they entered psychical distant markets (Gandolfi & Strach, 2009; Burt, et al., 2003). It means that product category offering can influence the performance of market choice.

On the other hand, through an assessment of the emerging market criteria – the potential of the market, culture distance, the industry competitive strength, and the receptiveness of the customer, Sakarya, et al. (2007) addressed the growth and potential opportunities in emerging markets. This finding pointed the attractiveness of emerging markets for both retailers' internationalization and academic research.

3.4 Store-level Strategies

In order to offer the consumer a superior shopping experience, international retailers came to pay more attention to their store-level strategies which include store environment, assortment of merchandise, customized pricing and promotions, and offline and online channel building. The reason is that store environment and atmosphere can stimulate consumers' emotional states (i.e., pleasure, fun, and arousal) which can create an emotional relationship between the consumer and the store, while merchandise, pricing and promotions can create a rational relationship (Kumer & Kim, 2014). Thus, we can see that retail internationalization is paying more attention to holistic marketing management which not only concerns product development, but also inventive store formats and interaction of multiple channels such as offline and online channels.

First, many retailers have recently been building a greater variety of store formats in foreign markets and attempting to provide a superior shopping experience through their store environment in order to increase the possibility of customer revisitation and store performance (Kumar & Kim, 2014; Garaus et al., 2015; Murray et al., 2017). The reason is that consumers not only switch to different retailers in the same product categories but also change to different store formats for the same product purchasing (Anand & Sinha, 2009). In other words, store environment with different formats can influence store image and customers' store choice differently (Fowler & Bridges, 2010). There is already much research showing the impact of store environment on customer's satisfaction and loyalty (Kumar & Kim, 2014; Garaus et al., 2015); and international expansion as well as adapting merchandise, customized pricing and promotions to the local market (Broyles, 2009).

Second, the development of e-commerce offers store-based retailers a high possibility of extending their business to foreign countries (Wrigley & Currah, 2006; Premazzi et al., 2010). It can be observed in the great attention from academic literature and industry practice on the synergies across the online and offline business (Zhang et al., 2010). For example, operating both online and offline stores can (1) reach foreign markets with low cost (Premazzi et al., 2010); (2) grow the number of customers (Kushwaha & Shankar, 2013); (3) enhance customer gratification and loyalty towards the existing stores (Neslin & Shankar, 2009); (4) increase sales revenues (Pauwels & Neslin, 2015). Although some research also questioned the synergy between online and offline retailing and the contributions to retailers' internationalization (Van Nierop et al., 2011), adopting both offline and online stores is still being given great attention by international retailers.

4. Retailer Profitability at Firm and Customer-Level

For measuring the outcomes of firms' internationalization, most research adopted firm-level's profit and other

financial performance data. The most common measures are traditional accounting-based ratios such as return on investment (ROI), return on equity (ROE), profit margin, return on assets (ROA) (Calabrese & Manello, 2018; Majocchi & Zucchella, 2003; Calabrese & Erbetta, 2005) or other direct measures such as market share and sales growth (Arvanitis & Loukis, 2012; Manello et al., 2016). Similarly, survival which is measured by the number of markets, the ownership changes, or expansion using the same mode was presented by Ciravegna et al. (2018a).

Although these financial statements directly show the profitability at firm-level, it also requires to adopt other indirect measurements to evaluate profitability at customer-level, such as customer satisfaction, loyalty, and brand reputation. This is why the customer-level perspective offers customer-focused marketing and brings long-term profitability (Kumar et al., 2017). Also, consumers are becoming more diverse and complicated even within one country because of the indigenous cultural values of different areas (De Mooij, 2010). Thus, to look at the profitability at customer-level should be helpful for retailers to improve their retailing activities in host markets. Retailers' profitability at customer-level can be represented with experience, satisfaction, loyalty, profitability, and engagement which all connects to each other (Kumar et al., 2017). When a customer has a good experience within the whole purchase process, it will lead to their satisfaction which can produce customer loyalty and sustained profitability, and then deepen customer's engagement towards this store or product.

In these measurements, especially the linkage of satisfaction and loyalty has been focused by researchers and market managers in the last 20 years. Satisfaction refers to the consumer's sense that the consumption successfully satisfies specific, desire, need, goal, and also provides outcomes against a pleasure standard. Much research has examined that satisfaction is a strong relative factor of loyalty (Jones et al., 2000; Szymanski & Henard, 2001; Anderson & Srinivasan, 2003). Additionally, cultivating and retaining customer loyalty is an important task for almost all companies in any business. This is because loyal customers can give more business and benefits and it costs less to a company to serve them.

Despite satisfaction-loyalty linkage being studied by many researchers, the topic of how to best allocate resources to various loyalty-building efforts has always attracted interest from both academics and practitioners. We can see some international retailers have recently been attempting to provide a superior shopping experience through their store environment and multiple channels in order to increase the possibility of customer revisitation and customer loyalty. For example, some retailers are building a greater variety of store formats (Miao, 2017); store-based retailers tend to participate in e-commerce (Gensler et al., 2007).

Notably, some research posit that not all loyal customers bring profit to the firm, and provide recommendation that it is essential for customers be categorized based on loyalty as well as profitability (Kumar et al., 2017; Reinartz & Kumar, 2002; Kotler & Keller, 2016). Miotto & Parente (2015) suggested that different store formats should be used to attract different types of consumers based on profitability. However, this issue requires retailers to share information about customers and make a strategy to target profitable customers (Kumar et al., 2017). This field of research needs to be developed by investigating diverse industries and markets in the future.

5. Current Issues of Internationalization

This study contributes to research in the retail internationalization field by providing a comprehensive framework that will assist researchers gain an understanding of the research topic being studied and focused in previous research, and the current issues which should be paid more attention in the future. The proposed framework in this paper focuses on retailer's profitability at both firm and customer-level and identifies the types of decisions of internationalization being based on retailer's capabilities and resources. We choose to focus on four current issues covering firm and store levels, which are about research method, dynamic perspective, SME retailers' internationalization, and the new retail formats and channel expansion (Figure 2).



Figure 2. Current issues

5.1 Research Method: Combination of Case Study and Empirical Investigation

Most research adopt case studies to show the process of retail internationalization, but lacks an empirical investigation with theoretical support (Childs & Jin, 2015). Although case study can help researchers and firms to understand the specific barriers of entering a foreign market and the crucial capabilities supporting firms to develop the market (Frasquet et al., 2013; Dawson & Mukoyama, 2014), it still requires researchers to combine case study and empirical investigation to find out the correlations between international market decisions and outcomes.

There are several methods and frameworks which were suggested to measure firms' outcomes, for example, at firm-level evaluation of FOM characteristics can minimize the risk and understand the level of resource commitment in regard to firm's plan on international marketing (Picot-Coupey et al., 2014). SOR (Stimuli-Organism-Response) paradigm can find out the factors influencing customer's emotional states and response (Mehrabian & Russell, 1974; Laroche & Park, 2013). Measuring customer loyalty and engagement can show the relationship between customer and a retail store/brand (Jones et al., 2000; Szymanski & Henard, 2001; Anderson & Srinivasan, 2003). Also, psychographic measurements show customers' expectations, customer demographics, and lifestyles which can provide a hint to international retailers (Ko et al., 2012).

These measurements can show a firm's performance and customers' response towards retailing activities at each different touch point in the internationalization process. It helps retailers to better understand what they do indeed need to work on and how to address customers' expectations appropriately at different developing stages (Kumar et al., 2017).

5.2 The Impact of Firm Characteristics with Dynamic Perspective

Paying attention to firm characteristics including capabilities and resources from dynamic perspective will be a key to understand a firm's decisions on internationalization (Moore & Burt, 2007; Childs & Jin, 2015). These unique characteristics are based on firm's experiences, developing history, resources, knowledge, and learning capabilities which could be developed by the firm's activities in the changing environment. Recently, we can see two main frameworks showing the importance of dynamic perspective in internationalization. They are dynamic capability (Winter, 2003; Frasquet et al., 2013; Easterby-Smith & Prieto, 2008), and embeddedness (Wood et al., 2014; Burt et al., 2015; Frasquet et al., 2018; Kinoshita, 2018). These research offered a new insight to study the process of internationalization by considering the role of dynamic capabilities within the embedded environment (social structure, network and territorial).

In addition to this, the resource-based view has been contributing to international marketing research. Some research showed that the entry mode could be related to the possession of intangible assets by the retailers, such as selling operations and management knowledge, learning ability, global networks of sourcing, as well as their international experience (Frasquet et al., 2018; Mohr & Batsakis, 2018). These resources were considered to be able to offer (1) a strong retail brand expanded across borders with high speed (Swoboda et al., 2014); (2) ability to deal with particular challenges from new markets and adjust to local needs (Jiang et al., 2014; Bianchi &

Ostale, 2006). The resource-based view deepens the understanding of the impacts of retailer's capabilities and resources on internationalization.

Besides, because firms need time to configure their resources to achieve their financial goals after entering a new market, researchers should consider the effect of time-series as evaluating the impacts of firm's capabilities and resources on international performance (Sun et al., 2018).

5.3 SME Retailer's Internationalization in the Emerging Counties

Although some research showed that firm size is not a significant factor influencing internationalization (Vida et al., 2000), the difficulties and characteristics of developing internationalization of SME retailers are different with large firms.

Compared with large retailers, the SME retailers have limited, operational, logistical, and financial as well as learning resources. But, they also have some competitive advantages, such as entrepreneurial vision and networks (Hutchinson et al., 2006). Some studies presented that SME retailers have great potential and capabilities in international markets with strong concepts, inventive store formats and merchandise assortment (Alexander & Quinn, 2002; Hutchinson et al., 2006; Miao, 2017).

As an application, Hutchinson et al. (2006) suggested that government export assistance programs are an important factor in enhancing SME retailer's international development. It requires the government to offer assistance with channel relationships, network contacts as well as information programs related to international issues.

In addition to this, only a few research paid attention to international retailers in emerging countries. Deng & Zhang (2018) addressed that institutional quality (business administration, trade regulation, tax administration, labor regulation, etc) is related to the decision of whether the Chinese SMEs intend to go overseas and their overseas sales growth. It is shown that the Chinese SMEs who have very limited governmental and political ties would choose to access overseas. Also, some other research explained that firms in emerging economies with low institutional quality can easily produce efficient business operations (Sharma, 2011; Deng & Zhang, 2018). It means that the home country's institutional changes, business environment and policies have a significant effect on retailers' internationalization (Cuervo-Cazurra et al., 2018; Yan et al., 2018; Fathallah et al., 2018; Barnard & Luiz, 2018). Thus, as Jain et al. (2019) addressed, the influence factors of internationalization could be different between developed and emerging markets. For this field, it calls for further studies.

5.4 New Retail Formats and Channel Expansion

At store-level, Kumar et al. (2017) suggested that further research should focused on (1) the impacts of new retail store formats on internationalization; (2) the effect of market expansion through new product lines and localized pricing strategy; (3) retail channel expansion such as the combination of e-commerce and physical retail store.

Especially, for (1), only a few research pays attention to the issue of how, and to what extent, the different store formats impact customer satisfaction and loyalty building. This is especially true of retailers entering a new overseas market, and how its store format choice affects its loyalty building during its developing stages.

For the (3), the main purpose of building multichannel is to simply communicate with customers for targeting potential benefits (Zhang et al., 2010). This has been applicable to a wide range of industries by store-based, catalog, television shopping, and internet-based retailers in the last 20 years (Neslin et al., 2006). Specifically, the development of virtual technologies and e-commerce offers two main opportunities to store-based retailers, the possibility of offering value efficiently to customers through both online and offline retailing, and extending their business to foreign countries (Wrigley & Currah, 2006; Premazzi et al., 2010). Now, the combination of offline and online channel came to be more important than before. Especially when more customers purchasing through their smartphones, further researchers should pay more attention to test the effects of building up cross-channel (online and offline shop) and mobile technology utilization on both business performance and retailing internationalization.

Today, retailers who operate in the multinational arena have become robust with their holistic marketing plans that are focused on the development of private label products and reinforcement of brand value through the use of inventive store formats and multiple retail channels (Miao, 2017). We can see this in the success of the great grocery stores (Walmart, Whole Foods), apparel merchants (GAP, H&M, ZARA), online shopping websites (Amazon, etc.). A lot of research has been conducted with an aim of investigating international marketing innovation within retail. However, as we addressed in this paper, there are still some questions, such as when and how retailers start to internationalize, that are major factors that might influence their internationalization process and what strategies they could implement as they experience barriers and difficulties.

The proposed framework in this study intends to reorganize the important views and frameworks in previous research about retail internationalization, as well as identify several directions and implications for further research. However, we could not summarize all the important topics and discussions, such as the role of information sharing in a firm's internationalization (Kumar et al., 2017), comparison of international performance among multiple markets (Childs & Jin, 2015), and tradeoffs between strategic localization and standardization (Knight & Cavusgil, 2004). These issues also require attention in the future.

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Employees' Satisfaction of Government Organization in Tangail City, Bangladesh

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Abstract

Employees' satisfaction is directly related to their commitment, citizenship behavior, turnover, absenteeism, dedication and performance. Job satisfaction is important to attract and retain talent workforce. Organization can ensure a competitive advantage over the key rivals through confirming the satisfaction of employees towards job. Organization need to meet the expectations of employees' which shall ensure their job satisfaction. The purpose of the study is to measure the job satisfaction in government employees of Tangail district. Primary data was used in the study and the sample size of the study was 80. The study revealed the key facets of job satisfaction in government sector of Bangladesh. Factors including salary of employees, performance appraisal system, promotional strategies, employee's relationship with management and other co- employees, training and development program, work burden, influence of higher authority and working hours are found important for improving job satisfaction of govt. employees in Tangail city. Increase in level of these factors improves overall satisfaction of employees which is identified by using statistical technique.

Keywords: employees' satisfaction, government organization

1. Introduction

Job satisfaction is the positive feelings of employees towards the organization. Job satisfaction motivates employees' to be with the organization for long run and also acts as a part of the organization as family. People are the hearts of every successful business that make things happen. It is one of the most popular and widely researched topics in the field of organizational psychology (P.E.Spector, 1997). Apart from managerial and technical aspects, employers can be considered as backbone of any industrial development. To utilize their contribution, they should be provided with good working conditions to boost their job satisfaction. Researchers reported that several different factors can influence employee satisfaction with their workspaces, including building design, air quality and temperature, noise and lighting, ability of employees to personalize their workspaces and workspace design and management etc. It is generally understood that unfavorable conditions of office environment can have negative influences on employees' satisfaction, cause health problems and increase short-term sick leave.

The study variables are based on selecting samples of government employments using questionnaire as a main tool to collect data from various government offices in Tangail city. The variables to be measured are: the government organization procedures and employees' satisfaction, how much the offices procedures effect at the employee's satisfaction and internal programs that lead to satisfaction of employees and its impact on their performance, dedication and achievements.

Objective of the study:

- i. To examine the various motivational factors that impact on government employee's satisfaction.
- ii. Identify and discuss the various motivational factors and the extent to which they affect and influence service delivery performance in rural area.
- iii. To recommend approaches that can be followed by the public sector in improving service delivery performance.

2. Literature Review

Job satisfaction is defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (E.Locke, 1976). It is also defined by Newstrom as "a set of favorable or unfavorable feelings and emotions which employees view with their work" (Davis, K., & Newstrom, J., 1993). When people speak of employee attitudes, they often mean job satisfaction. Human capital is its most valuable resource, which provides the solid foundation needed to build long-term profitability and ongoing success of an organization. If people of the organization are satisfied towards their job or work than it helps organization to achieve their targeted goal. Job performance is directly related with the job satisfaction. Job satisfaction plays an important role to reduce employees' turnover and absenteeism. It indicates the feelings an employee has towards his or her job based on the evaluation of its characteristics (M. Shallu, Sehgal, 2012).

Job satisfaction depends on different issues which may be related with financial side or may not be like; job security, working conditions, working environment, promotion facility, career advancement, recognition of good work, relationship with co-workers, responsibility sharing, salary, medical and housing facility, fair recruitment, selection & promotion practices, training & development (T&D) practices, company goodwill & reputation, management style, compensation package, logistical support etc. Employee satisfaction is the satisfaction of employees with their jobs or the degree to which employees like their jobs (Weerasinghe, 2017). So, employees' satisfaction has become a major concern to the organizations for their survival and growth.

3. The Methodology and Model

The study is conducted by using Simple Random Sampling technique where we include more than 80 samples considering the employees of government Organization in Tangail city. A survey method was used for the study and the data were collected by a Demographic Information Questionnaire and Employees satisfaction Attitudes Scale. The questionnaire includes personal information, Work & Work environment, Supervisor and Supervision, Rewards and Promotion, Participation and other things related with their satisfaction. Initially, Demographic Information Questionnaire and Education Attitudes Scale were administered to the employees of government organization of Tangail city of different position. To meet the objective of the study both Univariate and Bivariate methods have been applied. Cross-table analysis is performed to study the association between dependent and various independent variables.

4. Results and Discussion

Table 1. Cross tabulation for finding the association between employees' designation with their gender

		Gender of the respondents		Total
		Female	Male	
Designation of the respondents	Field Assistant	3	6	9
	Office Attendant	0	16	16
	Officer	13	25	38
	Teacher	0	17	17
Total		16	64	80

Hypothesis:

H₀: There is no association between gender and designation of the govt. employees.

H₁: There is association between gender and designation of the govt. employees.

Table 2. Chi-square table for finding the association between employees' designation with their gender

	Value	D.F.	P-Value
Pearson Chi-square	14.046	3	0.003

Comment:

Here we see that, employees' gender and designation is significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between employees' gender and designation.

Table 3. Cross tabulation for finding the association between genders of the employees with their company treat me well

		Company treat me well				Total
		Agree	Disagree	Most agree	Neutral	
Gender of the respondents	Female	3	3	0	10	16
	Male	10	23	4	27	64
Total		13	26	4	37	80

Hypothesis:

H₀: There is no association between gender and company treat me well of govt. employees.

H₁: There is association between gender and company treat me well of govt. employees.

Table 4. Chi-square table for finding the association between genders of the employees with their company treat me well

	Value	D.F.	P-Value
Pearson Chi-square	3.382	3	0.336

Comment:

From the analysis we found that, employees' gender and company treat me well is not significantly ($p > 0.05$) associated. So, we may not reject the null hypothesis. That is, there is no association between employees' gender and company treat me well.

Table 5. Cross tabulation for finding the association between through work council able to participate with 'involve in the decision in working meeting

		Involve in the decision in working meeting				Total
		Agree	Disagree	Most disagree	Neutral	
Through work council able to participate	Agree	0	4	0	3	7
	Disagree	0	6	4	6	16
	Most agree	0	0	0	4	4
	Neutral	9	35	3	6	53
Total		9	45	7	19	80

Hypothesis:

H₀: There is no association between through work council able to participate and involve in the decision in working meeting of the govt. employees.

H₁: There is association between through work council able to participate and involve in the decision in working meeting of the govt. employees.

Table 6. Chi-square table for finding the association between through work council able to participate with involve in the decision in working meeting

	Value	D.F.	P-Value
Pearson Chi-square	30.099	9	0.000

Comment:

It is observed that, employees between through work council able to participate and involve in the decision in working meeting significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between through work council able to participate and involve in the decision in working meeting.

Table 7. Cross tabulation for finding the association between satisfactions of job with their well performed of the views & policies

		Well performed of the views & policies				Total
		Agree	Disagree	Most agree	Most disagree	
Satisfaction of job	Agree	16	0	0	0	16
	Disagree	15	4	0	4	23
	Neutral	21	0	7	4	41
Total		52	4	7	8	80

Hypothesis:

H₀: There is no association between satisfaction of job and well performed of the views and policies of the govt. employees.

H₁: There is association between satisfaction of job and well performed of the views and policies of the govt. employees.

Table 8. Chi-square table for finding the association between satisfactions of job with their well performed of the views & policies

	Value	D.F.	P-Value
Pearson Chi-square	32.205	8	0.000

Comment:

From the above table we can see that, between satisfaction of job and well performed of the views and policies significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between satisfactions of jobs and well performed of the views and policies.

Table 9. Cross tabulation for finding the association between employees' satisfaction of job with their enough opportunities for financial growth in the organization

		Enough opportunities for financial growth in the organization				Total
		Agree	Disagree	Most disagree	Neutral	
Satisfaction of job	Agree	7	0	0	9	16
	Disagree	0	10	0	13	23
	Neutral	19	6	7	9	41
Total		26	16	7	31	80

Hypothesis:

H₀: There is no association between satisfactions of job with their enough opportunities for financial growth in the organization of the govt. employees.

H₁: There is association between satisfactions of job with their enough opportunities for financial growth in the organization of the govt. employees.

Table 10. Chi-square table for finding the association between employees' satisfaction of job with their enough opportunities for financial growth in the organization

	Value	D.F.	P-Value
Pearson Chi-square	33.428	6	0.000

Comment:

From the above analysis, we observe that satisfaction of job with their enough opportunities for financial growth significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between satisfactions with job with their enough opportunities for financial growth.

Table 11. Cross tabulation for finding the association between employees' satisfaction of job with their give good salary compared to similar organization

		Give good salary compared to similar organization				Total
		Agree	Disagree	Most agree	Neutral	
Satisfaction of job	Agree	4	3	0	9	16
	Disagree	4	13	0	6	23
	Neutral	18	3	8	12	41
Total		26	19	8	27	80

Hypothesis:

H₀: There is no association satisfaction with job with give good salary compared to similar organization of the govt. employees.

H₁: There is association satisfaction with job with give good salary compared to similar organization of the govt. employees.

Table 12. Chi-square table for finding the association between employees' satisfaction of job with their give good salary compared to similar organization

	Value	D.F.	P-Value
Pearson Chi-square	29.417	6	0.000

Comment:

Here we see that, between satisfaction with job with give good salary compared to similar organization significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between give good salaries compared to similar organization.

Table 13. Cross tabulation for finding the association between employee's jobs is challenging and interesting with their enough opportunities for financial growth in the organization

		Enough opportunities for financial growth in the organization				Total
		Agree	Disagree	Most disagree	Neutral	
Job is challenging and interesting	Agree	17	0	0	16	33
	Disagree	0	10	4	0	14
	Most agree	6	0	0	6	12
	Neutral	3	6	3	9	21
Total		26	16	7	31	80

Hypothesis:

H0: There is no association between job challenging and enough opportunities for financial growth of the govt. employees.

H1: There is association job challenging and enough opportunities for financial growth of the govt. employees.

Table 14. Chi-square table for finding the association between employee's jobs is challenging and interesting with their enough opportunities for financial growth in the organization

	Value	D.F.	P-Value
Pearson Chi-square	57.456	9	0.000

Comment:

From the above table we found that, between job challenging and enough opportunities for financial growth are significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between job challenging and enough opportunities for financial growth.

Table 15. Cross tabulation for finding the association between employees' performance periodically reviewed with their give good salary compared to similar organization

		Give good salary compared to similar organization				Total
		Agree	Disagree	Most agree	Neutral	
Performance periodically reviewed	Agree	13	0	0	3	16
	Disagree	3	10	0	9	22
	Most agree	3	0	4	3	10
	Most disagree	0	0	0	6	6
	Neutral	7	9	4	6	26
Total		26	19	8	27	80

Hypothesis:

H0: There is no association between performance periodically reviewed and give good salary similar organization of the govt. employees.

H1: There is association between job performance periodically reviewed and give good salary similar organization of the govt. employees.

Table 16. Chi-square table finding the association between employee's performances periodically reviewed with their give good salary compared to similar organization

	Value	D.F.	P-Value
Pearson Chi-square	53.860	12	0.000

Comment:

Here we see that, employees' performance periodically reviewed and give good salary significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between employees' performance periodically reviewed and give good salary.

Table 17. Cross tabulation for finding the association between employees' job department with their opportunity of flexible working hours

		Opportunity of flexible working hours					Total
		Agree	Disagree	Most agree	Most disagree	Neutral	
Job department	Administration	10	0	3	0	3	16
	Bank	0	16	0	3	0	19
	Family Planning	6	0	0	0	3	9
	Fisheries	6	3	0	0	0	9
	PDB	3	0	7	0	0	10
	Primary School	0	10	4	0	3	17
	Total		25	29	14	3	9

Hypothesis:

H₀: There is no association between job department and opportunity of flexible working hours of the govt. employees.

H₁: There is association between job department and opportunity of flexible working hours of the govt.

Table 18. Chi-square table finding the association between employee's job departments with their opportunity of flexible working hours employees

	Value	D.F.	P-Value
Pearson Chi-square	92.453	20	0.000

Comment:

From the above table, we see that, employees job department and opportunity of flexible working hours significantly ($p < 0.05$) associated. So, we may reject the null hypothesis. That is, there is an association between job department and opportunity of flexible working hours.

5. Conclusion

Every organization depends on their manpower for success and development. In-fact, if workers or employees work properly, the organization can easily achieve the target. To get the best out of the employees in work proper attention must be given to enhance their job satisfaction level. While studying the job satisfaction level of employees of different government organizations, the finding is that on average they were satisfied with their jobs (Sayed Mohibul Hossen, 2018). In this study, the aim is to identify the important factors for the job satisfaction of employees in a certain public institution and to what extent this institution satisfies the employees with respect to these prominent factors. The public institution, selected for this study is a central governmental institution, implementing fundamental economic policies and activities to contribute to the national economy and development of the social welfare. Job security should be given utmost importance, so that the employee's turnover may be restricted. If these factors are given little more care, the company can maintain good workers with high level of satisfaction, organizational commitment and involvement. This will in turn lead to effectiveness and efficiency in their work which leads to increased productivity. An organization should try to take every possible step to enhance job satisfaction among employees because if employees are satisfied then customers associated with it will also be satisfied.

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Brand Personification: A Study on Humanizing Personal Care Products in Sri Lanka

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Abstract

In the context of marketing communications where the concern is to create effective brand promotions, associating a brand with the personality of the consumers commonly known brand personification has become one of the most prominent aspects over recent years. In the process of designing the message, incorporating an appeal where the brand is associated to a human-like character is called the humanization of brands in advertising. There, the brand focuses on attracting the consumers with a reflection of the consumer's personality in the brand being promoted. This strategy becomes thousand times more attractive to those products which are closely associated with the consumers. Thus, humanizing a brand alone isn't sufficient, while humanizing them in the appropriate appealing manner is much more vital. Hence, this research will mainly be focusing on identifying the most suitable personality dimension to be associated for some of the top of mind personal care brands in Sri Lanka. The research approach, which takes the form of both quantitative and qualitative follows the use of multiple sources of data collection methods. The qualitative aspect clarifies the initial stage with the identification of the top of mind personal care brands and the personality dimensions which are closely associated with the targeted group. The quantitative aspect of the study is satisfied via the data gathered through a self-administered questionnaire developed by the researcher. The study then focuses upon an in-depth statistical analysis with the application of the Kruskal Wallis H Test followed by the Nemeyni Post Hoc test to identify the most suitable personality dimension to be associated with each brand in the humanizing them. The findings reveal some interesting facts over the consumer's preferred dimensions to be reflected on those brands.

Keywords: brand personification, personality, humanization of brands, personal care products

1. Introduction

From a marketing communications perspective, the marketers are faced with the challenge of designing promotions which are not only attractive, but appealing too. In this context, making it appealing involves putting an effort to differentiate the offering in a unique way, not only for it to be preferred, but to be preferred and picked over the competitive offerings as well. Brand personality serves as a differentiator, giving competitive edge to the marketers. In a world, where the competitors can easily copy features and price, the associated personality cannot be or can minimally be duplicated. By creating a favorable and a liked brand personality, it helps to set the brand apart. Brand Personality, also serves as a liability in building and maintaining the corporate image. The failure or inability to maintain a favorable brand image that would match and appeal to the consumers in the best possible way will ultimately, result in a loss of interest by the consumers in products, resulting them to move in to alternatives.

1.1 Current Situation of the Study and the Problem Statement

In Sri Lanka, a wide variety of personal care brands are available from a number of different manufacturers. Among them, the highest number of personal care brands are manufactured and marketed by Unilever Sri Lanka and Hemas Holdings. The personal care products, which comes under the "Fast and quick to leave" category commonly known as Fast Moving Consumer Goods (FMCG), consist of some other product categories as well. These personal care products can again be classified in to skincare, haircare, fragrances, cosmetics and oral care products. According to the data published in LMRB household panel, Unilever Sri Lanka owns the highest number of brands in each category. Accordingly, the marketing communication specific budgetary allocations for

this product category compared to the other categories also remain to be the largest (Cooray, 2016). Hence, making the best use of such investments is of utmost importance by creating a positive impact on the sales. For this purpose, the role played by the communications is to be assessed as it serves as a prime factor in affecting the ultimate purchase decision of the customers.

With the intention of deepening the understanding on this, a mini-survey conducted by the researcher reveals that majority of the female consumers prefer to see their personality being reflected in the personal care brands they consume the most. The reason or the justification was cited as those products being personally attached to them.

This finding was also confirmed by (Maehle & Shneo, 2010), stating that the consumers tend to prefer and purchase brands which matches with their personality which has a congruence with their own self-concept. Thus, it can be noted that the requirement isn't always about creating a personality for a brand, but associating it with a human personality which would match. Therefore, the marketers face the challenge of creating appealing communications to the customers, which goes in line with the target audience's personality. The importance does not only lie in creating a strong brand personality, but to create a personality which matches and fits its users while appealing them. Hence, the marketers are faced with the requirement of creating a brand personality which goes in line with the personality of the target audience.

1.2 The Objectives of the Study

With the focus upon that, this study will be aiming to identify the most appropriate personality specific dimension to be highlighted in a selected number of brands. The particular objective is fulfilled by identifying the personal care product types in the Sri Lankan FMCG industry followed by the identification and of the dimensions brand personality first.

Due to the inability of dealing with a large scope, as there are over 200+ personal care brands available in Sri Lanka, top of mind brand from each category was chosen to carry out the study.

2. Literature Review

On the base of animism, the brands possess unique personalities on their own (Dolatabadi, Kazemi, & Nima, 2012). Similarly, the human's conscious as well as the subconscious mind feels a need as in personifying the objects to interact with the intangible world. Therefore, it is considered that most of the direct and interactions that the consumers have with a brand can affect the perceptions on personality (Plummer, 1984). It makes it convenient for consumers to connect with personality as opposed to a claim or a benefit in becoming familiarized with a brand. This becomes more important in the context if the brand is specifically something which is personally attached to a person. Thus, personification gives brands a unique identity, and enables the consumers to build relationships with them (Bensi, 2015).

In the context of creating advertisements for a brand, an interesting concept utilized by the modern marketers in attempting to put the consumer's perception of a brand in to a human-based character. Thus, it ends up giving a personality to the brand. In terms of associating the personality, the brand is assumed to be a person and it is known as brand personification (Aaker, 1997).

On top of that, it is accepted by many that the consumers tend to be receptive and responsive towards those communications delivered via a spokesperson who has an emotional bond with the buyer, over a person who does not have (Santos, 2014). Similarly, the brands are also capable of forming similar relationships with the consumers through their adaptation of human behavior and characteristics which ultimately results in a better receptive nature and responsiveness. From the consumer's point of view, brand personification is important for them in as they consider the possessions they own as a part of themselves. Majority, relate their self and identity partially in the products that they purchase and what those goods symbolize. Some people also associate their self-worth in terms of the above discussed associations.

Aaker (1997) defines the distinct characteristic of brand personality as follows,

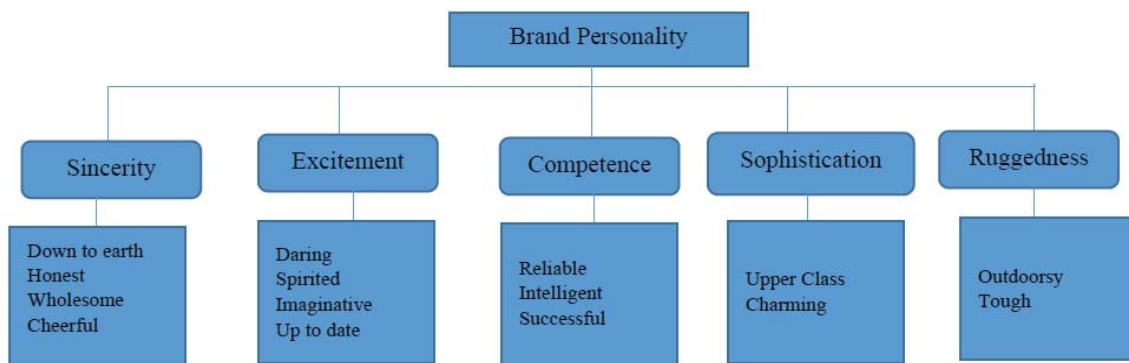


Figure 1. Brand Personality Framework Source: (Aaker, 1997)

A brand would acquire such a profile with the associations created through an advertisement including the users associated with that product or the endorsers involved in promotions (Monger, 2012).

In spite of being largely characterized by the personality traits, the feelings are also reflected in the brand personality. Aaker 1997, states that the consumer's attitudes and behavior which is connected with the brand preference followed by a purchase decision is moderated with the presence of a favorable personality. For example, if there that is a person who is adventurous and excitable, it is most likely to associate that person with a feeling of urgency or excitement. On the other hand, the purchase or consumption of another band could be associated with feelings such as security and calmness.

It is also considered that, brand personality aids in creating an association of the brand with important life values. For example, those values are concerned with an excitement in life, self-respect, self-expression etc. since the individuals have distinguishing traits which are different from one another, the values they hold also differs accordingly. Therefore, a brand which is capable of getting itself a distinctive personality, may get highly attached with a certain value, and will eventually attract people who admire that value.

This concept is ultimately concerned with creating a better understanding of the brands with the consumers, and then maintaining a healthier relationship between brands and consumers. Aaker (1997) further states that the consumer attitudes and behaviors are actually a reflection of Brand personality, which ultimately gets connected with the purchase intention of the consumer through the brand preference being created.

A study on "sincerity, sophistication and excitement: The different effects of perceived brand Personality on brand extension evaluation reveals that the brand building process and brand personality shaping, the selection of what sort of a personality to be shaped, is considered as a prime factor on most of the long term marketing objectives (He, 2012). In this entire process of defining themselves, the consumers choose brands which have a brand personality that is congruent with the self-concept which is one's own definition of their self (Dolatabadi, Kazemi, & Rad, 2012).

A study on "Congruence between brand and human personalities" reveals that the congruity between brand and the user's self-image acts as a motivational factor in consumer preference and choice. The findings elaborate that, excitement, sophistication and ruggedness seem of utmost importance in brand personality over the other as the consumers prefer brands with those personality traits over sophistication and excitement. It is further noted that greater the intensity of personal expression in brands, higher the probability towards a purchase intention through a brand preference (Maehle & Shneo, 2010).

Hence, with the understanding of the above context, the markets are encouraged to contact with the customers through the personality, by building a personality to their brands which matched consumer's personal traits that helps the consumer's in quickly preferring those brands (Banerjee, 2016).

A consumer's preference towards a brand is reflected through the personality in most of the instances (Banerjee, 2016). This relationship is supported by few theorists as it was also found that the consumers do not merely purchase brands for the sake of functional benefits. Thus, the purchase is also driven with preference to display their identities. With reference to the same reason, the consumers tend to prefer brands as they feel them to be matched or consistent with their personalities (Banerjee, 2016). Thus, it is said that the consumers prefer a brand, when they see themselves in it. Hence brand preference is consistent with consumer personality to a greater extent (Aaker, 1997). At the same time, theorists such as Mulyanegara, Tsarenko, Anderson (2009) had found a significant relationship between the five dimensions of the Aaker's brand personality model and brand

preference (Banerjee, 2016).

A study on consumer perception and brand personality traits for making cosmetic purchases has revealed that consumer's involvement towards the brand in terms of preference and purchase is highly influenced by the personality traits associated with a brand (Gupta, 2013). Thus, further revelations were made in terms of the moderating effect of consumer perception as well.

Thus, it can be said that in the current context, people do not purchase products for mere consumption and the capabilities, but for also their representation and symbolization and the symbolic qualities (Jinsu,2014).

3. Methodology

This research follows a mixed-method with the incorporation of both qualitative and quantitative approaches. The study commenced with a qualitative approach to deepen up the understanding of the study area followed by a quantitative approach to measure the various views and opinions.

3.1 Sample Population

As a result of the emerging lifestyles of people, personal care product belongs to a considerable and a major portion of non- food related expenditures of the Sri Lankans (The Central Bank of Sri Lanka, 2017). By considering the demographic figures across Sri Lanka, female consumers born in 1980s and 1990s were considered as being a significant group to engage with. These young adults consisting about 3.5 million strong and their expenditures on personal care products showed a rapid growth (The Nielsen Company, 2017). Therefore, the target population considered had females aged 20-35. The population was narrowed down further via a sample chosen through the convenient sampling technique.

3.2 Sample

Since the study initially commenced with the intention of deepening the understanding on the study area and to choose the top of mind brands. Three Focus Group Discussions (FGD's) having 5 members in each was conducted. To ensure the consistency of the findings via the homogeneity of the group, female personal care consumers aged in between 16-30 was included in the discussions.

Once the top of mind brands was finalized through the FGD's, those findings were incorporated to design the structured questionnaire to be distributed among the target sample. Once, this data collection instrument was finalized, it was distributed to 200 female consumers of the same target population as described above through the convenient sampling technique. This, marked the utilization of the quantitative data gathering aspect of the study. Those were then quantified and analyzed with the statistic-based methods to come up with a conclusion in choosing the most appropriate personality dimension.

The entire data collection procedure can be aligned with the overall objective of the study as follows,

Table 1. Data collection procedure

Objective	Source of Data	Data Collection Instrument
1. Identification of the personal care product types in the Sri Lankan Fast Moving Consumer Goods industry – narrowing it down with the selection of the widely consumed 5 brands	Secondary sources Primary sources	Company brochures websites Focus group discussions -participants to name the brand which comes to their mind when they hear the category name. The brands named by majority in each category to be selected
2. Identification of the dimensions of the Aaker's brand personality model	Secondary Primary	Past literature Focus group discussions
3. Indicating the relationship between purchase intention and brand personality dimensions	Primary	Structured Questionnaire comprising of 25 Rank based, 2 Likert Scale and 2 open ended questions

4. Findings and Discussion

4.1 Results of the Focus Group Discussions

With the use of the 3 focus group discussions conducted, the top of mind brand of the each personal care product category was identified and listed down. These focus groups discussions which lasted for about 45 minutes each were capable of providing the researcher with an understanding of the insights of the personal care product consumers. Accordingly, the top of mind brand identified from each category is listed below

- Hair care- Sunsilk brand manufactured by Unilever Sri Lanka
- Skin care- Vaseline brand manufactured by Unilever Sri Lanka

- Oral care – Signal brand manufactured by Unilever Sri Lanka
- Cosmetics – Lakme brand marketed by Unilever Sri Lanka
- Fragrances – Rexona brand manufactured by Unilever Sri Lanka

In terms of identifying the top of mind brand, the participants were explained about the product category without any indication of the brands and was asked to name the brand name that comes to their mind when they hear the category name. The brands were finalized based on the number of times it was repeated by the customers when the question was asked. An interesting finding was the fact that all the brands picked by the majority were manufactured by Unilever Sri Lanka.

The other significant findings of the focus group discussions was about the importance that these participants held for the personal care brands in terms of it reflecting g their personality. The participants believed that they prefer and would undoubtedly choose those brands which they could closely associate with their personality over the other options. Hence, the findings of the literature survey was confirmed via this as well.

4.2 Results of the Survey

Those findings were then used to design the structured questionnaire that firmly targeted upon identifying the most appropriate personality dimension to be reflected in each of the chosen brand. Once the data was gathered it was analyzed through statistical techniques. Kruskal-Wallis H test is a rank-based nonparametric (distribution free) test which is used to determine whether there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable (McDonald, 2014). Simply, it compares the identified groups of the independent variable based on the mean ranks. The SPSS output provides a mean rank which considers this type of data as “K Independent Samples”. This test also provides the “Chi-square test statistic” which determines whether there is a relationship between the independent and the dependent variable through alpha error rate or level of significance.

Kruskal-Wallis H test was then followed by “Nemenyi post hoc test” to distinguish between the independent variable groups. To distinguish between different personality dimensions, the mean rank differences were calculated and those differences between personality dimensions are compared against the above calculated Minimum Significant Difference (MSD) value of 30.62. If the mean difference between a personality dimension pairs is greater than 30.62, it is concluded that there is a significant difference between the consumer ‘preferences towards a particular brand with the inclusion/association of those personality dimensions. If the value is less than 30.62, it is concluded that there isn’t a significant difference in the consumer’s preference with the inclusion/association of the personality dimensions.

Accordingly the findings are as below for each of the selected brands,

4.2.1 Lakme

Table 2. Kruskal Walis H Test Result for Lakme

	Personality Dimension	N	Mean Rank
Score	Sincerity	100	231.50
	Excitement	100	244.50
	Competence	100	280.50
	Sophistication	100	285.50
	Ruggedness	100	210.50
	Total	500	

According to Kruskal Wallis H test, it showed that there was a statistically significant difference in the consumer’s preference towards Lakme brand with reference to different personality traits. According to mean rank scores, it is evident that Sophistication is ranked the highest while ruggedness is ranked as the lowest.

Nemenyi Post Hoc test results

Table 3. Mean differences for Lakme

	Sincerity	Excitement	Competence	Sophistication	Ruggedness
Sincerity	0	-13	-49	-54	21
Excitement	13	0	-36	-41	34
Competence	49	36	0	-5	70
Sophistication	54	41	5	0	75
Ruggedness	-21	-34	-70	-75	0

Out of the values that exceed the MSD value of 30.62, is that of the Sophistication/ Ruggedness pair which has the biggest difference of 75. Therefore, it can be stated that there is a significant difference in consumer’s

preference towards Lakme brand with the inclusion of a promotional message which has sophistication dimension and ruggedness dimension.

4.2.2 Rexona

Table 4. Kruskal Wallis H Test Result for Rexona

	Personality dimension	N	Mean Rank
Score	Sincerity	100	240.01
	Excitement	100	274.33
	Competence	100	288.42
	Sophistication	100	238.05
	Ruggedness	100	211.70
	Total	500	

According to Kruskal Wallis H test, it showed that there was a statistically significant difference in the consumer's preference towards Rexona brand with reference to different personality traits. According to mean rank scores, it is evident that Competence is ranked the highest while ruggedness is ranked as the lowest.

Nemenyi Post Hoc test results

Table 5. Mean differences for Rexona

	Sincerity	Excitement	Competence	Sophistication	Ruggedness
Sincerity	0	-34.32	-48.41	1.96	28.31
Excitement	34.32	0	-14.09	36.28	62.63
Competence	48.41	14.09	0	50.37	76.72
Sophistication	-1.96	-36.28	-50.37	0	26.35
Ruggedness	-28.31	-62.63	-76.72	-26.35	0

Out of the values that exceed the MSD value of 30.62, is that of the Competence/ Ruggedness pair which has the biggest difference of 76.72. Therefore, it can be stated that there is a significant difference in consumer's preference towards Rexona brand with the inclusion of a promotional message which has competence dimension and ruggedness dimension.

4.2.3 Signal

Table 6. Kruskal Wallis H Test Result for Signal

	Personality dimension	N	Mean Rank
Score	Sincerity	100	296.50
	Excitement	100	280.50
	Competence	100	311.50
	Sophistication	100	194.50
	Ruggedness	100	169.50
	Total	500	

According to Kruskal Wallis H test, it showed that there was a statistically significant difference in the consumer's preference towards Signal brand with reference to different personality traits. According to mean rank scores, it is evident that Competence is ranked the highest while ruggedness is ranked as the lowest.

Nemenyi Post Hoc test results

Table 7. Mean differences for Signal

	Sincerity	Excitement	Competence	Sophistication	Ruggedness
Sincerity	0	16	-15	102	127
Excitement	-16	0	-31	86	111
Competence	15	31	0	117	142
Sophistication	-102	-86	-117	0	25
Ruggedness	-127	-111	-142	-25	0

Out of the values that exceed the MSD value of 30.62, is that of the Competence/ Ruggedness pair which has the biggest difference of 76.72. Therefore, it can be stated that there is a significant difference in consumer's preference towards Signal with the inclusion of a promotional message which has competence and ruggedness dimensions.

4.2.4 Vaseline

Table 8. Kruskal Wallis H Test Result for Vaseline

	Personality Dimension	N	Mean Rank
Score	Sincerity	100	313.50
	Excitement	100	284.50
	Competence	100	288.50
	Sophistication	100	215.50
	Ruggedness	100	150.50
	Total	500	

According to Kruskal Wallis H test, it showed that there was a statistically significant difference in the consumer's preference towards Vaseline with reference to different personality traits. According to mean rank scores, it is evident that **Sincerity** is ranked the highest while **ruggedness** is ranked as the lowest.

Nemenyi Post Hoc test results

Table 9. Mean differences for Vaseline

	Sincerity	Excitement	Competence	Sophistication	Ruggedness
Sincerity	0	29	25	98	163
Excitement	-29	0	-4	69	134
Competence	-25	4	0	73	138
Sophistication	-98	-69	-73	0	65
Ruggedness	-163	-134	-138	-65	0

Out of the values that exceed the MSD value of 30.62, is that of the Sincerity/ Ruggedness pair which has the biggest difference of 76.72. Therefore, it can be stated that there is a significant difference in consumer's preference towards Vaseline brand with the inclusion of a promotional message which has Sincerity and ruggedness dimensions.

4.2.5 Sunsilk

Table 10. Kruskal Wallis H Test Result for Sunsilk

	Personality dimension	N	Mean Rank
Score	Sincerity	100	268.50
	Excitement	100	298.50
	Competence	100	285.50
	Sophistication	100	239.50
	Ruggedness	100	160.50
	Total	500	

According to Kruskal Wallis H test, it showed that there was a statistically significant difference in the consumer's preference towards Sunsilk with reference to different personality traits.

According to mean rank scores, it is evident that **Excitement** is ranked the highest while **ruggedness** is ranked as the lowest.

Nemenyi Post Hoc test results

Table 11. Mean differences for Sunsilk

	Sincerity	Excitement	Competence	Sophistication	Ruggedness
Sincerity	0	-30	-17	29	108
Excitement	30	0	13	59	138
Competence	17	-13	0	46	125
Sophistication	-29	-59	-46	0	79
Ruggedness	-108	-138	-125	-79	0

Out of the values that exceed the MSD value of 30.62, is that of the Excitement/ Ruggedness pair which has the biggest difference of 76.72. Therefore, it can be stated that there is a significant difference in consumer's preference towards Sunsilk brand with the inclusion of a promotional message which has Excitement and ruggedness dimensions.

5. Conclusion

Brand personification is one such area which is concerned with humanizing a brand in to a human-like character. Being such an interesting area, the importance of associating the suitable human-based personality that goes in line with the brand image is of utmost importance in designing communications. Thus, based on it, the research study was focused upon the identification of the most suitable personality dimension to be implicated in each of the selected personal care brand being selected. With reference to the personal care product categorizations, Siganal, Lakme, Vaseline, Rexona, and Sunsilk were identified as the Top of Mind Brands within the personal

care product consumers.

According to the discussions carried out with the same, it was also evident that the consumers prefer to see a reflection of themselves in the personal care products that they consume. Hence, they get attracted towards the brand if such reflection exists. Those consumers prefer to see personalities such as the down to earth humble nature, and willingness to try out new things, the capability to do something successfully and the upper-class related mentality in them. The consumers do not prefer the masculine nature to be prevalent in any of those products they consume.

With reference to the identification of the most suitable dimension to be associated with each brand, Kruskal-Wallis H test was followed by Nemenyi Post Hoc test to distinguish among the perceived differences in preference among different dimensions. Accordingly, it was revealed that Competence was the preferred dimension for Rexona and Signal, Sophistication was preferred for Lakme. Sincerity was the preferred dimension for Vaseline while Excitement was preferred for Sunsilk.

On a concluding note it can be noted that, brand personification is becoming increasingly attractive in the context of marketing communications, but the need of identifying and applying the proper humanizing aspect is of utmost importance to make the promotion attractive and appealing.

6. Managerial Implications and Recommendations for Future Research

With reference to the findings of the study, the following personality dimensions can be recommended to be highlighted in their promotions for the selected brands. Lakme is a brand which should be associated with a high class personality, while Rexona and Signal are viewed as brands which should reflect the success or capability of the brand itself. Vaseline is recommended to be associated with a down to earth, humble nature while Sunsilk can be associated with innovativeness and excited nature. It is also recommended not to associate masculine, rough nature to these brands since the female consumers do not prefer it at all.

In terms of the recommendation for the future research studies, it is better if the moderating effect is also taken in to account. Due to the inability of dealing with a wide scope the moderating impact hasn't been considered. As explained in literature, a moderating impact through adding a variable such as an endorser or communication media can be tested through future researches.

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Simplified Machine Diagnosis Techniques under Impact Vibration Using Higher Order Cumulants with the Comparison of Three Cases

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Abstract

Among many amplitude parameters, Kurtosis (4-th normalized moment of probability density function) is recognized to be the sensitive good parameter for machine diagnosis. On the other hand, a new method of machine diagnosis can be considered utilizing the higher order cumulants which have the characteristics that cumulants more than 3rd order are 0 under Gaussian distribution. Cumulants are stated in combination with the same order moment and the moments under that order. Simple calculation method is required on the maintenance site. Furthermore, the absolute deterioration factor such as Bicoherence would be much easier to handle because it takes the value of 1.0 under the normal condition and tends to be 0 when damages increase. In this paper, nth normalized cumulant is considered so as to intensify the sensitivity of diagnosis. Also, the simplified calculation method for this new parameter by impact vibration is introduced. Furthermore, the absolute deterioration factor is introduced. Three cases in which the rolling elements number is nine, twelve and sixteen are examined and compared. The new calculation method is examined whether it is a sensitive good parameter or not. Compared with the results obtained so far, the new method shows fairly good results.

Keywords: impact vibration, kurtosis, cumulant, rolling element, sensitivity

1. Introduction

In mass production firms such as steel making that have big equipments, sudden stops of production processes of machine failure cause great damages such as shortage of materials to the later processes, delays to the due date and the increasing idling time.

To prevent these troubles, machine diagnosis techniques play important roles. So far, Time Based Maintenance (TBM) technique has constituted the main stream of the machine maintenance, which makes checks for maintenance at previously fixed time. But it has a weak point that it makes checks at scheduled time without taking into account whether the parts still keeping good conditions or not. On the other hand, Condition Based Maintenance (CBM) makes maintenance by watching the condition of machines. Therefore, if the parts are still keeping good condition beyond its supposed life, the cost of maintenance may be saved because machines can be used longer than planned. Therefore, the use of CBM has become dominant. The latter one needs less cost of parts, less cost of maintenance and leads to lower failure ratio.

However, it is mandatory to catch a symptom of the failure as soon as possible of a transition from TBM to CBM is to be made. Many methods are developed and examined focusing on this subject. In this paper, we propose a method for the early detection of the failure on rotating machines which is the most common theme in machine failure detection field.

So far, many signal processing methods for machine diagnosis have been proposed (Bolleter, 1998; Hoffner, 1991). As for sensitive parameters, Kurtosis, Bicoherence, Impact Deterioration Factor (ID Factor) were examined (Yamazaki, 1997; Maekawa et al., 1997; Shao et al., 2001; Song et al., 1998; Takeyasu, 1989; Takeyasu et al. 2004; Takeyasu, 2017).

Kurtosis is one of the sophisticated inspection parameter which calculates normalized 4th moment of probability density function.

In the industry, there are cases where quick reactions are required on watching the waveform at the machine site.

In this paper, we consider the case such that impact vibration occurs on the gear when the failure arises. Under

the normal condition, the probability density function of amplitude signal would be the Normal Distribution in general. A new index would be introduced using the relation that higher order cumulants more than 3rd order are 0 under the Normal Distribution. The higher order cumulant is expressed as the combination of the same order moment and the moments less than that order. The new indices would be introduced because they are the combinations of plural order moments. If they are calculated into simple formed equations and their indices are sensitive, the new indices would be expected to be useful.

Furthermore, an absolute deterioration factor such as Bicoherence would be much easier to handle because it takes the value of 1.0 under the normal condition and tends to be 0 when damages increase. Cumulants more than 3rd order are 0 under the normal condition and when failure increases, the value grows big. Therefore, the inverse number of the sum of calculated value of cumulants plus 1 would behave as an absolute index. The new index shows that it is 1.0 under the normal condition and tends to be 0 when failure increases. In this paper, we introduce a simplified calculation method to this new index and name this as a simplified absolute index of higher order cumulants. Three cases in which the rolling elements number is nine, twelve and sixteen are examined and compared.

Trying several orders, we show that the new method is much more sensitive than Bicoherence. This simplified method enables us to calculate the new index even on a pocket size calculator and enables us to install it in microcomputer chips. We show the fundamental relationship with moments and cumulants in section 2. We confirm the simplified calculation method of kurtosis we proposed before in section 3. In section 4, the simplified absolute index of higher order cumulants are introduced. Numerical examples are exhibited and they are compared with Bicoherence in section 5 which are followed by remarks of section 6. Section 7 is a summary.

2. Moment and Cumulant

2.1 Moment

In cyclic movements such as those of bearings and gears, the vibration grows larger whenever the deterioration becomes bigger. Also, it is well known that the vibration grows large when the setting equipment to the ground is unsuitable (Yamazaki, 1977). Assume the vibration signal is the function of time as $x(t)$. And also assume that it is a stationary time series with mean \bar{x} . Denote the probability density function of these time series as $p(x)$. When mean \bar{x} is denoted by

$$\bar{x} = \int_{-\infty}^{\infty} xp(x)dx \quad (1)$$

and variance σ^2 is denoted by

$$\sigma^2 = \int_{-\infty}^{\infty} (x - \bar{x})^2 p(x)dx \quad (2)$$

3rd order moment $MT(3)$, 4th order moment $MT(4)$ are denoted by

$$MT(3) = \int_{-\infty}^{\infty} (x - \bar{x})^3 p(x)dx \quad (3)$$

$$MT(4) = \int_{-\infty}^{\infty} (x - \bar{x})^4 p(x)dx \quad (4)$$

The normalized index of 3rd order moment and 4th order moment is known as Skewness(SK), Kurtosis(KT) for each in the following definition.

$$SK = \frac{\int_{-\infty}^{\infty} (x - \bar{x})^3 p(x)dx}{\left[\int_{-\infty}^{\infty} (x - \bar{x})^2 p(x)dx \right]^{\frac{3}{2}}} \quad (5)$$

$$KT = \frac{\int_{-\infty}^{\infty} (x - \bar{x})^4 p(x)dx}{\left[\int_{-\infty}^{\infty} (x - \bar{x})^2 p(x)dx \right]^2} \quad (6)$$

Discrete time series are stated as follows.

$$x_k = x(k\Delta t) \quad (k = 1, 2, \dots)$$

where Δt is a sampling time interval. Mean \bar{x} , variance σ^2 , Skewness (SK) and Kurtosis(KT) are stated as follows under discrete time series.

$$\bar{x} = \lim_{M \rightarrow \infty} \frac{1}{M} \sum_{i=1}^M x_i \tag{7}$$

$$\sigma^2 = \lim_{M \rightarrow \infty} \frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^2 \tag{8}$$

$$MT(3) = \lim_{M \rightarrow \infty} \frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^3 \tag{9}$$

$$MT(4) = \lim_{M \rightarrow \infty} \frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^4 \tag{10}$$

$$SK = \lim_{M \rightarrow \infty} \frac{\frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^3}{\left\{ \frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^2 \right\}^{\frac{3}{2}}} \tag{11}$$

$$KT = \lim_{M \rightarrow \infty} \frac{\frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^4}{\left\{ \frac{1}{M} \sum_{i=1}^M (x_i - \bar{x})^2 \right\}^2} \tag{12}$$

2.2 Cumulant

Characteristic function $\varphi(u)$ is defined as follows (Hino, 1977).

$$\varphi(u) = \int_{-\infty}^{\infty} e^{iux} p(x) dx \tag{13}$$

After taking Taylor expansion of the characteristic function, we can obtain coefficient $c(n)$ as:

$$\ln \varphi(u) = \sum_{n=1}^{\infty} c(n) \frac{i^n}{n!} u^n \tag{14}$$

$$c(n) = \left[\frac{(-i)^n d^n \ln \varphi(u)}{du^n} \right]_{u=0} \tag{15}$$

This $c(n)$ is called cumulant. There exists following relation between cumulant and moment.

$$MT(n) = \sum_{\lambda^{(1)} + \dots + \lambda^{(q)} = n} \frac{1}{q!} \frac{n!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q c(n) \tag{16}$$

$$c(n) = \sum_{\lambda^{(1)} + \dots + \lambda^{(q)} = n} \frac{(-1)^{q-1}}{q!} \frac{n!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q MT(n) \tag{17}$$

When $\bar{x} = 0$, Eq.(17) becomes as follows for $n=1,2,3,4,6,8$.

$$c(1) = \bar{x} = 0 \tag{18}$$

$$c(2) = \sigma^2 \tag{19}$$

$$c(3) = MT(3) \tag{20}$$

$$c(4) = MT(4) - 3\{MT(2)\}^2 \tag{21}$$

$$c(6) = MT(6) - 15MT(4)MT(2) - 10\{MT(3)\}^2 + 30\{MT(2)\}^3 \tag{22}$$

$$c(8) = MT(8) - 28MT(6)MT(2) - 56MT(5)MT(3) - 35\{MT(4)\}^2 + 420MT(4)\{MT(2)\}^2 + 560\{MT(3)\}^2 MT(2) - 630\{MT(2)\}^4 \tag{23}$$

Where $MT(6), MT(8)$ are 6th moment, 8th moment for each. It is well known that cumulant is 0 for the higher order cumulant more than 3 when the probability density function is a normal distribution.

2.3 Bicoherence

Bicoherence shows the relationship between two frequencies and is expressed as:

$$Bic_{,xxx}(f_1, f_2) = \frac{B_{,xxx}(f_1, f_2)}{\sqrt{S_{,xx}(f_1) \cdot S_{,xx}(f_2) \cdot S_{,xx}(f_1 + f_2)}} \tag{24}$$

Here

$$B_{,xxx}(f_1, f_2) = \frac{X_T(f_1) \cdot X_T(f_2) \cdot X_T^*(f_1 + f_2)}{T^{\frac{3}{2}}} \tag{25}$$

means Bispectrum and

$$X_T(t) = \begin{cases} x(t) & (0 < t < T) \\ 0 & (else) \end{cases}$$

T: Basic Frequency Interval

$$X_T(f) = \int_{-\infty}^{\infty} X_T(t) e^{-j2\pi ft} dt \tag{26}$$

$$S_{,xx}(f) = \frac{1}{T} X_T(f) X_T^*(f) \tag{27}$$

Range of Bicoherence satisfies:

$$0 < Bic_{,xxx}(f_1, f_2) < 1 \tag{28}$$

3. Simplified Calculation Method of Kurtosis

Assume that we get N amount of data and then newly get l amount of data. Let mean, variance, $MT(3), MT(4), SK, KT$ of $1 \sim N$ data state as $\bar{x}_N, \sigma^2_N, MT_N(3), MT_N(4), SK_N, KT_N$

for each. And as for $N + 1 \sim N + l$ data, we state above items as

$$\bar{x}_{N+l}, \sigma^2_{N+l}, MT_{N+l}(3), MT_{N+l}(4), SK_{N+l}, KT_{N+l}$$

For example, $MT_N(4)$ and $MT_{N+l}(4)$ are stated as follows.

$$MT_N(4) = \frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^4 \tag{29}$$

$$MT_{N+l}(4) = \frac{1}{l} \sum_{i=N+1}^{N+l} (x_i - \bar{x})^4 \tag{30}$$

When there arise failures on bearings or gears, peak values arise cyclically. In the early stage of the defect, this peak signal usually appears clearly. Generally, defects will injure other bearings or gears by contacting the covering surface as time passes. Assume that the peak signals of S times magnitude from the normal signals arise during m times measurement of samplings. As for determining sampling interval, the sampling theorem is well known (Tokumaru et al., 1982). But in this paper, we do not pay much attention on this point in order to focus on our proposal theme. Let σ^2_{N+l} and $MT_{N+l}(4)$ of this case denote $\bar{\sigma}^2_{N+l}, \overline{MT}_{N+l}(4)$, then we get

$$\begin{aligned} \bar{\sigma}^2_{N+l} &= \frac{1}{l} \sum_{i=N+1}^{N+l} (x_i - \bar{x})^2 \\ &\cong \frac{l-l}{l} \sigma^2 + \frac{l}{l} S^2 \sigma^2_N \\ &= \sigma^2_N \left(1 + \frac{S^2 - 1}{m} \right) \end{aligned} \tag{31}$$

$$\begin{aligned} \overline{MT}_{N+l}(4) &= \frac{1}{l} \sum_{i=N+1}^{N+l} (x_i - \bar{x})^4 \\ &\cong \frac{l-l}{l} MT_{N+l}(4) + \frac{l}{l} S^4 MT_{N+l}(4) \\ &= \left(1 + \frac{S^4 - 1}{m} \right) MT_{N+l}(4) \end{aligned} \tag{32}$$

We assume that time series are stationary as is stated at 2.1. Therefore, even if sample pass may differ, mean and variance is naturally supposed to be same when the signal is obtained from the same data occurrence point of the same machine.

We consider such case that the impact vibration occurs. Except for the impact vibration, other signals are assumed to be stationary and have the same means and variances. Under this assumption, we can derive the simplified calculation method for machine diagnosis which is a very practical one.

For these equations, we obtain \overline{KT}_{N+l} as KT_{N+l} of the above case

$$\begin{aligned} \overline{KT}_{N+l} &\cong \frac{\frac{N}{N+l} MT_N(4) + \frac{l}{N+l} \left(1 + \frac{S^4 - 1}{m}\right) MT_N(4)}{\left\{ \frac{N}{N+l} \sigma^2_N + \frac{l}{N+l} \sigma^2_N \left(1 + \frac{S^2 - 1}{m}\right) \right\}^2} \\ &= KT_N \frac{\left(1 + \frac{l}{N+l} \frac{S^4 - 1}{m}\right)}{\left(1 + \frac{l}{N+l} \frac{S^2 - 1}{m}\right)^2} \end{aligned} \tag{33}$$

While $KT_N = 3.0$ under normal condition.

n.b.

Under the following Normal distribution,

$$\phi(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2}\left(\frac{x-\bar{x}}{\sigma}\right)^2} \tag{34}$$

Its moment is described as follows which is well known (Hino, 1977).

$$\begin{aligned} MT(2n-1) &= 0 \\ MT(2n) &= \prod_{k=1}^n (2k-1) \sigma^{2n} \end{aligned} \tag{35}$$

4. Simplified Absolute Index of the Higher Order Cumulant

4.1 Absolute Index of Higher Order Cumulant

Under the normal distribution, the higher order cumulants more than 3rd order are 0. If the system is under the normal condition, we may suppose $p(x)$ becomes a normal distribution function. The normalized cumulant CT is as follows which is the same form of Skewness and Kurtosis at 3.

As

$$\begin{aligned} KT_N &= \frac{MT_N(4)}{\sigma_N^4} \\ \overline{KT}_{N+l} &= \frac{\overline{MT}_{N+l}(4)}{\overline{\sigma}_{N+l}^4} \end{aligned}$$

in the same way, we obtain

$$CT_N(n) = \frac{C_N(n)}{\sigma_N^n} \tag{36}$$

$$\overline{CT}_{N+l}(n) = \sum_{\lambda^{(1)} + \dots + \lambda^{(q)} = n} \frac{(-1)^{q-1}}{q!} \frac{v!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q \overline{MT}_{N+l}(n) \frac{1}{\overline{\sigma}_{N+l}^n}$$

$$\cong \sum_{\lambda^{(1)}+\dots+\lambda^{(q)}=v} \frac{(-1)^{q-1}}{q!} \frac{v!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q \frac{1 + \frac{l}{N+l} \frac{S^n - 1}{m}}{\left(1 + \frac{l}{N+l} \frac{S^2 - 1}{m}\right)^{\frac{n}{2}}} \prod_{i=1}^{\frac{n}{2}} (2i - 1) \tag{37}$$

Therefore, the simplified absolute index of the higher order cumulant is described as follows.

$$\begin{aligned} \overline{Zc}_{N+l}(n) &= \frac{1}{1 + \overline{c}_{N+l}(n)} \\ &= \frac{1}{1 + \sum_{\lambda^{(1)}+\dots+\lambda^{(q)}=v} \frac{(-1)^{q-1}}{q!} \frac{v!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q \overline{MT}(n)} \\ &\cong \frac{1}{1 + \sum_{\lambda^{(1)}+\dots+\lambda^{(q)}=v} \frac{(-1)^{q-1}}{q!} \frac{v!}{\lambda^{(1)}! \dots \lambda^{(q)}!} \prod_{n=1}^q \frac{1 + \frac{l}{N+l} \frac{S^n - 1}{m}}{\left(1 + \frac{l}{N+l} \frac{S^2 - 1}{m}\right)^{\frac{n}{2}}} \prod_{i=1}^{\frac{n}{2}} (2i - 1) \sigma^n} \end{aligned} \tag{38}$$

This is the absolute deterioration factor of which range is 1 to 0.

4.2 Simplified Calculation Method for the Higher Order Cumulant

3rd order cumulant is 3rd order moment itself as is expressed in Eq.(20). Therefore, we can obtain the following equations. When the peak signals arise, we denote $c_{N+l}(3)$ to be $\overline{c}_{N+l}(3)$ as before for $N+l$ data.

$$\begin{aligned} \overline{c}_{N+l}(3) &= \overline{MT}_{N+l}(3) \\ &\cong \frac{1}{N+l} MT_N(3) + \frac{l}{N+l} \left(1 + \frac{S^3 - 1}{m}\right) MT_N(3) \\ &= \left(1 + \frac{l}{N+l} \frac{S^3 - 1}{m}\right) MT_N(3) \end{aligned} \tag{39}$$

Under the normal condition or the probability density function has the symmetric form for right and left even if impact vibration occurs, $MT_N(3)$ is 0. Therefore $\overline{c}_{N+l}(3)$ is also 0. We can obtain the following 4th cumulant from Eq.(21).

$$\begin{aligned} \overline{c}_{n+l}(4) &= \overline{MT}_{N+l}(4) - 3\overline{MT}_{N+l}(2)^2 \\ &\cong \left(1 + \frac{l}{N+l} \frac{S^4 - 1}{m}\right) MT_N(4) - 3\left(1 + \frac{l}{N+l} \frac{S^2 - 1}{m}\right)^2 \sigma^4_N \end{aligned} \tag{40}$$

Under the normal condition, the following equation is derived because $MT_N(4) \cong 3\sigma^4_N$ by Eq.(35).

$$\overline{c}_{N+l}(4) \cong 3 \cdot \frac{l}{N+l} \left(1 - \frac{l}{N+l} \cdot \frac{1}{m}\right) \frac{(S+1)^2 (S-1)^2}{m} \sigma^4_N \tag{41}$$

Under the normal condition, data can be normalized to be $\bar{x} = 0, \sigma^2 = 1$ without loss of generality (Tokumaru et al., 1982). Hence, we calculate using the following equation hereafter.

$$\bar{c}_{N+l}(4) \cong 3 \cdot \frac{l}{N+l} \left(1 - \frac{l}{N+l} \cdot \frac{1}{m} \right) \frac{(S+1)^2 (S-1)^2}{m} \tag{42}$$

In the same way, 6th cumulant and 8th cumulant are described as follows from Eq(22),(23).

$$\bar{c}_{N+l}(6) \cong 15 \cdot \frac{l}{N+l} \frac{1}{m} \left\{ 1 + \frac{l}{N+l} \cdot \frac{1}{m} \left(-3 + 2 \cdot \frac{l}{N+l} \frac{1}{m} \right) \right\} (S^2 - 1)^3 \tag{43}$$

$$\bar{c}_{N+l}(8) \cong 105 \cdot \frac{l}{N+l} \frac{1}{m} \left[1 - \frac{l}{N+l} \frac{1}{m} \left\{ 7 - 6 \cdot \frac{l}{N+l} \frac{1}{m} \left(2 - \frac{l}{N+l} \frac{1}{m} \right) \right\} \right] (S^2 - 1)^4 \tag{44}$$

5. Numerical Examples

If the system is under the normal condition, we may suppose $p(x)$ becomes a normal distribution function. Under the assumption of 3. , let $m = 9, 12, 16$, considering the cases $S = 2, 3, \dots, 6$ for 3., and setting $l = \frac{N}{10}$, we

obtain Table 1 from the calculation of $\bar{Z}_{C_{N+l}}(n)$. Here, m is the number of rolling elements.

Table 1. Transition of $\bar{Z}_{C_{N+l}}(n)$ ($l = \frac{N}{10}$)

<m=9>

	S=1	2	3	4	5	6
n=4	1	0.78742	0.34249	0.12904	0.05471	0.02649
n=6	1	0.20130	0.01312	0.00201	0.00049	0.00016

<m=12>

	S=1	2	3	4	5	6
n=4	1	0.83126	0.40925	0.16461	0.07147	0.03493
n=6	1	0.25007	0.01728	0.00266	0.00065	0.00021

<m=16>

	S=1	2	3	4	5	6
n=4	1	0.86765	0.47968	0.20775	0.09292	0.04595
n=6	1	0.30657	0.02278	0.00352	0.00086	0.00028

Next, setting $N \rightarrow 0, l \rightarrow N$, we obtain Table 2.

Table 2. Transition of $\bar{Z}_{C_{N+l}}(n)$ ($N = \varepsilon(\varepsilon \rightarrow 0), l = N$)

<m=9>

	S=1	2	3	4	5	6
n=4	1	0.27273	0.05009	0.01478	0.00583	0.00275
n=6	1	0.03114	0.00169	0.00026	0.00006	0.00002

<m=12>

	S=1	2	3	4	5	6
n=4	1	0.32653	0.06383	0.01903	0.00752	0.00355
n=6	1	0.03767	0.00204	0.00031	0.00008	0.00002

<m=16>

	S=1	2	3	4	5	6
n=4	1	0.38729	0.08163	0.02466	0.00998	0.00462
n=6	1	0.04595	0.00253	0.00039	0.00009	0.00003

As the value at $n=6$ is already so small, we have skipped the calculation at $n=8$. It does not affect the consideration of the result.

As S grows large, the value decreases rapidly. As m increases, the value increases slightly.

As for higher order cumulants cases such as $n=6$, sensitivity grow much better. But calculation becomes more complicated as n grows large.

Each corresponding case of Table 2 shows much more proceeded value in deterioration than those of Table 1. It is because each case of Table 2 is occupied only by the data under irregular condition.

Subsequently, we examine Bicoherence. We made experiment in the past (Takeyasu,1987,1989).

Summary of the experiment is as follows. Pitching defects are pressed on the gears of small testing machine.

Small defect condition: Pitching defects pressed on 1/3 gears of the total gear.

Middle defect condition: Pitching defects pressed on 2/3 gears of the total gear.

Big defect condition: Pitching defects pressed on whole gears of the total gear.

We examined several cases for the f_1, f_2 in Eq.(24). We got the best-fit result in the following case.

$$\left\{ \begin{array}{l} f_1 : \text{peak frequency of power spectrum} \\ f_2 : 2 f_1 \end{array} \right.$$

We obtained the following Bicoherence values in this case (Table 3).

Table 3. Transition of Bicoherence value

Condition	Bicoherence
Normal	0.99
Small defect	0.38
Middle defect	0.09
Big defect	0.02

Thus, Bicoherence proved to be a very sensitive good index. Bicoherence is an absolute index of which range is 1 to 0.

Therefore it can be said that it is a universal index.

In those experiment, small defect condition is generally assumed to be $S=2$ and big defect condition is generally assumed to be $S=6$ (Maekawa,K. et al. 1997). Therefore, approximate comparison may be achieved, though the condition does not necessarily coincide.

In the case of $n = 4$ in Table 2, the value is 0.273 at small defect condition and 0.015 at middle defect condition and 0.003 at big defect condition which show more sensitive behavior than Bicoherence. In the case of $n=6$, the value decreases so heavily. Similar things can be said for $m=12$ and $m=16$. It could be said that the case $n=4$ would be sensitive enough for the practical use. Therefore, the case $n=4$ would be recommended in this new method. This calculation method is simple enough to be executed even on a pocketsize calculator. Compared with Bicoherence which has to be calculated by Eq.(24)~(27), the proposed method is by far a simple one and easy to handle on the field defection.

6. Remarks

The steps for the failure detection by this method are as follows.

1. Prepare standard \overline{Zc} Table for each normal or abnormal level
2. Measure peak values by signal data and compare the peak ratio (S) to the normal data
3. Calculate \overline{Zc}

4. Judge the failure level by the score of \overline{Zc}

m is the value of each equipment. For example, the number of ball bearings or the number of gears. Preparing the standard Table of \overline{Zc} for each normal and abnormal level, we can easily judge the failure level only by taking ratio of the peak value to the normal level and calculating \overline{Zc} . This calculation method is very simple and is very practical at the factory of maintenance site. This can be installed in microcomputer chips and utilized as the tool for early stage detection of the failure.

7. Conclusion

We proposed a simplified calculation method for an absolute index of higher order cumulant and named this as simplified absolute index of higher order cumulant. Three cases in which the rolling elements number was nine, twelve and sixteen were examined and compared. As S increases, the value rapidly decreases. As m increases, the value increases slightly. Compared with the results obtained so far, the results of numerical examples of this paper are reasonable and much more sensitive than another method such as Bicoherence. Judging from these results, our method is properly considered to be effective for the early stage failure detection especially. Although it has a limitation that it is restricted in the number of research, we could obtain the fruitful results. To confirm the findings by utilizing the new consecutive visiting records would be the future works to be investigated.

The effectiveness of this method should be examined in various cases.

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Financial Performance of Banks in Lebanon: Conventional vs Islamic

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Abstract

This study compares the performance of Islamic and conventional banking in Lebanon in terms of Return on Assets and Return on Equity over the period 2012-2016. Moreover, it examines whether the internal characteristics of the bank may explain the difference in profitability between two types of banking transactions. In addition, the results of the study are analyzed using a regression analysis applied to a sample of both Islamic and conventional banks to investigate the effects of these variables on bank performance. Furthermore, results show that Islamic banks in Lebanon have better asset adequacy compared to conventional banks. However, conventional banks are better in liquidity and are on an average more profitable than Islamic ones. It is worthy to indicate that the Islamic banking industry in Lebanon is still in its infancy and only very few of the banks were active in this sector.

Keywords: conventional banks, Islamic banks, profitability indicators, ROA, ROE

1. Introduction

The banking sector is considered one of the pioneer sectors in modern economies and it is one of the main engines due to the important role it plays in mobilizing domestic and foreign savings. It contributes to financing investments that are the mainstay of economic activity. It also plays an active role in meeting the requirements of contemporary life by facilitating transactions between individuals and community institutions.

The banks have developed and diversified their forms according to the specialization of the activities, the work they perform, and the laws and rules governing them. Also, the traditional banks have proved their role in the financial intermediation, and the years have passed and have gained a lot of experiences through practices. The Islamic banks, which today are considered the most prominent event in the field of banking within and outside the Islamic world during the past three decades, have emerged as a reality that offers many different investment and financing methods than traditional banks. These banks have become widely known and are increasing year after year through a network of more than 60 Islamic and non-Islamic countries, bringing the number of Islamic institutions and banks in the world to more than 1400 by the end of 2018 (according to the World Competitiveness Report for Islamic Banks). Despite all this, Islamic banks are facing many challenges, and perhaps the most serious challenge faced by them is the traditional banks to open windows for Islamic financial and banking products. Since these banks have the oldest history, experience in banking operations will be more efficient. There is no doubt that one of the most important practical strategies to meet this challenge is that Islamic banks should offer their banking services with high efficiency, and should not be less than the efficiency of banking service provided by conventional banks. Therefore, the Islamic bank can achieve this by diversifying their products from direct and indirect investments at the level of inputs or by reducing the cost of their services.

The evaluation of financial performance in banks is a very important issue, especially for the time being, and the issue of assessing the performance of Lebanese banks is a necessary and urgent process for the progress and prosperity of the Lebanese banking sector, which has affected the efficiency and performance of the banks. This requires evaluation in many aspects, especially the financial aspect, to identify strengths and weaknesses, and to find appropriate solutions to overcome the weaknesses. Thus, this requires a set of tools, methods, and techniques that facilitate the evaluation process, including analysis using indicators and financial ratios.

Most of the studies that evaluate the performance of Islamic banks with conventional banks are used to identify their performance and to ascertain whether or not they can compete with traditional banks using the method of comparative financial analysis. This is because of the different nature of the two types of banks and the different

financial statements of each type. Common indicators are usually selected using the elements and components of the financial statements issued by Islamic banks and conventional banks. Since the above statistics show that the Islamic finance is one of the fast-growing segments in the international finance and it plays a significant role in their respective economies, our study's main goal is to carry out a comparative study empirically to find out the profitability of Islamic and conventional banks in Lebanon within the period of 2012-2016.

2. Literature Review

Al-Sukhari (2017) Study: Evaluation of the Financial Function of Islamic Banks and Traditional Banks - A Comparative Study using the Financial Ratios of a Sample of Banks Operating in Algeria during the Period (2010 – 2015). This study aimed to evaluate and compare the financial performance of the Islamic and traditional banks operating in Algeria, using a set of financial indicators that fall under the indicators of profitability, liquidity, activity (investing money), and solvency index. The study was conducted on four traditional banks operating in Algeria and the Islamic Bank, Al Baraka Bank of Algeria, during the period (2010-2015). The T-test was used to examine the differences between the average performance ratios of Al Baraka Bank and conventional banks. The study found that Al Baraka Bank enjoys high liquidity and is more profitable than conventional banks. On the other hand, activity indicators showed that conventional banks are more active than Islamic banks and the safety index showed that both types of banks enjoy an acceptable financial solvency. The statistical study also found that there are significant differences between the performance of Islamic banks and traditional banks in terms of profitability, liquidity, and activity except for safety and solvency index. The study proved that there is no difference of statistical significance. The study recommended that the Islamic banks should pay attention to the issue of the investment of funds and taking care of this aspect which is a priority on its level. Consequently, there is the need to develop new and varied investment methods in Islamic banks adapted to the desires of customers to exploit them to employ their resources and make profits that are low when compared to conventional banks. In addition, the traditional banks make better use of their resources and they control operating costs.

Ragheb Al-Ghusein and Mohammed Ammar Nshwati (2014) Study: Evaluation of the Financial Performance of Jordanian Islamic and Traditional Banks. The objective of this study was to evaluate the financial performance of the Islamic and traditional Jordanian banks and compare them using the Camel model during the period of 2006-2012. It aims to study the extent of the financial performance reflected in the public confidence level. All Islamic and traditional banks operating in Jordan were selected as sample for the study, represented by 13 traditional banks and Islamic banks. The t- test was used to obtain the differences between the financial ratios and the linear regression analysis to study the effect of the average financial performance separately and collectively on the general confidence level.

The study found that traditional banks perform better than Islamic banks and that the level of public confidence to the customers of Islamic banks arises mainly from their financial performance, contrary to what has been achieved for conventional banks.

Saida Burdima (2014) Study: Assessing Financial Performance of Islamic Banks Using Financial Ratios"- Case of Al Baraka International Group from 2011-2013. The study focuses on evaluating the financial performance of Islamic banks. The researcher used a case study on Al Baraka Islamic International Group for the period 2011-2013 using financial ratios. However, the results of the study summarized that the solvency ratios indicate that the Group enjoys a significant solvency margin to ensure that it faces the risk of failure to recover part of its invested funds and the Liquidity ratios indicate that the Group has the liquidity to meet its short-term financial liabilities. The Group achieved a rate of return on equity that can be described as acceptable and which has increased in the years of study.

A Study on the Profitability of the Islamic Banks: Study of its Application to the Group of Islamic Banks for the Period 2009-2013. The study aimed to evaluate the financial performance of ten Islamic banks from six countries for five years for the period 2009-2013 based on a set of indicators and financial ratios, namely: profitability and liquidity indicators, capital adequacy indicators, and activity indicators. The study concluded that Islamic banks are highly efficient in managing operational costs and have high efficiency in generating profits through the size of invested assets but with different capacities for each bank. The study also found that Islamic banks are unable to absorb financing and investment risks and that half of the study sample from banks is unable to manage the liquidity risk.

Anan Fathi Al-Sarouji (2004) Study: Comparative Performance of Islamic and Traditional Banks Using Financial Ratios. This study aimed to compare the performance of the Islamic Bank of Jordan with the performance of conventional banks in Jordan during the period (1992-2001). This was done using nine different

financial ratios that falls under the ratios of liquidity, profitability, activity and market. A T-test was used to verify that there were significant differences between the performances of these banks. The study found that there are differences of statistical significance in the ratio of liquidity and difference in favor of conventional banks. The profitability ratios revealed no differences, while the percentage of deposit investment and the ratio of return on stock to market value showed no significant differences. The ratio of resource utilization and market value to book value reveals significant differences between Islamic banks and conventional banks. The study also predicted that the performance of the Jordan Islamic Bank would be better than that of conventional banks in terms of profitability in the future.

Brakibah (2014) Study: Evaluation of the Performance of Traditional and Islamic Banks: A Comparative Study of the Return and Risk Methods of the Algerian Popular Loan Bank and Al Baraka Algerian Bank during the Period (2007-2011). The study aimed at evaluating performance in commercial and Islamic banks in terms of return, risk, and comparison in both categories in terms of method and results. To achieve the objective of the study, the annual financial reporting data was used in the period 2007-2012. A case study was adopted using return and risk indicators to assess performance using some indicators such as return on equity, return on assets, profit margin, asset benefit rate, and leverage.

The main findings of the study show that there is a significant difference in performance evaluation indicators applied in conventional and Islamic banks due to the nature of their work. Here, it was found that some risk indicators are shared by the two banks and another is different. It was also found that some performance indicators for conventional banks can be adjusted to suit the performance of Islamic banks. There is no difference between conventional and Islamic banks because of their long experience in the market. The study also recommended the need to improve net income based on the resources that would lead to its increase, the need to diversify the investment portfolio, and to also diversify in the areas of activity and new innovations that are compatible with Islamic law for Islamic banks.

Adegbemi Babatunde and Adekola Olaitan Study: The Performance of Conventional and Islamic Banks in the United Kingdom: A Comparative Analysis. The objective of the study is to compare the efficiency of conventional banks with Islamic banks for the period 2007-2011. The study was conducted on four of the largest Islamic banks and five conventional banks in the UK using financial ratios as performance indicators. The banks' consolidated financial statements were converted to percentages so that they could be compared during the study period. The results of the study showed that conventional banks are more profitable and are able to meet their financial obligations. However, Islamic banks are less exposed to liquidity risk and are more cost effective, while conventional banks rely on external sources of finances. The study recommends the expansion of Islamic banking and management skills development, product diversification, innovation and excellence, and providing and attracting more clients.

Rosnia Masruki et al. (2008) Study: Financial Performance of Malaysian Founder Islamic Banks Versus Conventional Bank, This study aimed at comparing the performance of two Islamic banks in Malaysia (Bank Islam and the Bank Mouaamalal) with the performance of conventional banks over five years (2004-2008) using several key indicators such as profitability, liquidity, and risk. A T-test was applied to examine any significant differences between groups. The study showed that Islamic banks are less profitable than conventional banks but, at the same time, has better liquidity than traditional banks. The reason for the rise in the profitability of traditional banks is the result of higher net financing. Therefore, traditional banks are also faced with higher credit risk than Islamic banks.

By looking at the above previous literature, which focuses on studying and evaluating the financial performance of banks, these studies have been conducted in several countries such as Jordan, Algeria, UK, Malaysia and in several countries. Numerous studies have been carried out, especially between Arab studies and foreign studies, at different time periods, most of which have been in recent years. In addition, most of these studies dealt with the process of evaluating banks using different financial ratios.

Subsequently, most of these studies have yielded results, concluding that:

- There is a difference in performance evaluation indicators applied in traditional banks and in Islamic banks due to the nature of their work.
- Commercial banks are more profitable than Islamic banks.

The present study has been combined with some previous studies in the method of evaluating financial performance where the financial ratios were used in the evaluation process. The regression analysis method, T-test, and correlations were used to determine the differences between the determinant factors of profitability in

both Islamic and conventional banks. Thus, the points where these studies differed from the current study can be seen from the study sample where the test was conducted.

In this study, we focused on evaluating and comparing the financial performance of Islamic and conventional banks operating in Lebanon using some of the main financial indicators that are important and that are directly related to banking performance, such as Return on Assets and Return on Equity. Here, these indicators revealed the true financial performance of banks and their variants, and it also provides a logical explanation of what this performance entails.

3. Problem Statement

The Lebanese banking sector is one of the most important pillars of Lebanon's economy, which is subject to multiple risks reflecting its political and economic reality. There are several factors that directly affect the work of banks, whether they are external factors such as the global financial crisis or internal, represented by the Lebanese economic crisis. This is related to the specificity of the banking system in commercial banks that differ from those in Islamic banks which operates in accordance with the provisions of the Islamic Shariah. Accordingly, the manner of dealing with these previously mentioned conditions and risks by commercial and Islamic banks is different depending on their approach in carrying out their activities. This study comes as an attempt by researchers to compare the performance of commercial banks with Islamic banks in Lebanon by using and analyzing the effect of the following indicators: Return on Assets and Return on Equity. Hence, the problem of the study is to answer the following questions:

1. Is the performance of commercial banks different from the performance of Islamic banks in Lebanon?
2. What are the reasons for the difference, if any, between the performance of commercial banks and the performance of Islamic banks?

4. Objectives of the Study

The study aims to achieve the following:

1. To identify the performance of commercial and Islamic banks and the nature of the approach, which were derived from each of them in the provision of banking services.
2. To compare the performance of commercial and Islamic banks through the following indicators: Return on Assets and Return on Equity.
3. To disclose the differences between the performance of commercial and Islamic banks.

5. Significance of the Study

The importance of the study arises from the importance of the subject itself in assessing the performance of both Islamic and conventional banks and to highlight and identify the differences between the various levels of performance. It also contributes to shed light on the actual financial performance of some Lebanese banks, in general, by assessing and disclosing of strengths and weaknesses of these banks, and thus make the necessary recommendations on these points.

6. Research Hypotheses

The main hypotheses of the study are as follows:

1. There is a significant difference in determinant factors of profitability between conventional banks and Islamic banks.
2. There is a significant factor that affects the profitability of conventional banks and Islamic banks.

7. Methodology

To achieve the main objective of the study, which is to compare the financial performance of conventional banks and Islamic banks in Lebanon and to test its hypotheses, the analytical descriptive method was used by using secondary sources of data. The research was based on two sub-sources; the first consisted of books, internet, and previous relevant studies. On the other hand, the second is relying on the websites of traditional and Islamic banks to obtain the annual financial statements for the period (2012-2016), and to obtain the necessary information to calculate the financial indicators used in the research.

7.1 Sample Selection

Since the researchers were unable to have access to the necessary information needed for analysis due to some reasons related to some banks, random sampling techniques was used to select data. The sample size consists of 22 conventional banks out of 49 and 3 Islamic banks out of 5 banks operating in Lebanon.

7.2 Variables Used

This study compares the performance of the Lebanese conventional and Islamic Banks in terms of “Return on Equity” and “Return on Assets” using the following internal banks factors:

Factors	Financial Measurements
Capital Adequacy	Total Equity to Total Assets
Loans to Assets	Total Loans to Total Assets
Deposits to Assets	Total Deposits to Total Assets

Definition of Independent and Dependent Variables: These variables are:

Total Equity to Total Assets Ratio: It measures the Bank's capital adequacy and refers to the Bank's ability to absorb losses and deal with risk exposure with shareholders. Hassan and Bashir (2004) found out in their study a positive relationship between total equity to total asset ratio and profitability. Consequently, total equity to total assets is included in this study because it determines the Bank's capital and the Bank's ability to deal with losses with shareholders. Therefore, total equity to total assets is included as an independent variable to study the profitability of Lebanese banks. This ratio is expected to have a positive relationship with performance.

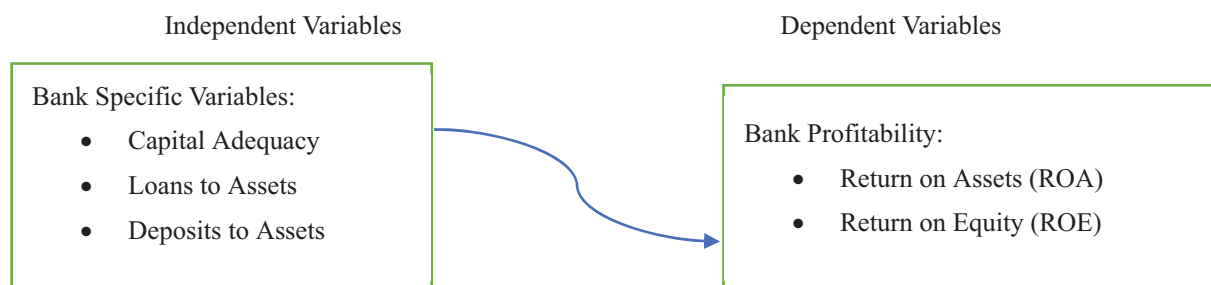
Total Loans to Total Assets Ratio: It measure liquidity of bank assets associated with loans. The higher the total loans to total assets ratio, the lower the liquidity. The bank's operations depend heavily on loans. However, Islamic banks operate on a profit-and-loss basis - interest-free lending. Moreover, some of the previous studies such as Demircuc-Kunt and Huizinga (1997) of traditional banks have found a positive correlation between this ratio and profitability. Therefore, this ratio is included in the profitability study as an independent variable to compare the performance of interest-bearing loans and interest-free lending.

Total Deposits to Total Assets Ratio: It measures the impact of commitments on profitability. Deposits are the main source of bank financing. Bashir and Hasan (2004), in their study, have found a negative correlation between this ratio and profitability. Therefore, this ratio is included in this study as an independent variable and can be compared to other ratios.

Rate of Return on Assets (ROA): This is the net return on assets invested in the bank, which shows the amount of profit achieved by the bank on each dollar invested in its assets. It is therefore an important indicator of Administrative efficiency in the bank (Elyor, 2009). This measure shows the effectiveness of managing the bank’s assets for profit (Golin, 2001). The rate of return on assets will be calculated by dividing net profit after tax with the total assets of the bank.

Rate of Return on Equity: This measure refers to net profit earned on shareholders’ equity of the bank (Golin, 2001). It shows how effective the bank is in using investors’ funds (Elyor, 2009). The rate of return on equity will be calculated by dividing net profit after tax with the total equity.

Conceptual Framework: A conceptual framework is used in the study to outline possible courses of action or to present a preferred approach to an idea or thought (Mackau, 2003). An independent variable is one that is presumed to affect a dependent variable (Dale, 2001). It can be changed as required, and its values do not represent a problem requiring explanation in an analysis, but are taken simply as given. The independent variables in the study were bank specific variables enhancing banks’ performance. The dependent variable was profitability of Lebanese banks in terms of Return on Assets and Return on Equity.



8. Findings and Analysis

Independent T-test

Table 1. Comparison of mean between Islamic and Conventional Banks

		Group Statistics			
	Type of bank	N	Mean	Std. Deviation	Std. Error Mean
Return on Assets	Conventional	86	.9774	1.10533	.11919
	Islamic	11	-.4173	1.92765	.58121
Return on Equity	Conventional	86	10.5124	5.88233	.63431
	Islamic	11	-2.0673	9.12718	2.75195
Equity / Assets	Conventional	86	10.6888	7.51164	.81000
	Islamic	11	19.5391	2.39564	.72231
Loans / Assets	Conventional	86	30.5901	10.57295	1.14011
	Islamic	11	12.4318	7.12406	2.14798
Deposits / Assets	Conventional	86	75.4562	16.18962	1.74577
	Islamic	11	58.1800	20.28213	6.11529

The above table shows the comparison of mean between Conventional and Islamic banks in Lebanon. The Total Loan to Total Asset for the conventional banks is higher than the Total Loan to Total Asset for the Islamic banks. The mean of Total Loan to Total Asset for Islamic is 12.4318, while the mean for the Conventional banks is 30.5901. Besides, Deposits to Total Asset of Islamic banks are lower than Conventional banks when it comes to their mean. The mean of Deposits to Total Asset for Islamic banks is 58.1800, while for Conventional banks the mean is 75.4562. However, the mean of Equity to Total Asset for Islamic banks is 19.5391 and 10.6888 for Conventional banks.

So, we can conclude that Islamic banks have better growth for Total Equity to Total Asset rather than Conventional banks.

Table 2. Independent sample T-test

		Levene's Test for Equality of Variances		t-test for Equality of Mean						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Return on Assets	Equal variances assumed	6.27	.014	3.575	95	.001	1.39467	.39012	.62018	2.16916
	Equal variances not assumed			2.351	10.857	.039	1.39467	.59330	.08671	2.70263
Return on Equity	Equal variances assumed	2.75	.101	6.233	95	.000	12.57971	2.01833	8.57283	16.58660
	Equal variances not assumed			4.454	11.087	.001	12.57971	2.82410	6.36986	18.78957
Equity / Assets	Equal variances assumed	2.79	.098	-3.867	95	.000	-8.85025	2.28879	-13.39408	-4.30643
	Equal variances not assumed			-8.155	42.970	.000	-8.85025	1.08528	-11.03898	-6.66153
Loans / Assets	Equal variances assumed	1.01	.316	5.524	95	.000	18.15830	3.28688	11.63303	24.68357
	Equal variances not assumed			7.467	16.276	.000	18.15830	2.43181	13.01020	23.30640
Deposits / Assets	Equal variances assumed	4.54	.036	3.237	95	.002	17.27616	5.33726	6.68036	27.87197
	Equal variances not assumed			2.717	11.687	.019	17.27616	6.35960	3.37854	31.17378

The independent T - test is used to compare the mean scores of two groups. In this case, we will see the significance of the differences between Islamic and Conventional banks. The results from the table above show that the Total Loan to Total Asset and Deposits to Total Asset for Islamic banks are less than those for Conventional banks and significant at 10 % with mean difference of 18.15830 and 17.27616 respectively. Total Equity to Total Asset for Islamic banks is higher than that for Conventional banks and significant at 10% with mean difference of -8.85025. Overall, we can conclude that all the three variables have significant difference between the mean of the two groups which are Islamic and Conventional banks for profitability. Then, H1 is accepted.

Regression

Table 3. Conventional banks ROA

ANOVA ^{a,b}						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.328	3	21.443	44.491	.000 ^c
	Residual	39.521	82	.482		
	Total	103.849	85			

a. Dependent Variable: Return on Assets

b. Selecting only cases for which Type of Bank = 0

c. Predictors: (Constant), Deposits / Assets, Loans / Assets, Equity / Assets

Coefficients ^{a,b}						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.742	.774		7.421	.000
	Equity / Assets	-.017	.017	-.118	-1.003	.319
	Loans / Assets	-.007	.008	-.066	-.852	.397
	Deposits / Assets	-.058	.008	-.848	-6.919	.000

a. Dependent Variable: Return on Assets

b. Selecting only cases for which Type of Bank = 0

The first table above shows that the three predictors simultaneously explain the ROA. However, and as shown in the second table, there is only one significant factor that influences the profitability of the Conventional banks, which is measured by the ROA. This factor is the Deposits to Total Asset and has a negative effect with beta coefficient of -.058.

Therefore, H1 is accepted for Conventional banks ROA.

Table 4. Conventional banks ROE

ANOVA ^{a,b}						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1089.214	3	363.071	16.076	.000 ^c
	Residual	1851.942	82	22.585		
	Total	2941.155	85			

a. Dependent Variable: Return on Equity

b. Selecting only cases for which Type of Bank = 0

c. Predictors: (Constant), Deposits / Assets, Loans / Assets, Equity / Assets

Coefficients ^{a,b}						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43.926	5.297		8.293	.000
	Equity / Assets	-.809	.119	-1.033	-6.809	.000
	Loans / Assets	-.080	.055	-.145	-1.460	.148
	Deposits / Assets	-.296	.057	-.814	-5.161	.000

a. Dependent Variable: Return on Equity

b. Selecting only cases for which Type of Bank = 0

For ROE, there are two significant factors that influence profitability: Total Equity to Total Asset and Deposits to Total Assets. Both show negative effect and significant effect to the profitability of the Conventional banks with beta coefficients of -.809 and -.296.

Therefore, H1 is accepted for ROE as well.

Table 5. Islamic banks ROA

ANOVA ^{a,b}						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.229	3	2.410	.564	.656 ^c
	Residual	29.929	7	4.276		
	Total	37.158	10			

a. Dependent Variable: Return on Assets

b. Selecting only cases for which Type of Bank = 1

c. Predictors: (Constant), Deposits / Assets, Loans / Assets, Equity / Assets

Coefficients ^{a,b}						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-7.338	8.741		-.840	.429
	Equity / Assets	.224	.365	.278	.614	.559
	Loans / Assets	-.036	.095	-.134	-.382	.714
	Deposits / Assets	.052	.042	.542	1.227	.260

a. Dependent Variable: Return on Assets

b. Selecting only cases for which Type of Bank = 1

The above two table shows that the three independent variables do not influence the profitability of the Islamic banks measured in ROA neither simultaneously nor separately.

Therefore, H1 is not accepted for Islamic banks ROA.

Table 6. Islamic banks ROE

ANOVA ^{a,b}						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	179.904	3	59.968	.643	.612 ^c
	Residual	653.150	7	93.307		
	Total	833.054	10			

a. Dependent Variable: Return on Equity

b. Selecting only cases for which Type of Bank = 1

c. Predictors: (Constant), Deposits / Assets, Loans / Assets, Equity / Assets

Coefficients ^{a,b}						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-38.609	40.833		-.946	.376
	Equity / Assets	1.161	1.703	.305	.682	.517
	Loans / Assets	-.122	.443	-.095	-.274	.792
	Deposits / Assets	.264	.196	.587	1.346	.220

a. Dependent Variable: Return on Equity

b. Selecting only cases for which Type of Bank = 1

The above two table shows that the three independent variables do not influence the profitability of the Islamic banks measured in ROE neither simultaneously nor separately.

Therefore, H1 is not accepted for Islamic banks ROE as well.

Correlation

Table 7. Conventional banks ROA

		Correlations			
		Return on Assets	Equity / Assets	Loans / Assets	Deposits / Assets
Return on Assets	Pearson Correlation	1	.600**	-.414**	-.782**
	Sig. (2-tailed)		.000	.000	.000
	N	86	86	86	86
Equity / Assets	Pearson Correlation	.600**	1	-.393**	-.816**
	Sig. (2-tailed)	.000		.000	.000
	N	86	86	86	86
Loans / Assets	Pearson Correlation	-.414**	-.393**	1	.466**
	Sig. (2-tailed)	.000	.000		.000
	N	86	86	86	86
Deposits / Assets	Pearson Correlation	-.782**	-.816**	.466**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	86	86	86	86

** . Correlation is significant at the 0.01 level (2-tailed).

The above table shows that for Conventional banks, there is a significant relationship between all the independent variables and ROA. For example, there is a positive correlation between Total Equity to Total Assets and ROA. Thus, it is .600 and is significant at 1%.

Table 8. Conventional banks ROE

		Correlations			
		Return on Equity	Equity / Assets	Loans / Assets	Deposits / Assets
Return on Equity	Pearson Correlation	1	-.312**	-.118	-.038
	Sig. (2-tailed)		.003	.279	.728
	N	86	86	86	86
Equity / Assets	Pearson Correlation	-.312**	1	-.393**	-.816**
	Sig. (2-tailed)	.003		.000	.000
	N	86	86	86	86
Loans / Assets	Pearson Correlation	-.118	-.393**	1	.466**
	Sig. (2-tailed)	.279	.000		.000
	N	86	86	86	86
Deposits / Assets	Pearson Correlation	-.038	-.816**	.466**	1
	Sig. (2-tailed)	.728	.000	.000	
	N	86	86	86	86

** . Correlation is significant at the 0.01 level (2-tailed).

For the Conventional correlation between independent variables and ROE, only Total Equity to Total Asset has a significant relationship. There is a negative relationship between ROE (dependent) and Total Equity to Total Asset (independent) at 1% significant level (-.312). It shows as well that Total Equity to Total Asset has relationship with profitability. Among the correlation tests between independent variables, we have a negative correlation at 1% significant level between Total Equity to Total Asset. Also, Deposits to Total Asset have -.816.

Table 9. Islamic banks ROA

		Correlations			
		Return on Assets	Equity / Assets	Loans / Assets	Deposits / Assets
Return on Assets	Pearson Correlation	1	-.101	-.127	.380
	Sig. (2-tailed)		.767	.710	.250
	N	11	11	11	11
Equity / Assets	Pearson Correlation	-.101	1	.247	-.639*
	Sig. (2-tailed)	.767		.465	.034
	N	11	11	11	11
Loans / Assets	Pearson Correlation	-.127	.247	1	-.113
	Sig. (2-tailed)	.710	.465		.740
	N	11	11	11	11
Deposits / Assets	Pearson Correlation	.380	-.639*	-.113	1
	Sig. (2-tailed)	.250	.034	.740	
	N	11	11	11	11

*. Correlation is significant at the 0.05 level (2-tailed).

For the Islamic correlation between independent variables and ROA, there is no significant relationship. However, the correlation tests between independent variables shows that Total Equity to Total Asset and Deposits to Total Asset have positive correlation at 1% significant level (.639).

Table 10. Islamic banks ROE

		Correlations			
		Return on Equity	Equity / Assets	Loans / Assets	Deposits / Assets
Return on Equity	Pearson Correlation	1	-.094	-.086	.403
	Sig. (2-tailed)		.784	.801	.219
	N	11	11	11	11
Equity / Assets	Pearson Correlation	-.094	1	.247	-.639*
	Sig. (2-tailed)	.784		.465	.034
	N	11	11	11	11
Loans / Assets	Pearson Correlation	-.086	.247	1	-.113
	Sig. (2-tailed)	.801	.465		.740
	N	11	11	11	11
Deposits / Assets	Pearson Correlation	.403	-.639*	-.113	1
	Sig. (2-tailed)	.219	.034	.740	
	N	11	11	11	11

*. Correlation is significant at the 0.05 level (2-tailed).

Similarly, in the above part, there is no significant relationship between any of the independent variables and ROE for the Islamic banks. However, the correlation tests between independent variables shows that Total Equity to Total Asset and Deposits to Total Asset have positive correlation at 1% significant level (.639).

Table 11. Summary of Correlation between Independent and Dependent Variables

Independent Variables	Conventional Banks		Islamic Banks	
	ROA	ROE	ROA	ROE
Equity to Assets	positive	negative	negative	negative
Loans to Assets	negative	negative	negative	negative
Deposits to Assets	negative	negative	negative	positive

9. Conclusion and Recommendations

The purpose of this study was to determine the factors of profitability of Islamic banks compared with those of conventional banks operating in Lebanon between 2012 and 2016 by applying regression analysis. This study has employed three internal factors to assess their relationship with profitability determined by ROA and ROE. These internal factors are: capital adequacy, loans to assets, and deposits to assets.

The regression variables interacted differently with the profitability indicators in Islamic and conventional banking. First, there is only one significant factor, Deposits to Total Asset, that influences the profitability of the conventional banks but it does not influence the profitability of the Islamic banks measured in ROA neither simultaneously nor separately. This indicates that deposits contribute to the profitability of conventional banks. Secondly, the two significant factors, total equity and total loans, have a negative impact on the profitability of conventional banks and do not affect the profitability of Islamic banks measured in ROE neither simultaneously nor separately. This suggests that high capital ratios and lending improve profitability of conventional banks. The results also show the difference in relationships between the Bank's characteristics and performance indicators.

Although the results show that there is a significant relationship between all the independent variables and ROA for conventional banks, there is no significant relationship between independent variables and ROA for Islamic banks. Moreover, for the Conventional correlation between independent variables and ROE, only Total Equity to Total Asset has a significant relationship. There is a negative relationship between ROE (dependent) and Total Equity to Total Asset, whereas there is no significant relationship between any of the independent variables and ROE for the Islamic banks.

Therefore, we can conclude that comparing the profitability of the Islamic and conventional banks operating in Lebanon shows that conventional banks are on average more profitable than Islamic ones. Results show that conventional banks are better in liquidity than Islamic ones. Liquidity indicators, total deposit, and total loans are higher in Conventional banks. On the contrary, capital adequacy is better in Islamic banks than conventional ones indicating that Islamic banks are more able to absorb losses and handle risk exposure with shareholders than conventional ones. The above results could be contributed to the fact that Islamic banks in Lebanon are relatively very few and younger compared to Lebanese conventional banks and therefore they are under the low profit stage. That result leads us to expect Islamic banks to perform better than conventional banks once they enter their high growth stage.

Moreover, this study provides a different picture of financial intermediation in Lebanon. Although there are some differences in Conventional and Islamic banking activities, the profitability conditions remain similar. In addition, Islamic banking should not be viewed as a religious movement, but as a supplementary system for conventional banking in Lebanon.

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The Impact of Using Analytical Procedures on Reducing the Cost of Tax Audit "The Jordanian Income and Sales Tax Department"

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Abstract

The study aimed to exam the impact of using the analytical procedures on reducing the cost of a tax audit in the Jordanian Income and Sales Tax Department. To achieve the aim of the study, the analytical descriptive approach has been used and a questionnaire has been designed and given out to the study sample, which represented from the auditors of Directorate of senior taxpayers and directorates of medial taxpayers in the income tax department and sales who work in these directorates. The appropriate statistical methods have been used to find results.

The findings showed that using the analytical procedures led to reducing the cost of a tax audit in all auditing stages. The stage, which has the most impact of using the analytical procedures on reducing the cost, is the final auditing stage followed by the planning stage and the implementation (fieldwork) stage.

The study recommended the necessity of compulsion of the auditors in tax department to use the analytical procedures because it reduces the cost of tax auditing and the necessity of holding workshops and training programs to define the importance of analytical procedures in tax auditing.

Keywords: analytical procedures, auditing stages, cost of tax audit

1. Introduction

International Standards on Auditing (ISA) represent the rules, procedures, and guidelines that auditors are required to abide by with the aim of attaining the best results in order to give the impartial technical opinion about the fairness of the financial statements and how they validly represent the results. The tax audit is a complex procedural process which consists of several chronological stages; administration's confirmations in documenting and verifying the financial statements during the accounting period is an introduction to the financial reporting, which is a result of the presentation of the tax returns. Therefore, the tax audit aims to verify the fairness of the financial statements submitted within the tax returns using the tax audit methods derived from the Generally Accepted Auditing Standards (GAAS), as well as other rules and standards. In other words, the tax audit and the financial audit, with its internal and external types, are based on legal or professional rules issued by accredited legal or professional enterprises to judge the fairness of the financial statements presented from individuals or companies to the required entities. Therefore, the object of the tax audit does not differ very much from the object of the financial audit; which is to express the impartial and the technical opinion about the fairness of the financial statements. However, the difference between them arises in the application of rules and standards. The financial audit science is subjected to the Generally Accepted Auditing Standards (GAAS), while the tax audit uses these standards in addition to the legal requirements of tax laws (Olaoye, 2018). The analytical auditing procedures are used in several stages during the auditing; these stages are as follows: the planning stage, the initial auditing process, the fieldwork stage (implementation of the auditing process), and the completion of the auditing process stage (Arens et al, 2015). Each of the tax auditing stages includes auditing costs such as fees of the chief auditor's assistant team, so tax auditor seek to the methods and techniques that attempt reduce this cost, analytical procedures are one from techniques.

This study is concerned with measuring the impact of using the analytical procedures on reducing the cost of a tax audit. Jordan is considered one of the countries that applied International Standards on Auditing (ISA)

because of the absence of national professional standards that govern the auditing profession in general and tax audit in particular. The tax audit is of paramount importance in increasing public revenues (Lushi, 2016). A number of factors, which the researchers believe that they reflect the impact of using the analytical procedures on reducing the cost of the tax audit, were selected. Since the tax provides 60% of the annual revenues of the state budget, it is necessary to look for the best methods and procedures that ensure the formation of the fairest tax returns and the prevention of fraud and manipulation by taxpayers, at the lowest cost possible. This is what we mean by the efficiency of the auditing process, which has its own implications and reflections on the increase of tax revenues for the state. The results of this study will contribute to the development of the analytical procedures used in all stages of the tax audit, which will enhance the efficiency of the auditing process and will be used by the auditors in the income and sales tax department, especially with the scarcity of studies that have addressed the impact of the analytical procedures on reducing the cost of the tax audit.

1.1 Objectives of the Study

The application of the analytical procedures may give a clear indication of the efficiency of the service provided by the tax auditor to customers in order to ensure the continuity of enterprises as part of the economic construction of the society and thus its reflection on the quality of the tax audit to maintain the public revenues of the state and the rights of shareholders especially that tax, as mentioned earlier, contributes significantly to the state revenues. The auditing requires costs to be spent at all stages of the tax audit. Therefore, the study aims to identify the impact of using the analytical procedures during the all stages of the tax audit on reducing the cost of the tax audit, also in each auditing stage the tax audit.

1.2 Problem and Important of the Study

The analytical procedures are crucial to ascertain the opinions of economists and their expectations regarding the growth of different companies or sectors where the audited enterprise is considered one of its key components. Hence, the importance of the analytical procedures emerges in the sense that any abnormalities or abnormal growth in the activity of the audited enterprise can be detected. The importance of the analytical procedures is obvious in terms of the ability of the auditor to judge the possibility of continuity of the enterprise or not (Pinho, 2014). The importance of studying the impact of using the analytical procedures on reducing the cost of the tax audit also appears in presenting a proposed approach to develop the practice and performance of the tax audit through the use of the analytical procedures, as well as focusing on the importance of the analytical procedures by judging fraud, deception or tax evasion in the financial statements, which substantially reflect the impact on the cost of the tax audit.

Because the analytical procedures provide a necessary tool for aspects and elements, where auditing risks may be high; hence, auditors in general and tax auditors, in particular, should pay more professional attention to assess all financial and non-financial information, all stages of auditing at the lowest cost, taking into consideration the reasonableness of the cost. Thus, the study problem can be identified in the vagueness of the impact of using the analytical procedures in auditing on the cost of the tax audit and the reflection of that on the efficiency of the auditing process at the Income and Sales Tax Department in Jordan.

Based on the above, the study problem can be summed up as follows: "What is the impact of using the analytical procedures during all stages of auditing on reducing the cost of a tax audit in Jordan?"

The next parts of the research will review the importance of the analytical procedures and methods in the tax audit stages of this study by reviewing the most important studies in this field. This is to be followed by the research methodology along with the presentation of results, conclusions, and recommendations.

1.3 Analytical Procedures

1.3.1 Analytical Procedures Concept

The International Federation of Accountants (IFAC) defined the analytical procedures through (ISA.NO.520) as: "evaluations of financial information through analysis of plausible relationships among both financial and non-financial data. Analytical procedures also encompass such investigation as is necessary of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount. (www.IFAC.org). Thus, the analytical procedures are the executive steps used by the auditor when performing the auditing process. Therefore, the application of the analytical procedures by the auditor achieves credibility, because these procedures allow the auditor to make the comparisons for balances and the financial and the non-financial data to identify the differences or changes in those balances and data and then identify the evidence through which the auditor can determine the reasons for such changes and may, therefore, detect errors, fraud or new activities by the enterprise under audit (Bednarek,2016; Al-Sharairi,

2011). Therefore, the analytical procedures are the most important evidence to be used by the auditor in the auditing process to identify the enterprise's specific indicators through which he can identify its weaknesses and strengths. Therefore, the availability of the analytical procedures for auditor serves as evidence of the validity of results and the recorded financial values. In the search for the significant changes in these results, the auditor needs to gather sufficient evidence to substantiate his or her opinion in his report, which provides more opportunity to have evidence, presumptions and early detection of errors (Bednarek, 2016; Glover et al., 2015).

(Tandon, 2007; Soltani, 2007) pointed out that the nature of the analytical procedures is either to be a comparative study, where the auditor compares the actual data of the audited enterprise with information from different sources to identify the significant or fundamental changes that require research; which may include the study of the comparison results with other information such as a comparison with information from previous years. It could be also the study of relations; which is the analysis of relations through the study of the relationship between the elements of auditing with other elements (other components) to ensure that they match the expectations of auditing such as analysis of the relationship between the financial information to each other or the relationships between the financial information and the non-financial information (statistical).

1.3.2 Importance of Analytical Procedures

The importance of analytical procedures emerges from the risks that the auditors encounter which emerge from accepting financial statements as fair, while they contain distortions, or reject financial statements that are in fact fair and represent the financial position. This is what is called the overall risk (Rittenberg et al., 2010). The inherent causes of the audit risks may be associated with the application of ineffective audit procedures, either at the planning stage of the audit processor at the stage of its implementation. The importance of using analytical procedures is as follows (Knapp et al., 2001; Pinho, 2014):

- 1- Help reduce the time and effort required for the audit process.
- 2- Reduce the size of the audit sample and other audit tests.
- 3- Detect errors in the financial statements as well as errors in balances and deletions.
- 4- Discover unusual items and unexpected items.
- 5- Increase the effectiveness of auditing in general and predict some balances of the financial accounts and the enterprise's ability to continue.

The importance of the analytical procedures increases when the reliance on information increases, which is reflected in the results of the audit process. The analytical procedures are also more important in determining the fluctuations or relationships that are inconsistent with other relevant information obtained or deviating from the forecasted amounts. Therefore, the role of the auditor, in this case, is to audit, obtain adequate explanations, and establish the appropriate evidence. The effective analytical procedures ensure that the audit process is efficient as the auditor performs the audit process with the lowest cost and with the least effort possible (Messier et al., 2012).

1.3.3 Methods of the Analytical Procedures

According to International Standards on Auditing (ISA), the auditor can use many of the analytical procedures and relevant methods starting from simple comparisons and ending with complex analyses that use advanced statistical techniques (Arens et al, 2015). Many ways can be followed to implement these procedures using monetary, quantitative, or relative measures through the enterprise's financial information, and these procedures have been classified into three main types. The first type is the descriptive analytical methods such as inquiry and the expectations from the results of the previous audit. The second type is the quantitative methods that rely on financial analysis (simplified quantitative methods); the most important of which are the analysis of financial ratios and horizontal and vertical analysis. The third type is an advanced statistical quantitative method, such as the analysis of regression, whether simple or multi-regression and analysis of time ranges.

The analytical procedures differ according to the types of data that the auditor compares. According to (Dittenhofer, 2001; Arens et al., 2014) analytical procedures fall under five types as follows:

First: Comparison of the audited entity's data with the data of the activity in which it operates, which contributes to providing useful information about the performance of the audited entity.

Second: Comparison of the audited entity's data with the corresponding data in the previous period. If the auditor noted an increase or decrease in one of these percentages and indicators, he must predict the reasons that might lead to that rise or fall according to his experience and then determine the evidence that he must collect to ascertain those possibilities.

Third: Comparison of the audited entity's data with its expectations. It is often applied to the audit process of the government sector, where they prepare estimated budgets about accounting periods and then compare them with the actual data. The existence of differences between the estimated data and the actual data indicates changes that require the auditor to look for its reasons and be convinced with it.

Fourth: Comparison of the audited entity's data with the auditor's expectations. The auditor performs a calculation to attain the expected values of certain balances in the financial statements, which are based on some historical trends of those balances, compares the results of these analytical procedures with the audited entity's data, and then indicates the balances that are required to be checked and collect all its evidence.

Fifth: Comparison of the audited entity's data with the results using non-financial data. The auditor uses it to verify the balances of some accounts or to audit some balances.

1.3.4 Steps of Using the Analytical Procedures

The auditor can adopt the following four basic steps to make full advantage of the analytical procedures (Messier et al., 2013; Soltani., 2007; Knechel and Salterio, 2016):

Step 1: Forming expectations: The expectations represent the values in which the financial statements are expected to appear. The auditor develops his or her expectations in such a way that indicates the difference between the expected values and the actual recorded values in the books.

Step 2: Comparison between the expectations and the actual data: After determining expectations, the next step is to identify deviations of amounts or recorded values from expectations by comparing between expectations or predicted ratios by the auditor with the actual results, ratios, and indicators derived from the enterprise's financial statements and its records. One of this step's priorities is that the auditor should specify the rules of the decision in advance to determine what will be considered a fundamental difference, in other words, to determine whether the deviations represent unusual fluctuations.

Step 3: Exploring the causes of differences: The auditor should determine the causes of the changes or differences resulting from using the analytical procedures. These changes may be resulted from errors or infractions or may be due to economic circumstances and not due to errors or infractions. In order to clarify the causes for these changes, the auditor asks the customer's administration. It is important in a step that the auditor maintains his professional suspicion when submitting the answers he receives from the employees of the enterprise.

Step 4: Evaluating the expected impact of differences: The auditor evaluates the expected impact of such differences on the appropriateness and validity of the financial statements in the light of the administration's explanations. When the administration is unable to provide reasonable explanations for the causes that lead to such fundamental differences or modifications, the auditor must perform additional procedures to investigate these differences more.

1.4 The Tax Audit

The U.S. Government Accountability Office (GAO) defines the tax audit as "collecting and evaluating the evidence of information authorized under the tax statement submitted by the taxpayer to determine whether he has paid the correct tax amount" and as stated in (The Revised Audit Procedures Manual, 2015) "It is an activity or group of activities that attempt to determine the extent to which the taxpayer is properly committed by evaluating the taxpayer's compliance with applicable tax laws and verifying the accuracy and validity of the tax returns that have been submitted. Therefore, the auditor's main role is to determine whether taxes are properly declared by verifying the accuracy and completeness of the tax returns and their attachments". The tax audit is the process of determining the taxable income using tax accounting science, examining and analyzing the taxpayer's data and his activity and what the department has of data and ratifications from his/her customers, the connection between them and the issuance of a decision specifying the value of the tax. (Lushi, 2016; Murphy and Higgins, 2016).

1.4.1 Objectives of the Tax Audit

The importance of the tax audit lies in the fact that it is a mean and not an end. It aims to serve the tax administration in determining the tax base in an organized scientific way that preserves the rights of the taxpayers and the state side by side in addition to increasing the level of compulsion with the tax legislation and compliance with it, reducing cases of tax evasion and its forms, and increasing the tax revenue. These all support the tax system in achieving its financial, economic and social goals (Olaoye and Ogunidipe, 2018; Oyedokun, 2016). According to (the Income and Sales Tax Department Guide, 2015) the effective audit program used in the

Income and Sales Tax Department is Audit Management System (AMS) which uses the analytical procedures in a mandatory manner at all stages of the audit, aims to:

- Ensuring the compulsion of taxpayers with the applicable tax laws.
- Enhancing accuracy in filling out the tax returns by educating taxpayers about the proper application of tax laws and regulations.
- Encouraging voluntary compliance with taxpayers through the transparency of audit, this would reveal non-compliant individuals and expose them to sanctions.
- Gathering information on the integrity of the tax system as a whole by identifying tax compulsion issues.

1.4.2 Reducing the Cost of Tax Audit

The audit function at all stages includes different costs, including the fees of the chief auditor's assistant team, and the mobility costs of the audit team, especially if the audited company has branches. The use of auditing programs, detailed tests, and sample size increase the auditing costs. Seeking help from experts in a particular field of activity is among the costs of the auditing process. Therefore, the auditor attempts to apply the cost-benefit principle, which means achieving the most significant achievement from the auditing process with reasonable costs if it is compared to the desired benefit of the auditing process, and this costs vary from time to time depending on the time taken (Solayman, 2017; Al-Sharairi, 2011). On the other hand, the costs of implementing the analytical procedures may be expensive at all stages of the auditing (Dittenhofer, 2001). From the above, the main hypothesis can be formulated as follows:

H0: There is no statistically significant impact of using the analytical procedures during all stages of the auditing on reducing the cost of a tax audit in Jordan.

1.4.3 Stages of the Auditing that the Analytical Procedures Used on It

An auditor can apply the analytical procedures in three stages of the auditing process (Gendron et al., 2007; Dittenhofer, 2001; Mumford, 2017) which are:

Stage One: Using the analytical procedures at the planning stage of the auditing process. Planning is a vital step in the activity of the auditing process in the first stage. The auditor seeks to develop his or her expectations of possible deviations in the financial statements in order to develop an auditing strategy that is appropriate to the circumstances. Therefore, the auditing strategy relies on the auditor's expectations of possible errors or distortions in the financial statements. The use of the analytical procedures in the planning process enables the auditor to obtain some indicators that may indicate some gaps and deficiencies and thus prepare an auditing plan that is appropriate to the indicators obtained through the analytical procedures. This leads to a deep understanding of the financial position of the enterprise and its performance by analyzing the main financial indicators. The use of the analytical procedures during the planning of the auditing process helps the auditor to determine the nature of the auditing procedures used by him/her to obtain the necessary evidence for some accounts balances or a group of transactions (Montgomery et al., 2002; Ahmad, 2014) points out that the most stage where the analytical procedures are used at accounting divan is the planning stage. Based on the above, the first sub-hypothesis can be developed:

- H01: There is no statistically significant impact of applying the analytical procedures during the planning stage on the cost of a tax audit in Jordan.

Stage Two: Implementation (Fieldwork Auditing). At this stage, the auditor applies the analytical procedures during the auditing process or during the field auditing stage. The analytical procedures during this stage are more efficient and economical in terms of time-saving when compared with the detailed tests. The auditor, in carrying out the detailed tests or fundamental auditing, faces the risk of discovery; that is, fundamental distortion can occur without detection even after the auditing process is performed. The source of this risk may be due to the use of the inspection way in auditing which is divided into the risk of false rejection and the risk of false acceptance (Arens et al, 2015; Montgomery et al, 2002). Based on the above, the second sub-hypothesis can be formulated.

- H0₁: There is no statistically significant impact of using the analytical procedures during the implementation auditing stage on the reducing cost of a tax audit in Jordan.

Stage Three: Using the analytical procedures at the final of the auditing process.

The application of the analytical procedures in the final steps of auditing is considered one of the final auditing procedures that assist the auditor in evaluating the conclusions reached regarding the balance of an account or evaluating the overall presentation of the financial statements.

The objectives and methods that the auditor seeks to achieve when applying the analytical procedures are similar in the final stage of auditing to those objectives that he seeks to achieve at the planning stage of the auditing process, which helps to draw attention. In other words, the auditor applies the analytical procedures in light of the changes and modifications resulting from the auditing process on account balances so that in case undesirable results are obtained, the auditor is required to investigate the causes of these results. As a final step in the auditing, the auditor should verify whether the enterprise is able to continue its activity for at least one year from the date of the prepared budget under the results obtained from the auditing process. Finally, the auditor obtains a final objective view of the financial statements that he has audited in applying the analytical procedures at the end of the auditing process (Palil et al, 2016). The third sub-hypothesis can be formulated as follows:

H0₂: There is no statistically significant impact of using the analytical procedures during the final stage of the auditing process on reducing the cost of a tax audit in Jordan.

2. The Study Methodology

2.1 Method

The study was based on the analytical descriptive approach to identify the impact of using the analytical procedures on reducing the cost of a tax audit in Jordan. The books, past literature, instructions, legislation and financial reports related to tax in Jordan were also used. A questionnaire was used in collecting information: this questionnaire consisted of two parts. The first one is about the demographic characteristics of the study sample. The second relates to the independent variables (Auditing stages) and the dependent variable (the cost of tax audit). For the purpose of this questionnaire, the Likert Scale which ranges from 1-5 (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree) was adopted. The degree of using the analytical procedure was determined based on the arithmetic mean as follows (1- 2.33 weak, 2.34- 3.66 middle, 3.67-5.00 high). The stability of the instrument used to measure the variables included in the questionnaire was ascertained by calculating the value of the Cronbach Alpha coefficient, which measures the consistency and harmony of the questionnaire questions.

2.2 Data Collection

The study population consisted of the audit directorates in the income and sales tax department operating in Jordan and its number is (12). The study sample was conducted by the auditors of the Directorate of senior taxpayers and medial taxpayers directorates which are (600) auditors who are engaged in the audit work (Income and Sales Tax Department, Annual Report 2015). This type of samples was selected because the Directorate of senior taxpayers is a starting point for any new ideas; any new creative idea is evaluated in the directorate then is applied in other directorates after validity. An appropriate simple random sample which represents the study population was selected in accordance with the random table set by (Sekaran and Bougie, 2016), which refers to the appropriate number for the study sample which should represent the community (234). After determining the sample size, (300) questionnaires were distributed on each of First Trade Directorate, Second Trade Directorate, Service Sector Directorate, Industrial Sector Directorate. (264) questionnaires were retrieved which make up (88%); (3) questionnaires were excluded because of their insufficiency. The analyzed questionnaires were (261) which make up (87%) of the distributed questionnaires.

2.3 Sample Characteristics

Table 1. refers to the frequencies and percentages of the demographic variables for the study sample.

Table 1. Description demographic variables for the study sample

variable		Frequency	percentage
Scientific qualification	Bachelor	202	77.4%
	Master	43	16.5%
	PhD	12	4.6%
	Other	4	1.5 %
	Total	261	100 %
years of experience	Less than 5 years	16	6.1%
	5-10 years	63	24.1%
	11-15 years	66	25.3%
	More than 15 years	116	44.4%
	Total	261	100 %
professional certificate	JCPA	8	3.1%
	CPA	-	-
	AICPA	23	8.8%
	Other	8	3.1%
	I did not own it	222	85.1%
Total	261	100 %	

Scientific qualification: It was noticed that 77.4% of the study sample have a Bachelor's degree (202 person) followed by 16.5% with master's degrees (43 person) followed by 4.6% with PhD degrees (12 person) while 1.5% has a diploma degree (4 person) which indicates the suitability of the academic qualifications of the respondents with the nature of their work. It is an indicator of the interest of the Tax Department to appoint those who are holders of academic degrees.

Number of years of experience in auditing: It was noticed that 44.4% of the study sample have experience of more than 15 years in the field of audit (116 person) followed by 25.3% whose experience ranges between 11 and 15 years (66 person) followed by 24.1% whose experience ranges between 5 and 10 years (63 person) while 6.1% have less than 5 years of experience. This means that the majority of respondents have experience that qualifies them to understand and recognize the questions of the questionnaire, so their answers will be more logical to support the results of the study.

Holding a professional certificate in the audit: it is obvious that 85.1% of the study sample does not have a professional certificate in the audit (222 person) while 14.9% of the study sample have professional certificates (39 person). This requires a recommendation to motivate employees in the Tax Department to apply for professional certificates in the field of audit.

2.4 Reliability Test

Table 2 shows the Reliability test in order to verify the reliability of the instrument used to measure the variables included in the questionnaire by calculating the value of the Cronbach's Alpha coefficient where the result is statistically acceptable if its value is greater than (0.80) and as the value is closer to (1) - which means (100%) - this indicates a higher reliability degrees of the study instrument (Sekaran, & Bougie, 2016). Regarding the data given in Table 1, it is found that the total result of Cronbach's Alpha was 94%, so the instrument of this study can be described as reliable and the data obtained through it are suitable for measuring variables and are subjected to a high degree of reliability. The Cronbach's Alpha ratios ranged between 85.95% and 90.52% for all dimensions, which are excellent values above the acceptable ratio of 80%.

Table 2. Cronbach's Alpha test

Variable	Stage	Cronbach's Alpha	Paragraphs NO.
Analytical	Auditing Planning	90.52%	13
Procedures	Implementation	89.61%	10
	The Auditing End	85.95%	10
Cost of Tax Audit		88.37%	
Total		94%	42

2.5 Normal Distribution Test

The normal distribution test of the collected data was performed to ascertain whether the data were under normal distribution or not. Therefore, (One-Sample Kolmogorov-Smirnov Test) was performed as it is used to test the natural distribution of data in case that the number of cases is greater than (50). One of the normal distribution's conditions is that the Significant value of the data is greater than (0.05) and the K-S value is less than (5) for all dimensions. Based on the test the data distribution is normal where Sig has values greater than 5% for all dimensions and K-S test values are less than (5) for all dimensions.

3. Results

The hypotheses of the study will be tested based on the calculation the arithmetic mean and the standard deviation (SD) of the questions related to the independent variables and the dependent variable. Then, a multiple regression test on the main hypothesis will be performed to identify the impact of the analytical procedures on the cost of audit at all stages of the audit together. Following, the impact of the analytical procedures at every stage of the audit by using simple regression will be identified.

3.1 The Analytical Procedures at the Planning Stage of the Audit Process

Table 3. the arithmetic mean and the standard deviation (SD) of using the analytical procedures at the planning stage of the audit process

Paragraph NO.	Paragraphs	The Arithmetic Mean	The Standard Deviation	Application Degree	Order
1	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts during the previous years	3.920	0.6774	High	11
2	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of forecasts in the estimated budget	4.023	0.6902	High	5
3	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of industry ratios	3,981	0.7618	High	7
4	Comparison of balances and/or financial ratios extracted from the financial statements with the economic expectations of the client's activity.	4.015	0.7594	High	6
5	Comparison of balances and/or financial ratios extracted from the financial statements with the auditor's expectations (by virtue of his experience and information).	4.100	0.5864	High	2
6	Comparison of balances and/or financial ratios extracted from the financial statements with non-financial statements	3.931	0.7199	High	10
7	The analytical procedures at the planning stage contribute to reducing the cost of understanding the nature of the client's work and planning the works of the audit procedures.	3.912	0.7917	High	12
8	The analytical procedures at the planning stage contribute to determining the strength of the internal control system	3.778	0.9222	High	13
9	The analytical procedures at the planning stage contribute to the design of the audit program in terms of the quality of the detailed audit.	4.245	0.7187	High	1
10	The analytical procedures at the planning stage contribute to the detection of errors or fraud.	4.096	0.7661	High	3
11	The analytical procedures at the planning stage contribute to the design of the audit program in terms of the amount of detailed audit procedures.	4.031	0.7119	High	4
12	The analytical procedures at the planning stage contribute to the strengthening of the accounting information system.	3.973	0.7463	High	8
13	The analytical procedures at the planning stage contribute to the design of the audit program in terms of the timing of the detailed audit procedures.	3.946	0.6829	High	9
Overall Indicator		3.996	0.5530	High	

Table (3) shows the arithmetic mean, the standard deviation (SD), and order of respondents' responses to the use of the analytical procedures at the planning stage of the audit process, which were measured based on (13) paragraphs. The results indicate that this stage achieved an arithmetic mean of (3.996) with a ratio of (79.9%) of the total scale area and with a standard deviation of (0.5530). This indicates that the level of implementation of the planning stage of the audit process was at the highest level from the point of view of the sample population. The results in Table (3) indicate that the highest arithmetic mean was for paragraph (9) where it reached (4.245) with a standard deviation of (0.7187) and with a high level while the lowest the arithmetic mean was for paragraph (8) where it reached (3.778) with a standard deviation of (0.9222).

3.2 The Analytical Procedures at the Implementation (Fieldwork) Stage

Table 4. The arithmetic mean and the standard deviation of using the analytical procedures at the Implementation stage

Paragraph No	Paragraphs	The Arithmetic Mean	The Standard Deviation	Application Degree	order
1	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts during the previous years.	3.950	0.7853	High	4
2	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of forecasts in the estimated budget.	3.747	0.9674	High	8
3	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of industry ratios.	3.778	0.9346	High	6
4	Comparison of balances and/or financial ratios extracted from the financial statements with the economic expectations of the client's activity.	3.977	0.8130	High	3
5	Comparison of balances and/or financial ratios extracted from the financial statements with the auditor's expectations (by virtue of his experience and information).	3.724	0.9490	High	9
6	Comparison of balances and/or financial ratios extracted from the financial statements with non-financial statements.	3.682	0.8828	High	10
7	The analytical procedures contribute to the evaluation of the client's financial data and statements.	3.843	0.8739	High	5
8	The analytical procedures contribute to determining differences that might be acceptable that do not require further examination.	3.751	0.8919	High	7
9	The analytical procedures contribute to reducing the detailed tests required for balances and disclosures.	4.080	0.7925	High	2
10	The analytical procedures contribute to reducing the size of the audit evidence that must be collected.	4.082	0.8211	High	1
Overall Indicator		3.861	0.6593	High	

Table (4) shows the arithmetic mean, the standard deviation (SD), and order of respondents' responses towards the second independent variable (the analytical procedures at the implementation stage) which were measured using (10) paragraphs. The table indicates that this stage achieved an arithmetic mean of (3.861) with a ratio of (77.2%) of the total scale area and with a standard deviation of (0.6593). This indicates that the level of implementation of the Implementation stage was at the highest level from the point of view of the sample population. The results in Table (4) indicate that the highest arithmetic mean was for paragraph (10) where it reached (4.082) with a standard deviation of (0.8211) and with a high level while the lowest arithmetic mean was for paragraph (6) where it reached (3.682) with a standard deviation of (0.8828) and with a high level.

3.3 The Analytical Procedures at the Final Stage

Table 5. The arithmetic mean and the standard deviation of the using the analytical procedures at the final stage

Paragraph No	Paragraphs	The Arithmetic Mean	The Standard Deviation	Application Degree	order
1	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts during the previous years.	3.885	0.9126	High	5
2	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of forecasts in the estimated budget.	3.935	0.8985	High	4
3	Comparison of balances and/or financial ratios extracted from the financial statements with their counterparts of industry ratios.	3.736	0.9583	High	10
4	Comparison of balances and/or financial ratios extracted from the financial statements with the economic expectations of the client's activity.	3.785	0.9156	High	8
5	Comparison of balances and/or financial ratios extracted from the financial statements with the auditor's expectations (by virtue of his experience and information).	3.950	0.8375	High	2
6	Comparison of balances and/or financial ratios extracted from the financial statements with non-financial statements.	3.969	0.8588	High	1
7	The analytical procedures contribute to exploring the possibility of the enterprise's continuation during the coming years.	3.946	0.8754	High	3
8	The analytical procedures contribute to exploring the adequacy of the audit evidence that had been collected and the audit tests that had been performed.	3.812	0.8634	High	6
9	The analytical procedures contribute to determining the extent to which the financial statements are in line with the auditor's expectations about the business environment and the nature of the activity after the auditor completed all the audit works.	3.785	0.8987	High	7
10	The analytical procedures contribute to revealing the unexpected numbers and percentages.	3.774	0.9399	High	9
Overall Indicator		3.858	0.6210	High	

Table (5) shows the arithmetic mean, the standard deviation (SD), and order of respondents' responses towards the third independent variable (the analytical procedures at the final stage) which were measured based on (10) paragraphs. The table indicates that this stage achieved an arithmetic mean of (3.858) with a ratio of (77.2%) of the total scale area and with a standard deviation of (0.621). This indicates that the level of implementation of the final stage was at a high level from the point of view of the sample's individuals. The results in Table (5) indicate that the highest arithmetic mean was for paragraph (6) where it reached (3.969) with a standard deviation of (0.8588) and with a high level while the lowest arithmetic mean was for paragraph (3) where it reached (3.736) with a standard deviation of (0.9583) and with a high level.

3.4 The Dependent Variable - the Reducing Cost of Tax Audit

Table 6 shows the arithmetic mean, the standard deviation (SD), and order of respondents' responses to the cost of a tax audit, which were measured based on (9) paragraphs.

Table 6. The arithmetic mean and the standard deviation of reducing the cost of tax audit.

Paragraph No.	Paragraphs	The Arithmetic Mean	The Standard Deviation	Application Degree	order
1	The analytical procedures work on reducing the time required for the audit process.	3.835	0.8319	High	7
2	The analytical procedures work on reducing the amount of effort in the audit process.	3.858	0.9683	High	6
3	The analytical procedures work on reducing the other audit tests.	4.073	0.9993	High	2
4	The analytical procedures work on reducing the cost by reducing the size of the audit sample.	4.356	0.7282	High	1
5	The analytical procedures work on reducing the cost by reducing the cost of the audit process and collecting the clients' data.	4.061	0.8063	High	3
6	The analytical procedures work on reducing the cost by reducing the numbers of employees and testing samples in the audit process.	3.904	0.8651	High	5
7	The analytical procedures work on reducing the cost by reducing the size of the audit sample.	4.046	0.8215	High	4
8	The analytical procedures work on reducing the cost by reducing the cost of the audit process and collecting the clients' data.	3.736	0.8338	High	9
9	The analytical procedures work on reducing the cost by reducing the numbers of employees and testing samples in the audit process.	3.736	0.7665	High	8
Overall Indicator		3.956	0.6393	High	

The table shows that the reducing of the tax audit achieved an arithmetic mean of (3.956) with a ratio of (79.1%) of the total scale area and with a standard deviation of (0.6393). This indicates that the level of efficiency of the analytical procedures in reducing the cost of tax audit was at a high level from the point of view of the sample population. The results in Table 6 indicate that the highest arithmetic mean was for paragraph (4) where it reached (4.356) with a standard deviation of (0.7282) and with a high level while the lowest arithmetic mean was for paragraph (8) where it reached (3.736) with a standard deviation of (0.8338) and with a high level.

3.5 Regression analysis

The main hypothesis: There is no statistically significant impact of using the analytical procedures during all stages of the auditing on reducing the cost of a tax audit in Jordan.

This hypothesis was tested by using the multiple linear regression test and its results were as shown in Table (7).

Table 7. result of multiple linear regression test to Impact Analytical Procedures on Cost of Tax Audit

dependent	Model Summary		ANOVA			Coefficient				
	R	R ²	F- value	Sig	df	Independent	Std. Error	B	t value	Sig
Cost of tax audit	0.883	0.78	303.15	0.00*	3/257	Planning stage	0.052	0.264	5.867	0.00*
						implementation stage	0.056	0.159	2.753	0.006*
						The Auditing End stage	0.054	0.536	10.242	0.00*

* $P \leq 0.05$

F - Distribution Table=(2.60)

T - Distribution Table=(1.960)

Table (7) refers to the existence of a statistically significant impact of applying the analytical procedures on the cost of tax audit through the value of F (303.146) which is larger than its tabular value and is significant at the level of significance of significance of ($\alpha \leq 0.05$), which also represents the significance of this model at the degree of freedom (257/3). The value of R² (0.780) indicates that the application of the analytical procedures explained (78%) of reducing the cost of the tax audit. The correlation coefficient was R = (88.3%) which indicates a strong relationship between variables.

The results of the partial analysis of this hypothesis show that the final stage had the greatest impact among the

three analytical procedures on the dependent variable (reducing of the cost tax audit) with a beta coefficient of ($\beta=0.536$). What enhances this impact is the value of (t) calculated as (10.242) which is greater than its tabular value with a significant level of (Sig=0.00). Then it was ranked second in terms of the impact (the planning stage of the audit) with a beta coefficient of ($\beta=0.264$). What enhances this impact is the value of (T) calculated as (5.867) which is greater than its tabular value with a significant level of (Sig=0.00). Then, it came in third place in terms of impact (the stage of implementation) with a beta coefficient of ($\beta = 0.159$). What enhances this impact is the value of T - Statistics as (2.753) which is greater than its T - Distribution Table with a significant level of (Sig = 0.006).

Based on the above, we reject the null hypothesis and accept the alternative hypothesis where a statistically significant impact was found at the level of significance ($\alpha \leq 0.05$) to use the analytical procedures (planning, implementation, and final stage) on reducing the cost of a tax audit.

First sub-hypothesis hypothesis: There is no statistically significant impact of using the analytical procedures during the Planning auditing stage on the reducing cost of a tax audit in Jordan

This hypothesis was tested using the simple linear regression test and its results were as shown in Table (8).

Table 8. result of multiple linear regression test to Impact Analytical Procedures in Stage on Cost of Tax Audit

dependent	Model Summary		Coefficient				
	R	R ²	Independent	Std. Error	T-Statistics	T-Distribution Table	Sig
Cost of tax audit	0.751	0.564	Planning stage	0.047	18.299	1.96	0.00*

* $P \leq 0.05$

Table (8) refers to the existence of a statistically significant impact of the planning stage of the audit process through the value of T (18.299) which is a significant value at the level of significance ($\alpha \leq 0.05$) and greater than its T - Distribution Table of (1.96) which also represents the significance of this model at one point. The value of R² (0.564) indicates that the planning stage of the audit process explained (56.4%) of the change in the cost of the tax audit. The correlation coefficient was R = (75.1%) which indicates a strong relationship between the two variables.

Based on the above, we reject the null hypothesis and accept the alternative hypothesis where a statistically significant impact was found at the level of significance at ($\alpha \leq 0.05$) to apply the analytical procedures at the planning stage on reducing the cost of the tax audit.

Second sub-hypothesis test: There is no statistically significant impact of using the analytical procedures during the implementation auditing stage on the reducing cost of a tax audit in Jordan

This hypothesis was tested using the simple linear regression test and its results were as shown in Table (9).

Table 9. result of multiple linear regression test to Impact Analytical Procedures in Implementation Stage on reducing Cost of Tax Audit

Dependent	Model Summary		Coefficient				
	R	R ²	Independent	Std. Error	T-Statistics	T-Distribution Table	Sig
cost of tax audit	0.798	0.636	implementation stage	0.036	21.295	1.96	0.00*

* $P \leq 0.05$

Table (9) refers to the existence of a statistically significant impact of the implementation stage through the value of T (21.295) which is a significant value at the level of significance ($\alpha \leq 0.05$) and greater than its Distribution Table (1.96) which also represents the significance of this model at one point. The value of R² (0.636) indicates that the fieldwork stage explained (63.6%) of the change in the cost of the tax audit. The correlation coefficient was R= (79.8%) which indicates a strong relationship between the two variables.

Based on the above, we reject the null hypothesis and accept the alternative hypothesis where a statistically significant impact was found at the level of significance of ($\alpha \leq 0.05$) to use the analytical procedures at the Implementation on reducing the cost of the tax audit.

Third sub-hypothesis test results: There is no statistically significant impact of using the analytical procedures during the final auditing stage on the reducing cost of a tax audit in Jordan

This hypothesis was tested using the simple linear regression test and its results were as shown in Table (10).

Table 10. result of multiple linear regression test to Impact Analytical Procedures in reducing The Auditing End stage on Cost of Tax Audit

dependent	Model Summary		Independent	Coefficient			
	R	R ²		Std. Error	T-Statistics	T-Distribution Table	Sig
cost of tax audit	0.848	0.719	The Auditing End stage	0.034	25.746	1.96	0.00*

* $P \leq 0.05$

Table (10) refers to the existence of a statistically significant impact of the final stage through the value of T (25,746) which is a significant value at the level of significance ($\alpha \leq 0.05$) and greater than its T - Distribution Table of (1.96) which also represents the significance of this model at one point. The value of R² (0.719) indicates that the final stage explained (71.9%) of the change in the cost of the tax audit. The correlation coefficient was R = (84.8%) which indicates a strong relationship between the two variables.

Based on the above, we reject the null hypothesis and accept the alternative hypothesis where a statistically significant impact was found at the level of significance ($\alpha \leq 0.05$) to use the analytical procedures at the final stage at reducing the cost of the tax audit.

4. Conclusions

The tax auditor in the audit process relies mainly on the analytical procedures to achieve his work at all stages of the tax audit with the least time, effort and cost. Because of that, the study aimed at identifying the impact of using the analytical procedures in reducing the tax audit cost in the three different stages of the audit (planning, field implementation, final stage). Using the analytical procedures increases the efficiency of the tax audit process by contributing to the reduction of some of the necessary tests which reduce the size, time and cost in collecting the audit evidence which increases the efficiency of an audit, especially at the end of the audit. Followed by the planning stage and finally the stage of Implementation that indicates the importance of the analytical procedures for the auditors in the final stage of the audit process; for being the stage that the audit cost can be reduced in it. The auditor's experience in using the analytical procedures plays a major role in determining the relationships and variables about the data provided by the owner of the enterprise and thus avoiding any fraud or manipulation, which enhances the efficiency of the tax audit process in preventing waste or assaulting public money. The income and sales tax auditors in Jordan have the adequate skills and experience about using the analytical procedures, which facilitate their mission and help in reducing the cost of a tax audit.

5. Recommendations

Based on the above, because analytical procedures help to save the cost of tax audit, must encourage auditor to using the analytical procedures during the process of tax audit and the enactment of laws and regulations that obligate auditors in the Income and Sales Tax Department to use them at all stages of audit in order to raise the efficiency and effectiveness of work with the lowest costs. In addition, holding professional symposiums and workshops in the field of the analytical procedures to inform the auditors with its importance in raising the efficiency of work. Also, improving the interaction between professional accounting organizations and related associations to develop and improve the audit profession and to update the standards and methods of the audit profession to cope with recent developments and professional requirements in the field. Finally, using the analytical procedures will lead to increase the efficiency and effectiveness of the audit profession and support researches and studies that are looking at the development of the audit profession that overall will develop the profession of the tax audit.

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Mobilizing Volitional Capacities to Enhance Entrepreneurial Process

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Abstract

Volition is a psychological disposition required in the process of transforming entrepreneurial intentions into actions (Hikkerova et al., 2016). To contribute to the understanding of the role volition plays in this process, the present study tests a hypothesis currently prevailing in the literature, and which stipulates that the order of mobilization of volitional capacities is determined by the stage individuals have reached in the process of business creation and innovation. The causal track modeling (Noel, 2015) carried out in an entropic context with data collected from 103 students, 319 potential entrepreneurs and 467 active entrepreneurs eliminated the methodological constraints of a longitudinal study which is necessary in such circumstances. Our results fully support the initial hypothesis and confirm the hierarchical organization of volitional capacities throughout the entrepreneurial process; starting with self-determination, self-motivation and resistance to uncertainty at the entrepreneurial-intent initiation stage, paving the way to concentration, direction and control of action at the beginning of the implementation of the project. These factors are then relayed by personal initiative and proactivity at the time when the project is being piloted and realized.

Keywords: volition, intention, action, entrepreneurs, entrepreneurship, students

1. Introduction

Although they are intended primarily for predefined targets, entrepreneurial and innovative strategies are observed and analyzed by actors who, *at first glance*, are not directly concerned: competitors, public authorities, financial analysts, etc. Indeed, the transformation of an idea into a productive entity contributes to the economic growth and helps in the fight against unemployment. Nyock Ilouga et al. (2014) have revealed that entrepreneurship is an alternative to counteract youth unemployment, particularly in entropic contexts where opportunities for wage employment are becoming increasingly scarce. However, the mobilization of the psychic energy that structures the choices then gives rise to achievements that transform an individual and its environment reveals an overlap between the use of volitional capacities and the implementation of phases of the Gollwitzer (1996) action model. Consequently, Hikkerova et al. (2016) affirm, a hierarchical conception of the stages of the entrepreneurial process (formulation of the intention, action planning and project implementation). Volitional capacities also provide an account of the intrinsic differences found in people at different stages of this process. It appears that the rooting in primitive frustration which results from the limiting deficiencies of the environment and is part of the symbolic universe (Jameson, 1977) of the volitional capacities responsible for the genesis of entrepreneurial intention reflects the dynamics of the compulsive creator that resists uncertainty, multiplies actions, accumulates failures and finally achieves the expected success. On the other hand, instrumental frustrations, which aimed at exploiting opportunities and personal enrichment, do not provide the necessary sense of freedom to face with conviction the obstacles that guarded resistance to the achieving of the entrepreneurial project. They often lead to renunciation as soon as the first failure occurs (Hikkerova, Nyock Ilouga, & Sahut, 2016). The Cameroonian social context is reputed to be entropic because it flourishes the informal economy as well as the traffic of goods, services and principles and offers a perfect illustration of the entrepreneurial process, with the staging of the differentiated dynamics relative to environment and work (Nyock Ilouga et al., 2014).

Over the past ten years, a number of entrepreneurial projects, followed and financed by the specialized structures in Cameroon, have not been transformed into businesses. According to the apparatus for generating current statistics on employment (DPSCE, 2012), procrastination occurs particularly at the second stage, that of action planning and concerns projects funded by the integrated support project for participants in the informal sector (PIASSI), the Rural Development Support Programme (PADER), the rural and urban youth support program (PAJER-U). For example, in 2003, 1450 Small Business development projects were funded and followed up by the

integrated support project for participants in the informal sector (PIASSI). At the end of the third month after the financing, 1182 projects matured, and were actually transformed into businesses, while 268 did not succeed. The Director of PIAASI ordered an investigation to determine the causes of this entrepreneurial procrastination. The results revealed that the project leaders travelled to an unknown destination. Between 2005 and 2011, 9911 projects were financed by the programme and after evaluation, 1479 projects could not be turned into real businesses. In 2008, 27624 projects for the creation of very small businesses were funded and followed up by the Rural Development Support Programme (PADER) and there were just over 18% of entrepreneurial procrastination cases. In 2011, the support program for rural and urban youth (PAJER-U) funded and followed up a total of 12750 projects for the creation of very small enterprises (VSEs) with a drop-out rate of 31.10% (DPSCE, 2014). In 2016, the Centre for analysis and research on Cameroon's social policy (CamerCap) pointed out that 72.24% of the businesses created since 2010 are non-existent. In the same vein, 72 small and medium-sized enterprises withdrew their membership from the Cameroon Employers' Organization (GICAM) between 2014 and 2016. The results from the investigations revealed that these businesses stopped operating (GICAM's report, June 2017).

Examples of withdrawal of memberships or failures in the implementation of the entrepreneurial professional project, such as those just mentioned, are numerous in Cameroon. After the financing, some project carriers succeed in transforming their projects into companies whose products or services occupy a share of the Cameroonian economic market, while others fail and give up. To reduce these failures, the Government of Cameroon has taken a number of measures, which revolve around the professional project, the economic context and business opportunities. With regard to the project, incubation centers have been set up in the regional headquarters, as well as structures specialized in supporting, monitoring and evaluating projects (PIASSI, PAJER-U, PADER, and PIFMAS). With regard to market demand the State has assigned experts in business plan development to these structures. In addition, the technological evolution offers the possibility to connect to specialized sites dedicated to the market investigation. To improve the economic context, the State has created a bank mandate. Placed under the authority of the small- and medium-sized enterprises (SME) regulatory institution, its mission is to fund business creation projects.

The aforementioned indicates that the measures and actions developed to stimulate and support entrepreneurship are too often oriented towards the economic context, market opportunities and the project. These actions are only very incidentally concerned with project developers themselves, their ambitions, motivations, perceptions and real aptitudes. That is certainly why justifies the fact that the multiplication and reinforcement of actions in favor of entrepreneurship is paradoxically accompanied by an increase in the failure rate in the implementation of certain professional integration projects. Actions that focus mainly on the economic context, market opportunities and the project are too often thwarted by the uncertainty, difficulties and risks associated with the choice of entrepreneurship as a solution for professional integration (Gelderden van, Kautonen, & Fink, 2015). Uncertainty at first because the destructuring of the economic environment does not provide the reading clues likely to offer visibility in the short, medium or long term (Mueller, Melwani, & Goncalo, 2012). Secondly, the difficulties in obtaining financing are insurmountable for the vast majority of project developers who cannot produce any guarantee of reimbursement and who often present themselves as free and elusive electrons in a chaotic environment (Battistelli & Nyock Ilouga, 2008; Nyock Ilouga, Moussa Mouloungui & Sahut, 2014). Finally, risks arise because the activity does not benefit from any protection and the competition does not undergo any regulation mechanism. (Lerch, Thi Thanh Thai, Puhakka, and Burger-Helmchen, 2015).

2. Theoretical Framework

The definition of business creation rules, their understanding, their perception and their respect depend on their interpretations, which are shaped by the beliefs and motivations of the entrepreneurial project carrier. It means, for example, that the granting of the business start-up license seventy-two hours after applying, as is currently the case in the various CFCEs, attests that at the administrative level the company is created but this does not presume the actual implementation of the project carried by the holder of this license. The difficulties inherent in the project implementation depend neither on the structure in charge of granting the license, nor on the business climate, but on the project carrier who, depending on whether s/he is action-oriented or oriented state, develops strategies to reduce or even eliminate these difficulties, in order to implement its entrepreneurial project. In sum, the actions to promote entrepreneurship implemented by the Cameroonian government are drowning in social entropy and reaching their goals only at random. In such a context, only the intrinsic abilities of the entrepreneur can guarantee the possibility of success (the transformation of a "virtual").

Existing literature offers some evidence to understand the various reactions of candidates for business creation towards the obstacles that stand in their way. Very recently, theorists of the hierarchical model of volition have mentioned that very often, some project carriers, although motivated, remain unable to identify and carry out

actions related to their entrepreneurial project (Hikkerova, Nyock Ilouga & Sahut, 2016). However, the approach based on the analysis of volitional capacities brings a significant added value for the understanding of the cognitive process of transformation of action intentions. Research shows that the introduction of this volition results in successive phases including the phases of action and the stages related to the entrepreneurial process (Gollwitzer, 1996):

The pre-decision phase: In the process of choosing a type of action, deciding to perform a behavior is a momentary "mental action" that resolves itself in the formation of an intention to perform that behavior according to the importance of its desirability and feasibility (Mele, 2000), and then transforms it into an objective-purpose. The intention-goal brings the individual to engage in the implementation of specific actions to achieve the goal pursued: it is the pre-action phase. This phase shows three types of so-called self-regulation volitional capacities (self-determination, self-motivation and resistance to the uncertainty of the future). These skills refer to the psychological functions that the individual uses to maintain the intention-goal at a higher level in the hierarchy of objectives to be achieved (Forstmeier & Rüdell, 2008). The pre-emptive phase has the specificity of activating the volitional control processes, which are decisive for the execution of the goal. These processes aim at protecting the intention-goal of the "distractors" through self-defensive mechanisms and activate the cognitive means to undertake. The volitional capacities responsible for the initiation of actions are the following: orientation, concentration and control of the action.

The third phase is the so-called action-oriented phase, in which the person achieves his objective in a concrete and conscious way. Action development skills (personal initiative and proactivity) are involved in this phase. Finally, there is the post-action phase, which consists in assessing the degree of achievement and the need to pursue the objective. In that case, two possibilities may arise: make adjustments or abandon the objective.

A consensus seems to be emerging on the importance of volitional capacities. It appears that the difficulty in achieving the objective despite an acceptable level of motivation and favorable environmental conditions implies deficiencies in the project developer's volitional skills (Gollwitzer & Heckhausen, 1987; Hikkerova et al., 2016; Oettingen, Hönig, & Gollwitzer, 2000).

Hypothesis

The authors of the volition hierarchy model have set two conditions to validate the hypothesis of the successive mobilization of volitional capacities:

- 1- In accordance with the hypothesis of the hierarchical mobilization of volitional capacities, when a volitional capacity is retained at any stage of the entrepreneurial process, the evaluation done at this stage is better than the evaluations recorded on this same capacity with other stages. In this perspective, we postulate that: (a) the scores recorded by students in self-motivation, self-determination and resistance to uncertainty assessment are higher than those recorded on these same volitional capacities by potential entrepreneurs and active entrepreneurs (H1); (b) the scores recorded by potential entrepreneurs on the orientation, concentration and control of the action are higher than those obtained by students and active entrepreneurs on these same capacities (H2); (c) the scores obtained by active entrepreneurs on personal initiative and proactivity are higher than those obtained on these same capacities by students and potential entrepreneurs (H3).
- 2- To be selected as a characteristic of one of the three stages of the entrepreneurial process, a volitional capacity must score better at this stage than all other volitional capacities. Thus, we postulate that: (a) the scores recorded by students in self-motivation, self-determination, and resistance to uncertainty assessment are equivalent and superior to those recorded by the same students in all other volitional capacities (orientation, concentration and control of action, personal initiative and proactivity) (H4); (b) the scores recorded by potential entrepreneurs on the orientation, concentration and control of the action are equivalent to and superior to those obtained by them on all other volitional capacities (self-motivation, self-determination, resistance to uncertainty, personal initiative and proactivity) (H5); (c) the scores obtained by active entrepreneurs on personal initiative and proactivity are equivalent to and superior to those obtained by them on all other capacities of volition (self-motivation, self-determination, resistance to uncertainty, orientation, concentration and control of action) (H6).

It should be admitted that scientific literature is not particularly abundant on this issue of successive mobilization of volitional capacities throughout the entrepreneurial process. Pending a consensus emerges on this issue, some works provide partial support for the initial hypothesis. In the field of career guidance, DeQuijano (1997) and Boutinet (1999) concluded that self-determination helps the individual to build a career goal taking into account the level of difficulty of the latter. Some important studies have highlighted the mediating effect of action

orientation in the relationship between job characteristics and personal initiative (Frese, Garst, & Fay, 2007). Others have shown that personal initiative is essential to the entrepreneur because it involves the use of cognitive strategies to overcome the obstacles and barriers that may hinder the continuation of the actions initiated as well as the development of new activities within the business; an existing organization (Frese, Kring, Soose, & Zempel, 1996, Kuhl & Fuhrmann, 1998).

3. Methodology

Measurement of Variables

This study is conducted using questionnaires composed of items adapted from *the vocational component questionnaire* (VCQ-3) and evaluated using 4-point Likert scales. The scale of volition used here is an adaptation of the instrument developed by Kuhl and Fuhrmann (1998), revised in 2004 by the same authors and recently used in the European context by Hikkerova, Nyock Ilouga & Sahut (2016). In this study, VCQ-3 was translated into French by an expert (scientific translator). Then, this French version was presented to a second expert who did not know the original version, for an inverse translation (Vellerand & Hess, 2000, Courtois et al., 2015). Once this translation was done, a scientific committee composed of entrepreneurship experts and researchers in entrepreneurial psychology judged the clarity and applicability of the scale thus translated. Eventually, our questionnaire has four sections. The first section deals with the volitional capacities of the formulation of entrepreneurial intentions. It measures self-motivation with the help of 03 items (i.e. *I know how to motivate myself when my enthusiasm decreases*), self-determination using 02 items (i.e. *I always achieve the goals I prescribed myself*), resistance to uncertainty through 03 items (i.e. *I know exactly how to reduce my anxiety*). The second section deals with the volitional capacities of the initiation of actions. It evaluates action control, which refers to the individual's ability to control his thoughts with discipline and rigor, in order to protect the elaborate intention of external distractors (i.e. *before starting an activity, I am first of all thinking of the details*); the concentration on the action that relates to the individual's ability to ignore disruptive thoughts, negative emotions and impulses in order to focus on the objective (i.e. *when I start an activity, I finish it before moving on to something else*); action orientation, which refers to the ability of an individual to achieve without hesitation and energetically his goals or ambitions (i.e. *I have already established an action plan for the realization of my entrepreneurial project*). The third section focuses on the volitional capacities in identifying and carrying out entrepreneurial actions. It evaluates personal initiative. That is, the propensity to act or the ability to showcase autonomy and persistence in the face of adversity (i.e. *I exploit all opportunities to achieve my career goals*) and proactivity refers to the propensity to act without hesitation (i.e. *I usually do more than what is required*). The fourth section has to do with personal information (age, sex, level of education, number of dependent children, family status, parents' profession, etc.).

The questionnaire was administered to a sample of future entrepreneurs, active entrepreneurs and students. The data collection lasted three months (February to April 2018) and we were assisted by data collectors who were trained for 20 hours on questionnaire survey techniques. These data collectors were Master's students in Psychology. Synthesis meetings were organized every evening over the duration of the survey to share experiences and difficulties encountered on the field. Interviews were done individually and the questionnaire was anonymous. After obtaining the informed consent of the participant, the data collector invited him / her to answer the questionnaire in about 8 minutes.

Sample

The study was conducted among a heterogeneous population of 889 participants: 103 students, 319 potential entrepreneurs and 467 active entrepreneurs. To participate in the survey, students were asked to rank two business line selection proposals using the codes developed for the purposes of the survey (1 = this proposal is very close to my current wish and 2 = this proposal is very far from my current wish). The selected proposals were inspired by the literature on career guidance and related to the attraction for entrepreneurship (I want to become an entrepreneur) (Banks et al, 1992, Lemoine, 1997, Moussa Mouloungui, 2012). The age of students ranged from 17 to 32 years with an average of 24.23 years and a standard deviation of 5.46 years. The group of students are composed of 56.92% boys and 44.07% girls. With respect to cultural traditions, 36.84% were Bantu Grassfields; 18.09% Sudano-Sahelians; 24.01% Bantu from the coastal plain and 21.05% Bantu from the forest. 26.05% stated intentions to undertake in the engineering sector, 31.23% in the commercial sector, 31.43% in the digital economy and 11.29% in the agriculture sector. In terms of training, we had 24% of engineering students, 55% enrolled in classical courses (humanities, arts, life sciences) and 21% in management.

Sex	Men	Women
	56.72%	44.07%
Mean age (standard deviation)		24.23 (5.46)
Ethnic Groups		Percentage (%)
Bantus Grassfields		36.84
Sudano-Sahelian		18.09
Bantus of the plain		24.01
Bantus of the forest		21.05
Field of activity		
agricultural		11.29
Digital Economy		31.43
Commerce		31.23
Engineering		26.05
Schooling		
Engineering students		24
classical courses (Human sciences, arts, life sciences)		55
Business School		21

The 319 future entrepreneurs were selected for convenience in the business start-up incubation centers: Technipôle (39.68%), Learning to Undertake Center (22.01%), the Incubation Center in the Littoral Region (31.52%) and in the West Region of Cameroon (6.9%). The age of potential entrepreneurs ranged from 22 to 65 years with an average of 43.65 years and standard deviation of 9.89 years. This group consisted of 76.56% boys and 33.43% girls. With respect to cultural traditions, 42.25% were Bantu Grassfields; 21.65% Sudano-Sahelians; 19.33% Bantu from the coastal plain and 16.77% Bantu from the forest. They plan the creation of their businesses in the agricultural (39.25%), digital economy (24.65%), commerce (21.33%) and engineering (14.77%) sectors. Concerning the level of study, 22.56% of them were BEPC / CAP holder, 35.64% had the Baccalauréat level, 26.36% had the Bachelor's Degree level and 15.44% Master Degree.

Sex	Men	Women
	76.56%	33.43%
Mean age (standard deviation)		43.65 (9.89)
Ethnic Groups		Percentage (%)
Bantus Grassfields		42.25
Sudano-Sahelian		21.65
Bantus of the plain		19.33
Bantus of the forest		16.77
Field of activity		
agricultural		39.25
Digital Economy		24.65
Trading		21.23
Engineering		14.77
Schooling		
BEPC/CAP		22.56
Baccalaureate		35.64
Bachelor's Degree		26.36
Master's degree		15.44

The 467 active entrepreneurs were people who have created a business, with or without employees and whose products or services are part of the Cameroonian economic market. They were all registered on the business registers. They all paid taxes and did not take up wage employment. They were contacted either by direct contact during the International Fair of Crafts and Culture, or by telephone or e-mail from the entrepreneurs' database which is available at the Cameroon Employers' Organization (Gicam-Douala). This group included 80.78% men and 19.23% women. Their ages varied between 20 to 67 years with an average of 42.41 years and a standard deviation of 8.05 years. With respect to cultural origin, 44.5% are Bantu Grassfields; 24.95% Sudano-Sahelians; 14.73% Bantu from the coastal plain and 15.82% Bantu from the forest. Seniority in the entrepreneurial profession varied between 3 years and 7 years respectively (28% and 13%). They created in various domains such as: agriculture (41.05%), digital economy (27.85%), trade (22.31%) and engineering (08.79%). The majority of them, that is 33.64%, had a Baccalauréat level; 28.36% had a Bachelor's degree, 20.56% a BEPC / CAP, and 17.01% were simply CEPE holders.

Sex	Men	Women
	80,78%	19,23%
Mean age (standard deviation)	42.41 (8.05)	
Ethnic Groups	Percentage (%)	
Bantus Grassfields	44.5	
Sudano-Sahelian	24.95	
Bantus of the plain	14.73	
Bantus of the forest	15.82	
Field of activity		
agricultural	41.05	
Digital Economy	27.85	
Trading	22.31	
Engineering	08.79	
Schooling		
CEPE (equivalent to First School leaving Certificate)	17.01	
BEPC/CAP	20.56	
Baccalaureate	33.64	
Bachelor's degree	28.36	

Data Analysis Strategy

The statistical treatment consisted in comparing the scores obtained in the evaluation of the volitional capacities between our three groups of subjects (students, potential entrepreneurs and active entrepreneurs). For this purpose, modeling on the causal path favored the analysis of variances-covariance. Planned comparisons were made whenever the overall effect of group membership was identified. For this purpose, the Tuckey test was favored.

4. Results

Stage 1 of the Entrepreneurial Process: Project Formulation

Our analytic strategy holds three volitional capacities at the intention formulation stage (self-determination, self-motivation, and resistance to uncertainty). Let's look at the results of the assessments made on these three dimensions for the three groups of individuals that make up our sample.

Self-determination

We hypothesized that self-determination is more prevalent among students than it is among project developers and active entrepreneurs. According to this hypothesis, the average scores recorded on self-determination among students should be higher than those obtained on this same capacity by potential entrepreneurs and active entrepreneurs. After analysis, the results of the graph in Figure 1 show that the average score of self-determination among students (Avg \cong 3.01) largely exceeds those obtained by potential entrepreneurs (Avg \approx 2.79) and active entrepreneurs (Avg \approx 2.82) with whom they are comparable. This gap seems statistically significant (F $_{(2, 886)}$ = 7.758, p. = .00046).

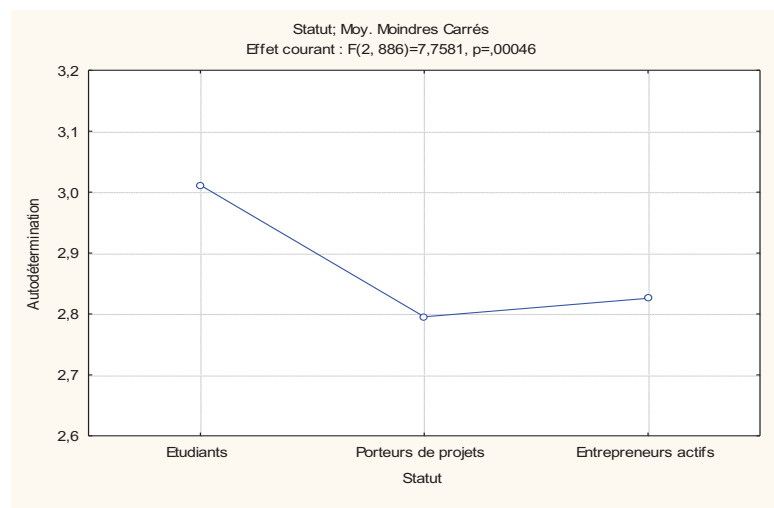


Figure 1. Variability of self-determination by status

The differences highlighted here are also observed when pairwise comparisons are made. Differences of

self-determination appear between the students, on the one hand, and the project developers ($Z = 2.348, p = .019$) and active entrepreneurs ($Z = 3.915, p = .000$) on the other hand. All this information is in line with our hypothesis and is part of the idea that self-determination is better for students than for project carriers and active entrepreneurs.

Self-motivation

We hypothesized that self-determination is more prevalent among students than project carriers and active entrepreneurs. This claim was also verified. The results of the graph in Figure 1 show that the average score of self-determination among students ($Avg \approx 3,00$) largely dominates that obtained by potential entrepreneurs ($Avg \approx 2,68$) which in turn remains slightly lower than that recorded by active entrepreneurs ($Avg \approx 2,80$). The superiority of the students' score seems statistically significant compared to both the score of potential and active entrepreneurs ($F_{(2, 886)} = 23,263, p = 0000$).

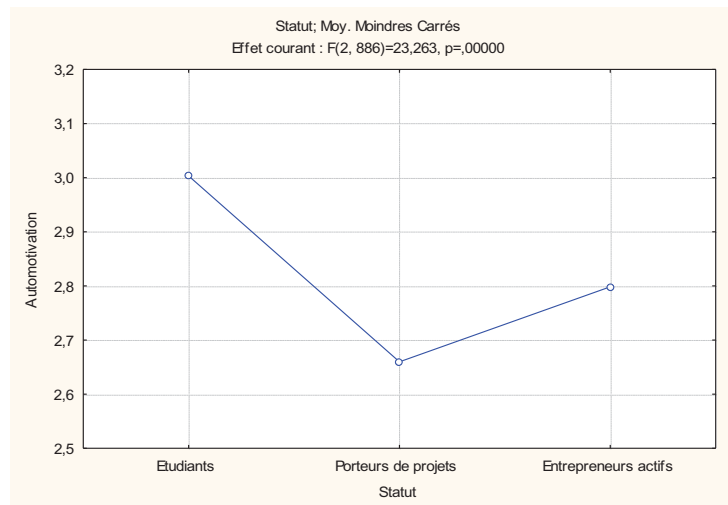


Figure 2. Variability of self-determination by status

These self-motivation differences are also observed when making pairwise comparisons. Indeed, with a $Z = 5.422, p = .0000$, the Turkey test reveals significant differences in self-motivation between project carriers and students, on the one hand, and between students and active entrepreneurs, on the other hand ($Z = 6.310, p = .0000$). These results support the idea that students know more about finding motivational resources to implement an entrepreneurial project. This ability, once prevalent among project carriers and active entrepreneurs, seems to have lost its mobilizing force in favor of other capacities, more appropriate to the specific problems encountered at these stages.

Resistance to the uncertainty of the future

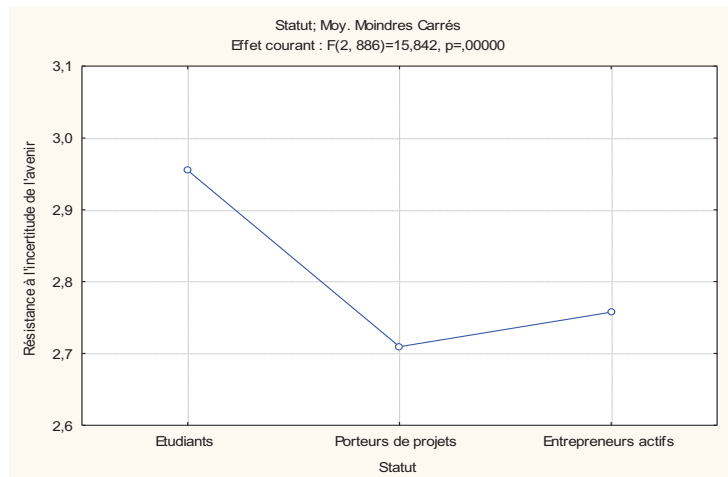


Figure 3. Variability of Resistance to future uncertainty by Status

Figure 3 shows the distribution of resistance scores to the uncertainty of the future according to the status of the participants. The results show that the average score of resistance to uncertainty among students (Avg $\cong 3,00$) largely dominates that obtained by potential entrepreneurs (Avg $\approx 2,71$) which remains roughly equal to that recorded by active entrepreneurs (Avg ≈ 2.76). The superiority of the students' score seems statistically significant compared to both potential and active entrepreneurs ($F_{(2, 886)} = 23,263$, $p = 0000$). When pairwise comparisons were made, differences in resistance to uncertainty of the future were observed only between students and potential entrepreneurs ($Z = 3.598$, $p = .000$). These results prove that students who are attracted to entrepreneurship must show a great ability to withstand future uncertainty in order to preserve their creative project and keep it at a high level of desirability despite obstacles.

Overall, it can be noted that the volitional capacities of intention formulation (self-determination, self-motivation and resistance to uncertainty) are more present among students than potential entrepreneurs and active entrepreneurs. These capacities seem to have a decisive role when making the decision to embark on an entrepreneurial adventure. According to the initial hypothesis formulated by Moussa Mouloungui (2012), these results confirm the first principle of the model of the hierarchical mobilization of volitional capacities and validate the hypothesis (H1). Indeed, the average scores of volitional capacities related to the birth of intentions obtained by the students (Avg $\cong 3$) are not only higher than those they recorded on volitional capacities concerned with action preparation (Avg ≈ 2.82 for control of the action, 2.80 for concentration on the action and 2.59 for orientation towards the action), but also to those always recorded on volitional capacities that deal with identification and achievement of actions (Avg ≈ 2.57 for personal initiative and 2.85 for proactivity). These results confirm the second principle of the hierarchical model of volition and validate hypothesis H4

Stage 2 of the entrepreneurial process: Formulation of objectives and action planning

At this point, three volitional capacities, all action-oriented, have been retained to support the first steps of the potential entrepreneur (control, focus and action orientation). In the initial model (Moussa Mouloungui, 2012), these three dimensions were dispersed between the stages of the action planning and that of the identification and execution of the action. Let's examine the scores obtained on these dimensions by the three groups of subjects that made up our sample.

Control of the Action

In accordance with the first principle of the hierarchical mobilization of volitional capacities model, we have made the hypothesis that potential entrepreneurs have a higher level of control than both students and active entrepreneurs. The results of the graph in Figure 4 show that the average score with regard to the control of action among potential entrepreneurs (Avg $\cong 3.01$) largely dominates those obtained by potential entrepreneurs (Avg ≈ 2.79) and active entrepreneurs (Avg ≈ 2.82) to which they are comparable. This dominance seems statistically significant ($F_{(2, 886)} = 14.157$, $p = 0000$).

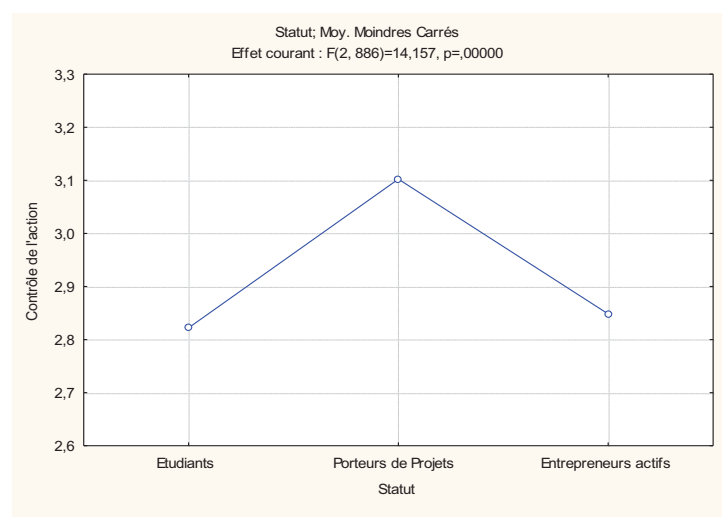


Figure 4. Variability of action control level by status

These differences are also observed when performing refined and planned analyzes from post hoc tests. Thus, with a $Z = 2.977$, $p = .0029$, we observe that the level of volitional control differs significantly between the entrepreneurs currently undergoing training and the students. In addition, with a $Z = 5.310$, $p = .0000$, the

volitional control level of potential entrepreneurs is higher than that of active entrepreneurs. These results provide evidence that entrepreneurs currently undergoing training are more active in controlling the action than others (students and entrepreneurs in activities).

Concentration on the Action

We hypothesized that the level of concentration on the action of potential entrepreneurs is higher than that of active entrepreneurs as well as that of students. The main results relating to the distribution of the concentration level on the action are shown in the graph represented below.

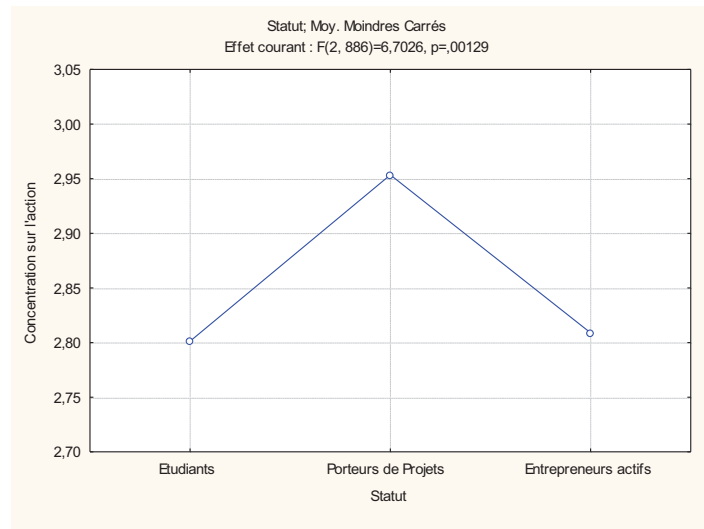


Figure 5. Variability of the concentration level on action according to the status

It appears that the average score of the concentration on action among potential entrepreneurs (Avg≈2.95) largely dominates those obtained by students (Avg≈ 2.80) and active entrepreneurs (Avg≈2.81) to whom they are comparable. This dominance seems statistically significant ($F_{(2, 886)} = 6.702, p. = 0012$). Post hoc tests confirm significant differences in focus when comparing potential entrepreneurs to students and active entrepreneurs ($Z = 2.977, p. = .0029$). These results support the idea that potential entrepreneurs have a greater propensity to focus on action than others (students and entrepreneurs in activities).

Action orientation

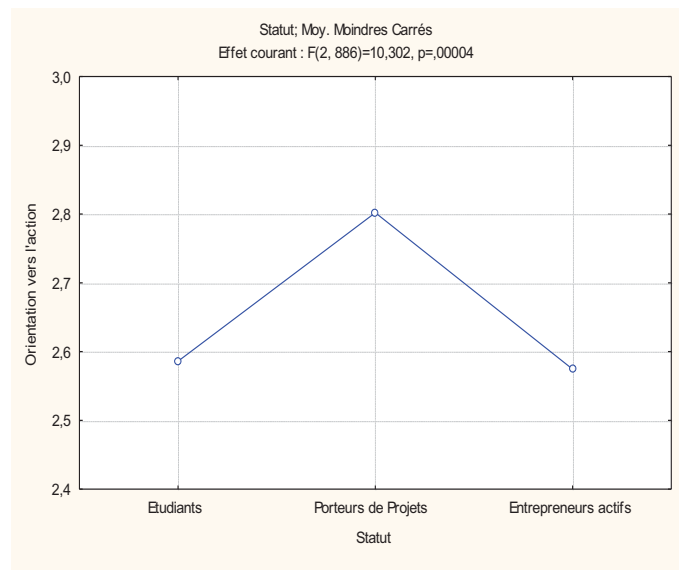


Figure 6. Variability of the level of action orientation by status

Figure 6 shows, with a value of $F_{(2, 886)} = 10.302, p. = .0000$, that potential entrepreneurs (Avg ≈2.80) are different from students (Avg ≈2.59) and active entrepreneurs (Avg≈2.58) with regard to the ability to project themselves onto the action. This distinction is confirmed when comparisons are made in pairs. With a $Z = 2.040$,

$p = .0416$, the post hoc test shows a gap between project developers and students concerning the ability to focus on action. This gap is also observed between entrepreneurs in the process of being created and active entrepreneurs ($Z = 4.530$, $p = .0000$).

In view of the above, it can be noted that the volitional capacities for implementing entrepreneurial actions are more present among potential entrepreneurs than among active entrepreneurs and students.

These abilities seem to have a decisive role at the moment when the action is being initiated. In doing so, they combine with the volitional capacities of the previous stage. However, their mobilizing capacity is stronger at this stage than at the previous one. In accordance with the hypothesis of the initial model, these results confirm the first principle forward by the model of the hierarchical mobilization of volitional capacities and validate the hypothesis (H1). Indeed, the average scores of the volitional capacities regarding the initiation of action obtained by the potential entrepreneurs ($\text{Avg} \cong 2.95$) are not only superior to those they recorded on volitional capacities of the birth of the intention ($\text{Avg} \approx 2.8$ for self-determination, 2.66 for self-motivation and, 2.71 for resistance to uncertainty), but also to those they always had with volitional capacities about identification and execution of actions ($\text{Avg} \approx 2.63$ for personal initiative and 2,84 for the proactivity). These results confirm the second principle of the hierarchical model of volition and validate hypothesis H5

Stage 3 of the entrepreneurial process: Identification and execution of entrepreneurial actions

Two volitional capacities, both entrepreneur-centered, have been retained at this stage. It's about personal initiative and proactivity. In the initial model (Moussa Mouloungui, 2012), these two dimensions proved to be powerful predictors of the identification and execution of actions. Let's examine the results obtained on these volitional capacities by the three groups of subjects composing our sample.

Personal Initiative

In this section, we test the hypothesis that personal initiative is more present among active entrepreneurs than among students and potential entrepreneurs (H3). The graph in Figure 7 summarizes the average scores obtained by these three categories of subjects.

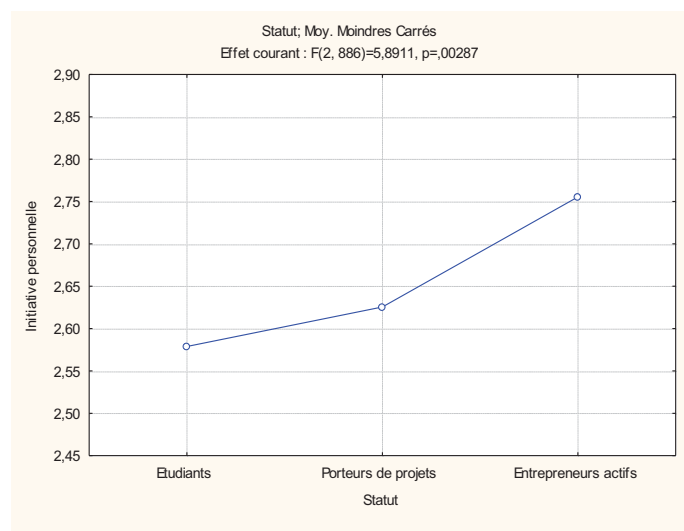


Figure 7. Variability of personal initiative level by status

It appears that the average score of personal initiative recorded among active entrepreneurs ($\text{Avg} \cong 2.75$) is significantly above those obtained by students ($\text{Avg} \approx 2.57$) and potential entrepreneurs ($\text{Avg} \approx 2.65$) who are comparable. This dominance seems statistically significant ($F_{(2, 886)} = 5.89$, $p = .0028$). These differences are also observed when conducting post hoc testing. In fact, pairwise comparisons show significant differences at the level of personal initiative, not only between potential entrepreneurs and active entrepreneurs ($Z = 2.37$, $p = 0.01$), but also between active entrepreneurs and students ($Z = 3.33$, $p = .0008$).

Proactivity

The hypothesis that is tested here, postulates that proactivity is more present in active entrepreneurs than in entrepreneurs currently creating and students. The main results obtained by the three categories of subjects are contained in the graph in Figure 8. We note that the average score of proactivity recorded among active entrepreneurs ($\text{Avg} \cong 3.15$) largely dominates those obtained on this same dimension by students ($\text{Avg} \approx 2.82$)

and potential entrepreneurs (Avg ≈ 2.85) who are comparable. This dominance seems statistically significant ($F_{(2, 886)} = 18.229$, $p = .0000$). Pairwise comparisons indicate significant differences in the level of proactivity only when comparing potential entrepreneurs with active entrepreneurs ($Z = 3.24$, $p = .0012$).

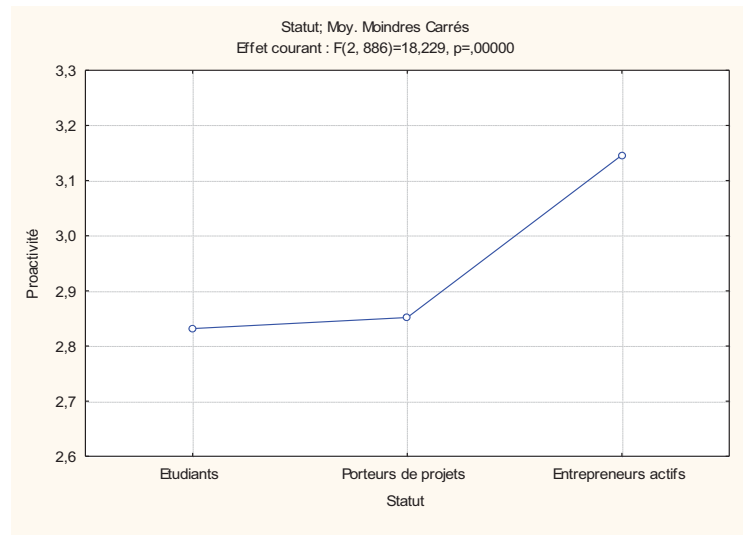


Figure 8. Variability of Proactivity Level by Status

Our results reveal that volitional capacities concerning the identification and execution of entrepreneurial actions are more present in active entrepreneurs than in potential entrepreneurs and students.

These abilities appear to play an important role in making the action lasting. In doing so, they combine with the volitional capacities of the previous stages. However, their mobilizing capacity is stronger at this stage than at the previous one. In accordance with the hypothesis of the initial model, these results confirm the first principle of the model of the hierarchical mobilization of volitional capacities and validate the hypothesis (H3). Indeed, the average scores for the volitional capacities about the identification and execution of the action obtained by active entrepreneurs (Avg ≈ 2.95) are not only superior to those they recorded on volitional capacities at the start of the intention (Avg ≈ 2.82 for self-determination, 2.80 for self-motivation and 2.76 for resistance to uncertainty), but also and especially to those they always recorded on volitional capacities concerned with actions planning (Avg ≈ 2.85 for control of the action, 2.81 for concentration on the action and 2.58 for orientation towards the action). These results support the second principle of the hierarchical model of volition and validate hypothesis H6.

5. Discussion

The purpose of this paper was to test the hypothesis of mobilization following a hierarchical order of volitional capacities during the process of transforming entrepreneurial intentions into actions. The authors of this model (Moussa Mouloungui 2012, Hikkerova, Nyock Ilouga & Sahut, 2016) had stated two postulates in support of this model. Due to the mixed results of the first works that could validate only one of the two axioms of the model, we wanted to contribute to the internal validation of the model in an entropic context, marked by the informal activity. Our results provide full support for the initial model. The findings reveal that more than potential and active entrepreneurs, students mobilize self-determination, self-motivation and resistance to the uncertainty of the future. Potential entrepreneurs mobilize better than active students and entrepreneurs regarding the control, focus on action and action orientation. Active entrepreneurs develop personal initiative and proactivity more than others. These results support the idea that some of the volitional skills that are present in everyone, at a given moment, become more vigorous in some people and help them to take a step in the entrepreneurial process to progress on the path of creation to the higher stage. They then lose their exclusive power of mobilization by combining with the dominant capacities of the previous stage and new ones which, at this stage, take over to help the individual cope with the difficulties of the moment (Moussa Mouloungui, 2012).

Previous research has shown that self-determination, self-motivation and resistance to the uncertainty of the future are essential to the construction of the entrepreneurial project (Moussa Mouloungui, 2012, Nyock Ilouga, Moussa Mouloungui & Sahut, 2014). To engage in the entrepreneurial career, the individual must first assess his ability to persevere and remobilize until the completion of his project. Since entrepreneurship is generally considered to be an activity whose outcome is uncertain (Mueller, Melwani, & Goncalo, 2012), the student who

commits to it must also demonstrate the ability to regulate the effects of conflicting demands. In the light of Gollwitzer's theory of the phases of action (1996), students can be placed in the deliberation phase, during which the individual chooses one of several options and decides to pursue a difficult and uncertain goal taking into account obstacles.

When intention comes to maturity, action control, focus on action and action orientation take over and allow the project developer to identify and carry out activities related to the entrepreneurial project. These activities include writing the business plan, developing investor relations, identifying the site where the project is to be implemented, etc. In other words, concentration on action, control of action and orientation to action allow the project carrier to gather information about his project and to make inferences about possible results. Once action is initiated, personal initiative and proactivity also take over and allow the active entrepreneur to develop activities to ensure the sustainability of the movement initiated.

The volitional capacity structure developed in this study has some slight differences from the original model. For example, in our results, self-determination and resistance to uncertainty are expressed more at the intention formulation stage than at the planning stage. In the same vein, personal initiative is presented in our study as a volitional capacity for the identification and execution of actions, while other authors place it at the stage of action planning. We consider that the introduction of undecided students and those who opted for a wage employment in the model of analysis carried out by Moussa Mouloungui (2012) could lead to a structuring different from what obtains in this research, limiting the spectrum of comparison to students interested in the entrepreneurial career, potential entrepreneurs and active entrepreneurs. However, our observations do not challenge the basic assumptions of the model. An organization different from these volitional capacities is possible in another context. But, their mobilization will almost always follow a hierarchical order. The peculiarity of the Cameroonian context is that the job market lacks structure and wage employment is scarce and unattractive. Entrepreneurial opportunities are more abundant than other professional alternatives. The rules that govern the creation of a business can be ignored without consequences. The production standards of goods and services are left to the discretion of their promoter and competition has no limit. The client finds himself being the sole judge. Indeed, the survival of the created business depends on their ability to retain customers. In such a context, the reasons for entrepreneurial success are to be found neither in the context nor at the level of the project or its funding. They are more the contractor's provisions and especially his volitional capacities. The scope of an entrepreneurial ambition goes beyond the search for a professional activity (salaried work). It aims at expressing personal values and at the same time bringing solutions to social issues. The individual from whom the intention to create emerges, expresses the values correlated with entrepreneurial action (identifying and carrying out activities to achieve goals). These values have been successively on creativity, innovation, risk acceptance, self-realization, universalism, self-transcendence, benevolence, tolerance of ambiguity, responsibility and autonomy (Nyock Ilouga, Moussa Mouloungui & Sahut, 2014). Religious beliefs, very vivid in this context, also structure the thinking and behavior of entrepreneurs, who have the freedom to think their activity and develop a business morality.

6. Conclusion

Our results are a support that can help the structures that accompany young Cameroonians in the construction of their business creation projects. These structures feature prominently the ministerial departments in charge of small enterprises, the social and family economy, employment and vocational training, as well as the Cameroon Employers' organization (GICAM). They invite to take into account representations of young people who are elaborating an entrepreneurial project, their motivations, real and perceived abilities to work as entrepreneurs. Incentive measures that focus on the project, the economic context and existing business opportunities are necessary, but it is important to refine and enrich them to make them effective. In other words, for them to enable incubators achieve the expected objectives, they must be understood and accepted by project developers. This can only be possible in case these measures correlate with the individual's motivations, values and professional aspirations. Indeed, the awarding of prizes for innovative projects during the scientific days organized by the Mineresi does not presume that these young people really intend to create. Persuasive actions (awareness raising) should be implemented and articulated around opinions on entrepreneurs and entrepreneurship, the role of the will (volition), optimism about the act of undertaking and mobilizing self-assessment questionnaires (professional career intention scale, entrepreneurial motivation scale, volition scale, etc.). It would be useful to explain to young people that the scope of an entrepreneurial ambition is not only about seeking a professional activity, but also and above all about developing personal values such as self-realization, benevolence and power surpassing oneself.

With regard to the design and implementation of these persuasion measures, it seems to us that the experts

involved must have some legitimacy with the recipients to facilitate communication about messages of encouragement to self-employment. Thus, it may be counterproductive to entrust persuasive actions to business plan development experts, youth and animation counselors or employment counselors. Indeed, this is contradictory, as the specialist in developing business plans is supposed to accompany the young person who wishes to undertake to elaborate the business plan. The employment counselor should use the tools mobilized to guide the young person towards self-employment or wage employment. In addition, it may be interesting to use the expertise of psychosociologists, occupational psychologists and organizations and entrepreneurship psychologists when it comes to persuading young people about the need to create business to reverse the unemployment curve.

Awareness-raising should aim to get young people to consider the entrepreneur as a benefactor, an opportunist or as a person who makes many sacrifices to contribute to the development of the community. It should also help young people to understand that the scope of an entrepreneurial ambition affects personal development more than the search for a professional activity. The personal development evoked here refers to the acquisition of values such as universalism, benevolence and self-realization. Notwithstanding the relevance of our results, we must remain cautious because they were obtained from the transverse approach. It would be interesting to check the hierarchy of volitional capacities from the longitudinal method.

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Managerial Style – A Literature Review and Research Agenda

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Abstract

This literature review provides an overview of existing studies in the area of managerial style and its effect on firms' strategic decisions and performance. It highlights which managers' characteristics have been considered as determinants for managerial style so far and provides potential avenues for future research. After analyzing the content of all articles that were published in seven top-tier journals in the area of finance and banking between 2000 and 2016, the articles on managerial style were included in this literature review and categorized according to the main manager characteristic of investigation. The paper illustrates how similar characteristics are measured differently, and how different measurements of manager's influence the managerial style–firm strategy relationship differentially. We provide avenues for future research in the area of managerial style, that is, future research may investigate board member's characteristics at a more aggregated level (board level). Also, future research may shed more light on the argumentation of whether managers' individual style influences the firm's corporate decision or whether managers endogenously choose the firm due to their individual characteristics that match with the firm's strategy and vice versa. This study is interesting for firms that aim to find a manager or director who fits well to its own strategy. Although there is a rapidly growing literature on managerial style, there is yet no literature review that analysis research themes and strings on managerial style in finance journals.

Keywords: managerial style; manager characteristics; upper echelon theory, managerial fixed effects

JEL Classification: M12, G20, G30 G34

1. Introduction

According to Richard H. Thaler, a major issue in research that involves humans in economics is as follows:

....Instead of humans, the world described by economists in text books is populated by a species referred to as homo economicus but I like to just call them Econs. These Econs solve problems like a super computer, have the willpower of saints, are free of emotion, and have little regard for their fellow Econs. (Thaler, 2017)

Humans are considered as a species with the intelligence of a supercomputer and never-ending power of volition, free of emotions and powered by egotistical motives. These attributes exaggeratedly meet the assumption of a rational, utility-maximizing and perfectly informed agent in economic models (Bofinger, 2011). Even though literature in finance suggests models that help to explain corporate decisions and problems, such as the trade-off between internal or external financing, as well as information asymmetries between firms and the capital market (e.g., Miller, 1977; Myers & Majluf, 1984a), some researchers state there is a lack of explanatory power in prior archival studies on firms' behavior and strategic decisions (Bertrand & Schoar, 2003; Hackbarth, 2008). Traditional models alone cannot help to identify reasons for heterogeneous capital structures (Lemmon, Roberts, & Zender, 2008). Bertrand and Schoar (2003) conclude there must be some other factors and models that cause and explain heterogeneous investment and financing decisions.

In the last two decades, an emerging strand of literature has focused on the managerial style that considers CEOs or directors as individuals that differ in regards to their individual skills, preferences, conviction and resources. Our study provides a literature review of studies in that area, namely on the relationship between managerial styles (CEOs' individual characteristics) and firms' strategic decisions as well as financial performance or firm value.¹ In the last two decades researchers have raised the question of whether managers can individually

influence a firm. Bertrand and Schoar (2003) refer to this influence as the so-called “Managerial Style”.

Although there is a rapidly growing literature on managerial style, there is yet no literature review that analysis research themes and strings on managerial style in finance journals. Quite close to this goal is the study of Pugliese et al. (2009), who provide a literature review on the boards–firm strategy relationship. But as their main focus are the involvement of boards at an institutional level and not board member’s characteristics, we believe to contribute to the finance literature considerably. In this paper, we shed light on what the main challenges and potential future opportunities are. In doing so, we focus on studies that investigate the link between the CEOs’ managerial style and the firms’ investment, financing and/or organizational strategy as well as the firms’ financial performance. In detail, we review 106 peer-ranked articles that were published in seven top-tier journals in the area of finance and banking between 2000 and 2016. Even though we limit our review to finance and banking related top-tier journals, our study identifies research gaps and provides avenues for future research.

The paper is structured as follows. After a short introduction, we provide a brief overview of relevant theories and our hypothesis development in Section 2, followed by our methodological approach in Section 3. The main part of the paper is the review of prior research. The paper ends with a discussion section that includes a research agenda and a short conclusion.

2. Theory and Hypothesis

2.1 Theoretical Background

According to Bertrand and Schoar (2003), most finance and investment literature is based on a neoclassical perception of firms, whereby management teams are assumed to be homogeneous. In line with Thaler (2017), the underlying mechanism of a neoclassical theory sees the homo economicus as an axiom that is perfectly substitutable due to their rational decisions (Bertrand & Schoar, 2003). In line with this, agency theory is based on the assumption that agents are interested in maximizing their profits. However, from an agency perspective, market participants are exposed to information asymmetries and agency problems that cause market imperfections and lead to investment inefficiencies (Hubbard, 1998; Stein, 2003). Referring to this, prior literature argues the heterogeneous behavior of firms is caused by different magnitudes and distinctions of corporate governance mechanisms (Shivdasani & Yermack, 1999). Shivdasani and Yermack (1999) find that the CEO’s involvement enables the CEO to follow his/her own interest, which is associated with poor corporate governance. Nevertheless, their study underlies the assumption that CEOs are homogeneous and do not differ in terms of skills, preferences and conviction. Even though literature in finance suggests models that help to explain corporate decisions and problems such as the trade-off between internal or external financing as well as information asymmetries between firms and the capital market (e.g., Miller, 1977; Myers & Majluf, 1984), some researchers point out a lack of explanatory power in prior archival studies on firms’ behavior and strategic decisions (Bertrand & Schoar, 2003; Hackbarth, 2008). Moreover, traditional models alone cannot help to identify reasons for heterogeneous capital structures (Lemmon et al., 2008). Agency theory largely ignores the possibility that agency problems can vary on the individual level, including firms and CEOs (Yim, 2013). Consequently, there must be some other factors and models that cause and explain heterogeneous investment and financing decisions (Bertrand and Schoar, 2003).

In contrast to most prior theoretical models, Hambrick and Mason's (1984) “Upper Echelon” theory provides researchers with a theoretical framework for analyzing the role of a CEO’s individual characteristics in the context of corporate decision-making. The Upper Echelons theory is based on two elements: (1) CEOs’ strategic decisions depend on their individual interpretation of the situation; (2) the CEO’s individual interpretation is a function of his or her background characteristics, such as experiences, personality and personal values (Hambrick and Mason, 1984; Hambrick, 2007). Hence, the CEO’s interpretation of a situation is biased due to his or her personality and different CEOs would decide differently in equal situations. Consequently, the extent to which a CEO acts rationally is limited, as it depends on their personal perception. The process of strategic choices is presented in Figure 1.

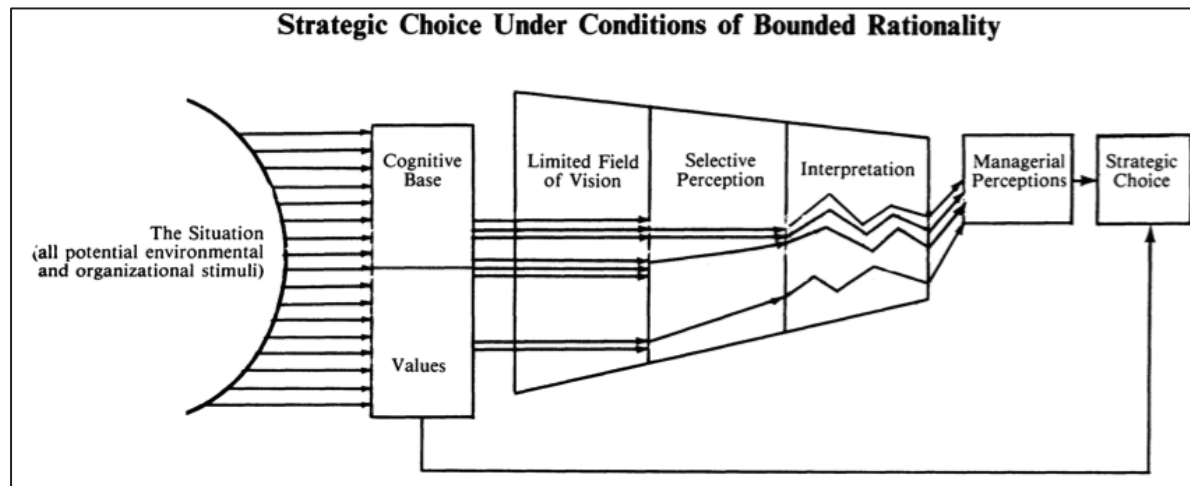


Figure 1. Theoretical Framework

Note. Figure 1 presents the theoretical framework provided by Hambrick & Mason (1984): 195.

As presented in Figure 1, the situation (“all potential environmental and organizational stimuli”) is processed based on the CEO’s Cognitive Base and Values (Hambrick & Mason, 1984). The cognitive base is the psychological dimension and difficult to observe. Therefore, Hambrick and Mason (1984) add on observable characteristics including age, professional experience (prior workplaces and different operational departments), education, socio-economic background and financial position (benefit plans and shareholding), as well as group-heterogeneity. The Upper Echelons Theory refers to the differences between members of the whole management team which is expected to have more explanatory power compared to focusing on a CEO as a standalone individual within a firm (Hambrick & Mason, 1984). Indeed, the group’s heterogeneity is relevant in psychological theories that consider the so-called “groupthink” effect. Thus, in homogeneous management teams, decisions can be made faster due to similarity in terms of characteristics such as age and education.

2.2 Hypothesis Development

Bertrand and Schoar (2003) identify two possible arguments as to why managerial styles do affect firms in the context of strong or weak corporate governance systems: on the one hand, in poor corporate governance mechanisms, the influence of individual managerial styles would be easier and stronger compared to firms with strong corporate governance, thus, firms’ decisions can be influenced by individual managerial styles. On the other hand, it can be argued that the impact of managerial styles depends on the matching-quality between CEO and firm. Hambrick and Mason (1984) argue that firms benefit from management homogeneity in an economically stable environment. In contrast, heterogeneity would be beneficial for firms during times of change and upheavals, where heterogeneous discussions promote new ideas and innovation. Overall, we follow the on the Upper Echelons theory based argumentation (e.g., Bertrand and Schoar, 2003; Hambrick and Mason, 1984) suggesting differences in managers’ cognitive bias and values affect their individual skills, preferences, conviction and resources which in turn also affect firm outcome. Referring to the question whether managers can individually influence a firm, referring to the so-called “Managerial Style”, leads us to the following hypothesis:

H1. Managerial styles are related to firm outcomes

3. Method

3.1 Selection of Journals and Papers

In order to test this hypothesis, we examine the evolving literature on managerial style. Thereby, we only focus on peer-reviewed studies published in finance journals, regardless of their impact factor which is in line with other literature reviews (e.g., Seglen, 1994; Pugliese et al., 2009). As mentioned in the beginning of this paper, we focus on top-tier finance journals. We select all “A+”- and “A”- ranked journals based on recent journal rankings within the banking and finance category (e.g. the Financial Times 50 and the VHB_JOURQUAL 3 ranking of July 1st, 2017). We do not cover journals in the field of general, operational and strategic management or accounting journals due to capacity constraints of this literature review. Future studies may also identify research strings on managers in these journals. The distribution of papers across journals is presented in Table 1.

Table 1. Distribution across Finance Journals

Journal	Rating	Number of Articles
<i>Journal of Financial Economics</i>	A+	34
<i>Journal of Banking & Finance</i>	A	22
<i>The Journal of Finance</i>	A+	17
<i>The Review of Financial Studies</i>	A+	15
<i>Journal of Financial and Quantitative Analysis</i>	A	14
<i>Review of Finance</i>	A	2
<i>Journal of Financial Intermediation</i>	A	2
	Total	106

Note. This table presents the number of papers per journal that were considered in this literature review. This literature review is limited to top-tier finance (“A+”- and “A”) ranked journals based on recent journal rankings within the banking and finance category (e.g. the *Financial Times* 50 and the *VHB_JOURQUAL* 3 ranking of July 1st, 2017).

We do not include the *Journal of Economic Dynamics & Control* and *Journal of Money, Credit and Banking* because they do not cover research on manager’s characteristics. In the next phase, we searched for paper publications regarding managerial style by screening all articles in the selected journals. Instead of using an automated content analysis based on keywords, which is exposed to the risk of missing out important articles, we read at least all articles’ abstracts and the introduction. This provides us with two advantages. First, this reduces the risk that we leave out important articles as it could occur when using an automated content analysis. Second, it enables us to classify and structure the articles according to their main subject of investigation. We limit the review of articles to the ones that document results or output arising from CEO characteristics (output side) or managerial styles, as, for example, effects on the firm’s strategic decision or firm performance. Also, we exclude papers that do not document effects arising from CEO characteristics, but focus on the input side, such as bonus plans (Engelberg et al. 2012a; Graham et al., 2012). Our final sample results in 106 articles published in seven different finance journals from 2000 to 2016. The next subsection illustrates which CEO characteristics were analyzed in the above-mentioned timeframe and also serves as an overview of the main subjects of investigation that we include in this review.

3.2 CEO Characteristics

In order to analyze the evolving nature of studies on managerial style or firm performance, we review a set of 106 articles. According to the articles’ main object of investigation, we find seven different leading characteristics of CEOs that were analyzed in prior literature. Table 2 presents the sample distribution of the number of papers on different characteristics that were assigned to the respective category. Two articles investigate and critically scrutinize the measurability of a CEO’s individual impact, which is acknowledged in our research agenda (Section 5.1).

Table 2. Distribution across Categories

Category	CEO characteristics	Number of Articles
(1)	Demographic characteristics	12
(2)	Management quality and reputation	20
(3)	Professional and life experience	16
(4)	Private behavior and political conviction	8
(5)	Overconfidence and optimism	20
(6)	Founder and successor	11
(7)	Network relationships	17
(8)	Research gaps	2
	Total	106

Note. This table presents the number articles that were assigned to the identified categories according to the main subject of the articles’ investigation. In some cases, characteristics overlap with two or more categories. Nevertheless, all articles were categorized according to their main object of investigation. As presented in Table 2, the first category is demographic characteristics (1), which is the most accessible characteristic compared to other categories and includes age, gender and education. Management quality and reputation (2) represent the second characteristic. The third category, professional and life experience (3) shows the CEO’s milestones and career steps achieved in his/her lifetime. As CEOs exhibit extensive curricula vitae and expert knowledge, there is a broad literature mainly focusing on effects of a CEO’s finance and industry expertise. In contrast to professional experience, the next characteristic is private behavior and political conviction (4), which is less able to be influenced by the employer’s incentive and control structures (Davidson, Dey, & Smith, 2015). However, researchers argue that private behavior and political conviction is assignable to someone’s professional life (Cronqvist et al., 2012; Hutton et al., 2014; Cain and McKeon, 2016). Another relevant characteristic for investment decisions and risk taking is overconfidence and optimism (5). Prior literature shows different approaches and models to measure these characteristics. When prior studies have analyzed the effects of family firms on firm value and performance, most studies focus on the

question of whether a family or non-family business is more profitable. Furthermore, we sum up the literature on the effects of the founder and successor at board level (6) and effects of CEO's network relationships (7) on firm outcome which includes network resources and human capital.

Panel A of Table 3 presents the distribution of articles over the countries or origins and over time. Most articles are based on U.S. samples (77 articles). Thus, we review the following articles knowing that most of them are based on a sample of American firms, the American political environment and its board system. Therefore, the generalization of the results is limited to the samples' origins. Panel B of Table 3 shows that our timeframe of 2000 and 2016 is appropriate, as most articles have been published recently. Secondly, only nine out of 106 articles are based on financial institutions, which will be noted accordingly. Thirdly, 86 percent of all studies take empirical models into account. Another ten percent develop analytical models – but of these four also test their models empirically. The remaining articles are based on interviews, which combine interview with financial data.

Table 3. Sample Distribution

Panel A: Distribution across countries		
Country	Number of Articles	In percent (%)
U.S.	77	72.64
China	5	4.72
U.K.	2	1.89
Finland	1	0.94
Russia	1	0.94
Denmark	1	0.94
Belgium	1	0.94
Norway & Sweden	1	0.94
Belgium	1	0.94
International sample	13	12.28
Analytical studies only (no sample)	3	2.83
Total	106	100
Panel B: Publications per year		
Year	Number of Articles	In percent (%)
2001	1	0.94
2003	3	2.83
2005	4	3.77
2006	3	2.83
2007	2	1.89
2008	5	4.72
2009	9	8.49
2010	1	0.94
2011	8	7.55
2012	7	6.60
2013	19	17.92
2014	14	13.21
2015	19	17.92
2016	11	10.38
Total	106	100

Panel A of Table 3 presents the distribution (absolute numbers and percentage) of articles over the countries or origins of reviewed articles. Panel B presents the number of publications per year in the time frame of 2000 and 2016.

4. Results

4.1 Demographic Characteristics

In line with our hypothesis, most studies do find a significant relationship between managerial styles and firm outcomes. This will be illustrated in the context of demographic characteristics in the following. According to Hambrick & Mason (1984), most studies provide evidence that older CEOs tend to be less aggressive in financial decisions and realize fewer acquisitions (Bertrand and Schoar, 2003; Yim, 2013; Jenter and Lewellen, 2015). Building upon the “Empire Building Theory” and the positive correlation between size and CEOs' compensation, younger managers benefit from acquisitions for a relatively long time frame (Yim, 2013). In a sample of Finnish banks, Kauko (2009) shows that cost-efficiency is at its optimum with CEOs at the age of 50.

However, when CEOs grow older, incentives to realize new ideas and concepts decrease, which leads to a non-linear relationship between age and efficiency. Furthermore, they conclude that cost-efficiency is significantly lower in firms before a CEO retires.

Using MBA degree as a proxy for financial expertise, other studies analyzed the effects on the quality of financial decisions (Chemmanur & Paeglis, 2005; Dittmar & Duchin, 2016; Jiang, Wan, & Zhao, 2016). According to Bertrand and Schoar (2003), firms with managers who hold an MBA degree appear to follow, on average, more aggressive strategies including higher investments and higher leverage and achieve a higher profitability. In a survey with 392 CEOs, Graham and Harvey (2001) find evidence that CEOs with an MBA degree use more sophisticated valuation methods.

In a Swedish and Norwegian study, Oxelheim and Randøy (2003) find that firms even adopt a CEO's Anglo-American background and incorporate it within the firm's extent and quality of corporate governance. This in turn attracts international investors and positively affects the firm's market value. However, some studies find a negative relationship between national diversity at board level and the firm's financial performance (Norway & Sweden: Oxelheim and Randøy, 2003; Global: Mersland and Strøm, 2009; García-Meca et al., 2015). Other studies point out that CEOs overestimate their own capabilities especially in North American and European firms (cross-country study: Ferris et al., 2013). In this context, some studies document that especially male CEOs overestimate their own capabilities (U.S.: Barber and Odean, 2001; Huang and Kisgen, 2013; Global: Graham et al., 2013).

A review of finance-related articles on the link between gender diversity at board level and the effect on financial performance shows that results are inconclusive.ⁱⁱ However, the majority of prior studies document a positive relationship (Mersland and Strøm, 2009; Strøm et al., 2014; García-Meca et al., 2015), while Adams and Ferreira (2009) document a negative relationship. The positive relationship can be explained against the background of the matching theory (both financial institutions: Mersland and Strøm, 2009; Strøm et al., 2014): The high presence of female customers and the perception of women of taking care and responsibility for others reduces information asymmetries. Tate and Yang (2015) suggest an important externality to having women in leadership positions: "they cultivate more female-friendly cultures inside their firms". Also, firms with more female CEOs have less short-term liabilities (Graham et al., 2013), tend to realize fewer acquisitions as well as fewer issuances of debt instruments and at the same time positively affect the firms' cumulative abnormal returns (Huang & Kisgen, 2013).

4.2 Management Quality and Reputation

For the CEO's reputation, most studies use the number of directorships as a proxy (Chemmanur and Paeglis, 2005; Chemmanur et al., 2009; Jiang et al., 2016; Lin et al., 2016).ⁱⁱⁱ The number of directorships implies the CEO's reputation including his/her talents and skills in an outside labor market (Fama & Jensen, 1983; Lin et al., 2016). On the one hand, more directorships indicate beneficial characteristics, such as diversified experience as well as know-how and widely spread network relationships (Ferris et al., 2003; Perry and Peyer 2005; Jiraporn et al., 2009; Ahn et al. 2010). On the other hand, having more directorships also means more busyness, which can be associated with being "too busy to mind the business" (Ferris et al., 2003; Jiraporn et al., 2009). In fact, results are inconclusive: Ferris et al. (2003) find no significant relationship between busy CEOs and the firm's market value. Fich and Shivdasani (2006) find a negative relationship between busyness and board independence and the firm's market value. Jiraporn et al. (2009) mention a non-linear but convex relationship between attendance at board committee meetings and the number of directorships. Inconclusive results could be caused by a one-size-fits-all threshold of board attendance across all boards (Ahn et al. 2010). Also, differences may occur due to different samples or methodological approaches such as the use or omission of firm fixed effects (Cashman, Gillan, & Jun, 2012). Indeed, smaller firms or Initial Public Offerings (hereafter: IPOs) benefit from busy CEOs, while bigger firms more or less suffer from the CEO's busyness (Graham et al., 2012; Field et al., 2013). When firm fixed effects are taken into account, Cashman et al. (2012) find a negative effect on the firm's market value and profitability, while Elyasiani and Zhang (2015) find a positive effect on EBIT, Tobin's Q and ROE in financial institutions.

In their event study, Perry and Peyer (2005) find that dependent directors positively affect the firm's reputation, and, in case of management turnovers, the manager's firm of origin achieves higher cumulative abnormal returns (CAR). In line with this, Lin et al. (2016) posit that reputable inside directors (dependent) can improve the quality of borrowers' financial reporting and reduce agency risk in loan contracting. However, results do not hold for independent non-executive directors. In a natural experiment, Falato et al. (2014) analyze how the death of 557 independent directors affects the stock market and find a negative reaction for all firms where the manager

served at board level before he died. In contrast to most other studies beforehand, Falato et al.'s (2014) approach reduces the risk of endogeneity for the business hypothesis as the deaths are exogenous shocks to the firms.

In order to proxy for management quality, Rahaman and Zaman, (2013) base their analysis on a management-type score provided by Bloom and van Reenen (2007) and find that banks value management quality and provide firms with better credit conditions in the case of higher management quality. Others use the lower stock price volatility (Pan et al., 2015) or positive market reactions to disapproved high cost acquisitions or fusions (Jacobsen, 2014). Kaplan et al. (2012) use a factor analysis based on the expertise of consulting firms. For their study on firms in emerging countries, Cornelli et al. (2013) took the verbal CEO evaluation from monitoring reports provided by the European Bank for reconstruction and development. Even though methods differ across studies, most prior studies document that management quality is beneficial (Chemmanur and Paeglis, 2005; Kaplan et al., 2012).

Chemmanur et al. (2009) suggest a number of variables to quantify the management quality and show that firms with high management quality and reputation pay lower dividends, have lower leverage and have better access to equity capital. This is supported by Bhagat et al. (2011), who use the CEO's tenure of office and compensation as a proxy for management quality. Pan et al. (2016) presents a "CEO Investment Cycle": disinvestments are rare in the beginning of a CEO's career but increase with higher incumbency.

4.3 Professional and Life Experience

A broad strand of literature mainly focuses on the effects of a CEO's finance and industry expertise. In general, a CEO passes several milestones and career steps, which is why CEOs are age, on average, 50 years or older (Chemmanur et al., 2009; Kaplan et al., 2012; Custódio and Metzger, 2014; Graham et al., 2015; Pan et al. 2015; Dittmar and Duchin, 2016). Finance literature defines expert knowledge in a certain industry, when someone has gained experience in leading positions in that specific industry (Custódio & Metzger, 2013; S. Huang, 2014; Wang, Xie, & Zhu, 2015). CEOs have financial expertise, when they dispose of working experience in leading positions in the financial sector or finance-related fields such as auditing, accounting or leading academic positions (Güner et al., 2008; Custódio and Metzger, 2014; Minton et al., 2014). However, researchers should keep in mind that financial experts at board level could follow banks' interests rather than the firm's interests, which would lead to less favorable financial conditions (Güner et al., 2008). Supporting this argument, some studies document that firms with financial experts tend to have a higher financial leverage (Graham et al., 2013; Custódio and Metzger 2014). Additionally, Custódio and Metzger (2014) find a less favorable financial structure, such as leverage combined with low liquidity and more share repurchases. Based on their survey with CEOs and CFOs, Graham et al. (2015) conclude that managers do not delegate financial decisions when they exhibit financial knowledge themselves. In contrast, some researchers document positive effects of financial expertise on innovative capacity and acquisitions (Celikyurt, Sevilir, & Shivdasani, 2014) or higher stock returns (financial institutions: Adams and Jiang, 2016).

When experiences are analyzed in the context of a financial crisis, results differ as follows: Minton et al. (2014) show that banks with independent board members with financial expertise are more willing to take risks. However, this led to a weaker financial performance during the financial crisis in 2007 and 2008 compared to firms without financial expertise at board level. Dittmar and Duchin's (2016) results imply crisis experience reduces the willingness to take risks, which the authors interpret as a learning effect. Apart from Custódio and Metzger (2014), who investigated effects of financial experience on innovation, marketing and labor, most studies focus on the effect of financial expertise on financial performance. However, empirical evidence on non-financial decisions is rare.

In the context of acquisitions, financial expertise seems to be beneficial (Custódio & Metzger, 2013; Wang et al., 2015). CEOs with industrial expertise increase the monitoring effectiveness and market-related financial performance of the purchasing firm (Wang et al., 2015) and pay a lower premium because of a better negotiation position, especially in industries with high information asymmetries (Custódio & Metzger, 2013). Specifically, the probability of firms acquiring other capital market-oriented companies is 4.5 times higher when their board member has been working in that specific firm (Rousseau & Stroup, 2015). In line with their "divest-for-better-match" hypothesis, Huang (2014) finds that CEOs divest divisions that operate in industries in which they have less experience which leads to a better CEO-firm match and a better operating performance. According to Xuan's (2009) bridge-building hypothesis, CEOs assign more capital budget to divisions where they are less experienced in order to elicit cooperation from powerful divisional managers. Their results show that having a specialist CEO negatively affects investment efficiency after a turnover. In contrast, Dass et al. (2014) find that CEOs who operate in the upstream/downstream industries of a firm have a positive effect on the

firm's value/performance. In sum, general management skills are more valued than industry expertise (Bertrand & Schoar, 2003; Kaplan et al., 2012).

Custódio and Metzger (2013, 2014) argue that results of prior studies are limited to the extent that industry expertise could indicate that CEOs have better network relationships. As know-how and expert knowledge as well as network relationships are two important dimensions of a CEO's human capital, Custódio and Metzger (2013, 2014) argue it is worth distinguishing between those characteristics.

Other studies show that CEOs' work experience abroad is positively related to a higher ROE, audit quality and international acquisition activities (Giannetti, Liao, & Yu, 2015). In case of repetitive acquisitions, CEOs who have worked overseas are able to realize learning effects so that the time between acquisitions can be reduced (Aktas, Bodt, & Roll, 2013). Also, personal life experience can be relevant, as Benmelech and Frydman (2015) find CEOs with military experience reduce the probability of fraud in accounting, invest less, reduce leverage and show strong leadership in economic crises. However, Malmendier et al. (2011) show that CEOs with military experience in the Second World War undertake more aggressive financial decisions, including higher leverage.

4.4 Private Behavior and Political Conviction

In contrast to professional experience, private behavior seems to be less influenced by the employer's incentive and control structures (Davidson et al., 2015). Cronqvist et al.'s (2012) consistency theory suggests that private behavior is assignable to professional behavior as it is assumed that humans make the same decisions in different situations. Prior studies find a positive correlation between the level of a CEO's private debt level and the firm's indebtedness ratio (Cronqvist et al., 2012; Hutton et al., 2014; Cain and McKeon, 2016). Cain and McKeon (2016) find that CEOs with pilot licenses are more venturesome and risk-taking, which also affects the risk taking at firm level. Furthermore, Davidson et al. (2015) show that a CEO's fragility in terms of consumption of luxury goods is related to a lower number of false balance sheet statements and intentional balance sheet manipulation is affected by the CEO's or CFO's private infringements (traffic or violent offences). Mironov (2015) presents evidence that having a corrupt management is positively correlated with falsified incomes and lower accounting quality in Russian firms. Firms with CEOs who used to backdate options in the past are more likely to face fraud trials (Biggerstaff et al., 2015).

When political convictions have been examined, most studies define the tendency to a political direction based on charity for a certain party (Di Giuli & Kostovetsky, 2014; Hutton et al., 2014; Lee, Lee, & Nagarajan, 2014). On the one hand, firms with Republican CEOs exhibit lower debt-equity ratios and lower investments in Property Plant and Equipment (hereafter: PPE) as well as in Research and Development (hereafter: R&D) compared to firms with Democrats as CEOs (Hutton et al. 2014). Based on the approach of Cronqvist et al. (2012), Hutton et al. (2014) show that Republican CEOs are more risk-averse and have a lower private debt ratio than Democrats. On the other hand, firms with Republicans as CEOs undertake less investments for Corporate Social Responsibility (hereafter: CSR) activities (Di Giuli & Kostovetsky, 2014). When the political convictions of a CEO and an independent (non-executive) director concur, monitoring effectiveness is lower, which results in a lower ROA, lower probability to replace a low-performing CEO and a higher probability to face financial fraud trials (Lee et al., 2014).

4.5 Overconfidence and Optimism

Malmendier and Tate (2005) present empirical evidence on the relationship between overconfident CEOs and firms' behavior. They find a "better-than-average effect", which suggests that individuals overestimate their influence on future events and their accuracy of forecasts ("narrow confidence intervals"). Also, they evaluate their skills above average, which refers to the so-called self-attribution bias (SAB). We identify two main strategies to proxy for overconfidence and/or optimism that have been used in prior literature: (1) observation of the CEO's private share portfolio and (2) news-coverage or reporting about a manager. The latter proxy is evaluated based on words that were used in the context of CEOs and their actions in economic-related journals or reports (Malmendier and Tate, 2008; Hirschleifer et al., 2012; Ferris et al., 2013; Banerjee et al., 2015). The first strategy indicates a CEO's risk-aversion. Malmendier and Tate (2005) would expect a risk-averse CEO to exercise options at an early stage once the shares reached a certain level and would have a diversified portfolio.^{iv} The opposite behavior would be interpreted as overconfidence because CEOs hope for increased share prices. When prior studies derive the level of overestimation from the first observation strategy, the majority include Malmendier and Tate's (2005) "holder 67"-indicator (e.g., Malmendier and Tate, 2008; Malmendier et al., 2011; Hirschleifer et al., 2012; Andriosopoulos et al., 2013; Deshmukh et al., 2013; Bouwman, 2014).^v This indicator classifies a CEO as overconfident, once he or she holds shares, even though the share price increased by 67

percent. Bouwman (2014) bases her study on the approach of Malmendier and Tate (2005) but uses this proxy for the CEO's optimism only. All in all, empirical research is still lacking a valid measurement of overconfidence and confidence of managers, as there is no one-size-fits-all indicator.

In contrast to the first strategy, the second proxy does not allow researchers to distinguish between optimism and overconfidence but does show how a CEO is being evaluated by a third party (Malmendier and Tate, 2008; Ferris et al., 2013). In contrast to the strategies mentioned above, Kim (2013) develops an approach to directly measure the SAB by analyzing the CEO's language in TV interviews. The more personal pronouns are used in combination with positive events, the higher Kim assigns characteristics such as optimism and overconfidence to a CEO. Similarly, Aktas et al. (2016) utilized this measure to define the CEO's level of narcissism. The above above-mentioned SAB leads to two hypotheses in subsequent studies (Malmendier and Tate, 2005; Malmendier et al., 2011): (1) Managers who overestimate their own abilities systematically overestimate returns of investment projects, or (2) evaluate the cost of external capital as excessive.

In this context, overconfidence would be beneficial for growing firms as they would benefit from more risky but innovative investment decisions made by overconfident CEOs (Hirschleifer et al., 2012). The second assumption predicts that managers overestimate their cash flows and therefore require a lower risk premium on interest rates for debt capital compared to a rationally reasonable risk premium (Malmendier et al., 2011). Indeed, overconfident CEOs often refuse external capital and depend on internal financial resources, which leads firms to be more sensitive to cash flows and investments (Malmendier and Tate, 2005; Campbell et al., 2011; Banerjee et al., 2015). In the case of insufficient internal financial resources, overconfident CEOs do have higher debt ratios (Malmendier et al., 2011; Ho et al., 2016) and do pay less dividends in order to retain earnings (Deshmukh et al., 2013) but also intensively buy back share programs because they consider their equity capital as undervalued (Andriopoulos et al., 2013).

When researchers focus on the effects of overconfidence on acquisitions, results are inconclusive. Overconfident CEOs often fund acquisitions with cash (Malmendier and Tate, 2008; Ferris et al., 2013; Kim, 2013) and overconfident CEOs realize a higher number of acquisitions compared to firms with non-overconfident CEOs (Malmendier and Tate, 2008; Ferris et al., 2013; Graham et al., 2013; Kolasinski and Li, 2013). However, overconfident CEOs reduce their willingness to take risks when they have experienced higher losses in their portfolio (Kolasinski and Li, 2013). Adam et al. (2015) analyze the hedging-behavior of American gold mining companies and find that managerial overconfidence also affects corporate risk management decisions. However, Banerjee et al. (2015) observe overconfident CEOs reduce risky behavior ex post external events such as the Sarbanes-Oxley Act (SOX).

Focusing on narcissism, Aktas et al. (2016) show that when the CEOs of both negotiation parties are narcissistic, the probability of a successful acquisition is low. It is the question, whether results are similar for acquisitions under the control of overconfident CEOs on both sides. Malmendier and Tate (2008) show that acquisition announcements of overconfident CEOs lead to negative capital market reactions. Kim (2013) supports this evidence but only for CEOs who are extremely overconfident. Analytical studies predict that a moderate level of overconfidence and optimism maximizes firm value (Goel and Thakor, 2008; Hackbarth, 2008; Campbell et al., 2011; Gervais et al., 2011). Nevertheless, an optimal extend of overconfidence depends on the firm's size and growth strategies (Gervais et al.'s (2011). Though, overconfident CEOs are expected to operate in growth companies due to their high performance-based compensation. This perception is supported by Hirschleifer et al. (2012), who show that overconfident CEOs are highly innovative due to their higher willingness to take risks.

4.6 Founder and Successor

In this chapter, we summarize studies that investigate how family firms and CEOs who are founders or successors affect firm value and financial performance. The characterization of a firm as a family business is based on elements such as ownership, control and management (Villalonga & Amit, 2006). Researchers highlight this area because most of them expect to find reduced agency costs between the owners and the management in family firms compared to non-family businesses (Villalonga and Amit, 2006; Fahlenbrach, 2009). In fact, in family firms control and ownership are connected because most owners or successors also appoint another family member as the CEO. According to prior literature it is argued that family members are more likely to identify with their business and are intrinsically motivated because they or their forefather built that firm and are more able to assert themselves (Anderson and Reeb, 2003; Adams et al., 2005; Villalonga and Amit, 2006; Fahlenbrach, 2009; Gao and Jain, 2011).

When the effect of founders and successors on firm performance and value has been investigated empirically, most prior studies base their analysis on samples of U.S. firms. These studies show that founder-CEOs positively

affect the firm's market value (e.g. Anderson and Reeb, 2003; Villalonga and Amit, 2006; Fahlenbrach, 2009). The positive effect on the firm's market value is also existent when the founder only advises the management at board level (Li & Srinivasan, 2011). Furthermore, when firms re-elect their founder as a director, firms benefit from higher profitability (Fahlenbrach, Minton, & Pan, 2011). In contrast, Villalonga and Amit (2006) show that successor-CEOs in the second generation have a negative effect on the family firm's market value and the third or other generations do not have an effect on firm value at all. Due to findings provided by prior studies, Gao and Jain (2011) expect founder-CEOs to be more willing to take risks. Anderson and Reeb (2003) is the only study that shows both the founder-CEO and his or her successor has a positive effect on the firm's financial performance. In a study on small and medium-sized Danish firms, Bennedsen et al. (2008) show that firm size and family size are positively correlated and founder CEOs often offer board positions to their family members. In a Chinese study, Pan and Tian (2016) identify founder-CEOs as having a negative effect on the firm's market value in a sample of Chinese firms. They explain this effect based on China's less-well-pronounced shareholder protection and corporate governance, which enables family firms to use their status and power to follow their private interests only. In a survey, Mullins and Schoar (2016) are able to perceive a strong stakeholder orientation in firms with founder CEOs, while firms with professional CEOs seem to follow the interests of their stakeholders.

4.7 Network Relationships

Most studies define network relationships based on intersections between managers in terms of education or employment records as well as memberships in non-profit organizations (Hwang and Kim, 2009; Gaspar and Massa, 2011; Fracassi and Tate, 2012; Duchin and Sosyura, 2013; Faleye et al., 2014; Ishii and Xuan, 2014; Masulis and Reza, 2015; financial institutions: Engelberg et al., 2012b).^{vi} Political relationships can be assigned to this category as well as and are measured based on managers' present or previous activeness in political or state-affiliated organization (Faccio et al., 2006; Fan et al., 2007; Goldman et al., 2009, 2013).

When analyzing network relationships, prior literature takes sociological concepts or homophily or the so-called "birds of a feather" concept into account (Hwang and Kim, 2009; Duchin and Sosyura 2013; Ishii and Xuan, 2014). These concepts enable group-building or group-thinking effects to be explained. Indeed, group heterogeneity is a relevant aspect, which Hambrick and Mason (1984) considered as an influencing characteristic in the context of the Upper Echelons Theory. Whether network relationships positively affect a firm's market value has been analyzed empirically. However, the direction of how work relationships affect a firm's success is not clearly predictable. On the one hand, network relationships contribute to reduced information asymmetries as well as agency conflicts, which positively affect the decision-making quality (Gaspar and Massa, 2011; Fracassi and Tate, 2012; Faleye et al., 2014). On the other hand, it is questionable whether CEOs or directors use their informational advantage in favor of the firm or whether they possibly use their informational advantage in order to follow their own interests (Gaspar and Massa, 2011; Cheung et al., 2013; financial institutions: Engelberg et al., 2012b).

When a multidimensional firm allocates its internal capital, division managers who are well networked with the CEO receive more capital than managers without this relationship (Gaspar and Massa 2011; Duchin and Sosyura, 2013). This is in contrast to the bridge-building hypothesis by Xuan (2009). Duchin and Sosyura (2013) split their U.S. samples based on complexity and corporate governance quality. They find a positive effect on investment quality in highly complex firms but a negative effect in firms with less distinctive corporate governance indicators. Faleye et al. (2014) argue CEOs with well-developed external network relationships tend to take more risks because they may easily find a new employment in the case of failure.

A higher willingness to invest is also reflected in a higher quantity of acquisitions in firms with managers who exhibit an excellent network (Fracassi and Tate, 2012; Shue, 2013; Ishii and Xuan, 2014; El-Khatib et al., 2015). Prior studies show that internal relationships between CEOs and directors reduce the directors' independence and the monitoring effectiveness (Hwang and Kim 2009; Fracassi and Tate, 2012). In an event study, Fracassi and Tate (2012) show that the announcement of acquisition activities in firms with a well-developed network relationship between the CEO and director negatively affects cumulative abnormal returns (CAR). In line with this, Ishii and Xuan (2014) find that a well-developed external network between the acquisition parties' CEOs and directors negatively affects the CAR. However, it also increases the probability for a continuation of the CEO's term of office of the acquired firm. Cai and Sevilir (2012) identify a relationship based on the representation of directors at board level. For example, when both acquisition parties (acquiring and acquired firm) share a director this is called a "first-degree connection" while they call a relationship a ("second-degree connection") as soon as one director of each acquisition party serves at the board of a third firm. They argue their measurement is more precise as it also includes the professional level. In contrast to prior studies, Cai and Sevilir

(2012) find a positive relationship between the announcement of acquisitions and CAR when there is a relationship between board members of the acquisition party. Another measurement of relationships is developed by El-Khatib et al. (2015), who argue that social relationships are manifold and hierarchic levels are highly relevant. They developed the so-called “Network Centrality” for CEOs (based on employment history), which provides information on a CEO’s social position in his/her network, his or her skills to obtain information, to control others and to influence decisions. In line with Fracassi and Tate (2012), Ishii and Xuan (2014) and El-Khatib et al. (2015)’s results show that firms with high “centrality” CEOs exhibit negative CAR around acquisition announcements.

In comparison to the effect of the networks’ relationship on a firm’s investment, there is scant research on the effect on the firm’s finance quality. Engelberg et al. (2012b) investigate the relationship between managers in banks and firms based on their employment history. They provide evidence that firms’ managers with a well-developed network achieve lower interest rates as well as a reduced probability of credit clauses.

Khanna et al. (2015) suggest the number of managers that are appointed during the CEO’s tenure (“appointment-based connectedness”) as a new method to measure relationships, as this may also proxy for loyalty towards the CEO. In contrast to Engelberg et al. (2012b), Khanna et al.’s (2015) results indicate that network relationships between CEOs and directors increase the probability for financial fraud and decrease the chance of uncovering fraud activities.

When political relationships were analyzed, the U.S. capital market’s reaction to the appointment of political connected directors is positive (Goldman et al., 2009). Such directors potentially dispose of a higher impact on certain regulations regarding governmental instructions. The latter can also be found in a subsequent study (Goldman et al., 2013). Similar results are presented in Faccio et al.’s (2006) cross-country study: firms that face the risk of not being a concern but have political connections are more likely to benefit from governmental transfer payments. Unlike most countries, Fan et al. (2007) show that political connections in Chinese firms are negatively related to the firm’s performance, including share prices, revenues and return growth rates compared to IPOs with CEOs without political relationships.

5. Discussion

5.1 Country and Industry Level Evidence

As expected, most prior studies show significant relationships between managerial styles and firm outcomes which confirms our hypothesis. However, to our knowledge, research does not fully answer this question when it comes to evidence across countries. Indeed, most studies focus on the managerial style in U.S. samples, which provides great data availability for managers. However, it is questionable whether the results are generalizable to other country origins. For instance, the previous section shows that political network relationships are beneficial in the U.S. – this is not so in China. In addition, Ferris et al. (2013) provide evidence that there are more overconfident CEOs in countries with a primarily Christian character in religious and cultural terms. Hence, it is the question of whether political connections positively influence firms’ market value in Europe just like in the U.S. Also, for most characteristics, especially overconfidence and optimism, private behavior and political conviction and network relationships, evidence on cultural differences is rare. However, there might also be information on CEOs’ characteristics available in other countries. Hence, evidence for firms in other country origins is rare or missing.

Another important aspect is the generalizability of prior results at industry level. Most manager characteristics were analyzed independently from the industry the manager/CEO or firms operate in, except for Hirschleifer et al. (2012) or Gervais et al. (2011), who consider overconfidence in growth industries such as technology as value-creating. Even though most empirical studies control for industry fixed effects, they rarely show the differences across industries. For example, future research could analyze whether certain life or job experiences are more relevant in the service sector than in the production sector. In line with this, Kaplan et al. (2012) solely identify private equity firms and indicate the generalization of their results is limited. Thus, there are numerous potential open research questions regarding other board members or relationships against the background of different nations and industries.

5.2 Board Members’ Characteristics

Furthermore, empirical evidence on the interaction between managers’ characteristics in different board systems is scarce. Only six studies analyze management quality and network relationships within a management team. For example, existing evidence indicates that male and older CEOs are more overconfident than young female CEOs (Graham et al., 2013; Huang and Kisgen, 2013; financial insitutions: Ho et al. 2016). Nevertheless, the

low number of studies on individual characteristics in management teams is surprising, as Hambrick and Mason (1984) assess the management team's composition as being highly relevant. Therefore, we suggest two different avenues for future research that may be relevant. First, under which circumstances are characteristics – or combination of characteristics – is a team beneficial for a firm? Are founder-CEOs with network relationships more successful in comparison to founder-CEOs without such resources? Are industry and financial experiences substitutable with certain network relationships?

In addition, more than half of all articles analyze CEOs' characteristics independently from other board members. Future research could consider board member's characteristics and interests at a more aggregated level. We follow the argumentation of Bernile et al. (2018) who state that more diverse boards adopt more persistent and less risky financial policies. In line with this, Pugliese et al. (2009) encourage future studies to examine the impact of institutional and context-specific factors on the (expected) contribution of boards to strategy. Accordingly, the following core questions could be addressed in the context of board compositions and board diversity. How does decision-making change when boards are highly diversified in terms of demographic characteristics, experiences and political interests? Which possible characteristics contribute favorable knowledge to the board? Overall, this literature review encourages researchers to focus on the interaction of at least two board member's characteristics and their interests at a more aggregated (board) level. Existing research does not sufficiently address these issues and we point out that manager fixed effects are worth investigating at a more aggregated level instead of focusing on one manager at the board.

5.3 Theoretical and Methodological Issues

Overall, prior literature leaves room for interpretation and various possible explanations for the observed results due to the use of different measurements of characteristics. Therefore, the identification of clear and meaningful indicators is necessary. Firms with older CEOs and a Republican orientation political-wise have lower debt–equity ratios, while financial expertise and overconfidence cause the opposite effect. Hence, it remains unclear which characteristic is the more significant one as soon as the manager disposes of financial knowledge but also reaches a certain age. In general, future research faces the challenge of considering existing literature and evidence on those characteristics in order to not omit potential interferences.

In addition, many possible characteristics are still unexplored. For example, previous literature exhibits research gaps on characteristics such as family status, parents' home, and ethnic or social origins. Besides these unaccounted for characteristics, some characteristics have been analyzed either for managers or directors. To our knowledge, the extent to which international experience is relevant for executive managers has not been analyzed. Finally, the discourse mentioned in the theory section is still up for debate, namely whether managers transfer their individual style to the firm they get hired by or whether they get hired or elected because of their existing individual characteristics. Custódio and Metzger (2014) and Kaplan et al. (2012) argue that some researchers try to exclude possible endogenous selection of CEOs but do not prove it. On the other hand, researchers trace back their results to an optimal match of firm and manager. Some firms appoint women for management positions due to their high empathy and the high portion of female customers in the micro finance industry (Mersland & Strøm, 2009; Strøm et al., 2014; Tate & Yang, 2015). Two studies address endogeneity and provide alternative approaches to analyze economic consequences of CEO turnovers. Fee et al. (2013) analyze the differential effect of exogenous events, such as the CEOs retirement due to health issues or endogenous CEO-changes (which are enforced by the firm or the board) on changes in corporate policies. When focusing acquisition returns, Golubov et al. (2015) identify a persistent fixed effect but do consider that results could occur due to CEO-changes or management quality indicators (Chemmanur et al., 2009). Some researchers point out a possible compromise and name two different interpretations. Graham et al. (2013) state that growth firms either hire overconfident managers or overconfident managers select themselves, as they are interested in growth firms. In their analysis, Cronqvist et al. (2012) investigate CEOs' private willingness to take on debt and find two different lines of interpretations. On the one hand, firms systematically replace CEOs with similar debt–equity preferences. This is the so-called endogenous “matching” between firms and manager. On the other hand, the economical effect between having private debt and the increased leverage at firm level is even higher, the weaker the corporate governance mechanism. The latter shows that managers' private style is transferable to the managerial style at firm level.

We suggest that managerial style research could benefit significantly if researchers were more open to (1) the possibility that managerial style and a firm's decisions are driven by both the management board and its composition of different individual managers that all exhibit different characteristics, and (2) the use of other methodological instruments, such as experiments, to answer important managerial-style questions that are difficult to answer with the archival data currently available.

6. Conclusion

Over the last two decades, the interest in research on the relationship between various board members' characteristics and firms' strategic decisions and firm performance between boards of directors and strategy has grown significantly. In this study, we review articles in the area of managerial style and its effect on firms' strategic decisions and performance. In doing so, we focus on articles that were published in highly ranked and finance related journals between 2001 and 2016. In line with our hypothesis, most prior studies document a significant relationship between managerial style and firm outcome. This is also in line with Hambrick and Mason's (1984) Upper Echelons Theory. Apart from documenting the number and type of manager characteristics that have been analyzed so far we show methodological differences and weaknesses. When investigating the methodological approach, we follow Bertrand and Schoar (2003), who provide evidence that manager's individual influence (managerial style) on firms' outputs and outcomes is measurable and identifiable empirically via "manager fixed effects". This study reveals that, although the majority of existing empirical articles in this area refer to a managerial style, most studies do not control for these manager fixed effects. Albeit differences in methodology and measurements of characteristics cause ambiguous results, this paper exploits potential avenues for future research in the area of manager's characteristics. For instance, future researchers should focus on the interaction between at least two characteristics. For instance, how do overconfident managers with financial expert knowledge affect corporate decisions? Or, are industry and financial experiences substitutable with certain network relationships? How do managers with well-developed network relationships and high-risk aversion affect corporate outcomes? There may be also more individual characteristics, such as psychological but also skills, passions, or backgrounds and representation of other groups that could affect firm's strategic decisions. However, for some characteristics, the measurement or data availability is still an obstacle. Future research may also consider other methods to study manager fixed effects by implementing an experimental approach. Experiments enable researchers to isolate different effects via manipulation or post experimental questionnaires. Second, board member's characteristics should be also analyzed at a more aggregated level. In particular, interests and manager's characteristics may differ across board members and effects could be driven by board diversity, a phenomenon that has gained much attention in research but also in practice (Bernile et al., 2018; Pugliese et al., 2009). This review contributes to prior literature in providing insights on how empirical and analytical evidence contributes to the literature and illustrates the way in which the literature evolved, highlighting implications and suggesting avenues for future research.

Notes

ⁱ Hereafter, we use the term "board", which refers to the management board in one-tier board systems. This board consists of both dependent and independent directors or executives and non-executives. Hereafter, we use the term "CEO" for the top most executive, "CFO" for the Chief financial officer and "director" for the non-executive director. In some cases, we use the term "manager", which refers to all board members.

ⁱⁱ For an overview regarding gender issues in accounting research over the period of 1994–2016, refer to a literature review by Khlif and Achek (2017).

ⁱⁱⁱ To our knowledge, Jiang et al. (2016) is the only study that also uses a media indicator, which helps to quantify the manager's public reporting or news coverage.

^{iv} Malmendier and Tate's (2005) argumentation on a CEO's portfolio behavior is based on Lambert et al. (1991) and Hall and Murphy (2002). We refer to Hirschleifer et al. (2012), Kolasinski and Li (2013) and Malmendier and Tate (2005) who do not consider alternative explanations or tax reasons for CEOs' portfolio compositions.

^v Campbell et al. (2011) and Kolasinski and Li (2013) provide a similar approach that requires less data and thus enables research to include time frames after 1994.

^{vi} Approaches may vary across prior studies. For instance, Ishii and Xuan (2014) do not consider non-profit-organizations and Fracassi and Tate (2012) do not require an active membership of non-profit-organizations.

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Impact of Work-Life Balance, Happiness at Work, on Employee Performance

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Abstract

The purpose of this research is to investigate the Relation of work-life balance, happiness, and employee performance, Accordingly, a questionnaire-based survey was designed to test the aforementioned model based on dataset of 289 employees' from the (Med Pharma), Pharmaceutical industries in Jordan, Multiple regression was conducted to examined the research hypotheses. The results indicated that work-life balance and happiness positively and significantly affect employee performance. However, job satisfaction non-impact in employee performance. The results have enormous implication for the Pharmaceutical industries sector in Jordan.

Keywords: work-life balance, happiness at work, on employee performance, Med Pharma), Pharmaceutical industries in Jordan

1. Introduction

The line between work and life has been the subject of interest amongst scholars and practitioners nowadays. Several factors have been found to have sparked this interest and these include changes of demographic composition in the labor market and in the amount and pace of work, and increases in work hours (Helmle et al., 2014), A person can live a life that is happy, healthy and successful when there is work-life Balance. Work-life Balance has indeed become a primary concern to those wishing to have good quality of life (Breitenecker and Shah, 2018) The notion of Work-life Balance has been described by many, and for the majority, work encompasses the venue of official tasks to be accomplished by individual while executing a given job. Accordingly, life encompasses a collection of activities not related to work for instance household chores and childcare. In this regard, balance is achieved when there is harmony between work and life. (Semlali and Hassi, 2016) Since the last decades, the concept of Work-life Balance has been viewed as crucial to both organizations and people, and it has indeed been found to greatly contribute in the improvement of productivity of employees which in turn impacts the performance of organizations in positive manner (Guthrie, 2012). Effective policy of work-life balance embraced by the organization allows the employees to socialize with the community while assuring that cost and turnover are under control and productivity is improved (Helmle et al., 2014).

It is yet to be affirmed when it comes to the association between the happiness of worker and productivity in the workplace. Still, the common consensus is that a happy employee will become a productive employee (Joo and Lee, 2017, Abualoush et al., 2017). For human resource management, to keep employees healthy and able to work long hours efficiently is a great challenge. One indicator of good mental health is engaging the employees at work (Nielsen et al., 2008) The well-being of employee, both physical and mental, is very important, and as stressed in studies, employee well-being impacts the success of organization. For instance, it has been reported that employees who feel good and deal with less stress at work and at home are more likely to experience satisfaction towards their work, and this can significantly affect their well-being and also their organization. (Koubova and Buchko, 2013), Even though the factors of engaging at work, career satisfaction, and subjective well-being are showing judicious relationships with each other while also demonstrating inclination towards showing consistency within individuals over time, among scholars and practitioners, employee engagement is their major concern. This owes to the fact that engaged workers appear to have greater level of motivation, and demonstrate greater level of involvement in their jobs and organizations (Shaffer et al., 2016). These employees are also more productive, and have greater level of readiness in giving more than what they are supposed to in

contributing to the survival and success of their organization (Shaffer et al., 2016, Obeidat et al., 2018).

Work-life balance and happiness is still insufficiently studied although this subject has been receiving increasing attention from scholars. Relevantly, employees spend significant amount of their time working. Still, past studies on life satisfaction or well-being were focusing on non-work populations (e.g., patients, children, students, and/or adolescents). As such, this study is of the view that in the domain of management, the lack of attention on employee well-being has become a critical gap in the extant research. Meanwhile, the negative behavior demonstrated by employee can be triggered by the increase of work stress (Emslie and Hunt, 2009). In reality, as reported by Mullen and Kelloway (2010), failure in performing tasks, turnover, and absenteeism are now becoming common in the workplace, and all these are compromising the effectiveness and development of the organization. It is the obligation of the organization to play a major role in attaining and sustaining employees that are healthy, well-trained, and capable on a long-term basis (Nielsen et al., 2008). Further the purpose, organization needs to delineate an environment in which employees can grow themselves and discern the well-being (Nielsen et al., 2008). Employees are obliged demonstrate hard work and in the course, they often have to work extra hours so that they could fulfill their financial obligations, which leads to a disparity between work and family. Long working hours cause job-to-home spillover to increase and this may impact negatively on job performance of employees and productivity and profits of organizations. This implies the presence of gap which this study attempts to Fill gaps in previous studies , particularly in terms of happiness of employees and attention to their family in order to increase creativity and innovation in terms of performance (of the employees).

This study therefore attempts to understand the effect of Work-life balance and Happiness at work on employee's performance and hence, the following questions will be addressed in this study:

1. Does Work-life balance impact employee performance?
2. Does Happiness at work (employee engagement, job satisfaction, and affective organizational commitment) impact employee performance?

2. Literature Reviews

2.1 Work-Life Balance

It wasn't until the mid-60s that the subject of work-life balance became the subject of interest among scholars. For instance, Kahn et al. (1964) concluded that for employees, work-family conflicts are a substantial stress source. Relevantly, the notion of equilibrium between family and professional life (work-family balance) is recently employed when referring to the successful development of both domains. At present time, in order to fine-tune the organizational structures to the needs of the employees or to respond to government regulations with respect to gender equality, integration, and protection of families, a lot of organizations dedicate their resources to the initiatives of work-life (Susana and Ramón 2013). As has been emphasized by a number of scholars, at present time, it is likely to have employees that demand the initiatives of work-life balance from the organization. Such demand has been closely linked to the increasing commonness of dual-career couples, family or dependent accountabilities, or the wish to devote more time to friends or enjoy leisure undertakings (Lavoie, 2004).

In studies on work-life, the focal point has been the effect of organizational services and policies that are established for providing assistance to employees regarding the conflicts that occur between their work and their life. Accordingly, the extant literature attempted to comprehend the role played by organizations to help reduce the conflict experienced by the employees that occurs from the demands of work and the role they are obliged to play at home (Emslie, and Hunt, 2009; Hon and Chan, 2013). As evidenced from the findings, employees with access to services including flexible schedules, childcare, parental leave, and support from supervisor appear to be more likely have less conflicting work-life, greater job satisfaction, less stress, and are less inclined to want to quit (Helmle et al., 2014). In research on the issue regarding work-life, gender has also been explored, particularly with respect to how the roles and expectations of gender impact the perceptions regarding work and family roles. Here, as evidenced by the findings, in certain situation, gender expectations in a situation impact how far individuals feel incompatibility between work and life roles, and this can cause the perceived level of stress and the perceptions of conflict between the roles of work and life to increase (Helmle et al., 2014; Lawson et al., 2013).

The management of work-life balance and/or work-family conflict interest of employees have been found to be among the primary aspects to be addressed by the organization as a way to preserve human resources (Au and Ahmed, 2014). Work-life balance encompasses a balance between two entirely separate roles performed by a

person namely the roles of work and the roles of family, and to holder of the roles, both bring satisfaction (Shaffer et al., 2016).

The benefits of work-life can improve both the life quality of employees and the effectiveness of the organization. Hence, there appears to be countless delineations regarding work-life balance, but all appear to be in agreement that work encompasses a group of formal tasks completed by an individual while occupying a given job. Life comprises a group of activities not associated with work such as household chores, care of elderly and care of children (Anwar et al., 2013), Emslie and Hunt (2009) stated that balance is attained when the domain of work and that of life are in harmony. Work-life balance is about a person's capacity irrespective of age or gender in successfully combining work and household accountabilities. Within this context, work becomes a term that can be regarded as paid employment and also free work done for an employer.

Conversely, the notion of "life" is not related to work and it can be broken down into free time used in doing leisure activities, and family time (Lawson et al., 2013). Accordingly, the concept of work-life balance defines the amount of time available to an employee in balancing between family and the demands of work. Work-life balance encompasses an employee's time-sharing ratio between work and family. When there is imbalance between work and family, whether too much on work or too much on family matters, stress and negative work attitudes can occur and these can lead to burnout (Lawson et al., 2013). In the work of Grzywacz and Carlson (2007), work-life balance is described as the achievement of role-related expectations exchanged and shared between people and their role-related partners in the arena of work and family. Meanwhile, work-life balance was addressed by Greenhaus and Allen (2010) as the degree to which the effectiveness and satisfaction experienced by a person in terms of his work and family roles are attuned to his role priorities of life at certain point in time.

Effective Work-Life Balance is underpinned by two applicable primary concepts namely the day-to-day accomplishment and enjoyment. Achievement is the successful completion of something particularly after a series of diligent attempts or being given what is desired. With respect to the notion of enjoyment, it does not denote happiness. Rather, it denotes pride, satisfaction, celebration, joys of living as well as a sense of wellbeing. In life, achievement and enjoyment have close linkage in terms of value. In other words, a person has to have both. This is the reason why those who are deemed successful do not feel happy or are not as happy as they are supposed to be (Hon and Chan, 2013).

2.2 Happiness at Work

Human Resource Management (HRM) and performance is related in a manner that is one sided, and the relationship of these two does not take into account the human side of HR. For HRM, its primary resource encompasses the human factor. Somehow, in many studies in this domain, the effect of HR systems on the quality of working lives as well as the well-being of employees has not been explored. Here, Having the awareness of how different conditions of working impact human resources has become the actual challenge. However, the impact of various variables on employee attitudes is now a subject of interest amongst scholars. (Gupta, 2012),

In general, happiness relates to how people experience and appraise their lives in total. Considering that a significant amount of time of most people is spent on working, having the understanding of the role played by employment and the workplace play is highly critical. This is because such understanding can assist in the creation of happiness for individuals and communities globally. As evidenced by recent studies, work and employment drive happiness which in turn can assist in shaping the outcomes of job market, productivity, and performance of firm as well (Field and Buitendach, 2011). In academic studies, the importance of life quality within the workplace has been dubbed as a major element. In this study, happiness becomes a basic state to be achieved by nearly everyone. Among the notable past studies are the ones that examine how happiness in day-to-day work becomes attainable through better management of work atmosphere (Salas-Vallina, 2017).

Happiness at Work is more than the possession of sense of pleasure, positive affective experience, good feelings and enjoyment because it also means having meaningful work life. Furthermore, a person is deemed as a happy person when he or she feels positive emotions repetitively. A person possessing positive emotions means that he or she has good life with no readily visible threats (Saenghiran, 2014). In a study performed by Edmunds and Pryce-Jones (2008), Happiness at Work is viewed as sensibly using the accessible resources to handle challenges faced in a judicious manner. Through the active appreciation of the highs and management of the lows, the performance of individual could be maximized easier, and the potential of the individual could also be achieved. In turn, the happiness of a person and also of others can be established. In another study, the concept of Happiness at Work was described as the enjoyment of pleasant working relationship and career development,

and also the enjoyment of the feeling of being valued and treated well (Edmunds and Pryce-Jones, 2008).

A number of concepts including the concepts of engagement (Schaufeli and Bakker 2004) and well-being (Hills & Argyle, 2001) are now deemed as forms of happiness. As shown in the extant literature, interest in the subject of happiness at work has been increasing amongst scholars (Salas-Vallina et al., 2017). For instance, Fisher (2010) reported Happiness at Work (HAW) as happy feelings towards the job itself, the characteristics embraced by the job, as well as that of the organization all together. Furthermore, HAW is described as an all-embracing construct that carries the traits “job satisfaction” and “organizational commitment.” Meanwhile, the concept of Job satisfaction has been elaborated as a pleasant or positive emotional state caused by an appraisal of job or job experiences of a given individual (Huang et al., 2016)

Organizational commitment comprises a number of elements. These elements include the sense of affective devotion towards the organization, loyalty towards to the organization, and identification of the goals and values established by the organization (Field and Buitendach, 2011). In the works of Joo and Lee (2017), employee engagement and career satisfaction were found to be the two primary elements of happiness at work. In the work by Salas-Vallina et al. (2017), engagement, job satisfaction and affective organizational commitment were reported as the major constituents of HAW. In the extant past works, three main components have been the focal points, and they are employee engagement, job satisfaction, and affective organizational commitment. These components are as discussed below:

2.2.1 Employee Engagement

Engagement is the attachment of members of organization to the roles of work assigned to them, and in engagement, people physically, cognitively and emotionally make use of and articulate themselves during role performances (Abdallah et al., 2017). Engagement can likewise be described as an unrelenting and positive affective-motivational state of accomplishment (Field and Buitendach, 2011). For Schaufeli and Bakker (2004), work engagement is highlighted as a positive, gratifying and job linked mind state characterized by three dimensions namely dedication, absorption and vigor. Past studies on work engagement of employee found that employees who are engaged are likely to demonstrate positive organizational outcomes such as lower turnover intention, greater customer satisfaction, and greater level of productivity and profit (Joo and Lee, 2017). Engagement is also seen as a positive effect that has relation with the job and the environment of work, and as noted by Fisher (2010), engagement connotes or overtly denotes sense of persistence, alertness, energy, vigor, dedication, absorption, enthusiasm, as well as pride.

2.2.2 Job Satisfaction

Job satisfaction is the main priority for all organizations in establishing their policy (Yücel, 2012,), and as a concept that has linkage to the humanitarian and utilitarian viewpoints, it is worth the scrutiny. The humanitarian viewpoint is postulates that employee satisfaction level is linked to the degree to which employees are receiving fair and apposite treatment in the organization (Abdallah et al ,2017), whereas the utilitarian viewpoint indicated that employee satisfaction contributes to behaviors impacting the operation of the organization (Yücel, 2012). Job satisfaction is also viewed as a quantifiable depiction of an emotion related response towards certain job; in other words, the person performing the job feels satisfied with it (Al-dalalmeh et al., 2018; Anitha, 2014). Likewise, job satisfaction relates to how people feel about their jobs and about the differing aspects of their jobs. Meanwhile, in a study, job satisfaction was described as the extent to which employees are fond of their work (Parvin and Kabir, 2011).

2.2.3 Affective Organizational Commitment

Affective organizational commitment encompasses emotional attachment felt by employee in addition to their identification with and participation in their organization and its goals (López-Cabarcos et al, 2015). It encompasses a bond established by employees within the organization and there has been strong linkage between affective organizational commitment and positive work-related behaviors (e.g., dedication and loyalty) (Obeidat et al 2014; Schoemmel and Jønsson 2014), Affective organizational commitment is also describable as the association of a person with an organization, his/her belief in the goals established by the organization, and working to achieve those goals by being part of that organization (Ammari et al 2017, Abdallah et al 2017). Relevantly, affective organizational commitment has been viewed as a force uniting a person to action that relates to one or more targets(Enache et al.,2013), This term has been used in defining organizational commitment whereby three characteristics are involved as follows: a solid conviction and acceptance towards goals and values of the organization; readiness to make significant effort on behalf of the organization; and a strong wish remain as part of the organization (Gyensare et al., 2017).

3. Employee Performance

Employee Performance can be described as responses in the form of behaviors reflecting what has been learned by the employee or the kind of training that the employee has received; it encompasses the outcome of the mental and psychological capabilities (Faiza and Nazir, 2015). Employee Performance is a concept that is increasingly popular amongst scholars of management sciences, as employee performance is vital to both individual and the organization. Employee Performance contributes to the overall betterment of the processes of the organization particularly in terms of efficiency and productivity (Abualoush et al., 2018a). Employee performance has linkage to the activities and tasks employees carry out in effective and efficient manner, and it also dictates how much employees contribute to the organization and among the contributions of employees are output quantity, work attendance, and accommodating attitude (Abualoush et al., 2018b). Furthermore, the financial or non-financial outcomes of the employee which are closely related to the performance and success of the organization is also reflected by employee performance (Anitha, 2014).

In regards to the notion of performance, it is measurable using different mechanisms (Faiza and Nazir, 2015), and in general, performance encompasses what is done or not done by employee. It entails the full outcome or success of a person during specific periods of duty as opposed to the predetermined and established standard of work and targets or criteria (Abualoush et al., 2018; Pawirosumarto et al., 2017). Performance is the product of the capacity of employee, multiplied with support and effort. Hence, reduction or nonexistence of one factor will cause decrease in performance (Pawirosumaro et al., 2017).

4. Work-Life Balance, Happiness at Work and Employee Performance

4.1 *Work-Life Balance and Employee Performance*

In the era of knowledge, different skill sets and requirements are needed from employees, as opposed to those required during the era of industry. Correspondingly, within organizations, work health is deemed to be a resource, and as emphasized by researchers, for management, the promotion of employee's health should be made as the organization's vital part (Guthrie, 2012). However, considering the limitation of resources, the issue is on how an individual could manage to have satisfactory personal life while also delivering excellent results at work. The emerging question is on whether both goals are contradictory or complementary to one another (Koubova and Buchko, 2013). Inability to attain the correct balance with respect to effort and reward has significant linkage to the dearth of control over workload as well as lack of energy in fulfilling personal needs and obligation. When there is imbalance between effort and reward, fatigue, poor performance and declined life quality can result (Johari et al., 2018). Among scholars, there are generally three primary concerns pertaining work-life imbalance considering that it is impacted by technological influence. The first concern is on the developments at work which can be a hazard the work life balance, while the second concern is on the shifting nature of work activities particularly tasks that are associated with technology which requires updated knowledge of the field, and the third concern is regarding the shifting work demands. (Helmle et al., 2014)

There have been a lot of explanations regarding work life balance and the notion would have different meaning to different individuals with generational differences which greatly contribute to these differing perspectives. As evidenced by a number of works, younger employees are likely stress on work life balance because they do not desire having the demands of work impacting their lifestyles. Nonetheless, younger and older workers both want flexibility in terms of schedules and arrangements. It is just unfortunate that some supervisors are unwilling to employ flexible arrangements, due to unpredictability and potential abuse of these methods (Hon and Chan, 2013; Susana and Ramón, 2013)

Work-life balance implicates the attitudes, behaviors and wellbeing of employees as well as the effectiveness of the organization (Au and Ahmed, 2014). Hence, companies are obliged to integrate new management practices that provide social and supervisory support. The perceptions of superiors towards their employee work-life conflict also greatly dictate the career progress of employees (Au and Ahmed, 2014). In the last few years, the issue of work-life balance has been heavily scrutinized particularly in terms of increasing the flexibility of paid work and improvements in working conditions. Within the industry of hospitality, physical and emotional stresses have been reported to cause the lack of work life balance. The testing of the impacts of these variables (physical and emotional stresses) on what is embedded on the job and job performance includes the examination of work overload and work life balance. In this regard, employees with heavy workloads were reported to have low work life balance, were less likely to be embedded within their jobs while also demonstrating poor job performance. Relevantly, stress is also a dimension of personal employee similar to emotional exhaustion, and among hotel employees, stress has been reported to affect their quality of life (Lawson et al., 2013). Additionally for hotel employees, the spillover of stress has been viewed to exacerbate the stress on work life balance. (Hon and Chan 2013)

It is possible for employees to leave their work if their failure in integrating work and network roles becomes intolerable. The withdrawal may be in a form of absenteeism, below optimum level performance, or they can leave the organization for good. Such phenomenon accentuates the prominence of sustainable HRM practices because such practices will maximize profits while also minimizing the detriment to employees and their families, as well as communities. (Lawson et al., 2013; Gupta, 2012)

In the context of organizations and people, work life balance has demonstrated its significance since the past decades. Work life balance has indeed been found to be the major factor in the productivity improvement of employees and this has a positive impact on the general performance of organizations (Semlali and Hassi, 2016). An organization needs to implement effective work-life balance policy, that is, a policy that allows employees to remain socially connected with society while cost and turnover are controlled, and productivity improved (Helmle et al., 2014).

4.2 Happiness at Work and Employee Performance

The latest studies reported that employees who are happy appear to be more involved in work roles while enjoying greater level of job satisfaction. As reported by American Psychological Association (2014), employers advocate the significance of making employees happy, and in fact, these employers are intensifying their efforts for the sake of their employees’ happiness. Correspondingly, in the context of Taiwan, the current annual survey Taiwan by Common Wealth and Cheers magazines also mentioned making employees happy as the primary factor that has led to the recognition of the best employer (Gupta, 2012). Amongst practitioners and scholars, their main concern is employee’s engagement owing to the fact that engaged workers appear to have greater level of motivation while demonstrating more involvement in their jobs and organizations, and showing greater level of productivity and readiness to go beyond expectation in assisting the survival and growth of their organizations (Joo and Lee, 2017, Vincent- Höper et al., 2012).

As reported by a lot of studies, happy employees are inclined to show greater level of productivity, produce fresh ideas and attempt to accomplish similar job use different groundbreaking methods to improve effectiveness and reduce the time spent (Saenghiran, 2014)

Furthermore, among the desirable effects to be anticipated from having affectively committed employees are: better professional endeavor and performance, positive employee outcomes and behaviors, and innovative behavior demonstrated by employees (López-Cabarcos et al., 2015). Furthermore, review of the extant literature is demonstrating that having strong affective commitment towards the organization makes employees work harder at their jobs and show better performance as opposed to those that have less affective commitment (Ammari et al 2017; Abdallah et al 2017).

5. Research Methodology

5.1 Research Model

This study presents a theoretical model based upon the review of literature. The model can be viewed in Figure 1. As shown by the model, the independent variables are Work-life balance and Happiness at work, while the dependent variable is employee performance. The model shows the conjectured relationship between the independent variables and the dependent variable.

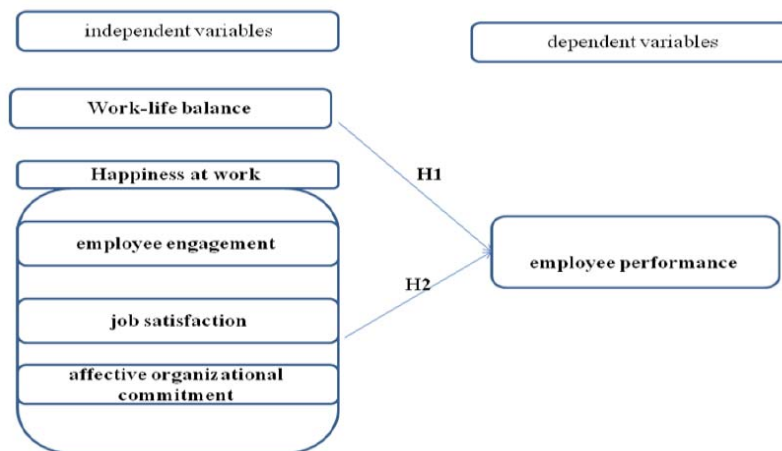


Figure 1. Research Model

5.2 Research Hypotheses

As indicated earlier, this paper is examining the effect of Work-life balance and Happiness at work on employee performance, and therefore, the hypotheses below are to be tested in this paper:

H1: There is a statistically significant effect of Work-life balance on employee performance.

H2: There is a statistically significant effect of Happiness at work (employee engagement, job satisfaction, and affective organizational commitment) on employee performance.

5.3 Measurement

This study measures the effect of Work-life balance and Happiness at work alongside its dimensions (employee engagement, job satisfaction and affective organizational commitment) on employee performance, specifically at Med Pharma. In gathering the information, the instruments used in this study include past works, books, references, as well as periodicals; these are the secondary sources. Meanwhile, the questionnaire has been chosen as the primary source of data gathering. The questionnaire that this study uses for data gathering was based upon the extant literature. The responses on each item (related to the variables) are provided by the participants using the five Point Likert-scale where “1” means “strongly disagree”, “2” means “disagree”, “3” means “neutral”, “4” means agree, and “5” means “strongly agree”.

The questionnaire used in this study contains 3 parts, whereby the first part covers items related to the demographic information of the respondents, particularly on their gender, education level, position and years of experience. Meanwhile, the remaining 2 parts relate to the variables, namely the independent variables (IV) and the dependent variable (DV). In particular, the second part encompasses items constructed to measure the dimensions of the independent variables whereby the third part includes items which measure the dimensions of the dependent variables. The questionnaire attempts to secure information regarding the direct impact of IV on DV. Overall, there are 28 items in the questionnaire selected following a broad review of the applicable literature (Work-life balance, Happiness at work, employee performance), and these items measure the model constructs. Accordingly, in order that the selected items are appropriate with this study’s context, minor amendments were made to these items. The items on Work-life balance are based on Helmlé et al 2014; Johari et al 2018, while items on Happiness at work alongside its dimensions (employee engagement, job satisfaction, and affective organizational commitment) are adaptations from Al-dalalhmeah et al. (2018) and Bisharat et al. (2017). Meanwhile, items on employee performance which is this study’s dependent variable are based on Abualoush et al. (2018).

5.4 Population and Sample

The population chosen in this study comprises everyone employed at Middle East Pharmaceutical & Chemical Ind. & Med. Appliances (Med Pharma), Pharmaceutical industries. A total of 315 employees who represent all company staffs were sought after to participate in the survey and at the end, 283 respondents returned usable questionnaire, which accounts to 89% rate of return.

5.5 Respondents Demographic Profile

Through demographic data, the key attributes of the respondents can be determined, and among the key attributes include education, gender, position, and years of experience, all of which, are basic information of the respondents. The key attributes of the respondents in (Med Pharma) are presented in Table (1).

Table 1. Demographic data for respondents

Category	Frequency	Percentage %
Gender		
Male	195	69%
Female	88	31%
Education		
Bachelor's Degree	258	91.3%
Masters Degree	22	7.7%
PhD	3	1%
Experience		
Less than 5 years	108	38 %
5 - Less than 10 years	128	45.1%
10 - Less than 15 years	34	12.7%
15 years and above	13	4.2 %
Position		
Lower management	234	82.7%
Middle management	40	14.2.%
Top management	9	3,1%

5.6 Reliability and Validity

A group of experts with the know-how in the design of the administrative sciences' questionnaires were invited to evaluate the questionnaire. Hence, members from the information systems and business administration departments of the Jordanian University evaluated the questionnaire. These members were chosen due to their expansive experience and therefore, they have the credibility in validating the questionnaire items. These experts also made suggestions and recommendations on certain items and accordingly, amendments were made before the questionnaire was distributed.

Authenticated analysis is associated with the degree of consistency evaluation between various variable measurements. In this regard, the coefficient of Cronbach's Alpha is used to determine the reliability of the variables in all dimensions. Bagozzi and Yi (1988) are among those who suggested the values of all variable or dimensional scales to be greater than the commended value of 0.60. In this study, for all the tested variables, the Cronbach's alpha coefficients were greater than 0.60 and this demonstrates the reliability of the compound measure. The Cronbach's alpha coefficient values were acceptable (between 0.821 and 0.875), and this demonstrates reliability of the compound measure. Table (2) presents the details.

Table 2. Cronbach's Alpha for all the variables

Variables	Number of items	Cronbach's Alpha
Work-life balance	8	0.834
Employee engagement	4	0.856
Job satisfaction	4	0.853
Affective organizational commitment	4	0.821
Employee performance	8	0.875

5.7 Descriptive Analysis

The study variables are described in this section. Computation was made to determine the mean and standard deviations for each dimension of the dependent and independent variables. The mean highlights the data's central tendency while the standard deviation measures the scattering of data which presents an index of the spread or variability in the data

Table 3. Mean and standard deviation of the research's Variables

Type of Variable	Variables	Mean	Standard Deviation	Level	Order
Independent Variables	Work-life balance	3.84	0.76	Moderate	1
	Happiness at work	3.51	0.64	Moderate	4
	Employee engagement,	3.54	0.61	Moderate	3
	Job satisfaction,	3.52	0.66	Moderate	5
	Affective organizational commitment	3.47	0.63	Moderate	6
Dependent Variable	Employee Performance	3.62	0.73	Moderate	2

As can be construed from Table (3), in the context of (med pharma), the mean score is 3.84 for Work-life balance which means that Work-life balance is applied to a great degree. In other words, Work-life balance is important, and the high value obtained demonstrates a positive attitude of respondents towards Work-life balance. Meanwhile, Happiness at work and Employee Performance appear to obtain judicious value, demonstrating the current engagement of (med pharma) with activities of Happiness at work and concentration on Employee Performance in order that superior performance could be maintained.

5.8 Multicollinearity

Multicollinearity relates to the level to which the independent variables employed in a multiple regression analysis have correlation (Ramadan et al., 2017). Multicollinearity causes the capacity in assessing the specific significance of each independent variable. When there are high levels of multicollinearity, the likelihood that a good predictor of the outcome will be deemed as non-significant and rejected from the model is increased (Hair et al., 2010).

The evaluation of multicollinearity employs indicators of Variance Inflation Factor (VIF) and tolerance. In this regard, a common cut-off value of 0.10 for acceptance, and a value of 10 for VIF were used to determine whether the present study has multicollinearity issue. These values have been proposed in the work of Sekaran and Bougie (2013).

The values of VIF for the independent variables that this study employs are highlighted in Table (4) and as shown, the values fall within the range of 1.076 -1.465, also, to the tolerance values which ranged from 0.697

-0.836. As can be construed by these results, the dimensions of the independent variable show no multicollinearity issue which is evidenced by all the VIF values being lower than 10 while all values of tolerance are greater than 0.10.

Table 4. The VIF and Tolerance Values for the Independent Variable

Variables	Skewness	VIF
Work-life balance	0.714	1.465
Employee engagement, Job satisfaction, Affective organizational commitment	0.761 0.697 0.836	1.237 1.564 1.076

5.9 Hypotheses Testing Results

The effect of Work-life balance and Happiness at work (employee engagement, job satisfaction, and affective organizational commitment) on Employee Performance in (Med pharma) is the focal point of this study. Hence, the techniques of multiple regression were used in the study to test the established hypotheses.

Hypothesis 1

H1: There is a statistically significant impact of Work-life balance on employee performance.

The outcomes of the test of hypothesis can be viewed in Table (5).

Table 5. Multiple Regression of the First Hypothesis

Variable	R	R ²	F-value	Sig (f)	B	T	Sig (t)
Work-life balance	0.652	0.573	42.243 a	0.000a	0.356	2.579	0.000

Note. the impact is statistically significant at level ($\alpha \leq 0.05$)

Predictors: (Constant), Work-life balance b. Dependent variable: employee performance

Table (5) presents the results on the impact of the independent variables on the dependent variable (human capital) and the impact is statistically significant. Here, the computed F was (42,243), at level (sig F= 0.000) and this value is lower than (0.05). Further, the correlation coefficient (R= 0.652) is showing a positive linkage between the variables, whereas the coefficient of determination was (R²=0.573) which implies 57.3% of the change in attaining employee performance being explainable via the change within the Work-life balance. Table 5. Multiple Regression of the First Hypothesis

Table 6. Multiple Regression of the second Hypothesis

Variable	R	R ²	F-value	Sig (f)	β	T	Sig (t)
employee engagement	0.459	0.408	42.36	0.000a	0.214	4.35	0.000
job satisfaction,					0.127	2.79	0.056
affective organizational commitment					0.415	6.45	0.000

Note. The impact is statistically significant at level ($\alpha \leq 0.05$)

Predictors: (Constant), employee engagement, job satisfaction and affective organizational commitment

b. Dependent variable: employee performance

As Table (6) is showing, a positive correlation exists between Happiness at work and employee performance in Med Pharma, ($r = 0.4599$). This denotes the change of the independent variables and dependent variable in direction that is similar. The table shows R² value which reflects the ratio of variation in employee performance explainable using the three variables of Happiness at work, implying 40.8% of employee performance variability being elucidated by the Happiness at work variables. In this regard, the data's F-value was 42.36 which demonstrates significance at $p < 0.05$ (sig = 0.000). As such, there exists statistically significance of the effect of Happiness at work variable on employee performance. The alternative hypothesis is therefore accepted. In particular, employee engagement scores a (t) value of (4.35) with (0.000) level of significance, while job satisfaction scores a (t) value (2.79) with (0.056) level of significance for job satisfaction, whereby affective organizational commitment scores a (t) value of (6.45) with (0.000) level of significance. In terms of β value for the three variables, it was 0.214, 0.127, and 0.415 respectively. Hence, for employee performance, affective organizational commitment can be said to be the highest predictor. This is followed by the variables of employee engagement and job satisfaction non-impact in employee performance. This study finds that Happiness at work (employee engagement, job satisfaction, affective organizational commitment) also has effect on employee performance. Specifically, this variable obtained R² = 0.408 implying that 40.8% of the variation in employee performance is explainable by the three variables of Happiness at work. As can be observed from the obtained scores, the highest effect on employee performance came from the variable of affective organizational

commitment. Affective organizational commitment encompasses a formal social network method encompassing direct knowledge and experience exchange amongst employees.

6. Discussion

This study explored the impact of Work-life balance and Happiness at work (employee engagement, job satisfaction, and affective organizational commitment) on employee performance among Med Pharma company. As the results are demonstrating, Work-life balance has a positive significant impact on employee performance, and this finding was also reported in the work of Helmle et al. (2014). In particular, Helmle et al. (2014) reported the impact of employee feeling comfortable (both physical and mental) on organizational success and its importance. As highlighted in the practical findings, employees with good feeling and only small degree of stress at work and at home show more likelihood to experience satisfaction with their work. The results are also showing that individuals who feel that there is interference of work roles with family roles show less likelihood to feel that they possess work-life balance. This finding is in line with the deduction made in Soomro et al. (2018) that work-life balance positively and significantly impacts employee performance.

Young employees with the capacity to find appropriate balance between work and family commitments appear to be the productive ones. Accordingly, organizations that offer adequate opportunities to their employees in managing their work and family roles will in turn reap the benefit from their employees showing stronger level of performance. Having a healthy work-life balance facilitates employees in performing her/his consigned tasks in more effective and efficient manner. Similar finding was also reported in Richert-Kaźmierska and Stankiewicz, (2016) where the authors warned the possible occurrence of unacceptable increase of staff turnover, especially among those with more talent and other career opportunities, due to failure in addressing work and life elements. The authors further mentioned the importance of the application of strong and applicable training programs, the provision of opportunities for promotion, and managers' genuine interest towards the well-being of employees' family and personal lives as among the ways in order to keep the staff contented. As mentioned earlier, in the context of Med Pharma, 40.8% of the variation in employee performance is explainable by the three variables of Happiness at work. Happiness at work (employee engagement, job satisfaction, affective organizational commitment) and the greatest impact on employee performance was from the affective organizational commitment. Hence, it can be concluded that staffs at Med Pharma have the complete understanding regarding the importance of committing to their organization.

Relevantly, a study Al-dalahmeh et al., (2018) has concluded that employee engagement within the workplace assists employees to survive as well as succeed when dealing with adverse situations, and this can also stimulate creativity among these employees. Expressed in another way, with the desire to discover fresh information to explore and integrate this new information, and then develop their own aptitude, employees are pushed to become creative.

In this study, job satisfaction appears to have no impact on employee performance, which contradicts with the past studies (Pawirosumaro et al., 2017, Semedo et al., 2017), which reported that job satisfaction had a significant positive effect on performance. Hence, taking steps to improve employee satisfaction can improve the general success of the organization. As a result, employees feel happier while demonstrating better workforce productivity with less workdays and greater level of profits. In agreement with this study, another study (Swalhi et al., 2017) that examined the effect of organizational commitment on employee performance reported the role of affective commitment being the first relationship signal in social interchange occurring between employees and their organization.

7. Implications

This study was established from the applicable past work. Accordingly, a research model is presented to investigate the impact of Work-life balance and Happiness at work on the performance of employee. As the extant literature is showing, there had been lack of studies on the subject in the context of Pharmaceutical industries. Hence, aside from being an expansion to the theoretical development, this study is of value to management of Pharmaceutical industries in the development and implementation of practices for the improvement of employee performance.

As can be deduced from this study's managerial implications, several recommendations can be derived for the perusal of managers of organizations, particularly those in Jordanian Pharmaceutical industries in order to encourage Work-life balance and Happiness at work as these will consequently improve employee performance of employees. Accordingly, more attention should be given to life quality elements which are known to impact performance. These elements are employee engagement, job satisfaction, and affective organizational commitment.

The social relationship existing between the employees and their bosses and peers via the involvement in the training programs, the flexible system of working hours, enables different start and finish times. This way, employees could decide what is most appropriate for his or her family situation and have sufficient breaks during work. Other issues including maternity leave and childcare, husband care, and parental care can be satisfactorily dealt with. For managers, it is crucial that they address the needs of the employees as this consequently leads to the increase in the employees' involvement, and this will eventually increase organizational commitment. Hence, practices of human resource that will increase job involvement and job satisfaction levels among employees must be implemented.

8. Limitations and Future Research Directions

There are a number of limitations that this study needs to highlight in order that the validity of future research findings could be increased. First and foremost, this study was conducted within a very limited time frame which imposed restriction on the number of questionnaires distributed. Hence, if future study could be executed within longer time period, more questionnaires could be distributed which means that sample size would be bigger, and hence, increasing the generalizability of the study outcomes to the population. Also, since the focal point of this study was Pharmaceutical industries only, other organization were neglected. Hence, future study could be conducted in other types of organizations as to enrich the body of knowledge more.

The third limitation of this study is its usage of a quantitative technique as the primary method of data gathering and analyses, and this may limit the outcomes in terms of accuracy. Hence, future work could employ other techniques such as case studies in order to increase the accuracy of the outcomes particularly with respect to the conjectured relationships

Finally, this study had chosen Pharmaceutical industries as the study population and the problem with this is the fact that Pharmaceutical industries differ in terms of business execution as opposed to other bodies. Hence, it is suggested that future work would look at other types of organization or industry in exploring organizational commitment as to improve generalizability.

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Comparative Advantage and Trade Specialization of East Asian Countries: *Do East Asian Countries Specialize on Product Groups with High Comparative Advantage?*

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Abstract

This paper analyzes whether East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) specialize on product groups with high comparative advantage. We use the data on the 3-digit SITC Revision 2 for 237 product groups published by the UN-COMTRADE. Firstly, we calculate the Revealed Symmetric Comparative Advantage (RSCA) index to know the product groups with high comparative advantage from each the East Asian countries. Secondly, we calculate the export share to know the trade specialization of product groups from each the East Asian countries. Thirdly, we compare between the product groups included in top-twenty SITC of comparative advantage with top-twenty SITC of trade specialization from each the East Asian countries. This paper concludes that throughout the study periods of 1995, 2005, and 2015, East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) specialize on product groups with low comparative advantage. It was also found that product classification dominating the comparative advantage and trade specialization of East Asian countries was the technology intensive products classification.

JEL classification: F10, F14, F17

Keywords: comparative advantage, export share, RSCA, trade specialization

1. Introduction

Comparative advantage is the advantage that a country obtains in specializing to produce products that have relatively lower prices than in other countries. Comparative advantage is usually used as an indicator to measure the performance and competitiveness of international trade. In comparative advantage condition, a country in a competitive condition will specialize in producing and exporting goods. Minondo (2011) found that products of comparative advantage of a country play a very important role in explaining the level of export diversification. While Laursen (1998) found that RSCA is the best measurement in measuring comparative advantage.

In international trade theory, comparative advantage is an important concept in explaining the trade patterns. The concept of comparative advantage was introduced by David Ricardo (1817) with the rigid assumptions then known as the Ricardian model. In modern international trade theory, these assumptions are made more realistic. According to traditional international trade theory, a country will export goods that have comparative advantage and will import goods that have no comparative advantage (comparative disadvantage).

The high economic development in East Asia shows the ability of production from East Asian countries in producing manufactured products and capability in developing industrial production. In this study, the countries analyzed are the East Asian countries. Based on the World Bank classification and geographically region includes Indonesia, China, Japan, Hong Kong, South Korea (Republic of Korea) and Singapore. The selection of

East Asian countries in this study is based on several reasons. First, the East Asian countries have succeeded in creating a very high export and excellent leading exporters such as Japan, China, South Korea, Hong Kong, and Singapore. The spectacular export of these countries mostly based on government support in planning the economy and promoting the sectors of export industry as a pillar of the economy. Second, the successes of Hong Kong, South Korea and Singapore in changing the economic structure from unskilled-labor intensive production to skilled-labor intensive production and eventually became capital-intensive production, so these countries became pioneers in shifting the export focus from primary commodities into manufactured products. Third, trade expansion for the Asian region is geographically concentrated in the East Asia especially in Japan and China. Fourth, Hong Kong, South Korea, and Singapore are examples of successful countries in export promotion strategies as well as the earliest countries adopted export promotion strategy. Figure 1 shows the trend of comparative advantage of East Asian countries during the period 1995-2015.

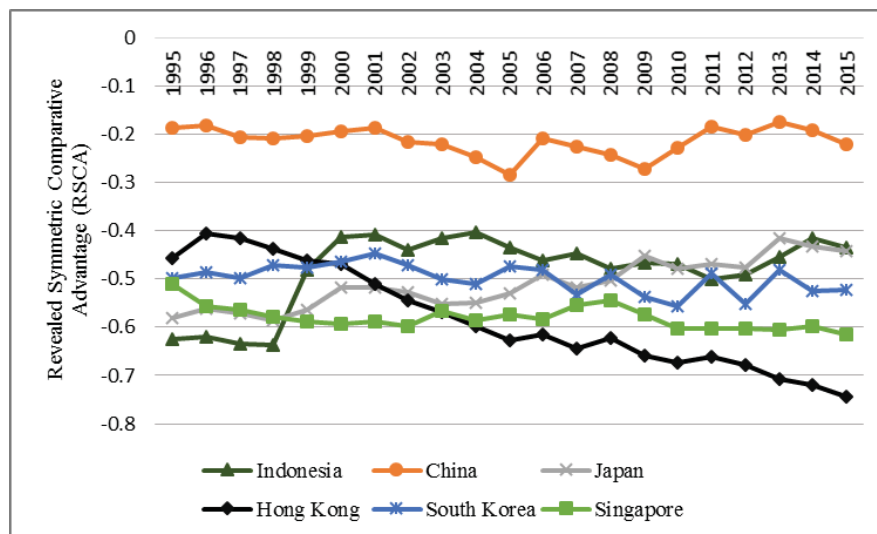


Figure 1. Trends of Comparative Advantages from East Asian Countries, 1995-2015

Source: UN-COMTRADE 3-digit SITC Revision 2. Authors' calculations.

China in the period 1995-2015 is a country that has the highest comparative advantage compared to Indonesia, Japan, Hong Kong, South Korea, and Singapore. Hong Kong is a country that has a trend of comparative advantage that continues to decline from the period 1996-2015 and the lowest comparative advantage in the period 2004-2015. In the period 1995-1999, comparative advantage of Hong Kong was higher than South Korea, Japan, Singapore, and Indonesia. While Japan in 1995-2015 has a trend of comparative advantage that continues to increase. The trend of Indonesia's comparative advantage in the period 1995-1998 was the lowest but it had experienced a very sharp and significant increase in 1998-2000 and then in 2000-2015 tended to be flat but still high from South Korea, Singapore and Hong Kong. While South Korea and Singapore during the period 1995-2015 have a trend of comparative advantage that tends to flat. The trend of South Korea's comparative advantage is higher than the trend of Singapore's comparative advantage.

In this study, the authors want to know the export products that become a comparative advantage and trade specialization of the East Asian countries. This study investigates whether East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) specialize on product groups with high comparative advantage. The rest of this paper is organized as follows. The second section describes the literature review about the comparative advantage and trade specialization. The third section describes the methodology that consists of data and analytical tools that are used. The fourth section discusses the results and analysis of comparative advantage, trade specialization, and comparison between the product groups included in top-twenty SITC of comparative advantage with top-twenty SITC of trade specialization from each the East Asian countries, then the fifth section discusses the conclusions of this research.

2. Literature Review

As a solution to the weakness of absolute advantage theory of Adam Smith, David Ricardo (1817) introduced the comparative advantage theory. Not all countries have an absolute advantage or absolute advantage is owned by only one country. Comparative advantage theory of David Ricardo mentions that the country will export

products that have a comparative advantage. Comparative advantage is the advantage that a country gets in specializing to produce products that have a relatively lower price than in other country. The principle of comparative advantage states that a country in a competitive condition will specialize in producing and exporting goods at the lowest relative cost.

Previous studies of comparative advantage and trade specialization are research conducted by Balassa (1977) which analyzes the patterns of comparative advantage of manufactured products from major industrialized countries (United States, Canada, European Common Market, United Kingdom, Sweden, and Japan) using RCA. In his research, Balassa (1977) states that the increased in specialization and diversification of manufactured exports depends on a variety of factors namely the size of the domestic market, the rate of technological development, natural resources, and the impact of economic integration. The results of the analysis show that the industrialized countries tend to have high export diversification. The presence of the European Common Market contributes to the increased diversification of manufacturing exports of its member countries. Balassa and Noland (1989) examined the comparative advantages of Japan and the United States for 57 primary products and 167 manufactured products using the RCA index. Testing is done by calculating the relative export share index and net export ratio. The results show that between 1967 and 1985 there was an increase in Japanese specialization on human-capital intensive products while United States increased specialization in natural-resource intensive products. Research conducted by Widodo (2009) is to examine the changes of dynamic comparative advantage of ASEAN countries, China, Republic of Korea, and Japan (ASEAN+3) using RSCA index. The results show that there is a change in the pattern of comparative advantage of ASEAN+3 countries. The increase in overall comparative advantage is supported by the high increase in comparative advantage of product groups that had a low comparative advantage in the past. The pattern of comparative advantage of ASEAN countries is similar to the pattern of Japan's comparative advantage. The catching-up process is supported by changes in the pattern of comparative advantages in both ASEAN and Japan in terms of Japan's foreign direct investment (FDI) in ASEAN countries. Then the study conducted by Phuong (2010) is to analyze the comparative advantages of Vietnam and its changes using RCA. Implemented since the implementation of state reform program that is starting in 1986. The data used in this study is International Economics Databank (IEDB) and United Nations Statistical Division (UNSD). The results show that Vietnam's largest comparative advantage is based on the ownership of labor and natural resources. Therefore, that Vietnam is able to develop its exports with the condition of this wealth.

3. Methodology

3.1 Data

The author uses international trade data published by United Nations Commodity Trade Statistics Database (UN-COMTRADE) on 3-digit SITC revised 2 for 237 product groups. In this research, there are 2 product groups which are not included in the analysis because the data are not available, namely SITC 675 (Hoop and strip of iron or steel, hot-rolled or cold-rolled) and SITC 911 (Postal packages not classified according to kind). The countries analyzed in this study consist of six countries that refer to the World Bank classification and geographically located in the East Asia region i.e. Indonesia, China, Japan, Hong Kong, South Korea, and Singapore.

3.2 RSCA and Export Share

In this study, following Laursen (1998) and Widodo (2009), the authors use the RSCA (Revealed Symmetric Comparative Advantage) index to measure the comparative advantage of East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore). The RSCA index has a range $-1 \leq RSCA \leq 1$ which will give a symmetrical value. An export commodity of a country that has the RSCA value greater than zero, then these commodities have comparative advantage. If the value of RSCA is less than zero, then the country has no comparative advantage for the commodity. In this study, the authors use the RCA index from Vollrath (1991) and the RSCA index from Laursen (1998) with the following formula:

$$RCA_{ij} = \frac{(x_{ij}/x_{Tj})}{(x_{iw}-x_{ij})/(x_{Tw}-x_{Tj})} \quad (1)$$

$$RSCA_{ij} = (RCA_{ij} - 1)/(RCA_{ij} + 1) \quad (2)$$

Following Hinloopen and Marrewijk (2005), the level of export specialization is the export share which calculating the percentage of export value of a product group (SITC) of a country to the total export value of that country.

$$\text{Export Share} = (X_{ij}/X_{Tj}) \times 100 \quad (3)$$

where RCA_{ij} denotes revealed comparative advantage for group of products (SITC) i from country j ; $RSCA_{ij}$ denotes revealed symmetric comparative advantage for group of products (SITC) i from country j ; X_{ij} represents exports for group of products (SITC) i from country j ; X_{Tj} represents total exports from country j ; X_{iw} represents the world exports for group of products (SITC) i ; and X_{Tw} represents the world total exports.

Higher value of export share indicate that the product group is produced in greater proportion than other product groups. The higher the export share value of a product group the higher the trade specialization of that product group in a country compared to other product groups in that country.

Then to find out whether a country specializes in a product groups with high comparative advantage or specializes in a product groups with low comparative advantage is examined by comparing between the product groups included in the top-twenty SITC of comparative advantage with the top-twenty SITC of export share of the country concerned. If the top-twenty SITC of comparative advantages of a country are all become trade specialization from that country, it indicates that the country specializes in a product group that has a high comparative advantage. If the top-twenty SITC of comparative advantages of a country are not all (in part) become trade specialization, it indicates that the country specializes in product group which comparative advantage is low.

The skewness value of RSCA from a country at time t is negative, indicates that the country is more specialized in products with high comparative advantage. In contrast, the RSCA skewness coefficient of a country at time t is positive, indicates that the country is more specialized in products with low comparative advantage. The RSCA skewness formula (Karl Person) is:

$$Sk_{RSCA_{j,t}} = \frac{3(\text{mean}_{RSCA_{j,t}} - \text{median}_{RSCA_{j,t}})}{\text{stdev}_{RSCA_{j,t}}} \quad (4)$$

$Sk_{RSCA_{j,t}}$ is the skewness coefficient of RSCA variable (Karl Person formula) for country j at time t .

4. Results and Discussion

4.1 Comparative Advantage of East Asian Countries

Comparative advantage of East Asian countries is determined by calculating the RSCA index value of each East Asian country (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) using UN-Comtrade data on 3-digit SITC Revision 2 for 237 product groups in 1995, 2005 and 2015. The higher of RSCA index value from a product group, the higher of comparative advantage from that product group in a country compared to the other product groups in that country. After calculating the RSCA index value of 237 SITC, then it is ranked based on the value of the RSCA index and selected twenty SITC with the highest RSCA value as the comparative advantage products of the country concerned. To simplify the interpretation of the results of the comparative advantage analysis, the authors classified 237 SITC into 6 product classifications based on the classification of Empirical Trade Analysis (ETA), see Appendix A. Table 1-6 shows the changes in comparative advantage of each East Asian country that shown through products that include on top-twenty SITC of comparative advantages in 1995, 2005, and 2015 using the UN-Comtrade data on 3-digit SITC Revision 2 for 237 product groups.

Table 1. Top-Twenty SITC of Indonesia Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-232	Natural rubber latex; rubber and gums	0.95
	2	S2-634	Veneers, plywood, "improved" wood and other wood, worked	0.95
	3	S2-687	Tin	0.90
	4	S2-341	Gas, natural and manufactured	0.90
	5	S2-075	Spices	0.89
	6	S2-245	Fuel wood and wood charcoal	0.89
	7	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	0.88
	8	S2-287	Ores and concentrates of base metals	0.85
	9	S2-431	Animal and vegetable oils and fats, processed, and waxes	0.79
	10	S2-072	Cocoa	0.78
	11	S2-036	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	0.78
	12	S2-635	Wood manufactures	0.74
	13	S2-322	Coal, lignite and peat	0.73
	14	S2-851	Footwear	0.69
	15	S2-074	Tea and mate	0.68

	16	S2-071	Coffee and coffee substitutes	0.65
	17	S2-844	Under garments of textile fabrics, not knitted or crocheted	0.62
	18	S2-333	Crude petroleum and oils obtained from bituminous minerals	0.62
	19	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	0.58
	20	S2-763	Gramophones, dictating machines and other sound recorders	0.56
2005	1	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	0.97
	2	S2-687	Tin	0.96
	3	S2-232	Natural rubber latex; rubber and gums	0.95
	4	S2-322	Coal, lignite and peat	0.85
	5	S2-287	Ores and concentrates of base metals	0.83
	6	S2-072	Cocoa	0.82
	7	S2-634	Veneers, plywood, "improved" wood and other wood, worked	0.81
	8	S2-075	Spices	0.74
	9	S2-341	Gas, natural and manufactured	0.74
	10	S2-036	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	0.73
	11	S2-245	Fuel wood and wood charcoal	0.71
	12	S2-431	Animal and vegetable oils and fats, processed, and waxes	0.71
	13	S2-091	Margarine and shortening	0.69
	14	S2-267	Other man-made fibres suitable for spinning, and waste	0.67
	15	S2-651	Textile yarn	0.66
	16	S2-844	Under garments of textile fabrics, not knitted or crocheted	0.65
	17	S2-635	Wood manufactures	0.64
	18	S2-251	Pulp and waste paper	0.63
	19	S2-071	Coffee and coffee substitutes	0.61
	20	S2-074	Tea and mate	0.61
2015	1	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	1.00
	2	S2-232	Natural rubber latex; rubber and gums	0.98
	3	S2-687	Tin	0.96
	4	S2-322	Coal, lignite and peat	0.95
	5	S2-431	Animal and vegetable oils and fats, processed, and waxes	0.93
	6	S2-245	Fuel wood and wood charcoal	0.91
	7	S2-091	Margarine and shortening	0.87
	8	S2-075	Spices	0.87
	9	S2-634	Veneers, plywood, "improved" wood and other wood, worked	0.85
	10	S2-267	Other man-made fibres suitable for spinning, and waste	0.80
	11	S2-072	Cocoa	0.79
	12	S2-289	Ores and concentrates of precious metals, waste, scrap	0.70
	13	S2-036	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	0.70
	14	S2-651	Textile yarn	0.69
	15	S2-071	Coffee and coffee substitutes	0.68
	16	S2-287	Ores and concentrates of base metals	0.68
	17	S2-037	Fish, crustaceans and molluscs, prepared or preserved	0.65
	18	S2-251	Pulp and waste paper	0.64
	19	S2-341	Gas, natural and manufactured	0.63
	20	S2-851	Footwear	0.63

Source: UN-COMTRADE SITC 3-digit Revision 2, author's calculation.

Based on table 1, the top-twenty comparative advantages of Indonesia in 1995 based on ETA classification are dominated by product groups which are included in the classification of primary products, there are 13 SITC i.e. SITC 232, 341, 075, 245, 424, 287, 431, 072, 036, 322, 074, 071, and 333. In 2005, Indonesia's comparative advantage was still dominated by product groups included in the classification of primary products with SITC increasing to 15 SITC i.e. SITC 424, 232, 322, 287, 072, 075, 341, 036, 245, 431, 091, 267, 251, 071, and 074. From 1995 to 2005, Indonesia's comparative advantage changes in rank position and changes in product group composition where 3 new SITC emerged in 2005 were SITC 091, 267, 251 and 1 SITC were missing from the top-twenty comparative advantages of 1995 is SITC 333. Then in 2015 Indonesia's comparative advantage remained dominated by the classification of primary products with a larger proportion than in 2005 indicated by the increasing number of SITC to 16 SITC namely SITC 424, 232, 322, 431, 245, 091, 075, 267, 072, 289, 036, 071, 287, 037, 251, and 341. From 2005 to 2015 there was also a change in rank position and product group composition where there were 2 new SITC that emerged in 2015 i.e. SITC 289, 037 and 1 SITC lost from top-twenty comparative advantage in 2005 that is SITC 074. So during the period 1995-2015, although the products classification of Indonesia's comparative advantage did not change, but there has been an increase in the number of SITC, changes in rank position and changes in product group composition.

Table 2. Top-Twenty SITC of China Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-261	Silk	0.96
	2	S2-323	Briquettes; coke and semi-coke; lignite or peat; retort carbon	0.86
	3	S2-848	Articles of apparel, clothing accessories, non-textile, headgear	0.80
	4	S2-658	Made-up articles, wholly or chiefly of textile materials	0.77
	5	S2-291	Crude animal materials	0.77
	6	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.77
	7	S2-671	Pig and sponge iron, spiegeleisen, etc, and ferro-alloys	0.77
	8	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	0.75
	9	S2-666	Pottery	0.75
	10	S2-844	Under garments of textile fabrics, not knitted or crocheted	0.74
	11	S2-572	Explosives and pyrotechnic products	0.73
	12	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.72
	13	S2-689	Miscellaneous non-ferrous base metals, employed in metallurgy	0.72
	14	S2-687	Tin	0.71
	15	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	0.71
	16	S2-851	Footwear	0.70
	17	S2-074	Tea and mate	0.69
	18	S2-056	Vegetables, roots and tubers, prepared or preserved	0.68
	19	S2-899	Other miscellaneous manufactured articles	0.68
	20	S2-894	Baby carriages, toys, games and sporting goods	0.68
2005	1	S2-261	Silk	0.96
	2	S2-323	Briquettes; coke and semi-coke; lignite or peat; retort carbon	0.77
	3	S2-848	Articles of apparel, clothing accessories, non-textile, headgear	0.77
	4	S2-666	Pottery	0.76
	5	S2-763	Gramophones, dictating machines and other sound recorders	0.72
	6	S2-658	Made-up articles, wholly or chiefly of textile materials	0.72
	7	S2-894	Baby carriages, toys, games and sporting goods	0.70
	8	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.70
	9	S2-751	Office machines	0.70
	10	S2-786	Trailers, and other vehicles, not motorized	0.69
	11	S2-851	Footwear	0.69
	12	S2-696	Cutlery	0.67
	13	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	0.66
	14	S2-752	Automatic data processing machines and units thereof	0.66
	15	S2-871	Optical instruments and apparatus	0.63
	16	S2-847	Clothing accessories, of textile fabrics	0.63
	17	S2-689	Miscellaneous non-ferrous base metals, employed in metallurgy	0.61
	18	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	0.61
	19	S2-697	Household equipment of base metal	0.61
	20	S2-844	Under garments of textile fabrics, not knitted or crocheted	0.61
2015	1	S2-261	Silk	0.93
	2	S2-666	Pottery	0.88
	3	S2-812	Sanitary, plumbing, heating, lighting fixtures and fittings	0.75
	4	S2-658	Made-up articles, wholly or chiefly of textile materials	0.70
	5	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	0.70
	6	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	0.70
	7	S2-697	Household equipment of base metal	0.70
	8	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	0.69
	9	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.69
	10	S2-851	Footwear	0.68
	11	S2-894	Baby carriages, toys, games and sporting goods	0.67
	12	S2-847	Clothing accessories, of textile fabrics	0.67
	13	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.65
	14	S2-752	Automatic data processing machines and units thereof	0.65
	15	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.64
	16	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	0.62
	17	S2-764	Telecommunication equipment, nes; parts and accessories	0.61
	18	S2-763	Gramophones, dictating machines and other sound recorders	0.60
	19	S2-848	Articles of apparel, clothing accessories, non-textile, headgear	0.60
	20	S2-696	Cutlery	0.59

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

When viewed from the top-twenty of China's comparative advantage (table 2) in 1995, 2005, and 2015, China's comparative advantage is dominated by a group of products included in the unskilled-labor intensive products

classification. In 1995, 10 SITC were SITC 848, 658, 831, 842, 666, 844, 843, 652, 851, and 894. In 2005, 10 SITC were SITC 848, 666, 658, 894, 831, 851, 845, 847, 842, and 844. In 2015, it increased to 14 SITC namely SITC 666, 812, 658, 653, 845, 652, 831, 851, 894, 847, 655, 843, 842, and 848. From 1995 to 2005 there was a change in the rank position and product group composition where 2 new SITC emerged in 2005 were SITC 845, 847 and 2 SITC lost from the top-twenty comparative advantages of 1995 i.e. SITC 843, 652. Changes in rank position and product group composition also occurred in 2005 to 2015, where there were 5 new SITC emerging in 2015 that SITC 812, 653, 652, 655, 843 and 1 SITC were missing from the top-twenty comparative advantage of 2005 i.e. SITC 844. So for 20 years, although there is a change in rank position and product group composition but China's comparative advantage product group is still dominated by the unskilled-labor intensive products classification, which differ only the type of product group.

Table 3. Top-Twenty SITC of Japan Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-881	Photographic apparatus and equipment	0.68
	2	S2-793	Ships, boats and floating structures	0.63
	3	S2-871	Optical instruments and apparatus	0.59
	4	S2-763	Gramophones, dictating machines and other sound recorders	0.56
	5	S2-751	Office machines	0.53
	6	S2-736	Metalworking machine-tools, parts and accessories thereof	0.53
	7	S2-713	Internal combustion piston engines, and parts thereof	0.51
	8	S2-882	Photographic and cinematographic supplies	0.51
	9	S2-884	Optical goods	0.47
	10	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.47
	11	S2-782	Lorries and special purposes motor vehicles	0.44
	12	S2-737	Metalworking machinery (other than machine-tools), and parts	0.42
	13	S2-712	Steam engines, turbines	0.41
	14	S2-711	Steam boilers and auxiliary plant; and parts thereof	0.40
	15	S2-724	Textile and leather machinery, and parts thereof	0.39
	16	S2-728	Other machinery, equipment, for specialized industries; parts	0.39
	17	S2-781	Passenger motor vehicles (excluding buses)	0.38
	18	S2-895	Office and stationary supplies	0.38
	19	S2-778	Electrical machinery and apparatus	0.37
	20	S2-674	Universals, plates, and sheets, of iron or steel	0.36
2005	1	S2-712	Steam engines, turbines	0.75
	2	S2-881	Photographic apparatus and equipment	0.72
	3	S2-882	Photographic and cinematographic supplies	0.68
	4	S2-884	Optical goods	0.67
	5	S2-785	Cycles, scooters, motorized or not; invalid carriages	0.67
	6	S2-736	Metalworking machine-tools, parts and accessories thereof	0.63
	7	S2-763	Gramophones, dictating machines and other sound recorders	0.58
	8	S2-728	Other machinery, equipment, for specialized industries; parts	0.57
	9	S2-793	Ships, boats and floating structures	0.54
	10	S2-711	Steam boilers and auxiliary plant; and parts thereof	0.53
	11	S2-781	Passenger motor vehicles (excluding buses)	0.52
	12	S2-723	Civil engineering, contractors' plant and equipment and parts	0.44
	13	S2-737	Metalworking machinery (other than machine-tools), and parts	0.43
	14	S2-713	Internal combustion piston engines, and parts thereof	0.42
	15	S2-778	Electrical machinery and apparatus	0.40
	16	S2-511	Hydrocarbons, nes, and derivatives	0.40
	17	S2-266	Synthetic fibres suitable for spinning	0.40
	18	S2-724	Textile and leather machinery, and parts thereof	0.38
	19	S2-722	Tractors (other than those falling in heading 74411 and 7832)	0.38
	20	S2-674	Universals, plates, and sheets, of iron or steel	0.37
2015	1	S2-882	Photographic and cinematographic supplies	0.80
	2	S2-712	Steam engines, turbines	0.77
	3	S2-584	Regenerated cellulose; derivatives of cellulose; vulcanized fibre	0.69
	4	S2-736	Metalworking machine-tools, parts and accessories thereof	0.67
	5	S2-267	Other man-made fibres suitable for spinning, and waste	0.65
	6	S2-728	Other machinery, equipment, for specialized industries; parts	0.59
	7	S2-672	Ingots and other primary forms, of iron or steel	0.58
	8	S2-781	Passenger motor vehicles (excluding buses)	0.56
	9	S2-511	Hydrocarbons, nes, and derivatives	0.55
	10	S2-676	Rails and railway track construction materials, of iron or steel	0.54
	11	S2-266	Synthetic fibres suitable for spinning	0.53
	12	S2-233	Synthetic rubber, latex, etc; waste, scrap of unhardened rubber	0.53

13	S2-884	Optical goods	0.51
14	S2-723	Civil engineering, contractors' plant and equipment and parts	0.49
15	S2-674	Universals, plates, and sheets, of iron or steel	0.43
16	S2-737	Metalworking machinery (other than machine-tools), and parts	0.43
17	S2-713	Internal combustion piston engines, and parts thereof	0.42
18	S2-282	Waste and scrap metal of iron or steel	0.41
19	S2-663	Mineral manufactures	0.40
20	S2-774	Electro-medical and radiological equipment	0.39

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

Table 3 reports that Japan's comparative advantage is dominated by products with the classification of technology intensive products. In 1995, there are 14 SITC i.e. SITC 881, 871, 751, 736, 713, 882, 884, 776, 737, 712, 711, 724, 728, and 778. In 2005, there are 14 SITC i.e. SITC 712, 881, 882, 884, 736, 728, 711, 723, 737, 713, 778, 511, 724, and 722. Then in 2015 the number of SITC decreased to 11 SITC namely SITC 882, 712, 584, 736, 728, 511, 884, 723, 737, 713, and 774. From 1995 to 2005 there was a change in rank position and product group composition, there were 3 new SITC that emerged in 2005 i.e. SITC 723, 511, 722 and 3 SITC lost from top-twenty comparative advantage of 1995, namely SITC 871, 751, 776. In 2015 as well as in 2005, Japan's comparative advantage also experienced the dynamics of changes in rank position and product group composition, where there were 2 new SITC that emerged in 2015 i.e. SITC 584, 774 and 5 SITC missing from the top-twenty comparative advantages of 2005 i.e. SITC 881, 711, 778, 724, 722. So for 20 years, Japan did not experience a change in product classification of comparative advantage but changed its rank position and product group composition as well as decreasing the number of SITC where in 2015, there were 4 SITC classification of primary products did not exist in top-twenty comparative advantage of Japan in 1995.

Table 4. Top-Twenty SITC of Hong Kong Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.85
	2	S2-885	Watches and clocks	0.81
	3	S2-894	Baby carriages, toys, games and sporting goods	0.81
	4	S2-261	Silk	0.75
	5	S2-762	Radio-broadcast receivers	0.74
	6	S2-851	Footwear	0.71
	7	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	0.70
	8	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.67
	9	S2-899	Other miscellaneous manufactured articles	0.67
	10	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.64
	11	S2-844	Under garments of textile fabrics, not knitted or crocheted	0.64
	12	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	0.61
	13	S2-696	Cutlery	0.59
	14	S2-846	Under-garments, knitted or crocheted	0.59
	15	S2-848	Articles of apparel, clothing accessories, non-textile, headgear	0.58
	16	S2-277	Natural abrasives	0.56
	17	S2-881	Photographic apparatus and equipment	0.56
	18	S2-572	Explosives and pyrotechnic products	0.53
	19	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	0.52
	20	S2-771	Electric power machinery, and parts thereof	0.52
2005	1	S2-613	Furskins, tanned or dressed; pieces of furskin, tanned or dressed	0.88
	2	S2-885	Watches and clocks	0.82
	3	S2-212	Furskins, raw	0.80
	4	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.79
	5	S2-894	Baby carriages, toys, games and sporting goods	0.76
	6	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.71
	7	S2-763	Gramophones, dictating machines and other sound recorders	0.70
	8	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	0.69
	9	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	0.68
	10	S2-611	Leather	0.68
	11	S2-771	Electric power machinery, and parts thereof	0.67
	12	S2-762	Radio-broadcast receivers	0.67
	13	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	0.63
	14	S2-897	Gold, silver ware, jewelry and articles of precious materials	0.61
	15	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.60
	16	S2-881	Photographic apparatus and equipment	0.57
	17	S2-851	Footwear	0.57
	18	S2-656	Tulle, lace, embroidery, ribbons, trimmings and other small wares	0.54
	19	S2-651	Textile yarn	0.52

	20	S2-846	Under-garments, knitted or crocheted	0.52
2015	1	S2-613	Furskins, tanned or dressed; pieces of fur skin, tanned or dressed	0.81
	2	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	0.74
	3	S2-885	Watches and clocks	0.72
	4	S2-971	Gold, non-monetary (excluding gold ores and concentrates)	0.70
	5	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.69
	6	S2-764	Telecommunication equipment, nes; parts and accessories	0.69
	7	S2-667	Pearl, precious and semi-precious stones, unworked or worked	0.67
	8	S2-212	Furskins, raw	0.65
	9	S2-771	Electric power machinery, and parts thereof	0.59
	10	S2-883	Cinematograph film, exposed and developed	0.52
	11	S2-656	Tulle, lace, embroidery, ribbons, trimmings and other small wares	0.52
	12	S2-611	Leather	0.50
	13	S2-772	Electrical apparatus for making and breaking electrical circuits	0.48
	14	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.44
	15	S2-894	Baby carriages, toys, games and sporting goods	0.42
	16	S2-897	Gold, silver ware, jewelry and articles of precious materials	0.41
	17	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.40
	18	S2-763	Gramophones, dictating machines and other sound recorders	0.37
	19	S2-881	Photographic apparatus and equipment	0.34
	20	S2-884	Optical goods	0.33

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

According to table 4, the top-twenty comparative advantages of Hong Kong in 1995 are dominated with unskilled-labor intensive products by 11 SITC i.e. SITC 831, 894, 851, 845, 655, 843, 844, 652, 846, 848, and 842. In 2005 is still dominated by 10 SITC unskilled-labor intensive products i.e. SITC 831, 894, 655, 845, 652, 843, 851, 656, 651, and 846. While in 2015, Hong Kong's comparative advantage is dominated by 8 SITC of technology intensive products i.e. SITC 759, 776, 764, 771, 883, 772, 881 and 884. From 1995 to 2005 there was a change in rank position and product group composition, where 2 new SITC emerged in 2005 were SITC 656, 651 and 3 SITC lost from the top-twenty comparative advantages of 1995 i.e. SITC 844, 848, 842. From 2005 to 2015 there was a change in product classification of comparative advantage from unskilled-labor intensive products to technology intensive products.

Table 5. Top-Twenty SITC of South Korea Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-883	Cinematograph film, exposed and developed	0.87
	2	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	0.79
	3	S2-266	Synthetic fibres suitable for spinning	0.77
	4	S2-793	Ships, boats and floating structures	0.75
	5	S2-971	Gold, non-monetary (excluding gold ores and concentrates)	0.68
	6	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.62
	7	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.62
	8	S2-691	Structures and parts, nes, of iron, steel or aluminium	0.61
	9	S2-611	Leather	0.61
	10	S2-786	Trailers, and other vehicles, not motorized	0.58
	11	S2-656	Tulle, lace, embroidery, ribbons, trimmings and other small wares	0.57
	12	S2-763	Gramophones, dictating machines and other sound recorders	0.56
	13	S2-761	Television receivers	0.53
	14	S2-847	Clothing accessories, of textile fabrics	0.49
	15	S2-778	Electrical machinery and apparatus	0.48
	16	S2-657	Special textile fabrics and related products	0.48
	17	S2-677	Iron or steel wire (excluding wire rod), not insulated	0.45
	18	S2-696	Cutlery	0.45
	19	S2-511	Hydrocarbons, nes, and derivatives	0.42
	20	S2-625	Rubber tires, tire cases, inner and flaps, for wheels of all kinds	0.41
2005	1	S2-793	Ships, boats and floating structures	0.84
	2	S2-871	Optical instruments and apparatus	0.78
	3	S2-266	Synthetic fibres suitable for spinning	0.72
	4	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.69
	5	S2-511	Hydrocarbons, nes, and derivatives	0.58
	6	S2-513	Carboxylic acids, and their derivatives	0.57
	7	S2-764	Telecommunication equipment, nes; parts and accessories	0.57
	8	S2-656	Tulle, lace, embroidery, ribbons, trimmings and other small wares	0.53
	9	S2-677	Iron or steel wire (excluding wire rod), not insulated	0.51
	10	S2-711	Steam boilers and auxiliary plant; and parts thereof	0.50
	11	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	0.48

	12	S2-233	Synthetic rubber, latex, etc; waste, scrap of unhardened rubber	0.48
	13	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.48
	14	S2-686	Zinc	0.43
	15	S2-674	Universals, plates, and sheets, of iron or steel	0.42
	16	S2-269	Old clothing and other old textile articles; rags	0.40
	17	S2-693	Wire products (excluding insulated electrical wire); fencing grills	0.40
	18	S2-724	Textile and leather machinery, and parts thereof	0.37
	19	S2-582	Condensation, polycondensation and polyaddition products	0.36
	20	S2-625	Rubber tires, tire cases, inner and flaps, for wheels of all kinds	0.35
2015	1	S2-793	Ships, boats and floating structures	0.83
	2	S2-871	Optical instruments and apparatus	0.80
	3	S2-711	Steam boilers and auxiliary plant; and parts thereof	0.69
	4	S2-511	Hydrocarbons, nes, and derivatives	0.69
	5	S2-266	Synthetic fibres suitable for spinning	0.68
	6	S2-233	Synthetic rubber, latex, etc; waste, scrap of unhardened rubber	0.60
	7	S2-655	Knitted or crocheted fabrics (including tubular, etc, fabrics)	0.55
	8	S2-686	Zinc	0.51
	9	S2-674	Universals, plates, and sheets, of iron or steel	0.49
	10	S2-685	Lead	0.49
	11	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.49
	12	S2-513	Carboxylic acids, and their derivatives	0.46
	13	S2-672	Ingots and other primary forms, of iron or steel	0.45
	14	S2-677	Iron or steel wire (excluding wire rod), not insulated	0.43
	15	S2-724	Textile and leather machinery, and parts thereof	0.39
	16	S2-778	Electrical machinery and apparatus	0.38
	17	S2-269	Old clothing and other old textile articles; rags	0.37
	18	S2-582	Condensation, polycondensation and polyaddition products	0.36
	19	S2-583	Polymerization and copolymerization products	0.35
	20	S2-884	Optical goods nes	0.34

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

Table 5 reports the top-twenty comparative advantages of South Korea in 1995 dominated by product groups included in human-capital intensive products classification i.e. SITC 691, 786, 763, 761, 677, 696 and 625. While in 2005, the comparative advantage of South Korea experienced a change that is dominated by product groups included in the classification of technology intensive products of 8 SITC that is SITC 871, 511, 513, 764, 711, 776, 724, and 582. Then in 2015, the comparative advantage of South Korea is dominated by technology intensive products with SITC increasing to 10 SITC i.e. SITC 871, 711, 511, 776, 513, 724, 778, 582, 583 and 884. From 1995 to 2005 there was a change in the products classification of comparative advantage from human-capital intensive products to technology intensive products. From 2005 to 2015, South Korea's comparative advantage remained unchanged but there was a change of rank position and product group composition where there were 3 new SITC emerging in 2015 i.e. SITC 778, 583, 884 and 1 SITC missing from top-twenty comparative advantages of 2005 is SITC 764.

Table 6. Top-Twenty SITC of Singapore Comparative Advantage 1995, 2005, and 2015

Year	Rank	SITC	Commodity	RSCA
1995	1	S2-752	Automatic data processing machines and units thereof	0.75
	2	S2-687	Tin	0.73
	3	S2-075	Spices	0.71
	4	S2-763	Gramophones, dictating machines and other sound recorders	0.65
	5	S2-334	Petroleum products, refined	0.63
	6	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.62
	7	S2-762	Radio-broadcast receivers	0.61
	8	S2-232	Natural rubber latex; rubber and gums	0.61
	9	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	0.60
	10	S2-761	Television receivers	0.52
	11	S2-431	Animal and vegetable oils and fats, processed, and waxes	0.48
	12	S2-686	Zinc	0.47
	13	S2-764	Telecommunication equipment, nes; parts and accessories	0.41
	14	S2-122	Tobacco, manufactured	0.40
	15	S2-277	Natural abrasives	0.36
	16	S2-771	Electric power machinery, and parts thereof	0.30
	17	S2-716	Rotating electric plant and parts thereof	0.30
	18	S2-269	Old clothing and other old textile articles; rags	0.29
	19	S2-681	Silver, platinum and other metals of the platinum group	0.29
	20	S2-072	Cocoa	0.26

2005	1	S2-687	Tin	0.79
	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.76
	3	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	0.59
	4	S2-515	Organo-inorganic and heterocyclic compounds	0.58
	5	S2-334	Petroleum products, refined	0.54
	6	S2-277	Natural abrasives	0.52
	7	S2-898	Musical instruments, parts and accessories thereof	0.47
	8	S2-752	Automatic data processing machines and units thereof	0.45
	9	S2-335	Residual petroleum products, nes and related materials	0.44
	10	S2-723	Civil engineering, contractors' plant and equipment and parts	0.36
	11	S2-514	Nitrogen-function compounds	0.35
	12	S2-511	Hydrocarbons, nes, and derivatives	0.34
	13	S2-512	Alcohols, phenols etc, and their derivatives	0.31
	14	S2-895	Office and stationary supplies	0.29
	15	S2-737	Metalworking machinery (other than machine-tools), and parts	0.25
	16	S2-764	Telecommunication equipment, nes; parts and accessories	0.25
	17	S2-882	Photographic and cinematographic supplies	0.23
	18	S2-762	Radio-broadcast receivers	0.22
	19	S2-772	Electrical apparatus for making and breaking electrical circuits	0.21
	20	S2-075	Spices	0.20
2015	1	S2-687	Tin	0.81
	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	0.75
	3	S2-881	Photographic apparatus and equipment	0.65
	4	S2-898	Musical instruments, parts and accessories thereof	0.64
	5	S2-683	Nickel	0.56
	6	S2-334	Petroleum products, refined	0.55
	7	S2-514	Nitrogen-function compounds	0.50
	8	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	0.45
	9	S2-512	Alcohols, phenols etc, and their derivatives	0.43
	10	S2-723	Civil engineering, contractors' plant and equipment and parts	0.42
	11	S2-277	Natural abrasives	0.41
	12	S2-714	Engines and motors, non-electric; parts, nes; group 714, item 71888	0.40
	13	S2-511	Hydrocarbons, nes, and derivatives	0.37
	14	S2-551	Essential oils, perfume and flavour materials	0.35
	15	S2-122	Tobacco, manufactured	0.35
	16	S2-931	Special transactions, commodity not classified according to class	0.32
	17	S2-728	Other machinery, equipment, for specialized industries; parts	0.31
	18	S2-553	Perfumery, cosmetics, toilet preparations, etc	0.31
	19	S2-583	Polymerization and copolymerization products	0.30
	20	S2-515	Organo-inorganic and heterocyclic compounds	0.30

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

In Singapore (table 6), in 1995 the top-twenty comparative advantages were dominated by the 8 SITC primary products i.e. SITC 075, 334, 232, 431, 122, 277, 269 and 072. In 2005 Singapore's comparative advantage is dominated by 12 SITC technology intensive products, namely SITC 776, 759, 515, 752, 723, 514, 511, 512, 737, 764, 882 and 772. Then in 2015 top-twenty of Singapore's comparative advantage is dominated by technology intensive products as many as 11 SITC are SITC 776, 881, 514, 759, 512, 723, 714, 511, 728, 583, and 515. From 1995 to 2005, there was a change of product classification of comparative advantage from primary products to technology intensive products. While from 2005 to 2015, the comparative advantage remains, but only a change in the rank position and product group composition where there are 4 new SITC emerging in 2015 i.e. SITC 881, 714, 728, 583 and 5 SITC missing from top-twenty comparative advantages of 2005 i.e. SITC 752, 737, 764, 882, 772.

4.2 Trade Specialization of East Asian Countries

In this study, referring to Hinloopen and Marrewijk (2005), the trade specialization of East Asian countries determined by calculating the value of export shares from each the East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore). The higher the export share value of a product group, the higher the trade specialization of that product group in a country compared to other product groups in that country.

The export share is calculated by calculating the percentage of a product group (SITC) of a country on the total export value of the country concerned. Higher export share values indicate that the product group is produced in greater proportion than other product groups. After calculating the export share value of 237 SITC, then ranked based on the value of the export share and selected twenty SITC with the highest export share value to serve as trade specialization products of the country concerned. Similar with the determination of comparative advantage, to simplify the interpretation of the results of trade specialization analysis, the authors classified 237 SITC into 6

classification of products based on the classification of ETA. Table 7-12 shows the top-twenty SITC of East Asian trade specialization in 1995, 2005, and 2015 using the UN-Comtrade data on 3-digit SITC Revision 2 for 237 product groups.

Table 7. Top-Twenty SITC of Indonesia Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-333	Crude petroleum and oils obtained from bituminous minerals	11.330
	2	S2-341	Gas, natural and manufactured	8.855
	3	S2-634	Veneers, plywood, "improved" wood and other wood, worked	8.423
	4	S2-851	Footwear	4.399
	5	S2-232	Natural rubber latex; rubber and gums	4.324
	6	S2-287	Ores and concentrates of base metals	4.118
	7	S2-334	Petroleum products, refined	2.810
	8	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	2.754
	9	S2-036	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	2.397
	10	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	2.278
	11	S2-322	Coal, lignite and peat	2.275
	12	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	1.951
	13	S2-821	Furniture and parts thereof	1.903
	14	S2-635	Wood manufactures	1.843
	15	S2-651	Textile yarn	1.790
	16	S2-641	Paper and paperboard	1.610
	17	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	1.609
	18	S2-763	Gramophones, dictating machines and other sound recorders	1.525
	19	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	1.366
	20	S2-071	Coffee and coffee substitutes	1.352
2005	1	S2-341	Gas, natural and manufactured	10.686
	2	S2-333	Crude petroleum and oils obtained from bituminous minerals	9.510
	3	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	5.561
	4	S2-287	Ores and concentrates of base metals	5.146
	5	S2-322	Coal, lignite and peat	5.083
	6	S2-232	Natural rubber latex; rubber and gums	3.017
	7	S2-641	Paper and paperboard	2.370
	8	S2-334	Petroleum products, refined	2.234
	9	S2-821	Furniture and parts thereof	2.174
	10	S2-752	Automatic data processing machines and units thereof	2.160
	11	S2-634	Veneers, plywood, "improved" wood and other wood, worked	1.948
	12	S2-651	Textile yarn	1.893
	13	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	1.589
	14	S2-851	Footwear	1.574
	15	S2-763	Gramophones, dictating machines and other sound recorders	1.488
	16	S2-682	Copper	1.382
	17	S2-764	Telecommunication equipment, nes; parts and accessories	1.350
	18	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	1.318
	19	S2-778	Electrical machinery and apparatus	1.317
	20	S2-772	Electrical apparatus for making and breaking electrical circuits	1.316
2015	1	S2-424	Other fixed vegetable oils, fluid or solid, crude, refined	11.815
	2	S2-322	Coal, lignite and peat	10.640
	3	S2-341	Gas, natural and manufactured	6.877
	4	S2-333	Crude petroleum and oils obtained from bituminous minerals	4.309
	5	S2-851	Footwear	2.917
	6	S2-287	Ores and concentrates of base metals	2.746
	7	S2-232	Natural rubber latex; rubber and gums	2.479
	8	S2-897	Gold, silver ware, jewelry and articles of precious materials	2.204
	9	S2-641	Paper and paperboard	2.128
	10	S2-781	Passenger motor vehicles (excluding buses)	1.614
	11	S2-634	Veneers, plywood, "improved" wood and other wood, worked	1.589
	12	S2-651	Textile yarn	1.554
	13	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	1.547
	14	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	1.258
	15	S2-784	Motor vehicle parts and accessories	1.222
	16	S2-431	Animal and vegetable oils and fats, processed, and waxes	1.168
	17	S2-821	Furniture and parts thereof	1.165
	18	S2-251	Pulp and waste paper	1.149
	19	S2-778	Electrical machinery and apparatus	1.138
	20	S2-625	Rubber tires, tire cases, inner and flaps, for wheels of all kinds	1.072

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

Based on table 7, in 1995 the Indonesian trade specialization was dominated by product groups classified in the primary products of 9 SITC i.e. SITC 333, 341, 232, 287, 334, 036, 424, 322, and 071. In 2005, the trade specialization of Indonesia is still dominated by primary products with the number of SITC declining to 7 SITC namely SITC 341, 333, 424, 287, 322, 232, and 334. Then in 2015, Indonesian trade specialization remains dominated by product groups in primary products classification i.e. SITC 424, 322, 341, 333, 287, 232, 431, and 251 (8 SITC). From 1995 to 2005 there was a change in rank position and product group composition where there were 2 missing SITC of the top-twenty trade specializations of 1995 i.e. SITC 036 and 071. Then from 2005 to 2015 also changed in rank position and product group composition where there are 2 new SITC, which appear in 2015, i.e. SITC 431, 251 and 1 SITC lost from the top-twenty trade specialization of Indonesia in 2005 that is SITC 334.

Table 8. Top-Twenty SITC of China Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	4.223
	2	S2-851	Footwear	4.217
	3	S2-894	Baby carriages, toys, games and sporting goods	3.940
	4	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	3.524
	5	S2-764	Telecommunication equipment, nes; parts and accessories	2.718
	6	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	2.686
	7	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	2.326
	8	S2-848	Articles of apparel, clothing accessories, non-textile, headgear	1.964
	9	S2-846	Under-garments, knitted or crocheted	1.958
	10	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	1.929
	11	S2-899	Other miscellaneous manufactured articles	1.822
	12	S2-658	Made-up articles, wholly or chiefly of textile materials	1.721
	13	S2-762	Radio-broadcast receivers	1.718
	14	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	1.692
	15	S2-893	Articles, nes of plastic materials	1.679
	16	S2-778	Electrical machinery and apparatus	1.607
	17	S2-752	Automatic data processing machines and units thereof	1.547
	18	S2-333	Crude petroleum and oils obtained from bituminous minerals	1.503
	19	S2-775	Household type equipment	1.419
	20	S2-651	Textile yarn	1.419
2005	1	S2-752	Automatic data processing machines and units thereof	10.014
	2	S2-764	Telecommunication equipment, nes; parts and accessories	8.162
	3	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	3.898
	4	S2-894	Baby carriages, toys, games and sporting goods	2.699
	5	S2-763	Gramophones, dictating machines and other sound recorders	2.681
	6	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	2.679
	7	S2-776	Thermionic, microcircuits, transistors, valves, etc	2.679
	8	S2-851	Footwear	2.419
	9	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	2.275
	10	S2-821	Furniture and parts thereof	2.186
	11	S2-778	Electrical machinery and apparatus	2.178
	12	S2-775	Household type equipment	1.989
	13	S2-871	Optical instruments and apparatus	1.543
	14	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	1.535
	15	S2-893	Articles, nes of plastic materials	1.522
	16	S2-772	Electrical apparatus for making and breaking electrical circuits	1.466
	17	S2-658	Made-up articles, wholly or chiefly of textile materials	1.346
	18	S2-846	Under-garments, knitted or crocheted	1.234
	19	S2-699	Manufactures of base metal	1.177
	20	S2-771	Electric power machinery, and parts thereof	1.118
2015	1	S2-764	Telecommunication equipment, nes; parts and accessories	10.738
	2	S2-752	Automatic data processing machines and units thereof	6.151
	3	S2-776	Thermionic, microcircuits, transistors, valves, etc	4.628
	4	S2-821	Furniture and parts thereof	2.694
	5	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	2.543
	6	S2-778	Electrical machinery and apparatus	2.502
	7	S2-851	Footwear	2.244
	8	S2-894	Baby carriages, toys, games and sporting goods	2.010
	9	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	1.825
	10	S2-812	Sanitary, plumbing, heating, lighting fixtures and fittings	1.819
	11	S2-772	Electrical apparatus for making and breaking electrical circuits	1.805

12	S2-775	Household type equipment	1.765
13	S2-893	Articles, nes of plastic materials	1.757
14	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	1.603
15	S2-871	Optical instruments and apparatus	1.513
16	S2-749	Non-electric parts and accessories of machinery	1.385
17	S2-699	Manufactures of base metal	1.327
18	S2-793	Ships, boats and floating structures	1.262
19	S2-784	Motor vehicle parts and accessories	1.250
20	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	1.247

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

According to table 8, the Chinese's trade specialization in 1995 was dominated by unskilled-labor intensive products i.e. SITC 843, 851, 894, 842, 845, 652, 848, 846, 831, 658, 653, and 651 (12 SITC). In 2005, China's trade specialization was dominated by technology intensive products with 10 SITC namely SITC 752, 764, 759, 776, 778, 775, 871, 893, 772, and 771. Later in 2015, China's trade specialization is still dominated by technology intensive products as much as 10 SITC i.e. SITC 752, 764, 759, 778, 772, 775, 893, 759, 871, and 749. From 1995 to 2005 there was a change of trade specialization from unskilled-labor intensive products to technology intensive products. Then from 2005 to 2015, China's trade specialization has not changed, but only changing in composition of product groups where there are 2 new SITC emerging in 2015 i.e. SITC 759, 749 and 2 SITC lost from the top-twenty trade specialization of 2005 i.e. SITC 776, 771. For the period 2005 and 2015, the rank on 1-3 of China's trade specializations are occupied by the same product groups i.e. SITC 752, 764, and 759.

Table 9. Top-Twenty SITC of Japan Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-781	Passenger motor vehicles (excluding buses)	9.529
	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	9.222
	3	S2-784	Motor vehicle parts and accessories	4.438
	4	S2-764	Telecommunication equipment, nes; parts and accessories	4.112
	5	S2-752	Automatic data processing machines and units thereof	3.875
	6	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	3.691
	7	S2-778	Electrical machinery and apparatus	3.258
	8	S2-713	Internal combustion piston engines, and parts thereof	2.962
	9	S2-772	Electrical apparatus for making and breaking electrical circuits	2.582
	10	S2-728	Other machinery, equipment, for specialized industries; parts	2.542
	11	S2-793	Ships, boats and floating structures	2.468
	12	S2-749	Non-electric parts and accessories of machinery	2.253
	13	S2-674	Universals, plates, and sheets, of iron or steel	2.181
	14	S2-782	Lorries and special purposes motor vehicles	2.050
	15	S2-931	Special transactions, commodity not classified according to class	2.047
	16	S2-874	Measuring, checking, analysis, controlling instruments, nes, parts	1.722
	17	S2-736	Metalworking machine-tools, parts and accessories thereof	1.604
	18	S2-785	Cycles, scooters, motorized or not; invalid carriages	1.310
	19	S2-741	Heating and cooling equipment and parts thereof	1.259
	20	S2-763	Gramophones, dictating machines and other sound recorders	1.255
2005	1	S2-781	Passenger motor vehicles (excluding buses)	13.408
	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	6.704
	3	S2-931	Special transactions, commodity not classified according to class	4.397
	4	S2-784	Motor vehicle parts and accessories	4.353
	5	S2-778	Electrical machinery and apparatus	3.115
	6	S2-728	Other machinery, equipment, for specialized industries; parts	3.102
	7	S2-764	Telecommunication equipment, nes; parts and accessories	2.921
	8	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	2.799
	9	S2-772	Electrical apparatus for making and breaking electrical circuits	2.568
	10	S2-713	Internal combustion piston engines, and parts thereof	2.495
	11	S2-874	Measuring, checking, analysis, controlling instruments, parts	2.207
	12	S2-674	Universals, plates, and sheets, of iron or steel	2.128
	13	S2-749	Non-electric parts and accessories of machinery	2.057
	14	S2-763	Gramophones, dictating machines and other sound recorders	1.991
	15	S2-793	Ships, boats and floating structures	1.984
	16	S2-723	Civil engineering, contractors' plant and equipment and parts	1.779
	17	S2-736	Metalworking machine-tools, parts and accessories thereof	1.630
	18	S2-583	Polymerization and copolymerization products	1.452
	19	S2-782	Lorries and special purposes motor vehicles	1.323
	20	S2-884	Optical goods	1.320

2015	1	S2-781	Passenger motor vehicles (excluding buses)	13.762
	2	S2-931	Special transactions, commodity not classified according to class	5.927
	3	S2-776	Thermionic, microcircuits, transistors, valves, etc	5.177
	4	S2-784	Motor vehicle parts and accessories	4.677
	5	S2-728	Other machinery, equipment, for specialized industries; parts	3.863
	6	S2-778	Electrical machinery and apparatus	3.091
	7	S2-874	Measuring, checking, analysis, controlling instruments, parts	2.490
	8	S2-772	Electrical apparatus for making and breaking electrical circuits	2.452
	9	S2-749	Non-electric parts and accessories of machinery	2.399
	10	S2-713	Internal combustion piston engines, and parts thereof	2.281
	11	S2-674	Universals, plates, and sheets, of iron or steel	1.990
	12	S2-793	Ships, boats and floating structures	1.825
	13	S2-334	Petroleum products, refined	1.686
	14	S2-723	Civil engineering, contractors' plant and equipment and parts	1.680
	15	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	1.666
	16	S2-583	Polymerization and copolymerization products	1.629
	17	S2-782	Lorries and special purposes motor vehicles	1.588
	18	S2-736	Metalworking machine-tools, parts and accessories thereof	1.563
	19	S2-764	Telecommunication equipment, nes; parts and accessories	1.471
	20	S2-598	Miscellaneous chemical products	1.393

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

When viewed from the top-twenty of Japan's trade specializations (table 9) for 1995, 2005, and 2015, the Japan's trade specialization is dominated by technology intensive products classification. In 1995 Japan's trade specialization was dominated by 12 SITC of technology intensive products, namely SITC 776, 764, 752, 759, 778, 713, 772, 728, 749, 874, 736, and 741. Then in 2005, as many as 13 SITC, i.e. SITC 776, 778, 728, 764, 759, 772, 713, 874, 749, 723, 736, 583 and 884. In 2015 is dominated by 13 SITC i.e. SITC 776, 728, 778, 874, 772, 749, 713, 723, 759, 583, 736, 764, and 598. From 1995 to 2005 there was a change in rank position and product group composition where there were 3 new SITC that emerged in 2005 that were SITC 723, 583, 884 and 2 SITC lost from top-twenty trade specialization in 1995 that is SITC 752 and 741. Then from 2005 to 2015 also change the position of rank and product group composition where there is 1 new SITC that emerged in 2015 that is SITC 598 and 1 SITC lost from top-twenty of trade specialization in 2005 that is SITC 884. During the period 1995, 2005, and 2015 the first rank of Japan's trade specialization is occupied by the same product group i.e. SITC 781 (Passenger motor vehicles (excluding buses)).

Table 10. Top-Twenty SITC of Hong Kong Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-894	Baby carriages, toys, games and sporting goods	6.358
	2	S2-764	Telecommunication equipment, nes; parts and accessories	5.212
	3	S2-776	Thermionic, microcircuits, transistors, valves, etc	4.357
	4	S2-851	Footwear	4.257
	5	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	3.756
	6	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	3.489
	7	S2-885	Watches and clocks	3.330
	8	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	3.256
	9	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	2.663
	10	S2-583	Polymerization and copolymerization products	2.662
	11	S2-762	Radio-broadcast receivers	2.611
	12	S2-775	Household type equipment	1.890
	13	S2-893	Articles, nes of plastic materials	1.817
	14	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	1.774
	15	S2-842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	1.742
	16	S2-899	Other miscellaneous manufactured articles	1.734
	17	S2-846	Under-garments, knitted or crocheted	1.719
	18	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	1.667
	19	S2-651	Textile yarn	1.664
	20	S2-778	Electrical machinery and apparatus	1.632
2005	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	10.472
	2	S2-764	Telecommunication equipment, nes; parts and accessories	10.086
	3	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	9.352
	4	S2-894	Baby carriages, toys, games and sporting goods	4.069
	5	S2-772	Electrical apparatus for making and breaking electrical circuits	3.471
	6	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	3.443
	7	S2-752	Automatic data processing machines and units thereof	3.090
	8	S2-763	Gramophones, dictating machines and other sound recorders	3.003

	9	S2-778	Electrical machinery and apparatus	2.676
	10	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	2.544
	11	S2-583	Polymerization and copolymerization products	2.262
	12	S2-771	Electric power machinery, and parts thereof	2.064
	13	S2-851	Footwear	1.995
	14	S2-885	Watches and clocks	1.918
	15	S2-667	Pearl, precious and semi-precious stones, unworked or worked	1.810
	16	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	1.652
	17	S2-897	Gold, silver ware, jewelry and articles of precious materials	1.544
	18	S2-846	Under-garments, knitted or crocheted	1.481
	19	S2-651	Textile yarn	1.213
	20	S2-652	Cotton fabrics, woven (not including narrow or special fabrics)	1.166
2015	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	19.088
	2	S2-764	Telecommunication equipment, nes; parts and accessories	18.142
	3	S2-971	Gold, non-monetary (excluding gold ores and concentrates)	8.822
	4	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	6.017
	5	S2-772	Electrical apparatus for making and breaking electrical circuits	4.128
	6	S2-752	Automatic data processing machines and units thereof	3.672
	7	S2-667	Pearl, precious and semi-precious stones, unworked or worked	3.639
	8	S2-778	Electrical machinery and apparatus	2.461
	9	S2-771	Electric power machinery, and parts thereof	2.040
	10	S2-885	Watches and clocks	1.811
	11	S2-897	Gold, silver ware, jewelry and articles of precious materials	1.682
	12	S2-894	Baby carriages, toys, games and sporting goods	1.461
	13	S2-845	Outerwear knitted or crocheted, not elastic nor rubberized	1.357
	14	S2-874	Measuring, checking, analysis, controlling instruments, parts	1.134
	15	S2-583	Polymerization and copolymerization products	1.107
	16	S2-831	Travel goods, handbags etc, of leather, plastics, textile, others	0.930
	17	S2-843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.761
	18	S2-884	Optical goods	0.758
	19	S2-846	Under-garments, knitted or crocheted	0.741
	20	S2-851	Footwear	0.701

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

Based on table 10, in 1995 Hong Kong's trade specialization was dominated by unskilled-labor intensive products classification of 10 SITC namely SITC 894, 851, 845, 843, 831, 653, 842, 846, 652 and 651. In 2005 Hong Kong's trade specialization was dominated by 2 product groups: unskilled-labor intensive products and technology intensive products classification with each amount of 8 SITC. Then in 2015 Hong Kong's trade specialization is dominated by 10 SITC of technology intensive products classification i.e. SITC 776, 764, 759, 772, 752, 778, 771, 874, 583, and 884. When viewed from the top-twenty Hong Kong's trade specialization from 1995, 2005, and 2015 there was a change of trade specialization from unskilled-labor intensive products in 1995 to technology intensive products in 2015.

Table 11. Top-Twenty SITC of South Korea Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	15.491
	2	S2-781	Passenger motor vehicles (excluding buses)	5.792
	3	S2-653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	5.356
	4	S2-778	Electrical machinery and apparatus	4.443
	5	S2-793	Ships, boats and floating structures	4.424
	6	S2-764	Telecommunication equipment, nes; parts and accessories	3.393
	7	S2-752	Automatic data processing machines and units thereof	3.163
	8	S2-583	Polymerization and copolymerization products	2.419
	9	S2-674	Universals, plates, and sheets, of iron or steel	2.105
	10	S2-971	Gold, non-monetary (excluding gold ores and concentrates)	1.944
	11	S2-334	Petroleum products, refined	1.844
	12	S2-761	Television receivers	1.520
	13	S2-763	Gramophones, dictating machines and other sound recorders	1.459
	14	S2-775	Household type equipment	1.352
	15	S2-611	Leather	1.220
	16	S2-582	Condensation, polycondensation and polyaddition products	1.128
	17	S2-898	Musical instruments, parts and accessories thereof	1.108
	18	S2-691	Structures and parts, nes, of iron, steel or aluminium	1.092
	19	S2-651	Textile yarn	1.068
	20	S2-625	Rubber tires, tire cases, inner and flaps, for wheels of all kinds	1.063
2005	1	S2-764	Telecommunication equipment, nes; parts and accessories	11.711

	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	9.665
	3	S2-781	Passenger motor vehicles (excluding buses)	9.583
	4	S2-793	Ships, boats and floating structures	6.059
	5	S2-334	Petroleum products, refined	5.328
	6	S2-752	Automatic data processing machines and units thereof	3.249
	7	S2-871	Optical instruments and apparatus	2.995
	8	S2-583	Polymerization and copolymerization products	2.934
	9	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	2.863
	10	S2-784	Motor vehicle parts and accessories	2.738
	11	S2-674	Universals, plates, and sheets, of iron or steel	2.457
	12	S2-778	Electrical machinery and apparatus	2.157
	13	S2-511	Hydrocarbons, nes, and derivatives	1.634
	14	S2-582	Condensation, polycondensation and polyaddition products	1.456
	15	S2-728	Other machinery, equipment, for specialized industries; parts	1.205
	16	S2-775	Household type equipment	1.192
	17	S2-672	Ingots and other primary forms, of iron or steel	1.176
	18	S2-513	Carboxylic acids, and their derivatives	1.109
	19	S2-761	Television receivers	1.039
	20	S2-772	Electrical apparatus for making and breaking electrical circuits	1.003
2015	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	10.888
	2	S2-781	Passenger motor vehicles (excluding buses)	7.926
	3	S2-793	Ships, boats and floating structures	7.296
	4	S2-764	Telecommunication equipment, nes; parts and accessories	7.046
	5	S2-334	Petroleum products, refined	5.843
	6	S2-784	Motor vehicle parts and accessories	4.394
	7	S2-871	Optical instruments and apparatus	4.088
	8	S2-778	Electrical machinery and apparatus	3.179
	9	S2-583	Polymerization and copolymerization products	2.946
	10	S2-772	Electrical apparatus for making and breaking electrical circuits	2.364
	11	S2-674	Universals, plates, and sheets, of iron or steel	2.282
	12	S2-728	Other machinery, equipment, for specialized industries; parts	2.145
	13	S2-511	Hydrocarbons, nes, and derivatives	2.012
	14	S2-582	Condensation, polycondensation and polyaddition products	1.486
	15	S2-749	Non-electric parts and accessories of machinery	1.205
	16	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	1.101
	17	S2-713	Internal combustion piston engines, and parts thereof	0.987
	18	S2-752	Automatic data processing machines and units thereof	0.947
	19	S2-741	Heating and cooling equipment and parts thereof	0.916
	20	S2-672	Ingots and other primary forms, of iron or steel	0.876

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

South Korea's trade specialization in 1995 was dominated by 2 product groups: technology intensive products and human-capital intensive products (7 SITC). In 2005, South Korea's trade specialization was dominated by technology intensive products with 13 SITC i.e. SITC 764, 776, 752, 871, 583, 759, 778, 511, 582, 728, 775, 513 and 772. Then in 2015, South Korea's trade specialization is still dominated by 14 SITC of technology intensive products classification i.e. SITC 776, 764, 871, 778, 583, 772, 728, 511, 582, 749, 759, 713, 752 and 741. From 1995 to 2005, there was a change in product classification of trade specialization from human-capital intensive products to technology intensive products. From 2005 to 2015, the product classification remains fixed but there is a change in rank position and product group composition where there are 3 new SITC that emerged in 2015 i.e. SITC 749, 713, 741 and 2 SITC lost from top-twenty of trade specialization of 2005 i.e. SITC 775, and 513.

Table 12. Top-Twenty SITC of Singapore Trade Specialization 1995, 2005, and 2015

Year	Rank	SITC	Commodity	Export Share (%)
1995	1	S2-752	Automatic data processing machines and units thereof	16.521
	2	S2-776	Thermionic, microcircuits, transistors, valves, etc	15.552
	3	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	7.526
	4	S2-334	Petroleum products, refined	6.559
	5	S2-764	Telecommunication equipment, nes; parts and accessories	5.813
	6	S2-931	Special transactions, commodity not classified according to class	2.232
	7	S2-778	Electrical machinery and apparatus	2.135
	8	S2-772	Electrical apparatus for making and breaking electrical circuits	2.073
	9	S2-763	Gramophones, dictating machines and other sound recorders	1.913
	10	S2-762	Radio-broadcast receivers	1.775
	11	S2-761	Television receivers	1.464
	12	S2-749	Non-electric parts and accessories of machinery	1.082
	13	S2-716	Rotating electric plant and parts thereof	0.950

	14	S2-583	Polymerization and copolymerization products	0.899
	15	S2-771	Electric power machinery, and parts thereof	0.885
	16	S2-723	Civil engineering, contractors' plant and equipment and parts	0.864
	17	S2-728	Other machinery, equipment, for specialized industries; parts	0.859
	18	S2-122	Tobacco, manufactured	0.844
	19	S2-515	Organo-inorganic and heterocyclic compounds	0.773
	20	S2-874	Measuring, checking, analysis, controlling instruments, parts	0.733
2005	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	23.456
	2	S2-334	Petroleum products, refined	11.584
	3	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	7.172
	4	S2-752	Automatic data processing machines and units thereof	6.775
	5	S2-764	Telecommunication equipment, nes; parts and accessories	5.657
	6	S2-931	Special transactions, commodity not classified according to class	3.787
	7	S2-772	Electrical apparatus for making and breaking electrical circuits	2.111
	8	S2-778	Electrical machinery and apparatus	2.071
	9	S2-515	Organo-inorganic and heterocyclic compounds	2.061
	10	S2-583	Polymerization and copolymerization products	1.573
	11	S2-723	Civil engineering, contractors' plant and equipment and parts	1.569
	12	S2-898	Musical instruments, parts and accessories thereof	1.329
	13	S2-541	Medicinal and pharmaceutical products	1.282
	14	S2-749	Non-electric parts and accessories of machinery	1.122
	15	S2-514	Nitrogen-function compounds	1.059
	16	S2-874	Measuring, checking, analysis, controlling instruments, parts	1.033
	17	S2-511	Hydrocarbons, nes, and derivatives	0.947
	18	S2-582	Condensation, polycondensation and polyaddition products	0.917
	19	S2-598	Miscellaneous chemical products	0.762
	20	S2-667	Pearl, precious and semi-precious stones, unworked or worked	0.733
2015	1	S2-776	Thermionic, microcircuits, transistors, valves, etc	24.375
	2	S2-334	Petroleum products, refined	12.167
	3	S2-931	Special transactions, commodity not classified according to class	5.723
	4	S2-764	Telecommunication equipment, nes; parts and accessories	3.476
	5	S2-752	Automatic data processing machines and units thereof	2.980
	6	S2-759	Parts, nes of and accessories for machines of headings 751 or 752	2.742
	7	S2-583	Polymerization and copolymerization products	2.728
	8	S2-541	Medicinal and pharmaceutical products	2.194
	9	S2-874	Measuring, checking, analysis, controlling instruments, parts	2.111
	10	S2-728	Other machinery, equipment, for specialized industries; parts	2.102
	11	S2-778	Electrical machinery and apparatus	1.959
	12	S2-792	Aircraft and associated equipment, and parts thereof	1.855
	13	S2-772	Electrical apparatus for making and breaking electrical circuits	1.536
	14	S2-723	Civil engineering, contractors' plant and equipment and parts	1.460
	15	S2-714	Engines and motors, non-electric; parts, nes; group 714, item 71888	1.423
	16	S2-598	Miscellaneous chemical products	1.339
	17	S2-898	Musical instruments, parts and accessories thereof	1.314
	18	S2-514	Nitrogen-function compounds	1.171
	19	S2-515	Organo-inorganic and heterocyclic compounds	1.057
	20	S2-749	Non-electric parts and accessories of machinery	0.998

Source: UN-COMTRADE 3-digit SITC Revision 2 Authors' calculations.

In 1995, Singapore's trade specialization was dominated by 14 SITC of technology intensive products classification i.e. SITC 752, 776, 759, 764, 778, 772, 749, 716, 583, 771, 723, 728, 515 and 874. In 2005, Singapore's trade specialization was still dominated by technology intensive products with 16 SITC namely SITC 776, 759, 752, 764, 772, 778, 515, 583, 723, 541, 749, 514, 874, 511, 582 and 598. Then in 2015, the Singapore's trade specialization is still dominated by technology intensive products classification with an increasing number of SITC to 17 SITC namely SITC 776, 764, 752, 759, 583, 541, 874, 728, 778, 792, 772, 723, 714, 598, 514, 515, and 749. From 1995 to 2005, there was a change of rank position and product group composition where 5 new SITC emerged in 2005 were SITC 541, 514, 511, 582, 598 and 3 SITC are missing from top-twenty of trade specialization in 1995 that is SITC 716, 771, 728. Then from 2005 to 2015 also change in position of rank and product group composition where there are 3 new SITC that appear in 2015 that is SITC 728, 792, 714 and 2 SITC which missing from the top-twenty of trade specializations in 2005 i.e. SITC 511 and 582.

4.3 Do East Asian Countries Specialize in Product Groups with High Comparative Advantage?

During the period 1995, 2005, and 2015, based on the top-twenty of Indonesia's comparative advantages and

trade specialization, the comparative advantages and trade specialization of Indonesia are on the classification of primary products but not all of the product groups that constitute Indonesia's comparative advantage is as Indonesia's trade specialization. In 1995, the proportion of Indonesian trade specialization which is a comparative advantage is 65%, from 20 SITC of high comparative advantage only 13 SITC are used as trade specialization of Indonesia. In 2005, Indonesia did not specialize in products with high comparative advantages due to the proportion of product groups in Indonesian trade specialization which is a comparative advantage of Indonesia only 35%, from 20 SITC of Indonesia comparative advantage is only 7 SITC become the Indonesian's trade specialization namely SITC 341, 424, 287, 322, 232, 634, 651. Then in 2015 Indonesia still does not specialize in product groups with high comparative advantage, where the proportion of Indonesian trade specialization which is a comparative advantage of Indonesia is only 50% i.e. only 10 SITC Indonesia's trade specialization with high comparative advantage, that is SITC 424, 322, 341, 851, 287, 232, 634, 651, 431, 251.

China's comparative advantages and trade specialization in 1995 was in unskilled-labor intensive products classification, but the product group that China's comparative advantage has not all become into trade specialization, the proportion of China's comparative advantage that is China's trade specialization is 45%, from 20 SITC with high comparative advantage, only 9 SITC are used as China's trade specialization. For 2005 and 2015, the product group that became China's comparative advantage was not used as a Chinese trade specialization, where China's comparative advantages in 2005 and 2015 were dominated by unskilled-labor intensive products but Chinese trade specialization in the same year was dominated by technology intensive products. In 2005 and 2015, the proportion of China's trade specialization which is a comparative advantage is 40%, from 20 SITCs in Chinese trade specialization only 8 SITC with high comparative advantages. For 2005 were SITC 763, 658, 894, 851, 845, 752, 871, and 842 while for 2015 were SITC 812, 845, 831, 851, 894, 752, 843, and 764.

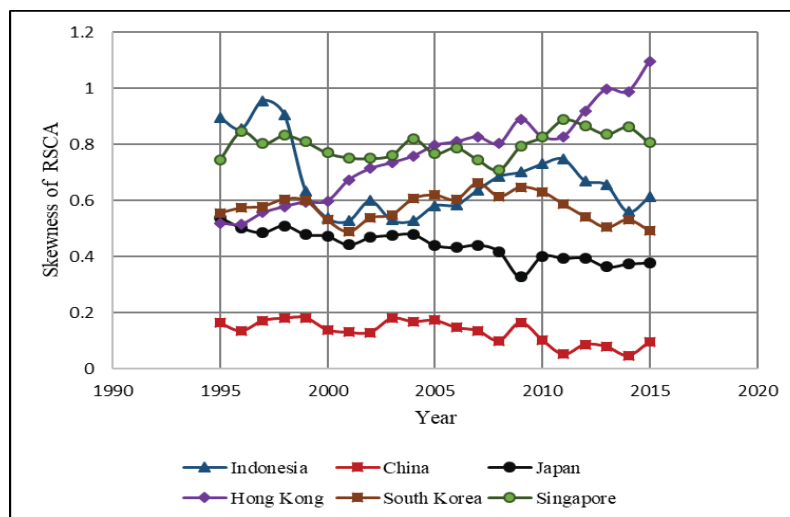
Based on the top-twenty Japan's comparative advantages and trade specialization, during the 1995, 2005, and 2015, the comparative advantages and trade specialization of Japan is on the technology intensive products classification. Despite the comparative advantages and trade specialization of Japan in the classification of technology, intensive products but not all of the product groups that become comparative advantages become the trade specialization. In 1995 and 2005, from 20 SITC with high comparative advantages, only 10 SITC were used as Japan's trade specializations. In 2015 Japan did not specialize in products with high comparative advantages because the proportion of Japan product group which is a comparative advantage is only 30% from 20 SITC of comparative advantage only 6 SITC become as trade specialization, that is SITC 736, 728, 781, 723, 674, and 713.

From the results of Hong Kong's comparative advantage analysis and trade specialization for the period of 1995 and 2005 is on the unskilled-labor intensive products classification but not all product groups of comparative advantages become as trade specialization, where from 20 SITC comparative advantage only 11 SITC, which serve as trade specialization in 1995, and 13 SITC in 2005. In 2015, there was a change in the classification of comparative advantages and trade specialization from unskilled-labor intensive products to technology intensive products but it is the same as 1995 and 2005, that in 2015 not all of the product groups on comparative advantage become the trade specialization, from 20 SITC comparative advantage only 12 SITC which serve as a Hong Kong's trade specialization.

South Korea in 1995 has not fully specialized in product groups with high comparative advantages, in which South Korea's comparative advantage in 1995 was dominated by human-capital intensive products but South Korea's trade specialization in the same year was dominated by technology intensive products and human-capital intensive products. The product group that became a comparative advantage of South Korea is not all of them as trade specialization, where from 20 SITC with high comparative advantages, only 10 SITC are used as South Korea's trade specialization. In 2005 and 2015, although South Korea's comparative advantage and trade specialization were in the classification of technology intensive products but not all of the comparative advantage were made as trade specialization, where from 20 SITC comparative advantages in 2005 only 8 SITC (40%) of South Korea's trade specialization has a high comparative advantage, namely SITC 793, 871, 511, 513, 764, 776, 674, 582 and by 2015 only 9 SITC (45%) of South Korean trade specialization with high comparative advantages i.e. SITC 793, 871, 511, 674, 776, 672, 778, 582, and 583.

Based on the top-twenty comparative advantage and trade specialization of Singapore, in 1995 the product group that became Singapore's comparative advantage was not used as a trade specialization, where Singapore's comparative advantage was dominated by primary products but Singapore's trade specialization was dominated by technology intensive products. In 2005 and 2015, although Singapore's comparative advantages and trade specialization were in the classification of technology intensive products but not all of the product groups that

became comparative advantages were made as trade specializations. During the period of 1995, 2005, and 2015, the proportion of Singapore's trade specialization, which is Singapore's comparative advantage, is only 55% of the 20 SITC with high comparative advantage, only 11 SITC are made as Singapore's trade specialization.



Source: UN-COMTRADE 3-digit SITC Revision 2. Authors' calculation.

Figure 3. Trends in Skewness of Comparative Advantages from East Asian Countries, 1995–2015

The positive value of skewness on RSCA coefficient indicates that a country specializes more on products that have low comparative advantages. While the negative value of RSCA skewness coefficient indicates that a country specializes more on products with high comparative advantage (Widodo, 2010). From Figure 3 above, it is shown that all East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) have positive values of skewness coefficient, indicating that Indonesia, China, Japan, Hong Kong, South Korea, and Singapore specialize in product groups with low comparative advantages.

5. Conclusions

During the 1995, 2005, and 2015 study periods, East Asian countries (Indonesia, China, Japan, Hong Kong, South Korea, and Singapore) specialize in products with low comparative advantages where not all product groups that become comparative advantages serve as trade specialization. Throughout the study period, it was found that technology intensive products are a classification of product groups that dominate comparative advantage and trade specialization of East Asian countries. This result is also supported by a positive value of skewness, indicating that during the period 1995-2015, Indonesia, China, Japan, Hong Kong, South Korea, and Singapore specialize in product groups with low comparative advantages.

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Appendix A**Classification by Empirical Trade Analysis (ETA)**

No	Product Classification	Amount of SITC	The 3-digit SITC Revision 2
1	Primary Products	83	001, 011, 012, 014, 022, 023, 024, 025, 034, 035, 036, 037, 041, 042, 043, 044, 045, 046, 047, 048, 054, 056, 057, 058, 061, 062, 071, 072, 073, 074, 075, 081, 091, 098, 111, 112, 121, 122, 211, 212, 222, 223, 232, 233, 244, 245, 246, 247, 248, 251, 261, 263, 264, 265, 266, 267, 268, 269, 271, 273, 274, 277, 278, 281, 282, 286, 287, 288, 289, 291, 292, 322, 323, 333, 334, 335, 341, 351, 411, 423, 424, 431, 941
2	Natural-resource intensive products	21	524, 611, 612, 613, 633, 634, 635, 661, 662, 663, 667, 671, 681, 682, 683, 684, 685, 686, 687, 688, 689
3	Unskilled-labor intensive products	26	651, 652, 653, 654, 655, 656, 657, 658, 659, 664, 665, 666, 793, 812, 821, 831, 842, 843, 844, 845, 846, 847, 848, 851, 894, 895
4	Technology intensive products	62	511, 512, 513, 514, 515, 516, 522, 523, 541, 562, 572, 582, 583, 584, 585, 591, 592, 598, 711, 712, 713, 714, 716, 718, 721, 722, 723, 724, 725, 726, 727, 728, 736, 737, 741, 742, 743, 744, 745, 749, 751, 752, 759, 764, 771, 772, 773, 774, 775, 776, 778, 792, 871, 872, 873, 874, 881, 882, 883, 884, 893, 951
5	Human-capital intensive products	43	531, 532, 533, 551, 553, 554, 621, 625, 628, 641, 642, 672, 673, 674, 675, 676, 677, 678, 679, 691, 692, 693, 694, 695, 696, 697, 699, 761, 762, 763, 781, 782, 783, 784, 785, 786, 791, 885, 892, 896, 897, 898, 899
6	Not classified	5	911, 931, 961, 971, 999

Source: <http://www2.econ.uu.nl/users/marrewijk/eta/>

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Value Knowledge, Institutional Essence and Economic Growth

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Abstract

Knowledge can be divided into knowledge about technology and knowledge about value. The per capita distribution level of value knowledge determines the evolution of the system. Therefore, the essence of institution is value knowledge, and the evolution of institution depends on the variance of knowledge distribution per capita and the number of people. The economic system mapped by the level of value knowledge provides certainty for the introduction of economic technology, and finally achieves economic growth in the modern sense.

Keywords: value knowledge, knowledge distribution, institutional essence, economic growth

1. The Epistemological Basis of Economic Growth

In economic research, we should pay more attention to the role of knowledge in economic growth than the mainstream of Economics, while the mainstream schools of economics express less. If we want to make some traces, we can find that neoclassicism recognizes the role of knowledge in growth to a certain extent. Marshall clearly put forward that "the majority of capital is made up of knowledge and organizational structure..... Knowledge is our most powerful driving force of production" (Marshall, 1983). However, in most economic studies, these conclusions are often ignored, and more attention is paid to capital, labor, technology, management and other factors, thus forming a diminishing effect of growth, and even thinking that economic growth is limited. The role of knowledge in economic growth is particularly advocated by the Austrian school. Hayek specializes in discussing the relationship between economics and knowledge. He holds that "in economic theory, the empirical factor, which involves not only meaning but also causes and results, is the only factor that draws a conclusion as a result of it, is derived from some relevant factors. The proposition of knowledge acquisition is composed of "(Hayek, 1989). Since there is no limit to the growth of human knowledge, there is no limit to the growth driven by knowledge. As Romer pointed out, "the long-term growth is mainly driven by the knowledge accumulation of the forward-looking and profit-maximizing firms"(Romer, 1986). From this, we can deduce an increasing effect of knowledge on economic growth. However, it is worth noting that even considering the spillover effect of knowledge, in the analysis of relevant knowledge and economic growth, knowledge can play a role in promoting economic growth in a socio-economic region, but it can not achieve the same effect or even the opposite effect when applied to other socio-economic regions. Prescott made a clear statement: "In fact, the available knowledge of all countries is the same. Therefore, there must be some other factor, or a series of factors that lead to the difference of total factor productivity" (Palente, Prescott, 2013). The key point is that different socio-economic regions have different institutional rules constructed by value knowledge. Here, we can continue North's research and regard knowledge as a grasp of uncertainty, which is embodied in the accumulation of technical knowledge and human value knowledge, so that uncertainty can be determined to a certain extent, and then promote economic growth. After making such a distinction, one can also observe that knowledge about technology is scalar knowledge and knowledge about human value is vector knowledge (Zhang Shangyi, 2014). This is because the knowledge about human value will eventually give a value orientation about human behavior, and then construct rules that are compatible with value knowledge. In this regard, Leibniz also divided knowledge into knowledge about facts and knowledge about reason (Schneewind, 1990). Rationality affects people's behavior, which can be understood as a value choice of behavior. When an individual chooses the direction of value, according to North's understanding, it is the change of belief, which is actually the change of direction of recognition of interests corresponding to human value knowledge. As the author pointed out in the

previous article(Zhang Shangyi, 2014), because human knowledge about value is vector knowledge, the change of acquiring new knowledge will not only lead to the change of behavior intensity, but also to the change of direction, which is reflected in the selective change of behavior. This change depends on this kind of knowledge. Slope level of total amount. The coordinate system can be used to illustrate that when the position of the new knowledge is set on the x-axis, when the angle between the knowledge stock and the x-axis is greater than 90 degrees, an opposite vector will appear, which reduces the intensity of the directionality of behavior; on the contrary, when the angle between the knowledge stock and the x-axis is less than 90 degrees, a positive vector phase will be formed. Additionally, it strengthens the restriction of directionality of behavior. Moreover, the smaller the angle between the new knowledge and the x-axis, the greater the superposition effect of the new knowledge on the knowledge stock. On this basis, we can better understand North's proposition that "human capital refers to the knowledge that human beings possess, which is rooted in people's beliefs, and the system that human beings create to reflect their beliefs" (North,2013). Here, the system is attributed to the result of knowledge about human value. Then, the system problem is no longer the concept of knowledge, but the result of different types of human knowledge. Thus, in human capital, the distinction between knowledge and system is not necessary, but is unified with human knowledge about technology and value. In the relevant knowledge system, we can better understand that in North's argument, whether beliefs or institutions, should be the result of the superposition of human knowledge vectors about value.

As a matter of fact, it has been argued that "people's economic activities and how to achieve a balanced coexistence of these activities will begin with their knowledge of the world"(Zhang Shangyi, 1998), and that knowledge about the world can be divided into two aspects. Knowledge about human value is embodied in knowledge tradition in the crowd. This knowledge tradition can be solidified into system rules and embodied in human grasp of value. Knowledge about technology can be transformed into technical knowledge and embodied in human use of technology. By dividing knowledge into two aspects, we can try to understand Schultz's emphasis that "history has proved that we can increase resources through the progress of knowledge"(Schultz, 1990). Here, the question to be solved is why the progress of knowledge can increase resources and thus promote economic growth. North has discussed this problem, that is, the growth of knowledge makes uncertainty certain. Human beings are constantly improving their grasp of technology and value, so economic growth can be achieved through controllable measures. Specifically, knowledge about technology can make the uncertainty of technology more definite through technological progress. This is because technological progress not only enables people to understand technology, but also enables people to invest in it. Source supply has been increased, and technical knowledge beneficial to economic and social growth can be developed, so as to achieve certainty of economic growth at the technical level, reflecting the positive effect of technological progress on economic growth, which has been demonstrated in Solow's research, such as Solow's empirical research. It is indeed pointed out that during a period of economic growth in the United States, "the cumulative technological change in the production function is about 80%. So there is reason to think that in total output growth... 7/8 is the result of technological change "(Solow, 1991). However, Solow pointed out that growth is only a short-term growth, "a major source of long-term economic change is structural change" (North, 1994), and the organizational structure is ultimately reflected in the rules of the system. In this regard, it can be considered that the institutional structure of a socio-economic region restricts technological progress and economic growth, which can be proved by the practice of economic growth in some countries and regions of the world. Institutional structure is in fact the determination of uncertainty about human behavior, which is embodied by knowledge of human value, while at the level of knowledge, it is embodied by knowledge tradition, which directly affects people's behavior patterns. Therefore, there will be "people from different cultural backgrounds have different opinions on the same thing. Understanding makes different choices"[8] p62, which depends on the cultural traditions constructed by different knowledge of human values. Therefore, how to develop an understanding of the distribution and certainty of this knowledge has become a fundamental issue of economic growth.

2. The Impact of Knowledge Distribution on Economic System

The distribution of knowledge referred to here is the distribution of knowledge among people according to certain rules, while the distribution of knowledge per capita reflects the average level of knowledge among people. When discussing, it can be assumed that for an individual, the knowledge stock of human value that he acquired initially (hereinafter referred to as knowledge for the convenience of discussing) is the basis of his analysis. Such an analysis is based on the fact that "the analysis of what people will do can only begin with what they know" [2], rather than simply building the analysis on a group action hypothesis, so that the basis of the analysis is closer to the fact that economic growth comes from the coupling of behavioral patterns that everyone

specifically recognizes. Therefore, the analysis of the impact of knowledge on the economic system should be based on this basis, which is also what North pointed out: "Institutions are human creations, they are evolving and changing for human beings, so our theory must begin with the analysis of individuals"(North,2014). In the further study, we can set up a social economic region with enough population. By setting up the individual knowledge stock, we can know that for the social economic region with enough individuals, the total amount of knowledge is the sum of all individual knowledge. This is because the number of people plays a very important role in economic growth. Economic growth must be based on the sufficient number of individuals in a population. A small group of simple individuals can not achieve the goal of economic growth in the modern sense. Therefore, it can be set that the number of people in a certain socio-economic region is large enough, and because there are different groups in such a socio-economic region. People have different knowledge structures, so the distribution of knowledge among people should be based on this. Here, our research focuses on the impact of the knowledge structure of the population on the system. This is because there is no institutional problem in terms of only the knowledge possessed by an individual. A single individual can only adapt to the arrangement of the system and can not create a system endogenously. Although there are many disputes about this point in economic research, the formation of endogenous system is always attributed to the situation of the population. We agree with Maynard Smith's view that "individual choice does not necessarily lead to optimal or sub-optimal social outcomes" (Ferromon, 2003), but depends on the outcomes of group selection. This choice depends on the level of people's grasp of value knowledge in terms of the institutional environment in which the group is located. This level can not be simply calculated as an average, but depends on the distribution of knowledge per capita. After making such a judgment, we can effectively solve the problem of rational or limited rational choice in economics. The so-called bounded rationality is only the limited accumulation of knowledge, so there are errors in judging some problems. However, in the long run, the growth of knowledge accumulation can conform to the principle of rationality. As Becker pointed out, "what economists believe is giving given preferences, and what is vaguely attributed to human nature or some other analogue -- the enduring emphasis on selfishness, altruism and social differences among relatives, and other aspects of preferences -- can be largely attributed to following suit. Over time, the choice of survival value with greater genetic adaptability has been proved to be explained "(Becker, 1976). This is because in the long run, altruistic behavior, contrary to the hypothetical selfish rational behavior, is formed on the basis that the knowledge stock acquired can make a long-term benefit to the event, and ultimately enable the population in a socio-economic region to satisfy the hypothesis of complete rationality.

Another thing to see is that the population is composed of individuals. When the population reaches a certain number, it can be approximated as a continuous series of functions. Therefore, it can be assumed that the knowledge distribution of the population is continuous. From the relevant theorem of mathematical statistics, we know that as long as the number of samples is large enough for any population, the mean value of samples obeys the normal distribution approximately. Therefore, when we analyze the distribution of knowledge in the population, we can also use the normal distribution to study. As far as our previous assumptions are concerned, the economic significance of the average level of knowledge reflected in this socio-economic region, i.e. the sample mean, is reflected in the level of knowledge distribution stock per capita that the economic system can achieve. Because logically speaking, people's decision-making for the future depends on their grasp of the past, which is reflected in the level of population, which is the level of knowledge stock per capita in a socio-economic region. This level of knowledge stock per capita is the level of certainty of the value of the population, which is reflected in the social economy. The average predictive level of population on economic growth in the economic region.

What we need here is the knowledge level of the people reflected by the per capita knowledge situation in a socio-economic region, and then the knowledge tradition constraints determined by the per capita knowledge distribution, which are finally embodied in the rules of the system. Therefore, the increase of population knowledge stock will constantly change the per capita knowledge situation, and the change of knowledge stock will lead to institutional evolution. "The accumulation of knowledge stock has played a subtle role in the long-term changes of political and economic systems" (North, 2013). This imperceptible effect is reflected in the fact that with the growth of knowledge in this area, not only the intensity of knowledge accumulation with common characteristics has been formed, but also the direction of value has been strengthened, and the direction of value will form a potential institutional arrangement of knowledge tradition for individuals in this economic and social region. Here, we should point out that when the population in the social and economic region is large enough and the individual gains a certain amount of knowledge increment, no matter whether the vector and the value of the increment are positive or negative, the change of the knowledge stock of random individuals does not necessarily lead to the change of the level of knowledge distribution per capita, so it will not be necessary. However, it leads to the evolution of the system (Zhang Shangyi, 2014). However, when the total knowledge

level of the population changes, the distribution of knowledge per capita will change accordingly, which will change the level of knowledge per capita in the socio-economic region. When this happens, the per capita distribution of knowledge will affect the evolution of the system, and then form the institutional arrangements and environment that affect economic growth.

3. Institutional Evolution Caused by Per Capita Knowledge Distribution

In this part, the concept of negative knowledge is introduced. In the past, it has been determined that value knowledge is vector knowledge. Therefore, when value knowledge plays an opposite role in promoting the evolution of economic system, this kind of value knowledge is negative knowledge. Relevant theories of welfare economics show that not all institutional changes are conducive to improving the welfare of the population. Even the weakened welfare improvements pointed out by Hicks et al. can not be achieved in some countries and regions. What is the reason? This is because, from the perspective of knowledge distribution, some socio-economic regions are concerned with price. The knowledge of value presents the opposite direction to the evolution of institution, which further illustrates the basic judgment that the knowledge of value given by us is vector knowledge. In the case of negative knowledge, we can also understand from practice why some countries and regions have the opposite direction in economic development. In reality, we can observe the fact that there are some economic systems that are not conducive to economic growth, while behind the economic system, there is actually a fact that value knowledge is negative relative to economic growth.

Here, the question that must be solved is why the distribution of value knowledge changes. From the history of the evolution of human system, the shortage of technological resources can lead to the change of value knowledge. To illustrate this point, we can cite examples of the industrial revolution. The reason for the emergence of the industrial revolution in Europe lies in the shortage of human resources to a certain extent, which makes human beings have to think about the corresponding value knowledge, and the evolution of value knowledge leads to the emergence of a new system. As Heraly pointed out, "The order constructed by imagination does not lie in the subjective understanding of individuals, but in the common imagination of tens of millions of people"(Heraly, 2014). The imagination he pointed out was actually the result of the cognitive revolution, which he attributed to "culture is the main achievement of the cognitive revolution"(Heraly, 2014), and the culture he pointed out here is actually the system constructed by knowledge to maintain the order of the crowd. Although Heraly did not clearly point out this point, he hinted at the institutional arrangements determined by the collective knowledge which is different from human beings in the course of human history, when discussing the origin of the cooperative development of human beings. This common knowledge, which exists in tens of millions of people, is not only the knowledge tradition that Hayek means, but also the per capita knowledge level specified in this paper. At the same time, from the theory of mathematical statistics, we can know that the per capita knowledge level depends on the distribution of knowledge and the number of people. From this, we can draw the conclusion that the distribution of knowledge per capita determines the optimization level of the system.

Then, how can the knowledge status of the population promote the evolution of the system? The conclusion is due to the difference of value knowledge among different groups of the population. North clearly pointed out that "the change of knowledge is the key to economic evolution" (North, 2013), in which "the intentions of participants are reflected by the institutions they gradually formed" (North,2013) . Here, although North does not specify the relationship between intentionality and knowledge, we can better understand it by dividing knowledge into two aspects, because the system reflects value knowledge, so when intentionality changes, it will inevitably promote the evolution of the system. Here, the question to be answered is how intentionality evolves. This is due to the existence of disadvantaged groups in any economic system, which have a demand for improvement of the economic system(Zhang Shangyi,2014), and the degree of such demand is determined by the disadvantage of the group. Considering that the economic system is determined by the distribution of knowledge per capita, the difference of groups with different requirements for the evolution of the system itself is reflected in the difference of the per capita value of value knowledge among different groups in an economic and social region. The greater the difference of knowledge per capita among different groups, the greater the possibility of economic system evolution. Recent studies have also shown that when economic technology becomes universal, it will inevitably lead to a gradual decline in growth. The solution to this problem lies in the improvement of both the institutional and knowledge sectors (Zhang Ping, Liu Xiahui,et al, 2015). Here, although the system and knowledge are confused, we have begun to find out the reasons from these aspects. When we attribute the causes of economic system to the level of per capita knowledge, then different groups with different distribution of per capita knowledge in an economic and social region become the driving force of economic evolution, which also shows that "the first general argument we must consider is that there are some government activities." Motion

can make competition more effective and beneficial than without these activities"(Hayek, 1989). This is because, when the development of a socio-economic region depends more on small values, there will be more differentiated endogenous knowledge structures and institutional models in a socio-economic region, and these relatively differentiated knowledge structures will have requirements for institutional evolution, which will make a society come out. The possibility of institutional evolution is increasing. This situation can also explain the need to prevent monopoly. Because monopoly will lead to the consolidation of knowledge in a socio-economic region, thus restricting the evolution of the industry. This is consistent with Prescott's research and our observation of economic reality. "Because in history or in today's world, there are growing, stagnating or declining economies at the same time... If poor countries are poor because they are victims of institutional structures that impede growth, then is the institutional structure imposed externally or endogenously or is it a combination of the two?"(Ostrom, 2012). Through the study of the distribution of per capita knowledge and the institutional evolution of its mapping, we can conclude that institutions can be both internal and external. Raw, also related to external imposition. Through the analysis of knowledge accumulation, we can see that the evolution of the system is related to the distribution of knowledge per capita in a socio-economic region. The distribution of knowledge per capita ultimately depends on the overall level of knowledge accumulation of individuals. The endogenous system comes from the distribution of knowledge per capita, while the externally imposed system is based on the accumulation of knowledge. The way of knowledge distribution affects the level of knowledge distribution per capita, because the knowledge formation constituting the system has the vector and effect on the formation of individual knowledge in the socio-economic region. This also explains why the imposed external system always influences people's norms of conduct in a gradual way and gradually becomes an applicable institutional arrangement. Therefore, when we focus on the distribution of knowledge, we can explain the evolution of the system through the role of knowledge. It needs to be further clarified that human knowledge can not be complete, so it needs a way of continuous exchange and acquisition of knowledge, and more importantly, how to keep the knowledge of different groups and individuals different in the process of exchange, which may be more important in promoting the evolution of the system.

4. The Path from Institution to Economic Growth

The evolution of the system in a socio-economic region depends on the distribution of knowledge per capita, that is to say, when the level of knowledge distribution per capita increases, it will promote the evolution of the system, which has been demonstrated before. The economic performance of the system has also been solved by scholars including North. "Incentive is the fundamental determinant of economic performance" (North, 2014) But we still need to understand how the system leads to growth. Although North has pointed out that "institutions affect economic performance through their impact on exchange and production costs" (North, 2014), he also argues that "institutions are not necessarily or usually not created to achieve social efficiency, but rather they are created to serve negotiations with new rules. The interests of competent people"(North, 2014). Although the evolution of institutions leads to economic growth, it is not clear what path to follow. North also clearly pointed out that the path from institution to economic growth is not very clear, and pointed out that "it will be very valuable to clarify which institutional characteristics shape performance"(North,2014). The focus of this part is to explore and solve this problem, so as to build a clear path from the system to the economic growth rate, which is also the focus of this paper.

From institution to economic growth, there must be an intermediate part, rather than the direct relationship between institutional change and economic growth as analyzed by the New Institutional Economics School. To solve this problem, we must start from the composition of personal knowledge we analyze. Individual knowledge is divided into knowledge about human value and knowledge about technology. The former determines the evolution of the system, while the latter constitutes and can be deepened into the evolution of technology, and economic growth to a large extent should be attributed to the result of technological progress. This can also be concluded from the history of human development. In China, for example, a considerable part of the history of civilization has been wandering in population expansion and social unrest for thousands of years. One of the important reasons is that the economic growth provided by technology may not meet the needs of population growth, which leads to social unrest and the sharp decrease of population, until the technological progress of the Ming and Qing Dynasties. Real economic growth has been achieved. Recent studies have also pointed out through quantitative analysis that "if developing countries want to surpass developed countries, they can only improve the external environment of R&D sector, improve the level of human capital, and then enhance knowledge productivity" (Su Zhiqing, Wang Yufeng, 2012). If institution is the cause of affecting economic performance and technology plays a very important role in economic growth, then the path between institution and economic growth may be that institution plays a role through technology, thus forming such a logical

relationship in two kinds of human knowledge: value knowledge determines institution The evolution of system determines the progress of technology and economic growth. In this regard, we can further demonstrate.

Here, we can consider that technology is the function of the system, and set the level of knowledge about the system per capita, which can reflect the level of the system. Then we can deduce the level of technology that can be generated spontaneously and absorbed in the per capita distribution of human knowledge. As the evolution of the system depends on the distribution of knowledge per capita, it is difficult to realize the evolution of the system in the socio-economic region, and at the same time, it is difficult for technological progress to fundamentally form and promote the economy, in view of the historical development practice of China, when the knowledge stock of the standard of conduct, such as the formation of Confucianism, is almost similar to that of the whole people. The power of growth does not lie in whether China attaches importance to the development of commercial economy, which will limit the economic growth in ancient China.

Knowledge of human values directly affects human behavior and judgment of problems, thus affecting the evolution of regional social and economic systems. As North pointed out, "The role of the actor's concept in the system is more important than its role in technological change, because ideological beliefs influence the subjective constructive model of decision-making" (North, 2014), and this subjective constructive model is, in the final analysis, what we have pointed out about human price. Value knowledge, and thus formed a social and economic region of the system and the implementation of institutional constraints. This evolution has enabled a socio-economic region to spontaneously produce new technologies and possibly introduce new technologies, and then produce knowledge increment effects such as those proposed by Romer and others, thus solving the problem of coordination between economic and population growth. Although North also proposed that "system and technology together determine transaction costs" [13] p74, it did not explain the logical relationship between them. Therefore, he can only put forward the system as an extremely important variable in the growth function from the qualitative point of view, but also has to admit that "there is no strict one-to-one correspondence between rules and performance in fact" (North, 2014), the reason is that he has not really found out the distribution of the system by the per capita knowledge of human values. The origin of the state. As Barrow's analysis of education and growth points out, "The theory that education has a positive effect on an economy's ability to absorb new technologies" (Barrow,2004), the reason is that education not only disseminates knowledge about technology, but also imparts knowledge about human values, and the distribution of knowledge about human values determines society. The possibility of institutional evolution in economic regions makes endogenous technological progress and technology introduction possible. In the analysis of the correlation between education and economic growth, Barrow argues that "early education seems to play a role in democratization" (Barrow,2004). Through the observation of the educational process, we can also understand that early education is more about the education of value knowledge and less about the education of technical knowledge, which may be the closest argument about the evolution of human value knowledge determining system. These conditions also further prove the logic of economic growth proposed in this paper from the per capita distribution of human knowledge. As the real economic growth took place in modern times, it can be further demonstrated. As Wang Dingding pointed out, "It is only in recent centuries that human society has developed so-called (that is, per capita income has increased by more than 2% per year). In the long history of society, the annual growth rate of per capita income has almost always remained zero "(Wang Dingding, 1998).

A review of economic growth in the 20th century can also clearly demonstrate this. North clearly pointed out: "In the Middle Ages, there was progress in technology, although the process was hindered by the cold social fashion. Because there is no institutional guarantee, the inventor's personal rate of return is equal to the social rate of return"(North et al,1989).This is precisely because there is no favorable institutional environment for technological gains at the institutional level, so technological innovation can not form effective productivity in the whole society even if it occurs. "In this way, the productivity increase that constitutes economic development will be weakened or delayed" (North et al, 1989) For this reason, the lack of institutional environment for technological innovation and technology introduction hinders the evolution of technology. "Because of different institutional structures, countries with similar resource endowments may have different development paths. Because the system affects the power of a country to improve and develop new technologies". In his related studies, Van Gaster clearly pointed out that "the independent power of local governments in economic affairs - the de facto federalism - played a key role in the emergence of the industrial revolution."(Wengast, 2013) And it is precisely pointed out that this is because in almost all business centers, the management of guilds restricts competition, pricing, entry and training, and therefore it is impossible to accumulate new knowledge in the industry, thus hindering the evolution of the system. This is also why industrialization did not appear in existing business centers. Reason. We know that economic growth in the true sense originates from technological

progress caused by the industrial revolution, and thus completely changes the pattern of population expansion caused by economic growth in the form of extension, which ultimately makes the economy unable to support the needs of population expansion and leads to social chaos, so that human social and economic growth can support population expansion. Need.

5. Concluding Remarks

Through the previous analysis, we can see clearly that when knowledge is used as the basis of economic analysis and knowledge can be properly divided into knowledge about technology and knowledge about human value, some problems in economics can be solved better, which is in line with the progress of human civilization. Generally speaking, the history of human development is how to adapt and transform technology so that the uncertainty of technological evolution can be gradually grasped by means of technology. In this process, various kinds of human values have higher and higher requirements for certainty. If there is no certainty grasp of human values, then ultimately. It is impossible to grasp the certainty of technology, especially to promote economic growth by using technology. This can be proved by the history of each country and region and what is happening. Therefore, the deterministic grasp of group activities should become the ultimate decisive factor of economic growth.

At the same time, it can be found that promoting the determination of human value is closely related to human value choice, which is rooted in the knowledge of human value, and the progress of this knowledge is the basis of human value determination. Through relevant research, we can find that the progress of promoting human value knowledge mainly depends on two aspects: one is the difference of per capita knowledge level among different groups in the economic and social region, the other is related to the number of people, and the per capita knowledge progress is negatively related to the number of people, thus making the system black box problem in one. To a certain extent, it has been solved. On this basis, it can be inferred that there is a positive correlation between economic system and technological progress. Because technological progress has an obvious effect on economic growth, the logical sequence of knowledge progress, institutional evolution, technological development and economic growth can be constructed, so that the final decision of economic growth can be more clearly recognized. The factor lies in the progress of knowledge of human values, which also solves the problem of economists' interpretation of economic growth in developing countries, so that economic theory can be more consistent with different countries and regions. However, up to now, the quantitative relationship between the three can not be accurately obtained, which is the direction of further research.

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The Extent to which Jordanian Organizations Are Committed to Implementing Knowledge Management According to Jordanian Government Standards

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Abstract

The study aimed to identify the extent to which Jordanian organizations are committed to implementing knowledge management according to Jordanian government standards, and the extent to which knowledge management standards are applied in Jordanian organizations. To highlight the problem of the study, the sub-criteria for knowledge management were discussed, which includes the ability of the organization to: the commitment of senior management to knowledge management and awareness of its importance, knowledge resource identification, knowledge management and knowledge outcomes standard. The study community is from all organizations and directorates in the Kingdom of Jordan. The study sample consists of (85) organizations and directorates, who all applied for the King Abdullah II Award for Excellence in Government Performance and Transparency.

The results of the study showed that Jordanian organizations are not committed to the standard of commitment of senior management to implement knowledge management, and the lack of commitment of the Jordanian organizations to the criteria of the main performance indicators to measure the achievement of knowledge objectives and knowledge exchange indicators, while there is a commitment in the Jordanian organizations to the standard of knowledge management. The most important recommendation of the study is the need to develop a comprehensive strategy for the application of knowledge management within the organization; the study recommends further studies in the area of knowledge management since it is a new management concept.

Keywords: Jordanian organizations, knowledge management application, Jordanian government standards

1. Introduction

With the tremendous technological advances and the evolution of the information revolution, many sophisticated means and uses of knowledge management have emerged in achieving the objectives of management in a scientific way based on the means of modern technology (Batayneh & El-Mashkaba, 2010). Therefore, the so-called knowledge management has emerged. Knowledge management is one of the latest management concepts. Business processes, which are the processes that assist organizations in generating, acquiring, selecting, organizing, using and disseminating knowledge to take advantage of important information and expertise that the organization possesses, which are necessary for administrative activities such as decision-making (Hamoud, 2010). Knowledge management assists organizations in generating, acquiring, selecting, organizing, using, disseminating, and disseminating important information and experiences that are essential to various administrative activities such as decision making, problem solving, learning and strategic planning (AlKhatib & Zegan 2009). Knowledge management is gaining importance through the objectives it seeks to achieve. The primary objective of knowledge management is to provide the organization with permanent knowledge and translate it into practical behavior that serves the organization's goals by achieving efficiency and effectiveness by planning and organizing knowledge efforts that lead to the achievement of the organization's strategic and operational objectives (Dahir, 2014). So, the organization focuses on the causes of knowledge, as sound and adequate knowledge is the essence of wisdom and creativity, it provides the potential and competitive capabilities. The organization concerned with the identification and source of knowledge, the handling, classification, storage and use of information, where appropriate, which provide management, data, statistics and information to predict the risks to the organization that are capable of sustaining in the face of intense

competition. Knowledge management is one of the most recent managerial concepts that have an effective impact on the success of businesses and organizations (Alzyadat & Awad, 2008). Over the years, there has been a growing interest from organizations worldwide to adopt the concept of knowledge management.

At the level of the Hashemite Kingdom of Jordan, Jordanian governmental organizations are looking for organizations to be knowledge-based, especially since the King Abdullah II Award for Excellence in Government Performance and Transparency has adopted knowledge management as a standard of excellence (Award Guide, 2015). On this basis, Jordanian governmental organizations started to implement knowledge management initiatives, especially that the award aims at making a qualitative leap in the performance of the governmental organizations in serving the Jordanian citizens and investors as well as enhancing competitiveness by spreading awareness of the concepts of outstanding performance, creativity, quality and transparency. The government sector carries out the duties and tasks assigned to it effectively, with high levels of quality, efficiency and professionalism (Award booklet, 2014). The prize aims to enhance the exchange of experience between public sector institutions and share each other success stories in practices "The Award provides a benchmark for measuring the progress and development of the performance of government organizations in the Kingdom, contributes to the development of the government sector and improves its performance, and assists in supporting the development and strategic planning programs of these organizations (Award site, 2018).

The importance of the study in terms of the Jordanian organizations' application of knowledge management in accordance with the criteria of the King Abdullah II Award for Excellence in Government Performance and Transparency within Jordanian Organizations is an attempt to answer the outstanding questions and issues related to knowledge management and its application in Jordan. In addition to the fact that the subject of knowledge management has become a source of excitement and interest in the present time, especially as organizations are always seeking to develop and renew, knowledge management is one of the main means that lead these organizations to the top in the presence of competition.

Therefore, the main problem of study is the extent to which organizations are committed to implementing knowledge management according to Jordanian government standards and the extent to which knowledge management standards are applied in Jordanian organizations. Especially since the Jordanian governmental organizations are moving towards knowledge management as an activity that the organization excels over its competitors. As the Hashemite Kingdom of Jordan does not enjoy the abundance of natural resources, its organizations are in dire need of a direction towards knowledge management in order to achieve competitive advantage. It has become clear that knowledge has a great role in building and achieving outstanding performance. Knowledge capacity can be derived from knowledge and methods in finding excellence on the competitor.

In order to highlight the problem of the study, the sub-criteria for knowledge management will be discussed, which includes the ability of the organization to (Award criteria, 2016): the commitment of senior management to knowledge management and awareness of its importance, the identification of sources of knowledge that include data and information, internal and external knowledge assets, and normative comparisons; implementation, confidentiality, and security of information, review and evaluation, and addresses the knowledge outcomes standard: key performance indicators to measure the achievement of knowledge objectives, knowledge exchange indicators.

2. Literature Review

Previous studies addressed the issue of knowledge management on more than one side. (Kulkarni & Dahiya, 2018) discussed implementation barriers for knowledge management for small and medium-sized enterprises (SME). The survey is based on a survey of Indian cities in Delhi, Pune and Ahmed Najar. Using statistical analysis methods, barriers to the use of knowledge management in SMEs in India have been investigated such as information and communication technology, human resources, organizational level, and market level. The study showed a clear view of these organizations that have a problem identifying relevant knowledge to store or they can not figure out what they will need in the future. Another tangible outcome is the rapid change in IT tools that create a time lag between FAO's work and response due to the time needed to identify new technology.

The study (Tan, et al., 2018) highlighted the factors affecting the implementation of knowledge management among SMEs in Malaysia, as the Malaysian Government is actively involved in the implementation of the ETP, the Government Transition Program (GTP) (UTP). This study was conducted to measure SME acceptance of knowledge management and identify the pros and cons of knowledge management. The questionnaire was used to collect data and randomized the sample to identify respondents. The questionnaire was developed and customized based on knowledge management and IT management frameworks. In this model, the dependent

variable was the adoption of knowledge management organizations. Independent variables included knowledge application needs, knowledge engineering, knowledge infrastructure, knowledge investment and knowledge principles. The study found that there is a lack of adoption of knowledge management by organizations; moreover, there is a difficulty in identifying the knowledge required to small and medium enterprises.

(Sivakumar, 2018) examined the indicators of the implementation and creation of knowledge. The study aimed to develop a comprehensive model that integrates the creation of knowledge with knowledge indicators through the work of knowledge in participation, documentation, knowledge acquisition, transfer and application of knowledge, promotion of knowledge creation within the employees and implementation of knowledge creation at work. This study examined how knowledge indicators can enhance the creation of knowledge among employees. The results showed that knowledge management indicators: participation, documentation, knowledge acquisition, transfer and application of knowledge have a 70% impact on knowledge creation.

The study of (Sahmadi & Prosh, 2017) aims to explore the impact of knowledge management on performance in the economic institution, by introducing knowledge management, presenting the theoretical framework of performance in the organization, and highlighting the impact of management effective knowledge of the performance components of the staff, learning, job satisfaction, and internal processes to ensure outstanding performance for the institution. Finally, it concluded that knowledge management has a positive impact on the efficiency and effectiveness of internal processes and in achieving job satisfaction for employees as well as raise their level of learning, through effective steps to manage knowledge within the institution.

The study of (Alfahout, 2018) highlighted the impact of e-administration on the knowledge management processes of employees in some Palestinian universities. The aim of this study is to identify the impact of e-management in the knowledge management processes of senior and middle management positions in some universities in the Gaza Strip. The relationship between the five requirements of electronic management: administrative, human, technical, financial, security and knowledge management processes: diagnosis, generation, deployment, storage. The problem of the study was the impact of the use of e-administration in knowledge management processes among the senior and middle management positions in the Palestinian universities. This study was based on two analytical descriptive and exploratory approaches, as well as the study used the stratified random sampling method and the questionnaire as the primary tool for collecting primary data.

The study of (Shahid & Boushamin, 2018) entitled "Knowledge Management and its Impact on Decision Making in the Institution", highlighted the impact of knowledge management on the effectiveness of decision making at Tahrir University level. To answer the problem presented and to verify the hypotheses, we conducted this study on a sample of the staff of the university. The analytical descriptive method was used. A 34-question questionnaire was designed to answer the question of how the impact of knowledge management on decision-making effectiveness. We relied on the analysis of results and hypothesis testing on SPSS, the results of the study were: there are statistically significant differences between the requirements of knowledge management and the effectiveness of decision making.

The study (Othmani & Emran, 2018) discussed the role of knowledge management in the achievement of the strategy of excellence in the economic institution, which aimed to identify the impact of knowledge management in achieving the excellence strategy in the Condor Foundation. In order to achieve the objectives of the study, the questionnaire was used as a main tool in collecting data analyzed by accreditation using the statistical package (SPSS). The study reached a number of results, the most important of which was the existence of a statistically significant relationship of knowledge management to the achievement of the excellence strategy in the institution under study, with no statistically significant differences between the responses of the respondents on the subject of the study due to differences in personal and professional variables. In the light of the findings, the study presented a set of recommendations on this subject.

The study of (Hamdeh, 2018) unveiled knowledge management requirements in the Ministry of Higher Education in the Sultanate of Oman from the point of view of administrative staff in the Department of Education. The results of the study showed the importance of the four domains (knowledge generation, application of knowledge, knowledge dissemination and knowledge storage), respectively, at the level of gender, job title, age, scientific qualification and number of years of experience in the present job at the significance (0.05). As for the impact of the variables of the study, the results indicated that there is no difference in the requirements of applying knowledge management in the Ministry of Higher Education in the Sultanate of Oman from the point of view of the middle administrators, the variables of study, gender, job title and the years of experience in the current job. The study concluded with a number of recommendations, including: the need to prepare lectures and training courses for all employees in the Ministry of Higher Education in order to make

them aware of the importance of applying knowledge management requirements to increase their awareness of them in terms of knowledge and practice.

The study of (Abu Amra & Nasr Allah, 2018) discussed the role of knowledge management in the development of the performance of government colleges in Gaza Strip. The study aimed to discuss the role of knowledge management in the development of the performance of government colleges in Gaza Strip. To achieve the objectives of the study, the researchers relied on the secondary data which contributed to the theoretical framework of the research, in addition to the preliminary data provided by designing a questionnaire consisting of six dimensions that affect the development of performance: knowledge culture, organizational leadership, awareness and knowledge commitment, human capital, technology and infrastructure, and application of knowledge, it was distributed to 59 employees of the College, and the study reached the high level of knowledge management in the Technical College of Palestine from the point of view of workers, performance development level at Palestine Technical College. In addition, the staffs of the college have close views on the practice of knowledge management and its role in the development of performance in terms of gender or nature of scientific qualification or nature of the work. The study recommended the need to pay attention to the generation of knowledge and the development of storage methods and expand the process of sharing by providing the environment appropriate for knowledge empowerment, to build an organizational culture that embraces knowledge management as a methodology.

Although the studies dealt with the subject of knowledge management by different environments, this study came to recognize the extent to which the Jordanian organizations are committed to applying knowledge management according to the Jordanian government standards in order to understand the importance of knowledge management and application within these organizations, and to highlight the criteria of the award, especially that knowledge management is one of these criteria, and stand at the key performance indicators to measure the achievement of the goals of knowledge management as well as measuring the success of the achievement within the Jordanian organizations, and knowledge of the constraints and reasons that limit the application of knowledge management, and then try to develop solutions to these obstacles.

3. Methodology of the Study

The study relied on the descriptive analytical method for the completion of the study by using the following sources to collect the data as follows:

A) Secondary data sources: they include books, studies, Arab and foreign sources, publications, regulations and instructions issued by the relevant academic, governmental and professional bodies in paper and electronic form.

B) Primary data sources: Data on the commitment of Jordanian organizations to implement the standards were accessed through frequent visits to the King Abdullah II Award for Excellence in Government Performance and Transparency, and through the results of the knowledge management performance of the Award.

3.1 Community and Sample of the Study

The study community consists of all organizations and directorates in the Kingdom of Jordan. A sample of (85) organizations and directors were selected, all of whom are candidates for the King Abdullah II Award for Excellence in Government Performance and Transparency.

4. Results and Discussion

This section presents the results of the statistical analysis of the current study, which aims to identify "the extent of the commitment of organizations to implement knowledge management according to the standards of the Jordanian government" and the extent to which the application of knowledge management standards in Jordanian organizations.

First: The proposed grades of the Knowledge Management Standard were adopted from the King Abdullah II Award for Excellence in Government Performance and Transparency. The following equation was used to measure the degree of evaluation of the standards:

$$\text{Length} = (\text{highest of standard} - \text{lowest of standard}) / 3$$

Table (1) shows the assessment grade for all knowledge criteria.

Table 1. Degree rating for each of the knowledge criteria

Standards	Total Degree	Degree of assessment		
		Low	Medium	High
Commitment	15	0- 5.00	5.01- 10.00	10.01-15.00
Commitment of senior management	15	0- 5.00	5.01- 10.00	10.01-15.00
Sources of knowledge	30	0-10.00	10.01- 20.00	20.01-30.00
Data and information	10	0-3.33	3.34- 6.33	6.34- 10.00
Internal knowledge assets	10	0-3.33	3.34- 6.33	6.34- 10.00
External cognitive needs	5	0- 1.66	1.67-3.33	3.34-5.00
Standard comparisons	5	0- 1.66	1.67-3.33	3.34-5.00
knowledge management	40	0-13.33	13.34-26.66	26.67- 40.00
Planning and implementation	20	0-6.66	6.67- 13.32	13.32- 20.00
Confidentiality and security of information	10	0-3.33	3.34- 6.33	6.34- 10.00
Review and evaluation	10	0-6.66	6.67- 13.32	13.32- 20.00
Knowledge results	30	0-10.00	10.01-20.00	20.01-30.00
Key performance indicators to measure the achievement of knowledge objectives	20	0-6.66	6.67- 13.32	13.32- 20.00
Knowledge exchange indicators	10	0-3.33	3.34- 6.33	6.34- 10.00

Second: the arithmetical averages and standard deviations to assess the extent to which organizations adhere to the application of knowledge management according to the standards of the Jordanian government and the results of the application of the One Sample T-test. The percentage was calculated according to the following equation = (the arithmetic mean of the performance of companies on the standard / total score of the criterion) × 100%, the equation was used to standardize the one sample T-test (50%).

Table 2. The statistical averages and standard deviations to assess the extent to which Jordanian organizations are committed to applying knowledge management according to the senior management compliance standards and the results of One Sample T-test

Standards	Lowest value	Highest value	Arithmetical average	Standard deviation	Percentage	Degree of assessment	T	Significant level
Senior management commitment	2.50	9.72	5.68	1.65	37.8	Medium	-10.144	0.00

Table (2) shows that the commitment of Jordanian organizations to apply knowledge management according to the senior management commitment level ranged between (2.50-9.72), the mean was (5.68) and the standard deviation was (1.65), indicating that the level of commitment of the organizations to apply management Knowledge on this criterion is average, as shown from the table that the value of (T) was (-10.144) which is a negative value and a statistical function at the level of significance ($\alpha \leq 0.05$) indicating a value gap on the commitment of senior management to implement knowledge management by (50%).

Standards	Lowest value	Highest value	Arithmetical average	Standard deviation	Percentage	Degree of assessment	T	Significant level
Data and information	1.30	6.60	3.40	0.96	34.0	Medium	-15.197	0.00
Internal cognitive assets	1.30	5.50	3.39	0.95	33.9	Medium	-15.503	0.00
Internal cognitive needs	0.87	3.56	2.05	0.58	41.0	Medium	-7.111	0.00
Standard comparisons	0.80	3.40	1.78	0.57	35.6	Medium	-11.469-	0.00
Knowledge sources	4.33	17.41	10.61	2.82	35.4	Medium	-14.255	0.00

Table 3. The statistical averages and standard deviations to assess the extent to which Jordanian organizations are committed to applying knowledge management according to the standard of knowledge sources and the results of the One Sample T- test.

Table (3) shows that the Jordanian organizations' commitment to applying knowledge management according to the knowledge source standard ranged between (4.33-17.41), the mean was (10.61) and the standard deviation was (2.82). This indicates that the level of commitment of organizations to implement knowledge management on this criterion was average, the table shows that the value of (T) is (-14.25), which is a negative value and a statistical function at the level of significance ($\alpha \leq 0.05$). This indicates that there is a value gap on the standard of knowledge sources with the standard mark (50%).

Table 4. The statistical averages and standard deviations to assess the extent to which Jordanian organizations are committed to applying knowledge management according to the knowledge management standard and the results of the One Sample T-test.

Standards	Lowest value	Highest value	Arithmetic average	Standard deviation	Percentage	Degree of assessment	T	Significant level
Implementation and planning	3.00	13.92	8.12	2.51	40.6	Medium	6.891-	.0000
Confidentiality and security of information	2.17	9.78	6.06	1.66	60.6	Medium	6.891-	.0000
Review and assessment	3.00	8.75	6.49	1.87	67.5	Medium	11.388	.0000
Knowledge management	8.67	36.28	21.67	6.33	54.2	Medium	2.414	.0180

Table (4) shows that the commitment of Jordanian organizations to applying knowledge management according to the knowledge management standard ranged between (8.67-36.28), the mean was (21.67) and the standard deviation was (6.33), indicating that the-level of commitment of organizations to implement knowledge management was average. The value of T is 2.414, which is positive and statistically significant at ($\alpha \leq 0.05$). This indicates that there is no value gap on the knowledge management standard with the standard mark (50 %).

Table 5. The statistical averages and standard deviations to assess the extent to which Jordanian organizations are committed to applying knowledge management according to the results of knowledge standard and the results of applying one sample T-test.

Standards	lowest value	Highest value	Mean	Standard deviation	percentage	Assessment value	T	Statistical significance
Key performance indicators to measure the achievement of knowledge objectives	3.89	24.33	8.38	4.68	41.9	Medium	-3.162	.0000
Knowledge exchange indicators	1.78	7.92	3.06	1.67	30.6	Medium	-10.670	.0000
Knowledge results	5.83	30.29	11.46	5.86	38.2	Medium	-5.542	.0000

Table (5) shows that the commitment of Jordanian organizations to apply knowledge management according to the knowledge results criterion ranged between (5.83-30.29), the mean was (11.46) and the standard deviation was (5.86). This indicates that the level of commitment of organizations to implement knowledge management was average. The value of T is 10.670, which is negative and statistically significant at the ($\alpha \leq 0.05$) level. This indicates that there is a value gap on the standard of knowledge results with the standard mark forming (50 %).

5. Conclusion

The study aimed to identify the extent to which organizations adhere to the application of knowledge management according to the Jordanian government standards issued by the King Abdullah II Award for Excellence in Government Performance and Transparency and the extent to which knowledge management standards are applied in Jordanian organizations. In order to highlight the problem of the study, the sub-criteria for knowledge management were discussed, which includes the ability of the organization to: The commitment of senior management to knowledge management and awareness of its importance, Identification of knowledge sources that include data and information, internal and external knowledge assets, normative comparisons. Implementation, confidentiality, and security of information, review and evaluation, and addresses the knowledge outcomes standard: key performance indicators to measure the achievement of knowledge objectives, knowledge exchange indicators.

One of the findings of the study is the lack of commitment by Jordanian organizations to the standard of commitment of senior management to the implementation of knowledge management, the non-compliance of Jordanian organizations with the criteria of knowledge sources. This study agreed with the results of the study (Kulkarni, Dahiya, 2018) which showed that organizations have a problem in identifying relevant knowledge to store or that they cannot know what they will need in the future, and that Jordanian organizations do not adhere to the criteria of the main performance indicators to measure the achievement of knowledge objectives and knowledge exchange indicators. The study contrasted with the findings of the study (Tan, 2018, at), which found that there is a lack of adoption of knowledge management by organizations and also there is difficulty in identifying the knowledge required of small and medium organizations. The results of the study were also agreed with Sivakumar (2018) which showed that knowledge management indicators: participation, documentation,

knowledge acquisition, knowledge transfer and application have a 70% impact on knowledge creation.

The study recommends providing mentors and specialists by the King Abdullah II Award for Excellence in Government Performance for organizations to raise awareness of the importance and application of knowledge management. The organizations adopt the concept and how to apply knowledge management and dissemination by holding training courses and distributing publications on the importance of knowledge. It also recommends the development of a comprehensive strategy for the application of knowledge management within the organization, including knowledge maps, evidence of internal knowledge transfer, a list of vital knowledge assets in organizations, documentation of external knowledge needs. The study also recommends further studies in the area of knowledge management, especially it is a new management concept.

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Factors Affecting the Intention to Adopt M-Learning

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Abstract

Over the recent years, emerging technological applications have been used for making student learning more effective and interactive. M-Learning has been one such technological initiative which has shown promising benefits in the higher education context. Even though the importance of mobile learning has been researched by many, the factors influencing mobile learning adoption intention has not been addressed sufficiently, particularly in the Sri Lankan context. Hence, the purpose of this paper was to present a conceptual model to examine the factors influencing the intention to adopt mobile learning by the students engaged in higher education. Based on a comprehensive literature review, this study extended the Technology Acceptance Model (TAM) (Davis, 1989) with mobile self-efficacy, intrinsic motivation to use mobile devices and the system quality of the m-Learning system. The model describes how the aforementioned factors influence the higher education students' intention to adopt m-Learning via survey data collected from 151 postgraduate students. The findings suggest that the model explained the factors influencing the intention to adopt m-Learning among students in higher education. In detail, the mobile self-efficacy, system quality and intrinsic motivation significantly influenced the intention to adopt m-Learning. The results could be utilized for increasing the adoption of m-Learning practices and developing mobile applications useful for teaching and learning purposes. This study has incorporated three independent constructs in extending the TAM model; namely, system quality, mobile self-efficacy and intrinsic motivation. These were derived from the IS Success theory, Self-efficacy theory and Self-determination theory respectively. Accordingly, this study intends to address the theoretical gap in the higher education context pertaining to the adoption of mobile learning. Since Mobile Self-Efficacy and System Quality were the most significant factors that affect the perceived ease of use and perceived usefulness, these factors should be given prominence when developing mobile enabled Learning Management Systems within institutions.

Keywords: mobile learning, higher education, information and communication technology, technology acceptance model

1. Introduction

Recent trend in higher education indicates a tendency to seek and assimilate new tools into the educational process for enabling student learning (Lillejord Borte, Nesje & Ruud, 2018). One of the major contributing factors is the capabilities of the new technology (Costley, 2014). Information and communication technology (ICT) plays a prominent role in enabling educational, administrative and support tasks in an extensive range (Akour, 2009). Mobile learning or m-Learning is one such technological initiative that has transformed the learning process in higher education (Klimova & Poulova, 2016). The term m-Learning has been defined by several researchers in the past (Harris, 2001; Quinn, C., 2000; Wood, K., 2003). In this study, m-Learning is defined as, "Any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies" (O'Malley et al., 2005, p.7). The increased tendency to adopt mobile learning by higher education institutions will continue expanding their boundaries with the diffusion of numerous mobile technologies and devices. The next generation of mobile learning is expected to be pervasive and that learners will be more mobile and able to learn using multiple devices (Ally & Prieto-Blázquez, 2014). Previous studies on m-Learning have identified five educational benefits of m-Learning: (a) portability, (b) interactivity, (c) context sensitivity, (d)

connectivity and (e) individuality (BenMoussa, C. 2003; Churchill & Churchill, 2008; Sharples, 2000).

Although m-Learning has many advantages, there are serious considerations regarding the readiness for the adoption of m-Learning in higher education institutions, due to certain inherent limitations (Al-Mushasha, 2010; Ally & Prieto-Blázquez, 2014). Kukulska-Hulme (2007) stated that the mobile learning success depends on the human factor which uses them. Although, many studies have been conducted emphasizing the importance of mobile learning, equal prominence has not been given to research on factors influencing the mobile learning adoption intention of students pursuing higher education, especially in the Sri Lankan context. Therefore, the purpose of this paper was to examine the factors influencing the intention to adopt mobile learning by the students engaged in higher education.

The findings of this study, further validated the existing models of m-Learning adoption and it also extends the existing models by adding constructs from IS success theory, self-efficacy theory and self-determination theory. Further, the model validated in this research would help administrators and learning content developers by assisting their decision making regarding the designing and administering of educational programs involving m-Learning. Particularly, it has a high potential to have an impact on formulating proper strategies in implementing successful m-Learning initiatives in their institutions.

1.1 Literature Review

Mobile technology has paved many ways to enhance the efficiency and effectiveness of learning by offering a learning environment that is not limited by place or time. The availability of advanced hardware and software has made it possible to enjoy new capabilities of ICT in organizing, manipulating and generating information for teaching and learning (Chen et al., 2008; Keskin & Metcalf, 2011). Since mobile devices have become increasingly popular in universities, higher education has become an ideal venue for promoting student centered m - Learning.

Studies have been conducted on various applications that are being used to facilitate learning via mobile technologies in the higher education context (Lim et al., 2011; Reyhav & Wu, Hwang, Su & Huang, 2012). There are numerous ways in which mobile learning is being applied in the higher education context within universities (Crawford, 2007). Studies have found the use of new technological tools for mobile based learning (Hao, Mengyao, Dennen, Türel & Li, 2017; Park, 2011; Churchill & Wang, 2014; Engin & Donanci, 2015 and Gikas & Grant, 2013). Mobile learning can take place both within the classroom as well as outside the classroom. Calma, Webster, Petry and Pesina (2014) examined the in class mobile learning applications in terms of student response systems. Administrative tasks such as monitoring students' progress can be done using mobile devices (Keller, 2011). Reyhav, Dunaway and Kobayashi (2015) focused on informal m-Learning applications that occur outside the classroom. A number of studies have examined the innovative learning approaches that involve personalized m-Learning services (Liu, Scordino, Geurtz, Navarrete, Ko & Lim, 2014; Wu et al. 2012). Studies associated with learner mobility have examined the usage of mobile devices in collaborative learning (Redondo et al., 2014, Kuadey, 2010). Another area of research interest has been the usage of mobile platforms for assessment and evaluation. (Bogdanović, Barać, Jovanić, Popović & Radenković, 2014). Wang, Chen and Khan (2014) researched on the collaboration between cloud computing and mobile learning. Further, Baran (2014) studied the trends and gaps in literature pertaining to integrating mobile learning in the context of teaching. However, implementing m-Learning in higher education is still found to be challenging, due to various social, cultural and organizational concerns (Corbeil & Valdes-Corbeil, 2007; Traxler, 2007, 2010). This raises the need for understanding perceptions toward m-Learning, which could provide the foundation for implementing m-Learning in higher education.

Several studies have highlighted the importance of identifying the students' expectations and perceptions before implementing m-Learning applications (Liu, Li, & Carlsson, 2010; Lowenthal, 2010; Wang, Zhu & Chen, 2009). Andersson (2008) introduced a framework which grouped the key factors affecting the success of e-Learning, namely, student, teacher, institution, support, course, technology, costs and society. Aish and Love (2013) found that performance expectancy, effort expectancy, lecturers' influence, quality of service, and personal innovativeness as significant predictors in adopting m-Learning. In some other studies, it was further validated that performance expectancy, effort expectancy and self-management of learning as significant predictors of m-Learning (Lowenthal, 2010; Wang, Wu & Wang, 2009). Liu et al. (2010) found perceived usefulness and personal innovation as significant determinants of m-Learning. Liu et al. (2010) and Zampou, Saprikis, Markos & Vlachopoulou, (2012) also found that perceived usefulness and personal innovation have a significant effect on the intention to adopt m-Learning. Perceptions of learners towards the educational benefits offered via m-Learning were also studied (Abdullah & Siraj, 2010; Al-Mushasha, 2010). Nevertheless, some other studies

have found that still there are many barriers for the adoption of m-Learning in the higher education context (Wang et al., 2009; Almaiah & Jalil, 2014; Corbeil & Valdes-Corbeil, 2007; Traxler, 2007, 2010). Thus, it emphasises the importance of further research in this context, in order to obtain the benefits of mobile technology in higher education.

Review of literature revealed that, Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Theory of Planned Behavior (TPB) (Ajzen, 1985, 1991), Technology Acceptance Model (TAM) (Davis, Bogozzi & Warshaw, 1989) and Unified Theory of Acceptance and Use of Technology and Technology Acceptance (UTAUT) (Venkatesh, Morris, Davis and Davis, 2003) as the models used to investigate and explore the determinants of user behaviour towards acceptance and adoption of information technology. Amongst them TRA, TPB and TAM are highly credible theoretical models in IT acceptance and adoption literature (Wu and Lu, 2013). Although several studies have proposed different models to predict determinants of technology acceptance and adoption, the TAM has been widely adopted in predicting the determinants of technology adoption and usage in various scenarios (Lim, Lim, & Heinrichs, 2005; Nikkheslat, Zohoori, Bekheirnia, & Mehrafshar, 2012). Particularly, the TAM has gained a substantial empirical support in predicting technology acceptance and adoption literature (Wu & Lu 2013). TAM can be used in predicting the behavioural intention to use a specific technology or an information system prior to the actual implementation. Hence, based on the robustness and explanatory strength (Liu & Arnett, 2000), this study proposes a theoretical model based on the TAM.

The theoretical model proposed for this study is an extension of the Technology Acceptance Model (TAM) by Davis (1989). The TAM concentrates on the perceived ease of use and usefulness of the technology in the way how it is perceived by the user, which helps in determining future adoption. Davis (1989) defined perceived ease of use as the degree of difficulty or effort that is required to use the technology. Perceived usefulness is the extent to which an individual believes that the technology will produce better outcomes than not using it. This further incorporates the intensity of belief as to what extent the technology will provide an advantage (Venkatesh & Davis, 1996).

Most of the studies examining the acceptance or adoption of m-Learning utilizing different versions of TAM by Davis (1989) focused mostly on specific technological aspects. However, technological aspects alone would not provide the overall understanding about intention to adopt m-Learning as adoption intention is multi-dimensional (Cheon et al., 2012). Along with technological aspects learner capabilities and motivation to use m-Learning will contribute towards a comprehensive understanding of the intention to use m-Learning. Therefore, in this study the TAM was extended incorporating system quality (IS success theory) (DeLone & McLean, 2003), perceived self-efficacy (Self efficacy theory) (Bandura, 1994) and intrinsic motivation (Self-determination theory) (Deci & Ryan, 2000) to provide a comprehensive multi-faceted view of m-Learning adoption intentions. The next section will discuss about the conceptual model and the hypotheses developed to answer the research question of this study.

1.2 Research Model and Hypotheses

The research model proposed in this study is an extension of the Technology Acceptance Model (TAM), integrating the mobile self-efficacy, system quality, intrinsic motivation, perceived ease of use, perceived usefulness and behavioral intention to use mobile devices for learning.

TAM theorises two important beliefs in relation to technology acceptance behaviour: (1) perceived usefulness and (2) perceived ease of use. Davis (1989, p.320) defined perceived usefulness (PU) as “the degree to which a person believes that using a particular system would enhance his or her job performance” and Perceived Ease of Use (PEOU) as “the degree to which a person believes that using a particular system would be free of effort”. Thus, the actual system use heavily depends on these two factors. According to Davis, different external factors can be used to extend the TAM to better explain perceived ease of use and perceived usefulness and in turn the intention of behaviour. Extended versions of the TAM model have been empirically tested in different technological contexts since its inception (Surendran, 2012; Shafeek, 2011; Zhou, Dai & Zhang, 2007; Pavlou, 2003; Legris, Ingham & Colletette, 2003). Current study too, is using an extended version of the TAM model. The research model developed for this study is given in Figure 1. Based on the literature, the flow of causality of the research model was reflected by the connections among the constructs (see Figure 1). In this research model, system quality, mobile self-efficacy and intrinsic motivation, were hypothesised to affect perceived usefulness and perceived ease of use.

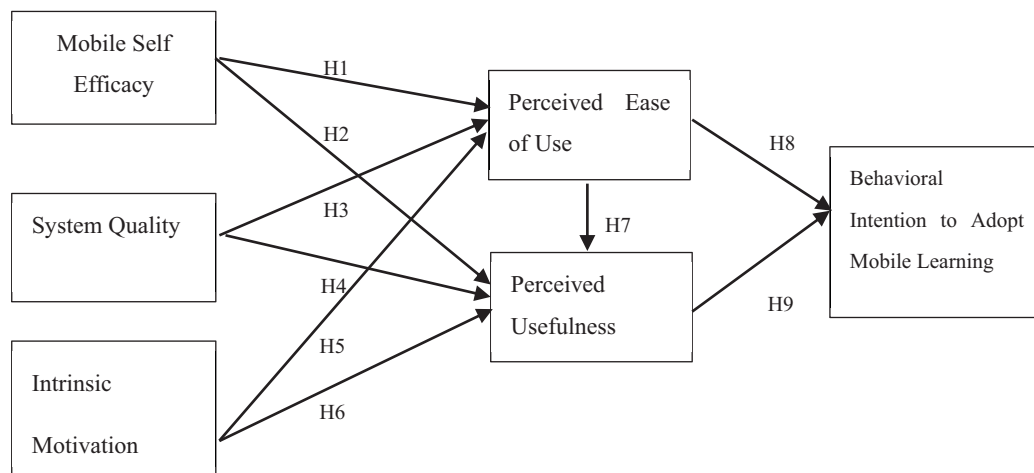


Figure 1. Research Model

1.2.1 Mobile Self-Efficacy

Self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. It decides how people feel, think, motivate themselves and behave (Bandura, 1994). Mobile self-efficacy considered in this research study is based upon the above mentioned general concept of self-efficacy (Bandura, 1982). Computer or web self-efficacy was studied by many scholars (Compeau & Higgins, 1995; Lopez & Manson, 1997). In order to ensure the success of the m-Learning process, it is necessary that a high level of confidence in using mobile technology as a part of their learning process is shown by the students (Mahat, Ayub & Luan, 2012). According to the study on college students' acceptance of mobile learning conducted by Chung, Chen & Kuo (2015), it was found that self-efficacy had a significant influence on perceived ease of use and perceived usefulness. Poong, Yamaguchi & Takada (2017) in their study on drivers of mobile learning acceptance among young adults in Laos also found that self-efficacy had a significant influence on perceived ease of use and perceived usefulness. Based on that, mobile self-efficacy in this research study is hypothesized to have a direct impact on the perceived usefulness and the ease of use. Based on the above justification following hypotheses were formulated:

H1: Mobile self-efficacy has a positive effect on perceived usefulness of mobile learning.

H2: Mobile self-efficacy has a positive effect on perceived ease of use of mobile learning.

1.2.2 System Quality

System quality refers to the rating of the functions of a mobile learning system in terms of the information provided by the system and the efficacy of information transmission (Rui Hsin & Lin 2017). Perceived system quality refers to the user's evaluation of the design and technical dimensions of an information system (Majed, 2013). Perceived system quality was studied by many researchers (Bailey & Pearson, 1983; Belardo, Karwan, Wallace, & Elling, 1984; Franz & Robey, 1986; Seddon, 1997). However, depending on the intended technologies, the variables explaining system quality would differ (DeLone & McLean, 2003).

Almasri (2016) in his study on the m-Learning environment in higher education in Jordan found that system quality has a significant positive impact on perceived usefulness and perceived ease of use. Khanh and Gim (2014) in their study on the factors affecting mobile learning adoption intention in higher education found that the quality of m-Learning systems had a positive impact on the perceived ease of use and perceived usefulness. Hence, system quality in this study is hypothesized to have a direct impact on the perceived usefulness and the ease of use. Based on the above justification following hypotheses were formulated:

H3: System Quality has a positive effect on perceived ease of use of mobile learning.

H4: System Quality has a positive effect on perceived usefulness of mobile learning.

1.2.3 Intrinsic Motivation

Intrinsic motivation refers to performing an activity because it is intrinsically enjoyable or challenging (Venkatesh, 1999; Hwang, Y. 2005; Lee, Jeon & Kim, 2011; Wood, Larson & Brown, 2009). Intrinsic motivation

has been identified as a major factor in adopting a range of technologies within a wide extent of contexts (Davis, et al., 1992; Gefen, Straub & Boudreau, 2000; Teo, Lim, & Lai, 1999; Yi & Hwang, 2003). IS research has also used motivation theories to investigate factors that influence the acceptance of technology, particularly focusing on intrinsic motivation (Iordache & Lamanaskas 2010; Fagan, Neill & Wooldridge, 2008). However, it was noted that researchers have raised the need for additional studies in explaining the role that intrinsic motivation plays in IT acceptance and use (Fagan et al., 2008). Conci, Pianesi and Zancanarao (2009) studied the intention to accept mobile phones among elderly population in Italy and found that intrinsic motivation significantly affect perceived ease of use and perceived usefulness. Fagan et al., (2008) found that intrinsic motivation as a determinant of perceived ease of use, in their study to identify the intention to use computers among first line managers in a mid-sized firm. Further, a study to examine the system experience of a selected group of undergraduates in a major university in the United States found that playfulness as an antecedent of perceived ease of use (Hackbarth, Grover & Yi, 2003). Therefore, in this study, intrinsic motivation is hypothesized to have a direct impact on perceived usefulness and perceived ease of use. Based on the above justification following hypotheses were formulated:

H5: Intrinsic Motivation has a positive effect on perceived ease of use of mobile learning.

H6: Intrinsic Motivation has a positive effect on perceived usefulness of mobile learning.

1.2.4 Perceived Ease of Use

Perceived ease of use is defined as ‘the degree to which a person believes that using a particular system would be free of physical and mental effort’ (Davis 1989, p.320). In this study, perceived ease of use was referred to as how students experience less complex or less difficult situations in their academic use of the e-Learning system through their mobile device. Tselios, Daskalakis and Papadopoulou (2011) found that perceived ease of use positively influences the attitude to use an e-Learning system. Additionally, perceived ease of use was identified as the major factor determining the acceptance of e-Learning (Sivo, Gunter & Cornell, 2005; Adwan, Adwan, & Smedley, 2013). Ramayah, Siron, Dahlan & Mohamad (2003) in their study on the technology usage among owners and managers of SME’s found that perceived ease of use as a determinant of behavioral intention to use technology. Seyal, Noah, Rahman, Ramlie and Rahman (2015) in their study to examine students’ attitude to m-Learning found that there’s a positive effect from the perceived ease of use on the students’ intention to use mobile learning. Based on the above justification following hypotheses were formulated:

H7: Perceived ease of use has a positive effect on Perceived usefulness.

H8: Perceived ease of use has a positive effect on intention to adopt mobile learning.

1.2.5 Perceived Usefulness

According to Davis (1989) perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his/her job performance (Davis 1989, 1993). In this study perceived usefulness was defined as the perception of the student that adapting mobile learning practices will accelerate their performance. A study conducted by Tselios et al. (2011) concluded that perceived usefulness as a major factor in determining the users’ attitude towards using the system. A study conducted in Chilean academic contexts by Echeverri’a et al. (2011) revealed a positive relationship between perceived usefulness and the adoption of an instant messaging learning system that was institutionally supported. Tan, Ooi, Sim and Phusavat, (2012) found that, if individuals perceive that mobile applications will heighten the efficiency of their learning process, there is more likelihood to adapt mobile learning in their academic activities. Suki and Suki (2011) in their study on using mobile devices for learning revealed that there is a significant positive relationship between perceived usefulness and behavioral intention. Based on the above justification following hypothesis was formulated:

H9: Perceived usefulness has a positive effect on intention to adopt mobile learning.

2. Method

2.1 Participants

The participants in this study were 151 postgraduate students of a recognized state university in Sri Lanka. The study used convenience sampling to collect data (Creswell, 2013). They were enrolled for MBA and MSc programs in management. The study reported data from 151 participants, there were 55 males and 96 females, and their specializations varied. All the participants who responded had a smartphone (Sophisticated and advanced smart phones: 40% other types of smart phones: 60%).

2.2 Data Collection

The survey instrument contained 27 items adapted from previous studies. The survey used a 7-point Likert scale

to measure participants' perceptions, ranging from strongly disagree to strongly agree. The 7-point Likert scale is widely used for measuring attitudes in survey type research (Malhotra, 2010). Also, it has been widely used in IS and m-Learning studies (Alharbi & Drew, 2014; Kljunić & Vukovac, 2015). Thus, 7-point Likert scale was used in this study. There were two parts in the survey instrument. The first section was designed to collect participants' perception toward m-Learning. The remaining 06 questions were used to collect background information of survey participants. Researchers themselves administered the questionnaires. Two hundred questionnaires were distributed and out of this, hundred and fifty-one were usable for this study. The response rate was 92%. The data were checked for their accuracy before the main data analysis.

3. Results

SmartPLS and Statistical Package for Social Sciences (SPSS version 23) were the software used for data analysis in this study. SPSS was used to describe the demographic characteristics of the sample. Partial Least Square (PLS) technique is commonly used in IS research (Haenlein & Kaplan, 2004). Linear regression and covariance based Structural Equation Modeling (SEM) were the other alternative methods of data analysis used in IS research (Gefen et al., 2000). Linear regression was decided to be not appropriate in this study due to the complexity of the model used. Covariance-based techniques are most appropriate for well-established models (Goodhue, Lewis & Thompson, 2006). Therefore, PLS was seen as the most appropriate method of analysis for new models (Hensler, Ringle, & Rudolf, 2009; Goodhue, Lewis & Thompson, 2006).

3.1 Measurement Model Results

SmartPLS was used to test the measurement model. Reliability and validity tests; factor loadings, internal consistency reliability, convergent validity and discriminant validity were used to establish the strength of the measurement model.

Item loadings, Composite reliability, Cronbach's Alpha and Average Variance Extracted (AVE) are given in Table 1. Item reliability refers to the extent to which the value of the estimate of the underlying construct provided by the measure is reflected by the item value (Gefen et al., 2000). Factor loadings of the items given in PLS usually explain item reliability. The threshold value considered for this study was 0.5 (Hair, Black, Babin & Anderson, 2010). In order to ensure reliability, internal consistency reliability and factor loadings (item reliability) were examined. According to the results of the factor loadings (see Table 1), all the items were acceptable since they were above the threshold value. Cronbach alpha and composite reliability were used in SEM analysis to assess internal consistency reliability (Hair, Black, Babin & Anderson, 2009). Cronbach alpha above 0.7 was taken as the threshold to establish the reliability of measurement items (Hair et al., 2009). All the Cronbach alpha values and composite reliability values were above the threshold (0.7), thus, reflecting a satisfactory level of reliability in measurement items.

Table 1. Internal consistency reliability and convergent validity of the measures

Constructs	Composite reliability	Cronbach Alpha	AVE
Mobile self-efficacy	0.823	0.838	0.686
Intrinsic motivation	0.893	0.679	0.625
System quality	0.948	0.935	0.721
Perceived ease of use	0.969	0.957	0.887
Perceived usefulness	0.952	0.939	0.770
Intention to adopt mobile learning	0.974	0.96	0.925

Nunnally (1978) mentioned that the purpose of validation is to give a higher level of confidence to the researchers, peers and the society regarding the positivist method selected to reveal the scientific truth. Hair et al. (2009) described validity as the degree to which a scale or the set of measures accurately represented the concept of interest. In order to establish construct validity of the measurement instrument, convergent and discriminant validity were used, as these are common elements in PLS – SEM providing evidence of construct validity (Hair et al., 2011, Wong, 2013). Hair et al. (2009) defined convergent validity as the extent to which two measures coming under the same concept are related. A high correlation indicates that the scale used is measuring the expected concept. Convergent validity was achieved via AVE (Hair et al., 2011). The AVE values for all the constructs considered (see Table 1) were above the threshold value of 0.5 (Bagozzi, Yi & Phillips, 1991; Hair et al., 2011). Further, item reliability and internal consistency reliability can also be used to provide evidence for convergent validity. Hence, all these values supported in establishing convergent validity.

Hair et al. (2009) describes discriminant validity as the extent to which two conceptually similar concepts are distinct. Discriminant validity can be tested using the square root of AVE. Where, if these values are greater than the correlation among the other variables, it is said to fulfill discriminant validity. (Fornell & Larcker, 1981). As given in Table 2, the square roots of AVE were observed to be higher than the correlation values. Hence, it could

be concluded that the requirements of the discriminant validity were fulfilled.

Table 2. Discriminant validity results

Constructs	Intention to use mobile learning	Intrinsic motivation	Mobile Self efficacy	Perceived ease of use	Perceived usefulness	System quality
Behavioral intention to adopt mobile learning	0.9619					
Intrinsic motivation	0.7519	0.7904				
Mobile Self efficacy	0.7736	0.6968	0.8280			
Perceived ease of use	0.8308	0.7327	0.7716	0.9416		
Perceived usefulness	0.8414	0.7609	0.7673	0.8290	0.8775	
System quality	0.7273	0.6581	0.6825	0.7315	0.7840	0.8494

3.2 Structural Model Results

The structural model needs to be tested following the validation of the measurement model, to verify the explanatory power of the model and to test the cause – effect relationships established between the constructs. The model’s explanatory power was evaluated by examining the coefficient of determination (R^2). Hair et al. (2011) suggested that R^2 values 0.75, 0.5 and 0.25 of endogenous latent variables in the model can be respectively described as substantial, moderate or weak.

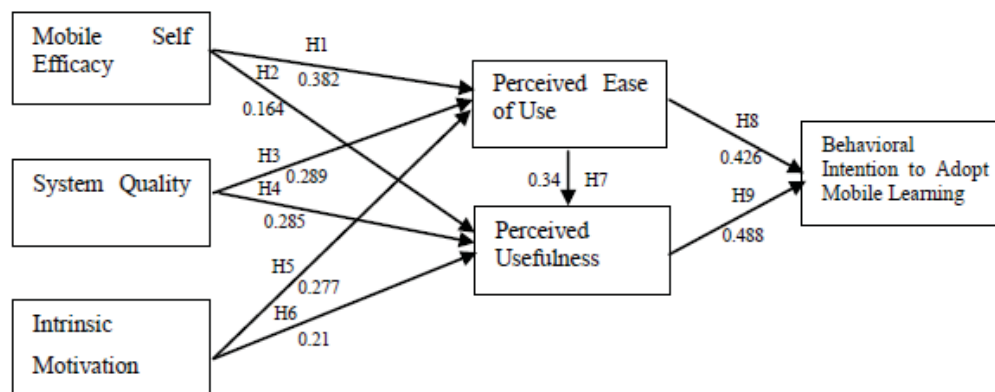


Figure 2. Structural Model Results

In order to test the explanatory power of the model and the hypotheses, the structural model was used. The coefficient of determination (R^2) was used to assess the explanatory power of the model. The model explained 77% of variance in behavioral intention to adopt mobile learning, 71% in perceived ease of use and 79% in perceived usefulness (see Figure 2).

The strength of the relationships between the constructs was assessed using the path coefficient (β) values. Further, the significance of the structural paths was tested using bootstrapping procedure (with 500 iterations) in PLS (Hair et al., 2011, Wong, 2013). Perceived usefulness had the strongest impact on the behavioral intention (0.488) followed by the perceived ease of use (0.426) (see Figure 2)

Thus, it could be concluded that all the hypothesized relationships constructed between the variables: mobile self efficacy and perceived ease of use ($\beta = 0.382$, $p = 0.0001$); mobile self efficacy and perceived usefulness ($\beta = 0.164$, $p = 0.0048$); service quality and perceived ease of use ($\beta = 0.269$, $p = 0.0003$); service quality and perceived usefulness ($\beta = 0.285$, $p = 0.0000$); intrinsic motivation and perceived ease of use ($\beta = 0.277$, $p = 0.0005$); intrinsic motivation and perceived usefulness ($\beta = 0.21$, $p = 0.0018$); perceived ease of use and perceived usefulness ($\beta = 0.34$, $p = 0.0000$); perceived ease of use and behavioral intention to adopt mobile technology for learning ($\beta = 0.426$, $p = 0.0000$); perceived usefulness and behavioral intention to adopt mobile technology for learning ($\beta = 0.488$, $p = 0.0000$) were statistically significant.

3.3 Hypotheses Testing

As shown in Table 3, path coefficients (β) which indicate the strength in the relationships between research constructs were used to test the hypotheses (Wang & Chiu, 2011). Bootstrapping procedure in Smart PLS was used to test the significance of path coefficients (β). Confidence level considered for testing the statistical significance was at 95% ($p < 0.05$).

Table 3. Hypotheses testing results

Hypotheses	Path Coefficient (β)	P value	Supported/ Not supported
H1: mobile self efficacy \rightarrow perceived ease of use	0.382	0.000	Supported
H2: mobile self efficacy \rightarrow perceived usefulness	0.164	0.005	Supported
H3: system quality \rightarrow perceived ease of use	0.289	0.000	Supported
H4: system quality \rightarrow perceived usefulness	0.285	0.000	Supported
H5: intrinsic motivation \rightarrow perceived ease of use	0.277	0.001	Supported
H6: intrinsic motivation \rightarrow perceived usefulness	0.210	0.002	Supported
H7: perceived ease of use \rightarrow perceived usefulness	0.340	0.000	Supported
H8: perceived ease of use \rightarrow behavioral intention to adopt mobile technology for learning	0.426	0.000	Supported
H9: perceived usefulness \rightarrow behavioral intention to adopt mobile learning	0.488	0.000	Supported

4. Discussion

This section presents the discussion of findings. The purpose of this study was to identify the factors affecting the intention to adopt m-Learning. According to the findings of this study, all the proposed hypotheses were supported, revealing that mobile learning adoption intention is multi-faceted. In this study, TAM was extended with three constructs, namely, mobile self-efficacy, system quality and intrinsic motivation. According to the findings there was a significant effect of perceived ease of use ($\beta = 0.426$ $p = 0.000$) and perceived usefulness ($\beta = 0.488$ $p = 0.000$) on intention to use showing that when students feel the system as easy and it is useful, it is more likely to use mobile learning among university students. This result is consistent with the findings of Suki and Suki (2011) and Tan et al. (2012) who found that there is a positive impact from perceived usefulness on the behavioral intention, and Seyal et al. (2015) who found that there's a positive effect from the perceived ease of use on the intention to use mobile learning. It was also found that there was a significant positive effect of perceived ease of use on perceived usefulness ($\beta = 0.340$ $p = 0.000$), meaning that when the students perceive m-Learning to be easy to use, it will increase their feeling that the system is also useful for their study purposes. This finding is consistent with the finding of Hallegatte and Nantel (2006) who found that there was a significant positive impact of perceived ease of use on perceived usefulness. When considering the three external variables used in the model, mobile self efficacy (SE) significantly affected the perceived usefulness ($\beta = 0.164$ $p = 0.004$) and perceived ease of use ($\beta = 0.382$ $p = 0.000$) of mobile learning. This means that when the students feel that they have some level of capability to achieve expected levels of outcomes using mobile technologies, it will enhance their feeling that the m-Learning system is useful for their learning and that it is easy to use. Therefore, H1 and H2 were supported. These findings are consistent with the findings of Chung et al. (2015) and Poong et al. (2017) who found that self efficacy had a significant positive influence on perceived ease of use and perceived usefulness. Further, system quality had a significant effect on perceived ease of use ($\beta = 0.269$ $p = 0.000$) and perceived usefulness ($\beta = 0.285$ $p = 0.000$) of mobile learning, meaning when the information provided and the efficiency of the m-Learning system is high, it will enhance the students' feeling that m-Learning system is useful for their learning and that it is easy to use. Therefore, H3 and H4 were supported. These findings were consistent with Almasri (2016) and Khanh and Gim (2014) who found that system quality had a positive impact on perceived ease of use and perceived usefulness. According to the findings it was also observed that there was a significant impact of Intrinsic Motivation (IM) on perceived ease of use ($\beta = 0.277$ $p = 0.001$) and perceived usefulness ($\beta = 0.21$ $p = 0.001$) of mobile learning showing that when the students find that using mobile technology for their learning is enjoyable it will enhance the students' feeling that m-Learning is useful for their learning and that it is easy to use. Therefore, H5 and H6 were supported. These findings were consistent with the findings of Hackbarth, Grover and Yi (2003) and Fagan et al. (2008) who found that intrinsic motivation had a positive impact on perceived ease of use and perceived usefulness.

5. Implications

5.1 Theoretical Implications

This study was an extension of the TAM, incorporating three independent constructs namely: system quality, mobile self efficacy and intrinsic motivation from IS Success theory, Self efficacy theory and Self determination theory respectively. Hence, this study, contributed to fill the theoretical gap in the higher education context to a certain extent in relation to adopting mobile technology in teaching and learning.

5.2 Managerial Implications

The study focused on the factors affecting the adoption of mobile learning in higher education context and found

that all factors were determinants of intention to use mobile technology in student learning. Thus, this finding would be very useful to the administrators of higher education institutions in introducing effective and efficient m-Learning for students within their institutions. Since mobile self-efficacy was found to be the most significant independent variable affecting the perceived ease of use, this factor should be considered when developing learning management systems, by developing, promoting and encouraging mobile-enabled versions of learning management systems among students within the institutions. System quality was the second most significant factor which affected the perceived ease of use and usefulness of the systems. Thus, the developers of the m – Learning systems should focus on this aspect, by developing interfaces that are user friendly, easy to use, enabling flexible interaction, self – explanatory and easy to understand systems.

6. Conclusion

M-Learning adoption intention of students is a trending research topic since m-Learning applications are still in their early stages in the higher education context (Seyal et al., 2015). This study was an attempt to develop and validate a conceptual model based on a comprehensive review of literature. The model was an extension of the TAM (Davis, 1989). In this study, the TAM was extended with three constructs each from IS success theory, self-efficacy theory and self-determination theory. Among the independent variables considered for this study, it can be concluded that system quality has the highest impact on the students' intention to adopt m-Learning. That is, the rating of the mobile learning system's functions and the efficacy of its information transmission (Rui Hsin & Lin 2017), play a major role in their decision to adopt m-Learning.

Although this study did pave the way for many meaningful findings, it does have a few limitations as well. Firstly, the sample used in this study has covered only the MBA students. Therefore, future research is recommended to cover a more comprehensive student sample in different higher education contexts. Further, future research could identify other factors that would affect the intention to adopt mobile learning. As an implication, system developers and institutional administrators can concentrate more on factors such as mobile self – efficacy and system quality when developing Learning Systems within their institutions, since they significantly affected the perceived ease of use and perceived usefulness of mobile learning which in turn will affect the behavioral intention to adopt mobile technology for learning.

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Microfinance Institutions: It's Role in Palestine Economic Development

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Abstract

Microfinance is a tool for state poverty reduction and addition in number of these institutions are the support solution which brings overall improvement in the reconciliations. The current research study investigates the impact of these MFIs towards the development of economic condition of the state. The current study aims to explore more about MFIs, economic development with the support of past counts, as well the direct and indirect benefits associated with the MFIs. Data was collected from primary and secondary sources (Mixed strategy) for creating the more rigor and objectivity under working the positivist paradigmatic approach. This study highlights the major economic problem exists in Palestine is related to poverty. Additionally, micro financing is the term associated for the development of these barriers that impacts as a hindrance for any of the economy growth level. The results of the study show that the small level micro-financing is the best resource for the economic stability as well development.

Keywords: MFIs, banking, microfinance, economic structure, Palestine

1. Introduction

Microfinance is often reflected as a dual instrument or a tool for fighting against poverty in developing states and for the reconciliation of the post conflicts. Numerous economies had labored and shaped the settings for microfinance. After 1990 microfinance got more importance a source of funding (resource) and added more the investment for the reduction of poverty. The term of microfinance was in existence in 70's moreover it gained a standing position after 2006 when Grameen and Yunus bank collected the Noble prize on behalf of their struggles for the creation of the social and economic level of the country. Through this intercontinental outline a tool for the poverty improvement was protected, on the other side, few states with post-conflict have combined the microfinance with their reformation strategies. Realism in this regards presented that within few decades, microfinance has been combined or as well incorporated among the reformation and development strategies of the countries (post-conflict) having an aim to be more than they expect (Nagarajan et al., 2004).

Kosovo (1999) after war bring into being itself in the shocking situation that the whole economy shrank in results the banking arrangements have been ruined. The requirement for the financial sources has also increased than before. So within this content, Kosovo applied the both methods of the microfinance for fighting against the poverty conditions of the state at that time. Furthermore, the focus was also to originate the new growth opportunities for private sector and small businesses. Kosovo microfinance segment forward-looking speedily initiated a microfinance project as a donor funding in 2000 and later on converting themselves towards the financially sustainable microcredit organizations (MCOs). Most of the defendant's view microfinance system of Kosovo's and as well the complete MFIs in Kosovo as a prosperous section. However, Bateman (2012) explored that few hesitate to stretch the optimistic attitude and assessment, by way of MCOs have been view as a success based organizations, reasonably the kind providing the funding to the needy (poor) people, that was the situation with post conflicted countries as the case of Kosovo.

Currently, MFIs are the valuable financial service but not considered as a useful source for the transformation of the economic and social involvement (Mossman, 2005). Chang (2012) explored that others, responding in

contradiction of high potentials, discharge this microfinance field as a failure on the argument that to consider it as a neoliberal gadget that captivated that donors but they are failed to provide the services that support the poor societies. Moreover, the smooth understanding viewer concern with the arguments that “microfinance lost its moral scope” with the more concentration towards the productivity of the moneylenders rather than the poverty of the common men (Hulme et al., 2014). The idea behind the microfinance was upfront as providing the capital to the customers in results increased the earning of the debtor and moreover resulted in improving the poverty condition of the general public better.

This study examines the statements of microfinance as its effects towards the economic development of the Palestine state. This research discusses the active role of small microfinance institutions towards the rural and local progress of the Palestine economy. Furthermore, this study explores the overview of the dimensions of poverty in Palestine as well the inequalities that are dominated among the urban versus the rural areas of the Palestine nationals regarding the service they are provided added more the activities of microfinance institutions behind these initiatives. This study focused on a total of the eight small microfinance institutions of the Palestine that are currently operating their services as well as impacting the economic condition of Palestine.

MFIs supports the elementary financial services of the needy who are considered as a poor or having the income level low. MFIs are increasing their initiatives by focusing more on these activities and services to shortfall the categories of finance need by providing easy and attractive loan installment modes. Microfinance is considered instrumental in the upgrading the living of poor and enabling them to be the part of state development by concentrating on small loan schemes.

2. Research Background

Microfinance is parallel to the consumer finance gives a clear explanation that contributors (donors) and investors must diagnose that entrée to microfinance is not always kind (Karim, 2011). In the 1990s, the loan refund rate attached with an indication of stable demand needed to be used as rough impact signs. Schicks (2013) stated that if these funds are not resulting in the high rate of returns on investment then why customers come to purchase repeatedly. Fluidity needs somewhat drive these microfinance steeps and borrowing. It is cooler to understand that how these debt issues aimed to sustain the demand. Cull et al. (2017) stated that the effect of the microfinance could be seen in the perspectives of as well intervention that, in spite of the modest availability of average benefits there is a need to establish minimum cost-benefit ratios.

Sabri (1999) concluded in his research that in the Palestinian economy, the closure policies as well as the overpass points which obstruct the drive of goods and workforce. Lack of infrastructures, technology updatation as well as the raw material financial costs is also be concerned with the problems of Palestine's. Few of the related issues within the economy of Palestine also includes the entrepreneurial perspectives where they are running the accounts with the high-interest rate factors and the inflexibility level of credit financing due to the guarantees and warranties demanded by the banks.

This economy has passed through more than a few phases. It has been observed that the formation of Palestinian National Authority, this economy has detected the recovery in the economy, where the income level upgraded by 6% as well as unemployment rate also goes down to 3.5%. Instead of this, the Palestine's economy has suffered through to operate due to the assistance they have collected from donor's side.

MFIs contribute indirectly and directly to economic growth. The direct contributions by creating the value for the small entrepreneurial business, positive spillovers and improvements in the primary human capital structure development like education, health, and nutrition. Ravallion (2001) stated that the direct benefits also include the decrease in poverty level and inequalities. Kia et al. (2009) scrutinized the 61 developing countries and presented the evidence that MFIs are more bends towards the cut down of income deficiencies as well inequalities openly by eliminating the credit restraints of the poor. Hardy et al. (2002) stated that there are numerous studies related to the examining the uneven contribution of micro creditors cross country.

On the other hand, the indirect contribution of MFIs towards the economic growth highlights that the development of the financial sectors of the economy through the better quality access towards the finance sources, a combination of the household financial necessities. Barr (2005) explained that few of the other reasons that MFIs enhance the market extending in results promotes the financial growth, MFIs is the most reliable instrument for well-functioning of the poorly developed states, MFIs improve the home country financial health by holding down the hindrances.

Honohan (2004) predicts that the financial sources are more strongly associated with low-income level respondents (moreover population) and added more as the national resource it is ignored for the stemming up of

the resources. Furthermore, the finance sector advancement is not just to decrease the poverty level but also improves the financial structure of the country indirectly. The amount of the poor household's entrée to numerous financial markets as well services that MFIs indorses might help to reduce the inequality or poverty.

3. Objectives, Rational and Limitation of Research

3.1 Research Objectives

The core objective of the current research study is to explore the impact of the microfinance (role of the banking sector) for the development of the Palestine's economy. Moreover, it will look into the situations of the banking sector for the direct economic development and MFIs role for indirect economic development benefits.

3.2 Research Rationale

Small Medium enterprises also play a vital role in economic development and enhancement. Instead of production of low rated products and services to the target group with the focus of to reduce unemployment by expanding the job opportunity networking. in the current perspective, the role of the banking sector within any economy influenced their impact towards the economic development strategies. Therefore, micro-financing enhances the economic conditions and made positive reflections which is the core focus of the current investigation. The economy that comes under the array of a developing economy and handling the financial crisis, the role of MFIs in this economy is appreciable as well needed.

3.3 Research Limitations

There are also few of the limitations that are concerned with this research study that might be the concern of the future directions for many of the researchers. The current data that has been taken for this research study was a combination of primary and secondary data. The discussion, as well as the findings, were interpreted on behalf of the available facts given but later on, this should be processed with the ratios analysis predicts the values comparisons of different banks in a clearer way that which contributing more towards the development of the economy overall.

4. Research Questions

From the above problem statement and in consideration of core objectives of research the following research questions have been formulated:

RQ1: How MFIs and the economic development of Palestine's economy is interrelated?

RQ2: What are the direct benefits of MFIs and the Palestine's economy?

RQ3: What are the indirect benefits associated with MFIs and the Palestine's economy?

In spite of the highly literate population, the Palestinian economy comprises 0.01% of world economy, and the Unemployment is dangerously high at 26.9%. The Palestinian economy is dependent mainly on government spending & Services, while the exports are minimal while the economy imports everything from abroad, thus, the growth is weak. Therefore, as it relates to Microfinance, the current state of the economy will be greatly enhanced by increasing investments in productive assets; i.e. industries, agriculture, tourism, IT. Palestine's penetration of microcredit to the total population stands at 2% (90K clients of 4.5 million population). Currently, there are 8 Microfinance Institutions (MFIs) affiliated with the Palestinian Network for Small and Microfinance; ASALA, VITAS, REEF, UNRWA, PDF, ACAD, FATEN, AI-IBDAA. The (8) MFIs operate under various legal structures, such as non-governmental organizations (NGOs), co-operatives, non-profit companies, and donor programs. "Several studies, which were carried out in the Palestinian credit space, have uniformly agreed on the pre-existence of a significant gap between finance demand and supply in Palestine. A study by Federcasse and the PMA estimated this credit gap to be over \$80 million per year. ICON-INSTITUTE estimated the lending gap attributable to MSMEs in Palestine to be between US\$ 623 million – US\$ 668 million. This indicates a significant shortage of finance for Palestinian MSMEs and an immeasurable obstruction to the full development of the Palestinian economy."

The OPT since the beginning of the 19th century featured interruptions with breakouts of violence and conflict. As such, the progress of the microfinance sector has been a story of resilience but cautious growth. The political situation worsened by the end of the 1990s and the early 2000s; first & second Intifada, 2002 Israeli invasion of areas A in the West Bank and 3 consecutive wars on Gaza Strip.

In the Palestinian case interest in the study of the microcredit sector is also motivated by another specific reason. The Palestinian economy largely relies on foreign help, and MCIs are no exception. Reliance on external donations has major implications in terms of governance and performance, as donors are mainly motivated by

political and ideological aims, while local managers have to balance these objectives with the consequences of operating in an unstable economic and political climate. Wide availability of donations is also itself part of the problem as it generates passive, if not parasitic, attitudes among debtors (Israel/Palestine Centre for Research and Information [IPCRI], 2005).



Figure 1. Conceptual Framework

Source: Self conceptualized on the base of Literature and secondary data of MFIs

5. Research Methodology

Research methodology is concerned with the path of action that the researcher is going to adopt for the current investigation. The whole philosophy revolves around three basic paradigms includes positivism, interpretivism, and critical research paradigm.

5.1 Research Paradigm

This research study is based on the positivist paradigm where the intentions of the individual are based upon phenomena of objectivity at its epistemological level, according to ontological level the reality is here, but the researcher is going to investigate the reality of the MFIs impact on the Palestine's economic development. In this context, it infers that MFIs development is interrelated with the economic growth. Both of these are the different drivers and are difficult to untie. For assessing the casualty, the investigator chooses the variables named dependent as well independent (Levine et al. 2000).

The research data has been collected from primary and secondary sources. For earlier histories or trend secondary source of data has been used. The economic review of Palestine, various Palestine's publications of microfinance has been used for the support of secondary data. This data has been supporting to evaluate that what has been done to conclude the current research.

5.2 Population and Sample

Currently, there are 8 Microfinance Institutions (MFIs) affiliated with the Palestinian Network for Small and Microfinance; ASALA, VITAS, REEF, UNRWA, PDF, ACAD, FATEN, Al-IBDAA. The eight MFIs operate under various legal structures, such as non-governmental organizations (NGOs), co-operatives, non-profit companies, and donor programs.

5.3 Data Collection

Therefore, according to the current research study objectives both sources have been observed for collecting views regarding poverty reduction. Primary data has been taken through the questionnaire with a measurement on the Likert scale. On the other hand, data on the development of financial institutes, secondary data has been used published in the economic survey reviews of the Palestine's state. For primary data collection regarding poverty has been taken from the beneficiaries of the concerned banking institutes. The questionnaire was based on the 18 items rely on the LIKERT scale to take the views of the beneficiaries of MFIs, e.g., the effect of MFIs on their livings standards, improvements as well social stability, etc.

5.4 Instrumentation and Statistical Analysis

Primary data collection instrument consists of 18 items which include (The small loans is the main foundation of income for family, the family touches that its income has enlarged after getting loan, the influence of the scheme is careful optimistic to the family, the scheme revenue chiefs to recover the family spending on food, etc.). The collected data has been scrutinized and analyzed on SPSS to conclude the findings of the current research data.

6. Findings and Results

The present study results indicated that 88% beneficiaries stated that the primary resource of their income is now attached with MFIs. 74% got up their income level after they got grant ensured from the bank. 74% observed that this type of micro financing has a positive image towards them. The spending of families drives increase for the social requirements such as food, education, clothing etc. are increased that is responded by 80% of the beneficiaries.

The concern of reducing poverty by increasing job opportunities by lowering unemployment families stated that their employed rate of family stands up by 82% with the increasing factor of employment-based projects. According to the beneficiary people they need regularly to last to invest chunks of the revenue of the arrangement to upsurge the wealth to achievement of creative assets or goods to let them to enlarge its actions to allow the scheme to constancy, and the poor economic circumstances practiced by the segment has had a negative influence on the revenue of most of these tasks. 80 % of the respondent's states that they have the intention to further grow up and come up with their own project work that in results impact the economic growth level of the Palestine's state.

On the other side the Economic survey of Palestine (2016-17) gave a clear comparative picture of the poverty situation during past decades. Headcount ratio also explains that the population poverty situation has been changed from past decades with a little bit improvements by the contribution of the banking sector as well. Poverty reduction in headcounts as the slightest difference shows the direct improving in poverty with microfinance. The primary data about the banks have been collected from the different banks listed in the below tables. This comprises the complete profile including the number of staff members each of the banks has with the proportion of male as well female staff members. The number of branches enhancement as well showing the increasing trend of the role of banking related finance bundles.

Table 1. GDP wise growth of Palestine's economy

	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP In US\$ Bn.	4.88	5.24	5.75	6.42	6.8	6.9	7.5	7.7	8.0
Population	3.6	3.6	3.7	3.9	4	4.2	4.3	4.4	4.5
GDPS /Capita	1,395	1,455	1,555	1,646	1,700	1,685	1,744	1,750	1,777

Table 2. Banks Profile

No.	Microfinance Institutions	Number of branches	No. of staff				Total
			Male		Female		
			No.	%	No.	%	
1	ASALA	7	13	22.81%	44	77.19%	57
2	VITAS	10	66	60.00%	44	40.00%	110
3	ACAD	7	27	49.09%	28	50.91%	55
4	FATEN	38	173	59.66%	117	40.34%	290
5	UNRWA	11	109	61.93%	67	38.07%	176
6	REEF	11	35	72.92%	13	27.08%	48
7	AL-IBDAA	5	42	47.73%	46	52.27%	88
8	PDF	6	14	56.00%	11	44.00%	25
	Total	95	479		370		849

Source: Economic survey of financial institutes

The above Table 2 highlights the complete profile of the banks with respect to the increasing trend of the banks towards number of clients as well as number of active loan portfolios. UNRWA'S microfinance accomplishments focused is to delivered credit to small as well as medium scale businesses with an original capital funding of < USD 500,000. By way of the Microfinance Section evolved, its operations were long into the West Bank in 1996.

Meanwhile, the Department has continued one of the main and liveliest microfinance institutions in Palestine and has uniquely developed into a regional operation. In 2003, the section began working in Jordan and Syria, where 2.5 million Palestine immigrants exist in. Between 1991 and 2015, the Section backed 398,154 loans across all grounds of action, at a value of USD 440.41 million. The Figure 2 shows the statistical graph predicting the role of bank loan as an increasing factor towards economic as well institutional development.

Table 3 shows that the role of banks branches out of which 95 are currently dealing with MFIs. With the total of 849 of the staff members associated with them. Furthermore, data about each of a bank branch has been collected from the specific branch head office.

Table 3. Profile of Banks working in Palestine's (continued)

	UNRWA		REEF		AL-IBDAA		PDF	
No. of branches	11		11		5		6	
No. of staff	176	100%	48	100%	88	100%	25	100%
Male	109	61.93%	35	72.92%	42	47.73%	14	56.00%
Female	67	38.07%	13	27.08%	46	52.27%	11	44.00%
No. of Loan Officers	75	100%	22	100%	45	100%	8	100%
Male	42	56.00%	19	86.36%	19	42.22%	7	87.50%
Female	33	44.00%	3	13.64%	26	57.78%	1	12.50%
No. of active clients	17,358	100%	3,182	100%	8,930	100%	821	100%
Male	10,695	61.61%	2,567	80.67%	4,794	53.68%	702	85.51%
Female	6,663	38.39%	615	19.33%	4136	46.32%	119	14.49%
No. of active clients	17,358	100%	3,182	100%	8,930	100%	821	100%
West Bank	12,924	74.46%	1,640	51.54%	8930	100%	552	67.24%
Gaza	4,434	25.54%	1,542	48.46%	0	0.00%	269	32.76%

Table 4. Profile of Banks working in Palestine

	ASALA		VITAS		ACAD		FATEN	
No. of branches	7		10		7		38	
No. of staff	57	100%	110	100%	55	100%	290	100%
Male	13	22.81%	66	60.00%	27	49.09%	173	59.66%
Female	44	77.19%	44	40.00%	28	50.91%	117	40.34%
No. of Loan Officers	23	100%	44	100%	29	100%	138	100%
Male	8	34.78%	26	59.09%	17	58.62%	89	64.49%
Female	15	65.22%	18	40.91%	12	41.38%	49	35.51%
No. of active clients	4996	100%	8683	100%	4843	100%	41,478	100%
Male	390	7.81%	6753	77.77%	2344	48.40%	28,127	67.81%
Female	4606	92.19%	1930	22.23%	2499	51.60%	13,351	32.19%
No. of active clients	4996	100%	8683	100%	4843	100%	41,478	100%
West Bank	3625	72.56%	5179	59.65%	4425	91.37%	25,652	61.84%
Gaza	1371	27.44%	3504	40.35%	418	8.63%	15,826	38.16%

6.1 Microfinance in Palestine an Overview through Secondary Findings

The demand for micro-loans has been up scaled steeply in the West Bank and Gaza Strip in recent years, according to data from the Palestinian Network for Small and Microfinance (Sharakeh), which currently represents 8 microfinance institutions whose total loan portfolio as on March 31, 2017, reached \$234 million a staggering 212% increase over the \$75 million portfolios reported by the end of 2011 and between 2007 - 2017, the number of active micro-loans in the West Bank and Gaza Strip rose from 43,131 to 90,353 a whopping 110% increase. This increase in the number of transactions and amount exceeded all expectations, and the MFIs are gaining more respect and confidence in the trend and products they are offering. This trend is likely to continue, said Sharakeh, predicting that by the end of 2017 the number of loans will exceed the 100,000 mark.

The number of active clients receiving loans from microfinance institutions has grown by an average of 27% annually since 2007, he added. "Microfinance is on the rise in Palestine because it serves small businesses which are growing in number and importance". The Palestinian economy is characterized by the dominance of the small business sector. According to an unofficial study, 92% of all employment in Palestine is, directly and indirectly, related to small businesses.

Table 5. Number and Value of Microloans

	Portfolio Amount	# of active loans	Average size of loan
2007	\$75,000,000	43,000	\$1,744
2017	\$234,000,000	90,000	\$2,600

The above Table 5 represents the lending portfolio, the number of active loans and the average size of loans during the previous ten years 2007-2017. Also, shows that there has been significant progress, especially in the size of the portfolio and the number of loans granted with a mean value 26000\$.

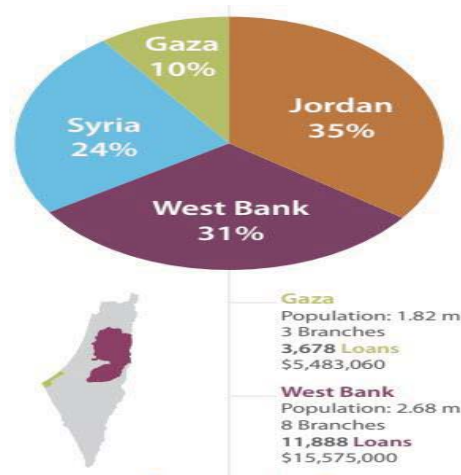


Figure 2. Banks condition in microfinance till 2015

Source: UNRWA Annual Reports 2016

The HQ of the Microfinance Department is founded in Jerusalem; its management runs four ground workplaces in the Jordan, Gaza Strip, the West Bank, and Syria. By way of the culmination of 2015, these field offices were accountable for a whole of 22 branch workplaces. Separately branch is accomplished as an independent cost focus that is compulsory to shelter its direct costs and to fund the complete overhead costs of the program. The creation of new twigs is funded from incomes and reserved earnings, and irregularly by project funds version for the program self-sufficient.

The Subdivision supposes to work with the similar sum of division offices in 2016. In spite of the highly literate population, the Palestinian economy comprises 0.01% of world economy, and the Unemployment is dangerously high at 26.9%. The Palestinian economy is dependent mainly on government spending & Services, while the exports are minimal while the economy imports everything from abroad, thus, the growth is weak. Therefore, as it relates to Microfinance, the current state of the economy will be greatly enhanced by increasing investments in productive assets; i.e., industries, agriculture, tourism, IT.

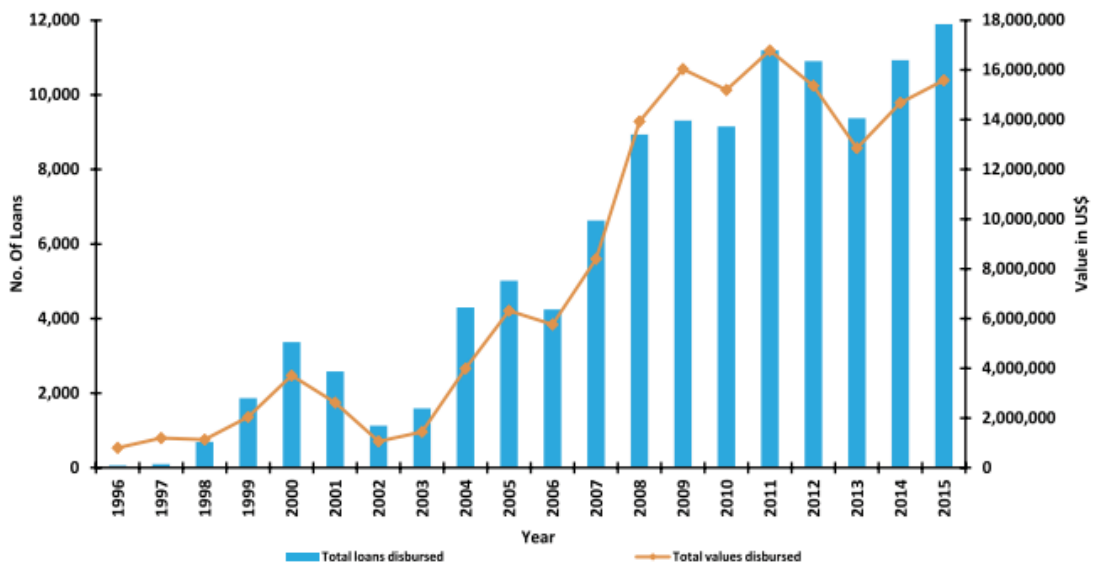


Figure 3. Annual outreach by west Bank till 2015

Source: UNWRA reports 2015

Palestine’s penetration of microcredit to the total population stands at 2% (90K clients of 4.5 million population). To reach the 7.5% - 10% penetration mark in Palestine indicates a market size of an additional 240,000 – 360,000 microfinance borrowers. The average US\$ loan utilization as on March 31, 2017, amounted to US\$2,591. Therefore, if we add the 240,000 currently un-served customers, 330,000 – 90,000) this will create

an additional demand of around US\$635 Million. Instead of the increasing trend of violence at the beginning of the 2015 in west banks, the department was stable in case of its operations, and the targets were also achieved by the department as they are planned.

The above statistical results show the progress of the micro-financing schemes that are offered by West Bank. Also, it depicts that MFIs role is appreciable for the needy improvement conditions as well as for the institute's development of banks. The program delivered 11,888 loans appreciated at US\$15.58 million, detecting the development of 8.8 percent in loan facts and 6.2 percent in loan value over 2014. The SPM data displays an upgrading crosswise all social groups over 2014 by a normal growth rate of 11.40 percent. Request for microcredit schemes, intended for debtors who classically lack security, steady employment, and provable credit history has spread by word of mouth, supposed Alaa Abu Halawa, program manager at Sharakeh, count: "The people understood the advantage of MFIs. And its mounting position is appealing more depositors or investors."

Table 6. Women development through MFIs

Women Clients Data	ASALA		VITAS		ACAD		FATEN	
No. Of clients - Women	4606	100%	1930	100%	2499	100%	13,351	100%
No. Of West bank women clients	3235	70.23%	1025	53.11%	2311	92.48%	9,244	69.24%
No. Of GAZA women clients	1371	29.77%	905	46.89%	188	7.52%	4,107	30.76%
Women Clients Data	UNRWA		REEF		AL-IBDAA		PDF	
No. Of clients - Women	6,663	100%	615	100%	4,136	100%	119	100%
West Bank women Clint	4,913	73.74%	428	69.9%	4,136	100%	83	69.75%
No. Of GAZA women clients	1,750	26.26%	187	30.41%	0	0.00%	36	30.25%

Source; Economic Survey Reports

Table 6 from the secondary source data also provide insights that each bank is contributing towards the women empowerment as well enhancing their performance growth by expanding the number of opportunities for women in Palestine's. Role of microfinance in the development of the economy as a women empowerment is also appreciate able. Nisreen Swelem the president of the West Bank at Palestinian stated that (ASALA) that is currently offering the micro-loans towards the advancement of women empowerment microloans with the intentions of to expand this quantity by the number of women's. Many of the training women are now becoming trainers of others as they are paying back to their economy with strong intentions of development of themselves as well the state. The role of Gaza women's Clint as well as west bank Clint's is increasing day by day as the financial institute are supporting them to become the part of production labor of the economy.

7. Discussion and Conclusion

It is investigated that MFIs plays the major role and positively contributing toward the economy by direct and indirect means. The more emergent side of these types of financial resources is enhancing women empowerment in the state and a spreading as an emerging trend in developing states. A few decades ago, In Palestine women were not considered as a part of social and economic development perspective but the era has changed the conception paradigmatically is by providing more targeting opportunities for their social and economic welfare.

Banking institutes are playing a very positive and productive role for the direct and indirect benefits associated with the development of the economy. With the concern of the direct benefits majority highlighted that they enhance their growth income as well opportunities especially in livestock's, agriculture, clothing, etc. by the availability of small level financing opportunities.

The results are the consequence of a very specific combination of elements: random shocks affecting the macroeconomic environment; the impossibility of MCIs to raise their own financial resources; and very strong political and ideological aims behind the support of international donors. Thus it would be a mistake to try to generalize the 'lessons' of the Palestinian experience. However, some of the aspects analyzed in this article, for example the problematic interaction between donors and managers, are common to various experiences over time and space and they offer some more general insights on the functioning of the microcredit industry.

Furthermore, the secondary data reports, archives explored that the bank's performance in the ends of clients, staff performances, prevailing branches' scope as well as economic stability figure margin differences are linked with the indirect benefits associated with the MFIs.

The current study concludes that the small level microfinancing is the best resource for the economic stability as well development. This, not just impacts on the poverty in the sense of the food and clothing but also enhance the employments opportunities that are also linked to the financial stability of the state.

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Statistical Analysis of Long-Term Trends of Trade Relations between Georgia and Canada

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Abstract

The article analyzes the long-term time series of 1995-2016 depicting trade relations between Georgia and Canada. Georgia's trade partner countries are ranked as a whole trade turnover, as well as export and import volume of goods and the ordinary position of Canada is established. The nature and direction of total trade turnover, as well as export and import tendencies are revealed. In the process of statistical analysis, the absolute and relative indicators were calculated. The export and import volume of 1995-2016 is also considered by the commodity groups and the first five of the largest commodity groups are drawn in both directions.

The statistics show that the trade relations between Canada and Georgia and its development are important for both countries.

Keywords: trade turnover, export, import, growth rate, diversification

1. Introduction

In 1921-1991 Georgia was a Soviet Union and had no independent trade relations with other countries, including Canada. Since 1992, Georgia has already started bilateral trade relations with different countries around the world, but until 1995 the official statistics on foreign trade are incomplete, which is why it is not advisable to use scientific analysis and objective quantitative or qualitative evaluations (Gelashvili, 2016). Therefore, we have taken a 1995-2016 period Year and we used official statistical data of this period that are available in the National Statistics Office of Georgia and National Bank of Georgia.

Georgia is a small country with open economies, where over the last 15 years, significant reforms have been implemented in various sectors, including the economy. The positive results of reforms are clearly seen in the ratings published by many international organizations. So, for example, according to the Index of Economic Freedom, Georgia took the 13th position with 76 points among 180 countries, 123rd - in 1996, (107th - 2000, 93rd - in 2005, 26th - in 2010, 22th - in 2015 and 29 - in 2017). Currently Georgia is in the group of mostly free countries, and it is in more advanced position than many EU countries (http://www.economy.ge/uploads/ek_ciprebshi/reitingebi/reitingebi_geo/Heritage_2017-GEO.pdf).

Among the components of the Economic Freedom Index, Georgia's highest score (88.6) is in the freedom of the international trade and ranks the 5th in the world countries (http://www.economy.ge/uploads/ek_ciprebshi/reitingebi/reitingebi_geo/Heritage_2017-GEO.pdf).

Georgia has free trade regime with EU countries, CIS countries, China, Turkey and many other countries, which is a positive factor in the growth of foreign trade volume.

At present, trade relations between Georgia and Canada are based on the Generalized System of Preferences (GSP) regime and its beneficiary. The basic essence of this system is the establishment of reduced rates of basic import tariffs for imported goods from beneficiary countries, which facilitates access to developing countries in the developed countries. Georgia has the same foreign trade regime with the US and Japan (<http://www.economy.ge/?page=ecopolitic&s=12>).

2. Literature Analysis

There are many publications on foreign trade issues of Georgia. Most of them are published in Georgian, but there is a small part in English language (Gaganidze, G., Ramishvili, B. and others, 2017; Gelashvili, 2016, 2018;

Gelashvili, N. 2016; Medzmariashvili, 2014 and others). These publications mainly deal with foreign trade with the EU countries, CIS countries, Azerbaijan, Turkey and others. But there are no scientific or other publications on trade between Georgia and Canada either in Georgian or in other languages. So it is natural that their critical review is not presented in our article. Such research is of great importance for both Georgia and Canada, as it can be used as in learning process and for scientific and practical purposes. Therefore, this article is the first and it has both theoretical and practical significance. It will contribute to the elimination the deficit of the special publications on this issue.

3. Methodology of Research

In the research process we have used many concrete methods of statistical analysis such as: statistical grouping, data table presentation, relative and average values, indices, variation analysis. Some empirical tendencies have been identified on the basis of the indexes calculated by them and the conclusions were formed.

4. Empirical Research and Results

In 1995 Georgia had trade relations with 67 countries and in 2017 - 138. Thus, the geography of foreign trade has significantly expanded, in which in 1995, Georgia had trade relations with 67 countries, in 2000 this number was 102, in 2010 – 133, in 2015 - 137 and in 2017 – 138 (Gelashvili, 2018). Thus, the geography of foreign trade has significantly expanded, in which a major role has played the fact that Georgia is one of the most liberal and competitive trade in the world (Gelashvili, N. 2016). The trade turnover calculated on average by one country is also an interesting indicator: in 1995-2016, this figure increased by 7.3 times: 9,612 million in 1995 and \$ 69,682 million in 2016 (Gelashvili, 2018). The following table shows some generalized indicators of foreign trade of Georgia:

Table 1. General Indicators of Foreign Trade of Georgia

Years	Number of Georgia's trade partner countries	Georgia's trade turnover, Billion \$	Trade turnover on average 1 country, million \$
1	2	3	4
1995	67	0,644	9, 612
2000	102	1,034	10,137
2005	126	3,355	26,627
2010	133	6,913	51,977
2015	137	9,505	69,380
2016	135	9,407	69,682

Data Source: This table is drawn up by us, based on the data of National Statistics Office of Georgia and the 4th column's indexes are calculated.

In 1995 the total foreign trade volume of Georgia amounted to 644 million USD, while in 2016 - 9.4 billion (Gelashvili, 2018), or 15 times more. In the same period, the foreign trade turnover of Canada increased from \$ 172 thousand to \$ 86 million, almost 500 times. However, in 2008-2013 this figure was more than 100 million and its maximum value was recorded in 2008 - almost 150 million USD.

Canada's ordinary position in the ranking of Georgia's trade partner countries causes particular interest as export and import volume. To illustrate this, see Table 2.

Table 2. Private position of Canada in Georgia's foreign trade

Years	By Export volume	By Import volume
1	2	3
1995	38	43
2000	85	12
2005	8	33
2010	5	35
2015	10	48
2016	14	31

Data Source: This table is drawn up by us, based on the data of the National Statistics Office of Georgia.

As shown in Table 2, between 1995-2016, Canada appeared 10 times in the top ten of the main trading partner countries of Georgia, by Exports volume, including 2005-2013 yearly. Moreover, Canada was in the top five in 2008-2010, while in 2009, Canada ranked third place in Georgia's 128 trading partner countries. Canada's ordinary position is also important for the volume of import. For instance, in 2000, Canada ranks 12th from 102 trade partner countries of Georgia. All this indicates that Canada is an important trading partner for Georgia. The importance of this country is also due to the fact that Canada is one of the biggest countries in the world with which trade and other kind of close relationships are important for Georgia. It is noteworthy that for many years

now, according to UN-classification, Canada is in the top ten of highly developed countries (Gelashvili, 2015). Table 3 below illustrates the long-term general tendencies of trade relations between Georgia and Canada at the end of the 20th century and at the beginning of current century.

Table 3. Georgia-Canadian trade balance indicators

Years	Total trade turnover, million \$	Export, million \$	Import, million \$	Balance, million \$
1	2	3	4	5
1995	0,172	0,033	0,139	-0,106
2000	3,655	0,002	3,653	-3,651
2005	42,746	35,640	7,106	28,534
2010	137,056	118,736	18,320	100,416
2015	81,759	70,170	11,589	58,581
2016	85,524	41,260	44,264	-3,004

Data Source: This table is drawn up by us, based on the official data of National Statistics Office of Georgia and the National Bank of Georgia, and the 5th column's indexes are calculated by us.

As shown in Table 3, in the longer term analysis, i.e. within the 22 years, it should be separately allocated for 2005-2015, when Georgia had positive trade balance with Canada. In 2008-2012, export volume of goods exported from Georgia to Canada exceeded to Import volume 7 times. With this indicator, in all these years, Georgia has one of the best positions in trade with Canada. Another interesting fact is that in 2016, for the first time since 2005, Georgia's trade balance was negative with Canada. Generally, with the absolute majority of numerous trading partner countries, Georgia has unfortunately an extremely negative trade balance that is one of the major economic problems in our country (Gelashvili, 2002).

The long-term general trend of trade relations between Georgia and Canada during the analysis period is progressive. But if we analyze the trade balance, we will see that it is not statistically stable and is characterized by both quantitative and qualitative tendencies, i.e. in 1995-2004 it has a negative character, and in 2005-2015, on the contrary, positive. According to our calculations, it was established that the average annual growth rate of Georgia's foreign trade with Canada is higher than with the rest of the world. For example, the average annual growth rate of Georgia's foreign trade turnover in 2000-2016 amounted to 16.69 percent with all trading partner countries, while with Canada, it was 89.45 percent. This means that the volume of Georgia's foreign trade turnover with Canada has increased by 5.4 times a year. It should be noted that in some years there was the leap of growth, for example, in 2004-2010. These indicators indicate that Canada is an important trading partner country for Georgia. The same can be said about Canada in relation to Georgia. Overall, this relationship is more useful and positive for both countries.

Statistical survey of trade relations between Georgia and Canada also includes an analysis of export and import quantitative ratio. The following table shows 4 shares (percentage) of export and import in trade turnover.

Table 4. Specific shares of export and import of Georgia-Canada trade turnover

Years	Export share, %	Import share, %
1	2	3
1995	19,19	80,81
2000	0,05	99,95
2005	83,38	16,62
2010	86,63	13,37
2015	85,83	14,17
2016	48,24	51,76

Data Source: The 2nd and 3rd columns indicators of this table are calculated by us, based on the official data of the National Statistics Office of Georgia and National Bank of Georgia.

As shown in Table 4, long-term tendencies of changes in export and import between Georgia and Canada in 1995-2016 have different directions, but in 2000-2015 increasing the share of export is clearly expressed: if in 2000, the share of export of goods from Georgia to Canada was negligible (0,05 percent), in 2015 this indicator already reached 85.83 percent. Therefore, there is a clearly defined progressive tendency. Of course, such a ratio of export and import is a very positive moment for Georgia. However, the 11-year trend was changed in 2016 when the share of imports slightly exceeded the share of exports.

In order to assess the efficiency of foreign trade it is appropriate to use criteria such as export-import relative coefficient (Gelashvili, 2017). In this case it means that the volume of import must be divided by the export volume. When the value of such coefficient is zero, then the import of goods from other countries in the given country has no place and exports are carried out; If this coefficient is close to zero, it means that the volume of

exports is much higher than the import; Both cases are highly desirable for any country. Of course, if this coefficient is equal to one, then the volume of export and import is equal to the balance of foreign trade (Gelashvili, 2018). In case the ratio is more than one then the volume of imports is higher, which is undesirable for any country. According to Table 3 calculations, the minimum value of import-export ratio was quite long - over 11 years (2005-2015) and it is placed in 0,12 - 0,25 borders; The equilibrium coefficient, coefficient close to one was in 2016 and has reached 1,07; The maximum coefficient was recorded in 2000 and it was 1826,5.

In the study of Georgia-Canada trade relations as a theoretical and practical significance is the analysis of the commodity structure, separately, by export and import. We have established the rankings of commodity groups and then the largest share of 5 largest export and import products. It turned out that in 1995 only 1 commodity group went from Georgia in Canada, and it was "isotopes", at a total value of 33 thousand US dollars. Since 2002 the exporting commodity structure has been expanded and has reached to 8 groups, and in the following years more: in 2005 - 38, in 2010 - 29, in 2015 - 36 and in 2016 - 16 commodities. The following table shows the 5 largest export commodity groups (according to the 4-digit codes of the International Classification).

Table 5. The 5 largest commodity groups exported from Georgia to Canada

		2002 year	Thousand US dollars
1	mineral and fresh water		32.4
2	natural grape wines		21.9
3	devices and devices used in medicine or veterinary		12.0
4	timber material, dumped, More than 6 mm thick		3.4
5	ethyl spirits, non-alcoholic, alcoholic beverages		2.6
2005 year			
1	gold semi-processed or unprocessed		32,679.5
2	ferroalloys		2,080.0
3	Machines and mechanisms for movement, dig, or drilling		537.0
4	engines and power plants		110.0
5	Natural grape wines		56.4
2010 year			
1	gold semi-processed or unprocessed		117,646.7
2	manganese oxides		264.2
3	Natural grape wines		249.0
4	nuts fresh or dried		183.1
5	mineral and fresh water		129.1
2015 year			
1	gold semi-processed or unprocessed		58,842.1
2	ferroalloys		9,591.4
3	mineral and fresh water		719.1
4	Natural grape wines		329.6
5	nuts fresh or dried		316.3
2016 year			
1	gold semi-processed or unprocessed		31,576.6
2	ferroalloys		7,254.5
3	nuts fresh or dried		1,264.9
4	natural grape wines		570.7
5	mineral and freshwater waters		324.2

Data Source: This table is drawn up by us, based on Georgian National Statistics Office of Georgia and the National Bank Database.

In 2002, in the total exports of goods from Georgia to Canada, share of the first five largest export commodity groups was 99.63%, while in 2016 it was 99.25%. Although export commodity nomenclature has expanded, which is a positive trend of the content, but in the largest top five export commodity groups in almost the same denomination - 4 Commodity Group (gold semi-processed or unprocessed, natural grape wines, nuts, fresh or dried, and mineral water). Other export commodities have a very small share. All this indicates that it is necessary to expand the diversification of export goods (Gelashvili, 2016; Gaganidze, Ramishvili and others, 2017).

Of course, Statistical analysis of the commodity structure of registered imports from Canada to Georgia is also interesting. According to official data, in 1995 there were 2 nomenclature commodities groups ("wheat flour" and "various waters") from Canada. Since 1997, the commodity structure of import has significantly expanded and has reached 26 groups, and in the following years their number has grown stronger: in 2000 - 37, in 2005 - 106, in 2010 - 177, in 2015 - 159 and in 2016 - 173 commodity group. The following table covers volumes of 5 largest import commodity groups ranked by 2000-2016.

Table 6. The 5 largest commodity group imported from Canada to Georgia

		2000 year	Thousand US dollars)
1	Mixed goods		2,615.7
2	Ethyl alcohol non-denaturic, 80% or more of the concentration of alcohol		378.7
3	Seeds, fruits and spores		131.6
4	Cotton textile material, textile fibers are not longer than 5 mm		109.6
5	Knitted clothing, machine or hand woven		102.4
		2005 year	
1	Perfumes and toilet water		1,485.7
2	Binoculars, monoculars and other optical tubes		1,217.9
3	Fish frozen		838.5
4	Cosmetics, or makeup and skin care products		496.5
5	Engines and power tools		454.0
		2010 year	
1	Fish frozen		7,181.7
2	Pork fresh or frozen		2,883.5
3	Metal constructions from ferrous metals and their parts		2,736.2
4	Perfumes and toilet water		877.4
5	Oil and oil products		873.4
		2015 year	
1	Cars		1,501.8
2	Building prefabricated structures		1,498.0
3	Pork fresh or frozen		1,483.9
4	frozenFish frozen		862.0
5	Meat and nutritional subprojects of domestic poultry, fresh or frozen		591.2
		2016 year	
1	The medicines, packaged		35,918.2
2	Fish frozen		2,388.3
3	Building prefabricated structures		1,483.0
4	Pork fresh or frozen		1,069.2
5	Cars		1,050.0

Data Source: Based of Georgian National Statistics Office of Georgia and National Bank Database.

The study of the commodity structure of trade in between Canada and Georgia revealed that commodity nomenclature of exports from Canada to Georgia is much more varied and diverse compared to its reverse flow - exports, what is clearly confirmed by the following data: in 2016 from Canada, Georgia received 176 kinds of goods group, and in the same year exports from Georgia to Canada has passed a total of 16 commodity groups, i.e. 11 times less.

The study of imported commodity structures in Georgia from Canada draws attention to the fact that "frozen fish" is consistently represented in the first five of the largest imported commodity groups in the long term (2005-2016), and in 2010-2016 "Pork meat" was added to it. Additionally, in 2016 one of the commodities group - "Medicinal Products" reached 81,15 percent of total imports of goods from Canada.

In order to assess the efficiency of foreign trade, it is also recommended to use criteria such as total trade turnover per capita. The next 7th table shows that the foreign trade indicators of Georgia per capita are quite high with Canada: according to the total turnover and exports - in the long-term period, 2005-2015, and according to import only in 2016.

Table 7. Relative indicators of foreign trade of Georgia with Canada (calculation per capita, million USD)

Year	Total trade turnover	Export	Import
1	2	3	4
1995	0,036	0,007	0,029
2000	0,827	0	0,827
2005	9,800	8,171	1,629
2010	30,785	26,670	4,115
2015	21,990	18,873	3,117
2016	22,997	11,094	11,903

Data Source: This table is drawn up by us, based on Georgian National Statistics Office of Georgia.

On the basis of Table 7, it is possible to see the following important trends: the total turnover of Georgia with Canada in 1995 was only 36 thousand US dollars calculating per capita, and in 2016 it was already almost 23 million US dollars. Growth is noticeable (almost 300 times), which is very important for any big or small country. It is also noteworthy that the larger growth was observed in the relative indicators of exported goods: In 1995 the export of Georgia to Canada was only 7 thousand US dollars per capita, in 2016 this figure exceeded 11

million, or 1585 times. In the same period, the relative index of imported goods also increased from 29 thousand to almost \$ 12 million, or 410 times. Therefore, in the analysis period, the relative index of exports increased significantly by calculating per capita than the equivalent of imports. Although the relative ratings of export and import were approximately equal in size, in 2016, if we look at the whole analysis period, we'll see a strong variation of the figures, both inclusive and in the individual years (Gelashvili, Muchiashvili and Maisuradze, 2012; Mikeladze and Gelashvili, 2016; Papava, 2015).

5. Conclusions

The following statistical analysis made possible the following conclusions:

After independence, the foreign trade geography of post-Soviet countries (including Georgia) significantly expanded the volume of trade turnover. The clear proof is that if Georgia had trade relations with 67 countries in 1995, their number doubled in 2016 and became 135. This led to the overall volume of Georgia's foreign trade turnover (almost 15 times) significantly increased. At the same time, the turnover of Georgia's foreign trade increased almost 500 times to Canada. In 2000-2016, the average annual growth rate of Georgia's foreign trade turnover was 16,69 percent, and with Canada - 89.45 percent. This means that the volume of Georgia's foreign trade turnover with Canada has grown an average of 5.4 times a year, and in some years it has been a jump in growth, for example, in 2004-2010. These indicators indicate that Canada is an important trading partner country for Georgia.

It is noteworthy, that Georgia has had a positive trade balance over Canada (2005-2015) for quite a long time, and in 2008-2012 the export volume of goods exported from Georgia to Canada exceeded almost 7 times. With this indicator, in all these years, Georgia has one of the best positions in trade with Canada. In 2005-2015, Canada with export ranked 10 times in the top ten of the main trading partner countries of Georgia, including 2005-2013 yearly.

The study of the trade in the commodity structure between Canada and Georgia revealed that commodity nomenclature of Import from Canada to Georgia is much more varied and diverse, than the reverse flow - exports, which is clearly confirmed by the following data: in 2016 from Canada, Georgia received 176 kinds of goods group, and on the same year in the form of exports from Georgia to Canada has passed a total of 16 commodity groups, i.e. 11 times less. In 2005-2016, the export trademark nomenclature expanded to Georgia, but in the top five of the largest export commodity groups are consistently represented by 4 commodity groups (gold semi-processed or raw, natural wines of grapes, fresh or dried walnut, Mineral waters). Other export commodities have a minor share. This indicates that it is necessary to expand the diversification of export goods.

Long-term trends in the export and import of Georgia and Canada between 1995 and 2006 have different directions, but in 2000-2015 the share of export share clearly shows an increase: In 2000, the share of export of goods from Georgia to Canada was relatively insignificant (0,05 percent). This indicator in 2015 was 85.83%. Therefore, there is a clearly defined progressive tendency. Of course, such a ratio of export and import is a very positive moment for Georgia. However, the 11-year trend changed in 2016 when the share of imports a little bit exceeded of the share of export by a small amount.

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The Increase of Organizational Citizenship Behaviour (OCB) Through Islamic Work Ethics, Affective Commitment, and Organizational Identity

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Abstract

An employee who is willing to voluntarily help fellow co-workers to do work outside the assigned job description and the assistance provided is not included in the performance assessment, can be defined as organizational citizenship behavior (OCB). Podsakoff et.al (2000) states that OCB can influence organizational effectiveness because it can help improve co-workers productivity, increase managerial productivity and streamline the use of organizational resources for productive purposes. This research was conducted to identify the effect of Islamic work ethics, affective commitment and organizational identity on OCB. The data were collected from 110 employees at the Muhammadiyah Islamic Hospital of Kendal and the Muhammadiyah Darul Istiqomah Hospital of Kendal. The data were later analyzed using Structural Equation Modeling (SEM) using the Analysis of Moment Structure (AMOS 24) software. The result indicates that affective commitment and organizational identity have a significant effect on OCB while Islamic work ethics have no significant effect on OCB. The researcher hopes that this research can be developed in future research by adding other variables related to OCB that may have a greater influence on OCB.

Keywords: OCB, Islamic work ethics, affective commitment, organizational identity

1. Introduction

Today, very sharp competition occurs in the business world. Many things can be the trigger factors for these conditions, including the effects of globalization, the rapid development of science and technology. To deal with these conditions, organizations that want to maintain their business continuity or maintain their growth will increasingly depend on how the organization manages its human resources (HR) to gain a competitive advantage.

For the community, the existence of a hospital founded by an Islamic community organization which can be defined as an Islamic hospital becomes something that encourages and makes a proud and also expected that it had superior human resources and could implement Islamic work ethics in every field of service. Ali and Al-Owaihah (2008) stated that Islam provides a specific perspective on "work" and the manifestation of a specific concept of work ethics, namely Islamic work ethics.

By practicing Islamic work ethics, it is expected to improve OCB behavior among HR. OCB stands for Organizational Citizenship Behavior is defined as the someone's work behavior who volunteered to help and do work that is not contained in the description of the assignment that has been set for him. Podsakoff *et al.* (2000) stated that OCB can increase organizational effectiveness because it can help increase the productivity of coworkers, increase managerial productivity and streamline the use of organizational resources for productive matters.

Several previous studies have shown the relevance of Islamic work ethics towards OCB. Fakhar et.al (2012) conducted research on HR of government hospital and bank in Pakistan. The result of his research showed that there is a positive and significant influence of Islamic work ethics on OCB. Alhyasat (2012) in his research found a high level of commitment of some HR in the Jordan Press Foundation to Islamic work ethics. There are significant effects of several dimensions of Islamic work ethics on OCB while some other dimensions of Islamic work ethics do not significantly influence OCB.

Besides that, in order to facilitate achieving organizational goals, employees' management by organizations needs to pay attention to employees' commitments. In addition to having good and quality work behavior, employee must be committed to the organization. Organizational commitment is classified into three types, namely affective, normative, and continuous commitment. From these three types, affective commitment becomes the most beneficial for the company because employees with high affective commitment tends to feel confident with the company so that it will try optimally to improve the work quality for the achievement of organizational goals (Kusumastuti and Nurtjahjanti, 2013).

The study result of the Nizam *et al.* (2016) on 156 respondents from several small and medium enterprises (SME) in textile trade in Selangor, Kuala Lumpur, and Johor (Malaysia) proved that the application of high Islamic work ethics would result in high organizational commitment and showed that the application of Islamic work ethics can help realize a large commitment to the organization. The research of Nizam *et al.* (2016) also shows the existence of a significant and positive relationship between Islamic work ethics and affective commitment. The study result of Subejo *et al.* (2013) on firefighter in the Jakarta Provincial Government showed that organizational commitment had a significant effect on OCB.

Organizational identity is basically a reflection of the organizational image. It is also defined as a reflection of organizational culture and serves to increase the effectiveness of organizations in adjusting to the demands of the environment (Himam, 2012). Organizational identity will create the motivation needed to arouse volunteerism in organizational behavior (Prasetyo and Himam, 2013).

The study result of Fakhar *et al.* (2012) suggest that further research can be carried out on private sector companies and can add other variables to study. This attracted researchers to conduct research on the influence of Islamic work ethics on OCB. Researchers are also interested in examining the influence of Islamic work ethics on the affective commitment which becomes a part of the organizational commitment. Researchers choose affective commitment because it is an important factor that determines employees' dedication and loyalty as stated by Rhoades *et al.* (2001). The researcher will also examine the effect of affective commitment and organizational identity on OCB.

There are several health facilities in Kendal, Central Java, Indonesia that was established and owned by Islamic community organizations. Meanwhile, there are 2 Islamic hospitals that are quite well known by the Kendal society and its surroundings, namely Muhammadiyah Islamic Hospital of Kendal (RSI) and Muhammadiyah Darul Istiqomah Hospital of Kendal (RSDI). Both of these hospitals are relatively identical because they were established and owned by Muhammadiyah Association (Indo: *Persyarikatan Muhammadiyah*).

The satisfaction survey by Quality Management Representative (QMR) conducted on inpatient patients in January 2018 showed that 9% of patients were dissatisfied with the condition of the bathroom/toilet and 5.9% were dissatisfied with the condition of the patient waiting room. While the survey in February 2018 showed that 8.1% of patients were dissatisfied with the condition of the bathroom/toilet and 5.2% were dissatisfied with the condition of the patient waiting room. Rodhiyatun *et al.* (2014) stated that the result of the satisfaction survey in September 2013 by the QMR of RSI on inpatient patients showed that 55% of patients were satisfied, 11.5% were satisfied but 15% of patients expressed dissatisfied. From ten respondents there are four people who complained regarding daily interactions in the hospitalization environment. There were also two respondents who complained about interpersonal health personnel and three respondents who complained regarding nursing services.

This illustrates that there is still dissatisfaction from patients even though from observations and information from the community, the RSI has become the community choice not only in Kendal, Central Java, Indonesia but also in Batang Central Java, Indonesia. According to the community, RSI and RSDI have good respect and have their own peculiarities related to the application of Islamic work ethics in their service activities.

Based on the description above, researchers are interested in examining the level of commitment of RSI and RSDI on Islamic work ethics and the effect of applying Islamic work ethics on affective commitment, organizational identity, and OCB. The researchers will also examine the effect of affective commitment and organizational identity on OCB. Therefore, this research is entitled 'the increase of OCB through Islamic work ethics, affective commitment, and organizational identity'.

2. Literature Review

2.1 Islamic Work Ethics

Work ethics is defined as a collection of values, traits, attitudes, and behaviors about how people do or handle their work. Islam strongly demands that its adherents have strong moral values and follow the Islamic teachings

in carrying out their work to seek the pleasure of Allah SWT, which becomes the ultimate goal in life (Zahrah *et.al*, 2016).

Ahmad and Owoyemi (2012) define Islamic work ethics as a set of values or belief systems sourced from the Qur'an and Sunnah regarding work. According to Ali and Al-Owaihah (2008), Islamic work ethics is an orientation that directs and influences Muslim involvement and participation in the working world. At workplace, Muslims are expected to know what is right and wrong based on Islamic teachings and behave and act in accordance with Islamic teachings (Zahrah *et.al*, 2016).

From the several definitions above, it can be concluded that Islamic work ethics is a set of values or belief systems based on the Qur'an and Sunnah of the Prophet Muhammad that is held by members of the organization that animates every thought, speech and action or behavior.

Alhyasat (2012) states that there are nine dimensions of Islamic work ethics, namely proficiency, kindness and forgiveness in dealing with employees, advice to Muslims and creativity in services, sense of responsibility, fairness and justice, integrity, teamwork, obedience, observing dignity and honor of the profession.

2.2 Affective Commitment

According to Hidayat (2010), organizational commitment can be divided into three types who have a different level or degree. These three types of organizational commitment are:

- Continuance commitment is a commitment based on the members' perceptions of the losses they will receive if they leave the organization or the benefits to be gained if they maintain their membership. So that this commitment remains in the organization based on the consideration of the profit and loss earned.
- Normative commitment is a commitment that includes members' feelings regarding the obligations and responsibilities that must be given to the organization so that members remain in the organization because they feel obliged to be loyal to the organization.
- Affective commitment related to emotional, identification and involvement of members in the organization so that it has an emotional attachment to the organization that is seen in involvement and feeling happy and enjoying their role in the organization.

Affective commitment is formed from organizational efforts to make employees have strong beliefs to follow all organizational values (Han *et al.*, 2012). Affective commitment is an important factor that determines the employees' dedication and loyalty. Employee with high affective commitment tends to show ownership of the organization, experience increased participation in organizational activities, the desire to achieve organizational goals, and the desire to remain a member of the organization (Rhoades *et.al*, 2001).

Kusumastuti and Nurtjahjanti (2013) stated that effective commitment was valued higher than normative and continuous commitment, while normative commitment was valued higher than continuous/rational commitment so that employees who had affective commitment would be more valuable to the organization because they have already involved emotional factors which will then work with feelings of pleasure and enjoy their role in the organization.

From several definitions above, it can be concluded that affective commitment is a strong desire to remain a member of an organization with emotional attachments reflected through feelings of pleasure, involvement, enjoying the role and acceptance of organization values and goals.

The indicators used in the affective commitment variable based on the research used by Rhoades *et.al* (2001) are as follows:

- Has a deep personal meaning.
- A strong sense of belonging with the organization.
- Proud to tell others about the organization.
- Bound emotionally with the organization.
- Glad to be able to work in the organization until retirement.
- Feel that the problem faced by the organization becomes their problem too.

There are several antecedents of affective commitment that have been identified including personal characteristics, structural characteristics, characteristics related to work, and work experience, where work experience has the strongest and most consistent relationship (Han *et al.*, 2012).

The study result of the Nizam *et.al* (2016) on 156 respondents from several small and medium enterprises (SMEs) in Selangor, Kuala Lumpur, and Johor (Malaysia) proved that Islamic work ethics had a significant and positive influence on affective commitment to the hypothesis proposed was:

H1: Islamic work ethics has a significant effect on affective commitment.

2.3 Organizational Identity

Organizational identity is basically a reflection of the organizational image, culture and serves to increase the effectiveness of organizations in adjusting to the environment demands (Himam, 2012). Organizational identity is similar to an organization's self-image which is defined as organizational characteristics that are "central, enduring, and distinctive" (Himam, 2012).

Organizational identity develops as a shared understanding of organizational members regarding the characteristics of an organization that has important, relatively permanent, and can be used as a differentiator with other organizations. This shared understanding arises as an interpretation of the values that develop in the organization and it becomes the result of the social reconstruction and interaction process (Himam, 2012).

From several definitions above, it can be concluded that organizational identity is a reflection of the organizational image and culture that emerges as an interpretation of the values that develop in the organization and it becomes the result of social reconstruction and interaction process of organizational members and serves to increase organizational effectiveness in adjusting to the environment demands.

Prasetyo and Himam (2013) explain organizational identity as a unit of six aspects contained in the organization, namely: (1) actual identity is a special attribute that is owned by the organization at present which can be seen such as in the business segment, organizational goals, ethos and work style, and market segments; (2) communicated identity is a message conveyed by the organization through communication to outside parties either through logos, advertisements and public relations; (3) conceived identity is related to the organizational description and reputation in the minds of customers and other stakeholders; (4) covenanted identity is related to the principal message implied in the organizational name and or logo; (5) ideal identity refers to the ideal organizational identity or positioning as expected; (6) desired identity is related to the desires of the owners and leaders of the organization in the long time period.

The relationship between Islamic work ethics and organizational identity can be seen from the notion that Islamic work ethics is a set of values or belief systems based on the Qur'an and Sunnah of the Prophet Muhammad that is held by organizational members who inspire every thought, speech and action or behavior.

These values then develop an organizational identity as a collective understanding of organizational members on the characteristics of organizations that are important, relatively permanent, and are distinguishing between one organization and another (Himam, 2012). So the hypothesis proposed is:

H2: Islamic work ethics has a significant effect on organizational identity.

2.4 Organizational Citizenship Behaviours (OCB)

The concept of OCB was first formally conveyed by Chester Barnard as the willingness of individuals in organizations to work together (Harper, 2015). OCB is defined as discretionary individual behavior. It is not rewarded by a formal reward system and can increase the effectiveness of organizational functions. It is free and voluntary because such behavior is not required by the requirements of the role or description of the task which is clearly determined based on an agreement with the organization but it becomes an individual choice (Podsakoff *et.al*, 2000).

Allameh *et al.* (2012) mention four characteristics of OCB as follows:

- Activities carried out are not specified work activities.
- Activities are carried out because of personal motivation.
- This behavior is not formally defined or clearly stated in the formal reward system.
- This behavior helps the whole organization but it is not evaluated in the system of effectiveness.

Based on the information above, it can be concluded that OCB is the individual behavior outside of the job description and it is not formally determined in a reward system that is done voluntarily and contributes to the increase in effectiveness and efficiency in the organization.

Podsakoff *et al.* (2000) propose 7 (seven) OCB dimensions, namely:

- Helping Behavior defines as helping other people voluntarily and always being vigilant in anticipation of possible problems related to work.
- Sportsmanship is the ability to tolerate poor treatment from colleagues by not complaining and still showing a positive attitude, or even willing to sacrifice personal desires for the good of the organization.
- Organizational Loyalty refers to promote organization to outsiders, protect and defend organization from external threats and commit themselves to organization despite unfavorable conditions.
- Organizational Compliance is individual acceptance of organizational rules and policies that is realized by adhering to these rules and policies even if no one is watching.
- Individual Initiative defines as individual who has more initiative, for example, someone will ask if he or she do not understand their work, or do his or her work without having to wait to be ordered beforehand.
- Civic Virtue is the great interest or commitment to the organization as a whole that is indicated by the desire to actively participate in organizational governance (e.g. attending meetings, participating in policy discussions, conveying ideas), paying attention to environmental conditions to find out threats and opportunities for organizations, and seek opportunities to always do good (e.g. reporting fire or suspicious activity).
- Self Development refers to voluntarily take action in the context of self-development by improving abilities, skills, and knowledge.

Abbasi and Rana (2012) stated that OCB improves the individual and organizational performance. The cultural component of OCB is organizational-specific and depends on the organizational values, beliefs and work ethics.

Fakhar *et.al* (2012) conducted a study on 165 employees in 15 government hospitals and 8 private banks in Pakistan. He found that Islamic work ethics had a positive and significant influence on OCB and both variables had a strong relationship so that it could be concluded that the higher Islamic work ethics will increase OCB. So the hypothesis proposed is:

H3: Islamic work ethics has a significant effect on OCB.

The study result of the Subejo *et.al* (2013) on 355 fire brigades in the Jakarta Provincial Government showed that these three dimensions or types of organizational commitment had a significant effect on OCB so that the hypothesis proposed is:

H4: Affective commitment has a significant effect on OCB

Prasetyo and Hiram (2013) argue that organizational identity will create the motivation needed to arouse volunteerism in organizational behavior.

Amini *et al.* (2016) conducted a study of the tax employees in Lorestan, Iran with a sample size of 250 respondents. The result of his research indicates that organizational identity has an influence on OCB so the hypothesis proposed is:

H5: Organizational identity has a significant effect on OCB.

2.5 Empirical Model

The empirical model of this study is as follows:

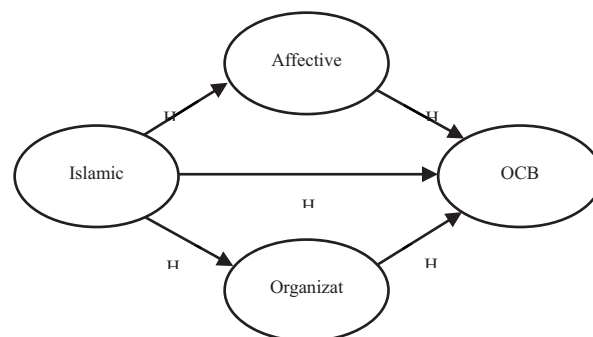


Figure 1. Empirical Model of Research

3. Research Methodology

3.1 Population and Sample

The population of this study is all RSI employees that is 459 people and RSDI employees are 145 people so that the population is amounted 604 people. The sampling used in this study is proportional random sampling (Wahyudi, 2012) because it involves several subgroups. Ghazali (2017: 62) recommends that sample sizes between 100 and 200 must be used for Maximum Likelihood Estimation (ML). In this study, 130 questionnaires were distributed (22% of the total population), namely 100 questionnaires in RSI (22% of total RSI employees) and 30 questionnaires in RSDI (21% of total RSDI employees). From 100 questionnaires distributed at the RSI, 84 questionnaires (84%) were collected. Whereas 30 questionnaires distributed in RSDI collected 26 questionnaires (87%) then the answers from 110 respondents (85%) can be analyzed.

3.2 Data Collection Technique

Data collection techniques of this study are:

- Observation

Direct observation or observation is intended to obtain a clear picture of the situation and activities carried out by the RSDI and RSDI employees.

- Questionnaires Distribution

This becomes a method of collecting data directly which is done by submitting a list of questions to the respondents. The questionnaire was submitted directly to the respondent and returned to the researcher within 7 days after questionnaire given.

3.3 Operational Variable and Indicator Definition

Islamic work ethics is a set of values or belief systems based on the Qur'an and Sunnah of the Prophet Muhammad about work that animates every thought, word and work behavior of employees. The indicators of the variable Islamic work ethics in this study cite six of the nine dimensions of Islamic work ethics according to Alhyasat (2012), namely proficiency, kindness, responsibility, fairness, and teamwork.

Affective Commitment is the desire or attitude to stay in organization because of the suitability of values and emotional attachments. The variable indicators of affective commitment used in this study cite five of the six indicators of affective commitment delivered by Rhoades *et al.* (2001), they are highly meaningful organizations, belonging, pride, emotional attachment, and loyalty.

Organizational Identity is a reflection of the organizational image in the minds of employees that distinguishes it from other organizations. These variable indicators cite three of the six aspects of organizational identity conveyed by Prasetyo and Himam (2013), they are organizational specific attributes, external communication, and organizational reputation.

OCB is voluntary behavior that is not included in formal duties and is considered to contribute to increasing effectiveness and efficiency in the organization. The OCB variable indicators used in this study cite six of the seven dimensions of OCB proposed by Podsakoff *et al.* (2000), namely helping behavior, sportsmanship, organizational loyalty, organizational compliance, individual initiative, and responsiveness.

3.4 Data Analysis Technique

To test the model and hypothesis, this study used SEM (Structural Equation Modeling) analysis by using Analysis of Moment Structure (AMOS 24) program.

4. Findings

4.1 Conformity and Stastical Test

Based on the suitability index and the cut-off value if the suitability index \geq or \leq than cost of value that is used to test whether a model is accepted or rejected as stated by Ferdinand (2005) as a whole it can be seen in the following table 1:

Table 1. Model Feasibility Index (*Goodness-Of-Fit Index*)

Goodness of Fit Index	Cut-of-Value	Analysis Result	Evaluation Model	Conclusion
X ² Chi-Square	Small Expected	445,051		
Significance	≥0,05	0,000	Marginal	The result value accepted as marginal
Probability				
RMSEA	≤0,08	0,136	Marginal	The model is well
GFI	≥0,90	0,715	Marginal	The result value is adequate fit it can use
AGFI	≥0,90	0,631	Marginal	The result value is better fit
CMIN/DF	≤2,00	3,028	Marginal	The result value acceptable fit as marginal
TLI	≥0,95	0,892	Marginal	The result value almost good fit
CFI	≥0,95	0,907	Marginal	The result value very good fit

Source: Primary Data Source, 2018

4.2 Validity Test

A dimension indicator shows significant convergent validity if the indicator variable coefficient is greater than twice the standard error (Ferdinand, 2005: 304).

Based on AMOS text output on regression weight, it shows that all indicators produce a critical ratio estimation value that is greater than twice the standard error, it can be concluded that the indicator variable used is valid. This shows that the indicator validly measures what should be measured in the model presented.

4.3 Reliability Test

Basically, the reliability test shows the extent to which a measuring instrument can provide result that is relatively the same if measurements are taken again on the same subject. The recommended approach in reliability test is to assess the reliability of composite quantities and extracted variance from each construct (Ferdinand, 2005: 93).

- Composite (Construct) Reliability

The value of construct reliability sequentially for the variables of Islamic work ethics, affective commitment, organizational identity, and OCB are 0.979; 0.929; 0.969; 0.936. it is known that the reliability value is ≥ 0.70 for all variables so that this data is feasible to use.

- Variance Extracted

The value of variance extracted sequentially for the variables of Islamic work ethics, affective commitment, organizational identity, and OCB are 0.901; 0.725; 0.913; 0.713. It is known that the extracted variance value is ≥ 0.50 for all variables so that it can be stated that this data is feasible to use.

4.4 Estimated Structural Equation Model

After the model is analyzed using confirmatory factor analysis and it can be proven that each indicator can define latent constructs, then a full SEM model can be analyzed. The result of processing using AMOS can be seen in Figure 2.

SEM of The Increase of OCB, through Islamic Work Ethics, Affective Commitment, and Organizational Identity

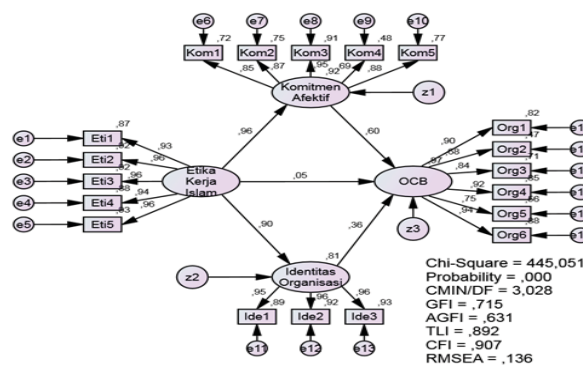


Figure 2. Full Structural Model

4.5 Hypothesis Test

Hypothesis test that has been proposed is done by looking at the value of CR at regression weights on AMOS text output. If the critical ratio (CR) of an estimate or coefficient ≥ 2 , it can be concluded that the resulting regression coefficient is significant (Ferdinand, 2005: 37).

The whole acceptance and rejection of the hypothesis are presented in the following table 2:

Table 2. The Acceptance and Rejection of Hypothesis

Hypothesis	C.R.	Cut of Value	Significance	Conclusion
Islamic work ethics has a significant effect on affective commitment	13,730	2	Significance	Accepted
Islamic work ethics has a significant effect on organizational identity	16,240	2	Significance	Accepted
Islamic work ethics has a significant effect on OCB	0,311	2	Not Significance	Rejected
Affective commitment has a significant effect on OCB	3,714	2	Significance	Accepted
Organizational identity has a significant effect on OCB	4,447	2	Significance	Accepted

5. Discussion

The first hypothesis, Islamic work ethics with CR 13.730 > cut of value 2 has a significant effect on affective commitment, meaning that with the increasing practice of Islamic work ethics, it will increase employees' affective commitment to the organization. The result of this study is consistent with the result of Yousef (2000) and Nizam *et.al* (2016).

The second hypothesis, Islamic work ethics with CR 16.240 > cut of value 2 has a significant effect on the organizational identity, meaning that with the increase of Islamic work ethics practice, it will improve organizational identity. The result of this study proved the opinions expressed by Himam (2012) which states that the values held by members of the organization can develop as a differentiating organizational identity between one organization to another. In this study, these values are Islamic work ethics.

The third hypothesis, Islamic work ethics with CR 0.311 < cut of value 2 has no significant and positive effect on OCB, meaning that the increase of Islamic work ethics practice will increase OCB insignificantly or it can be said that there is no influence of Islamic work ethics on OCB. The result of this study is in accordance with Alhyasat (2012) in terms of dimensions of expertise, responsibility, fairness, collaboration does not significantly influence OCB.

The fourth hypothesis, the affective commitment with CR 3.714 > cut of value 2 has a significant effect on OCB, meaning that the increase of affective commitment will increase OCB. The result of this study is in accordance with the study result by Subejo *et.al* (2013).

The fifth hypothesis, organizational identity with CR 4.447 > cut of value 2 has a significant effect on OCB, meaning that the increase of organizational identity will increase OCB. The result of this study is in accordance with the study result of Amini *et.al* (2016).

6. Conclusion

Islamic work ethics has a significant and positive effect on the affective commitment which means that the increase of the application or practice of Islamic work ethics will increase employees' affective commitment to the organization. Islamic work ethics has a significant and positive effect on the organizational identity, meaning that the increase of application or practice of Islamic work ethics will enhance organizational identity. Islamic work ethics has no significant effect on OCB.

Affective commitment has a significant and positive effect on OCB, meaning that the increase of affective commitment will increase OCB behavior among employees. Organizational identity has a significant and positive effect on OCB, meaning that the increase of organizational identity will increase OCB among employees.

6.1 Managerial Implication

In line with Islamic work ethics, expertise is not considered too important by employees. Therefore, the organizations should be able to increase awareness of the importance of mastering expertise or strengthening the perception that capacity and expertise are very important. It can be initiated in the recruitment employees process

which prioritizes the consideration of mastery of the person (person-job fit) beyond consideration of the suitability of value with the organization (person-organization fit). Furthermore, providing opportunities and encouraging employees to improve their expertise, for example, by holding knowledge sharing activities among employees, implementing training programs, and providing scholarships to continue to higher education or mastery of certain skills.

Regarding the identity of the organization, organizations should be able to publish information about improving infrastructure and supporting facilities both in function, capacity, and appearance to the public through effective media. Besides that, carrying out intensive public relations and external communication activities by making each employees as a "spokesperson" or "organization ambassador" and improving social assistance programs or free treatment for the community.

Related to OCB, organizations should be able to increase the initiative of each employee by encouraging them to be active in organizational knowledge management according to their level and authority, encouraging employees to be active in meetings and participate in a discussion of organizational decisions through participatory management.

Regarding effective commitment, organizations should be able to improve their sense of belonging to the organization by carrying out activities to improve their sense of family or give personal attention or appreciation, encourage the increased of togetherness among employees with employee gathering, traveling and providing opportunities for the formation of informal groups of employees based on hobbies and so forth.

6.2 Future Research Agenda

There needs to be replication research involving the dimensions or indicators of Islamic work ethics that are able to provide deeper and specific explanations. Future researches need to develop a more comprehensive model involving other variables such as knowledge sharing and collaboration capability related to OCB that may have a greater influence on OCB.

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