THE INFLUENCE OF INTELLECTUAL CAPITAL AND INNOVATION ON PERFORMANCE OF AGRICULTURAL INSURANCE COMPANIES OF IRAN

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This thesis is dedicated to my late father; Hajj. Rahim Rahmani Karchegani, who about 35 years ago told me that he would support my study even by selling his coat (He died during my PhD study).

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ABSTRACT

The 21st century, which is known for its knowledge-based economy, performance of companies is still one of the continuously discussed topics in strategic management field. As knowledge intensive company, performance of insurance companies is affected by factors such as intellectual capital (IC) as intangible assets and innovation as intangible activities. However, IC and innovation are very important to the profitability of this kind of business, but contemporary literature remains scant on the role of these factors in influencing the performance of insurance sector. Thus, this study fills this existing gap by empirically investigating the mediating effect of innovation on the relationship between IC and companies' performance. This study undertook a comprehensive examination of the relationship among IC components, innovation and companies' financial, non-financial, and overall performance. The subject of the study is the agricultural insurance companies in Iran. Data were collected through a questionnaire survey of 294 agricultural insurance companies and analysed using correlation, simple regression and multivariate regression methods to disclose the relationship between three constructs of the study using Statistical Package for the Social Sciences (SPSS) software. Accordingly, the framework of the study was tested through confirmatory factor analysis and path analysis methods of Structural Equation Modelling (SEM) with the aid of Analysis of Moment Structures (AMOS) software. Findings of the study show that IC and its components are positively related to the innovation which is positively linked to the companies' performances. The results also indicated a partial mediation role of innovation in the relationship between IC components and overall companies' performance. Based on the results, innovation partially mediated the relationship between IC and both financial and non-financial performance. However, innovation fully mediated the relationship between IC and the overall performance. The study has shown that IC and innovation are two important variables to improve performance of the agricultural insurance companies in Iran. Thus, managers of insurance companies should pay more attention to disclose, measure, report

and manage their IC and innovative capabilities to better achieve the goals of their companies.

ABSTRAK

Pada abad ke 21 yang dikenali sebagai ekonomi berasaskan pengetahuan, prestasi syarikat masih menjadi salah satu topik yang sering dibincangkan dalam bidang pengurusan strategik. Sebagai syarikat berintensifkan pengetahuan, prestasi syarikat insurans dipengaruhi oleh faktor-faktor seperti modal intelektual (IC) sebagai aset tak ketara dan inovasi sebagai aktiviti tak ketara. Walau bagaimanapun, IC dan inovasi adalah penting kepada keuntungan jenis perniagaan ini, namun literatur semasa masih kurang mengenai peranan faktor-faktor ini dalam mempengaruhi prestasi sektor insurans. Maka, kajian ini mengisi kekosongan yang wujud dengan menyiasat secara empirik kesan pengantara inovasi ke atas hubungan di antara IC dan prestasi syarikat. Kajian ini menjalankan satu pemeriksaan komprehensif mengenai hubungan di kalangan komponen IC, inovasi dan kewangan syarikat, bukan kewangan dan prestasi keseluruhan. Subjek kajian ialah syarikat insurans pertanian di Iran. Data telah dikumpul melalui tinjauan soal selidik ke atas 294 syarikat insurans pertanian. Data telah dianalisa menggunakan kaedah korelasi, regresi mudah dan regresi multivariat bagi menunjukkan hubungan antara tiga konstruk kajian melalui perisian Statistical Package for the Social Sciences (SPSS). Seterusnya, rangka kerja kajian telah diuji melalui analisa faktor pengesahan dan kaedah analisa laluan pemodelan persamaan struktur (SEM) dengan bantuan perisian Analysis of Moment Structures (AMOS). Hasil kajian menunjukkan IC dan komponennya secara positif berkait kepada inovasi yang dihubungkan secara positif terhadap prestasi syarikat. Keputusan juga menunjukkan peranan pengantara separa inovasi dalam hubungan di antara komponen IC dan keseluruhan prestasi syarikat. Berdasarkan keputusan, inovasi mengantara secara separa hubungan antara IC dan kedua-dua prestasi kewangan dan bukan kewangan. Namun inovasi mengantara secara penuh hubungan antara IC dan prestasi keseluruhan. Kajian telah menunjukkan bahawa IC dan inovasi adalah dua pemboleh ubah penting untuk meningkatkan prestasi syarikat insurans pertanian di Iran. Maka, para pengurus syarikat

insurans harus memberi lebih perhatian bagi mendedah, mengukur, melapor dan mengurus IC dan keupayaan inovasi bagi mencapai matlamat syarikat mereka.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIF	-	Agricultural Insurance Fund
AMOS	-	Analysis of Moment Structures
BP	-	Business Perspective
BSC	-	Balanced Scorecard
CEO	-	Chief Executive Officer
CFA	-	Confirmatory Factor Analysis
CP	-	Customer Perspective
FL	-	Factor Loadings
FP	-	Financial Perspective
FFP	-	Financial Firm Performance
GOF	-	Goodness of Fit indices
HC	-	Human Capital
HRM	-	Human Resource Management
IC	-	Intellectual Capital
INO	-	Innovation
KBV	-	Knowledge-based View
LP	-	Learning and Growth Perspective
MI	-	Marketing Innovation
OECD	-	The Organization for Economic Co-operation and Development European
OI	-	Organizational Innovation
NFP	-	Non-financial Firm Performance
OP	-	Overall Firm Performance
PI	-	Process Innovation
RBV	-	Resource-based View
RC	-	Relational Capital

R&D	-	Research and Development
SC	-	Structural Capital
SEM	-	Structural Equation Modeling
SI	-	Service Innovation
SpC	-	Spiritual Capital
SPSS	-	Statistical Package for Social Sciences
VRIN		Valuable, Rare, Inimitable and Non-substitutable

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Overview

Firm performance is an obvious indicator of a firm's success within an industry. It is influenced by many factors, such as selected business definition, size of enterprises, structure of organizational resources, policies and strategic planning, and Human Resource Management (HRM) practices. Therefore, the management of organizations should carefully monitor, measure, report and manage firm performance based on the nature of their business (Houthoofd *et al.*, 2010). Karanja (2011) suggested that in order to improve the firm's profit, it must be capable of offering products and services with high quality at low cost in a competitive environment. Further, Iazzolino et al. (2013) believed that many companies have responded to these competitive demands by implementing advanced manufacturing technologies and innovative managerial practices, emphasizing quality and product delivery, and being flexible to meet the stakeholder needs.

In this perspective, the structures of organizational resources have shifted from material to intangible assets during the last two decades. Accordingly, many proponents assert that the *"Product-based Economy"* and *"Retail Economy"* have been converted to the *"Knowledge-based Economy"* (Alcaniz *et al.*, 2011; Cambra-Fierro *et al.*, 2011; Cañibano *et al.*, 2000; Fagerberg *et al.*, 2012; Huang and Kung, 2011; Jalali *et al.*, 2013; Nonaka *et al.*, 1996). The authors claimed that *"Knowledge"* and *"Intellectual Capital"* (IC) are two vital intangible assets that help organizations create value and wealth in this *"Knowledge-based Economy"* (Augier and Teece, 2005; Marr, 2005a), and recently, the scholars have stated that IC is more and more

recognized as a cause of firm performance, which stands for the *"Value Creation"* impending of human, structural and relational capital and their relations (Abhayawansa and Guthrie, 2014). They also believed that with knowledge critical to network society, information technology, innovation and creativity, IC has become a vital source of value added for organizations and economic situations.

In addition, IC is a highly discussed topic within the field of knowledge management. Edvinsson and Sullivan (1996) suggested that knowledge firms derive their profit from innovation and knowledge-intensive services, and that such firms are called high IC firms. Examples of high IC firms are law firms, consulting firms, financial services firms and media companies (Edvinsson and Malone, 1997) as well as software companies, banks, insurance companies and hotels (Rosenbusch *et al.*, 2011). In comparison, IC scholars have asserted that low IC firms do not invest highly in IC in their organizations and do not apply knowledge properly, thus, knowledge, structures and relationships could not be used, in such firms as drivers to create value added (Sofian *et al.*, 2004). Therefore, Nik-Muhammad and Ismail (2009) asserted that in the knowledge-based economy, the IC of organizations is pivotal for gaining competitive advantage. In line with its importance, Usoff et al. (2002) also suggested that firms with high IC are more likely to use performance measures for the determination of a manager's compensation. Thus, organizations must develop procedures that capture IC and change their traditional performance measurement system in order to achieve long-term success.

Theoretically, IC scholars suggested that IC is an important factor for knowledge creation and innovation (Edvinsson *et al.*, 2004). In today's organizations, knowledge and innovation are acknowledged to be two drivers of competitive advantage for increasing financial and non-financial organizational performance (Aas and Pedersen, 2011; Amidon, 1997, 2003a; Andriessen, 2004b; Bontis, 2002; Brown, 2009; Chan, 2009; Ismail, 2005; Kramer *et al.*, 2011; Marr, 2005a; Tayles *et al.*, 2007). Human resource scholars have also noted that IC leads to innovative creation, which, in turn plays a significant role in influencing firm performance (Santoso, 2012; Sharabati *et al.*, 2010; Spahić and Huruz, 2012; Wang and Wang, 2012; Wiig, 1997).

Amidon (2003b) believed that at the beginning of the third Millennium, innovation is not only the source of competitive advantage, but will also play a significant role in the next wave of influence, which is known as "*Collaborative Advantage*". Additionally, Rose et al. (2009) noted that innovation has been known as being an essential driver of economic improvement, and enables companies to offer new products and services with better-quality at a lower price. Edvinsson (2004), Vincent et al. (2005), and Kramer (2011) emphasized that being innovative is necessary for a firm to create a sustainable competitive advantage in today's turbulent environment. On the other hand, Augier and Teece (2005) believed that organizations which do not have any plans to discover and manage their IC will face unwanted consequences. Based on a multidisciplinary literature review of IC, Alcaniz et al. (2011) and Marr (2005b) concluded that the IC concept has emerged from the work of various scholars from different disciplines, such as "*Economics*", "*Strategy*", "*Accounting*", "*Finance*", "*Human Resources*", "*Marketing*", "*Legal*", and "*Information System*". Thus, IC and innovation have appeared as two crucial and vital resources to increase firm performance (Brown, 2009; Zschockelt, 2009), what companies must disclose and manage them well to succeed.

In light of the above discussion, this study has highlighted the IC components that foster innovation in insurance companies in order to improve firm performance. This is a pioneer study, which focuses on the mediating effect of innovation between IC and firm performance in the agricultural insurance sector of Iran.

1.2 Background of the Study

There are different perspectives for identifying and recognizing IC in organizations. For example, from the economics perspective, Augier and Teece (2005) provided a historical overview of the growing significance of knowledge and IC as a driver for "*Innovation*" and "*Research and Development*" (R&D) activities, which, recently, was confirmed by Abhayawansa and Guthrie (2014). Also, Johanson (2005) elucidated the role of IC from the HRM perspective. The authors defined IC

in these contexts and then discussed various tools developed to manage IC. Marr and Roos (2005) stated the strategic importance of IC resources and differentiated between the static and dynamic nature of the assets. These IC proponents argued that the development of strategy from a market-based to a resource-based paradigm is based on IC. Earlier, Stewart (1997) stated that IC is everything that has been known by individuals and what they have given individuals to organizations. It is supposed to be the source of organizational competitive advantage. IC incorporates intellectual material such as *"Knowledge"*, *"Skills"*, *"Experience"*, *"Information"*, *"Intellectual property"*, *"Networks"*, *"Brand"*, *"Copyrights"* and *"Expertise"*, which create wealth for companies. Thus, for corporations and in the macro view of societies, IC is essential for a smooth transition from the industrial era to the information and knowledge era (Iswatia and Anshoria, 2007).

A number of scholars have recognized the positive relationship between IC and firm performance as a key factor for the success of a knowledge-intensive business (Bontis, 1999; Bontis *et al.*, 2000; Edvinsson, 1997; Ismail, 2005; Kianto *et al.*, 2010; Komnenic and Pokrajcic, 2012; Ling, 2012; Maditinos *et al.*, 2011; Roos *et al.*, 2004; Sullivan, 1999). Further, Brown (2009), Bontis and Serenko (2009), Laforet (2011), and Yitmen (2011) focused on the characteristics of IC (or intangible assets) as a focal point of the characteristics, which foster and develop innovation and creativity in organizations. Therefore, visually, the concept of IC constitutes a large and growing body of theoretical and empirical research with a multidisciplinary term in knowledge management. Augier and Teece (Augier and Teece, 2005) believed that growing recognition of the importance of knowledge and intangible assets, their tacit nature, and the desire to understand what creates a competitive advantage for a firm, have stimulated many diverse streams of research on technological innovation and knowledge management.

In addition, scholars have stated that organizational knowledge plays a crucial role through the creation of innovative activities that influence firm performance (Amidon, 1997, 2003b; Andriessen, 2004b; Brockmann and Anthony, 1998; Egbu, 2004; Hormiga *et al.*, 2011; Jinchveladze *et al.*, 2009; Nonaka *et al.*, 1996). Similarly, several studies have been conducted on the direct effect of innovation on

firm performance (Aas and Pedersen, 2011; Bowen *et al.*, 2010; Cambra-Fierro *et al.*, 2011; Chen and Wang, 2010; Gopalakrishnan, 2000; Gunday *et al.*, 2011; Jiménez-Jiménez and Sanz-Valle, 2011; Laursen and Salter, 2006). Many organizational innovation specialists view innovation as a powerful explanatory factor behind the current differences in the performance of organizations, and they assert that it must be known and managed (Fagerberg *et al.*, 2012; Luecke and Katz, 2003; Vincent *et al.*, 2005; Weiser, 2003).

In this respect, researchers have mainly focused on the relationship between different dimensions of innovation, such as radical, incremental, process, product, horizontal, vertical and firm performance (Cainelli *et al.*, 2004; Kemp *et al.*, 2003; Rosenbusch *et al.*, 2011; Wang and Wang, 2012). Asa and Pedersen (2011) discovered that firm performance in the service sector is influenced more by innovation than in firms in the manufacturing sector. However, the service sector has received less attention from scholars in the field of innovation (Amidon, 2003b; Bowen *et al.*, 2010; Gonin *et al.*, 2011; Walker *et al.*, 2011; Zschockelt, 2009). In this respect, Aas and Pedersen (2011) investigated whether firms that focus on service innovation perform better financially than firms that do not focus on service innovation, because the researchers found that innovation has a direct positive impact on the financial performance of service companies.

Further, in recent years, a major shift has been witnessed in the innovation field concerning how various innovative activities boost firm performance through human, structural and relational capital three components of IC (Edvinsson *et al.*, 2004; García-Álvarez *et al.*, 2011; Ismail, 2005; Zschockelt, 2009). While, from the Resource-based View (RBV) of the firm theory, any effort exerted to determine the relationship between IC and innovation among both managers and employees within an organization can be one step forward to disclose the important effects of IC as intangible assets on HRM practices (Jinchveladze *et al.*, 2009) to growing profitability and performance of firms. An in-depth review of the literature showed that only a few empirical studies have focused on the influence of innovation in the relationship between IC and financial business performance (Brown, 2009; Kamukama *et al.*, 2010; Osman, 2014), particularly in the insurance industry.

The main mission of the insurance industry is to provide exceptionally secure investment opportunities to investors (Alipour, 2012; Mahul, 2011). Thus, the management tries its level best to offer secure and innovative products to their customers (Mills, 2009). Economists believe that in order for insurance companies to successfully accomplish their goals to boost their firm performance, they must manage their IC, such as human capital (HC) and SC for structural capital (Mahul, 2011; Mahul and Stutley, 2010; Mills, 2009).

Researchers have shown that in the insurance industry, which is a subset of the financial sector, the IC components have a significant positive relationship with firm profitability. Some insurance companies, such as Skandia in Sweden (Edvinsson, 1997), Panin in India (Ordoñez de Pablos, 2005), Insurance Association in Pakistan (Ul-Rehman et al., 2011), Indonesian insurance companies on the Jakarta Stock Exchange (Iswatia and Anshoria, 2007), and Malaysian insurance companies (Nik-Muhammad and Ismail, 2009), have improved their performance by realizing and understanding the importance of IC and reporting it in their business. Additionally, scholars believe that financial companies like insurance and banks, which have been acknowledged to be knowledge-intensive firms, must focus on innovation to increase their performance (Ul-Rehman et al., 2011). Recently, Yeganeh et al. (2014) found that in Iran there is a difference between private and public insurance companies in terms of IC and that private insurance companies are more advanced in this regard. The authors also determined that among the components of IC, human capital plays a major role in insurance companies as knowledge intensive organizations, and is considered to be the most important competitive advantage factor in today's knowledge-based economy.

Harvesting from the above discussion, this study focuses on the IC components that encourage innovation to influence the financial and non-financial performance of the Iranian agricultural private insurance companies. The findings of this study revealed the extent to which the identification of the internal (human, structural, relational and spiritual capital) and external components of IC are important in the performance of agricultural insurance companies in Iran. The

findings of this study also paved the ways for top managers of insurance companies to improve overall service quality thereby making their companies more profitable.

This study has achieved its main aim to examine the influence of IC components on the firm performance and to investigate the mediating role of innovation on this relationship, especially in the agricultural insurance sector of Iran.

1.3 Importance of Insurance Services in Iranian Agricultural Sector

Iran's economy has a number of key sectors. In 2008, the services sector, including financial services, represented about 44% of Iran's economy. Agriculture continues to be one of the economy's largest employers, representing one-fifth of all jobs based on a 1991 census. Iran's economic sectors remain heavily dominated by the state, but there are some privatization efforts under way (Ilias, 2010). In Iran same as many others developing countries, the agricultural sector is a critical economic sector of livelihood as important creator of food security in the country. Normally, agricultural producers are often vulnerable to the effects of adverse natural events, such as pest and bird attacks, various natural disasters, unfavorable weather conditions (drought, hail, flood, heat, storm and hot wind), and so on. In fact, these conditions have significant negative impacts on agricultural production. Therefore, governments, through agricultural insurance services, provide assistance and sustainability situation to agricultural producers who successfully develop risk management and adaptation strategies to survive these unfavorable events. Actually, these conditions have significant negative impact of agricultural production.

Arguably, this makes agricultural insurance an important financial service that is needed for a comprehensive agricultural risk management strategy in developing countries (Mahul, 2011). Although, in some developing countries, agricultural insurance services have been offered for more than a century, this kind of insurance service remains under serviced in middle- and low-income countries. However, since the late 1990s, reduced government funding for agricultural

producers in emerging markets has heralded renewed interest in agricultural insurance. A recent study conducted by the World Bank revealed that various agricultural insurance schemes are in place in more than 100 countries, either as well-developed programs or pilots (Mahul and Stutley, 2010).

In a similar vein, and as part of an overall agricultural risk management framework, the global financial network supports the development of agricultural insurance schemes. In these schemes, developing countries are also assisted with the necessary institutional and capacity-building support to design and implement traditional and innovative agricultural crops and livestock insurance services. The World Bank also plays a role in forming agricultural insurance pools in various countries across the world in the past twenty years.

In a general sense, these projects are usually linked to supportive efforts in agricultural extension and financing to more agricultural products to successful economic independence for developing countries (Mahul and Stutley, 2010). Mahul (2011) argued that the potential role of agriculture insurance in emerging economies is being revisited due to the notable expansion of agricultural risk modeling techniques and the materialization of a number of insurance corporations and index-based insurance. It was thus suggested that the innovativeness of insurance for agricultural products might reduce the economic returns to farmers, herders, agricultural financing institutions, and governments in the case of unfavorable natural events. This may be particularly true for developing countries, which rely heavily on their agricultural sector.

However, Roberts (2013) posited that the management of insurance companies, as well as business firms, has several developmental stages. These include market identification; service development; marketing; setting indemnity and premium levels; collecting premiums; and handling claims. However, the extent of involvement of the public sector varies from country to country. Roberts (2013), further contended that it always has a role, even if this is exercised mainly through setting supportive and regulatory policies. It may be particularly important in the

early stages of the development of the agricultural insurance sector, as well as in situations where financial support is considered both desirable and possible.

Agricultural insurance has known as a professional area of insurance services that is technically demanding. Among the many challenges in the insurance industry are maintaining the skills and expertise of the underwriter and loss adjuster, as well as the reinsure levels, not only to provide adequate levels of insurance, but also to assist the agricultural sector improve its risk-management practices to enhance production in each relative country.

There is no single universal insurance service that meets all the demands of producers. Each agricultural insurance service is suitable for a certain set of conditions. The assessment of the suitability of any agricultural insurance service has to consider the agricultural production system, the type of asset to be covered, the key peril to which the insured is exposed, the risk location, data and information availability, farmer size, delivery and loss adjustment needs, and distribution channels of insurance services. In fact, in insurance companies, employees, as human resources, play an important role in building competitive advantage for the sustainability of their firms. For instance, the insurance trend is constantly dynamic, changing as lifestyle changes. Once changes in insurance patterns are identified, the onus lies on employees to develop new services that match the expectation of consumers.

In such situations, knowledgeable employees rise to the occasion with creative and innovative ideas to meet the desires of consumers. As a result, the introduction of technical, customized insurance services in the market may enable a firm to gain competitive advantage over its contemporaries and competitors. Arguably, such a company tends to eventually occupy a greater market share in the insurance industry.

1.3.1 Agricultural Insurance Fund of Iran

In Iran headquarter of the agricultural insurance sector is called the *"Agricultural Insurance Fund"* (AIF), which was established by the Iranian government in 1982 (A.I.F, 2013) into the Agricultural Bank of the country. At this time, the AIF is a unique agricultural insurance organization, which delivers insurance services to coverage agricultural products, while other 27 insurance companies in the country have not any insurance services for agricultural products in Iran. The AIF, which is managed by the governmental headquarters, located in Tehran, extends its administration to 32 states across the country through approximately 775 branches of the Agricultural Bank, and 294 agricultural insurance firms, which are active as insurance brokers of the private sector in Iran (Table 1.1). The AIF is as the headquarter of the agricultural insurance services, which have supervising, coordinating, and controlling role in professional activities of private insurance firms to better regulation insurance services in all 32 states of the country. Table 1.1 compares demographic situation of the government and the private sector of agricultural insurance services in Iran as below:

Table 1.1: Demography of the Employees in Agricultural Insurance Sector in Iran

Dependency	Organizational Division	Location	Job Title of Employees	Number of Employees
Governmental Sector	Headquarter (A.I.F)	Tehran (Capital of Iran)	Board of Director Member	5
			Department Manager	12
			Staff of the Headquarter	148
	Provincial Branch	32 States (Across the Country)	Administrator	32
			Insurance Expert	1030
Private Sector	Agricultural Insurance Firm	32 States (Across the Country)	Top/Senior Manager	294
			Insurance Expert	4650
Total Employees				6171

Source: Annual report of Agricultural Insurance Fund (2013)

The AIF is designated to make the insured producer transfer a major portion of their growing risk to a multi-peril crop insurance, which, in turn, spreads the risk among many producers over time. The main mission of the AIF in the nation, in concert with its vision of development by year 2020, is to develop diversity and increase the quality of insurance services across the country. However, according to the official statistics (World Bank, 2014), there are more than 23 million rural people constituting 4.8 million producer farms (small, medium, and large farms) in the agricultural sector throughout the country, of which only 2.3 million are insured (A.I.F, 2013). Thus, to achieve the aspiration of making Iran a developed program in the agriculture sector, and to survive in a highly competitive and challenging business environment, the AIF has to improve its compatibility through increasing human resource competency and managing innovation.

1.3.2 IC and Innovation in Insurance Companies

Ul-Rehman et al. (2011) believed that knowledge is in abundance in insurance companies and that they are known for being good in creating knowledge and for knowledge-based acquisition. Although IC is extensively researched in large organizations, it is yet to be explored in-depth in insurance companies. Given the fact that competitive advantage is becoming critical in the knowledge-based economy, an approach that uses *"Knowledge Management"* and performance to effectively achieve this purpose is increasingly popular. More and more companies, which are trying to explore optimal methods of managing knowledge-based assets, usually consider IC as a means to evaluate their performance (Subramaniam and Youndt, 2005). The customers of these firms, as well as the insured, regulators, shareholders, and brokers are eager to see insurers offer more and new services that extend coverage to the economic activities, expand their efforts to improve disaster resilience and be proactive in terms of the threat of climate change (Mills, 2009).

The first empirical analysis concerning the relationship between IC and firm performance was in the Skandia report compiled by a Swedish insurance company

by Edvinson and Malone (1997). However, review of the literature in this study illustrates that only a few studies have been undertaken on the evaluation of IC and its comparison in insurance industry, but these studies confirmed that IC influences the performance of this kind of business (Table 1.2). According to Kong (2010b), based on the emerging economic conditions, more recent concerns about the concept of IC have shifted to analyze what and how various innovative attributes influence firm performance through IC components, such as human, structural, and relational capital.

Investigation concerning employees' innovation in insurance companies is particularly interesting. This is because, although in previous studies, the researchers have already analyzed the relationship between IC and innovation (Pardede, 2010) as well as the linkage between innovation and firm performance (e.g. Bowen *et al.*, 2010; Cambra-Fierro *et al.*, 2011; Cassia *et al.*, 2009; Freel and Robson, 2004; Gopalakrishnan, 2000; Medina and Rufin, 2009; Ogbonna and Harris, 2003; Vincent *et al.*, 2005), to date, complex investigation into the relationship among IC, innovation, and firm performance in insurance companies has not been conducted. Based on the research findings by Chen and Chen (2005), evaluation and improvement of knowledge management performance is often promoted, particularly in companies within the life insurance industry. Widén-Wulff and Suomi (2007) explored how Finnish insurance companies share organizational knowledge. Their analysis showed that effective knowledge sharing positively correlates with business success in the insurance companies under consideration.

Table 1.2: Previous Researches on IC in Insurance Industry

Author/s Year Country	Title of the Study	Findings
Skandia (1996) Sweden	-Visualizing Intellectual Capital in Skandia	-IC is as hidden assets in the company
Iswati and Anshori (2007) Indonesia	-The Influence of Intellectual Capital to Financial Performance at Insurance Companies in Jakarta Stock Exchange	-IC rests on a potential link between IC on one hand and corporate performance on the other hand. Companies will grow up if a growing number of physical capitals in the same line with a growing number of IC.
Ak and Öztayşi	-Performance Measurement	-Financial perspective is not enough to

(2007) Turkey	of Insurance Companies By Using Balance Scorecard and Analytical Network Process in	explain an insurance company performance
Appuhami (2007) Thailand	-The Impact of Intellectual Capital on Investors' Capital Gains on Shares: An Empirical Investigation of Thai Banking, Finance & Insurance Sector	-IC has a significant positive relationship with its investors' capital gains on shares. His finding indicated enhance the knowledge base of IC and develop a concept of IC in achieving competitive advantages in emerging economies such as Thailand's.
Chen and Chen (2010) Taiwan	-How to Manage Knowledge Well? Evidence from the Life Insurance Industry	-Companies in the life insurance industry are encouraged to successfully evaluate and improve knowledge management performance to bring about radical change in the existing state of affairs and to develop future strategies efficiently and solidly.

(Continued)

Table 1.2: (Continued)

Author/s Year Country	Title of the Study	Findings
Pardede (2010) Indonesia	-An Investigate on Effect of Intellectual Capital on Financial Performance in the Insurance Companies listed on the Jakarta Stock Exchange	-IC influence on Financial Performance in the insurance companies.
Ul Rehman (2011) Pakistan	-Intellectual Capital Performance and its Impact on Financial Returns of Companies: An Empirical Study from Insurance Sector of Pakistan	-The results have shown that human capital efficiency plays a significant role in IC performance of both life and non life insurance sector. The firm having more efficient people means having better performance of IC. Where as a significant and positive relationship was measured between value added creation and financial performance.
Alipour (2012) Iran	-The Effect of Intellectual Capital on Firm Performance: An Investigation of Iran Insurance Companies	- The findings confirmed that value added intellectual capital and its components have a significant positive relationship with companies' profitability. Insurance companies better to benchmark themselves according to the IC efficiencies and develop strategies to enhance their company's performance.
Lu et al. (2014) China	- Intellectual Capital and Performance in the Chinese Life Insurance Industry	- Intellectual capital is significantly positively associated with firm operating efficiency and IC can make a company rich. Insurers' managers should invest and fully utilize IC to gain a competitive advantage.
Yeganeh et al. (2014) Iran	- A Survey of Intellectual Capital in Public and Private Insurance Companies of Iran Case: Tehran City	- The type of ownership of the insurance companies only has significant effect on human capital and has not any significant effect on structural and relational capital. The type of ownership of the insurance companies has significant effect on IC and

		that the condition of IC in private insurance companies is more appropriate compared with public insurance companies.
Chen et al. (2014) Malaysia	-Intellectual Capital and Productivity of Malaysian General Insurers	- The regression analysis reveals that IC, namely VAIC (Value Added Intellectual Coefficient) and its individual components (VAHC, SCVA, and VACA) and individual components have significantly positive impacts on changes in productivity. Thus, the researchers suggest that general insurers in Malaysia should invest in IC, including to improve their managerial skills, to gain sustainable growth in productivity.

Appuhami (2007) investigated the impact of IC on investors' capital in the Banking, Finance and Insurance Sector of Thailand and found that IC had a significant positive relationship with its investors' capital gains on shares. The finding indicates that an enhancement of the knowledge base of IC and development of its concept enhances the achievement of competitive advantage in an emerging economy. However, Chen and Chen (2005) noted two main observations in the life insurance industry in Taiwan. First, it is one of the main mechanisms that could significantly exert its effect on the Taiwanese economic growth; and, second, the knowledge is needed for high performance itself. Furthermore, the results of a study by Pardede (2010) showed that IC influences financial performance in insurance companies in Indonesia.

Although, a number of studies have focused on the IC concept, particularly in the IT and financial sector in various countries, Alipour (2012) believed that there is a lack of both theoretical and empirical studies on IC in the Iranian insurance sector. However, the researcher stated that, in Iran, IC studies on the other sectors are still weak and limited. While, at the same time, the hypotheses concerning whether the Iranian insurance industry focuses on IC remains ambiguous.

1.4   Problem Statement

In insurance sector, profitability is vital point to success and achieving their goals that affects by various factors such as size and/or age of enterprise, structures, policies, strategics, rules, routines, structure of organizational resources, quality of services, customer/employees satisfaction, and human resource management practices (Houthoofd *et al.*, 2010). In knowledge-based economy, that started since beginning of the 21st century, some researchers have shown that in the service provider firms such as insurance companies, banks, hotels, consulting firms, which are called high IC firms, their performance is more related to their IC and innovativeness capabilities compared to implementation of IT, tools, machines and hardware (Edvinsson *et al.*, 2004; Usoff *et al.*, 2002).

Therefore, IC and innovation have received considerable attention and have become well recognized as two worthy factors in the business studies in across the world (Amidon, 2003b; Besharati *et al.*, 2012; Bollen *et al.*, 2005; Brown, 2009; Canibano *et al.*, 1999; Chen *et al.*, 2015; Dickson, 2007; Edvinsson *et al.*, 2004; Egbu, 2004; Grajkowska, 2011; Hervas-Oliver *et al.*, 2011; Intan-Soraya and Chew, 2010; Jafari *et al.*, 2011; Jinchveladze *et al.*, 2009; Kramer *et al.*, 2011; Ngah and Ibrahim, 2009; Wu *et al.*, 2008; Yitmen, 2011; Zerenler *et al.*, 2008; Zschockelt, 2009). Conversely, insurance companies, which have known as knowledge-based companies, have not given sufficient attention to disclose, measure and report of IC and innovation capabilities in their businesses yet. Thus, focusing on relationship between IC and innovation in insurance companies is very suited study.

On the other hand, in recent years like other countries IC has become an interesting subject among Iranian researchers (Ahangar, 2011; Ahmadi *et al.*, 2011a; Ahmadi *et al.*, 2011b; Dolat-Abadi and Tavakoli, 2011; Hassani and Mortazavi, 2014; Iranmahd *et al.*, 2014; Khani *et al.*, 2011; Mehralian *et al.*, 2012; Meihami and Karami, 2014; Mosavi *et al.*, 2012; Norozi *et al.*, 2013; Piria *et al.*, 2014; Yaghoubi *et al.*, 2010; Yeganeh *et al.*, 2014), but no study has been done on disclosing and reporting of IC in the agricultural insurance sector in this country.

However, Mobasheri (2010) claimed that most of the IC studies in Iran provided an understanding of where the organizations are situated relative to international terms (Boroujerdi, 1996) and just a few studies have tried to utilize some measures of reporting and managing of IC in Iran, such as Moslehi et al. (2006), Sharifi and Taleghani (2011) and Damirchi et al. (2012). The dearth of empirical research in the Iranian agricultural insurance sector affects the general ability of the findings from earlier studies to this sector.

Based on the above discussion, the major concern of this study is to investigate the effect of IC and innovation on performance of insurance companies in Iran. Because an acknowledgement and a critical understanding of IC as intangible assets in insurance companies can enhance their organizational innovation as intangible activities. This is so because IC and innovativeness are perceived and considered to be sources of competitive advantage for insurance companies, which have known as knowledge-based companies.

In light of the above, it could be concluded that the existing literature on IC components and organizational innovation is inconclusive; thereby indicating that the insurance industry in Iran particularly insurance services in the agricultural sector, needs an in- depth investigating. Therefore, this study has filled this knowledge gap by an investigation on the influence of IC components on the performance through mediating role of innovation in the agricultural insurance companies in Iran. Issues related to the main area of this study were addressed as follows:

1.4.1 Influence of IC on Firm Performance

Based on the background of the study, IC scholars have reported that enterprises, that managed their IC better have a stronger competitive advantage than those that do not, and based on the reports, it could be concluded that the companies that manage their IC well, tend to perform better than those companies that do not. IC scholars have also often considered the impact of three components of IC

(Human, Structural and Relational Capital) on firm performance, while, Ismail (2005) suggested "Spiritual Capital" as the fourth element of IC in determining the impact of IC on the firm performance. However, there are very few studies on spiritual capital. Harvesting from the above discussion, the following two issues were raised and examined:

- Does IC significantly influence performance of the agricultural insurance companies in Iranian?

- Which one of the IC components has the strongest impact on overall firm performance of the agricultural insurance companies in Iran?

1.4.2   Influence of Innovation on Firm Performance

Innovation is an attempt to develop new business opportunities that generate a platform for competitive advantage (Andersen, 2008). Because, according to Oslo Manual (OECD, 2005), an organizational innovation is the implementation of a new organizational method in firms' business practices, workplace organization or external relations. It can intend to increase firm performance by reducing administrative costs or improving workplace satisfaction, with the aim to maximize labor productivity. For example, an organizational innovation in business practices is implementation of education or training systems. However, the distinction between a process innovation and an organizational innovation is perhaps not as clear since both try to decrease costs through more efficient ways of production, i.e. output.

In this order, many knowledge-intensive enterprises increasingly invest in innovation in order to vary business opportunities and boost company flexibility (Chen *et al.*, 2004). Therefore, most of the empirical studies such as Aas and Pedersen (2011), Bowen et al. (2010), Cainelli et al. (2004), Cambra-Fierro et al. (2011), Gunday et al. (2011), Jimenez-Jimenez and Sanz-Valle (2011), Karanja (2011), Kemp et al. (2003), Mazzanti et al. (2006), Ogbonna and Harris (2003), Rhee

et al. (2010), Salim and Sulaiman (2011) Vincent et al. (2005), and Wang (2011a) reported a positive relationship between innovation capability and firm performance.

On the other hand, Aas and Pederson (2011) noted that there is a paucity of empirical research on the linkage between service innovation and financial performance. Since performance is a focal point for all firms, understanding the relationship between performance and innovation may help firms to gain better competitive advantage (Salim and Sulaiman, 2011). Thus, it has been suggested that firms should try to recognize the crucial link between innovation activities and their performance. In line with the above discussion, a third issue was put forward and investigated:

- Does innovation significantly influence firm performance of the agricultural insurance companies in Iran?

1.4.3 Relationship between IC and Innovation

In the recent years, IC scholars have argued that in the knowledge intensive companies, IC has known as "*Intangible Assets*" and innovation seems like as source of "*Intangible Activities*" (Goodridge *et al.*, 2012; Kheng *et al.*, 2013; Succurro, 2014). Therefore, Edvinsson et al. (2004), Roos et al. (2010a), and Zerenler et al. (2008) stressed the importance of innovation, renewal or development in their IC framework. Further, according to the resource-based view (RBV), determining the relationship between IC and innovation activities among managers and employees can be one of the steps to reveal the importance of HRM (Jinchveladze *et al.*, 2009), strategic management (Marr and Roos, 2005), knowledge management (Wiig, 1997), and accounting management (Mouritsen *et al.*, 2001) in enterprises.

Moreover, according to the definition adopted by OECD (2005), in Oslo Manual, organizational innovation is implementation of a new organizational method in the firm's business practices, workplace organization or external relations. Based on this definition implementation of new organization methods includes acquisitions

of other external knowledge and other capital goods that are specifically related to organizational innovations. The manual states that organizational innovation and all contribute to strengthen the competitive advantage of a certain company. Therefore, innovation sustainability is the only way companies and sector growth as this will lead to the next level of competitive advantage.

By realizing and understanding the importance of IC and innovation to improving firm performance, insurance companies as knowledge-intensive companies can improve their profitability and performance. Therefore, managers within this kind of firms should protect, develop and manage IC to increase innovation capabilities as a creator of competitive advantage to their companies (Amidon, 2003b). Therefore, the fourth and fifth issues related to the above were raised and examined:

- Does IC have a significant relationship with innovation in the agricultural insurance companies in Iran?

- Which one of the IC components has the strongest relationship with innovation in the agricultural insurance companies in Iran?

1.4.4   Mediation Effect of Innovation between IC and Firm Performance

Intellectual capital can boost organizational performance in various ways, such as knowledge, experience, skills of employees (Bontis, 2002), and also by defining new methods of task performance and being innovative in the offerings. Thus, the IC of a company creates the value of ideas and the capability of being innovative for a longer period (Bontis, 1999).

Kamukama et al. (2011) examined the mediating role of competitive advantage between IC and firm performance and found that competitive advantage significantly mediated this relationship. The follow-up analysis revealed that a partial mediation of competitive advantage on IC and financial performance was detected. Therefore, it is good to assess the role of innovation in respect of both the partial and

full mediator effect between IC and firm performance. Thus, the last issues investigated were:

- Does innovation have a mediation role between IC and performance of the agricultural insurance companies in Iran?

- Which one of the IC components is more mediated through innovation in terms of the performance of the agricultural insurance companies in Iran?

The discussions above are supported by Resource-based View (RBV) and Knowledge-based View (KBV) as two important and related theories of these issues, where according to RBV, resources and capabilities of the firms are viewed as bundles of tangible and intangible assets or IC, including employees and management's skills, processes and routines in organization (Barney, 2001). On the other hand, according to KBV, "Organizational Knowledge" plays the crucial role in the firms, through the creation of innovative activities that influence firm performance (Amidon, 2003b; Egbu, 2004; Hormiga *et al.*, 2011; Jinchveladze *et al.*, 2009).

1.5   Research Questions of the Study

Based on the objectives above, this study has focused on the following research questions:

- ➤ Does IC influence performance of the agricultural insurance companies in Iran?
- ➤ Does innovation influence performance of the agricultural insurance companies in Iran?
- ➤ Is there any relationship between IC and innovation in the agricultural insurance companies in Iran?
- ➤ Is innovation a mediator between IC components and performance of the agricultural insurance companies in Iran?

1.6   Purpose of the Study

The main purpose of this study was to investigate the mediation role of innovation between IC and firm performance in the insurance sector in Iran. The study was designed specifically to identify the effect of both the partial and full mode of mediation of innovation on the components of IC (human, structural, relational, and spiritual capital) and firm performance in the agricultural insurance sector of Iran in enhancing the company's financial, non-financial, and overall performance.

1.7   Objectives of the Study

There were six objectives of the study as follow:

➢ To examine the influence of IC on firm performance of the agricultural insurance companies in Iran.

➢ To examine the influence of innovation on firm performance of the agricultural insurance companies in Iran.

➢ To examine the relationship between IC and innovation in the agricultural insurance companies in Iran.

➢ To investigate the mediating role of innovation between IC components and firm performance in the agricultural insurance companies in Iran.

1.8   Scope of the Study

Based on the purpose of the study, this study investigated the influence of IC on firm performance through innovation as a mediator. Four components of IC (human, structural, relational and spiritual capital) are included in this study. This investigation also focused on four dimensions of innovation (process, service, marketing, and organizational innovation). Further, firm performance was measured based on four perspectives of the Balanced Scorecard (BSC) method, which comparise the customer, internal business processes, learning and growth, and financial perspectives. In order to empirically test these relationships, this study was

carried out in agricultural insurance companies operating in the private sector in Iran. One of the top managers of each insurance company was asked to participate in this study. The data for the study were collected through a questionnaire survey.

1.9   Significance of the Study

Although numerous studies confirmed the positive and significant impact of IC and innovation (separately) on firm performance, only a limited number investigated the interactions of IC components (Human Capital, Structural Capital, and Relational Capital) and innovation on firm performance such as Chen and Wang (2010), Egbu (2004), Grajkowska (2011), Lindgren et al. (2009), Ngah and Ibrahim (2009), Wu et al. (2008), and Zerenler et al. (2008). In addition, these studies were only conducted on the financial aspect of performance, even though the literature on IC also suggested the existence of the effect of IC and innovation on non-financial performance. In other words, so far, the effect of innovation between IC and firm performance, particularly both financial and non-financial together, is still unclear.

Therefore, the main academic contribution of this study is the investigation of the mediating effect of innovation on the relationship between the influence of IC components and firm performance. In order to achieve this goal, this research focused on further developing and testing the IC models that were outlined by prior IC scholars. Moreover, in this study not only did IC include human, structural, and relational capital, based on the results of past studies, the framework of the study is developed through adding SpC as fourth component of IC, in keeping with Ismail (2005), who previously asserted that it has a significant direct effect on firm performance. Thus, this study has highlighted SpC as a new aspect of IC, and has examined its effect on the performance of the agricultural insurance sector in Iran.

Although, Cainellin et al. (2004), and Aas and Pedersen (2011) suggested that the effect of innovation is particularly related to the service sector, little attention has been given to this subject, inasmuch as existing research about the relationship of

innovation and firm performance has focused on innovation related to the development of products, marketing goods, and automation, mostly on IT products, and only a few studies have focused on the service sector. This study was conducted on insurance companies, which is part of the service sector.

To the knowledge of the researcher, this study is the first comprehensive investigation concerning the relationships of IC components (Human Capital, Structural Capital, Relational Capital, and Spiritual Capital), innovation, and firm performance in both aspects, financial and non-financial performance. In addition, focusing on the mediating effect of innovation on the relationship between IC and firm performance is the valuable theoretical contribution of this study. As the final contribution, based on the finding of this research, the developed SEM model introduced includes the valuable factors of IC, and innovation; the aspects that have the most positive interaction in boosting the financial and non-financial firm performance in the insurance industry.

1.10 Operational Definitions Key Terms of the Study

In this section, the definitions of key terms in the study are offered. This study mainly revolved around IC, its components, innovation and dimensions, and firm performance from different perspectives in the agriculture insurance in the private sector in Iranian. The descriptions of these terminologies are offered below:

1.10.1 Intellectual Capital (IC)

IC or intangible assets that create profit for firms which normally are tacit and cannot be defined clearly. This study has utilized the four components of IC; human, structural, relational, and spiritual capital as below:

> ➤ **Human Capital (HC):** Is the knowledge, skills, experiences and abilities that employees take with them when they leave their firm. Some of this knowledge is unique to individual, some may be generic. Examples are innovation capacity, creativity, and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity motivation, satisfaction, learning capacity, loyalty, formal training and education (Meritum, 2002).

> ➤ **Structural Capital (SC):** Is the knowledge that stays within the firm at the end of the working day. It comprises the organizational routines, procedures, systems, cultures, databases, etc. Examples are organizational flexibility, a documentation service, the existence of a knowledge centre, the general use of Information Technologies, organizational learning capacity, etc. Some of them may be legally protected and become Intellectual Property Rights, legally owned by the firm under separate title (Meritum, 2002).

> ➤ **Relational Capital (RC):** Is all resources linked to the external relationships of the firm, with customer, suppliers or R&D and partners. It comprises that part of Human and Structural Capital involved with the companies relations with stakeholders investors, creditors, customers, suppliers, etc., plus the perceptions that they hold about the company. Examples of this component are image, customers loyalty, customer satisfaction, links with suppliers, commercial power, environmental activities (Meritum, 2002).

> ➤ **Spiritual Capital (SpC):** Is tacit knowledge, faith, belief and emotion embedded in the minds and hearts of individuals within organizational employees that to the overall impact on performance of the firms (Ismail, 2005).

1.10.2 Innovation (INO)

Innovation encompasses the full spectrum of creative idea generation through full profitable commercialization. A comparable methodology capturing innovation is proposed in the Oslo Manual (OECD, 2005), which provides general guidelines for collecting and interpreting innovation data such as process innovation, product/service innovation, marketing innovation, and organizational innovation. To measure innovation, the manual developed a general innovation survey. The survey's primary idea is to provide an extensive framework for all developing economies in how to formulate questions, how to gather data and how to measure innovation activities in firms. This manual deals with innovation at the level of the firm. When firms innovate, they are engaging in a complex set of activities with multiple outcomes, some of which, moreover, can reshape the boundaries and nature of the

firm itself. According to OECD (2010) the four dimension of innovation were applied in this study as follow:

- ➢ **Process Innovation (PI)** is the introduction of a new or significantly improved production. Such as: New rules, New rutins, New methods of loss assessments and loos adjustment, Developing procedures and internal practices to provide insurance services, New insurance operation, New appropriate software and hardware to decrease variable costs, Increasing delivery speed of support services to customers, Increase quality of support insurance services.

- ➢ **Service Innovation (SI):** Is the introduction of a goods or service that is new or substantially improved. Such as: Developing and improving new insurance services for better agricultural insurance capacity in the region, New plans to improve ease of use for customers and increase customer satisfaction, Developing new methods and services for agricultural insurance sector that are totally different in quality, and Increasing the quality of insurance services by using information communication and technology.

- ➢ **Marketing Innovation (MI):** Is the implementation of new marketing methods and introducing significant chandses in product design, packaging, product promotion and pricing. Such as: Renewing and reviewing the current methods to introduce new services to the customers, Renewing and reorganizing the agricultural insurance distribution network, Renewing and reviewing current agricultural insurance services for customers, Creating new methods to better manage agricultural insurance market.

- ➢ **Organizational Innovation (OI):** Is the creation or alteration of business practices, workplace organization and external relations. Such as: Reviewing the organization structure to facilitate team work, Renewing and review the organization structure in order to strengthen the coordination between various functions like marketing and insurance services, Rethinking policies and procedures of insurance services in order to guide the firm toward increasing innovative activities, Reviewing the human resource management system (how to choose personal, employment, employee training, division of labor, monitoring and etc.), Reviewing how to engage stakeholders in the agricultural sector, Reviewing the organizational structure, and Reviewig and renewing of the management information system and methods of publishing and distributing the information.

1.10.3 Overall Firm Performance (OFP)

Firm performance refers to the subset of organizational effectiveness that covers financial and non-financial performance. In this study overall firm performance included non-financial firm performance (NFP) and financial firm performance (FFP). In this study overall firm performance (OFF) followed the sum of the four perspectives of organizational performance that were offered by Kaplan and Norton (2008) in the BSC measurement method, as follows:

> ➤ **Customer Perspective (CP):** Is seeks to explore customers' viewpoint of the organization to answer the question;how do customers see us? (Kaplan, 2008).

> ➤ **Internal Business Process Perspective (BP):** Is seeks to explore areas, core competencies, products or niches that the organization needs to excel and look at; where must we excel? (Kaplan, 2008).

> ➤ **Learning and Growth Perspective (LP):** Is seeks to explore opportunities for continuous improvement and creation of value; can we continue to improve and create value? (Kaplan, 2008).

> ➤ **Financial Perspective (FP):** Is seeks to explore the organizational approach to shareholders; how do we look at our shareholders? (Kaplan, 2008).

> ➤ **Non-financial Firm Performance (NFP)**: In this study NFP is sum of the CP, BP, LP as above.

> ➤ **Financial Firm Performance (FFP)**: In this study FFP is sum of the FP as above.

1.10.4 Agricultural Insurance Fund (AIF)

The Agricultural Insurance Fund is the governmental corporate headquarter for agricultural insurance sector in Iran. It was established in 1982 into the Agricultural Bank of Iran, and later, in 2000, became known as the government sector with the remit of supervising and managing the private sector of agriculture insurance companies of the country (A.I.F, 2013).

1.11 Structure of the Thesis

This thesis is structured based on the answer to the main question of the study and was conducted to determine the mediating effect of innovation between the IC components and firm performance in the agricultural insurance industry in Iran. Accordingly, in this study following the First Chapter as the introduction of the study, Chapter 2 reviews the existing literature concerning the IC components and innovation, and the impact of these two concepts on firm performance. In addition, the relationship between IC and innovation is elaborated upon, and based on the theories of the study, particularly for knowledge-based companies, the conceptual framework is illustrated in the last subsection of the second chapter. The output of this literature review is a research framework that was developed to diagnose the relationships between the three main concepts of the study (IC, Innovation, and Firm Performance). Chapter 3 is arranged based on the methodology of deductive research. In this chapter, the research philosophy, research design, hypotheses of the study, measurement of the variables, structure of the questionnaire survey, data collection procedure, and data analysis methods are described. The results of the hypotheses testing and discussions of the findings are elaborated upon in Chapter 4. As the last main section of the study, Chapter 5 follows the summary of the hypotheses testing and answers to the research questions. Further, based on the results of the data analysis, the four issues of the study are discussed in this chapter. In Chapter 5 as the final part, the conclusion, contributions, limitations of the study and some suggestions for future studies are explained in Chapter 5.

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