Mediating Role of Competitive Advantage on Intellectual Capital and Firm Performance

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Abstract

Competitive advantage, a key factor for organizational success and growth in the digital era, poses a challenge to the executives in terms of operational process improvement in order to maximize the firm's performance while considering innovation and the impacts arising from applying financial reporting standards. This study aimed to examine the influence of intellectual capital on company operations and the influence of intellectual capital on company operations through competitive advantage. The sample group consisted of 164 companies in the service group listed on the Stock Exchange of Thailand. Their financial data between 2019 and 2020 was collected. The statistics used in the data analysis were descriptive, inferential statistics, structural equation models, and path analysis. The Modified Value–Added Intellectual Coefficient (MVAIC) was used to measure intellectual capital's efficiency. The study found that intellectual capital did not affect performance measured by return on equity. With the Baron & Kenny 1986 method, competitive advantage measured by revenue growth was found to influence the association between intellectual capital and firm performance indirectly. Thus, competitive advantage was considered a full mediator. The results support the Resource–Based View Theory and reflect that applying intellectual capital in an organization can add value while generating returns to shareholders and a competitive advantage in the form of innovation, consistent with the digital age.

Keywords: Intellectual Capital, Competitive Advantage, Firm Performance

Introduction

The digital age is full of competition in the form of employee knowledge and skills that drive the organization. For this reason, it is undeniable that enterprises need to change their business models that used to focus solely on the production of goods or services. However, enterprises recognize the importance of intellectual capital as a competitive resource in the digital age. Intellectual capital is adopting digital technology and Artificial Intelligence (AI) by using alliance networking, knowledge, experience, employee skills, business culture, database, and company reputation to drive the organization. In addition, the critical characteristics of intellectual capital are intangible and inimitable assets, which can increase value and provide long–term benefits.

The epidemic of COVID–19 has significantly reduced the total revenue and total net profit of listed companies on the Stock Exchange of Thailand in 2020, and evidently caused a greater impact than before (The Stock Exchange of Thailand, 2022). Due to the pandemic, companies in the service industry, such as tourism, hotels, aviation, and transportation, were severely affected and had to lay off their employees or close down (Department of Trade Negotiations, 2020). In 2019, the Thai Financial Reporting Standards (TFRS 15) were adopted by companies listed on the Stock Exchange of Thailand. The revenue recognition principle of these Standards has been applied as a corporate accounting policy. Due to this, organizations with complex sales models will be affected by such adoption.

The MVAIC model was used to measure the efficiency of intellectual capital based on the concept of Ulum et al. (2014). The use of intellectual capital in organizational operations corresponds with changes in business models, consumer behaviors, and lifestyles that require convenient and fast services. Thus, businesses must be enhanced to compete with their competitors.

This study aims to increase knowledge of intellectual capital and competitive advantages that affect firm performance in Thailand. The gap found during the literature review was examined to find the direct and indirect effects of intellectual capital on performance and the mediator that influenced the dependent variables.

Research Objectives

In order to understand the role of competitive advantage as a mediator variable that indirectly influences intellectual capital on the stability of Thai listed companies in the service industry, the objectives of this study were as follows:

1. To examine the influence of intellectual capital on returns on equity, and

2. To examine the influence of intellectual capital on returns on equity through competitive advantage.

Scope of this study

Research and content scope: This study focused on resource base view theory and the use of the MVAIC model to measure cognitive capital.

(1) The sample size in the study consisted of 164 companies in the service industry that listed on the Stock Exchange of Thailand.

(2) The 3–year data collection period was extended to reveal the relationship between intellectual capital and firm performance for better explanations and conclusions.

Literature Review and Theoretical Background

Intellectual Capital

According to Han & Han (2004), intellectual capital is considered an essential measure of competitive advantage that can explain the difference between market value and book value. Human capital efficiency is also an essential factor in intellectual capital, which is a factor that shapes organizational knowledge. Previous studies found a positive relationship between human capital and past and future performance (Maditinos et al., 2011). Structural Capital Efficiency (SCE) was found to be correlated with total market value (Majumder et al., 2021). Relational Capital Efficiency is an important factor in intellectual capital. Relational capital was found to be essential for firm performance (Majumder et al., 2021). Capital–employed efficiency significantly influenced the market value (Majumder et al., 2021).

The MVAIC model was used to measure intellectual capital efficiency in this study. The components of intellectual capital are human capital, structural capital, physical capital, and relational capital.

Competitive Advantage

Wijayanto et al. (2019) defined competitive advantage as superiority over competitors with successful strategies and challenges to replicate since strategies are designed to match the company's circumstances. According to Porter (1985), competitive strategies are classified into three types: leadership strategies, differentiated strategies, and specific strategies.

Previous studies found that competitive advantage affected financial performance (Awwad & Qtaishat, 2023; Rochmadhona et al., 2018; Wijayanto et al., 2019), and competitive advantage and intellectual capital were found to be correlated (Ana et al., 2021). However, Kadocsa (2006) stated that competitive advantage indicators, such as profit and productivity, can be quantitative and accessible. However, the revenue growth rate in the past tends to outperform the fiscal growth rate in future revenue forecasts and revenue growth rates. The revenue growth rate was used to measure competitive advantage in this study since companies listed on the Stock Exchange of Thailand have applied the International Financial Reporting Standard (IFRS 15) in accounting regarding the criteria for revenue recognition in 2019, including applying intellectual capital to drive the organization. Do these factors increase returns for the companies?

Firm Performance

Return on equity is an assessment of the ability to generate profit from equity investments in a company. Return on equity was used as a dependent variable to measure firm performance efficiency. Thus, return on equity is an exciting factor for investors to make investment decisions (Wilson et al., 2020).

Return on Equity (ROE)

This study used the data available on SETSMART to calculate as follows:

$$ROE = \frac{\text{Net profit}}{\text{Total shareholders' equity of the parent company (average)}} * 100$$

Resource Based View Theory

According to Barney (1991), resource–based view theory is the use of the organization's existing resources for the benefit of the organization, which is considered the internal control of the company. In addition, Cheng et al. (2010) suggested having resources superior to competitors to produce the necessary competitive advantage.

Intellectual Capital Theory

According to Edvinsson (1997), intellectual capital is the knowledge of customer experience, technology, and employee expertise that assists the company in competing with its competitors. Harris (2000) and Sveiby (1997) affirmed that intellectual capital can enhance organizations. In addition, the theory of intellectual capital indicates that intellectual capital can drive and influences organizations.

Conceptual Framework

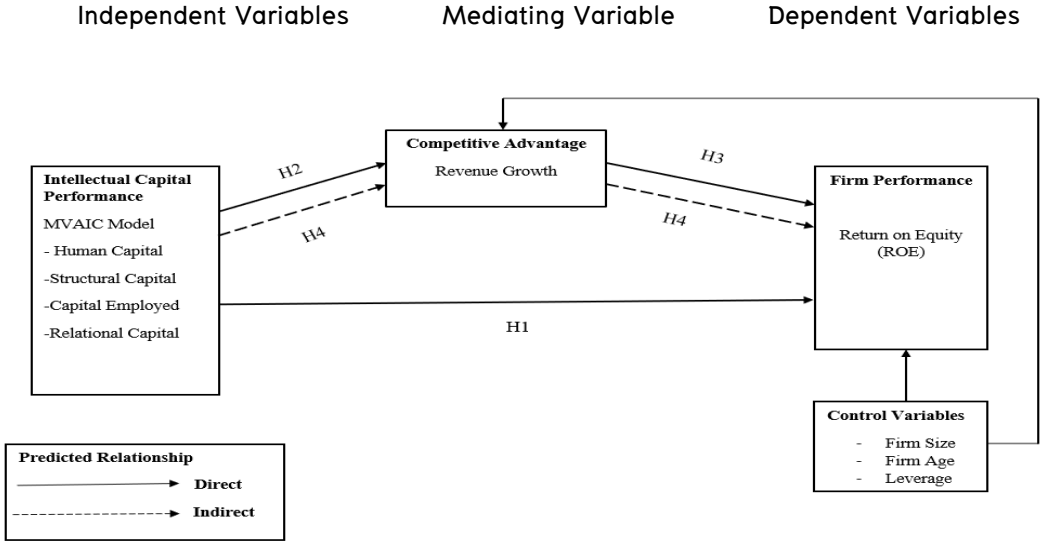

Figure1: Conceptual Framework

Research Methodology

Research Questions and Hypotheses

Research Question 1: How does intellectual capital influence firm performance?.

Xu and Wang (2018) found that intellectual capital positively affected firm performance and sustainable growth.

Hypothesis 1: Intellectual capital has a positive influence on company performance.

Research Question 2: How does intellectual capital influence competitive advantage?

Kamukama & Sulait (2017) found that intellectual capital affected competitive advantage.

Hypothesis 2: Intellectual capital has a positive influence on competitive advantage.

Research Question 3: How does competitive advantage influence firm performance?

Wijayanto et al. (2019) defined that competitive advantage would promote higher firm efficiency and set the firm profits.

Hypothesis 3 : Competitive advantage has a positive influence on firm performance.

Research Question 4: How does intellectual capital influence performance through competitive advantage?

Awwad and Qtaishat (2023) found that competitive advantage full mediated intellectual capital and financial performance.

Hypothesis 4 : Competitive advantage is a mediator variable that indirectly influences intellectual capital and performance.

Instruments

This study consists of deductive and qualitative research methods. The deductive approach was used to test the validity of the hypotheses and theories. The qualitative approach was used to explain the implications of social problems (Creswell, 2009) by examining the relationships among variables (Bryman, Bell, Mills, & Yue, 2007). Thus, the structural equation modeling (SEM) technique was used to obtain valuable information to explain this phenomenon.

Data and Sample Selection

The population consisted of 229 companies in the service sector listed on the Stock Exchange of Thailand in 2019–2020. The samples included 164 companies since a sample size of 100 to 200 is recommended (Hoyle, 1995). The boxplot technique was used to cut outlier from the 53 samples to provide standard distribution data.

Table 1 Sample in Financial Statement Research in 2019–2020

Sample	Number of firms
Companies in service sector registered in the Stock Exchange of Thailand in 2019–2020	229
Excluding:	
Companies in rehabilitation	
Companies with unavailable information	2
Outlier by boxplot technique	10
Total	53
	164

Source: (Setsmart, 2021)

The data available on SETSMART and the data disclosed in the financial statements of companies listed on the Stock Exchange of Thailand were collected.

Data Analysis

The statistics used in this research were descriptive statistics and inferential statistics. Descriptive statistics present the general data in minimum, maximum, mean, and standard deviation. The independent variable was intellectual capital. The dependent variable was ROE. The intermediate variable was a competitive advantage. The control variables were firm size, firm age, and level of corporate debt and assets. On the other hand, inferential statistics include Path analysis and structural equation modeling (SEM) in the AMOS program.

Structural Equation Modeling (SEM)

Structural equations (SEM) can examine a set of relationships of the variables in the study and reduce the covariance and the covariance matrix of the observed variables.

Table 2 Goodness–of–Fit Indices

Goodness–of–fit		Acceptable Level Value
Chi–square/df	CMIN/df	< 3
P–value of Chi–square	p–value	>0.05
Root Mean Square Residual	RMR	< 0.05
Goodness of Fit Index	GFI	>0.90
Adjust Goodness of Fit Index	AGFI	>0.90
Comparative Fit Index	CFI	>0.90
Norm Fit Index	NFI	>0.90
Root Mean Square Error of Approximation	RMSEA	<0.05

Source: (Hair et al,, 2010; Diamantopoulos et al., 2000)

Makki and Lodhi (2014) explained that path analysis is a complex model for assessment. (Kline, 2015) recommended applying GFI, NFI x^2, or CFI, NFI, and SRMR to the test. For the mediation test, Baron et al. (1986); Hayes (2009) suggested that the mediator variable be tested, and the results can be divided into three categories: total effect, indirect effect, and direct effect caused by the independent variable (X) affecting dependent variable (Y). The process can be described as follows.

1. Total effect (C) = c' + ab
2. Indirect effect (ab) = c – c'
3. Direct effect (c') = c – ab

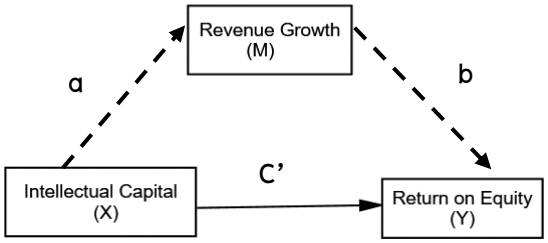

Figure 2: Test mediation by Baron and Kenny 1986

According to Baron and Kenny (1986), the mediator variable has no effect or no direct effect if it is found that the independent variable significantly affects the dependent variable but not through the mediator. Partial mediation occurs if the independent variable does not affect the dependent variable but passes through the mediator variable. However, it is full mediation if the independent variable does not affect the dependent variable through the mediator variable that affects the intermediate dependent variable.

Table 3 Summary of Variable Measurements

Variable name	Abbreviation	Measurement	Expect Sign /Hypotheses
Return on Equity	ROE	ROE = Net profit * 100 / Equity (average)	+ H1, H3, H4
Intellectual Capital	MVAIC	MVAIC= HCE+SCE+CEE+RCE	+H1, H2, H3, H4
Revenue Growth	RG	$\frac{\text{Total net sales}_{t} - \text{Total net sales}_{t-1}}{\text{Total net sales}_{t-1}}$	+ H2, H3

Source: (Ardi & Murwaningsari, 2018; Ana et al., 2021; Ulum et al., 2014; Ulum et al., 2017)

Efficiency Measurement of Intellectual Capital by MVAIC Model

The MVAIC model is the efficiency measurement of broad intellectual capital, which was developed from the VAIC™ model. It starts by calculating the value added (VA) using the accounting information in the financial statements (Ulum et al., 2014).

Step 1: Value – Added (VA)

Value–Added (VA) refers to the overall cost of operating expenses, labor costs, depreciation, and amortization.

$$VA = OP+EC+D+A \quad (1)$$

where OP is an operating profit, EC is the employee costs, D is the depreciation, and A is amortization.

Step 2: HCE

Human capital efficiency refers to dividing the value–added (VA) result from the first step by salary and wages.

$$HCE = \frac{VA}{HC} \quad (2)$$

where HCE is the human capital efficiency, VA is value–added, and HC is human capital.

Step 3: SCE

Structural capital efficiency refers to subtracting the value–added result from salary and wages and divided by value–added.

$$SCE = \frac{SC}{VA} \quad (3)$$

where SCE is the structural capital efficiency, and SC is the structural capital.

Relational capital refers to the cooperation and relationship of customers, marketing costs, and distribution channel and distribution network costs divided by value–add (VA).

Step 4: RCE

$$RCE = \frac{RC}{VA} \quad (4)$$

Physical capital refers to value–add (VA) divided by capital employed: the book value of total assets.

Step 5: CEE

$$CEE = \frac{VA}{CE} \quad (5)$$

Thus, the MVAIC model is to use the results of HCE, SCE, RCE, and CEE.

Step 6: MVAIC Model

$$MVAIC = HCE + SCE + RCE + CEE \quad (6)$$

Results

Descriptive Statistics Analysis

Descriptive statistics, including minimum, maximum, mean, and standard deviation, were used for general data. The independent variable in this study was intellectual capital. The mediator variable was competitive advantage, and the dependent variable was ROE. The control variables were firm size, firm age, and leverage. The study results are presented in Table 4.

Table 4 Descriptive Statistics of Variables (n=164)

	Unit	Min	Max	Mean	Std. Deviation	Skew.	Kurt.
MVAIC	Value	–2.32	16.75	5.31	3.51	0.98	0.84
RG	Value	–0.74	0.53	– 0.05	0.22	–0.38	0.86
ROE	Ratio	–24.68	30.09	6.44	10.20	–0.35	0.91
LnSize	Log	12.92	20.08	15.53	1.51	0.74	0.20
AGE	Years	1.00	78.00	31.22	14.71	0.08	0.13
LEV	Ratio	0.03	0.80	0.39	0.18	0.02	–0.95

Where: Intellectual Capital = MVAIC, ROE = Return on Equity, Competitive Advantage = Revenue Growth (RG), LnSize = firm size, AGE = firm age, LEV= leverage.

According to Table 4, the results of the study showed that the mean of intellectual Capital (MVAIC) was 5.31, and a standard deviation was 3.51. The average revenue growth (RG) was –0.05, and the standard deviation was 0.22. The average ROE was 6.44, and the standard deviation was 10.20. The average firm size (LnSize) was 15.53, and the standard deviation was 1.51. The mean firm age (AGE) was 31.22, and the standard deviation was 14.71. The mean of leverage (LEV) was 0.39, and the standard deviation was 0.18. The normal distribution of this sample was examined by Skewness and Kurtosis values. The results showed that the Skewness value ranged from 0.98 to –0.38, while the Kurtosis ranged from 0.91 to –0.95. Thus, the samples were normally distributed. According to Vanichbuncha, (2013), it is recommended that the skewness should be between –1 and +1 for normal data distribution. The data can be used for statistical analysis, structural equation modeling (SEM), and path analysis.

Empirical Assessment of Proposed Models

This study aimed to provide a perception of the influences of intellectual capital on firm performance through competitive advantage as shown in the model below.

Model 1: Model of the Influence of Intellectual Capital on Return on Equity through Revenue Growth (RG)

The results of model fit testing showed that they were consistent with goodness–of–fit, including chi–square = 3.335 (p–value = 0.343 >0.05), CMIN/DF (1.112), GFI (0.993), AGFI (0.953), CFI (0.997), NFI (0.974), and RMSEA (0.026). Thus, this model was generally consistent with the rules of thumb regarding model fit. The diagram depicted in the structural model (Figure 3) shows the influence of the path analysis.

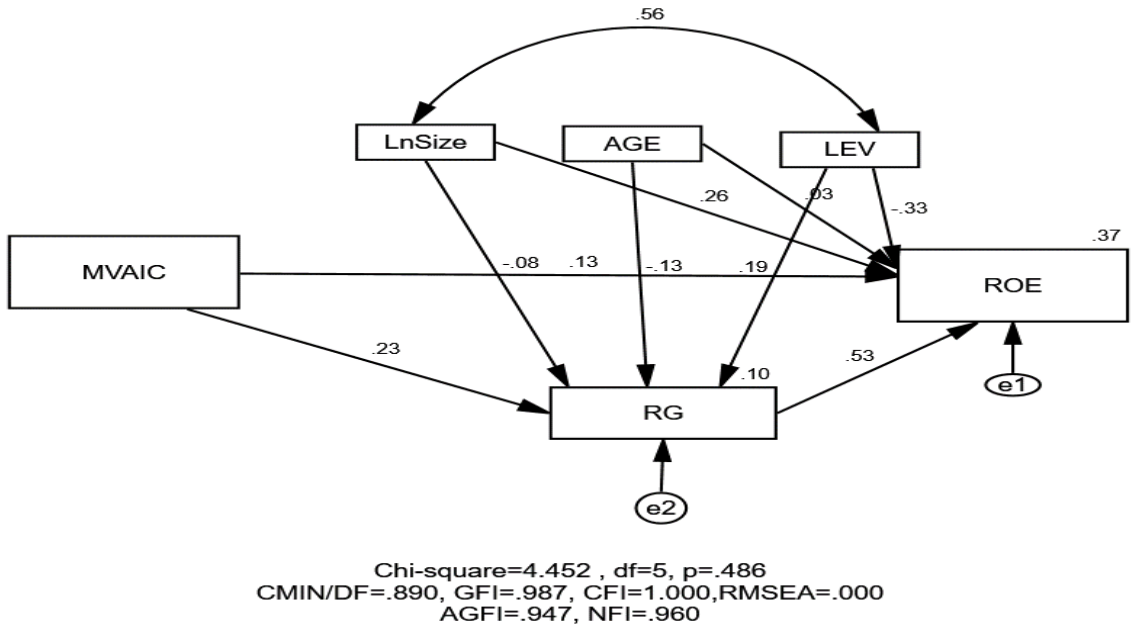

Figure 3: Model 1 Research Results

According to Figure 3, the parameter value of the similarity model has not reached many model fit criteria, such as Chi–Square/degree of freedom, GFI, AGFI, RMSEA, NFI, and CFI. The model was adjusted by changing the Modification Index (MI) value as the statistical value used for the decision to adjust the mode. The adjusting technique was to add the linking lines between the variable to reduce the degree of freedom: LnSize and LEV.

Table 5 Regression Weights of Model

Path Analysis			Standardized Regression Weights	SE	CR	P	Decision
ROE	<---	MVAIC	0.136	0.309	1.755	0.079	H1 Reject
RG	<---	MVAIC	0.228	0.006	2.541	0.011*	H2, H4 Accept, Full mediation
ROE	<---	RG	0.522	4.965	6.591	0.000*	H3, H4 Accept, Full mediation
ROE	<---	LnSize	0.257	0.639	2.812	0.005*	
ROE	<---	AGE	0.029	0.058	0.376	0.707	
ROE	<---	LEV	-0.331	5.187	-3.581	0.000*	
RG	<---	LnSize	-0.069	0.012	-0.638	0.524	
RG	<---	AGE	-0.124	0.001	-1.381	0.167	
RG	<---	LEV	0.192	0.097	1.766	0.077	

*p<0.05

Table 5 presents the parameter estimation test for Model 1. The result shows that the prospective model corresponds with the empirical data. The values are related with each variable and significant parameters, indicating that the influence of critical value (CR) and standard error (SE) values needed to be checked. The results are shown as follows:

(1) The result showed that intellectual capital (MVAIC) had a significantly positive influence on revenue growth (RG) (β = 0.228, CR = 2.514, p 0.011 < 0.05). Thus, intellectual capital (MVAIC) was statistically significant at 0.05.

(2) The results showed that revenue growth (RG) positively influenced ROE (β = 0.522, CR =4.965, p 0.000 < 0.05). Thus, revenue growth (RG) was statistically significant at 0.05 and was a full mediation according to Baron and Kenny's method.

Table 6 Standardized Direct, Indirect, and Total Effect Models

	Revenue growth (RG)			ROE		
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
MVAIC	0.228*	–	0.228*	0.136	0.119*	0.255*
R^2		9.40%			35.80%	

According to Model 1, the coefficient of the determinant (R^2) showed that intellectual capital (MVAIC) influenced ROE with an accuracy of 9.40%. In comparison, the coefficient of the determinant (R^2) showed that revenue growth (RG) influenced ROE with an accuracy of 35.80%. The result revealed that the direct effect of intellectual capital (MVAIC) on the ROE was 0.136. The indirect effect of intellectual capital (MVAIC) on ROE was 0.119. The total effect of intellectual capital (MVAIC) on ROE was 0.255.

Conclusion

The results of descriptive analysis show that the mean of MVAIC was 5.31, and the standard deviation was 3.51. The mean of Revenue Growth was –0.74, and the standard deviation was 0.22. The mean of ROE was 6.44, and the standard deviation was 10.20. The mean of firm size (LSIZE) was 15.53, and the standard deviation was 0.18. The mean of firm age was 31.22, and the standard deviation was 14.71. The mean of leverage was 0.39.

Research Question 1: How does intellectual capital influence firm performance?

Hypothesis 1: Intellectual capital has a positive influence on return on equity. The study found that intellectual capital had no significant influence on the return on equity at a level of 0.05. Thus, the hypothesis H1 was rejected. Likewise, Zhang et al. (2021) found that intellectual capital had no significant effect on the ROE of the pharmaceutical industry. In contrast, Hoang et al. (2020) found that firm performance had a positive impact on intellectual capital in Vietnam by measuring intellectual capital using the VAIC Model.

Research Question 2: How does intellectual capital influence competitive advantage?

Hypothesis 2: The study found that intellectual capital positively influenced income growth at a significant level of 0.05. Thus, hypothesis H2 was accepted. This is consistent with the findings of Kamukama & Sulait (2017).

Research Question 3: How does competitive advantage influence firm performance?

Hypothesis 3: The results show that revenue growth (RG) had a positive influence on the return on equity at a significant level of 0.05. Thus, hypothesis H3 was accepted. This is consistent with the findings of Wijayanto et al. (2019).

Research Question 4: How does intellectual capital influence performance through competitive advantage?

Hypothesis 4: Revenue growth (RG) was the mediator variable that indirectly influenced intellectual capital and firm performance. According to the mediator variable test introduced by Baron et al. (1986), the results showed that competitive advantage fully mediated intellectual capital to influence firm performance. Similarly, Awwad and Qtaishat (2023) found that competitive advantage fully mediated intellectual capital and new venture efficiency.

Discussion

The results of this study support resource–based view theory. The findings are consistent with Correia et al. (2020); Rochmadhona et al. (2018), who studied the direction of the market and firm performance through competitive advantage and the dynamics of companies in Portugal. They found that competitive advantage was the mediator of the relationship between dynamic capability and firm performance. Similarly, Rochmadhona et al. (2018) studied the competitive advantages between intellectual capital and the financial performance of financial institutions in ASEAN and found that intellectual capital had a positive effect on financial performance and competitive advantage. However, the level of intellectual capital was found to be different in Indonesia, Laos, Vietnam, the Philippines, and Thailand.

The results of this study revealed that intellectual capital affected firm performance through competitive advantage in companies in the service industry listed on the Stock Exchange of Thailand. Competitive advantage was found to fully mediate intellectual capital and firm performance. Moreover, intellectual capital (MVAIC) influenced ROE with an accuracy of 35.80%. However, other factors, such as the world's economic recession, changes in consumer behavior, employment reduction, business closures, working from home due to government measures, and lockdown measures, also affected returns to shareholders. For the survival of the organization during the crisis, organizational development in response to the knowledge–based economic environment, digital technology adoption, and personnel development in the forms of upskilling and reskilling to develop new products and services to satisfy customers are considered essential in the global commercial market.

Suggestion

1. This study only concentrated on companies in the service industry. Thus, future studies should focus on companies in other business groups for further insights.

2. Future studies should measure competitive advantages from other perspectives that could lead companies to wealth and sustainability.

3. Future research should study a sample of emerging economies.

4. Future research should add a variety of competitive advantage measurement tools to present other perspectives.

New Knowledge

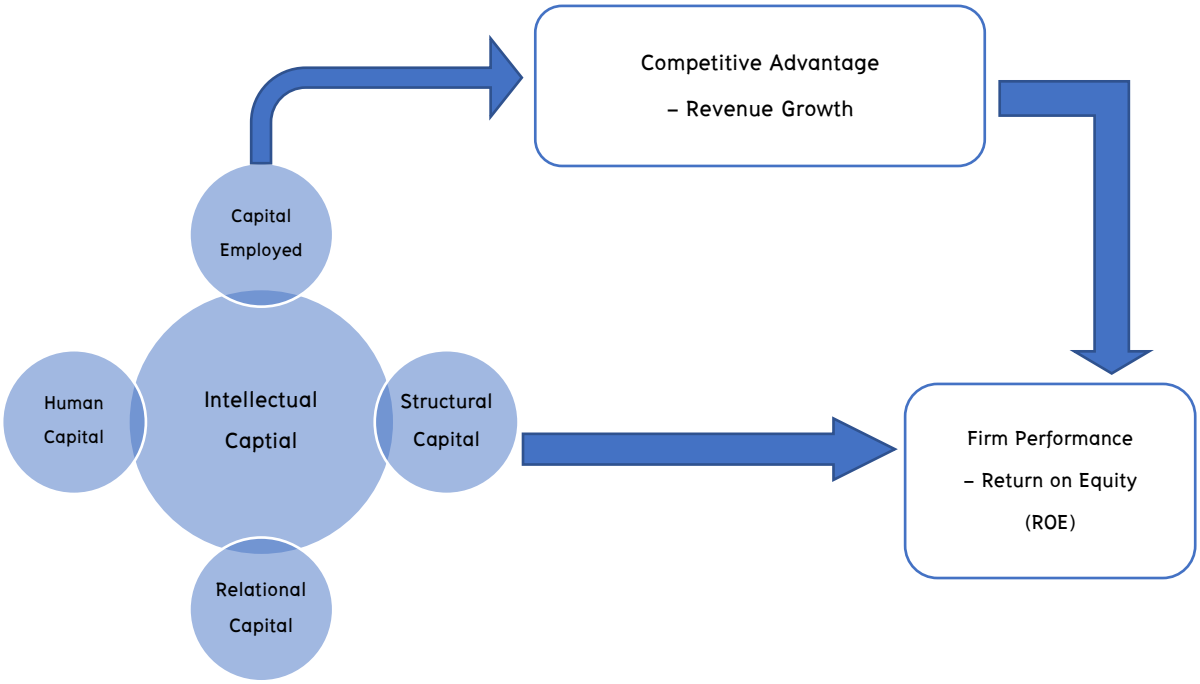

Figure 4 New Knowledge Model

This study provides understanding with regard to the use of intellectual capital in organizations. Obviously, intellectual capital has a positive effect on the organization through the extension of creativity and leads to new products and service improvements, and new operating processes through the use of the knowledge, skills, and experiences of employees and ~~the~~ management. In addition, technology, trade alliances, customer relationships, and the use of network business systems play an important role in enhancing competitiveness of the organization, capital

market development, and the national economy. This is the starting point for the organization to become innovative and respond to change in the digital era.

Interestingly, revenue growth can be achieved through innovation in manufacturing, improving processes, interacting with customers on online platforms to reach more customers, creating new marketing and distribution channels, and improving customer relations. Furthermore, investing in intellectual capital by applying digital technology to corporate infrastructure, such as a network system, a cloud system, or a global network, provides more opportunities to grow and build relationships with customers faster than traditional business activities while generating more returns to shareholders.

References

Ana, S.R., Sulistiyo, A.B., & Prasetyo, W. (2021). The Effect of Intellectual Capital and Good Corporate Governance on Company Value Mediated by Competitive Advantage. *Journal of Accounting Investment*, *22*(2), 276–295. DOI: 10.18196/jai.v22i2.10412.

Anwar, M., Khan, S.Z., & Khan, N.U. (2018). Intellectual Capital, Entrepreneurial Strategy and New Ventures Performance: Mediating Role of Competitive Advantage. *BusinessEconomic Review*, *10*(1), 63–93. DOI: dx.doi.org/10.22547/BER/10.1.3.

Ardi, S., & Murwaningsari, E. (2018). Financial Performance Determination, Earnings Quality, Intellectual Capital and Company Value. *South East Asia Journal of Contemporary Business, EconomicsLaw, 15*(5), 1–16.

Awwad, M.S., & Qtaishat, A.M. (2023). The Impact of Intellectual Capital on Financial Performance of Commercial Banks: The Mediating Role of Competitive Advantage. *International Journal of LearningIntellectual Capital, 20*(1), 47–69.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99–12.

Baron, R.M., & Kenny, D.A. (1986). The Moderator–mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037//0022–3514.51.6.1173

Bryman, A., Bell, E., Mills, A. J., & Yue, A. (2007). Business Research Strategies. *Business Research Methods,* 226–238.

Cheng, M.Y., Lin, J.Y., Hsiao, T.Y., & Lin, T.W. (2010). Invested Resources, Competitive Intellectual Capital, and Corporate Performance. *Journal of Intellectual Capital*, *11*(4), 433–450. https://doi.org/10.1108/14691931011085623

Correia, R.J., Dias, J.G., & Teixeira, M.S. (2020). Dynamic Capabilities and Competitive Advantages as Mediator Variables Between Market Orientation and Business Performance. *Journal of Strategy Management Decision*, *14*(2), 187–206. https://doi.org/10.1108/JSMA-12-2019-0223

Creswell, J.W. (2009). *Research Design: Qualitative and Mixed Methods Approaches.* Sage.

Department of Trade Negotiations. (2020, March 9). *COVID-19 Impact on Trade in the Service Industry.* https://api.dtn.go.th/files/v3/5e69fc06ef4140d27b43da86/download

Diamantopoulos, A., & Siguaw, J.A. (2000). *Introducing LISREL*. Sage.

Edvinsson, L. (1997). Developing Intellectual Capital at Skandia. *Long Range Planning*, *30*(3), 366–373. https://doi.org/10.1016/S0024-6301(97)90248-X

Han, D., & Han, I. (2004). Prioritization and Selection of Intellectual Capital Measurement Indicators Using Analytic Hierarchy Process for the Mobile Telecommunications Industry. *Expert Systems with Applications*, *26*(4), 519–527. https://doi.org/10.1016/j.eswa.2003.10.010

Hair, J.F., Anderson, R.E., Babin, B.J., & Black, W.C. (2010). *Multivariate Data Analysis: A Global Perspective (Vol. 7).* Pearson.

Harris, L. (2000). A Theory of Intellectual Capital. *Advances in Developing Human Resources*, *2*(1), 22–37. https://doi.org/10.1177/152342230000200104

Hayes, A.F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs*, *76*(4), 408–420. DOI: 10.1080/03637750903310360

Hoang, H.T., Nguyen, H.T.H., Vu, N.H., Le, A.H., & Quach, H.H. (2020). Intellectual Capital and Firm Performance in Vietnam 2012–2016. *International Journal of Learning Intellectual Capital, 17*(1), 27–46.

Hoyle, R.H. (1995). *Structural Equation Modeling: Concepts, Issues, and Applications.* Sage.

Kadocsa, G. (2006). Research of Competitiveness Factors of SME. *Acta Polytechnica Hungarica*, *3*(4), 71–84.

Kamukama, N., & Sulait, T. (2017). Intellectual Capital and Competitive Advantage in Uganda's Microfinance Industry. *African Journal of Economic Management Studies*, *8*(4), 498–514. DOI 10.1108/AJEMS–02–2017–0021

Kline, R.B. (2015). *Principles and Practice of Structural Equation Modeling*. Guilford.

Majumder, S.C., Appiah, B.K., & Cardorel, O.C. (2021). Determinants of Market to Book Value and Financial Performance of Chinese Listed Firms: Implication of MVAIC model. *International Journal of Learning Intellectual Capital*, *18*(2), 131–153. https://doi.org/10.1504/IJLIC.2021.114612

Makki, M.A.M., & Lodhi, S.A. (2014). Impact of Corporate Governance on Intellectual Capital Efficiency and Financial Performance. *Pakistan Journal of Commerce Social Sciences*, *8*(2), 305–330.

Porter, M.E. (1985). Technology and Competitive Advantage. *Journal of Business Strategy, 5*(3), 60–78. https://doi.org/10.1108/eb039075

Rochmadhona, B.N., Suganda, T.R., & Cahyadi, S. (2018). The Competitive Advantage Between Intellectual Capital and Financial Performance of Banking Sector in ASEAN. *Jurnal Keuangan dan Perbankan*, *22*(2), 321–334. https://doi.org/10.26905/jkdp.v22i2.2060

Setsmart. (2021). *Data Financial Year 2019–2020.* http://www.setsmart.com/ssm/login.

Sveiby, K.E. (1997). *The New Organizational Wealth: Managing & Measuring Knowledge–Based Assets.* Berrett–Koehler.

The Stock Exchange of Thailand. (2022). The Stock Exchange of Thailand CEO Survey: Perspective of CEO on the Crisis COVID–19. (November 30, 2022). https://classic.set.or.th/dat/vdoArticle/attachFile/AttachFile_16 25636948117.pdf

Vanichbuncha, B.T. (2013). *Analyze Structural Equation Modeling with AMOS.* Samlada.

Ulum, I., Ghozali, I., & Purwanto, A. (2014). Intellectual Capital Performance of Indonesian Banking Sector: A Modified VAIC (M–VAIC) Perspective. *International Journal of Finance Accounting*, *6*(2), 103–123.

Ulum, I., Kharismawati, N., & Syam, D. (2017). Modified Value–added Intellectual Coefficient (MVAIC) and Traditional Financial Performance of Indonesian Biggest Companies. *International Journal of Learning Intellectual Capital*, *14*(3), 207–219. https://doi.org/10.1504/IJLIC.2017.086390

Wijayanto, A., Dzulkirom, M., & Nuzula, N. (2019). The Effect of Competitive Advantage on Financial Performance and Firm Value: Evidence from Indonesian Manufacturing Companies. *Russian Journal of Agricultural Socio–Economic Sciences*, *85*(1). DOI: 10.18551/rjoas.2019–01.04

Wilson, N.J., Riches, V.C., Riches, T., Durvasula, S., Rodrigues, R., & Pinto, S. (2020). Complex Support Needs Profile of an Adult Cohort with Intellectual Disability Transitioning from State–based Service Provision to NDIS–funded Residential Support. *Journal of Intellectual Developmental Disability*, *45*(4), 355–364. https://doi.org/10.3109/13668250.2020.1717069

Xu, J., & Wang, B. (2018). Intellectual Capital, Financial Performance and Companies' Sustainable Growth: Evidence from the Korean Manufacturing Industry. *Sustainability*, *10*(12). DOI: 10.3390/su10124651

Zhang, X–B., Duc, T.P., Burgos Mutuc, E., & Tsai, F–S. (2021). Intellectual Capital and Financial Performance: Comparison with Financial and Pharmaceutical Industries in Vietnam. *Frontiers in Psychology*, *12.* DOI: 10.3389/fpsyg.2021.595615