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Influence of Firm size on Financial Performance: The Case of telecommunications technology firms listed on the Vietnam stock market

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Abstract

The study investigates the effect of firm size on financial performance in the telecommunications technology firms listed on the Vietnam stock market. The study employs a set of aggregated data from 22 telecommunications technology firms listed on the Vietnam stock market. The research uses both qualitative and quantitative research methods. For the quantitative research method, the supporting tool is Stata13

software. The research results show that, the factor firm size with observed variable is net sales that not influence of the financial performance of telecommunications technology firms listed on the Vietnam stock market. Based on the findings, some recommendations are given for revenue for improving financial performance in the telecommunications technology firms listed on the Vietnam stock market.

Keywords: Firm Size, Revenue, Financial Performance, Accounting, Finance

JEL Classification Codes: M41, F65, L25, G30

1. Introduction

Currently, there are 22 telecommunications technology firms listed on Vietnam's stock market, including Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock exchange (HSX). These firms are contributing an active and prominent role in developing the socio-economic state of the country. Especially in the burst of the fourth industrial evolution, the telecommunications industry is more and more attractive towards young employees whose interest in science and technology, and it is one of the industries that is in highest demand for human resource. In addition, the demand for data usage and transmission is rising sharply. By applying advanced technologies in a plethora of ways, the telecommunications industry has changed many aspects of society, empowering interconnection between people and countries. However, financial performance of some telecommunications technology firms is still poor.

According to professionals, financial performance is associated with financial operations. In a broader context, it is equivalent to how financial goals have been satisfied. This method measures impacts based on data from the firms' policies and business activities.

Isik and Tasgin (2017) ^[14] claim that firm size is one basic factor influence on firms' financial performance. However, it is still in debate how firm size affects the financial performance in both theoretical and practical perspectives. The relationship between firm size and financial performance have been mentioned in several theories, including institutional theory, technological theory, etc. Nonetheless, these theories are also different in measuring the relationship between financial performance and firm size (Becker-Blease, *et al.*, 2010 ^[4]). Dogan (2013) ^[9]; Isik and Tasgin (2017) ^[14] believed that scale has a positive effect on financial performance (profit). In contrary, Becker-Blease, *et al.* (2010) ^[4]; Shehata, *et al.* (2017) ^[23] claimed that firm size has a negative impact of financial performance. In addition, Niresh and Velnampy (2014) ^[19] concluded that there is no proof for any relation between firm size and financial performance.

Therefore, it's of necessity to study the influence of firm size on financial performance of telecommunications technology firms listed in Vietnam stock market.

2. Literature review

Financial performance

Financial performance is a very important issue, and a premise to attract capital and minimize the cost of capital of firms. A firm with high financial performance will create credibility with investors (Lan & Anh, 2019) ^[15].

The indicators reflecting the financial performance of the enterprises are the rate of return on total assets (ROA) (Zeitun and Tian, 2007 [27]; Agha, 2014 [2]; Iqbal and Zhuquan, 2015 [13]; Chi, 2018 [7]). It is also both the rate of return on total assets (ROA) and return on equity (ROE) (Onalapo and Kajola, 2010 [20]; Pouraghajan & Malekian, 2012 [21]; Abbasali and Esfandiari, 2012 [1]; Tu, 2015 [25]). Can (2017) [6] said that ROA and ROS were mainly used to evaluate financial performance. Based on the above points of view, Trang and Anh (2018) [24] believe that financial performance is one of the important contents of business performance and the indicators commonly used to evaluate financial performance are the return on total assets (ROA), return on equity (ROE).

Do, *et al.* (2021) [18] conducted to investigate the impact level of corporate governance on the financial performance of warehouse transportation firms listed on the Hanoi Stock Exchange (HNX) of Vietnam. The authors used ROA as one of the financial indicators to measure the financial performance of enterprises.

This study use ROA as the indicator for firm’s financial performance, because ROA is considered to demonstrate the profitability of the firm. Not only does this study base on management perspectives to suggest recommendations for improving profitability of the firm, but it also takes the stand of shareholders. If firms want to settle internal issues in order to improve firm’s profitability, they need to analyse the return on assets (ROA) prospect of the whole business (including creditors, investors, shareholders, etc). Because firms repay creditors from a variety of sources, mostly earnings after tax, and creditors would be prioritised to repay debt before dividend for shareholders and investors, ROA is one of the most important indicators of conduct analysis.

Firm size

Goddard, *et al.* (2005) [12] employed data from 12,508 firms in services and manufacturing sectors of major countries in Europe (including England, Spain, Italia, Belgium and France) in 9 years (1993 – 2001). The authors constructed a model to measure the factors that influence profit. It was concluded that the variable firm size has a significant and negative effect on ROA.

Lee (2009) [16] analysed data sheet of around 7000 firms in the USA in the period 1987 - 2006. The result showed firm size and financial performance have an inverted U-shape relationship.

Prasetyantoko and Parmono (2009) [22] collected data from 238 firms listed on Indonesia’s stock market in the period 1944 - 2004 to assess the impact of firm size on business performance of firms. It was concluded that, when firm’s characteristics and macroeconomic indicators are stable, the independent variable firm size (in terms of total assets) has a significant and positive impact on business performance of the firm (ROA).

Flamini, *et al.* (2009) [11] stated that the larger the firm size of the firm is, the better the financial performance is.

Ngoc (2011) [18] suggested there is no evidence for the relationship between firm size and profit; firms with major firm size shows an insignificant increase in profit, which results in an insignificant increase in ROA.

Mule, *et al.* (2015) [17] collected data from 53 listed firms at Nairobi in the period 2010 - 2014. The result of the study

proved that firm size (measured by the natural logarithm of revenues) has a positive impact and statistical significance to ROE, but does not significantly impact to ROA and Tobin’s Q.

Aytürk and Yanik (2015) [3] employed data sheet of 1,123 Small and medium-sized enterprises (SMEs) in Turkey in the period 2009 – 2013. The authors constructed a model to measure factors that can influence financial performance. The result showed that firm size (measured by the natural logarithm of total revenues) has an impact on financial performance.

With the scope of 34,798 enterprises in England in the period 2005 – 2013, Shehata, *et al.* (2017) stated that firm size has negative relationship and statistical significance to ROA.

Dung, *et al.* (2020) [10] explored which determinants are making an impact on Vietnamese listed plastic corporations’ financial performance thereby giving suggestions for administrators to improve financial efficiency. The study population consists 21 listed plastic firms on the Vietnam Stock Exchange from January 2014 to December 2018. The result showed that the firm size has a positive impact on financial performance (ROA, ROE, ROS).

Table 1: The firm size and financial performance of telecommunications technology firms listed on the Vietnam stock market

Code	Description	Measure
Size	Revenue	Net sales
ROA	Return on Assets	Profit after tax * 100% / Total assets

3. Methodology

3.1 Research sample

The research sample is an important factor that determines the success of a quantitative study. Generally, there are two methods to choose: Random sampling and haphazard sampling. The random sampling is more widely used and brings more objective results. In this article, we randomly selects technology firms listed on the Vietnam stock market. This sample source is reliable.

In this research, financial reports of 22 telecommunications technology firms listed on Vietnam stock market (HSX and HNX) in the period 2017 – 2021 [26] were collected to calculate indicators of firm size and financial performance. In total, 110 observations for each indicator were collected.

3.2 Research Model

The basic model employed for this study is constructed as:

$$Y_{it} = b_0 + b_1X_{i,t} + m_{i,t}$$

With: b_0 as the intercept factor, $X_{i,t}$ as the explanatory variable vector and $m_{i,t}$ as the random error.

The model which is employed in this study can be constructed as: $ROA_{i,t} = b_0 + b_1SIZE_{i,t-1}$

Inheriting the above studies and experts' opinions, we built the research model as shown below (see figure 1):



Fig 1: Research Model

3.3 Analysis approach

To test the research hypotheses, we used Stata software to perform the following analysis: Descriptive statistics; Correlation analysis; Regression; autocorrelation by VIF coefficient and heteroskedascity (estat hettest).

4. Results

4.1 Descriptive statistic

Table 2 show that the dependent variable includes 1 observed variable; the independent variable includes 1

observed variable. Each observed variable is described by 110 observations. Basic indicators such as mean, max, min, standard deviation (sd), variance, skewness coefficient of variation, sum of variables, range, coefficient of variation (p50), coefficient of variation of each observed variable (cv) has been identified and these basic indices accurately reflect the current state of financial performance and the influence of firm size on the financial performance of telecommunications technology firms listed on the Vietnam stock market.

Table 2: General descriptive statistics and detail descriptive statistics

General descriptive statistics					
Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent variable					
ROA	110	.048774	.0909478	-.0691541	.8287779
Independent variable					
Size (Million VND)	110	2074648	6756615	305	4.27e+07
Detail descriptive statistics					
stats	ROA	Size (Million VND)			
N	110	110			
sum	5.365144	2.28e+08			
range	.897932	4.27e+07			
variance	.0082715	4.57e+13			
cv	1.864677	3.256753			
skewness	6.039967	4.540861			
kurtosis	50.7424	23.15206			
p50	.0246599	379861			

4.2 Correlation analysis results

Table 3: Correlation analysis results of independent variable

	ROA	Size
ROA	1.0000	
Size	0.1678	1.0000

Table 3 shows the results of correlation analysis, also known as multicollinearity analysis. The results show that the

absolute value of each correlation coefficient between 2 variables is less than 0.8; therefore, no multicollinearity occurs (Bryman & Cramer, 2001^[5]). The remaining regression model has 1 independent variable with 1 observed variable, 1 dependent variable with 1 observed variable.

4.3 Regression Results

Table 5: OLS regression results

OLS regression results for observed variable ROA of the dependent variable (regress ROA Size)						
Source	SS	df	MS		Number of obs = 110	
Model	.025388957	1	.025388957		F (1, 108) = 3.13	
Residual	.87620495	108	.008113009		Prob > F = 0.0797	
Total	.901593907	109	.008271504		R-squared = 0.0282	
					Adj R-squared = 0.0192	
					Root MSE = .09007	
ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Size	2.26e-09	1.28e-09	1.77	0.080	-2.72e-10 4.79e-09	
_cons	.0440878	.0089873	4.91	0.000	.0262733 .0619023	

With 95% confidence degree, Table 5 shows: $F = 3.13 > 1.96$. Thus, the model is consistent and statistically significant (Bryman & Cramer, 2001). R-Squared is of 0.0282 meaning that the independent variables in the research model explain 2.82% of the influence of the

independent variable on the dependent variable. Therefore, the research results are accepted temporarily, but need to test the suitability of the model (Bryman & Cramer, 2001^[5]).

Table 6: Result of the autocorrelation by VIF coefficient (estat vif) of ROA

Variable	VIF	1/VIF
Size	1.00	1.000000
Mean VIF	1.00	

Table 6 shows that all the observed variables of the independent variables have VIF coefficients < 2 , so it can be

confirmed that 100% of all independent variables do not have autocorrelation (Bryman & Cramer, 2001^[5]).

Table 7: Results of heteroskedascity (estat hettest)

ROA	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of ROA	
chi2(1)	= 3.47
Prob > chi2	= 0.0627

Table 7 shows that Prob> chi2 > 0.05; Thus, there is no phenomenon of variable variance, ie the research model is consistent with the input data. Therefore, there is no need to

use the model at a higher level (Bryman & Cramer, 2001^[5]).

With a significance level of 95%:

Not define the regression equation of firm size affects on ROA.

The observed variable Size does not influence on ROA.

4. Reality of independent and dependent variables

Table 8 shows Reality of independent and dependent variables when considering each telecommunications technology enterprise in each year (see table 8).

Table 8: The reality of independent and dependent variables of telecommunications technology firms listed on the Vietnam stock market during the period 2017-2021

Stock code	Year	ROA	Size (Million VND)	Stock code	Year	ROA	Size (Million VND)
ADC	2021	7,4%	299.308	SMT	2021	1,0%	400.362
ADC	2020	9,3%	380.804	SMT	2020	1,9%	356.186
ADC	2019	9,0%	378.918	SMT	2019	-4,0%	230.808
ADC	2018	8,8%	348.974	SMT	2018	6,1%	459.159
ADC	2017	9,3%	303.921	SMT	2017	6,4%	340.564
CKV	2021	1,2%	482.091	SRA	2021	11,7%	122.921
CKV	2020	0,3%	433.689	SRA	2020	6,4%	193.721
CKV	2019	2,7%	392.203	SRA	2019	26,4%	292.432
CKV	2018	2,2%	268.089	SRA	2018	82,9%	391.888
CKV	2017	2,0%	177.436	SRA	2017	23,1%	39.259
CMG	2021	1,8%	1.373.350	ST8	2021	2,9%	784.648
CMG	2020	5,0%	5.181.109	ST8	2020	3,2%	1.141.547
CMG	2019	5,0%	4.855.806	ST8	2019	5,4%	1.617.628
CMG	2018	6,4%	5.185.715	ST8	2018	9,6%	1.893.114
CMG	2017	6,6%	4.869.842	ST8	2017	6,5%	1.672.071
ELC	2021	3,8%	659.132	SVT	2021	18,7%	108.977
ELC	2020	2,1%	802.233	SVT	2020	19,9%	88.115
ELC	2019	2,5%	874.760	SVT	2019	7,6%	86.934
ELC	2018	0,9%	412.290	SVT	2018	3,2%	18.931
ELC	2017	4,1%	561.395	SVT	2017	2,6%	36.102
FPT	2021	11,2%	35.657.263	TST	2021	0,2%	95.091
FPT	2020	11,8%	29.830.401	TST	2020	0,1%	93.543
FPT	2019	12,4%	27.716.960	TST	2019	0,3%	94.831
FPT	2018	11,8%	23.213.537	TST	2018	0,9%	125.042
FPT	2017	12,9%	42.658.611	TST	2017	1,4%	225.473
ITD	2021	-1,7%	42.161	TTZ	2021	-0,2%	5.172
ITD	2020	9,5%	595.359	TTZ	2020	-6,9%	305
ITD	2019	4,9%	390.338	TTZ	2019	-3,7%	11.238
ITD	2018	9,3%	445.594	TTZ	2018	0,2%	161.925
ITD	2017	9,9%	404.046	TTZ	2017	0,2%	38.916
KST	2021	3,0%	87.991	UNI	2021	0,0%	828
KST	2020	5,0%	234.199	UNI	2020	0,3%	3.744
KST	2019	6,0%	185.852	UNI	2019	0,0%	6.531
KST	2018	3,6%	200.466	UNI	2018	0,1%	7.767
KST	2017	4,6%	287.567	UNI	2017	0,5%	16.139
ONE	2021	1,2%	705.444	VAT	2021	0,7%	89.280
ONE	2020	1,5%	634.970	VAT	2020	0,7%	99.792
ONE	2019	1,2%	385.694	VAT	2019	-1,1%	1.406
ONE	2018	1,6%	381.717	VAT	2018	0,1%	80.114
ONE	2017	2,2%	436.014	VAT	2017	0,7%	89.280
POT	2021	0,6%	1.105.304	VIE	2021	7,0%	22.197
POT	2020	0,8%	1.078.677	VIE	2020	0,3%	26.713
POT	2019	0,8%	1.191.476	VIE	2019	0,8%	32.692
POT	2018	1,6%	1.645.364	VIE	2018	5,3%	14.018
POT	2017	2,2%	1.727.448	VIE	2017	8,6%	12.249
SAM	2021	2,4%	1.888.725	VLA	2021	7,0%	14.454
SAM	2020	1,9%	1.919.269	VLA	2020	0,3%	7.789
SAM	2019	2,0%	2.853.751	VLA	2019	0,8%	10.103
SAM	2018	2,4%	2.669.729	VLA	2018	5,3%	12.887
SAM	2017	2,8%	2.220.868	VLA	2017	8,6%	8.737
SGT	2021	2,0%	706.580	VTC	2021	0,2%	140.838
SGT	2020	0,6%	470.039	VTC	2020	2,5%	428.756
SGT	2019	0,6%	692.593	VTC	2019	2,3%	653.474

SGT	2018	6,6%	682.408	VTC	2018	2,4%	490.647
SGT	2017	5,9%	798.647	VTC	2017	4,2%	427.760

Sources: <https://finance.vietstock.vn/>; <http://cafef.vn>, Global Data Services Company and authors synthesized^[26]

5. Conclusion and recommendations

Nowadays, as technologies and science advances, telecommunications technology industry has become ubiquitous. Demand for information exchange in an intelligent society has been significant, as all businesses require a multi-lateral transmission of information in different forms, including voice (phone) and multimedia data (video conference). On the other hand, telecommunications industry is a core for the development of the economy in particular and the society in general. Thus, telecommunications technology firms need to achieve a good financial performance, which can help them build customers' trust.

Besides, telecommunications technology is a high-tech industry, the workload and complexity of the industry requires the joint efforts of the firm (departments and employees). Employees in telecommunications technology firms, besides the ability to work and study independently, they are also required to have teamworking skills, to fulfill their task in the group and contribute to the group's general objective.

The development rate of the telecommunications technology industry is accelerating. Major leap in economy, society and living standards benefit greatly from this industry. Products of the telecommunications technology industry such as mobile phone, tablets, desktop computers, laptops, smart television, etc are becoming more and more popular in developed as well as developing countries. They have even become a necessity of the modern society. This is the testimonials for the developing prospects of telecommunications technology enterprises; therefore, they need to make efforts to improve their financial performance and increase revenue.

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