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THE IMPACT OF INTELLECTUAL CAPITAL AND CORPORATE GOVERNANCE ON BANK PERFORMANCE IN VIETNAM

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ABSTRACT

Purpose – The importance of corporate governance and intellectual capital on financial performance has largely been ignored in emerging markets. The banking sector is considered to accumulate a higher level of intellectual capital and to adopt a better corporate governance system. We aim to examine the contribution of these two important aspects to the performance of Vietnam's banking sector.

Design/methodology/approach – This paper utilizes data collected from the annual reports of banks in Vietnam from 2011 to 2021. The modified value-added intellectual coefficient (MVAIC) model is adopted to measure a bank's intellectual capital efficiency. In addition, the generalized method of moments is utilized to ensure the robustness of the findings.

Findings – Empirical results strongly confirm that intellectual capital positively contributes to a bank's performance. In terms of corporate governance, the findings indicate that board size, board remuneration and major shareholders holding more than 20 percent of outstanding shares are the three most important factors that contribute positively to banks' performance. In addition, human capital efficiency and capital employed efficiency positively impact a bank's profit.

Practical implications – Our study provides valuable evidence and implications for policymakers in managing and enhancing corporate governance and intellectual capital efficiency within the Vietnamese context, particularly in the banking sector.

Originality/value – To the best of our knowledge, this is the first empirical paper conducted to examine the contribution of corporate governance and intellectual capital on banks' performance in Vietnam.

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1. Introduction

Vietnam's economic and political reforms under *Doi Moi in 1986* promoted rapid economic growth and development. This economic reform marked a transformation of the Vietnamese economy from a developing country into a lower-middle-income country in three decades. Since 2000, Vietnam's GDP per capita has averaged 6.4 percent a year - one of the highest growth rates in the world. With strong economic fundamentals, Vietnam has experienced increased formal financial intermediaries. The banking sector is the largest segment of Vietnam's financial system, with assets from the banking system nearly twice as much as the national GDP (Trieu, 2019). Commercial banks in Vietnam have been restructuring their institutions from 2016 to 2020 to improve the management capacity and banking supervision efficiency by Basel II. Corporate governance in the banking sector plays an essential role due to its high-risk nature and widespread sentiment (Le, 2017). Corporate governance effectively allocates resources to maximize benefits for stakeholders. The approach of corporate governance is gradually shifting, from primarily financial to treating corporate governance as a management strategy and revisiting the meaning of capital components (Ribeiro et al., 2022; McIntosh, 2015; Visser, 2011). The increasing role of capital components such as knowledge, organization and human resources has highlighted the importance of these capital components in governance processes. Human capital is very important, especially in banks, a knowledge-intensive sector. As such, a bank's corporate governance in intellectual capacity can contribute to the bank's competitiveness and success (Haris et al., 2019; Singh et al., 2016; Firer & Williams, 2003).

Besides, current literature confirms that intellectual capital is important for banks' profitability and growth (Akkas & Asutay, 2022; Mooneeapen et al., 2021; Branco et al., 2011). Factors affecting the bank's operations include bank size, capital adequacy, asset quality, portfolio diversification, costs, liquidity ratios, human resources and ownership (Setyawati, 2016). Intellectual capital is knowledge owned by individuals in the organization that can create value. Banks can use qualified and competent human resources to accumulate and use higher intellectual capital (Cantu et al., 2009). Firer and Williams (2003) argued that banks had accumulated higher levels of intellectual capital than other industries. Moreover, bank employees have a higher level of homogeneity than employees of other industries (Kubo & Saka, 2002).

Vietnam has been experiencing rapid development and is characterized by a unique institutional framework. Consequently, findings from prior research on the relationship between intellectual capital and corporate governance in various countries may not be directly applicable to the Vietnamese context (Tran et al., 2020). Notable disparities in corporate governance practices exist between the Vietnamese banking sector and the global banking industry, stemming from various factors. The ownership structure of Vietnam's banking sector prominently features state-owned banks, particularly the government maintains the ownership of at least 65 percent of total voting shares in state-owned commercial banks during the 2021-2025 period (Dao Vu, 2022). Additionally, the composition of boards from Vietnamese banks generally exhibits a smaller size and reduced independence when compared to their international counterparts. It is common for Vietnamese financial institutions to include government officials and representatives of major shareholders on their boards (Vo & Tran, 2021). Furthermore, the audit quality in Vietnamese banks is often perceived as inferior, partially due to the less stringent regulatory obligations and the relatively underdeveloped auditing industry in Vietnam. Similarly, risk management techniques in Vietnamese banks are typically regarded as less sophisticated than global standards, influenced by factors such as limited expertise, constrained resources, and less rigorous regulatory standards. These

differences in corporate governance among Vietnamese banks may result in adverse consequences (Vu et al., 2019). *First*, the lack of independence on Vietnamese bank boards may facilitate fraudulent and corrupt practices within management. *Second*, reduced accountability of management to shareholders can lead to suboptimal decision-making and misallocation of resources. *Third*, weak risk management practices in Vietnamese banks render them more susceptible to financial crises.

Previous studies (Vu et al., 2019; Hoang et al., 2017) have stated the impact of corporate governance on a firm's performance in Vietnam. In addition, Nguyen et al. (2021) stated that intellectual capital significantly positively impacts firm performance in Vietnam. Tran et al. (2020) also revealed the relationship between corporate governance and the intellectual capital of listed firms in Vietnam. However, few empirical studies have been conducted to show that corporate governance and intellectual capital affect banks' performance in emerging markets such as Vietnam. In particular, a limited number of studies have been conducted on how different corporate governance mechanisms and intellectual capital accumulations are linked to banks' financial performance.

Our study contributes to the literature in several ways. *First,* the role of corporate governance and intellectual capital in a bank's performance is explored, and there is limited empirical knowledge. *Second,* Vietnam's economic growth has been largely driven by banks. This study fulfills the inadequacy of research and the gap in corporate governance literature by examining the intellectual capital relation with a bank's governance for the bank's financial performance. Our research will be helpful to various stakeholders, such as bank managers, policymakers and investors. *Finally,* this study utilized the MVAIC model as a proxy of intellectual capital and examined it using the generalized method of moments (GMM), thereby making valuable contributions toward the theoretical and methodology perspective.

2. Literature review

2.1. Corporate governance

Previous studies (Tumwebaze et al., 2021; Nyberg et al., 2010; Cerbioni & Parbonetti, 2007) have shown that agency theory first appeared in economic research and has since spread into areas such as accounting and organizational management. Jensen & Meckling (1976) stated that agency theory provides a framework for analyzing the linkage between corporate governance and intellectual capital in organizations. This theory focuses on the agency relationship between owners and managers. It analyzes the agency's problems arising from separating ownership and control (Aguilera et al., 2008). In principle, the agency problem stems from the different goals between the owners of the organization and the persons who control the organization, thus giving rise to the opportunistic behavior of managers. Fama & Jensen (1983) referred to this problem as "agency costs", such as fraud, evasion, and misrepresentation (Soon Yau et al., 2009; Das and Teng, 2001). Mousa & Abdelmohsen (2012) argued that good corporate governance practices would drive firms toward eliminating information asymmetry and agency issues. Many studies have examined corporate governance indicators' impact on firms' performance, especially in the banking sector (Haris et al., 2019; Vu et al., 2019).

In relation to the board size in corporate governance, Jensen (1993) suggested that board size affects firms' performance. In addition, a larger board size is associated with a higher cost. The number of board members, at most seven or eight, will be considered inefficient. Akshita's (2016) and Adams & Mehran's (2012) studies reported a positive relationship between board size and firms' performance. However, Haris et al. (2019), Naushad & Abdul (2015) found a negative relationship between these two.

Regarding board composition (BCOM), the agency theory considers that independent board members have great advantages in supervising

and controlling management, improving efficiency in the decision-making process, and reducing agent issues. Many studies have examined the impact of board composition on performance (Liang et al., 2013). Some studies suggested no relationship between BCOM and banks' performance (Adams & Mehran, 2012). However, findings from various empirical studies have demonstrated a positive relationship between BCOM and banks' profitability (Yeung, 2018).

For Block holders (HOLD), Jensen & Meckling (1976) argued that more decentralized ownership means higher agency costs. Large-scale holders tend to oversee managers rather than small shareholders. Accordingly, centralized ownership is considered a measure of corporate control that does not deviate from the interests of shareholders (Abobakr, 2017). This means that the existence of large shareholders is conducive to more effective governance for the benefit of all shareholders. In addition, Shehzad et al. (2010) stated that the concentration of ownership improves the capital adequacy ratio and reduces bank risk. Current literature provides mixed evidence regarding the impact of block holders on performance. On the one hand, Naushad & Abdul (2015) found a positive relationship between block holders and profitability. On the other hand, Rowe et al. (2011) found a negative relationship between blockholders and the bank's profitability.

Concerning board remuneration (BREM), Chang et al. (2015) pointed out that board remuneration is an important aspect of management practice. Core & Larcker (1999) stated that board remuneration is affected by the governance structure of firms. Numerous studies (Matolcsy & Wright, 2011; Murphy, 1985) have shown that higher board remuneration will motivate managers to put more effort in order to minimize agency issues. Haris et al. (2019) and Chang et al. (2015) reported a positive relationship between board remuneration and firm performance.

2.2. Intellectual capital

Intangible resources are essential for competitive advantage and performance improvement (Haris et al., 2019; Holland, 2006). Kamath (2007) argued that several researchers had determined the classification of intellectual capital components. Sveiby (1997) classified intellectual capital as human, structural, and customer. Bontis (1998) subsequently replaced customer capital with rational capital. Pulic (1998) developed the value-added intellectual coefficient model (VAIC), which is widely utilized, to consider the effect of creating the tangible and intangible value of a firm. This model classifies intellectual capital into three components: human capital efficiency (HCE), capital employed efficiency (CEE), and structural capital efficiency (SCE). According to Wang & Chang (2005), intellectual capital is divided into four components: people, customers, innovations and processes. Besides, Bhattu-Babajee & Seetanah (2021) have considered intellectual capital to include three dimensions: human capital, structural capital (including internal capital and relations), and employed capital (physical capital and finance).

The value-added intellectual coefficient model allows managers, shareholders and other stakeholders to monitor and evaluate a firm's resources' total resource efficiency and compositions. Based on measurement and monitoring with accounting-based metrics, it provides an insight into the effectiveness of the value creation process from firms. However, many studies have pointed out the limitations of the value-added intellectual coefficient model. The value-added intellectual coefficient model can only be attributed to intangible assets (Vo & Tran, 2021; Brennan, 2001). Moreover, the value-added intellectual coefficient model does not include intellectual property and R&D spending, which are positively related to firms' performance (Soetanto & Liem, 2019). In addition, it cannot measure the level of intellectual capital in companies with negative book values (Chu et al., 2011). The value-

added intellectual coefficient model operating profits negatively underestimate corporate risk (Maditinos et al., 2011). On the other hand, Dzenopoljac et al. (2017) argued that the combined effects between different types of tangible and intangible assets could be considered. The above problems are overcome by the modified value-added intellectual coefficient model (MVAIC) (Xu & Li, 2019; Vishnu & Gupta, 2014).

Recent studies have used the modified value-added intellectual coefficient model to explore the relationship between intellectual capital and firms' performance, including conventional banks in the Gulf Cooperation Council (GCC) countries (Akkas & Asutay, 2022); Oman's financial sector companies (Dalwai & Mohammadi, 2020); financial and non-financial firms in Vietnam (Tran & Vo, 2022); Turkish manufacturing firms (Bayraktaroglu et al., 2019), Southeast Asian firms (Diyanty et al., 2019), Malaysian financial firms (Hapsah & Bujang, 2019), high-tech and non-high-tech SMEs listed on the Shenzhen stock exchanges (Xu & Li, 2019). Xu & Wang (2019) revealed MVAIC, which is proxied for intellectual capital, has a significant impact on earnings, profitability, and productivity of textile firms in China and South Korea. Yao et al. (2019) stated the U-shaped relationship between intellectual capital and profitability. Some studies suggested no relationship between human capital efficiency and firm performance (Puntillo, 2009; Firer & Williams, 2003). However, other studies confirmed a positive relationship between human capital efficiency and firm profitability in different countries (Vo & Tran, 2021; Diyanty et al., 2019; Xu & Li, 2019; Meles et al., 2016).

Over the past three decades, the banking industry has played a crucial role in Vietnam's economic growth and development. However, in the context of integrating the Vietnamese economy into the regional and world economy, the banking industry must best use all resources. In which intellectual capital is considered a critical source of assets. Hence, we aim to examine the contribution of intellectual capital and corporate governance to corporate operations efficiency, in particular, banks. To ensure the validity of our results, we use generalized moment estimation (GMM).

3. Research design

3.1. Dependent variables

We employ two profitability indicators: return on assets (ROA) and return on equity (ROE). ROA indicates how profitable a bank is relative to its total assets. ROE reflects the profit for ordinary equity holders and is calculated as a ratio between the net profit and equity (Tran & Vo, 2022; Haris et al., 2019; Vu et al., 2019; Yao et al., 2019).

3.2. Measurement of corporate governance

To measure corporate governance, we utilize four variables: (i) BSIZE is defined as the total number of members on the board of directors; (ii) BCOM is measured by a ratio between independent directors and the total number of the board of directors; (iii) HOLD is a dummy variable, 1 if a shareholder has shared more than 20 percent and 0 otherwise; and (iv) BREM is measured by board remuneration (Buallay & Hamdan, 2019; Haris et al., 2019; Ranjith & Bhuyan, 2015; Cerbioni & Parbonetti, 2007; Ho & Williams, 2003).

3.3. Measurement of intellectual capital

This paper utilizes the modified value-added intellectual coefficient (MVAIC) method to measure intellectual capital performance (Xu & Li, 2019; Vishnu & Gupta, 2014). MVAIC is measured as follows:

$$MVAIC_i = HCE_i + SCE_i + CEE_i + RCE_i$$

HCE is defined as human capital efficiency, which refers to the marginal contribution of human capital to value-added. SCE is structural capital efficiency, which indicates the contribution of structural capital in creating value. CEE is defined as capital employed

efficiency, which measures the marginal contribution of each unit of physical and financial capital to value-added. Finally, RCE represents relational capital efficiency, which indicates the contribution of relational capital in creating value.

$$HCE_i = \frac{VA_i}{HC_i} \qquad SCE_i = \frac{SC_i}{VA_i} = \frac{VA_i - HC_i}{VA_i}$$

$$CEE_i = \frac{VA_i}{CE_i} \qquad RCE_i = \frac{RC_i}{VA_i}$$

Where,

VA is the value added to the banks, which is calculated as the total profit before taxes and employee expenditures because pre-tax profit indicates the residual value after removing all costs from sales excluding employee expenditures (Tran & Vo, 2022). HC is defined as human capital, which refers to employee expenditures. SC is structural capital, calculated as the difference between VA and HC. CE is defined as capital employed, which refers to physical and financial capital. CE is measured by the difference between total assets and intangible assets. RC represents relational capital, measured by marketing, selling and advertising expenses.

In terms of control variables, this paper uses SIZE, calculated as the natural logarithm of total assets, and LEV, defined as the ratio of total debt to total assets. These definitions are in line with previous studies (Diyanty et al., 2019; Xu & Wang, 2019; Ho & Williams, 2003). Table 1 shows the definition of variables and measurements.

Table 1. Definition of variables and measurements

Variables	Definition
Dependent Variables	
ROA	Net Income/Total Assets
ROE	Net Income/Total Equity
Independent Variables	
MVAIC	HCE + SCE + CEE + RCE
HCE	VA/HC
SCE	(VA-HC)/VA
CEE	VA/CE
RCE	RC/VA
BSIZE	The total number of members on the board of directors
BCOM	The ratio between independent directors and the total number of the board of directors
HOLD	A dummy variable, 1 if a shareholder has shared more than 20 percent and 0 otherwise
BREM	Board remuneration
Control Variables	
SIZE	Natural logarithm of the total assets
LEV	Total debt/Total assets

Variables	Definition
Notes: **VA** is the sum of total profit before taxes and employee expenditures; **HC** (human capital) signifies employee expenditures. **SC** (structural capital) is indicated as the difference between the value-added and human capital. **CE** (capital employed) is calculated by the difference between total assets and intangible assets. **RC** (relational capital) is estimated by selling, marketing and advertising expenses. **ROA** is the return on assets; **ROE** is the return on equity; **CSR:** is corporate social responsibility; **MVAIC** is intellectual capital. **HCE** is human capital efficiency; **SCE** is structural capital efficiency; **CEE** is capital employed efficiency; **RCE** is relational capital efficiency. **BSIZE** is the total number of members on the board of directors; **BCOM** is the ratio between independent directors and the total number of the board of directors; **HOLD** is 1 if a shareholder has shared more than 20 percent and 0; otherwise; **BREM** is board remuneration. Control variables: **SIZE** denotes the natural logarithm of the total assets, and **LEV** denotes the ratio between firms' total debt and total assets.	

The following regression models are considered in this study.

Table 2. Regression models

Model	Regression
1	$ROA_{it} = \beta_0 + \beta_1 ROA_{it-1} + \beta_2 MVAIC_{it} + \beta_3 BSIZE_{it} + \beta_4 BCOM_{it} + \beta_5 HOLD_{it} + \beta_6 BREM_{it} + \varepsilon_{it}$
2	$ROA_{it} = \beta_0 + \beta_1 ROA_{it-1} + \beta_2 BSIZE_{it} + \beta_3 BCOM_{it} + \beta_4 HOLD_{it} + \beta_5 BREM_{it} + \beta_6 HCE_{it} + \beta_7 SCE_{it} + \beta_8 CEE_{it} + \beta_9 RCE_{it} + \varepsilon_{it}$
3	$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 MVAIC_{it} + \beta_3 BSIZE_{it} + \beta_4 BCOM_{it} + \beta_5 HOLD_{it} + \beta_6 BREM_{it} + \varepsilon_{it}$
4	$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 BSIZE_{it} + \beta_3 BCOM_{it} + \beta_4 HOLD_{it} + \beta_5 BREM_{it} + \beta_6 HCE_{it} + \beta_7 SCE_{it} + \beta_8 CEE_{it} + \beta_9 RCE_{it} + \varepsilon_{it}$

3.4. Sample description

This study examines the effects of intellectual capital and corporate governance on the performance of banks. Intellectual capital is important for firms of all forms and dimensions (Akgun & Turkoglu, 2023). We employ a random selection process to select listed banks in Vietnam. Data is hand-collected from the annual reports of listed banks over the period from 2011 to 2021. Banks with less than five years of available data or those reporting negative operating profits are excluded from the sample. As a result, 14 banks are included in the analysis.

4. Empirical results and discussions

The results descriptive statistics (*see Appendix 1 online*) show that the ROA ranges from 0.0004 to 0.0332, with a mean of 0.0121 for the overall sample. During the study period from 2011 until 2021, ROE ranged from a minimum of 0.0030 and a maximum of 0.2879. The mean profit of listed banks in Vietnam is higher than in Pakistani banks (Haris et al., 2019) and lower than in Indonesia (Soetanto & Liem, 2019). The average value of the MVAIC of listed banks in Vietnam is 3.2384. It is lower than Turkish banks (Ozkan et al., 2017) but higher than those found in Pakistani banks (Haris et al., 2019).

Regarding corporate governance, the average number of board members is 7.88, which is considered consistent with management practice to make strategic decisions that effectively use bank resources (Buallay & Hamdan, 2019). The average percentage of independent board members is 12.47 percent.

Meanwhile, the average value of the board's remuneration is 18.40. The results reveal that 29.93 percent of banks with the largest shareholders own more than 20 percent of outstanding shares, which means that one-third of the listed banks in Vietnam are owned by several individuals or organizations.

The variance inflating factor (VIF) (*see Appendix 2 online*) shows that the VIF values for all independent variables are less than 3, meaning that the multicollinearity issue is not a major issue in this analysis (Gujarati, 2003).

Table 3. Wooldridge and Breusch and Pagan Lagrangian multiplier test

	Wooldridge test			Breusch and Pagan Lagrangian multiplier test		
	F-test	p-value	Presence of autocorrelation	χ^2	p-value	Presence of heteroskedasticity
Model 1	46.864	0.0000	√	187.47	0.0000	√
Model 2	3.043	0.1047	×	110.98	0.0000	√
Model 3	7.746	0.0155	√	57.14	0.0000	√
Model 4	1.934	0.1877	×	17.93	0.0000	√

Research on corporate governance and intellectual capital often grapples with issues of endogenous variables, such as ineffective management of intellectual capital or shareholders pressuring the board to appoint independent directors (Ranjith & Bhuyan, 2015). Henry (2008) argues that estimation techniques such as the standard OLS might yield inconsistent parameters when homoscedasticity is present. Some studies have used fixed-effects or random-effects regression models to address this concern. However, fixed effects regression is not always better than OLS because it depends on the data type and research model, especially for data suffering from issues from heteroskedasticity and autocorrelation (Haris et al., 2019). This study employs Wooldridge, Breusch, and Pagan Lagrangian multiplier tests to investigate autocorrelation and heteroskedasticity in four models. The results in Table 5 indicate that the p-values in the Wooldridge test for Models 1 and 3 are below 5 percent, indicating the presence of autocorrelation. Regarding Breusch and Pagan Lagrangian multiplier tests, the results reveal that heteroskedasticity is a concern in all four models. Tran & Vo (2022), Haris et al. (2019), and Yao et al. (2019) employ the generalized method of moments (GMM) to address these issues. The validity of instrumental variables in the GMM is assessed using the Arellano-Bond, Sargan, and Hansen tests (Haris et al., 2019). The Arellano-Bond test detects autocorrelation (Arellano & Bond, 1991). Haris et al. (2019) consider that a requirement for a GMM model to be appropriate is the absence of second-order autocorrelation. As such, a higher AR(2) value implies greater model significance, even in the presence of AR(1). Tran & Vo (2022) suggested that the higher the p-values of the Sargan and Hansen tests, the more robust the results of the analysis are.

Table 4 presents the empirical results using GMM. The p-value of the AR (2) test in four models is greater than 0.1. As such, it is not possible to reject the null hypothesis that "second-order autocorrelation does not exist in the model". In other words, second-order autocorrelation is not an issue in all four models. In addition, the Sargan test determines overidentification with the null hypothesis that "the IV is exogenous". Based on the Sargan test, the GMM model is valid only in Model 4. According to Roodman (2009), the Sargan test will produce inconsistent results

when autocorrelation and heteroskedasticity problems exist. Meanwhile, the Hansen test results reveal that the instrument variables are not endogenous in all four models. As such, all four models are valid.

Results from models 1 and 2 show that the return on the bank's total assets is determined by the previous year's profit, in line with Yao et al. (2019), while the results in models 3 and 4 are not statistically significant.

Table 4. Generalized method of moment results

Variables	Model 1	Model 2	Model 3	Model 4
ROA_{t-1}	0.1833*		-0.0374	
ROE_{t-1}		0.3323**		0.0219
MVAIC	0.0077***	0.0740***		
BSIZE	0.0012**	0.0075	0.0001	-0.0026
BCOM	-0.0010	0.1012	0.0004	0.2994
BREM	0.0002**	0.0027**	-0.0002	0.0006
HOLD	-0.0004	0.0616*	-0.0019	0.0990
HCE			0.0038***	0.0616
SCE			0.0035	0.1513
CEE			0.6296***	3.2634**
RCE			0.0036	0.2488
SIZE	-0.0048	-0.0767	0.0013	-0.0464
LEV	-0.0001	-0.0007	0.0007	-0.0062
Cons	-0.0027	0.1218	-0.0194	-0.0427
AR (2) test	0.709	0.787	0.578	0.615
Sargan test	0.019	0.081	0.009	0.000
Hansen test	0.730	0.920	1.000	1.000

Notes: *p ≤ 0.10; **p ≤ 0.05; ***p ≤ 0.01.

ROA indicates how profitable a bank is relative to its total assets; **ROE** reflects the profit for ordinary equity holders and is calculated by a ratio between net profit and equity; **MVAIC** is the modified value-added intellectual coefficient; **BSIZE** is defined as the total number of members on the board of directors; **BCOM** is measured by the proportion of independent directors and the total number of the board of directors; **BREM** is measured by board remuneration; **HOLD** is a dummy variable, 1 if a shareholder has more than 20 percent shares outstanding and 0 otherwise; **HCE:** human capital efficiency; **SCE:** structural capital efficiency; **CEE:** capital employed efficiency; **RCE:** relational capital efficiency; control variables: **SIZE** is the natural logarithm of the total assets and **LEV** is defined as the ratio of total debt to total assets of banks.

Regarding the effects of corporate governance on firm performance, our results indicate that board size is positively associated with bank performance, which aligns with previous studies (Farag et al., 2018; Akshita, 2016). Board size can affect a bank's internal governance capabilities. Board size is critical in formulating and executing a bank's business strategy. Board size can impact the consistency and effectiveness of strategic decisions. Consequently, decisions regarding the board size represent a critical aspect of corporate governance and can significantly influence the operational efficiency of a bank in Vietnam (Tran et al., 2020). Results

from our study reveal that board remuneration positively impacts bank performance, which also aligns with other countries (Yeung, 2018). Competitive remuneration to board members in Vietnam's banks can incentivize qualified individuals to serve, promote their commitment to the bank's success, reduce conflicts of interest, enhance accountability, and ultimately improve governance and operational efficiency (Le & Nguyen, 2020). Our results also confirm that major shareholders holding more than 20 percent of outstanding shares also positively impact bank performance, which also aligns with previous studies (Naushad & Abdul, 2015).

We now focus on the effect of intellectual capital and its components on the financial performance of banks in Vietnam. Our empirical findings indicate that banks with greater intellectual capital will exhibit higher wealth. In addition, the results also demonstrate that human capital efficiency has a positive impact on bank profits. This finding aligns with Haris et al. (2019) and Ozkan et al. (2017). The higher a bank's human capital efficiency (HCE), the higher its financial performance will be. We consider that in the knowledge-based sectors such as the banking sector in this paper, human capital plays an essential role in a bank's wealth creation and accumulation because it is based on the skills and knowledge that employees possess (Diyanty et al., 2019; Firer & Williams, 2003). In this paper, structural capital efficiency (SCE) may not directly affect the creativity and innovation that can enhance a bank's financial performance. However, capital employed efficiency positively impacts a bank's profitability, and this finding is consistent with Diyanty et al. (2019) and Haris et al. (2019) studies.

5. Conclusions

The recognition of the importance of corporate governance and intellectual capital on financial performance has been widely acknowledged in previous studies such as Haris et al. (2019); Xu and Wang (2019); Ozkan et al. (2017); Ranjith and Bhuyan (2015). However, this important issue has been ignored mainly in Vietnam. Based on agency theory and the modified value-added intellectual coefficient model, this study examines the relationship between the corporate governance system adopted by Vietnamese firms and the components of intellectual capital on the financial performance of the banking sector in Vietnam. Various aspects of corporate governance are considered, including board size, board composition, board remuneration and major shareholders holding more than 20 percent number of the outstanding shares. In addition, components of intellectual capital are also utilized in this paper, including (i) human capital efficiency (HCE), (ii) structural capital efficiency (SCE), (iii) capital employed efficiency (CEE) and (iv) relational capital efficiency (RCE).

Key findings from this paper across all models can be summarized as follows. *First,* several board sizes, board remuneration, and major shareholders holding more than 20 percent of a number of outstanding shares affect the financial performance of banks in Vietnam. In addition, findings from this paper also confirm that banks with a greater degree of intellectual capital will exhibit higher profitability. On the aspects of intellectual capital, this paper provides evidence to confirm the view that the performance of the banking sector in Vietnam has been influenced by human capital efficiency and capital employed efficiency.

Implications have emerged for executives of the banking sector in Vietnam and other emerging markets, as findings from this paper imply that the board structure plays an important role in the governance of listed banks in Vietnam. This implies that the structure of the board affects the motivation and ability to supervise responsibilities and give advice to managers, thus affecting the effectiveness of banking operations. As such, we consider that a quality corporate governance system is a vital determinant to ensure the success of Vietnam's

banking sector. This is particularly important because banks are currently undergoing a common restructuring roadmap initiated by the Vietnamese Government. Doing so will ensure that the banking sector in Vietnam will gradually transform into modern market-oriented financial institutions, which will create a general driving force for sustainable economic growth in Vietnam in the future. Besides, banks in Vietnam have to pay more attention to the accumulation of human capital as it is an effective source of profitability creation. We argued for the importance of capital employed efficiency because this component has a long tradition in the wealth creation process, and it has held a significant role in improving bank performance in Vietnam for the past three decades.

References

Abobakr, M. G. (2017). Corporate Governance and Banks Performance: Evidence from Egypt. *Asian Economic and Financial Review*, *7*(12), 1326-1343. https://archive.aessweb.com/index.php/5002/article/view/1647/2410

Adams, R. B., & Mehran, H. (2012). Bank board structure and performance: Evidence for large bank holding companies. *Journal of Financial Intermediation*, *21*(2), 243-267. https://doi.org/10.1016/j.jfi.2011.09.002

Aguilera, R. V., Filatotchev, I., Gospel, H., & Jackson, G. (2008). An organizational approach to comparative corporate governance: Costs, contingencies, and complementarities. *Organization Science*, *19*(3), 475-492. https://doi.org/10.1287/orsc.1070.0322

Akgün, A. İ., & Türkoğlu, S. P. (2023). Intellectual capital and performance of listed firms during the global financial crisis: the effects of legal origin. *International Journal of Organizational Analysis*. Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJOA-01-2023-3587

Akkas, E., & Asutay, M. (2022). The impact of intellectual capital formation and knowledge economy on banking performance: a case study of GCC's conventional and Islamic banks. *Journal of Financial Reporting and Accounting*, *21*(5), 1149-1170. https://doi.org/10.1108/JFRA-08-2021-0251

Arora, A., & Sharma, C. (2016). Corporate governance and firm performance in developing countries: evidence from India. *Corporate Governance*, *16*(2), 420-436. https://doi.org/10.1108/CG-01-2016-0018

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), 277-297. https://doi.org/10.2307/2297968

Bhattu-Babajee, R., & Seetanah, B. (2022). Value-added intellectual capital and financial performance: Evidence from Mauritian companies. *Journal of Accounting in Emerging Economies*, *12*(3), 486-506. https://doi.org/10.1108/JAEE-11-2020-0300

Bayraktaroglu, A. E., Calisir, F., & Baskak, M. (2019). Intellectual capital and firm performance: an extended VAIC model. *Journal of Intellectual Capital*, *20*(3), 406-425. https://doi.org/10.1108/JIC-12-2017-0184

Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, *36*(2), 63-76. https://doi.org/10.1108/00251749810204142

Castelo Branco, M., Delgado, C., Sousa, C., & Sá, M. (2011). Intellectual capital disclosure media in Portugal. *Corporate Communications: An International Journal*, *16*(1), 38-52. https://doi.org/10.1108/13563281111100962

Brennan, N. (2001). Reporting intellectual capital in annual reports: evidence from Ireland. *Accounting, Auditing & Accountability Journal*, *14*(4), 423-436. https://doi.org/10.1108/09513570110403443

Buallay, A., & Hamdan, A. (2019). The relationship between corporate governance and intellectual capital: The moderating role of firm size. *International Journal of Law and Management*, *61*(2), 384-401. https://doi.org/10.1108/IJLMA-02-2018-0033

Cantu, F. J., Bustani, A., Molina, A., & Moreira, H. (2009). A knowledge-based development model: the research chair strategy. *Journal of Knowledge Management*, *13*(1), 154-170. https://doi.org/10.1108/13673270910931233

Cerbioni, F., & Parbonetti, A. (2007). Exploring the effects of corporate governance on intellectual capital disclosure: an analysis of European biotechnology companies. *European Accounting Review*, *16*(4), 791-826. https://doi.org/10.1080/09638180701707011

Chang, C. S., Yu, S. W., & Hung, C. H. (2015). Firm risk and performance: the role of corporate governance. *Review of Managerial Science*, *9*(1), 141-173. https://doi.org/10.1007/s11846-014-0132-x

Chu, S. K. W., Chan, K. H., & Wu, W. W. Y. (2011). Charting intellectual capital performance of the gateway to China. *Journal of Intellectual Capital*, *12*(2), 249-276. https://doi.org/10.1108/14691931111123412

Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, *51*(3), 371-406. https://doi.org/10.1016/S0304-405X(98)00058-0

Dalwai, T., & Mohammadi, S. S. (2020). Intellectual capital and corporate governance: an evaluation of Oman's financial sector companies. *Journal of Intellectual Capital*, *21*(6), 1125-1152. https://doi.org/10.1108/JIC-09-2018-0151

Dao, Vu. (2022). *The bank "closed its doors" to get more foreign buyers to own shares.* https://vneconomy.vn/ngan-hang-hep-cua-tang-ty-le-so-huu-cua-nha-dau-tu-ngoai.htm

Das, T. K., & Teng, B. S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies*, *22*(2), 251-283. https://doi.org/10.1177/0170840601222004

Diyanty, V., Restuti, M. D., Diyanti, V., & Shauki, E. R. (2019, July). Intellectual Capital and Firm Performance: Applying a Modified Value-Added Coefficient. In *Asia Pacific Business and Economics Conference (APBEC 2018)* (pp. 114-123). Atlantis Press. https://doi.org/10.2991/apbec-18.2019.16

Dzenopoljac, V., Yaacoub, C., Elkanj, N., & Bontis, N. (2017). Impact of intellectual capital on corporate performance: evidence from the Arab region. *Journal of Intellectual Capital*, *18*(4), 884-903. https://doi.org/10.1108/JIC-01-2017-0014

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The journal of law and Economics*, *26*(2), 301-325. https://www.journals.uchicago.edu/doi/abs/10.1086/467037

Farag, H., Mallin, C. & Ow-Yong, K. (2018). "Corporate governance in Islamic banks: New insights for dual board structure and agency relationships", *Journal of International Financial Markets, Institutions and Money*, *54*(C), 59-77. doi: 10.1016/j.intfin.2017.08.002

Firer, S., & Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, *4*(3), 348-360. https://doi.org/10.1108/14691930310487806

Gujarati, D. (2003). *Basic Econometrics* (4th ed.). US: The McGraw-Hill Companies.

Mohammad, H. S., & Bujang, I. (2019). Performance of Malaysian financial firms: An intellectual capital perspective using MVAIC model. *Asian Economic and Financial Review*, *9*(7), 752-765. https://doi.org/10.18488/journal.aefr.2019.97.752.765

Haris, M., Yao, H., Tariq, G., Malik, A., & Javaid, H. M. (2019). Intellectual capital performance and profitability of banks: Evidence from Pakistan. *Journal of Risk and Financial Management*, *12*(2), 1-26. https://doi.org/10.3390/jrfm12020056

Henry, D. (2008). Corporate governance structure and the valuation of Australian firms: is there value in ticking the boxes? *Journal of Business Finance & Accounting*, *35*(7-8), 912-942. https://doi.org/10.1111/j.1468-5957.2008.02100.x

Ho, C. A., & Williams, S. M. (2003). International comparative analysis of the association between board structure and the efficiency of value added by a firm from its physical capital and intellectual capital resources. *The International Journal of Accounting*, *38*(4), 465-491. https://doi.org/10.1016/j.intacc.2003.09.001

Hoang, T. C., Abeysekera, I., & Ma, S. (2017). The effect of board diversity on earnings quality: An empirical study of listed firms in Vietnam. *Australian Accounting Review*, *27*(2), 146-163. https://doi.org/10.1111/auar.12128

Holland, J. (2006). Fund management, intellectual capital, intangibles and private disclosure. *Managerial Finance*, *32*(4), 277-316. https://doi.org/10.1108/03074350610652242

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *the Journal of Finance*, *48*(3), 831-880. https://doi.org/10.1111/j.1540-6261.1993.tb04022.x

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *3*(4), 305-360. https://samizdathealth.org/wp-content/uploads/2020/12/Jensen-and-Meckling-1976.pdf

Kamath, G. B. (2007). The intellectual capital performance of the Indian banking sector. *Journal of Intellectual Capital*, *8*(1), 96-123. https://doi.org/10.1108/14691930710715088

Kubo, I., & Saka, A. (2002). An inquiry into the motivations of knowledge workers in the Japanese financial industry. *Journal of Knowledge Management*, *6*(3), 262-271. https://doi.org/10.1108/13673270210434368

Le, T. (2017). *Conference on "Effective Banking Governance"*. Retrieved from The State Bank of Vietnam.

Le, T. D., & Nguyen, D. T. (2020). Intellectual capital and bank profitability: New evidence from Vietnam. *Cogent Business & Management*, *7*(1), 1859666. https://doi.org/10.1080/23311975.2020.1859666

Liang, Q., Xu, P., & Jiraporn, P. (2013). Board characteristics and Chinese bank performance. *Journal of Banking & Finance*, *37*(8), 2953-2968. https://doi.org/10.1016/j.jbankfin.2013.04.018

Maditinos, D., Chatzoudes, D., Tsairidis, C., & Theriou, G. (2011). The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital*, *12*(1), 132-151. https://doi.org/10.1108/14691931111097944

Matolcsy, Z., & Wright, A. (2011). CEO compensation structure and firm performance. *Accounting & Finance*, *51*(3), 745-763. https://doi.org/10.1111/j.1467-629X.2010.00363.x

Mcintosh, M. (2015). *Thinking the Twenty-First Century: Ideas for New Political Economy*. UK: Greenleaf Publishing.

Meles, A., Porzio, C., Sampagnaro, G., & Verdoliva, V. (2016). The impact of the intellectual capital efficiency on commercial banks performance: Evidence from the US. *Journal of Multinational Financial Management*, *36*, 64-74. https://doi.org/10.1016/j.mulfin.2016.04.003

Mooneeapen, O., Abhayawansa, S., Ramdhony, D., & Atchia, Z. (2021). New insights into the nexus between board characteristics and intellectual capital disclosure: the case of the emerging economy of Mauritius. *Journal of Accounting in Emerging Economies*, *12*(1), 29-51. https://doi.org/10.1108/JAEE-12-2020-0322

Mousa, G. A., Desoky, A. M., & Sanusi, Z. M. (2012). The Association Between Internal Governance Mechanisms And Corporate Value: Evidence From Bahrain. *Asian Academy of Management Journal of Accounting and Finance (AAMJAF)*, *8*(Supp. 1), 67-91. https://ejournal.usm.my/aamjaf/article/view/aamjaf_vol8-supp1-2012_4

Murphy, K. J. (1985). Corporate performance and managerial remuneration: An empirical analysis. *Journal of Accounting and Economics*, *7*(1-3), 11-42. https://doi.org/10.1016/0165-4101(85)90026-6

Naushad, M., & Malik, S. A. (2015). Corporate governance and bank performance: A study of selected banks in GCC region. *Asian Social Science*, *11*(9), 226-234. http://dx.doi.org/10.5539/ass.v11n9p226

Nguyen, D.T., Le, T.D.Q. & Ho, T.H. (2021). Intellectual Capital and Bank Risk in Vietnam—A Quantile Regression Approach. *Journal of Risk and Financial Management*, *14*(1), 27. . http://doi.org/10.3390/jrfm14010027

Nyberg, A.J., Fulmer, I.S., Gerhart, B. and Carpenter, M.A. (2010). Agency theory revisited: CEO return and shareholder interest alignment. *Academy of Management Journal*, *53*(5), 1029-1049.

Ozkan, N., Cakan, S., & Kayacan, M. (2017). Intellectual capital and financial performance: A study of the Turkish Banking Sector. *Borsa Istanbul Review*, *17*(3), 190-198. https://doi.org/10.1016/j.bir.2016.03.001

Pulic, A. (1998, January). Measuring the performance of intellectual potential in knowledge economy. In *2nd McMaster word congress on measuring and managing intellectual capital by the Austrian team for intellectual potential* (pp. 1-20).

Puntillo, P. (2009). Intellectual capital and business performance. Evidence from Italian banking industry. *Electronic Journal of Corporate Finance*, *4*(12), 97-115. https://hdl.handle.net/20.500.11770/158570.

Appuhami, R., & Bhuyan, M. (2015). Examining the influence of corporate governance on intellectual capital efficiency: Evidence from top service firms in Australia. *Managerial Auditing Journal*, *30*(4/5), 347-372. https://doi.org/10.1108/MAJ-04-2014-1022

Ribeiro, C. D. M. D. A., Ezequiel, F., Perez Zotes, L., & Vieira Neto, J. (2022). Nonfinancial value creation of integrated reporting. *Journal of Financial Reporting and Accounting*. Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JFRA-10-2021-0332

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86-136. https://doi.org/10.1177/1536867X0900900106

Rowe, W., Shi, W., & Wang, C. (2011). Board governance and performance of Chinese banks. *Banks and Bank Systems*, *6*(1), 26-39. https://ssrn.com/abstract=1368962

Setyawati, I. (2016). Determinants of Growth and Profitability by Bank Specific Variable and Market Stucture in Islamic Banking in Indonesia. *Academy of Strategic Management Journal*, *15*(3), 1-14.

Shehzad, C. T., De Haan, J., & Scholtens, B. (2010). The impact of bank ownership concentration on impaired loans and capital adequacy. *Journal of Banking & Finance*, *34*(2), 399-408. https://doi.org/10.1016/j.jbankfin.2009.08.007

Singh, S., Sidhu, J., Joshi, M., & Kansal, M. (2016). Measuring intellectual capital performance of Indian banks: A public and private sector comparison. *Managerial Finance*, *42*(7), 635-655. https://doi.org/10.1108/MF-08-2014-0211

Soetanto, T., & Liem, P. F. (2019). Intellectual capital in Indonesia: Dynamic panel approach. *Journal of Asia Business Studies*, *13*(2), 240-262. https://doi.org/10.1108/JABS-02-2018-0059

Soon Yau, F., Sin Chun, L., & Balaraman, R. (2009). Intellectual capital reporting and corporate characteristics of public-listed companies in Malaysia. *Journal of Financial Reporting and Accounting*, *7*(1), 17-35. https://doi.org/10.1108/19852510980000639

Sveiby, K.E. (1997). *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets.* San Francisco: Berett-Koehler Publisher.

Tran, N. P., & Vo, D. H. (2022). Do banks accumulate a higher level of intellectual capital? Evidence from an emerging market. *Journal of Intellectual Capital*, *23*(2), 439-457. https://doi.org/10.1108/JIC-03-2020-0097

Tran, N. P., Van, L. T. H., & Vo, D. H. (2020). The nexus between corporate governance and intellectual capital in Vietnam. *Journal of Asia Business Studies*, *14*(5), 637-650. https://doi.org/10.1108/JABS-01-2020-0007

Trieu, V. Q. (2019). *Project Information Document (PID)-Vietnam: Strengthening Banking Sector Soundness and Development-P171375* (No. PIDC194870, pp. 1-0). The World Bank.

Tumwebaze, Z., Bananuka, J., Alinda, K., & Dorcus, K. (2021). Intellectual capital: mediator of board of directors' effectiveness and adoption of International Financial Reporting Standards. *Journal of Financial Reporting and Accounting*, *19*(2), 272-298. https://doi.org/10.1108/JFRA-03-2020-0076

Vishnu, S., & Kumar Gupta, V. (2014). Intellectual capital and performance of pharmaceutical firms in India. *Journal of intellectual capital*, *15*(1), 83-99. https://doi.org/10.1108/JIC-04-2013-0049

Visser, W. (2011). *The age of responsibility: CSR 2.0 and the new DNA of business*. John Wiley & Sons.

Vo, D. H., & Tran, N. P. (2021). Intellectual capital and bank performance in Vietnam. *Managerial Finance*, *47*(8), 1094-1106. https://doi.org/10.1108/MF-03-2020-0143

Vu, H.T., Nguyen, D.V., Ho, T.M. & Vuong, H.Q. (2019). Determinants of Vietnamese Listed Firm Performance: Competition, Wage, CEO, Firm Size, Age, and International Trade. *Journal of Risk and Financial Management*, *12*(6), 62. https://doi.org/10.3390/jrfm12020062

Wang, W. Y., & Chang, C. (2005). Intellectual capital and performance in causal models: Evidence from the information technology industry in Taiwan. *Journal of intellectual capital*, *6*(2), 222-236. https://doi.org/10.1108/14691930510592816

Xu, J., & Li, J. (2019). The impact of intellectual capital on SMEs' performance in China: Empirical evidence from non-high-tech vs. high-tech SMEs. *Journal of Intellectual Capital*, *20*(4), 488-509. https://doi.org/10.1108/JIC-04-2018-0074

Xu, J. and Wang, B. (2019). Intellectual Capital Performance of the Textile Industry in Emerging Markets: A Comparison with China and South Korea. *Sustainability*, *11*(8), 2354. https://doi.org/10.3390/su11082354

Yao, H., Haris, M., Tariq, G., Javaid, H. M., & Khan, M. A. S. (2019). Intellectual capital, profitability, and productivity: evidence from Pakistani financial institutions. *Sustainability*, *11*(14), 3842. https://doi.org/10.3390/su11143842

Yeung, J. C. (2018). Nonlinear effect of board size on corporate performance: impact of the cultural backgrounds of directors in Hong Kong. *Asia-Pacific Journal of Financial Studies*, *47*(1), 107-131. https://doi.org/10.1111/ajfs.12205