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Intellectual capital and firm performance in the Indonesian non-financial firms

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Abstract

This study analyzes the effect of intellectual capital and firm performance in non-financial firms. The firm performance comprises of market performance and financial performance of the firm. This study also breakdown the non-financial firms between three sectors that are the primary sector, manufacturing sector, and service sector. The three sectors are the three main sectors in the economy. This study measures intellectual capital in different ways using the intellectual capital index. The data were analyzed with unbalanced panel data regression and multiple regression. This study found that intellectual capital positively affects market performance and financial performance in non-financial firms. This study also found that intellectual capital positively affects market performance and financial performance in manufacturing and service firms, but in primary sectors, this study found inconclusive results when analyzed and used two different measurements. This study contributes to the firms in non-financial firms about the development of intellectual capital in the knowledge-based economy because intellectual capital is an asset that can create market performance and financial performance.

Abstrak

Studi ini menganalisis pengaruh modal intelektual dan kinerja perusahaan di perusahaan non-keuangan. Kinerja perusahaan terdiri dari kinerja pasar dan kinerja keuangan perusahaan. Studi ini juga memecah perusahaan non-keuangan antara tiga sektor yang merupakan sektor primer, sektor manufaktur, dan sektor jasa. Tiga sektor adalah tiga sektor utama dalam perekonomian. Studi ini mengukur modal intelektual dengan berbagai cara menggunakan indeks modal intelektual. Data dianalisis dengan regresi data panel tidak seimbang dan regresi berganda. Studi ini menemukan bahwa modal intelektual secara positif memengaruhi kinerja pasar dan kinerja keuangan di perusahaan non-keuangan. Studi ini juga menemukan bahwa modal intelektual secara positif memengaruhi kinerja pasar dan kinerja keuangan di perusahaan manufaktur dan jasa, tetapi di sektor primer, penelitian ini menemukan hasil yang tidak meyakinkan ketika dianalisis dan menggunakan dua pengukuran yang berbeda. Studi ini memberikan kontribusi kepada perusahaan-perusahaan di perusahaan non-keuangan tentang pengembangan modal intelektual dalam ekonomi berbasis pengetahuan karena modal intelektual adalah aset yang dapat menciptakan kinerja pasar dan kinerja keuangan.

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1.   Introduction

Firm resources are important things to consider by the firm for achieving and maintaining their competitive advantage. Penrose (2009) stated that there are productive assets that can effectively prevent the expansion of existing or new competitors, such as strong patents of products, brands, trademarks, copyrights, which are part of intellectual capital. Based on the Resource-based view theory by Barney (1991), firms can achieve their competitive advantage when firms have valuable, rare, imperfectly imitable, no equivalent substitutes asset. A valuable asset will help the firm to neutralize threats in a firm's environment, while the asset must be rarely applied among a firm's current and potential competition. In order to the other competitor do not possess these assets or imperfectly imitable, the asset has, at least one, three reasons: it only can be obtained under unique historical conditions, such specific time and space; it has causal ambiguity characteristic to understand by the other; or the asset is socially complex, such firm's culture. At last, if there were no equivalent or substitutes' firm resources, this asset would generate a sustained competitive advantage for the firm (Barney, 1991).

In the traditional era or industrial-based economy, tangible assets such as land, building, machinery, equipment have an essential role in increasing firm performance. Now, there is a shifting era from traditional to the modern era, or we called a knowledge-based economy, which is knowledge and intellectual capital, becomes an essential role in improving firm performance. In the knowledge-based economy, firms rely on competency, experience, intellectual property, brand, reputation, and customer relationship (Janošević, Dženopoljac, & Bontis, 2013).

In the knowledge-based economy, knowledge assets and intellectual capital are more valuable assets than a physical asset. Zéghal & Maaloul (2010) and Nimtrakoon (2015) found that intellectual capital has a positive effect on financial perfor-

mance in the listing company in United Kingdom, Indonesia, Malaysia, Philippines, Singapore, and Thailand. Nimtrakoon (2015) also found that intellectual capital has a positive effect on market performance and it is supported by Amin et al. (2014), Hejazi, Ghanbari, & Alipour (2016), Nadeem, Gan, & Nguyen (2018), and Maji & Goswami (2017). On the contrary, Ozkan, Cakan, & Kayacan (2017) found that intellectual capital does not affect financial performance. Celenza & Rossi (2014) also found that intellectual capital does not affect market performance and financial performance.

Appuhami (2007), Chen et al. (2005), Firer & Williams (2003), Tan, Plowman, & Hancock (2007), Zéghal & Maaloul (2010), Dženopoljac, Janoševic, & Bontis (2016), and Hejazi et al. (2016) in their research using VAIC™ to measure intellectual capital. VAIC™ has the disadvantage of only calculating efficient companies in other ways to measure intellectual capital (Ståhle, Ståhle, & Aho, 2011) This study uses the measurement of the Intellectual Capital Index (ICI) proposed by McGuire & Brenner (2015). ICI in measuring intellectual capital considers the value of intellectual capital relative to total market value (McGuire & Brenner, 2015). The market value can capture the hidden value of intellectual capital, which is not reported in financial statements.

Nowadays, the industrial world is entering the Industry 4.0. Industry 4.0 occurs globally and faced by all countries in the world since it was recognized in 2011 as an initiative of the German government (Achelia, Asmara, & Berliana, 2019). Ślusarczyk (2018) stated that Industry 4.0 is a new reality in the modern economy; this is because innovation and technological development have an essential role in every organization. In era Industry 4.0, every company in Indonesia must have proper preparation for its intellectual capital in order to have competitiveness with companies in other countries because intellectual capital is a valuable asset that can drive innovation and technological devel-

opment. However, based on our data observation of non-financial firm's performance in Indonesia in 2013-2017, the firm performance tends to decline gradually. Thus, it is very important to know the effect of intellectual capital in Indonesia on firm performance.

The previous studies on the effect of intellectual capital on the financial performance show a different result. The objective of this study is to analyze the effect of intellectual capital on non-financial firms. Non-financial firms are being chosen because non-financial firms reflect the three main sectors of the economy. This research has contributed to the empirical model of intellectual capital on financial performance with another measure of intellectual capital, which is the intellectual capital index.

2. Hypotheses Development

According to resource-based view, firm resources are assets, capabilities, organizational processes, firm attributes, information, knowledge, and others that can be controlled by the firms (Barney, 1991). Firm resources that can increase efficiency and effectiveness can compile, understand, and implement strategies. Firm resources that are unique and have knowledge of opportunities can make the firm better informed and implement strategies before competitors (Barney, 1991). The resources referred to Barney (1991) are reflected in intellectual capital. Rexhepi, Ibraimi, & Veseli (2013) stated that intellectual capital creates a competitive advantage and added value to the firm and affect the success of the business in the current and future.

Intangible assets defined as non-monetary assets with no identifiable physical form, such as intellectual capital. Janošević et al. (2013) stated that intangible assets as "core competencies" to describe a firm's ability to learn, coordinate diverse production skills, and incorporate different streams of technology. The value created by intellectual capital is potential, indirect, and contextual, which is depends

on its fit with the strategy used. In the modern business environment, the strategy is demanded to be positioned at the center of the management process. (Janošević et al., 2013). Thus, if intellectual capital is managed correctly, it can help managers in creating value, revealing the hidden value of firms, and maximizing shareholder wealth (Hejazi et al., 2016)

Marr & Roos (2005) stated that, in modern business, the process to create value require more-dynamic, path-dependent, and complex role of knowledge. Intellectual capital becomes an important resource that has essential roles in the knowledge-based economy. Marr & Roos (2005) also stated that the firm's intellectual capital is a key resource and driver of firm performance and firms value creation. It is supported by Nimtrakoon (2015), which found that intellectual capital positively affects firm performance. Hejazi et al. (2016) also found that intellectual capital positively affects firm performance. Better intellectual capital owned by the firms can improve financial performance and create the value of the firm. According to these explanations and previous finding, the hypothesis is proposed as follows:

H_1: intellectual capital has a positive effect on firm performance

3. Method, Data, and Analysis

This study used secondary data in the form of unbalanced panel data during 2013-2017 periods. Annual reports and financial statements were obtained from the Indonesian Stock Exchange (IDX). The population of this research is non-financial firms listed on the IDX and samples in this study was taken using purposive sampling with the following criteria: (1) The firm listed in IDX during 2013-2017 periods; (2) The financial statement listed in rupiahs; (3) The firms have positive equity. The total samples obtained are 280 companies and 1.357 observations. The sample selection criteria of this research showed in Table 1.

The observations of this study consist of 144 primary sectors firms (agriculture and mining sector), 457 manufacturing firms (basic industry and chemicals, miscellaneous industry, consumer goods industry), and 756 services firms (property, real estate, and building construction, infrastructure, utility, and transportation, trade, service, and investment).

Data on this research were analyzed using panel data regression and multiple linear regressions with the regression model as follow:

$$PERF_{it} (MBV, MBVA, ROA, ROE) = a + \beta 1 ICI_{it} + \beta 2 SIZE_{it} + \beta 3 DTA_{it} + \varepsilon \quad (1)$$

Where: PERF= Firm Performance; ICI= Intellectual Capital; SIZE= Firm Size; DTA= Leverage

The dependent variables used for this research are firm performance (PERF). The firm performance comprises of market performance and financial performance. We measure market performance in this study with market to book value of equity (MBV) based on Bayraktaroglu, Calisir, & Baskak (2019) which is market value of equity divided by book value of equity and Dženopoljac et al. (2016) and market to book value of asset (MBVA) based on Hejazi et al. (2016) which is market value

of equity plus book value of debt divided with total asset. Financial performance measured by return on assets, which is net income divided by total asset and return on equity, which is net income divided with equity, based on Bayraktaroglu et al. (2019) and Dženopoljac et al. (2016).

Independent variables used for this research is intellectual capital. In this study, intellectual capital measured by an intellectual capital index based on McGuire & Brenner (2015), which is the sum of intangible assets, goodwill, and the difference between enterprise value and book value divided by enterprise value. There are two control variables used in this study, which are firm size and leverage. Firm size was measured by the natural logarithm of total asset, based on Dženopoljac et al. (2016) and Nimtrakoon (2015). Leverage was measured by debt divided with total asset, based on Dženopoljac et al. (2016) and Hejazi et al. (2016). The equation of the variables showed in Table 2.

4. Results

This study wants to analyze the effect of intellectual capital on firm performance. The firm performance comprises of market performance and financial performance. The descriptive statistics of this research showed in Table 3.

Table 1. Sample selection criteria

Criteria	Total
Population: non-financial firms listed on the IDX during 2013-2017	520
The firms that do not meet the criteria of purposive sampling:	
(1) The firm listed in IDX during 2013-2017 periods	27
(2) The financial statement listed in rupiahs	193
(3) The firms have positive equity	20
The firms that meet the criteria of purposive sampling	280
Observation period	5
Total observation	1400
Outlier	43
Total sample	1357

Table 3 shows the descriptive statistics in this study. The descriptive statistics consist of mean, standard deviation, minimum, and maximum. The descriptive also shows for the breakdown of non-financial sectors consist of primary sector firms, manufacturing firms, and service firms. The variables used in this study are MBV, MBVA, ROA, ROE, ICI, SIZE, and DTA.

Table 3 shows that the mean of the MBV for non-financial firms was 2.2917. It indicated that the market value of equity was 229.17% of the book value of equity. The mean of the MBVA for non-financial firms was 1.6098. It indicated that the market value of equity plus debt was 160.98% of total assets. The mean of the ROA for non-financial firms was 0.0435 and indicated that the net income was 4.35% of total assets. The mean of the ROE for non-financial firms was 0.0748 and indicated that the net income was 7.48% of equity. The mean of ICI for non-financial firms was 0.0048, and it indicated that the intellectual capital was 0.48% of enterprise value. The mean of DTA for non-financial firms was 0.4547 and indicated that the firms used 45.47% from debt to finance its asset. The mean of SIZE for non-financial firms was 28.5052, and it means that the mean

of the total asset for non-financial firms was 8,619,879 million rupiahs.

Table 3 also shows the mean of the variables used in this study for primary sectors, manufacturing sectors, and service sectors. MBV and MBVA for the three sectors showed that the manufacturing sectors have better market performance than the other sectors. ROA and ROE for the three sectors showed that the manufacturing sectors have better financial performance than the other sectors, and the service sectors have better market performance than primary sectors. ICI for the three sectors showed that the service sectors have a better intellectual capital index than other sectors, and the manufacturing sectors have a better intellectual capital index than primary sectors.

Table 4 showed the correlation analysis in this study. The correlation analysis showed that the correlation of ICI to SIZE was 0.1661, and ICI to DTA was 0.2269. The correlation between SIZE and DTA was 0.1419. The correlation between ICI and MBV was 0.3319, and the correlation between ICI and MBVA was 0.4205. The correlation between ICI and ROA was 0.2571, and the correlation between ICI and ROE was 0.2383. The correlation analysis showed no multicollinearity between the variables.

Table 2. Research variables

Variables	Equation	Sources
MBV	Market Value of Equity	Bayraktaroglu et al. (2019)
	Book Value of Equity	Dženopoljac et al. (2016)
MBVA	Market Value of Equity+Total Debt	Hejazi et al. (2016)
	Total Asset	
ROA	Net Income	Bayraktaroglu et al. (2019)
	Total Asset	Dženopoljac et al. (2016)
ROE	Net Income	Bayraktaroglu et al. (2019)
	Stockholder's Equity	Dženopoljac et al. (2016)
ICI	Intangible Assets + Goodwill + (Enterprise Value – Book Value)	McGuire & Brenner (2015)
	Enterprise Value	
Enterprise Value	(Market share price x shared issued and outstanding) + Net Debt	
Book Value	Shareholder's equity + Net Debt	
Net Debt	Debt – Cash and Marketable Securities	
SIZE	Ln (Total Asset)	Dženopoljac et al. (2016)
		Nimtrakoon (2015)
DTA	Total Debt	Dženopoljac et al. (2016)
	Total Asset	Hejazi et al. (2016)

Table 3. Descriptive statistics

Variables	All Non-Financial Firms				
	Observation	Mean	Std. Dev.	Min	Max
MBV	1357	2.2917	4.2330	0.0600	62.9311
MBVA	1357	1.6098	1.7112	0.2132	18.6404
ROA	1357	0.0435	0.0858	-0.4569	0.7160
ROE	1357	0.0748	0.1831	-1.0590	1.4353
ICI	1357	0.0048	0.9265	-7.8868	2.4871
SIZE	1357	28.5052	1.6518	23.4380	33.3202
SIZE (in million Rp)	1357	8,619,879.6904	21,458,995.6631	295,646,000.0000	15,100.6385
DTA	1357	0.4547	0.1997	0.0003	0.9350

Variables	Primary Sector Firms				
	Observation	Mean	Std. Dev.	Min	Max
MBV	144	1.3511	0.9689	0.1637	4.7094
MBVA	144	1.1654	0.4844	0.3011	2.5051
ROA	144	0.0138	0.0897	-0.4567	0.1820
ROE	144	0.0247	0.1638	-0.7787	0.3273
ICI	144	-0.0314	0.5776	-2.4861	0.7882
SIZE	144	28.8658	1.3842	25.6459	31.1395
SIZE (in million Rp)	144	7,338,664.4417	8,572,091.9441	33,397,766.0000	137,363.3020
DTA	144	0.4708	0.1847	0.0074	0.8631

Variables	Manufacturing Firms				
	Observation	Mean	Std. Dev.	Min	Max
MBV	457	3.0867	6.6977	0.0600	62.93102
MBVA	457	1.9797	2.5189	0.2437	18.6404
ROA	457	0.0611	0.0969	-0.1611	0.7160
ROE	457	0.1048	0.2130	-0.4931	1.4353
ICI	457	0.0070	0.9982	-7.8868	2.4871
SIZE	457	28.3013	1.5791	24.4142	33.3202
SIZE (in million Rp)	457	8,902,290.7129	28,675,768.1479	295,646,000.0000	40,080.5584
DTA	457	0.4508	0.1963	0.0662	0.8849

Variables	Service Firms				
	Observation	Mean	Std. Dev.	Min	Max
MBV	756	1.9904	2.0658	0.1003	14.7133
MBVA	756	1.4709	1.1148	0.2132	11.0874
ROA	756	0.0384	0.0752	-0.3405	0.4112
ROE	756	0.0662	0.1631	-1.0590	0.8013
ICI	756	0.0104	0.9362	-7.1290	1.2470
SIZE	756	28.5597	1.7259	23.4380	32.9217
SIZE (in million Rp)	756	8,693,202.1792	17,779,708.1327	198,484,000.0000	15,100.6385
DTA	756	0.4539	0.2045	0.0003	0.9350

Table 4. Correlation analysis

	MBV	MBVA	ROA	ROE	ICI	SIZE	DTA
MBV	1.0000	0.9096***	0.4307***	0.5447***	0.3319***	0.0960***	0.0984***
MBVA		1.0000	0.5289***	0.5316***	0.4205***	0.1038***	-0.0273
ROA			1.0000	0.8833***	0.2571***	0.1866***	-0.2088***
ROE				1.0000	0.2383***	0.1915***	-0.0854***
ICI					1.0000	0.1661***	0.2269***
SIZE						1.0000	0.1419***
DTA							1.0000

Table 5. Regression results: The effect of intellectual capital on firm performance (non-financial firms) (Main Regression Analysis)

	Fixed Effect				OLS			
	MBV	MBVA	ROA	ROE	MBV	MBVA	ROA	ROE
C	9.5443	8.4612***	0.2303	0.6214	-0.8207	0.6737	-0.1647***	-0.4061***
	(1.6871)	(3.8847)	(1.3027)	(1.6625)	(-0.2774)	(0.5447)	(-2.6840)	(-3.4276)
ICI	0.6819***	0.3840***	0.0172***	0.0296***	1.4655***	0.8181***	0.0274***	0.0488***
	(7.2289)	(10.5749)	(5.8494)	(4.7499)	(5.8987)	(7.2466)	(6.1239)	(5.7798)
SIZE	-0.3234	-0.2486***	-0.0032	-0.0136	0.1022	0.0511	0.0094***	0.0193***
	(-1.6280)	(-3.2500)	(-0.5169)	(-1.0388)	(0.9960)	(1.1358)	(4.5874)	(4.8155)
DTA	4.3173***	0.5106	-0.2099***	-0.3476***	0.4229	-1.1557***	-0.1295***	-0.1523***
	(6.2610)	(1.9234)	(-9.7421)	(-7.6313)	(0.5022)	(-3.2397)	(-6.4543)	(-3.4346)
F	28.1489***	31.4279***	9.6162***	9.8689***	57.0281***	109.2943***	94.0816***	53.6860***
Adj R2	0.8486	0.8627	0.6402	0.6468	0.1103	0.1933	0.1708	0.1044
Observation								1357
Companies								278

***: Significance at 1% level; **: Significance at 5% level

Table 6. Regression results: The effect of intellectual capital on firm performance (on primary sector firms)

	Fixed Effect				OLS			
	MBV	MBVA	ROA	ROE	MBV	MBVA	ROA	ROE
C	12.5387**	4.8687	-1.1116	-2.4737	1.0459	1.4087***	-0.5521**	-1.1354***
	(2.3663)	(1.8804)	(-1.4454)	(-1.7410)	(1.0974)	(3.4083)	(-2.2423)	(-2.5235)
ICI	0.8037***	0.5009***	-0.0063	0.0044	1.2671***	0.7148***	0.0390***	0.0488
	(7.0677)	(9.0146)	(-0.3842)	(0.1454)	(6.4153)	(7.9066)	(2.3981)	(1.6599)
SIZE	-0.4025**	-0.1254	0.0440	0.0974**	0.0094	-0.0016	0.0203***	0.0410***
	(-2.2059)	(-1.4065)	(1.6613)	(1.9897)	(0.2747)	(-0.1174)	(2.5791)	(2.6760)
DTA	0.9710	-0.1435	-0.3076***	-0.6621***	0.1546	-0.3684***	-0.0419	-0.0479
	(1.8198)	(-0.5504)	(-3.9720)	(-4.6273)	(0.3442)	(-2.6666)	(-0.6221)	(-0.5431)
F	19.6864***	20.7607***	6.0266***	5.8165***	65.1237***	118.4461***	12.3181***	10.5513***
Adj R2	0.8118	0.8201	0.5370	0.5264	0.5736	0.7113	0.1919	0.1669
Observation								144
Companies								31

***: Significance at 1% level; **: Significance at 5% level

Table 7. Regression results: The effect of intellectual capital on firm performance (on manufacturing firms)

	Fixed Effect				OLS			
	MBV	MBVA	ROA	ROE	MBV	MBVA	ROA	ROE
C	1.6747	5.7301	0.4296	1.0718	-10.1066	-4.1117	-0.0896	-0.3484
	(0.0877)	(0.8347)	(1.1203)	(1.3466)	(-1.0587)	(-1.0815)	(-0.7977)	(-1.4253)
ICI	0.8830***	0.3957***	0.0176***	0.0282**	1.8359***	0.9338***	0.0299***	0.0528***
	(3.2721)	(4.0790)	(3.2569)	(2.5034)	(3.0525)	(3.7744)	(3.8786)	(3.1686)
SIZE	-0.0526	-0.1481	-0.0098	-0.0305	0.4328	0.2306	0.0083**	0.0188**
	(-0.0777)	(-0.6082)	(-0.7192)	(-1.0791)	(1.3243)	(1.6979)	(2.1645)	(2.2563)
DTA	6.4224***	0.9749	-0.2032***	-0.2324***	2.0677	-0.9811	-0.1888***	-0.1786**
	(3.6687)	(1.5490)	(-5.7806)	(-3.1850)	(0.8091)	(-1.1128)	(-6.0387)	(-2.2748)
F	29.3833***	32.5151***	13.4186***	15.5273***	19.0071***	34.7793***	48.8460***	19.4612***
Adj R2	0.8553	0.8678	0.7212	0.7516	0.1059	0.1818	0.2394	0.1083
Observation								457
Companies								93

***: Significance at 1% level; **: Significance at 5% level

Table 5 in this study showed that the intellectual capital measured by ICI had a positive effect on financial performance. Table 5 shown the main analysis used to test the hypothesis. The intellectual capital has a positive effect on all market performance and financial performance. So, the hypothesis is not rejected.

Table 6, Table 7, and Table 8 in this research also shown the additional analysis with the breakdown of the non-financial sector's firms become three sectors primary sector firms, manufacturing sector firms, and service sector firms. The intellectual capital has a positive effect on all market performance and financial performance on manufacturing sector firms and service sector firms. On primary sector firms, intellectual capital has a positive effect only on market performance. The effect of intellectual capital on financial performance on primary sector firms is inconclusive because there is a different result between the effect of intellectual capital on return on asset when analyzing with fixed effect and multiple regression.

5. Discussion

The results show that intellectual capital has a positive effect on market performance and finan-cial performance in non-financial firms. That result indicates that better intellectual capital owned by the firm can improve the financial performance and create the market value of the firm. The result of this study supports the resource-based view by Barney (1991), which stated that the valuable, rare, imperfectly imitable, no equivalent substitutes can generate competitive advantage. The result of this study supported by Smriti & Das (2018) which found that intellectual capital has a positive effect on market performance and financial performance in the service sector and the manufacturing sector. Hejazi et al. (2016) also found that intellectual capital has a positive effect on market performance and Nimtrakoon (2015), which found that intellectual capital has a positive effect on market performance and financial performance. This result, contrary to Celenza & Rossi (2014), which found that market performance and financial performance has not been affected by intellectual capital.

The result also shows that intellectual capital has a positive effect on market performance and financial performance in manufacturing sector firms and service sector firms. That result indicates that intellectual capital is an important asset for manufacturing sector firms and service sector firms to make innovation, efficiency, and effectiveness in the

Table 8. Regression results: The effect of intellectual capital on firm performance (on service firms)

	Fixed Effect				OLS			
	MBV	MBVA	ROA	ROE	MBV	MBVA	ROA	ROE
C	13.5457***	9.8970***	0.3484	0.9385**	2.3267	2.3142***	-0.1883***	-0.4213***
	(3.5324)	(5.3234)	(1.7279)	(2.1143)	(1.3120)	(3.0214)	(-2.7171)	(-3.1488)
ICI	0.5693***	0.3672***	0.0185***	0.0311***	1.1229***	0.6889***	0.0235***	0.0444***
	(8.6221)	(11.4722)	(5.3195)	(4.0627)	(6.2011)	(6.6754)	(4.7399)	(5.4383)
SIZE	-0.4577***	-0.2997***	-0.0079	-0.0250	-0.0130	-0.0114	0.0096***	0.0194***
	(-3.4095)	(-4.6055)	(-1.1173)	(-1.6081)	(-0.2031)	(-0.3982)	(4.1067)	(4.2588)
DTA	3.3273***	0.2879	-0.1871***	-0.3502***	0.0499	-1.1573***	-0.1036***	-0.1444**
	(6.0693)	(1.0831)	(-6.4890)	(-5.5176)	(0.0773)	(-3.2566)	(-4.3144)	(-2.3770)
F	19.6671***	25.2805***	7.4122***	7.0992***	87.9537***	110.8514***	44.6339***	29.7955***
Adj R2	0.7941	0.8338	0.5699	0.5576	0.2568	0.3039	0.1478	0.1027
Observation								756
Companies								154

***: Significance at 1% level; **: Significance at 5% level

business process, which can improve the market performance and financial performance. This result shows that intellectual capital has a positive effect on market performance. However, inconclusive results are generated for the effect of intellectual capital on financial performance and indicate that the primary sector, especially in the mining industry, had encountered lethargy conditions. PwC (2017) analyzed that most mineral prices declined in 2012-2015. In other facts, trade-in commodities derived from natural resources has the potential to generate substantial revenues and become the main sources of export revenues to developing countries (UNCTAD, 2014). This condition means that the main reason the industry extracting the natural resources is for trading purposes, not for the converting process into finished goods.

6.   Conclusion

Based on the analysis and discussion described, the conclusion of this study is that intellectual capital has a positive effect on market performance and financial performance on non-financial firms, especially for manufacturing sector firms and service sector firms. Intellectual capital is an important asset in a knowledge based economy and has important roles for creating value of the firms and improve financial performance.

The empirical benefit of this study is the measurement of intellectual capital. Many intellectual capital research uses VAIC as the measurement of intellectual capital. This study uses the intellectual capital index for the measurement of intellectual capital. The theoretical benefits of this study confirmed the resource-based view, which stated that the firms with uniqueness and knowledge could improve financial performance and create market performance.

The limitations of this study are that this study only analyzed the impact of intellectual capital on current financial performance and market performance and did not analyze the element of intellectual capital. The suggestion for further research analyzes the element of intellectual capital to know what elements have a major impact on market performance and financial performance. Further study also can analyze the impact of intellectual capital on future market performance and financial performance.

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