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The Effect of Intellectual Capital on the Financial Performance of Islamic and Conventional Life Insurance Companies in GCC and ASEAN

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Entelektüel Sermayenin KİK ve ASEAN'daki İslami ve Konvansiyonel Hayat Sigortası Şirketlerinin Finansal Performansı Üzerindeki Etkisi

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Abstract

The objective of this study is to examine the association of intellectual capital with the financial performance of Islamic and conventional life insurance companies in the regions of the GCC and ASEAN. The study conducts an analysis to assess the association between intellectual capital, assessed explicitly by the value-added intellectual coefficient (VAIC) using Ordinary Least-Square Regression, and the financial performance of life insurance in the GCC and ASEAN through the panel analysis encompassing 4 GCC countries and 2 ASEAN, which encompasses of 26 conventional and 24 Islamic life insurance covering 2017-2021 period. The findings indicate a distinction between conventional and Islamic life insurance companies. The impact of intellectual capital in the context of conventional life insurance on financial performance is only affected by Capital Employed Efficiency. Conversely, financial performance is significantly affected by the intellectual capital elements of Islamic life insurance, except structural capital. Despite varying outcomes, conventional and Islamic life insurance correlation demonstrates a noteworthy impact of intellectual capital, except for structural capital, on financial performance.

Keywords: *Intellectual capital, financial performance, Islamic finance, life insurance.*

Makale Bilgileri

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Öz

Bu çalışmanın amacı, entelektüel sermayenin KİK ve ASEAN bölgelerindeki İslami ve geleneksel hayat sigortası şirketlerinin finansal performansı ile ilişkisini incelemektir. Çalışmada, Sıradan En Küçük Kare Regresyonu kullanılarak katma değer entelektüel katsayısı (VAIC) ile hesaplanan entelektüel sermaye ve KİK ve ASEAN'daki hayat sigortalarının finansal performansı arasındaki ilişki analiz edilmiştir. Çalışma, 2017-2021 döneminde 26 konvansiyonel ve 24 İslami hayat sigortası verilerini içeren 4 KİK ülkesi ve 2 ASEAN ülkesini kapsayan panel veri analizi yoluyla incelenmiştir. Bulgular, geleneksel ve İslami hayat sigortası şirketleri arasında bir ayrım olduğunu göstermektedir. Konvansiyonel hayat sigortası bağlamında entelektüel sermayenin finansal performans üzerindeki etkisine bakıldığında, sadece kullanılan sermaye verimliliğinden etkilendiği görülmektedir. Tersine, İslami hayat sigortasında finansal performans, yapısal sermaye hariç, entelektüel sermaye unsurlarından önemli ölçüde etkilenmektedir. Farklı sonuçlara rağmen, geleneksel ve İslami hayat sigortasındaki korelasyon, yapısal sermaye hariç entelektüel sermayenin finansal performans üzerinde kayda değer bir etkisi olduğunu göstermektedir.

Anahtar Kelimeler: *Entelektüel sermaye, finansal performans, İslami finans, hayat sigortası.*

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1. Introduction

Financial performance is critical for measuring and determining companies' overall health and viability. It has been argued that the present mechanism for evaluating corporate performance exhibits partiality towards financial indicators. The rationale behind the utilization of financial metrics, specifically profitability, is to facilitate investors in rationalizing and evaluating a company's ability to create profits (Siswanti et al., 2017). In addition, Dilling (2010) stated that a company's sustainability is influenced by its profitability attributes. Therefore, it is also crucial for insurance industries to evaluate their health status to guarantee their long-term viability, especially considering the inherent risks they bear.

Insurance, one of the financial instruments, is considered a crucial mechanism for the transfer of risk. Nonetheless, Islamic law offers an alternative framework rooted in the principles of Sharia law, which brings a unique perspective on the transmission and mitigation of risks, which is free from interest (*riba*), uncertainty (*gharar*), and gambling (*maysir*) (Malik Ullah, 2019). As a recognized financial intermediary, insurance, especially life insurance, carries risk by protecting against unexpected and unpredictable events through various products such as savings, pensions, education, and health (Ching et al., 2010). However, since life insurance was the sole source of uncertainty prior to 1996, it expanded quickly in some cohorts before declining (Chen et al., 2001). As Khan et al. (2008) in their report entitled Takaful Growth Opportunities In Dynamic Market indicated, this circumstance also exists now, when life insurance and even more family takaful products lag considerably behind general takaful; their gross contribution is less than 7% of total written business in the GCC. As a result of the 2007 financial crisis, Malhotra et al. (2017) note that financial intermediaries, including life and health insurance companies, faced significant challenges, such as the resulting slow growth and competition. In addition, insurance companies, in accordance with Thorburn et al. (2020), were included in the world's economy and business growth, which declined when the pandemic struck. The slow growth of life insurance and takaful (Chen et al., 2001; Malhotra et al., 2017) is due to several factors. In the Takaful Market report published by Allied Research Market (2021), various factors influence the growth of the market. These elements encompass the negotiating power possessed by suppliers, the level of competition intensity among competitors, and the potential threat posed by new entrants and substitutes. Enhancing quality through financial performance is deemed one of the most effective approaches to garner the interest of investors and ensure stability in both Islamic and conventional life insurance. It is essential to enhance the quality and financial performance of the insurance in order to sustain its financial position (Nizar and Falikhatun, 2021). Hence, these companies need to implement various strategies.

In the present-day economy, there is significant emphasis on corporate finance, banks, financial institutions, and each segment of markets in a stabilized economy through wealth generation, in which a knowledge-centric economic framework becomes essential and offers enduring benefits (Akkas and Asutay, 2022b). One approach for the emerging to improve quality is through intellectual capital, a recognized essential element in driving innovation has been identified (Ku Ismail and Al-Musali, 2011). The recognition of intellectual capital as a primary driver of value creation and competitive advantage in contemporary organizations has been recognized (Nawaz and Haniffa, 2017). In order to remain viable in the market, insurance companies may be required to adopt a fresh set of strategic priorities, which could include diversifying their product offerings (Malhotra et al., 2017), particularly those that adhere to Sharia principles given the emergence of new players who have yet to catch up with conventional insurance (Remli et al., 2018). Therefore, for the purpose of survival, the existence of intellectual capital, which made higher corporate value expected potential investors, can be attracted by the comprehension information (Dewi Puji, 2019).

In the context of devising competitive or sustainability strategies, Intellectual Capital (IC) holds significant relevance as a determinant of organizational dynamics, encompassing entities such as life insurance companies. The company's internal strategy, referred to as Resources Based Theory, involves the efficient utilization of tangible and intangible assets to attain profitable activities and

gain a competitive edge (Kamaluddin and Rahman, 2013). Barney (2000) asserts that company resources must possess four distinct attributes. Firstly, they must be deemed valuable, meaning they can be leveraged to capitalise on opportunities or mitigate threats within the corporate environment. Secondly, these resources must be rare in comparison to those held by competitors, both currently and potentially. Thirdly, they must be difficult to imitate or imperfectly imitable. Finally, it is important to note that there is no viable alternative strategy available resources that possess value but lack rarity or the challenge of replication. Asutay and Ubaidillah (2023) suggest that a company may leverage its internal resources and capabilities to develop a competitive advantage by creating value through strategic planning.

Intellectual capital is a valuable asset that can provide a comprehensive competitive advantage due to its composition of knowledge and expertise, professional ability, strong relationships, and technological ability (Li et al., 2008); diverse sectors have already begun to conduct research on intellectual capital and its effect on financial performance. While a significant amount of research focuses on intellectual capital, there are multiple methods for assessing intellectual capital, either qualitative or quantitative, but primarily refer to financial statements, which frequently apply the value-added intellectual coefficient (VAIC), which includes human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE) (Pulic, 2000). Numerous studies have been carried out across various industries, including the financial sector, specifically in the realm of banking (Ku Ismail and Al-Musali, 2011; Poh et al., 2018), Islamic banks (Nawaz and Haniffa, 2017; Ousama et al., 2020; Ulum and Soepriyanto, 2021), which primarily the influence of intellectual capital on financial performance is substantial. Limited studies concerned insurance sectors (Alipour, 2012; Lu et al., 2014; Olarewaju and Msomi, 2021), even more in takaful companies (Aji and Kurniasih, 2015; Nizar and Falikhatun, 2021).

Based on Billah (2019), Islamic insurance, which is acknowledged as a promising approach for providing security to individuals facing risks, must undergo adaptation in order to gain recognition, mainly to compete with conventional insurance companies, which is necessary for Islamic insurance to function as an act of worship that fulfills religious obligations and performing as an act of worship in the global financial community. Then, considering the limited extent of the paper on the association between intellectual capital and financial performance within the insurance sector, the paper's objective is to investigate the influence of intellectual capital on the financial performance of both Islamic and conventional insurance companies, with a particular emphasis on life insurance companies. This study employs accounting ratio, i.e., ROA, to measure financial performance to reflect profitability. The life insurance selection sector is widely recognized as one of the most challenging products to offer (Dash, 2013). South East Asia and GCC were selected because Islamic insurance is expanding, and South East Asia is the second-highest after Saudi Arabia; hence, Islamic life insurance companies are required to continuously focus on their intellectual capital to enhance and sustain their financial performance (Nizar and Falikhatun, 2021). Indonesia and Malaysia were selected as representations of the Southeast Asian area in this study based on their substantial Muslim populations and high economic growth prospects. In a manner akin to the United Arab Emirates, Qatar, Saudi Arabia, and Kuwait, these countries show concerns of an indirect nature regarding the disclosure of information provided alongside their notable expansion within the Islamic insurance industry. Therefore, this study empirically aims to conduct an examination of intellectual capital on financial performance, Islamic and conventional, including representing cross-country context.

This study's objective is to examine the impact of intellectual capital on the financial performance, specifically return on assets (ROA), of Islamic and conventional institutions simultaneously operating in the Gulf Cooperation Council (GCC) and Association of Southeast Asian Nations (ASEAN) member states. This study is academically significant since it adds to the current knowledge base on insurance, specifically Islamic life insurance, by investigating the influence of intellectual capital on financial performance within two distinct geographical areas. There is a possibility that this could be adopted as a policy for insurance practitioners in the future.

Regarding the organization and content of this paper, section 2 explains the study's conceptual framework about intellectual capital and hypotheses development. Research methods, descriptions of the variables, samples, and data collecting are provided in the third section; results and discussions are described in the fourth section. The conclusion of this proposed study is presented in Section 5.

2. Literature Review

The current economic landscape lays considerable importance on knowledge, which is enabled by intellectual capital. The concept being discussed involves the acquisition and advancement of knowledge and results inside organizations (Akkas and Asutay, 2022b). As a result of advancements in intellectual capital, a large number of scholars are attracted to the field. Previous studies have predominantly focused on generating value through intellectual capital, employing the Value Added Intellectual Coefficient (VAIC) methodology developed by Pulic (2000) to evaluate the various elements of intellectual capital. The intellectual capital component comprises three elements: human capital, structural capital, and capital employed. As per Bontis (1998), the concept of human capital pertains to the personal attributes of workers, encompassing diverse abilities and collective competencies such as innovation and expertise. The concept of structural capital pertains to the acquisition and dissemination of knowledge through routine operations, encompassing databases, corporate ethos, publications, and methodical approaches (Bontis, 1998). Similarly, Lu et al. (2014) assert that capital employed holds significant importance in the performance of a company.

The insurance sector reveals varying financial performance outcomes based on the distinct impacts of the three components of intellectual capital. According to a recent study conducted by Alkan and Cangi (2023), the financial performance of the life insurance and pension industries in Turkey is primarily driven by capital employed. Contrary to the assertion made by Kurt (2023), it is argued that there is no substantial impact of HCE and CEE on earning management in the insurance sector in Turkey; instead, only SCE exerts influence on earning management. In addition, Sarişin and Özkan (2022) study in Turkish insurance, explicitly focusing on non-life insurance, showed that human capital has emerged as the most influential factor affecting profitability. Olarewaju and Msomi (2021) researched general insurance in South Africa, which resulted in a considerable relationship between human capital and structural capital concerning their impact on return on assets. In contrast, according to Alipour (2012), there exists a positive relationship between profitability (ROA) and human capital, structural capital, and capital used within the insurance industry in Iran. Similarly, Aji and Kurniasih (2015), who studied Islamic insurance in Indonesia, demonstrate that each component of intellectual capital has an impact on ROA. However, according to the research of Nizar and Falikhatun (2021), which investigates Islamic insurance businesses in the Middle East and ASEAN, only structural capital, namely ROE, has a substantial effect on profitability, while the impact of human capital and capital employed on the remaining factors is insignificant. The observed variation is a commonly occurring phenomenon wherein specific industries, such as Islamic banking, tend to be predominantly impacted by the HCE and CEE determinants (Akkas and Asutay, 2022a; Ku Ismail and Al-Musali, 2011; Ousama et al., 2020). According to Sarıgül (2023), the implementation of HCE and CEE in Turkey banks has been found to have a favorable influence on financial performance. Similar to Uslu's (2022) research, CEE, and HCE are the most influential variables in Turkish bank performance. In contrast, according to research conducted by Akgün and Türkoğlu (2023) on European companies during the financial crisis, SCE and HCE are the most influential variables on financial performance.

In general, intellectual capital is crucial to conducting research more broadly to attract investors and sustain the business financially. As stated previously, few studies concern the nexus between intellectual capital and financial performance within insurance companies. In addition, most prior research conducted across regions or other specifications about intellectual capital on performance, especially in the financial sector, is dominated by the banking sector (Asutay and Ubaidillah, 2023;

Akkas and Asutay, 2022a; Buallay et al., 2020; Ousama et al., 2020; Nawaz and Haniffa, 2017). Other sectors such as small, medium enterprises (Ahmad et al., 2022; Beltramino et al., 2022; Khalique et al., 2020), firms (Akgün and Türkoğlu, 2023; Bataineh et al., 2022; Xu and Li, 2022), manufacturing (Liu et al., 2022), etc. Then, as far as our awareness, only Nizar and Falikhatun (2021) study talks about Islamic insurance between the Middle East and ASEAN, and no studies examine Islamic and conventional insurance together. Nevertheless, our research differs from others in some ways. First, this study focuses on life insurance and then empirically examines the distinction between intellectual capital and financial performance in Islamic and conventional life insurance, primarily in GCC and ASEAN. It is essential to recognize that previous research has predominantly focused on a single industry or specific geographic regions. In contrast, this study examines the impact of intellectual factors on the financial performance of conventional and Islamic life insurance industries and regions simultaneously.

2.1. Hypotheses Development

According to resource-based theory, organizations can achieve superior performance by acknowledging intellectual capital and other intangible assets as crucial determinants in developing and maintaining their competitive advantage (Barney, 2000; Riahi-Belkaoui, 2003; Youndt et al., 2004; Nawaz and Haniffa, 2017). Hence, despite divergent viewpoints on IC, this paper's investigation examines each component simultaneously and separately that will enable us to identify the factors that substantially influence financial performance, thereby facilitating them to make value to compete and sustain.

Given the utilization of resource-based theory in this research, it is essential to evaluate the effect of intellectual capital (IC) on financial sustainability (Kamaluddin and Rahman, 2013). Therefore, this study predicts that intellectual capital is significantly associated on the financial performance (ROA) in Islamic and conventional life insurance as the hypothesis developed as follows:

H1: There is an effect of IC (VAIC) on financial performance (ROA) in conventional life insurance on GCC and ASEAN

H2: There is an effect of IC (VAIC) on financial performance (ROA) in Islamic life insurance on GCC and ASEAN

2.1.1. Human Capital and Financial Performance

Generally, human capital is vital, whereas management is seen as another factor in output (Olarewaju and Msomi, 2021). According to Riahi-Belkaoui (2003), human capital generates innovation through the creation of innovative services and products, as well as the enhancement of organizational procedures. In line with Ali et al. (2022), the concept of human capital pertains to the valuation of knowledge, data, and resources to address business challenges and maximize economic prosperity. Human capital has a significant effect on financial performance as a result of its contribution to profitable and productive organizations, such as life insurance companies, and subsequent discussion (Aji and Kurniasih, 2015; Alipour, 2012; Olarewaju and Msomi, 2021). The following hypothesis is formed:

H1a: Human capital affects financial performance (ROA) in GCC and ASEAN's conventional life insurance.

H2a: Human capital affects financial performance (ROA) in GCC and ASEAN's Islamic life insurance.

2.1.2. Structural Capital and Financial Performance

Riahi-Belkaoui (2003) states that the notion of structural capital pertains to the knowledge and information that an organization owns as a collective entity. As stated by Nawaz and Haniffa (2017), the possession of structural capital is essential for companies to compete successfully in the contemporary dynamic economy, as it enables the generation of value. Therefore, the concept of structural capital consists of the organizational structure and culture that facilitates the creation of valuable information and technologies (Buallay et al., 2020). The existing literature on the association of intellectual capital with financial performance, as evidenced by prior studies in insurance (Aji and Kurniasih, 2015; Alipour, 2012; Nizar and Falikhatun, 2021; Olarewaju and Msomi, 2021), implies that structural capital has a noteworthy impact on ROA. Therefore, the present study proposes that the impact of structural capital on return on assets (ROA) is substantial, as hypothesized below:

H1b: There is an effect of structural capital on financial performance (ROA) in conventional life insurance in GCC and ASEAN.

H2b: There is an effect of structural capital on financial performance (ROA) in Islamic life insurance in GCC and ASEAN.

2.1.3. Capital Employed and Financial Performance

This type of capital relates to the financial and nonfinancial relationships between firms and external elements, namely customers, suppliers, and partners, which, if well managed, can attract the enhancement of image and reputation that would impact financial performance (Akkas and Asutay, 2022a). Capital employed indicates the amount of additional value produced by the company's book value as invested (Olarewaju and Msomi, 2021). According to the insurance industry, previous research in Capital employed has not impacted financial performance (Nizar and Falikhatun, 2021; Olarewaju and Msomi, 2021), whereas other research indicates that capital employed has a substantial impact on the financial performance (Aji and Kurniasih, 2015; Alipour, 2012). Since capital employed is necessary to increase profitability in financial firms (Asutay and Ubaidillah, 2023), this study hypothesizes that this variable significantly impacts ROA in Islamic and conventional life insurance, as hypothesized below.

H1c: There is an effect of capital employed on financial performance (ROA) in conventional life insurance in GCC and ASEAN.

H2c: There is an effect of capital employed on financial performance (ROA) in Islamic life insurance in GCC and ASEAN.

3. Methodology

3.1. Implemented Models

Drawing inspiration from the works of Olarewaju and Msomi (2021) and (Alipour, 2012), this study was assessed explicitly by VAIC to investigate the impact of intellectual capital on ROA as the financial performance of the life Islamic and conventional insurance sectors from 2017 to 2021. The research utilized a purposive sampling methodology in order to carefully choose the sample. The initial step involved obtaining a comprehensive list of insurance companies in the GCC and ASEAN countries through each country's insurance association or government institutions. Subsequently, the data was obtained from the publicly available financial information retrieved from the official websites of each life insurance company over a period of five years. The resulting sample comprised 250 data from 24 Islamic life insurance and 26 conventional life insurance companies operating in various countries. Specifically, there was one Islamic life insurance in Saudi Arabia, one in the UAE, and four conventional life insurance. In Qatar, there were two Islamic life insurance companies, while

Kuwait had one Islamic life insurance company. Indonesia had a total of 13 conventional and 14 Islamic life insurance companies. Lastly, Malaysia had nine conventional and five Islamic life insurance companies, the details can be seen on the appendix table. Due to the cross-section and time series employed, as (Baltagi, 2007) stated, panel data is used. The study employed static panel analysis, which is processed using E-views version 12 through a test of the Likelihood Ratio, Hausman Test, and Lagrange Multiplier to estimate the optimal model for examining the impact of intellectual capital (specifically, VAIC, HC, SC, and CE) on financial performance as measured by ROA. The findings indicate that the fixed-effect and common-effect models are the optimal choices for this objective. This study employs Ordinary Least Square (OLS) models, which incorporate fixed-effect and common-effect models. Moreover, the determination coefficient (R2) is utilized to ascertain the proportionate impact of the independent variables (VAIC, HC, SC, CE) collectively on the dependent variable (ROA). The following equation is the panel data regression model:

$ROA_{it} = \alpha + \beta X_{it} + \sum_{a=1}^{n} \gamma Cit + \varepsilon$, where:

α = constant

β = coefficient of variables

i = the number of insurance companies

t = the number of years

ε = the term of error

The independent variable, denoted as Xit, encompasses the variables VAIC, HCE, SCE, and CEE. The Xit DBit tool is utilized to examine the primary independent variables' association to recognize differences within conventional and Islamic life insurance. Control variables, such as Size and Leverage, symbolized as Cit, are utilized in the study.

3.2. Variable Definition and Measurement of Intellectual Capital

3.2.1. Dependent Variable

The dependent variable in our model is the financial performance of both Islamic and Conventional life insurance. A study by Albertini and Berger-Remy (2019), return on assets (ROA) is a well-known financial performance measure for intellectual capital (IC) study because it can show how much money intangible assets are worth. The Return on Assets (ROA) metric evaluates a company's effectiveness in utilizing its assets to generate profits (Nawaz and Haniffa, 2017). Since ROA has been used as a measure of financial success in most previous studies, it was chosen as the dependent variable in this study. ROA is a measure of how well the insurance company is doing financially.

3.2.2. Independent Variable

VAIC, which is the sum of Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE), is used to evaluate a company's value-generating process for tangible and intangible assets (Akkas and Asutay, 2022a; Asutay and Ubaidillah, 2023). In order to utilize this model, it is necessary to adhere to the following steps. Initially, the evaluation of the value added (VA) of the enterprise. The evaluation of a business's value added (VA) is determined by computing the disparity between the company's output and input. The output by corporations is a result of the sale of various commodities and services in the market. The company's input refers to all expenditures except for labor costs (Akkas and Asutay, 2022a), which is in line with the assertation by Pulic (2000) that labor expenses should no longer be considered as costs because it is the key point of HC. Afterward, value-added links to the expenditure of human capital to measure human capital efficiency (Nawaz and Haniffa, 2017), which institution needs high-quality human capital in order to

succeed based on resource-based views (Olarewaju and Msomi, 2021). Thirdly, in order to compute the efficiency of Structural Capital (SCE), it is necessary to deduct the value-added derived from human capital and subsequently divide it by the value-added itself (Ali et al., 2022). The measure of capital-employed efficiency is determined by dividing the value-added metric by the capital employed, which is evaluated based on total assets adjusted for intangible assets (Asutay and Ubaidillah, 2023).

3.2.3. Control Variable

To conduct statistical analysis and control for potentially confounding variables that may impact financial performance, we have included Firm Size and Leverage as control variables. The inclusion of the logarithm of the book value of a company's total assets serves as a mechanism for mitigating the influence of business size, with the aim of generating value and wealth (Alipour, 2012; Asutay and Ubaidillah, 2023; Riahi-Belkaoui, 2003). The utilization of leverage is employed to manage the impact of liabilities on the financial performance of an entity, accomplished by dividing the aggregate liabilities based on the total asset book value (Alipour, 2012; Olarewaju and Msomi, 2021).

Table 1. An Overview of the Variables Employed and the IC Measurement

Variables	Symbol	Type	Measures
Return on Assets (Nawaz and Haniffa, 2017)	ROA	Dependent Variable	Net Profit / Total Asset
Value Added (Pulic, 2000; Akkas and Asutay, 2022a)	VA		Output – Input Net Sales – Total Expense (excluding labor costs)
Human Capital (Nawaz and Haniffa, 2017)	HC		Employee Cost
Structural Capital (Ali et al., 2022)	SC		Value Added – Human Capital
Capital Employed (Asutay and Ubaidillah, 2023)	CE		Total Assets – Intangible Assets
Human Capital Efficiency (Akkas and Asutay, 2022a; Asutay and Ubaidillah, 2023)	HCE	Independent Variable	Value Added / Human Capital
Structural Capital Efficiency (Akkas and Asutay, 2022a; Asutay and Ubaidillah, 2023)	SCE	Independent Variable	Structural Capital / Value Added
Capital Employed Efficiency (Akkas and Asutay, 2022a; Asutay and Ubaidillah, 2023)	CEE	Independent Variable	Value Added / Capital Employed
Value Added Intellectual Coefficient (Akkas and Asutay, 2022a; Asutay and Ubaidillah, 2023)	VAIC	Independent Variable	HCE + SCE + CEE
Firm Size (Ali et al., 2022)	SIZE	Control Variable	Log of Total Asset
Leverage (Ali et al., 2022)	LEV	Control Variable	Total Liquidity / Total Asset

4. Results and Discussion

4.1. Descriptive Statistic

Table 2. Summary Statistics

Variable	ROA	VAIC	HCE	SCE	CEE	SIZE	LEV
Panel A: Full Sample							
Obs.	250	250	250	250	250	250	250
Mean	0.016775	-2.19708	1.882707	0.254224	0.060148	6.760589	0.709592
Median	0.008936	-1.62009	1.181921	0.400817	0.046699	6.664368	0.749088
Max	0.603403	56.86112	28.41515	10.92045	0.268336	11.39629	0.749088
Min	-0.3996	-29.4178	-14.5941	-56.8812	-0.39962	4.539703	8.620055
Std. Dev	0.061828	5.217906	3.300018	3.910361	0.071404	1.325765	4.539703
Panel B: Conventional							
Obs.	130	130	130	130	130	130	130
Mean	0.025362	3.60168	2.919224	0.636035	0.046423	7.018315	0.777424
Median	0.014061	-2.67945	1.910911	0.563939	0.038341	0.038341	0.786537
Max	0.411382	5.699206	28.41515	8.772095	0.214305	9.160247	8.620055
Min	-0.12564	-29.4178	-6.39157	-5.85782	-0.0501	5.68864	0.026591
Std. Dev	0.051655	4.164476	3.903303	1.35954	0.043727	0.754224	0.732134
Panel C: Islamic							
Obs.	120	120	120	120	120	120	120
Mean	0.007473	-0.67543	0.759813	-0.1594	0.075016	6.481385	0.636108
Median	0.001982	-1.13303	1.007386	0.063551	0.060466	5.948247	0.62774
Max	0.603403	56.86112	6.40067	10.92045	0.268336	11.39629	1.35517
Min	-0.3996	-10.8174	-14.5941	-56.8812	-0.39962	4.539703	-0.17
Std. Dev	0.070274	5.803396	1.955922	5.446085	0.090371	1.705857	0.30044

Table 3 presents descriptive statistics for every variable in this study. Panels A, B, and C summarize the statistics for the full sample, conventional and Islamic life insurance, respectively. The selective statistic consists of total observations (Obs.), Mean value, Standard Deviation (Std. dev.), Minimum (Min.), and Maximum (Max.) In the table, ROA represents the financial performance of life insurance companies in the table. VAIC represents the intellectual value-added coefficient, while HCE represents human capital efficiency. CEE refers to capital employed efficiency, while SCE refers to structural capital efficiency. Size represents life insurance companies' size through a log of total assets. LEV denotes the leverage ratio.

Based on the table, it can be shown that the mean value of conventional insurance is higher than Islamic life insurance finance when we look at it in separate ways, with 0.025362 and 0.007473, respectively. From VAIC's perspective, conventional life insurance is superior to Islamic life insurance, 3.60168 and -0.67543. The full sample shows that HCE is the main driver for VAIC, followed by SCE and CEE with 1.882707, 0.254224, and 0.060148, respectively. Although the maximum size value of Islamic life insurance is higher than conventional, the average is superior to conventional. According to the analysis of standard deviation, it is evident that Islamic insurance shows a higher value rather than conventional insurance, with respective values of 0.070274 and 0.051655. This indicates that Islamic life insurance has a greater level of risk. Therefore, conventional is better than Islamic life insurance in HCE, SCE, and CEE.

Table 3. Correlation Matrix

Variables	ROA	VAIC	HCE	SCE	CEE	SIZE	LEV
Full Sample							
ROA	1						
VAIC	-0.19204	1					
HCE	0.315771	-0.66311	1				
SCE	-0.01648	-0.77199	0.03631	1			
CEE	0.342589	-0.15231	0.252455	-0.02807	1		
SIZE	0.017419	0.098441	0.089243	-0.20368	-0.164	1	
LEV	-0.10975	0.083291	-0.15522	0.019511	0.018708	0.014869	1
Conventional							
ROA	1						
VAIC	-0.09713	1					
HCE	0.159003	-0.94585	1				
SCE	-0.17858	-0.33857	0.014956	1			
CEE	0.609281	-0.27984	0.35072	-0.18191	1		
SIZE	-0.09574	-0.06113	0.101754	-0.10055	-0.13479	1	
LEV	-0.19245	0.233395	-0.25831	0.034643	-0.24744	0.020946	1
Islamic							
ROA	1						
VAIC	-0.19503	1					
HCE	0.580584	-0.34457	1				
SCE	-0.00576	-0.93846	-0.00059	1			
CEE	0.305645	-0.20473	0.520251	0.014727	1		
SIZE	0.016636	0.248183	-0.03469	-0.2499	-0.12724	1	
LEV	-0.07297	-0.02034	0.048269	-0.00318	0.453083	-0.05616	1

In correlation matrix table 4, multicollinearity is observed when the correlation coefficient surpasses the threshold of 0.8 or 0.9, as stated by Gujarati and Porter (2009); it can be shown that there is no correlation problem. CEE is the most significant ROA in the full or conventional life insurance panel. Although the HCE of Islamic life insurance is more significant in financial performance than conventional insurance, Islamic life insurance still needs to be improved in SCE and CEE. The negative value of SCE in conventional and Islamic life insurance indicates a weak relationship to financial performance, which can be the main cause of weak VAIC in conventional and Islamic life insurance. As for the control variable, only conventional shows that the level of company size is weakly related to ROA. In the control variable, leverage is constant, which has a weak relationship with ROA financial performance in every model, either full, conventional, or Islamic life insurance. In the Full sample, it is known that only SCE is not significantly negative below 0.05; also, in Islamic life insurance, SCE is not significant. However, in conventional, it is seen that VAIC is negatively significant SCE is negatively significant to ROA, while HCE and CEE are positively significant. Therefore, those variables can be used in the model.

4.2. Regression Analysis

Table 4. Testing of Regression Model Assumptions

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020124	0.005124	3.927153	0.0001
HCE	0.000105	0.001276	0.081998	0.9347
SCE	0.000631	0.000776	0.813849	0.4167
CEE	0.089141	0.078196	1.139963	0.2557
	Effects Specification			
Cross-section fixed (dummy variables)				
Root MSE	0.038896	R-squared		0.389409
Mean dependent var	0.025843	Adjusted R-squared		0.228238
S.D. dependent var	0.049877	S.E. of regression		0.043817
Akaike info criterion	-3.231860	Sum squared resid		0.378221
Schwarz criterion	-2.485311	Log likelihood		456.9825
Hannan-Quinn criter	-2.931396	F-statistic		2.416124
Durbin-Watson stat	2.430284	Prob(F-statistic)		0.000007

In this particular model, it is imperative to address the issue of heteroscedasticity by employing the residuals through the application of Breusch-Pagan heteroscedasticity. The table has a probability exceeding 0.05, indicating that there is no heteroscedasticity.

Table 5. Summary Regression Analysis of Full Sample

	ROA			
	HCE	**SCE**	**CEE**	**VAIC**
HCE *Coefficient* *Probability*	0.005751*** (0.0000)			
SCE *Coefficient* *Probability*		-0.000173*** (0.8662)		
CEE *Coefficient* *Probability*			0.771510** (0.0000)	
VAIC *Coefficient* *Probability*				-0.002226*** (0.0030)
Constant *Coefficient* *Probability*	0.013564*** (0.4963)	0.019951*** (0.3499)	-0.232605* (0 .1543)	0.007395*** (0.7234)
Size *Coefficient* *Probability*	-0.000422*** (0.8814)	0.000785*** (0.7951)	0.030309** (0.2088)	0.001740*** (0.5513)
Lev *Coefficient* *Probability*	-0.006712*** (0.3117)	-0.011891*** (0.0845)	-0.002718*** (0.6948)	-0.010253*** (0.1309)
R-Square	0.103573	0.012522	0.491677	0.047110
F Statistic	9.474230	1.039844	3.664400	4.054036
Prob(F-statistic)	0.000006	0.375539	0.000000	0.007752
Model	Common-Effect	Common-Effect	Fixed-Effect	Common-Effect
N	250	250	250	250

Note: (***) refers that the p-value is significant at the 1% level; (**) refers that the p-value is significant at the 5% level; (*) refers that the p-value is significant at the 10% level.

Table 5 presents the results of the influence of intellectual capital variables, namely HCE, SCE, and CEE, on the financial performance based on the ROA of both conventional and Islamic banks in Indonesia using annual data from 2017 to 2021. The *R2* of all variables' empirical results show the values of 0.103573, 0.012522, 0.491677, and 0.047110 for HCE, SCE, CEE, and VAIC, respectively. In addition, it has been noted that there is a significant association between intellectual capital and financial performance. This is evidenced by an F-statistic likelihood of less than 0.05, particularly 0.007752. The full panel indicates that VAIC has a probability of 0.0030, which means that when looking at the full sample of Islamic and conventional, VAIC is positively significant to the ROA. Including HCE and CEE exert an impact on financial performance, as evidenced by an F-statistic probability of less than 0.05. With each additional unit of improvement in HCE, there is a projected increase of roughly 0.005751 in the return on assets (ROA), supported by a significant level of confidence. Similar to the model of CEE, it can be observed that each improvement is anticipated to result in an approximate rise of 0.771510, with a reasonably high level of confidence. In order to conduct a thorough analysis of the differences in financial performance between conventional and Islamic life insurance companies, we present the outcomes of the Regression Model, which examines conventional life insurance samples displayed in Table 6 and Table 7 for Islamic life insurance companies' sample.

Table 6. Summary Regression Analysis of Conventional Life Insurance Companies

	ROA			
	HCE	**SCE**	**CEE**	**VAIC**
HC *Coefficient* *Probability*	0.000137*** (0.9161)			
SCE *Coefficient* *Probability*		-0.003427*** (0.2514)		
CEE *Coefficient* *Probability*			0.704410** (0.0000)	
VAIC *Coefficient* *Probability*				-0.000768*** (0.4906)
Constant *Coefficient* *Probability*	0.065068* (0.7182)	0.110388* (0.5461)	0.002041*** (0.9543)	0.078314** (0.0661)
Size *Coefficient* *Probability*	-0.005350** (0.8351)	-0.011470** (0.6597)	-0.000988*** (0.8397)	-0.006563*** (0.2733)
Lev *Coefficient* *Probability*	-0.003285*** (0.5753)	-0.003016*** (0.6012)	-0.003147*** (0.5412)	-0.012417*** (0.0512)
R-Square	0.512765	0.519048	0.373279	0.049058
F Statistic	3.796154	3.892859	25.01551	2.166741
Prob(F-statistic)	0.000000	0.000000	0.000000	0.095222
Model	Fixed-Effect	Fixed-Effect	Common-Effect	Common Effect
N	130	130	130	130

Note: (***) refers that the p-value is significant at the 1% level; (**) refers that the p-value is significant at the 5% level; (*) refers that the p-value is significant at the 10% level.

Based on the data presented in Table 6, conventional life insurance samples, it can be inferred that the R square value of 0.512765, the independent variable HCE, substantially contributes 51.2765% to the dependent variable ROA. Similarly, the variables SCE and CEE have contributions of 51.9048% and 37.3279%, respectively. However, upon examining the conventional sample, it becomes evident that only capital employed efficiency (CEE) has a significant impact on return on assets (ROA), which

means only H1c is partially accepted. This implies that every enhancement in CEE is expected to lead to an approximate increase of 0.704410 in ROA, with a reasonably high confidence level. Conversely, the F-statistic indicates that the variables HCE, SCE, and CEE, alongside other control factors, have a significant relationship with ROA.

Table 7. Summary Regression Analysis of Islamic Life Insurance Companies

	ROA			
	HCE	**SCE**	**CEE**	**VAIC**
HC *Coefficient* *Probability*	0.021072*** (0.0000)			
SCE *Coefficient* *Probability*		-3.9205*** 0.9747		
CEE *Coefficient* *Probability*			0.877211* (0.0000)	
VAIC *Coefficient* *Probability*				-0.002576*** (0.0248)
Constant *Coefficient* *Probability*	-0.002112** (0.9305)	0.015072** (0.6213)	-0.438152* (0.1295)	-0.000746** (0.9801)
Size *Coefficient* *Probability*	0.001293*** (0.6768)	0.000487*** (0.9021)	0.066529** (0.1392)	0.002690*** (0.4871)
Lev *Coefficient* *Probability*	-0.023278*** (0.1880)	-0.016916** (0.4372)	-0.080770** (0.0965)	-0.017223** (0.4188)
R-Square	0.348283	0.005491	0.461772	0.047947
F Statistic	20.66383	0.213501	3.068812	1.947320
Prob(F-statistic)	0.000000	0.886874	0.000041	0.125839
Model	Common-Effect	Fixed-Effect	Fixed-Effect	Common-Effect
N	**120**	**120**	**120**	**120**

Note: (***) refers that the p-value is significant at the 1% level; (**) refers that the p-value is significant at the 5% level; (*) refers that the p-value is significant at the 10% level.

On the other hand, within the context of Islamic life insurance, the variables of HCE and CEE hold significant importance about the Return on Assets (ROA), with respective contributions of 34.8283% and 46.1772%. In line, when looking at the probability, only HCE andCEE, including VAIC affect ROA simultaneously, which means H2, H2a, and H2c are accepted. Based on the available evidence, it can be inferred that for every additional unit of improvement in human capital efficiency (HCE), there is an estimated rise of around 0.021072 in the return on assets (ROA). This relationship is supported by a statistically substantial degree of confidence. In a manner related to the CEE framework, it is evident that each enhancement is expected to yield an approximate increase of 0.877211, accompanied by a moderate level of confidence. Based on table 7 also reveals that the joint influence of HCE and CEE, in addition to the control variables, is statistically significant on the measure of Return on Assets (ROA), as indicated by the probability F-statistic with a value below 0.05.

The study conducted by Akkas and Asutay (2022), Ku Ismail and Al-Musali (2011), and Ousama et al. (2020) indicates that human capital and capital employed demonstrate a greater level of statistical significance on average along with the results. Nevertheless, the level of relevance demonstrated by structural capital is relatively lesser. About the impact of structural capital, it has been noted that it does not have a simultaneous or independent effect on profitability in either

conventional or Islamic settings. In contrast, the conventional panel demonstrates that CE is the only factor that influences ROA financial performance when examined separately. Capital employed or related to external parties has a significant relationship because it affects financial performance, which is conventional life insurance aware of the essentials relation to capital employed, if well managed, can attract the enhancement of image and reputation that would impact financial performance (Akkas and Asutay, 2022), so it was essential to attract external parties to increase profitability (Asutay and Ubaidillah, 2023). Islamic life insurance companies differ from conventional ones in that they prioritize not only capital employed but also human capital. In addition, the rejection of the correlation between VAIC and resource-based theory is supported by the negative significance value of -0.002226, indicating an adverse relationship.

4.2.1. Robustness checks

To mitigate potential endogeneity, simultaneity bias, and heterogeneity concerns within the panel data, we have employed control variables. Subsequently, the coefficients are derived through alternative panel methodologies utilizing ordinary least squares. Tables 5, Table 6, and Table 7 demonstrate that the coefficients exhibit consistency across various models and estimation techniques, thereby indicating the robustness of the findings.

5. Conclusion

Even though Islamic life insurance maintains a relationship between human capital and capital employed, the performance of Islamic life insurance also lags below conventional, especially in terms of capital employed related to external parties. This study aligns with the argument made by Riahi-Belkaoui (2003) that human capital is a critical factor in stimulating innovation, tackling business obstacles, and optimizing economic well-being through the delivery of products and services (Ali et al., 2022). Furthermore, the acceptance of capital employed has been found to have a noteworthy impact on financial performance, as reported by Aji and Kurniasih (2015) and Alipour (2012). However, this disproves the claim (Nizar and Falikhatun, 2021; Olarewaju and Msomi, 2021) that capital employed does not affect conventional and Islamic financial performance. In addition, this study contradicts previous research (Aji and Kurniasih, 2015; Alipour, 2012; Nizar and Falikhatun, 2021; Olarewaju and Msomi, 2021), which posited that structural capital has a noteworthy effect on profitability. Moreover, the findings indicate that the GCC countries exhibit superior performance to the ASEAN nations, attributable to the unstable structural capital and capital employed in conventional and Islamic life insurance. Despite this, there is still a need for conventional and Islamic life insurance to improve and keep up with current standards. The conventional approach may prioritize capital employed or external relations. Achieving excellence requires stability in all aspects, as exemplified by Islamic life insurance in Qatar, as seen in Appendix Table 2.

The impact of human capital on Islamic life insurance is noteworthy. However, enhancing the value proposition by augmenting the capital employed to foster greater confidence among external stakeholders is recommended. Additionally, there is a need to enhance the structural capital. Given the restricted nature of its reporting disclosure, the conventional life insurance sector ought to prioritize its focus on both structural and human capital. Islamic and conventional life insurance can improve transparency through human and structural capital, primarily for the ASEAN region. Hence, policymakers possess the ability to incentivize entities through policy measures to augment their value, particularly structural capital related to routine operations, especially transparency matters, encompassing value generation, with the aim of drawing in external stakeholders, thereby promoting their long-term viability.

Furthermore, the availability and demand for life insurance vary across different geographical regions, leading to variations in the number of life insurance providers. Hence, this study is very

limited due to the small number of life insurance companies in totality and the requirement for greater transparency in information disclosure; an insufficient amount of data constrains this investigation and relies solely on secondary sources. Further research may contemplate the utilization of primary data, such as surveys or interviews, to obtain an empirical and comprehensive depiction of the actual practices within insurance firms, encompassing both Islamic and conventional entities. Incorporating a broader scope of cross-regional analysis.

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Appendix

Table A.1. Sampled Insurance Companies

Country	Conventional	Islamic
UAE	Arabian Scandinavian Insurance	Dar Al Takaful
	Orient Insurance Company	
	Alliance Insurance	
	National Life and General Insurance Company SAOG	
Saudi Arabia		Buruj Cooperative
Kuwait		First Takaful
Qatar		Alkhaleej Takaful
		QICC
Indonesia	Asuransi Jiwa Sinarmas	PT Asuransi Jiwa Syariah Jasa Mitra Abadi Tbk
	Panin Dai-ichi Life	PT Asuransi Takaful Keluarga
	PT AIA Financial	PT Asuransi Jiwa Syariah Amanah jiwa Giri Artha
	PT Avrist Assurance	PT Asuransi Asuransi Jiwa Manulife Indonesia
	PT Asuransi Jiwa Central Asia Raya	PT Avrist Assurance
	PT Great Eastern Life Indonesia	PT Sun Life Financial Indonesia
	PT Asuransi Jiwa Manulife Indonesia	PT Panin Dai-Ichi Life
	PT Chubb Life Insurance Indonesia	PT Asuransi Jiwa Generali Indonesia
	PT Indolife Pensiontama	PT Asuransi Jiwa Central Asia Raya
	PT Sun Life Financial Indonesia	PT Chubb Life Insurance Indonesia
	PT Asuransi Jiwa Taspen	PT Great Eastern Life Indonesia
	PT Asuransi Jiwa Generali Indonesia	PT PFI Mega Life
	PT PFI Mega Life	Asuransi Jiwa Sinarmas
		PT AIA Financial
Malaysia	Allianz Life Insurance Malaysia Berhad	AIA Public Takaful Bhd
	Gibraltar BSN Life Berhad	Sun Life Malaysia Takaful Berhad
	Great Eastern Life Assurance Malaysia Berhad	Zurich Takaful Malaysia Berhad
	Hong Leong Assurance Berhad	Hong Leong MSIG Takaful Berhad
	Manulife Insurance Berhad	Great Eastern Takaful Berhad
	MCIS Insurance Berhad	
	Prudential Assurance Malaysia Berhad	
	Sun Life Malaysia Assurance Berhad	
	Zurich Life Insurance Berhad	
Total	26	24

Table A.2. Summary of IC Performance in Sampled Countries

Countries	VAIC		HCE		SCE		CEE	
	C	I	C	I	C	I	C	I
UAE	2.085313	-0.971332	**1.530899**	**0.350928**	**0.518912**	**-1.32226**	**0.035502**	**0.05342**
2017	4.295193	-2.88854	2.316229	0.03849	1.948925	-2.93403	0.030039	0.007
2018	0.628036	2.22398	1.742507	0.048472	-1.16761	2.165188	0.053139	0.01032
2019	2.597705	0.072706	1.159864	0.602318	1.409831	-0.66025	0.02801	0.130638
2020	1.468475	-4.89422	1.322599	0.164693	0.096198	-5.0719	0.049678	0.012987
2021	1.437155	0.896534	1.113294	0.900667	0.307217	-0.11029	0.016644	0.106157
Saudi Arabia	**0.00000**	1.66933	**0.00000**	**0.85776**	**0.00000**	**0.78508**	**0.00000**	**0.02649**
2017	0	7.244436	0	6.40067	0	0.843766	0	0.084238
2018	0	4.102684	0	3.342584	0	0.70083	0	0.05927
2019	0	0.446215001	0	0.760735	0	-0.31452	0	8.32E-10
2020	0	-2.710403	0	-3.95512	0	1.252837	0	-0.00812
2021	0	-0.820491	0	-2.26005	0	1.442469	0	-0.00291
Kuwait	**0.00000**	-1.61736	**0.00000**	**-1.24176**	**0.00000**	**-0.33830**	**0.00000**	**-0.03730**
2017	0	4.480903	0	3.670792	0	0.727579	0	0.082532
2018	0	2.863962	0	2.246555	0	0.554874	0	0.062533
2019	0	2.915762	0	2.289531	0	0.563229	0	0.063002
2020	0	-13.925199	0	-14.5941	0	1.068521	0	-0.39962
2021	0	-4.422253	0	0.17839	0	-4.6057	0	0.005057
Qatar	**0.00000**	1.71421	**0.00000**	**1.27300**	**0.00000**	**0.17639**	**0.00000**	**0.26482**
2017	0	1.603638	0	1.245726	0	0.181182	0	0.17673
2018	0	1.842508	0	1.378741	0	0.231697	0	0.23207
2019	0	1.14867	0	0.95385	0	-0.05594	0	0.25076
2020	0	2.084046	0	1.470591	0	0.307785	0	0.30567
2021	0	1.892139	0	1.316077	0	0.217202	0	0.35886
Indonesia	4.93865	0.55411	**4.09940**	**0.75829**	**0.78697**	**-0.25721**	**0.05228**	**0.05303**
2017	5.799522	0.907093	4.8288	0.368478	0.903045	0.485313	0.067677	0.053302
2018	5.798779	2.045439	5.007164	1.518322	0.719219	0.469353	0.072396	0.057764
2019	3.926766	1.073417	2.628423	0.546356	1.253646	0.469005	0.044697	0.058056
2020	5.386581	-3.1901	4.684605	0.837485	0.66309	-4.08251	0.038886	0.054925
2021	3.781622	1.934693	3.348018	0.520797	0.395838	1.372775	0.037766	0.041121
Malaysia	2.34444	1.23555	**1.83155**	**1.02131**	**0.47008**	**0.04750**	**0.04281**	**0.16674**
2017	3.630016	1.041119	2.94178	0.833921	0.649416	0.019597	0.03882	0.187601
2018	1.485521	1.201097	1.409445	1.009935	0.031069	-0.00062	0.045007	0.191782
2019	1.695654	1.273386	1.179228	1.05536	0.47276	0.048895	0.043666	0.169131
2020	0.907789	1.350762	0.318901	1.114552	0.548332	0.093808	0.040556	0.142402
2021	4.003219	1.311428	3.308421	1.092798	0.648804	0.075838	0.045994	0.142792
max	7.534764	9.220769	5.007164	6.40067	1.948925	2.165188	0.072396	0.307785
min	-5.79952	5.806091	0.318901	-14.5941	-1.16761	-5.0719	0.016644	-0.39962
N	26	24	26	24	26	24	26	24