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Full Length Research Paper

Knowledge creation and intellectual capital on securities investment services

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The main resource of a stock market investment business is "knowledge". The continual creation of knowledge preserves the competitive advantages of the business. This research analyzed the relationship between knowledge creation and intellectual capital in Taiwan. Based on convenient sampling, this research distributed 650 questionnaires to employees in Taiwan stock market businesses and analyzed the valid 234 questionnaires returned. Linear structural equation modeling was used to analyze the relationship among autopoletic knowledge creation, connectionist knowledge creation, and cognitivist knowledge creation (on the basis of human, structural, and customer capital). The results showed that there is a positive relationship between human capital and knowledge creation, and there are also positive relationships between human capital and structural capital as well as between human capital and customer capital. However, there is no positive statistical connection between customer capital and structural capital.

Key words: Knowledge creation, human capital, structure capital, customer capital.

INTRODUCTION

As seen from the financial statements of listed companies, many high-tech companies of high stock prices do not have sufficient tangible assets, while their market values are tens, or even hundreds of times, beyond their tangible assets. The main reason for such a large gap is the accounting of the enterprise's intangible assets, or intellectual capital. Despite the great impact of intellectual capital on enterprise value, to the accounting and management staffs, it is difficult to accurately mea-sure and represent the value of intellectual capital on the financial statements of the enterprise, mainly due to two elements: knowledge and wisdom. According to the U.S. export statistics for 2006, the total exports of knowledge-based products, including IT software and cultural industries, have exceeded 60 billion USD, accounting for more than 40% of the total export output. Enterprises that make significant investment in knowledge and information (e.g., Microsoft, Intel, and Dell) are more likely to emerge onto the world economic stage. Thus, traditional differentiation methods (e.g., differences in quality, cost, and economies of scale) cannot have long lasting bene-fits for the enterprise as such methods are easily copied by competitors. Therefore, "knowledge" has become a key element to sustain competitiveness for modern enterprises. By creating new knowledge through effective knowledge management, systematically storing and encoding the knowledge the enterprise for sharing and diffusion, enterprises can thus secure their niches in long-term competitiveness.

Shih et al. (2010b) indicated that financial industry differs from general manufacturing industries as it is a kind of service industry that mainly provides knowledge-based products or services, and creates corporate value via the organizational intellectual capital. Compared with greater emphasis on overall banking procedure construction and customer relationship management in the banking and insurance business, the securities investment service of financial institutions focuses on the professionalism of employees, as they are knowledge intensive units, which are centered on talents. Carlucci et al. (2001) suggested that knowledge management is an important activity to acquire, develop, and maintain organizational intellectual

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capital. When an enterprise can effectively establish knowledge management order, it can enhance its intellectual capital value. In a fast changing financial environment, only continuous creation of new knowledge, and conversion of such knowledge into intellectual capital, can continuously create a competitive edge and enhance the corporate value. Sveiby (1997) pointed out that the profits of knowledge-based industries mainly come from the realization of converting intangible assets into tangible assets. The security investment industry offers services, such as securities trading, fund issuance, and professional asset management. Shih (2010) indicated the security investment industry also converts professional investment knowledge into products of funds, while investors make purchases with trust in the professional knowledge that the industry offers. Such processes can be regarded as a type of knowledge trading behavior; therefore, the source of wealth for securities investment service is "knowledge", and the competitive edge in the market can only be maintained by continuously creating knowledge.

Most past researches on knowledge creation and intellectual capital focus on the relationship between corporate intellectual capital and business performance, or organizational learning and knowledge creation (Shih et al., 2010b). Discussions on the impact of knowledge creation on intellectual capital are insufficient. Shih, Chang and Lin (2010) conducted an empirical survey on the relationship between knowledge creation and intellectual capital in Taiwan banking industry. They discussed the relative knowledge creation-related securities invest-ment services of Taiwan's financial institutions in order to understand whether there is any causal relationship between it and intellectual capital under different sources of knowledge creation.

LITERATURE REVIEW

In recent years, the tangible assets are no longer sufficient to evaluate the real value of an enterprise, the efficiency of the intangible assets, especially those that could create knowledge, are reinforced to identify the value of an enterprise. Edvinsson and Sullivan (1996) defined a knowledge-based company as one that can make knowledge become the source of competitive advantage. The typical examples of knowledge-based companies are computer companies and high-technology firms. In addition, financial service firms are considered value-added industries. In 2001, the Financial Holding Company Act was issued in Taiwan in order to regulate the establishment and qualifications of companies, for the financial markets had recently been opened. Traditional banks had lost much of their beneficial foundations and therefore were transformed into companies with primary targets on consumption finances and investments. Security investment companies providing financial services and knowledge on stocks and other investments have to enrich their professionalism through continual knowledge creation so as to maintain their competitiveness. Using one Taiwanese security investment firm as an example, this study attempts to analyze the connection of knowledge creation and knowledge capital.

Enterprise's knowledge creation

In the era of a knowledge-based economy, knowledge integration and the application of intellectual capital have become the most important strategy for an enterprise to establish a sustainable competitive edge (Grant, 1991; 1996; Drucker, 1993; 1999; 2003). In the past, knowledge was considered a type of "output," and it has been transformed into an important element of "input" as an organization's source to create value and maintain core competitiveness. Such a change means that the organization has changed from the "resource-based" into the "knowledge-based" (Grant, 1996; Dzinkowski, 2000a; b). Petty and Guthrie (2000); Guthrie (2001) suggested that a successful enterprise makes profits from intangible information and knowledge creation, in addition to its tangible assets. Nonaka (1991; 1994) indicated that knowledge creation is produced by the interactions of tacit and explicit knowledge. Through organizational knowledge integration and corporate management system, the knowledge of an enterprise can be developed within the organization (Grant, 1996). Then, through organizational knowledge creation, the organi-zational innovative performance and competitiveness can be maintained to ensure sustainable management (Dietzenbacher, 2000).

As either a country or enterprise, its survival and development requires knowledge-based creations, as the input and output of knowledge are important factor in maintaining the long term competitive edge. The securities investment service is a typical knowledge intensive industry, with its business being a type of knowledge trading behavior. Therefore, knowledge is the source of core competitiveness to the securities investment services. As knowledge comes from both the inside and outside of an organization, the organization's internal knowledge creation process is to acquire through learning, research and develop, or accumulation of experience; and the external knowledge sources may include suppliers, customers, and competitors. According to creating knowledge theory (Nonaka and Takeuchi, 1995) and revised creating knowledge theory as a synthesizing (Nonaka and Toyama, 2003). Knowledge creation is the interaction of tacit knowledge and explicit knowledge, which includes four aspects in Socialization-Externalization-Combination-Internalization (SECI) model (Figure 1): (1) Socialization: the process from tacit knowledge to tacit knowledge; it is the transferring and sharing of personal experience through actions (e.g. the master-apprentice knowledge transmission); however, socialization is a rather limited type of knowledge creation

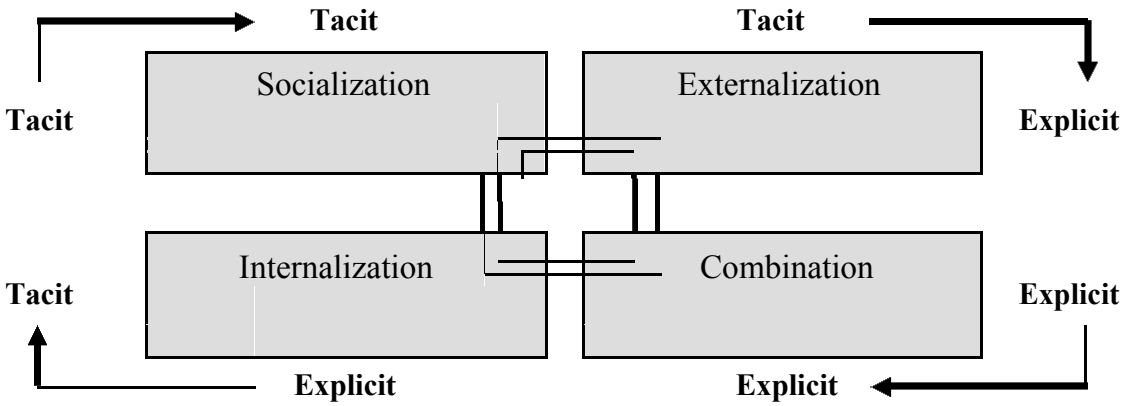

Figure 1. SECI model knowledge creation. (Nonaka and Takeuchi, 1995; Nonaka and Toyama, 2003).

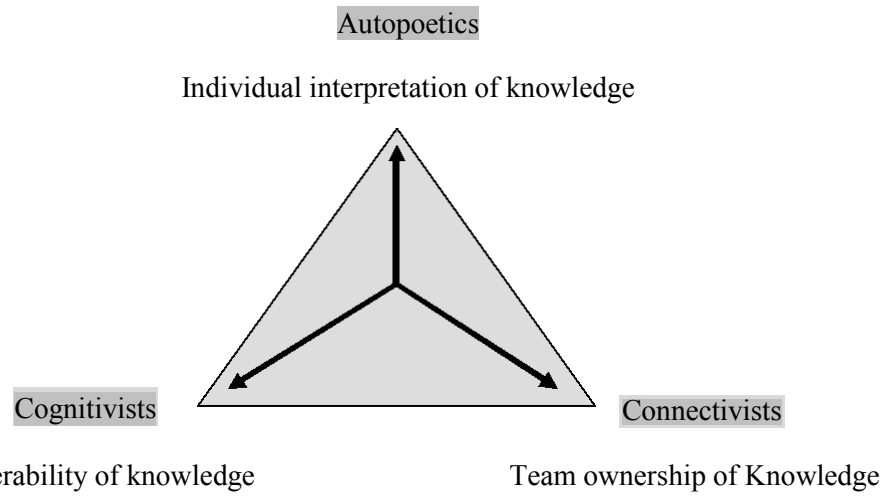

Figure 2. Three types of knowledge creation (Marr et al., 2003).

as it cannot result in a type of explicit knowledge for the easy use of the entire organization; (2) Externalization: the process of tacit knowledge to explicit knowledge, mainly by sharing knowledge through metaphors and ideas; (3) Combination: the process from explicit knowledge to explicit knowledge through storage, combinations, and classifications of knowledge to systemize explicit knowledge; however, the combination of information is from different sources, hence, the current knowledge base of the enterprise has not been expanded by such types of combinations; (4) Internalization: the process from explicit knowledge to tacit knowledge through methods of inspection and application, internalized explicit language, wording, graphs, or information into personal knowledge through a combination of socialization and externalization.

Marr et al. (2003) proposed three sources of knowledge creation: autopoetics, cognitivist, and connectionist (Figure 2), which are defined as follows: (1) autopoletic: it suggests that an organization is a system simultaneously open or closed to information and knowledge; when then knowledge creation process cannot be systematically recorded, information and knowledge cannot be generally and systematically shared and communicated; (2) cognitivist: it suggests that the validation, collection, and sharing of information are the main activities of knowledge development; it establishes a solution to the knowledge by the process of knowledge creation, while knowledge can be systematically shared by a set of standard operating procedures (SOP); (3) connectionist: it focuses on information exchange and sharing (e.g. in-house brainstorming or workshops). Connectionist and cognitivist have similarities, while the only difference of the two is that connectionist does not have a universal common

solution.

Enterprise's intellectual capital

Galbraith (1969) first proposed the concept of intellectual capital, suggesting that intellectual capital is the activity of mental use rather than pure knowledge or intelligence. Stewart (1997) indicated that intellectual capital is the aggregation of knowledge, by which individuals can bring competitiveness and create wealth for an enterprise. Bontis (1998) stated that intellectual capital is the effective use of knowledge and information, and the effective use of intellectual capital can enhance the organizational competitive advantage. Roos and Edvinsson (1997) argued that intellectual capital exists inside an enterprise, and can create value for the enterprise; however, it is an invisible knowledge source difficult to identify. Nevertheless, once an enterprise can make effective use of intellectual capital, the utmost value can be created (Sveiby, 1997). Edvinsson and Malone (1997) suggested that intellectual capital is a command of knowledge, actual experience, organizational technology, customer relationships, and professionalism. Through information, competitiveness in a market can be obtained. Nahapiet and Ghoshal (1998) pointed out that any knowledge capabilities, creativity, organizational structure, and relations that can create knowledge storage and conversion to value belong to the category of intellectual capital. Mayo (2001) proposed that intellectual capital is the synonym of intangible assets, such as knowledge, information, intellectual properties, and experience. Al-Ali (2003) stated that intellectual capital is the knowledge resource integrated by the staff's knowledge, experiences, and work force in the organizational databank, system, procedures, culture, and business operations. Mason (2006) argued that intellectual capital is a type of intangible asset that can be regarded as "the aggregation of the employees and internal structure of an enterprise". Schiuma and Lerro (2008) pointed out that workforce, relations, results, and socialization of intellectual capital are the four major elements of knowledge-based capital. Knowledge creation, resulting from improvements to organizational procedures and innovation of management technology, will improve the management of intellectual capital.

Past researches mostly discuss intellectual capital in three aspects, namely human capital, structural capital, and customer capital (Stewart, 1994; Edvinsson and Malone, 1997; Lynn, 1996; 1998; Johnson, 1999; Dzinkowski, 2000a; b; Roos et al., 2001). Based on the concept and structure of Skandia's intellectual capital, as proposed by Edvinsson and Malone (1997), this study classifies intellectual capital into human capital, structural capital, and customer capital.

In addition, by the characteristics of the securities investment services, intellectual capital is deemed as the accumulation of an enterprise's internal work force source, structural procedures, and customer relations, which produce high value knowledge, experience, and information. With the transmission, exchange, accumulation, and storage of such intellectual capital, business value is created.

Human capital

Stewart (1991) pointed out that human capital refers to the knowledge, technology, experience, and capabilities of all the employees of an enterprise. Lynn (1998) stated that human capital is the knowledge storage, skills, and capabilities that organizational members use. As the workforce is the greatest asset of an enterprise, it can lead to the birth of innovation and knowledge creation. Edvinsson and Malone (1997) suggested that human capital should include the personal capabilities, knowledge, and experiences of all employees and management of the enterprise, which are attached to their assets (Brooking et al., 1998; Shih et al., 2010c). Seleim et al. (2007) argued that human capital is the most important aspect of intellectual capital, and the most important factor affecting organizational performance.

This study discusses the relationship between knowledge creation and intellectual capital in the financial service business of the securities investment services, with "talent" as the focus. It is inferred that the enhancement of human capital can effectively promote the performance of the enterprise, while the personal knowledge, capabilities, skills, and experiences of the employees and management of the enterprise can contribute to the improvement of an enterprise's value.

Structural capital

Edvinsson and Malone (1997) proposed that structural capital is the intangible assets that employees cannot take away when off work or leaving the organization. Johnson (1999) suggested that structural capital is the combination of innovation capital and procedural capital. Lin and Wu (2010) discussed the key elements of procedural capital for banking industry. Innovative capital refers to the innovative capabilities of an enterprise, intellectual property rights, intangible assets, and capabilities to develop new products or new services. Stewart (1997) indicated that the purpose of establishing structural capital is to increase sharing and exchange of knowledge, which further improves the construct of human capital. Kamath (2007) argued that the construct of human capital can efficiently improve the establishment of structural capital, and further assist in accumulating the enterprise's intellectual capital. Shih (2008) pointed out that the accumulation of human capital can strengthen the procedural capital of an enterprise, and

further the structural capital of the enterprise, as the procedural capital is to construct working procedures and working processes that strengthen production or improve service efficiency. Therefore, this study infers that structural capital is the "system and procedures to improve business efficiency through innovative capabilities," as based on the characteristics of the securities investment services.

Customer capital

Edvinsson and Malone (1997) proposed that customer capital is the relationship established between an enterprise and its customer. Hill and Jones (2001) stated that external stakeholders are important resource suppliers of an organization. For example, customer purchases of products and services provide income for suppliers of raw materials, and distributors for sales channels to an enterprise. Roos et al. (2001) indicated that customer capital should include all the relationships of value, as relating to customers, suppliers, and other stakeholders. Therefore, an enterprise should understand and satisfy the needs of all stakeholders, as this is a key to the survival and success of an enterprise. As customers are helpful for the overall development of an enterprise in an interdependent relationship, this study infers that customer capital is the value resulted from the interactions between the direct or indirect stakeholders of the enterprise, including customers, competitors, partners, and governmental bodies relevant to the securities investment services.

RESEARCH METHODS

The securities investment service is a highly knowledge-based industry, and work force is the key asset of an industry. Davenport and Prusak (1998) suggested that employees are the most important key to knowledge sharing of an enterprise in generating innovation, providing productivity, and a variety of other activities. Carlucci et al. (2001) proposed that knowledge management is an important concept to obtain, develop, and maintain organizational intellectual capital, meaning that if an enterprise can effectively establish knowledge management, it can enhance the value and accumulation of intellectual capital. Ho et al. (2010) applied SEM model to discuss customers' involvement, perceived value, Marr et al. (2003) indicated that the first step of knowledge management is to create new knowledge. Continuous knowledge creation can help an enterprise construct good knowledge management procedures. Petty et al. (2008) pointed out that intellectual capital is the integration of the personal knowledge of members of an organization and can serve as the basis for decision-making. Therefore, according to previous literature, the work force of an enterprise is the main source of knowledge creation. This study classifies knowledge creation into autopoletic knowledge creation, connectionist knowledge creation, and cognitivist knowledge creation in order to understand the impact of organizational members on knowledge creation, by probing into the relationships between sources of knowledge creation and human capital. Then, this study discusses how knowledge creation affects structural capital and customer capital through human capital (Figure 3).

This study conducted a questionnaire survey on securities investment companies of the financial holding companies in Taipei, Taiwan, with a focus on the viewpoints of general employees. Therefore, the subjects were entry-level staffs and medium-low level management. A total of 650 questionnaires were distributed, and 234 valid samples were collected after deleting 21 invalid samples. Data were analyzed with structural equation modeling (SEM), factor analysis, and path analysis to understand the relationships between knowledge creation and intellectual capital of the securities investment services.

RESULTS AND ANALYSES

Data analysis

Table 1 shows the data analysis of 234 valid samples. In terms of gender, 105 of the respondents are male (44.9%), and 129 are female (55.1%). With regard to age, 72 are between 21-30 years old (30.8%), 90 are between 31-40 years old (38.5%), 54 are between 41-50 years old (23.1%), and 18 are 51 or older (7.7%). In terms of education, 27 have high school/grade education (11.5%), 186 have university/college education (79.5%), and 21 people have master/doctor education (9%). With regards to working experience, 48 have less than one year (20.5%), 48 have between 1-3 years (20.5%), 60 have between 3-5 years (25.6%), and 78 have more than 5 years (33.3%). In terms of salary level, 45 are less than NT$30,000 (19.2%), 141 are 30,000-NT$50,000 (60.3%), 21 are 50,000- NT$80,000 (9%), 12 are 80,000- NT$100,000 (5.1%), and 15 are more than NT$100,000 (6.4%).

Reliability and validity

This study employed Cronbach's Alpha coefficient to measure the reliability of the questionnaire. According to the judgment criteria, items with Alpha value above 0.7 have high reliability. In the three aspects of knowledge creation in this study, the Alpha value of autopoletic knowledge creation is 0.897, that of connectionist knowledge creation is 0.886, and that of the cognitivist knowledge creation is 0.879. The reliability testing of the three aspects of intellectual capital are: 0.918 for human capital, 0.959 for structural capital, and 0.882 for customer capital. It is shown that this questionnaire has good reliability. The validity is divided into external validity and internal validity, in which the external validity is the assessment of the generalization capabilities of research findings, while internal validity is to illustrate whether measurement tools can determine the desired characteristics as represented. The questionnaire and scale of this study are based on those proposed in previous studies, and the research structure is confirmed through literature review, thus, the questionnaire of this study meets the criteria of validity.

Pearson correlation analysis

Table 2 shows the correlation analysis of knowledge creation

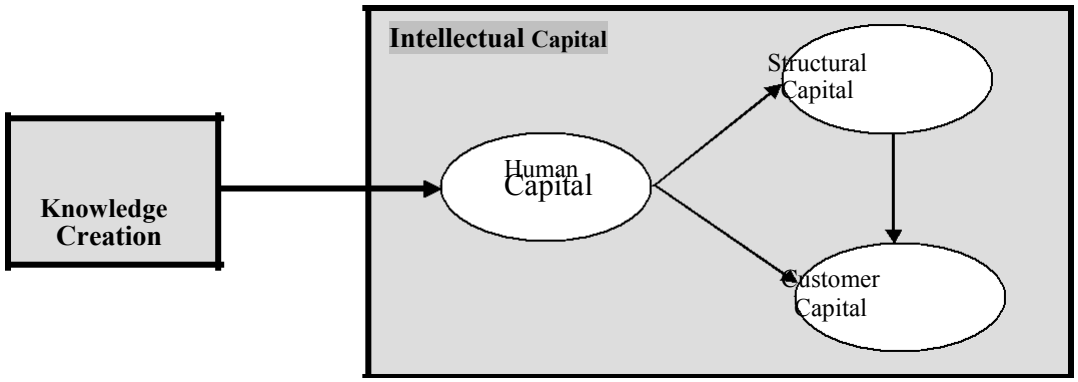

Figure 3. Research framework.

Table 1. Sample distribution.

Item		Number of persons	Percentage (%)
Gender	Female	129	55.1
	Male	105	44.9
Age	21-30	72	30.8
	31-40	90	38.5
	41-50	54	23.1
	51 and above	18	7.7
Education	High school/vocational school	27	11.5
	University/college	186	79.5
	Master/Doctor	21	9
Work experience	Less than 1year	48	20.5
	1~3 years	48	20.5
	3~5 years	60	25.6
	5 years and more	78	33.3
Salary	Less than NT$30,000	45	19.2
	NT$30,000~50,000	141	60.3
	NT$50,000~80,000	21	9
	NT$80,000~100,000	12	5.1
	More than NT$100,000	15	6.4

Table 2. The correlation coefficient of knowledge creation and knowledge capital.

	Human Capital	Structural Capital	Customer Capital	Autopoletic Knowledge Creation	Connectionist Knowledge Creation	Cognitivist Knowledge Creation
Human Captial						
Structural Capital	0.806**					
Customer Capital	0.797**	0.796**				
Autopoletic Knowledge Creation	0.640**	0.598**	0.600**			
Connectionist Knowledge Creation	0.533**	0.574**	0.595**	0.758**		
Cognitivist Knowledge Creation	0.635**	0.723**	0.652**	0.736**	0.787**	

** denotes statistical significance at the 0.05 (0.01) level.

Table 3. Fitness indicators for knowledge creation, human capital, structural capital and customer capital.

Fitness indicator	Standard suggested by past researches	This study
X^2	>0.05	0.064
GFI	>0.9	0.96
AGFI	>0.9	0.921
RMSEA	<0.05	0.035
NFI	>0.9	0.977
IFI	>0.9	0.995
CFI	>0.9	0.995

and intellectual capital of Taiwan's securities investment firm. The findings suggests that autopoletic, connectionist, and cognitivist knowledge creation are all significantly positively related to human capital, structural capital, and customer capital. The autopoletic knowledge creation and human capital have the highest correlation of 0.640. The connectionist knowledge creation and the customer capital have the highest correlation of 0.595, and the cognitivist knowledge creation and structural capital have the highest correlation of 0.723. In terms of intellectual capital, it is found that human capital and structural capital have the highest correlation of 0.806, which is consistent with the finding of Kamath (2007), that the accumulation of human capital can efficiently help the construction of structural capital, further build intellectual capital, strengthen the enter-prise's procedural capital, and construct the enterprise's structural capital (Shih, 2008).

SEM (Structural Equation Modeling)

Model fitness testing

The overall model fitness testing is to test the fitness of the overall model and observation data to measure the external quality of the model. A higher fitness degree between the research model and data of collected questionnaires indicates better fitness degree of the research model. This study adopted the fitness indicators commonly used in previous research to measure the fitness degree of the research model. Table 3 shows the model fitness testing results. The Chi-Square value is 0.064, GFI= 0.96, AGFI=0.921, RMSEA=0.035, NFI=0.977, IFI=0.995, and CFI=0.995, which is consistent with the evaluation standards, as suggested by previous literature. Therefore, the model fitness of this study is good.

Results and analysis of model testing

SEM uses the maximum likelihood estimation method to estimate the parameters of the model. Figure 4 and Table 4 show the research path and relationship parameter values of knowledge creation, human capital, structural capital, and customer capital. The findings suggest that knowledge creation and human capital are significantly correlated, which is consistent with Marr et al. (2003). It is found that among the three aspects of knowledge creation, connectionist knowledge creation (0.889) has the greatest impact, followed by cognitivist knowledge creation (0.871), and then autopoletic knowledge creation (0.831). It indicates that employees of Taiwan's securities investment services mainly collect human capital through connectionist knowledge creation. In other words, knowledge is obtained through exchange, and the learnt knowledge and skills can be applied in work. The employees can learn knowledge by experience or learn new knowledge from observation, which is then gathered into the human capital of the enterprise.

Human capital and structural capital are significantly correlated. Moreover, this finding is consistent with Edvinsson and Malone (1997); Stewart (1997); Kamath (2007). In the aspect of human capital, the working experience and attitude (0.813) has the greatest impact, followed by employee satisfaction and transfer rate (0.807), employee interaction and education and profes-sional skills (0.770); in the aspect of structural capital, patent and quality certification (0.923) has the greatest impact, followed by innovation (0.917), computerization, and constructed databank (0.913). This indicates that improvements of human capital of employees of Taiwan's securities investment can be achieved by starting from working experience and attitude, improvements of employee satisfaction, and reduction of employee transfers, which would bring more opportunities to further improve the structural capital of the enterprise.

Analysis results show that, the methods of knowledge creation by employees in the securities investment sec-tors have direct and significant influence on the formation of human capital. The direct impact of human capital on structural capital is significantly greater than that of human capital on customer capital. The direct impact of structural capital on customer capital is the smallest. Human capital and customer capital are significantly correlated, which is consistent with the findings of Stewart (1997); Roos et al. (2001); Shih (2008); Shih et al. (2010a). Regarding customer capital, customer loyalty (0.913) has the greatest impact, followed by customer satisfaction (0.868), then customer added-value and

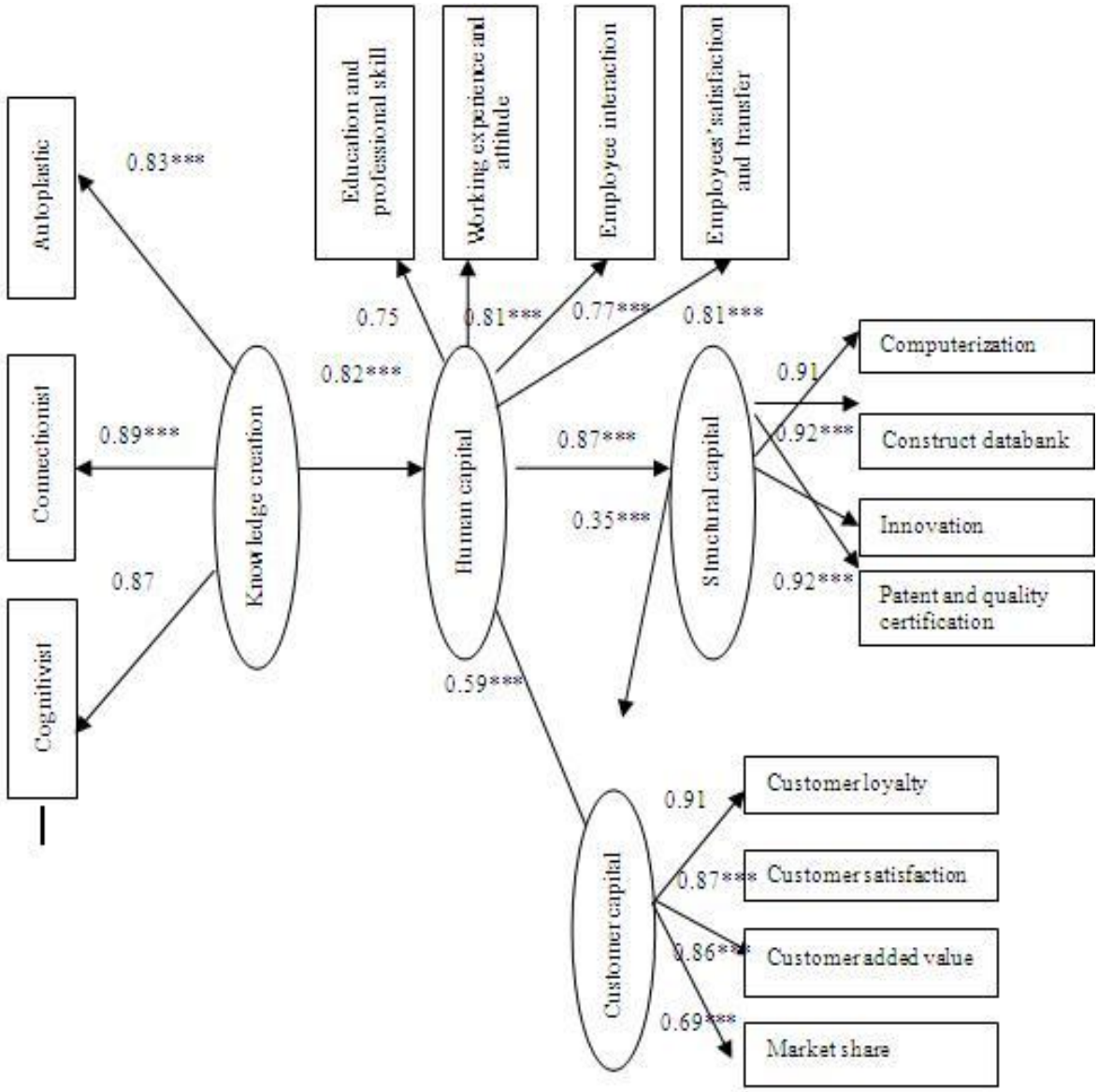

Figure 4. Research paths of knowledge creation, human capital, structural capital, and customer capital.

Table 4. The analysis of relationship in between knowledge creation, human capital, structural capital and customer capital.

Path		Standardized coefficient	SE	C.R. value	Significant
Knowledge creation	-> Human capital	0.820	0.081	11.089	***
Human capital	-> Structural capital	0.870	0.100	12.392	***
Human capital	-> Customer capital	0.594	0.157	5.062	***
Structural capital	-> Customer capital	0.350	0.102	3.219	***

Note: *** indicates P<0.001. C.R.— indicates preset fixed value at 1 without standard deviation

market share (0.858). This indicates that the human capital of Taiwan's securities investment services employees should start from enhancement of work experience and attitude, improvements of employee satisfaction, and reduction of employee transfer rates in order to further affect the enhancement of customer capital. There is a statistically significant relationship between structural capital and customer capital. This result is different from Shih et al. (2010b), possibly due to the different industries under study. Nevertheless, structural capital and customer

capital are found as not significantly related. However, as for the gathering of intellectual capital of an enterprise, both structural capital or customer capital are very important.

CONCLUSION AND RESEARCH IMPLICATIONS

In order to gain competitiveness, enterprises must be prepared with improvement plans, and learn from the experiences so as to efficiently distribute the knowledge throughout the organization. For many knowledge-based companies, enterprise value has transformed from tangible assets to intangible assets, such as customer relationships, human resources, procedures, and the ability to renew the company. The securities investment business is an industry that should focus on knowledge creation, due to its nature of creating value with knowledge capital and exploring advantages of knowledge. For example, bank call centers are set to serve customers efficiently, and the database of call centers should be able to connect all practical services and procedures. For new employees with a lack of financial training, the system will also make it easy for them to respond to customers inquiries. This is the prevalent model of knowledge management in banks.

The result of this research shows that the securities investment business in Taiwan is mostly influenced by knowledge creation, revealing that employees exchange knowledge so as to gain relative knowledge and skills for their work and create new knowledge. Therefore, managers of such companies should construct an environment of connective knowledge and enable the employees to exchange knowledge, thus forming human capital. For example, the manipulation of funds and investment plans rely on human capital. Thus, in order to turn personal knowledge into knowledge inside the firm, managers must have the power of organization and create channels for knowledge exchange. The sharing of knowledge will increase the knowledge capital. Therefore, computerization, construction of database, organizational reengineering, and patents are all effective measures. For investors, the reliability of the securities investment companies is very important, as they conduct transactions and provide viewpoints for investors. When investors are able to trust the companies, those companies can have a better understanding of customers' demands, but be able to meet their expectations, and enhance customer satisfaction and loyalty. As a result, more customer capital can be created. In addition, if companies can create consistencies between the outside report system and the inside management of knowledge, they can work more efficiently and be more profitable.

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