

Value Added Intellectual Coefficient on Banks Performance in Indonesia

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Abstract

Banks in Indonesia, both state-owned and private, have realized the importance of intellectual capital as a substantial part in achieving sustainable bank business growth. The population of this research is banking in Indonesia which consistently publish its financial position on an annual basis. Determination of the sample is carried out with a purposive approach, the sample of this research is banks that are listed on the Indonesia Stock Exchange and publish annual financial statements for the period 2018 - 2021. The analysis technique in this study uses simple linear regression analysis. The results show that each model from 2018-2021 shows a low value. The implication of this research is that the better the VAIC value, the more efficient the value creation of all resources will be.

Keywords: bank; intellectual capital; performance.

1. Introduction

Attention to the practice of managing intangible assets has increased significantly in the last few decades. Intellectual capital is one of the approaches used in the assessment of intangible assets and has become a concern in the field of financial management science. Ur Rehman et al. (2022) explained that intellectual capital helps stakeholders and policymakers to recognize the important components of efficiency and reasonable allocation in order to improve performance, especially in banking. Productivity and competitive advantage of banking in the current economic conditions are knowledge-based, so they are no longer based on physical and financial assets but on intangible assets (Oppong & Pattanayak, 2019). These conditions force banks to increase knowledge in order to find reliable resources to achieve higher productivity and superior performance by focusing on their intellectual capital, and cannot be easily imitated because intellectual capital in the banking industry is classified as knowledge-intensive. Adesina, 2019).

The findings of Meles et al. (2016) which are based on regression analysis provide evidence that intangible assessments have a positive effect on technical efficiency, allocation, and bank costs which is an indication that banking performance can increase significantly. Al-Musali & Ismail (2014), that the development of effective knowledge management techniques will allow banks to accumulate the intellectual capital needed so that banks can adapt to a constantly changing and dynamic environment, so that intellectual capital is an effective tool to achieve the goals of managers and policy makers in banking. Furthermore, Al-Musali & Ismail (2014) when intellectual capital is low, the bank's performance decreases, and so should.

Banks in Indonesia, both state-owned and private, have realized the importance of intellectual capital as a substantial part of achieving sustainable bank business growth. Various challenges in the development of intellectual capital have become problems that have attracted the attention of researchers, especially in the context of the banking industry. External (Covid-19) and internal challenges (efficiency problems, decreased performance, etc.) have triggered the attention of managers to focus on developing intellectual capital which will help banks to overcome the problems they

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currently face. Based on this description, this study aims to analyze the influence of intellectual capital on firm performance in banking in Indonesia.

2. Literature Review

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2.1. Intellectual capital

The intangible element or invisible asset, causing the gradual expansion of the difference between the market value and the book value of the company and creating value for the company, is referred to as the company's new wealth. Both financial assets such as inflated bank accounts, as well as physical assets such as large land and many buildings, do not reflect the value of the company. Reflecting a sizeable percentage of the company's market value in the form of assets is the component of intellectual capital and it is constantly being discussed that efforts are needed to measure intellectual capital objectively, experts disclose in company activity reports to be presented to stakeholders, then display it in the form of financial statements or financial statements presented as a separate intellectual capital statement (Yıldız et al., 2014).

Intellectual capital can be defined as an intangible asset that is not explicitly listed on a company's balance sheet, but has a positive impact on its performance so that experts reveal the relationship between employees, ideas, and information. It is common knowledge that balance sheets do not provide information about the actual value of a company; otherwise, prepared for reporting purposes. The relationship between data obtained from financial statements (produced according to conventional accounting standards) and the declining value of a company (Ozkan et al., 2017). Al-Omoush et al. (2022) revealed that intellectual capital significantly impacts supply chain agility, collaborative knowledge creation, and company sustainability.

2.2. Banks performance

Ur Rehman et al. (2022) revealed that the efficiency of human capital has a negative effect on banking performance. Bank size and foreign ownership were also identified as significant driving variables for banking performance. Adesina (2021) finds that higher diversification reduces bank performance while higher levels of human resource efficiency are positively related to bank performance. The study also finds that the performance-reducing effect of diversification decreases as the efficiency of the bank's human resources increases, so it is consistent with diversification alternatives and different performances. A stable financial industry will promote economic growth and development as the sector functions well by offering lasting financial stability. Intellectual capital has become one of the main factors in the market climate that drives growth and competitiveness. Intangible assets are intellectual capital, and it is difficult to assess their value. To identify and explain intellectual capital, value development, competitive advantage, and company performance are taken into account (Olawajaju & Msomi, 2021).

3. Methodology

The population of this research is banking in Indonesia which regularly publish its financial position on an annual basis. The sample determination was carried out using a purposive approach, the sample of this study were banks listed on the Indonesia Stock Exchange and published annual financial statements for the period 2018 - 2021. Based on these criteria, the number of samples included in this test was 29 banks which included state-owned banks, BUSN

for Foreign Exchange, and BUSN for Non-Foreign Exchange. The data used in this study is secondary data in the form of financial statements of all banks. The report used in this study is the annual financial report for the period December 2018 - 2021. It is obtained through the official BI website and or the official website of each bank. The analysis technique in this study uses simple linear regression analysis. The Value-Added Intellectual Coefficient (VAIC) variable is described as follows:

- **Human Capital Efficiency (HCE):** an indicator that shows how much VA is created for each monetary unit invested in HC.

$$HCE = VA/HC$$

- **Structural Capital Efficiency (SCE):** an indicator that shows SC's share in value creation.

$$SCE = SC/VA$$

- **Capital Employed Efficiency (CEE):** an indicator that shows how much VA is created on each monetary unit invested in CE.

$$CEE = VA/CE$$

*CE (Capital Employed) = Physical and Financial assets

- **Value Added Intellectual Coefficient:** shows the efficiency of value creation from all resources (sum of the previous indicator). VAIC expresses the intellectual capabilities of a company, region, or national economy as a whole.

- **ROA:** a ratio that shows the return on a number of company assets used. This ratio is able to measure past profits which are used to predict future profits.

4. Results and Discussion

4.1. Descriptive statistics

Table 1 shows the results of the description of the average annual VAIC, HCE, and CEE data for Indonesian banks (commercial, non-commercial and overall) from 2018 to 2021.

Table 1. Description of annual average data.

Banks code	Period	HCE	SCE	CEE	VAIC	ROA
BBNI	2018	2,383	0,580	0,028	2,991	0,024
	2019	2,940	0,660	0,035	3,635	0,023
	2020	1,950	0,487	0,021	2,458	0,006
	2021	2,253	0,556	0,026	2,835	0,013
BMRI	2018	3,077	0,675	0,042	3,794	0,028
	2019	3,117	0,679	0,041	3,837	0,028
	2020	2,232	0,552	0,029	2,812	0,016
	2021	5,459	0,817	0,036	6,312	0,022
BBRI	2018	2,861	0,650	0,049	3,561	0,032
	2019	2,792	0,642	0,048	3,481	0,031
	2020	1,900	0,474	0,174	2,547	0,018
	2021	2,081	0,520	0,047	2,648	0,025
BBTN	2018	2,249	0,555	0,021	2,826	0,012
	2019	1,182	0,154	0,011	1,347	0,002
	2020	1,783	0,439	0,015	2,236	0,006
	2021	1,803	0,445	0,018	2,266	0,008

Banks code	Period	HCE	SCE	CEE	VAIC	ROA
BBCA	2018	3,693	0,729	0,054	4,477	0,039
	2019	3,721	0,731	0,054	4,506	0,039
	2020	3,515	0,715	0,044	4,274	0,031
	2021	3,880	0,742	0,043	4,665	0,032
BTPN	2018	2,049	0,512	0,057	2,618	0,029
	2019	2,211	0,548	0,041	2,800	0,022
	2020	1,819	0,450	0,032	2,301	0,014
	2021	2,191	0,544	0,039	2,774	0,021
BDMN	2018	2,039	0,509	0,055	2,603	0,028
	2019	1,602	0,376	0,045	2,023	0,017
	2020	1,451	0,311	0,037	1,798	0,011
	2021	1,460	0,315	0,040	1,815	0,013
BNLI	2018	1,512	0,339	0,024	1,875	0,008
	2019	1,804	0,446	0,028	2,277	0,012
	2020	1,573	0,364	0,022	1,960	0,008
	2021	1,554	0,357	0,019	1,930	0,007
PNBN	2018	3,009	0,668	0,031	3,707	0,021
	2019	3,093	0,677	0,031	3,801	0,021
	2020	2,903	0,656	0,027	3,587	0,018
	2021	2,119	0,528	0,022	2,668	0,012
BNGA	2018	2,198	0,545	0,033	2,776	0,018
	2019	2,067	0,516	0,035	2,618	0,018
	2020	1,585	0,369	0,024	1,978	0,010
	2021	2,101	0,524	0,030	2,655	0,016
BNII	2018	4,914	0,797	0,068	5,779	0,017
	2019	2,002	0,501	0,030	2,533	0,015
	2020	1,730	0,422	0,025	2,177	0,011
	2021	1,851	0,460	0,028	2,339	0,013
MEGA	2018	2,554	0,609	0,038	3,201	0,023
	2019	3,018	0,669	0,038	3,725	0,025
	2020	3,944	0,746	0,045	4,735	0,033
	2021	4,731	0,789	0,047	5,567	0,037
BSIM	2018	4,541	0,780	0,093	5,415	0,002
	2019	4,383	0,772	0,081	5,236	0,002
	2020	4,037	0,752	0,069	4,858	0,003
	2021	4,382	0,772	0,063	5,217	0,003
INPC	2018	1,205	0,170	0,019	1,395	0,003
	2019	0,802	-0,247	0,011	0,567	-0,003
	2020	1,594	0,373	0,017	1,984	0,001
	2021	0,152	-5,599	0,001	-5,446	-0,008
BABP	2018	1,356	0,263	0,028	1,647	0,007
	2019	1,314	0,239	0,025	1,579	0,006
	2020	1,114	0,103	0,019	1,236	0,002
	2021	1,125	0,111	0,016	1,253	0,002
BBKP	2018	1,145	0,127	0,012	1,284	0,002
	2019	1,108	0,098	0,010	1,215	0,001
	2020	-3,534	1,283	-0,039	-2,290	-0,049
	2021	-0,133	8,532	-0,002	8,398	-0,035
NISP	2018	2,620	0,618	0,032	3,271	0,020
	2019	2,748	0,636	0,034	3,418	0,022
	2020	2,206	0,547	0,025	2,777	0,013

Banks code	Period	HCE	SCE	CEE	VAIC	ROA
SDRA	2021	2,374	0,579	0,026	2,979	0,015
	2018	3,833	0,739	0,036	4,608	0,025
	2019	3,806	0,737	0,026	4,570	0,018
	2020	3,653	0,726	0,026	4,405	0,018
BGTG	2021	4,066	0,754	0,026	4,846	0,019
	2018	1,109	0,098	0,025	1,231	0,002
	2019	1,183	0,155	0,023	1,360	0,004
	2020	1,082	0,076	0,019	1,177	0,001
BKSW	2021	1,207	0,172	0,013	1,392	0,002
	2018	1,070	0,066	0,019	1,155	0,001
	2019	1,015	0,015	0,012	1,043	0,000
	2020	0,093	-9,773	0,002	-9,679	0,015
BMAS	2021	-3,757	1,266	-0,066	-2,557	-0,084
	2018	1,591	0,371	0,028	1,990	0,010
	2019	1,712	0,416	0,026	2,155	0,011
	2020	1,755	0,430	0,020	2,205	0,009
BACA	2021	1,783	0,439	0,016	2,238	0,007
	2018	1,944	0,486	0,018	2,448	0,009
	2019	1,185	0,156	0,011	1,353	0,002
	2020	0,317	-2,156	0,003	-1,836	0,004
AGRO	2021	0,763	-0,311	0,006	0,458	0,003
	2018	2,678	0,627	0,020	3,324	0,013
	2019	1,367	0,268	0,010	1,645	0,003
	2020	1,292	0,226	0,009	1,527	0,002
AGRS	2021	-13,046	1,077	-0,182	-12,152	-0,196
	2018	0,402	-1,488	0,011	-1,075	-0,016
	2019	-1,265	1,791	-0,025	0,501	-0,044
	2020	-0,182	6,496	-0,003	6,311	-0,018
BNBA	2021	1,064	0,061	0,012	1,137	0,001
	2018	2,162	0,537	0,039	2,738	0,017
	2019	1,625	0,384	0,030	2,039	0,009
	2020	1,468	0,319	0,027	1,814	0,007
AMAR	2021	1,518	0,341	0,021	1,880	0,007
	2018	1,411	0,291	0,045	1,747	0,013
	2019	1,713	0,416	0,059	2,188	0,025
	2020	1,202	0,168	0,043	1,413	0,007
BBMD	2021	1,041	0,039	0,035	1,115	0,001
	2018	2,613	0,617	0,048	3,278	0,030
	2019	1,713	0,416	0,059	2,188	0,025
	2020	2,836	0,647	0,045	3,528	0,029
BCIC	2021	3,854	0,741	0,056	4,651	0,042
	2018	-0,054	19,459	-0,001	19,404	-0,017
	2019	1,044	0,043	0,016	1,103	0,001
	2020	-1,253	1,798	-0,020	0,525	-0,036
DNAR	2021	-0,968	2,033	-0,012	1,053	-0,025
	2018	1,076	0,071	0,026	1,172	0,002
	2019	0,923	-0,083	0,022	0,862	-0,002
	2020	1,167	0,143	0,022	1,333	0,003
	2021	1,235	0,190	0,017	1,442	0,003

The mean HCE results show in 2018 (2.181); 2019 (1,929); 2020 (1,508); and 2021 (1.315). The mean value of SCE in 2018 (1.069); 2019 (0.442); 2020 (0.271); and 2021 (0.614). The mean value of CEE in 2018 (0.034); 2019 (0.030); 2020 (0.026); and 2021 (0.015). The mean VAIC in 2018 (3.284); 2019 (2,400); 2020 (1,805); and 2021 (1.944), and the mean ROA in 2018 (0.014); 2019 (0.011); 2020 (0.007); and 2021 (-0.001).

4.2. Regression Statistics

Table 2 shows the results for each model for all variables from 2018 to 2021. The coefficient of determination (R2) shows a very low value. The lowest R2: 0.003, 0.02, and 0.06.

Table 2. HCE, SCE, CEE, and VAIC Regression Results on ROA.

	2018	2019	2020	2021
HCE (independent) dan ROA (dependent)				
Slope	0,551	0,032*	0,002*	0,000*
Intercept	-0,003	-0,009	-0,008	-0,018
R2	0,41	0,58	0,73	0,92
SCE (independent) dan ROA (dependent)				
Slope	0,000*	0,011*	0,029*	0,860
Intercept	0,015	0,013	0,007	0,002
R2	0,12	0,003	0,07	0,02
CEE (independent) dan ROA (dependent)				
Slope	0,879	0,125	0,838	0,000*
Intercept	0,001	-0,006	-0,001	-0,015
R2	0,29	0,55	0,31	0,94
VAIC (independent) dan ROA (dependent)				
Slope	0,000*	0,090	0,314	0,005*
Intercept	0,016	-0,008	0,004	-0,019
R2	0,02	0,45	0,06	0,59

5. Conclusion

This study uses the VAIC model to measure the efficiency of Intellectual Capital at 29 banks in Indonesia. The efficiency indicators of HCE, SCE, CEE, and VAIC are used in the analysis using time series data related to 29 banks in Indonesia covering the period from 2018 to 2021. The results of the analysis show that banking data is obtained from state-owned and private banks. The results of the bank's ranking over the past year (2021) show that VAIC expresses intellectual ability and shows the efficiency of value creation from all resources (number of CEE indicators). The rating results based on HCE, an indicator that measures how much VA is made on each monetary unit invested in HC, show similar results to the VAIC. However, the ranking results are based on CEE, an indicator that shows how much VA is made on each monetary unit invested in CEE (Physical and Financial).

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