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Does The Productivity of Companies Affected by Employee Stock Option Plans and Intellectual Capital?

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Abstract

Purposes: This study tries to identify the impact of intellectual capital and employee stock option plans on company productivity. Productivity is measured with The Malmquist Productivity Index which is intended to measure the efficiency of companies. Measurement of intellectual capital using Value Added Intellectual Capital determined by human capital efficiency, structural capital efficiency and capital employed efficieny.

Methods: This research uses a quantitative approach, and data collection is carried out through secondary data. The research sample was taken from 60 companies with 180 observation data from the financial industry sector listed on the Indonesia Stock Exchange from 2019 to 2021, during the Covid-19 pandemic. The multiple regression analysis method is used to examine the relationship between intellectual capital, employee stock option plans, and company productivity.

Findings: The results imply that human capital, structural capital, capital employ and employee stock option plans have impact on company productivity. Therefore, a dominant factor affecting company productivity is human resources. The implementation of share ownership schemes for employees has not been widely used in businesses that operate in the Indonesian financial industry sector.

Novelty: The advantage of the Malmquist Productivity Index on the financial industry when compared to others is that it does not require assumptions of corporate behavior as applied in the Data Envelopment Analysis methods such as minimizing costs or maximizing profits. The Malmquist Productivity Index can specifically assess the productivity of each company unit.This research became very interesting because the productivity measured by the Malmquist Index in the finance industry was influenced by structural capital and human capital.

Keywords*: Malmquist Productivity Index, Intellectual Capital, Employee Stock Option.*

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INTRODUCTION

In the current era of globalization, business models are developing very rapidly, due to the encouragement of technological developments and a dynamic business environment, so leadership styles play an important role in company development (A. M. Buallay, 2017). This condition places intellectual capital to be very important because it is the main driver of knowledge and innovation for business competitiveness. According to practitioners, intellectual

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capital is the key factor influencing employee productivity, which is a function of the success of the organization (A. Buallay et al., 2021).

The global crisis, fuelled by the COVID-19 pandemic, has had a significant impact on banking financial performance. The banks have made a lot of efforts in the face of the global crisis so that the financial performance of the banks can continue to improve. Hopefully, with the economic recovery continuing, then the financial performance of banks can stabilize again. The banking work program during the pandemic was 1) People First's; 2) IT digital and distribution networks; and 3) Business. To support the national economic recovery, the bank's financial institutions have introduced several digital innovations to help entrepreneurial customers respond to the post-pandemic economic challenges.

This study examines the relationship between intellectual capital, employee stock option plans, and company productivity. Productivity is a key factor and is a measurement of company performance. Increased productivity is a key factor that drives company performance in the long term to ensure business continuity. Productivity depends on measuring management efficiency, in terms of intellectual capital and employee stock ownership scheme programs. Conceptually, many employee stock option plans (ESOP) are found in developed countries which are implemented in the form of stock bonus plans (Ngambi & Oloume, 2013). One of the steps taken by companies to support increased productivity, especially for human capital, is to provide ESOPs to employees.

ESOP and Management Stock Ownership Plan (MSOP) are programs that provide opportunities for employees and/or management to be entitled to own several shares in the company where they work (Rosen et al., 2005). The implementation of ESOP and MSOP in Indonesia is regulated by the Financial Services Authority (OJK). The plan aims to provide incentives in the form of equity to increase employees' sense of belonging. Release from kontan. id that realization of the MSOP and ESOP corporate partnership programs has been carried out by PT Bank Rakyat Indonesia Tbk and PT Trimegah Sekuritas which have contributed 35,000 securities accounts from employees.

In the era of global trade, understanding company productivity is a serious concern for company stakeholders. Company productivity is an important issue and has received a lot of attention in the field of research related to the global economy. Productivity itself measures the effectiveness of using the company's resources to generate revenue. Large companies have higher productivity because large companies have sufficient and better resources than small companies (Raihan et al., 2017). This condition makes large companies generate higher income compared to small companies. Thus, companies with high productivity levels tend to generate higher revenue than companies with low productivity and then can fulfill their obligations properly.

Investment in excellent short-term and long-term assets is required to increase the productivity of the company's business activities. Intellectual capital is an essential factor that can determine productivity. Measurements related to the productivity of entities in managing inputs can be done using the Malmquist Productivity Index (MPI) approach. MPI is part of the Data Envelopment Analysis (DEA) which can be used to see the level of productivity of each business unit, the changes in the level of efficiency and technology used based on predetermined inputs and outputs. Therefore, MPI is often used to analyze changes in company performance.

But another important element that might have an impact on productivity is ESOP. Productivity can rise by four to five percent when the employee stock option plan program is implemented, proving the ESOP's advantageous impact on increasing output (Blasi et al., 2016). Plans for employee stock options are also believed to decrease internal conflict of interest. The ESOP's implementation mandates that employees are the company's owners, therefore employees will strive to boost productivity through their work.

The ultimate objective of this research was to investigate the impact of employee stock option plans and intellectual capital on company productivity. This research was carried out in the scope of the financial industry sector by taking 60 surveyed financial companies as samples and became the basis for observation of research data collection.

The theory of resource allocation assumes that companies choose the most economical method of distributing factors of production and allocate them to various productive activities to achieve maximum income because resource scarcity is a significant limitation in the business environment (Li & Cui, 2008). For the company to succeed and excel in business, it will try to maximize its tangible and intangible assets. As stated (Habib & Dalwai, 2023) those who want to excel in their business try to optimize the capabilities of their limited resources to achieve company goals. Intellectual capital is an essential component of the company's resources for extracting value from its limited resources. Companies with high intellectual capital are expected to have better risk and liquidity management systems, so there is less chance of bankruptcy (Shahdadi et al., 2020).

This research seeks to obtain empirical evidence regarding the influence of intellectual capital and employee share ownership schemes on company productivity, especially in the financial sector where listed on the Indonesia Stock Exchange. It is known that the recourse-based view emphasizes the importance of productive resources, both tangible and intangible assets in building competitive advantage by shaping company success (Martí et al., 2007; Subramaniam & Youndt, 2005). Intellectual capital is defined as intangible assets when calculated using the value-added intellectual capital formula, which includes the value contributed by structural capital, human capital, and employee capital. Whereas the employee stock option plan is a way to keep brilliant and devoted workers of a firm, this program has started to spread to many businesses, and businesses have begun employing it as a tactic to keep employees (Asyik, 2021).

Companies must adapt to the new millennium by becoming more dependent on knowledge, information, and high levels of competence as a result of globalization (Tiwari et al., 2023). The business sector requires ready-to-use employees on all fronts, so managing and increasing knowledge of human resources is very important to increase company revenue. As stated (Wensley & Evans, 2023) managing and increasing the ability of company employees' knowledge resources is very important for the success of the company. The Resource-Based view (RBV) of a corporation is one of the greatest ways to comprehend the dynamics of intangible resources and knowledge management. All intangible resources are referred to collectively as intellectual capital (Edvinsson et al., 1997). According to (Alipour, 2012; Tovstiga & Tulugurova, 2007), intellectual capital generally refers to human capital (HC), structural capital (CS), and relational capital (RC).

Intellectual capital is made up of intangible resources including knowledge, technical abilities, professional skills and expertise, customer encounters, information databases, organizational structures, inventions, values in society, faith, and honesty. The ratio of structured capital (CS) to value added (VA) serves as a proxy for structural capital efficiency, which is an indicator of value added structural capital. A measure of how well the capital structure creates value is the structural capital ratio, which calculates the amount of structural capital required to generate one rupiah of value added.

Competitive advantage based on Resource Based Theory is something that is inherent in the company and is difficult for other companies to imitate. Structural capital or organizational capital is the company's potential wealth stored in the company's organization and management and is a supporting infrastructure of human capital. (Dada & Ghazali, 2016) found a negative effect between capital structure and company performance. (Olusola et al., 2022) research findings show that capital structure affects corporate performance favorably. Similarly, (Lu et al., 2014) discovered that improving operational efficiency is impacted by structural capital efficiency (SEE). However (Okpe et al., 2022), found that there is no evidence that structural capital efficiency (SEE) affects business performance.

H_1: Structural capital efficiency boosts company productivity.

The three most significant intellectual capital constructs were typically regarded as human capital, structure capital, and customer capital (Bontis et al., 2018; Shih et al., 2010). The pool of specialized knowledge possessed by a workforce is referred to as human capital in business. A

person's genetic makeup, educational background, life experiences, and attitudes toward both business and life make up their human capital.

Human capital is defined as an employee's knowledge, skill, creative ideas, and capacity to help the business solve challenges and advance its objectives (Edvinsson et al., 1997). This statement is supported by (Becker et al., 2002) human capital is the productive effort of an organization's workforce, so labor is the main element of human capital. Human resources are the only intangible asset that creates value when an employee uses their skills and competencies to benefit the business and interact with consumers (Fincham & Roslender, 2003).

According to (Chen & Zhu, 2004), those who complete the discussion of human capital, human capital serves as the foundation for intellectual capital and is essential to the creation of value. According to a variety of perspectives on human capital, this refers to the employees' collective representation of the individual knowledge that exists inside an organization. Employees' skills and inventiveness are part of their human capital, which may be enhanced by increased investment in their training programs. Human capital is defined as the knowledge and skills of employees that boost a business's productivity. As a result, human capital is a composite of genetic makeup, education, life experience, and business-related attitudes (Khairiyansyah & Vebtasvili, 2018).

A process involves a variety of organizational resources, including knowledge workers, machinery, energy, and materials (Parham & Heling, 2015). Given that this asset is intangible, the issue of how much it influences business productivity naturally emerges. Some individuals frequently overlook human capital as an intangible asset. Although human capital is an important part of the process of raising firm productivity. Employee productivity will improve as will the organization's ability to increase value added. The effectiveness of human capital contributions is gauged by value added human capital. Value added human capital is defined as the ratio of value contributed to human capital.

The concept of human capital encompasses everything of an individual's capacities, talents, knowledge, and experience as well as their relationships, competencies, capabilities, and values. The theory of human capital which states that human capital is very important in development has been proven in many studies. Several studies related to human capital were conducted by (Parham & Heling, 2015), and (Pangidoan & Nawangsari, 2022) who found that human capital efficiency has a positive effect on company performance. (Lu et al., 2014) found empirical evidence that human capital efficiency (HCE) has a positive effect on increasing operating efficiency. Meanwhile, (Rajan & Zingales, 1995; Tran & Vo, 2020; Welly et al., 2021), their research did not find the effect of human capital efficiency (HCE) on company performance.

H_2: The efficiency of human capital has a beneficial impact on company productivity.

Value added capital employed (VACE) reflects an efficiency indicator of value added capital which is determined by calculating the ratio of VA to CE. This ratio shows how much added value the company generates from the total capital with the default value of assets (Onyekwelu & Ubesie, 2016). This ratio is also an illustration of the calculation of the company's ability to manage capital, which serves as a measure of managerial effectiveness concerning profitability and other performance metrics, compared to other businesses operating in the same industry (Okpe et al., 2022). Therefore, capital employed is the level of productivity brought about by physical and financial capital, showing that the higher the value of a company's capital employed, the more effectively the management of intellectual capital in the form of buildings, land, equipment, or even technology that is easily available for purchase and sale in the market.

Capital employed, which is a variable making up intellectual capital, is a company resource that is needed to boost company productivity. According to (Okpe et al., 2022) the capacity to generate income is influenced by the amount of money used, so the effective use of capital can increase the success of the company. Research related to capital employed efficiency (CEE) was conducted by (Welly et al., 2021), and the results of his research did not find any effect of capital

employed efficiency on firm performance. Meanwhile, the research results (Okpe et al., 2022) found empirical evidence of the positive effect of capital-employed efficiency on firm performance. Likewise, the results of research from (Lu et al., 2014) found that capital employed efficiency (CEE) has a positive effect on operating efficiency.

H_3: The efficiency of capital employed increases company productivity.

One alternative to reduce agency costs is to increase company shares by management, known as an employee stock option plan. Employee stock option plan is an equity-based employee stock option program provided by the company, which is an alternative that is expected to reduce agency conflicts. The employee stock option plan is therefore a benefit provided to executive employees in exchange for their consistent achievement. This application is a useful tool for focusing on and lowering agency issues and expenses. Share ownership by executive employees in the employee stock option plan scheme can align the interests of management with shareholders (Laudya & Handoko, 2019). The employee stock option plan program is anticipated to improve business performance, which will be reflected in the company's accounting profit (Mwenda & Ngollo, 2023).

Employee stock option plans will strengthen the relationship between intellectual capital and productivity. Based on agency theory, agency costs in the form of employee stock option plans will make managers and employees act by the interests of the owner, where the owner always expects high productivity from employees. Employees work with productivity output, which will generate high profitability, so the value of the shares they will receive will also be high. Since equity-based remuneration implicitly values resource ownership, it ensures that the company will eventually have competent employees who respect the concept of ownership when performing corporate duties (Ray, 2016). As a result, the theory claims that management's expectations are justified. Research related to employee stock option plans (ESOP) was conducted by (Ding & Chea, 2021; Ray, 2016; Zhu et al., 2013) which proves that the implementation of the employee stock option plan (ESOP) program has a positive effect on company productivity. Meanwhile, (Laudya & Handoko, 2019) in their research did not find the effect of the employee stock option plan on company performance.

H_4: Employee stock option plans improve company productivity.

METHODS

This research was conducted on companies in the financial industry sector in Indonesia from 2019 to 2021 during the pandemic Covid-19. The productivity of the organizations included in this study was evaluated for this Data Envelopment Analysis (DEA) study utilizing the Malmquist productivity index approach (Zrelli et al., 2020). The relative efficiency scores of decision-making units are estimated using a programming technique called data envelopment analysis (Habib & Dalwai, 2023). The data envelopment analysis technique uses the Malmquist productivity index to estimate the productivity of each business unit. The distance function, the output distance function for the output-oriented index, and the input distance function for the input-oriented index are used to generate the Malmquist Productivity Index (Bayiley, 2022). The distinction between prior research is in the measuring of productivity variables, this study employs the Malmquist Productivity Index (MPI) as an indicator to quantify company productivity.

Table 1. Sampling

Criterions	Sum
Population: The companies in the financial industry sector in Indonesia from 2019 to 2021	92
Criterion of Samples:	
1. Financial sector companies not registered successively in the period 2019-2021.	(6)
2. Companies that suffered losses in the period 2019-2021	(26)
Total Sample	60
Data of Observation = 60 X 3 years	180

Table 2. Input and Output for The Calculation of The Malmquist Productivity Index

Finance Industry	Input	Output
Banking	1. Interest and sharia expenses, provision and commission expenses. 2. Personnel expenses. 3. General and administrative expenses, impairment losses, and other expenses.	1. Interest and sharia income. 2. Provision and commissions. 3. Premiums and financing. 4. Other operating income.
Insurance	1. Underwriting expenses. 2. Provision and commission expenses. 3. Personnel expenses. 4. Other expenses.	1. Underwriting income. 2. Provision and comissions income. 3. Investment income and other income.
Securities	1. Office rent and maintenance expenses. 2. Personal expenses. 3. General administrative expenses, advertising, promotions, and other expenses.	1. Income from securities brokerage activities, interest income and dividends. 2. Income from investment manager activities, securities trading profits.
Financing	1. Interest and financial expenses. 2. Personnel expenses. 3. General administrative expenses, allowance for possible losses, marketing expenses, and other expenses.	1. Financial Lease income. Consumer financing. 2. Other income.

Table 3. Operational Variables

Variables	Formula
Productivity. MPI = Malmquist Productivity Index.	$MPI = \frac{D^{(t+1)}(y^{(t+1)}, x^{(t+1)}}{D^{t}(y^{t}, x^{t}} \times \left[\frac{D^{t}(y^{(t+1)}, x^{(t+1)}}{D^{(t+1)}(y^{(t+1)}, x^{(t+1)})} \times \frac{D^{t}(y^{t}, x^{t})}{D^{(t+1)}(y^{t}, x^{t})} \right]$ D= If > 1, productivity increases; If < 1 productivity decreases. x = input. y = output. t = observation period.
Structural Capital Efficiency (SCE)	SCE = SC/VA SC = VA – HC VA= output – input Output = total income. Input = total expenses used to obtain total revenue.
Human Capital Efficiency (HCE)	VCE = VA/HC HC = employee expenses include total salaries and wages.
Capital Employed Efficiency (CEE)	CEE = VA/CE CE = book value of the company's total assets
Employee Stock Option (ESOP)	Dummy. 1 = Companies that implement ESOP. 0 = Companies that do not implement ESOP.

The sample was determined by financial sector companies that published financial reports during the condition of pandemic COVID-19 from 2019 to 2021, and these companies did not experience consecutive losses during the observation period (Table 1). The Malmquist Productivity Index a proxy for companies' productivity (Kalai & Helali, 2020; Nishimizu & Page, 1982), is computed using the inputs and outputs listed in Table 2.

The MPI regression equation model is shown in Table 3 (Bayiley, 2022; Krishnasamy et al., 2004).

$$\mathbf{MPI}_{it} = \alpha + \beta_1 \mathbf{SCE}_{1it} + \beta_2 \mathbf{HCE}_{2it} + \beta_3 \mathbf{CEE}_{3it} + \beta_4 \mathbf{ESOP}_{4it} + e_{it}$$

MPI	= Productivity
α	= Constant
SCE	= Structural Capital Efficiency
HCE	= Human Capital Efficiency
CEE	= Capital Employed Efficiency
ESOP	= Employee Stock Option Plan
β_1, β_2, β_3,β_4	= Regression coefficient
	= Error

RESULTS AND DISCUSSION

An analysis of the frequency of employee stock option plan (ESOP) implementation can be seen in Table 4. The table provides information about the number of companies that do and do not implement ESOP. There are 166 companies or 92.2% of companies that do not implement the ESOP schemes, while 14 (7.8%) companies do.

Table 5 shows the minimum SCE value of 0.003806 for BBKP issuers. The maximum SCE is 1.09267 on GSMF issuers. The mean SCE is 0.51376 with a standard deviation of 0.199177. The smallest HCE is 0.477857 for GSMF issuers, and the largest HCE is 6.73232 for PNIN issuers. The mean HCE of 180 companies is 2.40978 with a standard deviation of 1.101271. The smallest CEE is 0.013575 for PNBN issuers with a maximum of 2.24058 for NOBU issuers. The mean CEE value is 0.22672 with a standard deviation of 0.20313. The smallest productivity (MPI) is 0.93972 at BINA issuers with the largest being 2.385 at APIC. The mean MPI of 180 is 0.99501, while the standard deviation is 0.96030.

Table 4. Implementation of ESOP

Valid	Frequency	Percentage
0 (do not implement ESOP)	166	92.2
1 (implement ESOP)	14	7.8
Total	180	100

Table 5. Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Dev.
SCE	0.003806	1.09267	0.51376	0.199177
HCE	0.477857	6.73232	2.40978	1.101271
ECE	0.013575	2.24058	0.22672	0.203129
ESOP	0.939724	0.091	9.167	0.960301
Valid N (180)				

Source: The Processed Secondary Data (2023)

Table 6. Regression Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Results
		B	Std.Error	Beta			
1	(Constant)	0.776	0.150		5.165	0.000	
	SCE	0.085	0.042	0.059	0.201	0.045	Accepted (H_1)
	HCE	0.028	0.076	0.248	3.666	0.000	Accepted(H_2)
	ECE	0.010	0.023	0.200	0.442	0.065*	Accepted (H_3)
	ESOP	0.036	0.017	0.292	1.714	0.084*	Accepted (H_4)

*significance at 10%

Source: The Processed Secondary Data (2023)

The classical assumption test has been performed as a statistical requirement to be met on a multiple linear regression analysis based on ordinary least squares. Normality tests, autocorrelation tests, heterocedacity tests, and multicollinearity tests are aimed at obtaining the correct regression equation model, thus meeting the assumption of The Best Linear Unbiased Estimator (BLUE). The normality test of the data using the Kolmogorov–Smirnov test showed that the residual data was distributed normally. The Heteroscedasticity test used the White test by observing Chi-Square count values smaller than the Chi-Square values of the table, so it could be concluded that the similarity of the regression model in this study was free of symptoms of heteroscedastic.

The regression model equation in this research was free of symptoms of multicollinearity or no correlation between independent variables. This can be seen in the results of the multicollinearity test that presented tolerance values > 0.1 and VIF values < 10. In this study, the Durbin-Watson test was used to detect the presence or absence of autocorrelation symptoms. The regression model has confirmed that there are no positive or negative autocorrelation symptoms.

The direction of the impact of SCE, HCE, CEE, and ESOP factors on firm production was ascertained using regression analysis. While, the t-test is used to control the level of significance of each of these factors on business productivity, allowing for the acceptance or rejection of the hypothesis. The Malmquist Productivity Index (MPI) calculates business productivity.

Table 6 provides the basis for the regression equation, which is as follows:

MPI = 0,776 + 0,085SCE + 0,028HCE + 0,10CEE + 0,036 ESOP + e

The aforementioned regression equation demonstrates that SCE, HCE, CEE, and ESOP all have a positive effect on companies' productivity. The Adjusted R-Square, which is equal to 0.065, or 6.5%, as determined by the coefficient of determination, implies that factors besides SCE, HCE, CEE, and ESOP can also explain productivity. As a result, 93.5% are affected by elements that were let out of the study model. However, the result of the F test shows a significance of 0.003, which is less than 0.05. These results demonstrate that the regression model satisfies the goodness of fit criteria, enabling the t-test.

The results of the t (sig-t) test for value-added structural capital to company productivity show a significance value of t = 0.045 with a positive coefficient. As a result, the SCE statistical direction of the relationship is positive and significant, and H1 is accepted. A significant value of t = 0.000 and a positive coefficient are produced when the impact of value-added human capital is tested against firm productivity. These results support the acceptability of H2 by demonstrating that HCE has a positive influence on company productivity. The findings of testing hypothesis 3 (H3), which examines the impact of value-added human capital on firm productivity, indicate that t = 0.065 is a significant value with a positive coefficient. H3 is accepted. CEE has a beneficial impact on productivity at a significance level of 10%. Likewise, the results of testing hypothesis 4 (H4) value added stock option produces a significance value of t = 0.084, so that employee stock options have an effect on company productivity at a significance of 10%, so H4 is accepted.

Structural capital efficiency boosts company productivity

Testing the hypothesis shows that structural capital has a positive effect on productivity as evidenced in this study. This condition indicates that better management or investment made by a company towards structural capital has a significant impact on increasing productivity. The findings of this study support the results of research conducted by (Pangidoan & Nawangsari, 2022; Puspitasari et al., 2023; Saruultugs et al., 2022). However, the results of the research from (Mensah Onumah & Tornam Duho, 2019) found a negative effect, while research from (Lu et al., 2014) found no such effect. A company's structural capital is adequate and capable of supporting greater intellectual performance.

The company applies the ability over asset structure (SA) to increase productivity.

The measurement of the largest SCE value in this study was for BBKP issuers. BBKP profile as an issuer with banking services business. In 2018 BBKP has a service network consisting of 43 Branch Offices, 175 Sub-Branch Offices, 104 Cash Offices, 23 Payment Points, 439 Outlets and 8 pick-up services spread across 23 provinces in Indonesia. The measurement of the largest SCE value in this study was for BBKP issuers. BBKP profile as an issuer with banking services business. In 2018 BBKP has a service network consisting of 43 Branch Offices, 175 Sub-Branch Offices, 104 Cash Offices, 23 Payment Points, 439 Outlets and 8 pick-up services spread across 23 provinces in Indonesia. BBKP has 867 Bukopin ATMs connected to more than 30,000 ATMs on the national network, the Plus network, and International Visas worldwide. This shows that the company focuses on the use of information technology devices and equipment to provide services to consumers.

The results of this study are in line with the Resource Based Theory (RBT) which states that competitive advantage will be achieved if the company's resources (intellectual capital) are managed properly. Then, it will create value added that is useful and influences the company's performance. Structural capital including the resources owned by companies in this study can be used to achieve competitive advantage. Structural capital such as infrastructure, networks, information systems, and technology in financial sector companies tends to be the same. Therefore, structural capital can contribute to creating added value for companies in the financial industry sector.

The efficiency of human capital has a beneficial impact on company productivity

The productivity of a company is significantly influenced by value-added human capital. The greater the HCE, the more productive the company is. The findings of this study demonstrate that businesses' increased on investment in human capital has a major influence on raising productivity. The findings of this study are consistent with those of other studies by (Lu et al., 2014; Mensah Onumah & Tornam Duho, 2019; Pangidoan & Nawangsari, 2022; Saruultugs et al., 2022). It contrasts with the research results from (Puspitasari et al., 2023; Tran & Vo, 2020; Welly et al., 2021), which did not detect the impact of HCE on business productivity and efficiency.

The measurement with the largest HCE value in this study is PNIN issuers who run a general insurance business. A business group with interests in banking, life insurance, general insurance, financing, and securities includes PNIN as a member. PNIN realizes that human resource competency development remains an important factor in increasing human resource productivity. Employee training will be more focused on developing employees who can provide added value to the company through efficient projects or development programs to carry out good execution (paninvest.co.id).

The resource-based view theory, which asserts that achievement is made through developing corporate excellence and strategically owning, supporting, and controlling both intangible and tangible assets, is also relevant to the findings of this study (Asyik, 2021; Batarliene et al., 2017; Bontis et al., 2018). While the theory of human capital states that human capital is part

of intellectual capital which is considered the most important component in creating company productivity. Humans' abilities and skills can be improved through education and training, leading to increased productivity. Companies that pay more attention to employees are proven to be able to grow more than other companies because it is triggered by increased expertise or skills and production capabilities of the workforce.

The efficiency of capital employed increases company productivity

Value added employed capital (CEE) has no effect on productivity at a significance of 5% but is significant at a level of 10%. This can be interpreted that the better the company's management of employed capital can not always have a significant impact on productivity. However, there is a tendency to increase company productivity, this indication is shown from the results of the t-test which yields significance at a level of less than 10%, so that the researcher's confidence in determining significance will determine the outcome or decision. These empirical findings support research from (Jonah Okpe et al., 2022; Puspitasari et al., 2023), but this is not in line with the results of research by (Lu et al., 2014; Mensah Onumah & Tornam Duho, 2019; Saruultugs et al., 2022; Welly et al., 2021) those who found empirical evidence of the positive effect of capital efficiency on efficiency and productivity.

The largest value of capital employed efficiency (CEE) in this study is found in NOBU issuers engaged in general banking services. However, high CEE measurement results are not followed by high productivity values as measured using the Malmquist Productivity Index (MPI). NOBU is an issuer engaged in general banking services and has a focus on the Retail and MSME segments. NOBU has been a foreign exchange bank since 2014.

According to resource-based theory, a company's assets, which include human, structural, and physical capital, may provide a competitive advantage when used effectively. The sample is a knowledge-based company, so the company will always develop following the pace of knowledge and technology. This knowledge and technology are intangible assets owned by companies that are still difficult to measure and report properly in the company's financial statements. The employed capital owned by companies in this study can be concluded as not the only of main asset that can increase productivity.

Employee stock option plans improve company productivity

The employee stock option plan (ESOP) has an impact on increasing productivity at a significance level of 10%. The data tabulation in this study is only 14 out of 180 observational data that have an ESOP program, there are 8 ESOP companies, and out of 8, there are 6 companies that commit to ESOP every year. The research concludes that the implementation of ESOP in the financial industry in Indonesia is still very minimal. The results of this study are not in line with the implementation of ESOP at Huawei. ESOP has been proven to increase Huawei's productivity in terms of efficiency and company growth (Zhu et al., 2013). These empirical findings are also inconsistent with research findings from (Ding & Chea, 2021; Ray, 2016) those who found positive results. However, these findings support research findings from (Laudya & Handoko, 2019).

Differences in the objectives of implementing the ESOP program and the types of employees who have the opportunity to take part in the ESOP program are obstacles to implementing the program. Companies in Indonesia set a stock option plan as an ESOP program whose main purpose of implementation is to increase the company's capital, not as compensation to its employees. Unlike the ESOP implemented in the United States which aims to provide compensation to employees with employee stock ownership plans. The employee stock option plan implemented in Indonesia allows companies to be free to choose and decide to whom the company will provide options and how many options will be given to each selected person.

However, in the aspect of human resources, the implementation of the ESOP program is one of the programs that can reduce conflicts of interest between principals and management. Companies can retain employees who have the best performance, so that the form of compensation given to employees can be adjusted according to their performance results.

CONCLUSIONS

This study examines the effect of structural capital efficiency, human capital efficiency, capital employed efficiency, and employee stock option plans on productivity as measured by the Malmquist Productivity Index (MPI) of 60 financial companies in Indonesia. Using quantitative research methods, the research results found empirical evidence that supports the hypothesis that structural capital efficiency and human resource efficiency affect increasing the productivity of financial companies in Indonesia. In addition, another finding in this study is that capital employed efficiency and employee stock option plans do not affect the productivity of financial firms at a significance of less than 5%, but have an effect on a significance of less than 10%. These findings serve as a basis for providing input for managers of financial companies regarding an objective view of intellectual capital and employee stock options.

Companies must consider the positive relationship between intellectual capital, especially structural capital efficiency and human capital efficiency, and also pay attention to capital employed efficiency and employee stock option plans to increase productivity. Although this research provides information regarding the factors that influence productivity, this research also has limitations related to the results of the tabulation of data required, so it becomes a phenomenon finding. The ESOP program in Indonesia for companies in the financial industry sector in Indonesia is not yet widely applicable. The value of the Adjusted R-Square is extremely low, so further research is needed to obtain a fit model, by adding the rational variable Value Added Intellectual Capital (M-VAIC), which is a component of intellectual capital. Future research is recommended to make observations on productivity, M-VAIC intellectual capital, and ESOP schemes for the financial industry sector with due regard to special conditions in the post-pandemic period of COVID-19.

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REFERENCES

Alipour, M. (2012). The effect of intellectual capital on firm performance: An investigation of Iran insurance companies. Measuring Business Excellence, 16(1). https://doi.org/10.1108/13683041211204671

Asyik, N. F. (2021). The Optimization Of Employee Stock Option Plan In Achieving Financial Performance. Jurnal Reviu Akuntansi Dan Keuangan, 11(2), 393–411. https://doi.org/10.22219/jrak.v11i2.17273

Batarliene, N., Čižiuniene, K., Vaičiute, K., Šapalaite, I., & Jarašuniene, A. (2017). The Impact of Human Resource Management on the Competitiveness of Transport Companies. Procedia Engineering, 187. https://doi.org/10.1016/j.proeng.2017.04.356

Bayiley, Y. T. (2022). Assessing Bank Performance Using Malmquist Productivity Index Approach and One-Step System GMM Dynamic Panel Data Model. Open Journal of Business and Management, 10(02), 798–821. https://doi.org/10.4236/ojbm.2022.102045

Becker, B. E., Huselid, M. a, & Ulrich, D. (2002). Six Key Principles for Measuring Human Capital Performance in Your Organization. Imagine, 2002(February).

Blasi, J., Freeman, R., & Kruse, D. (2016). Do Broad-based Employee Ownership, Profit Sharing and Stock Options Help the Best Firms Do Even Better? British Journal of Industrial Relations, 54(1). https://doi.org/10.1111/bjir.12135

Bontis, N., Ciambotti, M., Palazzi, F., & Sgro, F. (2018). Intellectual capital and financial performance in social cooperative enterprises. Journal of Intellectual Capital, 19(4). https://doi.org/10.1108/JIC-03-2017-0049

Buallay, A., Abuhommous, A. A., & Kukreja, G. (2021). The relationship between intellectual capital and

employees' productivity: evidence from the Gulf Cooperation Council. Journal of Management Development, 40(6). https://doi.org/10.1108/JMD-05-2019-0210
Buallay, A. M. (2017). The relationship between intellectual capital and firm performance. Corporate Governance and Organizational Behavior Review, 1(1). https://doi.org/10.22495/cgobr_v1_i1_p4
Chen, J., & Zhu, Z. (2004). Measuring intellectual capital: A new model and empirical study. Journal of Intellectual Capital, 5(1). https://doi.org/10.1108/14691930410513003
Dada, A. O., & Ghazali, Z. B. (2016). The Impact of Capital Structure on Firm Performance: Empirical Evidence from Nigeria. IOSR Journal of Economics and Finance, 07(04). https://doi.org/10.9790/5933-0704032330
Ding, D. K., & Chea, Y. E. (2021). Executive Compensation and Firm Performance in New Zealand: The Role of Employee Stock Option Plans. Journal of Risk and Financial Management, 14(1). https://doi.org/10.3390/jrfm14010031
Edvinsson, L., Malone, M. S., & Karlgaard, pról. de R. (1997). Intellectual Capital : Realizing Your Company's True Value by Finding Its Hidden Brainpower / L. Edvinsson, M.S. Malone ; pról. de Rich Karlgaard. New York, NY.
Fincham, R., & Roslender, R. (2003). Intellectual capital accounting as management fashion: a review and critique. European Accounting Review, 12(4). https://doi.org/10.1080/0963818031000162846 4
Habib, A. M., & Dalwai, T. (2023). Does the Efficiency of a Firm's Intellectual Capital and Working Capital Management Affect Its Performance? In Journal of the Knowledge Economy (Issue 0123456789). https://doi.org/10.1007/s13132-023-01138-7
Jonah Okpe, A., Emmanuel, D., University, B., & Nasarawa State, K. (2022). Capital Employed and Structural Capital Efficiency and Financial Performance of Listed Non-Financial Companies in Nigeria Enomate Blessing. International Journal of Humanities Social Science and Management (IJHSSM), 2(5), 324–341. www.ijhssm.org
Kalai, M., & Helali, K. (2020). Total Factor Productivity Growth, Technological Progress and Technical Efficiency Changes: Productivity Change Dimensions in Tunisia. Journal of Quantitative Methods, 4(2). https://doi.org/10.29145/2020/jqm/040204
Khairiyansyah, K., & Vebtasvili, V. (2018). Relationship between Intellectual Capital with Profitability and Productivity in Indonesian Banking Industry. Jurnal Keuangan Dan Perbankan, 22(1), 127–136. https://doi.org/10.26905/jkdp.v22i1.1577
Krishnasamy, G., Ridzwa, A. H., & Perumal, V. (2004). Malaysian post merger banks' productivity: Application of malmquist productivity index. Managerial Finance, 30(4). https://doi.org/10.1108/03074350410769038
Laudya, R., & Handoko, J. (2019). THE EFFECT OF EMPLOYEE STOCK OPTION PLAN ON MARKET PERFORMANCE WITH FIRM PERFORMANCE AS INTERVENING VARIABLE. Jurnal Akademi Akuntansi, 2(2). https://doi.org/10.22219/jaa.v2i2.8976
Li, X., & Cui, J. (2008). A comprehensive dea approach for the resource allocation problem based on scale economies classification. Journal of Systems Science and Complexity, 21(4). https://doi.org/10.1007/s11424-008-9134-6
Lu, W. M., Wang, W. K., & Kweh, Q. L. (2014). Intellectual capital and performance in the Chinese life insurance industry. Omega (United Kingdom), 42(1). https://doi.org/10.1016/j.omega.2013.03.002
Martí, J., Viedma Martí, J. M., Martí, J., & Viedma Martí, J. M. (2007). In Search of an Intellectual Capital Comprehensive Theory. Electronic Journal of Knowledge Management, 5(2).
Mensah Onumah, J., & Tornam Duho, K. C. (2019). Intellectual Capital: Its Impact on Financial Performance and Financial Stability of Ghanaian Banks. Athens Journal of Business & Economics, 5(3). https://doi.org/10.30958/ajbe.5-3-4
Mwenda, B., & Ngollo, M. I. (2023). Do Employee Stock Ownership Plans Affect the Quest for Firm Profitability? Evidence from Tanzania. Jurnal Manajemen Teori Dan Terapan| Journal of Theory and Applied Management, 16(1). https://doi.org/10.20473/jmtt.v16i1.43161
Ngambi, M. T., & Oloume, F. (2013). Employee Share Ownership and Firm Performance: Evidence From a Sample of Cameroonian Firms. International Journal of Research In Social Sciences, 2(3), 48–55.
Nishimizu, M., & Page, J. M. (1982). Total factor productivity growth, technological progress and technical efficiency change: dimensions of productivity change in Yugoslavia, 1965-78. Economic Journal, 92(368). https://doi.org/10.2307/2232675
Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P. (2022). The Impact of Capital Structure on Firm Performance-Evidence from Large Companies in Hong Kong Stock Exchange. Open Journal

of Business and Management, 10(03). https://doi.org/10.4236/ojbm.2022.103072
Onyekwelu, U. L., & Ubesie, M. . C. (2016). Effect of Intellectual Capital on Corporate Valuation of Quoted Pharmaceutical Firms in Nigeria. International Journal of Business and Management Review, 4(7).
Pangidoan, O. T., & Nawangsari, L. C. (2022). effect of human capital, structural capital, relational capital and innovative behavior in organizational performance of PT. PLN (Persero) Company, Bekasi. Linguistics and Culture Review, 6. https://doi.org/10.21744/lingcure.v6ns1.2153
Parham, S. ;, & Heling, G. W. J. (2015). The Relationship between Human Capital Efficiency and Financial Performance of Dutch Production Companies. In Research Journal of Finance and Accounting www.iiste.org ISSN (Vol. 6, Issue 8).
Puspitasari, E., Sudiyatno, B. S., Masdjojo, G., & Meiranto, W. (2023). Profiling Intellectual Capital Performance and Return on Invested Capital: Evidence From Industrial Indonesian Banking. International Journal of Economics, Business and Accounting Research (IJEBAR), 7(2), 810–820.
Raihan, S., Tulon, K. M. N. I., & Angkur, M. T. N. (2017). Factors affecting Total Factor Productivity: Firm-level Evidence from Manufacturing Sector of Bangladesh. International Journal of SME Development, 03.
Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. The Journal of Finance, 50(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1995.tb05184.x
Ray, K. K. (2016). Employee Stock Option Plan and Firm Performance: A Quantile Regression Approach. Asian Journal of Empirical Research, 6(6), 152–166. https://doi.org/10.18488/journal.1007/2016.6.6/1007.6.152.166
Rosen, C. M., Case, J., & Staubus, M. (2005). Equity: Why Employee Ownership is Good for Business. Harvard Business School Press. https://books.google.co.id/books?id=DUZTfWi63-8C
Saruultugs, N., Erdenebat, M., & Tsetsegmaa, T. (2022). The Impact of Intellectual Capital on Performance of Commercial Banks in Mongolia. IBusiness, 14(04). https://doi.org/10.4236/ib.2022.144014
Shahdadi, K. M., Anvary Rostamy, A. A., Sadeghi Sharif, S. J., & Ranjbar, M. H. (2020). Intellectual capital, liquidity, and bankruptcy likelihood. Journal of Corporate Accounting and Finance, 31(4). https://doi.org/10.1002/jcaf.22460
Shih, K. H., Chang, C. J., & Lin, B. (2010). Assessing knowledge creation and intellectual capital in banking industry. Journal of Intellectual Capital, 11(1). https://doi.org/10.1108/14691931011013343
Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. In Academy of Management Journal (Vol. 48, Issue 3). https://doi.org/10.5465/AMJ.2005.17407911
Tiwari, R., Vidyarthi, H., & Kumar, A. (2023). Nexus between Intellectual Capital and Bank Productivity in India. Journal of Risk and Financial Management, 16(1). https://doi.org/10.3390/jrfm16010054
Tovstiga, G., & Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. Journal of Intellectual Capital, 8(4). https://doi.org/10.1108/14691930710830846
Tran, N. P., & Vo, D. H. (2020). Human capital efficiency and firm performance across sectors in an emerging market. Cogent Business and Management, 7(1). https://doi.org/10.1080/23311975.2020.1738832
Welly, Y., Ikhsan, A., & Situmeang, C. (2021). The Effect of Capital Employed, Human Capital And Structural Capital on Financial Performance on The Consumer Goods Sector Period 2015-2019. International Journal of Trends in Accounting Research, 2(1).
Wensley, A., & Evans, M. (2023). Towards a Deeper Understanding of Intellectual Capital. Proceedings of the European Conference on Knowledge Management, ECKM, 2. https://doi.org/10.34190/eckm.24.2.1678
Zhu, Z., Hoffmire, J., Hoffmire, J., & Wang, F. (2013). Employee Stock Ownership Plans and Their Effect on Productivity: The Case of Huawei. International Journal of Business and Management Invention, 2(8), 17–22. www.ijbmi.org
Zrelli, H., Alsharif, A. H., & Tlili, I. (2020). Malmquist indexes of productivity change in Tunisian manufacturing industries. Sustainability (Switzerland), 12(4). https://doi.org/10.3390/su12041367