The Effects of Intangible Assets on Financial Performance and Financial Policies of Listed Technology Firms in Thailand

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ABSTRACT

This study aimed to investigate the relationship between intangible assets and financial performance and financial policies of listed technology firms in Thailand. This research collected and analysed the data of 33 out of 38 technology companies listed on the Stock Exchange of Thailand for the 5 year-period from 2015 to 2019. Descriptive statistics, Pearson's correlation, and regression analysis were used to examine the relationship between intangible assets, financial performance, and financial policies. In addition, it also aimed to measure the influence of moderating variables such as firm size, leverage, and sales growth on relationships between intangible assets, financial performance, and financial policies. The results indicated that intangible assets (IA) had a significant positive relationship with profitability - return on equity (ROE) of listed technology firms in Thailand. Further, the study found that intangible assets also had a significant positive relationship with financial policies (debt to equity). Moderating variables such as firm size and leverage were found to significantly influence these relationships. This study has helped to expand the theoretical concepts of intangible assets and their effects on financial performance (return on equity) and financial policy (debt), especially among technology firms in Thailand. Insights gained from these findings can be used to encourage the managers of technology industry in Thailand to invest more in intangible assets to boost profitability.

KEYWORDS: Intangible Assets, Financial Performance, Return on Assets, Return on Equity, Financial Policies

Introduction

Each business needs to define its structure of assets, and thereby find the optimal combination of intangible and tangible assets (Herciu & Ogrean, 2008). Among the significant changes in the 21st century economy is the increasing use of intangible assets in businesses and organizations. Ongoing globalization within societies and economies has created a higher demand for information (Osinski, Selig, Matos, & Roman, 2017), and thereby created a growing need for intangible assets. Intangible assets nowadays represent over 90% of the business value among many pharmaceutical and high-tech businesses (Corrado et al. (2012). Digital-centric sectors, such as

Internet, software, and information technology companies are heavily reliant on intangible assets (Ross, 2020). In addition, this study is significant for Thailand since it is the second largest economy in the ASEAN region. Thailand is in the process of transitioning its focus from being an industrial economy to a digital economy, following the widespread proliferation of the Internet and the government's aggressive push towards digital transformation through its Thailand 4.0 initiative.

Intangible assets can be seen from two perspectives: by economists as an asset that is founded on knowledge, and within the area of law and management as intellectual capital (Andersson & Akesson, 2017). This kind of asset has a non-physical character that shapes the potential for future advantages (Lev, 2001). Intangible assets form a foundation for a business to use intangible knowledge for resource and wealth creation (Osinski, Selig, Matos, & Roman, 2017). In order to achieve profits, a business needs to create and gain competitive advantages over business competitors (Barney & Arikan, 2005). Intangible and tangible assets have been discussed by several authors, and have a positive effect on a business's competitive advantages (Argote & Ingram, 2000; Flamholtz & Hua, 2003). Aspects such as market research, capital equipment, and research and development have a strong connection with a business's success rate and its profits (Fabling & Grimes, 2007). Researchers have perceived that intangible assets are often critical to profitability and influence a firm's monetary approaches. However, the findings have not shown conclusive evidence regarding the positive or negative relationship between intangible assets, financial performance, and financial policies.

Several studies have revealed that intangible assets have had a positive and significant influence on financial performance (Zhang, 2017; Kaymaz, Yilmaz, & Kaymaz, 2019; Felix, Okwo, & Obinabo, 2020), while Qureshi & Siddiqui (2020) found a significant negative impact. In addition, Vanderpal (2019) reported a negative influence of intangible assets on profitability. Previous research has also confirmed the relevance of moderating variables such as business size, debt, and sales growth on intangible assets, corporate profitability, and financial policies. In light of these factors and the lack of conclusive evidence, a more comprehensive study is needed to confirm the relationship between intangible assets, financial performance, and financial policies. More precisely the study seeks to investigate the following issues:

- To investigate the impact of intangible assets on the financial performance of listed technology firms in Thailand.

- To examine the effects of intangible assets on the financial policies of listed technology firms in Thailand.

- To find out the effects of moderating variables such as firm leverage, size, and sales growth on the relationships between intangible assets, financial performance, and financial policies.

2. Literature Review

2.1 Intangible assets

Intangible assets, according to International Public Sector Accounting Standard Board (2010), are recognized non-monetary items that lack physical substance. An asset is a resource that an entity possesses as a result of previous activities, such as acquisition or self-creation, and from which future economic benefits, such as cash inflows or other assets, are expected (International Public Sector Accounting Standard Board, 2010). Some types of intangible assets are not included in financial statements because they are difficult to evaluate or quantify in monetary terms (Gamayuni, 2015). In other words, intellectual capital is often excluded from the concept of intangible assets for financial purposes due to the weak control of the entity's owner. However, IFRS Foundation (2017) stated that an intangible asset must be recognized if and only if it is probable that the asset's expected future economic benefits or service potential would flow to the firm, and the asset's cost can be determined accurately.

Following first recognition, an intangible asset should be held at a revalued amount equal to its fair value at the date of revaluation less any subsequent accrued amortization. For the purpose of revaluation under this standard (IAS 38), the fair value shall be established by reference to an active market (International Public Sector Accounting Standard Board, 2010). Moreover, this researcher also mentions that revaluations must be performed on a regular basis so that the carrying amount of the asset does not change considerably from its fair value at the reporting date.

A company should determine whether the useful life of an intangible asset is finite or indefinite, and if finite, the duration of productions or equivalent units constituting its useful life (International Public Sector Accounting Standard Board, 2010). An intangible asset is considered to have an unlimited useful life by the entity when, based on an examination of all relevant variables, there is no foreseeable limit to the duration over which the asset is likely to generate net cash inflows for or offer service potential to the business (Deloitte, 2021).

2.2 Intangible assets and financial performance

Financial performance is a way to analyse the overall health of a company. In other words, financial performance analysis is the process of evaluating a company's financial strengths and weaknesses by correctly defining the link between the balance sheet and profit and loss account items (Ramachandran et al., 2019). Financial performance, which is typically used by investors to evaluate an organization's health, is also a technique for a company to assess its capacity to utilize assets to generate profits (Kenton, 2021).

Several researchers have studied the relationship between intangible assets and financial performance showing notable results. Qureshi and Siddiqui (2020) studied the effect of intangible assets on financial performance, financial policies, and market value of technology firms in 14 different countries. According to their results, intangible assets had a significant negative influence on Return on Equity (ROE) and Return on Assets (ROA). This indicated that higher intangible assets in the company would result in lower ROE and ROA and vice versa. Nevertheless, other studies found that intangible assets had a significant positive impact on only ROA (Gamayuni, 2015; Zhang, 2017; Kaymaz, Yilmaz, & Kaymaz, 2019; Felix, Okwo, & Obinabo, 2020; Li & Wang, 2014), and on both ROA and ROE (Haji & Ghazali, 2018; Ferdaous & Rahman, 2019).

However, Vanderpal (2019) discovered that there is no substantial association between intangible assets and profitability in various sectors. According to these findings, investing in intangible assets is a primary concern for many stakeholders. The findings provide investors with insight into the risk-return concept in the context of enterprise investment risk, intangible assets, and their subsequent returns.

Although many studies have reported correlations between intangible assets and profitability, the results have been mixed and non-conclusive. Because of these inconsistent findings, it is crucial to test the relationship between intangible assets and profitability to see if it is positive, negative, or neutral, especially for technology firms in Thailand.

As such, the following hypotheses are proposed:

H_1: Intangible assets have a significant positive relationship with profitability.

H_{1a}: Intangible assets have a significant positive relationship with Return on Equity (ROE).

H_{1b}: Intangible assets have a significant positive relationship with Return on Assets (ROA).

2.3 Intangible assets and financial policies (debt and dividend policy)

A company's financial policies are based on its debt-to-equity ratio and dividend payout ratio. The debt-to-equity ratio is one of the ratios that determine the percentage of debt and equity being used to provide assets. If the debt-to-equity ratio is high, the firm must prioritize debt repayment above dividend payments. The debt-to-equity ratio or capital structure is an important factor in the financial decisions of every company, whereas dividends are considered the firm's payment policy (Benyasrisawat & Basiruddin, 2012). The dividend payout ratio, on the other hand, is the proportion of a company's total dividends paid out to shareholders relative to its net income. The

information below will reveal the variety of outcomes discovered by previous researchers.

The study of Gamayuni (2015) found that intangible assets had a negative impact on debt policy and a positive effect on dividend payout ratios, but neither was statistically significant. Gamayuni (2015) stated that the more money invested in intangible assets, the less debt there was. This is because companies use the funds from retained earnings to invest in intangible property and limit debt. Qureshi & Siddiqui (2020) studied the effect of intangible assets on debt to-to-equity ratios and found that intangible assets had an insignificant impact on them. They also found that intangible assets had a significant positive impact on dividend policy. This means that higher intangible assets would lead to higher dividend payouts. These findings support the idea that intangible assets have a positive and large influence on dividends, with businesses holding large amounts of intangible assets paying greater dividends, which sends a positive signal to investors.

Because previous research yielded disparate results, this study will attempt to investigate the effects of intangible assets on the financial policies of listed technology firms in Thailand. Therefore, the researchers proposed the following hypotheses:

H_2: Intangible assets have a significant positive relationship on financial policies.

H_{2a}: Intangible assets have a significant positive relationship on debt to equity ratios.

H_{2b}: Intangible assets have a significant positive relationship on dividend payouts.

2.4 Firm size, leverage and sale growth

Intangible assets are also seen to be related to a company's size, leverage, and sales growth. Malikova et al. (2018) researched the relationship between financial reporting of intangible assets and the size of the firms, as well as the disclosure of intangible assets in the Czech Republic. The structure of firms declaring intangible assets did not vary over time. They concluded that the share of intangible assets to fixed assets is higher in larger companies than in smaller companies.

Lim, Macias, & Moeller (2020) highlighted how larger amounts of intangible assets might allow for wider utilization of unsecured and convertible debt. They also found a significant positive relationship between intangible assets and financial leverage. Traditionally, if a company hopes to grow, it needs to invest in fixed capital such as machinery, equipment, and buildings. However, in new business models, technological advancements and the value of intangible assets will all contribute to the firm's sales growth. Intangible assets, when added together, have a positive impact on a firm's long-term growth rate and business

value (Ocak & Fındık, 2019). This means that sales will also grow as the firm invests more in intangible assets.

Due to the mixed findings in the literature, this study aimed to study the relationship between intangible assets, financial performance, and financial policies which may be influenced by moderating variables such as firm size, leverage, and sales growth in the listed technology firms in Thailand.

3. Methodology

3.1 Data and Sampling

The population for this research study included all listed technology firms in

3.2 Research Models and Variable Definitions

Thailand. Secondary data consisting of annual reports for five years from 2015 to 2019 were collected from companies' websites in Thailand. According to the availability of data, the annual reports of a total of 33 firms were extracted from the 38 technology companies listed on the Stock Exchange of Thailand.

Upon collection of the secondary data, quantitative methods were used to perform the statistical analysis. The statistical tools include descriptive statistics, Pearson's correlation, and regression analysis.
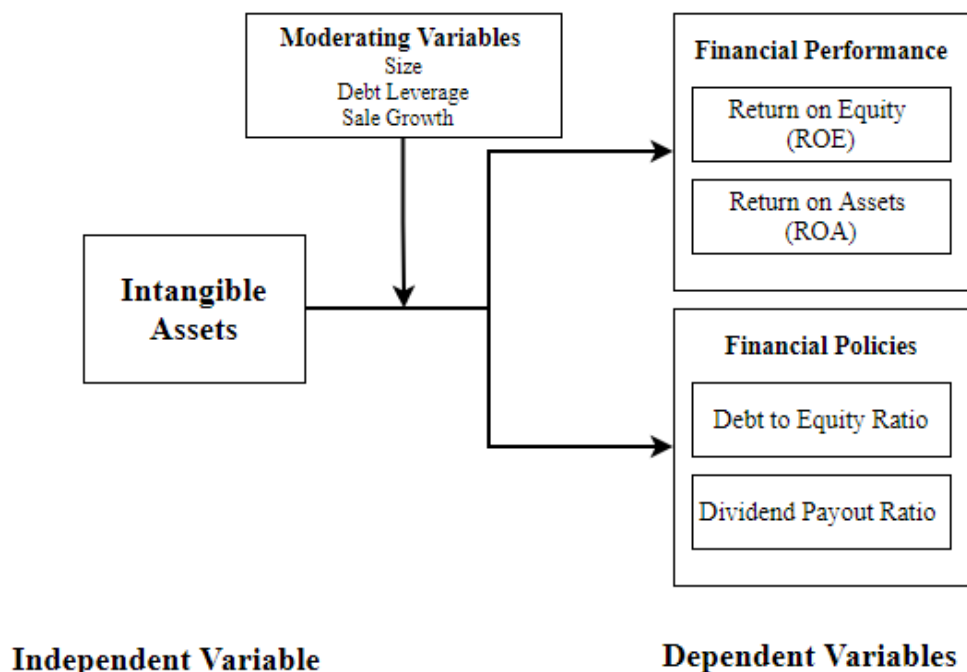

Figure 1: The Effects of Intangible Assets on Financial Performance and Financial Policies

The conceptual framework suggests that intangible assets can influence the bottom

line and financial policies of businesses. In this model, intangible assets are projected as

the independent variable while financial performance and financial policies are the dependent variables. Intangible assets are an asset category that includes goodwill, licenses, trademarks, patents, copyrights, customer lists, brand equity, and so on.

There are many ways to measure financial performance, but in this paper, the researchers measured financial performance by using profitability ratios such as Return on Equity (ROE) and Return on Assets (ROA). ROE shows how efficiently a company generates income from the investments of shareholders, whereas ROA shows how much profit the company earned from each dollar of assets. The primary difference between ROE and ROA is financial leverage or debt (McClure, 2014). When a company does not borrow money, ROE will be the same as ROA. But if a company uses financial

leverage, its return on equity will exceed the return on total assets. McClure (2014) stated that it is better to use both ROE and ROA to assess financial performance and company effectiveness. The inclusion of both as measurements of profitability in this study offers a more complete assessment. Another dependent variable is financial policies. This dependent variable is measured by debt to equity and dividend payout ratios (Gamayuni, 2015)

In addition, this study also determined whether moderating variables such as firm leverage, sales growth, and size of technology companies (in terms of revenue) influenced the relationship between intangible assets, financial performance, and firm financial policies. This study used the following variables as defined in Table 1.

Table 1: *Variable Measurements and Definitions*

Variables	Abbreviations	Definitions	Measurements
Independent variable			
Intangible assets	IA	Resources that have no physical presence and have long-term value for a business. For example, goodwill, brand recognition, copyrights, patents, trademarks, trade names, customer lists, and so on.	Sum of Intangible Assets
Dependent variables			
Return on	ROA	An overall measure of profitability that	Net Income/ Total

Variables	Abbreviations	Definitions	Measurements
assets		shows how efficient management is at using its assets to generate earnings.	Assets
Return on equity	ROE	Shows how much net income the company earned for each dollar invested by the owners.	Net Income/ Total Equity
Debt to Equity	Debt to Equity	This ratio is used to evaluate a company's financial leverage.	Total Debt/Total Equity
Dividend Pay-out	Dividend Payout	The dividend payout ratio is the proportion of a company's total dividends paid to shareholders relative to the net income of the company.	Dividends Paid/Net Income
Moderating variables			
Size	Size	Size of a company in terms of sales revenue.	Natural Log of Sales
Firm Leverage	Debt Ratio	A financial ratio that measures the extent of a company's leverage.	Total Debt/Total Assets
Sales Growth	Sales Growth	Sales growth is a metric that measures the ability of a company to increase revenue over a fixed period of time.	(Current Sales – Previous Year Sales)/Previous Year Sales

To understand the relationship between Intangible Assets and Financial Performance and Financial Policies, this study examined the following models:

Model 1: $ROA_{it} = \alpha + \beta_1 IA_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 SalesGr_{it} + e_{it}$

Model 2: $ROE_{it} = \alpha + \beta_1 IA_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 SalesGr_{it} + e_{it}$

Model 3: $DebttoEquity_{it} = \alpha + \beta_1 IA_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 SalesGr_{it} + e_{it}$

Model 4: $DividendPayout_{it} = \alpha + \beta_1 IA_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 SalesGr_{it} + e_{it}$

where,

ROE_{it} = Return on equity of firm i at time t

ROA_{it} = Return on assets of firm i at time t

$DebttoEquity_{it}$ = Debt to Equity of firm i at time t

$DividendPayout_{it}$ = Dividend Payout ratio of firm i at time t

IA = Intangible Assets

Size = Natural log of sales

Debt = Debt ratio

SalesGr = Sales Growth

α = Constant Term

β = Coefficient term

e = Error term

i = Number of companies

t = Time period ranging from 2015 to 2019

4. Findings

4.1. Descriptive Statistics

The descriptive statistics extracted from 33 out of 38 technology companies listed on the Stock Exchange of Thailand for the 5 year-period from 2015 to 2019 provided a total of 165 observations as tabulated in Table 2. The mean value of intangible assets was found to be ฿7,621,975,654.80, with a standard deviation of ฿28,140,338,766.50. In addition, the mean values for Return on Assets (ROA) and Return on Equity (ROE) were 5% and 10.6%, with their standard deviations being 8% and 16.28% respectively. These results suggest that on average, the technology firms in Thailand generated 5 percent and 10.6 percent profits from their assets and equities. These results are comparable to the research done by Emmanouil & Dimitrios (2017), who studied the impact of intangible assets on Greek firms' profitability from 2004 to 2009 and reported mean values of 3.85% ROA and 10.56% ROE respectively.

In addition, technology companies in Thailand also had debt to equity ratios on average of 136.94% which revealed that these companies financed their assets mostly through debt. Debt ratio ranged from a minimum of 9% to a maximum of 85% with a standard deviation of 19.65%. The mean value was 49.79%, which showed that on average, technology firms in Thailand borrowed money for about half of their total assets. The mean value of the dividend payout ratio of 69.61% showed that on average, Thai technology companies paid 69.61% of their net profits in dividends, although some companies did not manage to distribute dividends. On average, sales growth of technology firms increased by 4.3% per year. Some companies boosted their sales growth to a maximum of 228%, while others suffered a decrease of 53% in some years.

Table 2: Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
IA	0.00	151,149,000,000	7,621,975,654.8	28,140,338,766.5
ROA	-.1898	.3746	.050	.080
ROE	-.4467	.8074	.106	.162
DebtToEquity	.10	5.88	1.369	1.102
DividendPayout	0.00	16.57	.696	1.517
DebtRatio	.09	.85	.497	.196
Size	8.24	11.26	9.840	.724
SalesGrowth	-.53	2.28	.043	.265

4.2 Correlation Analysis

In order to understand the relationship between the variables being studied, Pearson's correlation was applied. The findings from Table 3 showed that intangible assets (IA) had a positive significant relationship with ROE. This result confirmed Hypothesis 1 (H_1) and sub hypothesis H_{1a}, which were accepted. The outcome was consistent with the findings of other studies (Haji & Ghazali, 2018; Clarke, Seng, & Whiting, 2011). In addition, from Table 3, intangible assets were found to have a significant positive correlation with debt to equity. This means that intangible assets have a significant positive relationship with financial policies. Thus, hypothesis (H_2) and sub hypothesis H_{2a} were accepted. Moreover, the moderating variable "debt ratio" also had a significant positive correlation with intangible assets.

The results furthermore showed that intangible assets (IA) did not have any significant relationship with ROA, dividend payout ratio, or sales growth. Therefore, sub hypothesis H_{1b} and H_{2b} were rejected.

Findings from Table 3 indicated that moderating variable size had a significant positive correlation with the other five variables – intangible assets, return on equity, debt to equity, dividend payout, and debt ratio. More specifically, the results pointed out that the technology firms with larger size would have higher amounts of intangible assets, higher profitability (ROE), higher debt, and larger dividend payouts.

Table 3: Pearson's Correlation

	IA	ROA	ROE	DebtToEquity	DividendPayout	DebtRatio	Size	SalesGrowth
Intangible Assets	1							
ROA	.036	1						
ROE	.278**	.841**	1					
DebtToEquity	.444**	-.139	.199*	1				
DividendPayout	-.019	.029	.092	.185*	1			
DebtRatio	.329**	-.215**	.105	.888**	.182*	1		
Size	.467**	.125	.293**	.546**	.170*	.465**	1	
SalesGrowth	.000	.015	.047	.009	-.007	.055	-.148	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.3 Regression Analysis

The regression method was used to describe the nature of the relationship between the independent and dependent variables and to determine whether they were positive or negative, linear or non-linear. More precisely, the analysis sought to examine the four linear regression models (as listed earlier) and to study their implications. Table 4 illustrates the linear relationship between Intangible Assets (IA) and Return on Equity (ROE).

Table 4: Effects of Intangible Assets on Return on Equity

Model 1 DV: ROE	Unstandardized		Standardized	T	p
	B	Std. Error	Beta (β)		
Constant	-.442	.192		-2.300	.023*
IA	1.063E-12	.000	.184	2.166	.032*
DebtRatio	-.067	.071	-.081	-.946	.346
Size	.058	.021	.258	2.803	.006**
SalesGrowth	.055	.046	.089	1.179	.240

$R = 0.350$, $R^2 = 0.122$, *Adjusted* $R^2 = 0.101$, $F = 5.583$

 * Significant at the 0.05 level (2-tailed).

** Significant at the 0.01 level (2-tailed).

Linear regression for Model 1 is suggested as:

$ROE_{it} = -0.442 + (1.063E\text{-}12)IA_{it} - 0.067DebtRatio_{it} + 0.058Size_{it} + 0.055SalesGrowth_{it} + e_{it}$

Table 4 shows that the intangible assets of technology firms in Thailand and companies' size had a significant positive relationship with return on equity ($p = 0.032 < 0.05$; $p = 0.006 < 0.05$, respectively). This outcome is consistent with the results of previous studies of Haji & Ghazali (2018) and Clarke, Seng, & Whiting (2011). The correlation (R = 35%) suggested a moderate positive relationship between the independent (IA) and dependent (ROE) variables. The coefficient of the determination ($R^2 = 12.2\%$) means that 12.2 percent of the variation in Return on Equity (ROE) can be attributed to intangible assets and size.

Table 5: Effects of Intangible Assets on Return on Assets

Model 2 DV: ROA	Unstandardized		Standardized	T	p
	B	Std. Error	Beta (β)		
Constant	-.202	.095		-2.133	.034
IA	4.579E-14	.000	.016	.189	.850
DebtRatio	-.148	.035	-.364	-4.253	.000**
Size	.033	.010	.299	3.229	.002**
SalesGrowth	.024	.023	.079	1.043	.299

$R = 0.343$, $R^2 = 0.117$, Adjusted $R^2 = 0.095$, $F = 5.322$

** Significant at the 0.01 level (2-tailed).

According to the results presented in Table 5, the intangible assets of technology companies in Thailand did not have any significant relationship with return on assets ($p = 0.850 > 0.05$), while debt ratio and size had significant influence ($p = 0.000$ and $0.002 < 0.05$) on ROA. This result was consistent with findings of Vanderpal (2019). The reason that intangible assets had a significant relationship with ROE but not with ROA is based on the difference between ROE and ROA. As most technology companies in Thailand financed their assets through debts, this caused a great difference between ROE and ROA. Thus, the results of the effects of intangible assets on ROE are not the same as on ROA.

Linear regression for Model 2 can be expressed as:

$$ROA_{it} = -0.202 + (4.579E\text{-}14)IA_{it} - 0.148DebtRatio_{it} + 0.029Size_{it} + 0.024SalesGrowth_{it} + e_{it}$$

Table 6: Effects of Intangible Assets on Debt to Equity

Model 3 DV: DebtToEquity	Unstandardized			Standardized	T	p
	B	Std.	Error	Beta (β)		
Constant	-2.577	.582			-4.429	.000**
IA	5.120E-12	.000		.131	3.447	.001**
DebtRatio	4.457	.214		.794	20.825	.000**
Size	.172	.063		.113	2.741	.007**
SalesGrowth	-.075	.141		-.018	-.534	.594

$R = 0.908, R^2 = 0.825, Adjusted\ R^2 = 0.820, F = 188.030$

** Significant at the 0.01 level (2-tailed).

Linear regression for Model 3 can be expressed as: $DebtToEquity_{it} = -2.577+(5.120E\text{-}12)IA_{it} +4.457.148DebtRatio_{it}+0.172Size_{it} -0.075SalesGrowth_{it} + e_{it}$

The outcomes from Table 6 indicated that intangible assets had a significant positive effect on the debt-to-equity ratio. In addition, debt ratio and firm size were also found to have a significant positive relationship with debt-to-equity. The correlation (R = 90.8%) indicated a strong positive relationship between the independent and dependent variables while the coefficient of the determination (R Square = 82.5%) means that 82.5% of the amount of variation in the debt-to-equity ratio can be attributed to intangible assets, debt ratio, and firm size.

Table 7: Effects of Intangible Assets on Dividend Payout

Model 4 DV: DividendPayout	Unstandardized		Standardized	T	p
	B	Std. Error	Beta (β)		
Constant	-3.337	1.855		-1.799	.074
IA	-7.963E-12	.000	-.148	-1.682	.094
DebtRatio	1.166	.682	.151	1.710	.089
Size	.357	.200	.170	1.784	.076
SalesGrowth	.055	.448	.010	.122	.903

$R = 0.243, R^2 = 0.059, Adjusted\ R^2 = 0.036, F = 2.513$

Linear regression for model 3 can be expressed as:

$$DividendPayout_{it} = -3.377-(7.963E\text{-}12)IA_{it} +1.166DebtRatio_{it}+0.357Size_{it} +0.055SalesGrowth_{it} + e_{it}$$

The results from Table 7 showed that intangible assets had no statistically significant correlation with dividend payout. Similar results were found in the studies of Alves & Martin (2010) and Gamayuni (2015). Other moderating variables such as debt ratio, size, and sales growth also showed

5. Discussion

5.1 Discussion and Implications

This study investigated the effects of intangible assets on financial performance and financial policies from 33 out of 38 listed technology companies in Thailand for a five-year period from 2015 to 2019. The results showed that intangible assets had a significant positive relationship with financial performance (return on equity). The results were consistent with previous studies in the same areas (Haji & Ghazali, 2018). This research paper contributes to the existing literature in the study of this relationship. This study also provides useful implications for managers in the technology sector in Thailand to recognize the importance of intangible assets such as patents, software, brands, customer lists, copyrights, goodwill, and so on. It also provides practical implications that companies can invest more in intangible assets to enhance their profitability and help the firms to grow.

In addition, the study also found that intangible assets had a significant positive relationship with financial policies (debt to

no significant influence on dividend payout. One possible reason for this result is that technology companies in Thailand may use money from retained earnings to invest in assets, expand the business for future growth, and pay back debts instead of paying out dividends.

equity). This means that spending more on intangible assets will influence managers to finance their assets through debt rather than equity. These researchers observed that many Thai technology companies used debt to fund their investment in assets. In addition, the results showed that the debt ratio had a significant negative relationship with Return on Assets (ROA). This implies that managers need to be careful with the risks of borrowing, as it may influence the profitability of these technology companies. The study also added validity to investors' notion that technology firms which reported higher returns also take higher risks. Furthermore, company size also had a significant positive influence on the relationships between intangible assets and profitability (ROE) and financial policies (debt to equity). Technology companies that have higher intangible assets tend to have bigger size (in generating sales revenue) and can generate more profits.

5.2 Limitations and Recommendations

The limitations of this study include the following. The sample size was quite small because of limited access to company

annual reports. There were a few years that companies did not post annual reports on their official websites. Thus, it was quite difficult to extend the time frame for this study. In addition, some technology companies did not report intangible assets on their annual consolidated financial statements. Moreover, some annual reports were only available in the Thai language, which hindered the interpretation of data for this study.

Further research is recommended to examine these relationships in other specific industries beyond technology firms to see if the results are similar. Studies may also be conducted to observe the influence of intangible assets on the profitability of all technology firms located in Thailand. Researchers can also study the relationship of intangible assets to firm value. Research can also be extended to compare and contrast relationships in this industry with those in other ASEAN countries to gain further perspectives.

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