

Researching the Relationship between Operational Efficiency and Profitability of Telecommunication Technology Joint-Stock Companies

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Abstract: Operational efficiency (OE) and profitability are always the first priorities of any enterprise. Therefore, studying the relationship between OE and profitability needs to be taken comprehensively and continuously in order to find out solutions of business effectiveness increase. This paper focuses on the relationship between OE and profitability of the telecommunication technology (TT) joint-stock companies (JSCs) listed on the Ho Chi Minh Stock Exchange (HOSE) with answers for the above-mentioned issues.

Keywords: JSCs, operational efficiency, profitability, telecommunication technology.

1. Introduction

The current modern world with its powerful technical science development helps people to have a better life, in which, it is necessary to mention the prominent achievement of TT one of the leading fields with the most modern application of technical and scientific progress. In the world's current trend, TT has become an economic industry - an important service of Vietnam as it enters the era of information. The TT industry has a strong impact on the process of transforming and producing the social-economic structure as well as boosting the national industrialization and modernization. Not lying outside of this trend, top TT enterprises in Vietnam have equipped themselves with advanced technology in order

to catch this change and serve the full potential domestic market. With its important role, it is considered as the infrastructure (both producing infrastructure and social infrastructure) of the economy as well as an essential base for integrating into the international economy. The TT industry develops by advancing with increasing quality. As a result, this industry has gradually satisfied the demand of both domestic and foreign markets. These enterprises have made a remarkable contribution to increase peoples' life quality and have paid a considerable tax to the state budget as well. Thank to its comprehensive growth, the TT field has reduced the gap in comparison with the regional and international countries.

However, the current situation also generates deep challenges in management, technology, investment and production. All of these causes the TT enterprises to cope with difficulties in their business operation, in which, OE and profitability are not exceptional. Especially the link between OE with the

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profitability of these companies is still controversial. Up to now, there is not any domestic concrete research to clarify the relation between OE with the profitability of enterprises generally and with TT JSCs in particular in Vietnam. As a result, this article will concentrate on defining this tie of TT JSCs between OE and profitability so as to give a correct answer for this problem.

2. Literature review

There are many concepts of OE from different researchers both domestically and internationally and below are some typical ones.

Vangie Beal (2016) states that, OE is the ability of an enterprise to deliver products or services to its customers in the most cost-effective manner possible while still ensuring the high quality of its products and service [1].

According to Matthew Burrows (2016), OE is not just about reducing costs; other business objectives, including service quality, still have to be achieved in order to keep existing customers and revenue [2].

Dennis Hartman (2016) defines OE as to how well a business manages its resources and uses them to produce profits [3].

Neil Kokemuller (2016) proves that OE encompasses several strategies and techniques used to accomplish the basic goal of delivering quality goods to customers in the most cost-effective and timely manner; and OE involves performing similar activities in more efficient ways than the competition [4, 5].

Subha Varadan (2016) proposes that OE is a critical system that can keep a company in business or close it down [6].

In the Wikipedia dictionary, in a business context, OE can be defined as the ratio between the input to run a business operation and the output gained from the business [7].

Nguyen Van Cong (2009) points out that, the OE of a company reflects the operation results that the company possibly gets when it uses its input for business operation. Basically, OE indicates the efficiency of

using the input elements of business operation and solvency [8].

These concepts of OE vary in contents in many ways, such as: fields (costs, sales, quality of product or service), approaching methods (the whole enterprise, a certain business process: producing, selling...), subjects (an enterprise, a customer, a competitor), timing (short term, long term). After considering the above-mentioned concepts about OE, according to the author, OE shows the using of input elements in order to create the qualitative respective outputs in the most cost-saving way in an enterprise.

About profitability, there are different definitions. According to Charles H. Gibson (2001), profitability is the ability of the firm to generate earnings. It is measured relative to a number of bases, such as assets, sales and investments [9].

Harward and Upton (1961) introduces profitability as the ability of a given investment to earn a return from its use [10].

According to Patel (2015), the term profitability refers to as the ability to make profits progressively over a long period of time [11].

Don Hofstrand (2016) gives a rather simple definition, that says profitability is measured with income and expenses [12].

Nguyen Van Cong (2009) defines profitability as an indicator showing the earning that a firm could achieve from one unit of cost or input element as well as one unit of output which reflects business results [7]. In other words, profitability expresses the level of using the available resources of a company to get a highest result in business.

Apart from that, many websites relating to finance and accounting have their own definitions of profitability. Generally, they refer to the ability that a firm may generate profit from its resources. After considering the above-mentioned concepts about profitability, according to the author: Basically, profitability refers to an enterprise's ability of using all its resources and creating sales which are higher

than the corresponding costs originated from the business operation.

After considering different concepts of OE and profitability, one question has appeared: Is there any relationships between them? In fact, this topic has not attracted much study from the domestic researchers except some foreign ones. To date, there are only three foreign writings of the relationship between OE and profitability, in which two concentrate on the banking field.

According to Amritpal Singh Dhillon and Hardik Vachhrajani (2016), they find a relationship between the OE and overall profitability of Gujarat Industries Power Company Limited (in the period of 2005 to 2010) and conclude that OE has a statistically insignificant positive impact on overall profitability [13].

Vinod Bhatnagar (2015) calculates and measures OE and profitability ratios of Indian commercial banks as well as examines the relationship between them. It was concluded that there is no significant relationship between net profit margin and OE ratios [14].

Muhittin Oral and Reha Yolalan (1990) carried out an empirical study to measure OE of 20 bank branches within a Turkish commercial bank [15]. It was observed that the service-efficient bank branches are the most profitable ones, suggesting the existence of a relationship between service efficiency and profitability.

Two out of the three empirical studies have concluded that OE does not have a statistically significant positive impact on profitability. To our best knowledge, the answer is not clear for the question: Is there any relations between OE and profitability? And if yes, how they are related, especially for Vietnamese firms and TT JSCs? So, this is the reason why the current study needs to be conducted.

3. Data and methodology

Data used in this study are financial statements, annual reports and prospectuses of the JSCs listed in Table 1 for the 2011-2015

period. These data are audited by the world famous auditing companies (e.g.: E&Y, Deloitte, A&C...) and downloaded from the reliable websites of the State Securities Commission of Vietnam, the HOSE and TT JSCs in the survey.

These TT JSCs with their data lead to a research sample with 168 observations during this period. In this case, the above-mentioned data are transferred into Excel and encoded as variables. After that they become inputs for running regression.

In order to examine the OE of the researched enterprises, there are six variables used as follows. The two dependent variables which reflect OE are Equity Turnover (ET) and Total Assets Turnover (TAT) and four other independent variables: Assets (which shows the capital scale of a company), Equity (which shows the quantity of owner equity of a firm), Equity Ratio ($ER = \text{Owners Equity} / \text{Total Assets}$, which represents the degree of financial independence of a firm) and Sales (which shows the result of the selling process). After that, so as to measure profitability of the TT firms, there are three dependent variables: Return on Assets (ROA), Return on Equity (ROE) and Return on Sales (ROS) and five other controlling variables, including: TAT and/or ET, Assets, Equity, ER and Sales.

The study uses both a qualitative and quantitative approach. For a qualitative approach, the study takes a comparative and analytical method in order to assess the current situation of OE and profitability as well as to detect factors which affect TT JSCs listed on the HOSE. The theory frame is based on a fundamental base about a system of ratios which reflect the OE (including ET and TAT) and profitability (including the ROA, ROE and ROS) of a company.

In addition, in order to increase and strengthen the reliability of qualitative result, this paper also uses a quantitative approach by running a regression model of Ordinary Least Square (OLS) with the above-mentioned variables. The OLS's first aim is to investigate

how many factors impact on OE and profitability and what they are. The second purpose is to forecast the link between OE and profitability. This paper uses the statistic software Stata 12 to run the regression to answer these questions.

The use of either a qualitative and quantitative approach aims to strengthen the reliability of the analyses and judgments because it collects much evidence from different sources and creates a multi-directional vision of an issue. This combination also helps the result satisfy the planned purposes better and answers the research questions clearly as well as leading to conclusions which ensure a scientific base and feasibility.

4. Analysis of results

Currently, in Vietnam there are many JSCs which are doing business in the field of TT and their stocks are listed on the two main securities exchanges, the HOSE and HNX. Despite the lower number of TT enterprises on the HOSE than the HNX, these companies have many outstanding strong points, such as: the number of stocks, the average price of a stock and the value of market capitalization. As a result, this paper has chosen TT JSCs listed on the HOSE.

There are seven TT JSCs listed on the HOSE with differences in location (located in two regions: four enterprises in the North and three in the South), listed time (from 2006 to 2015) and authorized-capital. Of these, FPT corporation has the highest authorized-capital with nearly 4,600 billion Vietnam Dong (VND), nearly two times bigger than the six others together while the smallest authorized-capital is that of CMT with 80 billion VND only. Concretely, both CMT and TIE have their capital scale under 100 billion VND. Four companies including CMG, DGW, ELC and SGT have their scale of capital from over 100 billion VND to below 750 billion VND. In this paper, TT JSCs in the survey shall be mentioned by their coded stocks instead of their names.

4.1. Operational efficiency

Firstly, a company's capital scale is not directly proportional to its OE. Concretely, despite its highest capital scale at nearly 4,600 billion VND, the circulating turnover of total assets in FPT only ranks in the third place at 1.72 times, lower than DGW and CMG as shown in Table 2. Moreover, FPT has a gradual reduction in the circulating turnover in this time.

This conclusion is also strengthened when SGT stands in the second place of capital scale (at 740 billion VND) but at the bottom of OE. On the other hand, in this period, DGW is fifth on the capital scale and expresses its graduation in circulating turnover of total assets among the other six (both in absolute and relative number) and can be seen clearly in Figure 1.

From the above analysis, it can be said that, a big capital scale is a convenient condition for a company to increase its OE but if this company is able to explore this advantage or not, it is quite different.

Secondly, TT firms's degree of financial independence is not directly proportional to their OE. The percentage of owners' equity in total capital is the most important ratio to express a company's degree of financial independence. The survey shows that, this percentage for TT JSCs on average is lower than 50%. Again, DGW is still the leading company in circulating turnover of owners' equity at 10.19 times while this firm's percentage of owners' equity stands in the sixth place only with its arithmetical mean of 33% during five years.

SGT continues to be an enterprise that has the lowest circulating turnover of owners' equity with its arithmetical mean for the surveyed period of 0.58 times only. This can be expressed by the lowest line in Figure 2. At the same time, TIE has the largest percentage of owners' equity and is in fifth position only in circulating turnover of owners' equity.

Table 1. TT joint-stock companies listed on HOSE

No	JSCs	Coded Stock	Region	Authorized-Capital (Billion VND)	Listed year
1	FPT Corp	FPT	North	4,594	2006
2	Saigon Telecommunication & Technology Corp - SAIGONTEL	SGT	South	740	2008
3	CMC Corp	CMG	North	673	2010
4	Electronics Communications Technology Investment Development Corp. - ELCOM CORP	ELC	North	424	2010
5	Digiworld Corporation	DGW	South	306	2015
6	Telecommunication Industry Electronics - TIE	TIE	South	95	2009
7	Information & Networking Technology - INFONET	CMT	North	80	2010

Source: HOSE.

Table 2. Circulating turnover of total assets.
Unit of measurement: Time

JSCs	2011	2012	2013	2014	2015	Average
1. DGW	2.44	2.64	3.44	4.38	3.34	3.25
2. CMG	1.64	1.59	1.71	1.91	1.88	1.75
3. FPT	1.90	1.73	1.73	1.65	1.61	1.72
4. CMT	1.34	0.92	1.43	1.44	1.83	1.39
5. TIE	1.35	1.17	1.10	0.99	0.84	1.09
6. ELC	0.45	0.50	0.48	0.34	0.66	0.49
7. SGT	0.026	0.11	0.14	0.18	0.22	0.14
TAM	1.31	1.24	1.43	1.56	1.48	1.4

Source: Data are calculated based on audited financial statements of enterprises.
Unit of measurement: Times.

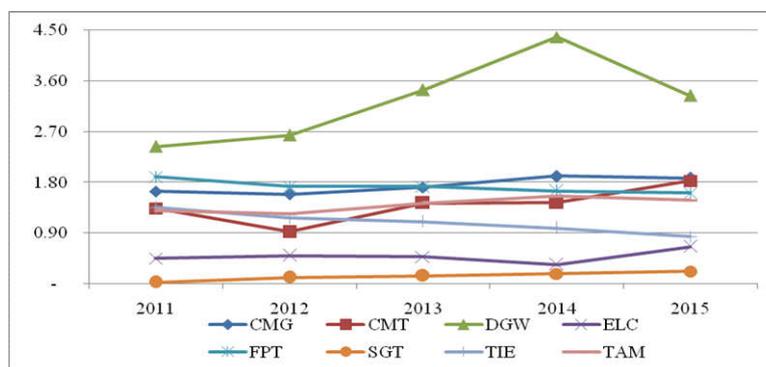


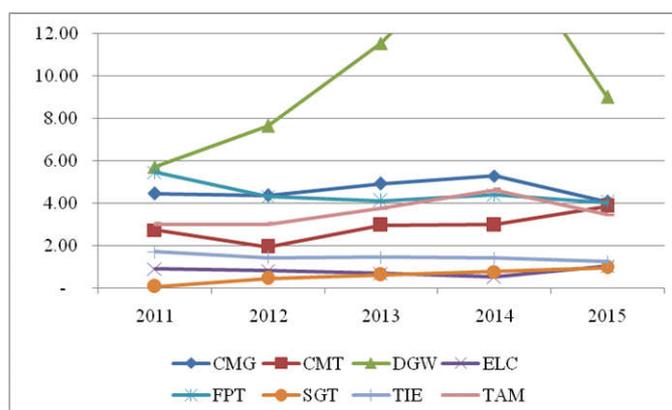
Figure 1. Circulating turnover of total assets.

Source: Data are calculated based on audited financial statements of enterprises.

Table 3. Circulating turnover of owners' equity
Unit of measurement: Time.

JSCs	2011	2012	2013	2014	2015	Average
1. DGW	5.72	7.65	11.56	16.99	9.02	10.19
2. CMG	4.47	4.38	4.92	5.30	4.07	4.63
3. FPT	5.46	4.32	4.11	4.40	4.03	4.46
4. CMT	2.74	1.95	2.96	2.98	3.87	2.90
5. TIE	1.72	1.44	1.46	1.42	1.24	1.46
6. ELC	0.91	0.82	0.69	0.52	1.03	0.79
7. SGT	0.08	0.45	0.63	0.78	0.96	0.58
TAM	3.01	3.00	3.76	4.63	3.46	3.57

Source: Data are calculated based on audited financial statements of enterprises.
Unit of measurement: Time.



Source: Data are calculated based on audited financial statements of enterprises.

Although TIE did not use many resources and pay much attention to its debts and interest, it could not take advantage of its high financial independence in improving OE and show a contrast with the lower financial independence firms in the survey.

After running OLS in a model with dependent variables of TAT and ET as well as four other independent variables including Assets, Equity, ER and Sales, the results are expressed in Tables 4 and 5, respectively.

Table 4. Regression TAT with Assets, Equity, ER and Sales

```
. reg TAT Asset Equity ER Sales
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Source	SS	df	MS			
Model	5.31791639	4	1.3294791	Number of obs =	168	
Residual	6.72752757	163	.041273175	F(4, 163) =	32.21	
Total	12.045444	167	.072128407	Prob > F =	0.0000	
				R-squared =	0.4415	
				Adj R-squared =	0.4278	
				Root MSE =	.20316	

TAT	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Asset	-.0001608	.0000308	-5.22	0.000	-.0002216	-.0001
Equity	.000255	.0000696	3.67	0.000	.0001177	.0003924
ER	-.55497	.1158976	-4.79	0.000	-.7838244	-.3261157
Sales	.0001225	.0000129	9.46	0.000	.0000969	.000148
_cons	.6100605	.0586522	10.40	0.000	.4942444	.7258765

Source: Result of regression by Stata 12.

Table 5. Regression ET with Assets, Equity, ER and Sales

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. reg ET Asset Equity ER Sales
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Source	SS	df	MS			
Model	52.9095669	4	13.2273917	Number of obs =	168	
Residual	69.1498211	163	.424232031	F(4, 163) =	31.18	
Total	122.059388	167	.730894539	Prob > F =	0.0000	
				R-squared =	0.4335	
				Adj R-squared =	0.4196	
				Root MSE =	.65133	

ET	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Asset	-.0004092	.0000987	-4.15	0.000	-.0006041	-.0002143
Equity	.0005971	.000223	2.68	0.008	.0001567	.0010375
ER	-2.590388	.3715714	-6.97	0.000	-3.324102	-1.856674
Sales	.0003387	.0000415	8.16	0.000	.0002567	.0004207
_cons	2.117823	.1880408	11.26	0.000	1.746513	2.489133

Source: Result of regression by Stata 12.

With the regression results, it can be seen that, two independent variables including Assets and ER are inversely proportional to TAT and ET and have at least a 99% statistical meaning. In other words, a company which has a large scale of capital (and/or assets) and a high level of ER has a low OE and vice versa. To put it another way, big scales of capital and

highly independent JSCs have a small OE. Two other variables including Equity and Sales are directly proportional to TAT and ET and have at least a 99% statistical meaning, which means that the bigger the sales and owner equity of a company, the larger its OE is. These results of OLS regression are similar (or consistent) with the two above detections.

4.2. Profitability

Regarding the profitability of TT JSCs listed on the HOSE, this research uses three popular ratios: ROS, ROA, ROE and draws the following findings.

First of all, the order of profitability of the seven TT companies has been changed completely in comparison with OE. ROS of ELC stands at the top with 16.01%. Besides, FPT always takes the number one position with ROA and ROE with over 12% and 13%, respectively. Only SGT still takes the lowest profitability as in OE. Moreover, all the arithmetical mean (TAM) of three profitability indicators of SGT are below zero; especially ROS of SGT is minus 54.87%, 20 times larger than TAM of the group (which is minus 2.64%).

Next, the whole period arithmetical mean of ROE of these TT companies is higher than the lending interest rate from banks. This positive

sign is expressed with the value of ROE, a two digit number of 11.89% while the lending interest rate this time is a one digit number of less than 9% [16]. So it can be said that most of these firms use their loans effectively because their benefits can cover the lending interest rate. The most impressive cases are FPT and DGW with their arithmetical means of ROE being higher than 32% and 25%, respectively. Besides, ELC and TIE also have their arithmetical mean of ROE a two digit number. However, the rest of the TT enterprises have their indexes as a one digit number and lower than the lending interest rate, including CMT (which is at 6.59%), CMG (at 4.69%) and especially SGT with this ratio at negative value (in 2011 and 2012). In other words, their benefits could not cover the lending interest rate.

Table 6. Return on sales

Unit of measurement: Time.

JSCs	2011	2012	2013	2014	2015	Average
1. ELC	22.03	22.39	7.86	17.82	9.97	16.01
2. TIE	7.73	8.6	14.44	3.41	3.7	7.58
3. FPT	8.01	7.86	7.51	6.25	6.23	7.17
4. DGW	2.48	2.83	1.62	2.58	2.44	2.39
5. CMT	2.99	1.87	2.71	2.27	1.64	2.30
6. CMG	-3.66	0.39	0.80	3.61	3.69	0.97
7. SGT	-181.03	-107.88	0.06	8.73	5.79	-54.87
TAM	-20.21	-9.13	5.00	6.38	4.78	-2.64

Source: Data are calculated based on audited financial statements of enterprises.

Table 7. Return on assets

Unit of measurement: Time.

JSCs	2011	2012	2013	2014	2015	Average
1. FPT	15.26	13.62	12.99	10.34	10.01	12.44
2. TIE	10.47	10.03	15.85	3.39	3.09	8.57
3. DGW	6.68	7.73	5.56	11.28	8.16	7.88

4. ELC	10.01	11.15	3.78	6.08	6.55	7.51
5. CMT	4.01	1.72	3.87	3.26	3.01	3.17
6. CMG	- 6.00	0.62	1.37	6.88	6.92	1.96
7. SGT	- 4.73	- 11.89	0.009	1.59	1.26	- 2.75
TAM	5.10	4.71	6.20	6.12	5.57	5.54

Source: Data are calculated based on audited financial statements of enterprises.

4.3. The relation between operational efficiency with profitability

After considering both OE and profitability of TT JSCs listed on the HOSE, this study draws some findings as follows.

Firstly, OE is a necessary condition to increase profitability. Generally, there is a direct proportion between OE and profitability; or a strong OE is a premise for the creation of a high profitability. This is proven in a rich OE company that has a high profitability and vice versa. As analyzed above, DGW and FPT are always the two leading firms in OE while SGT often stands at the last place. DGW and FPT are also two (out of three) leading subjects in profitability with the TAM period of ROA at 12.44% and 7.88%, respectively. SGT is the lowest with its arithmetical mean period nearly minus 3% and higher than minus 10% of ROA and ROE, respectively (even so, its arithmetical mean period of ROS more than minus 54%).

Table 9 and Table 10 show that, three independent variables including TAT and ET, Equity and Sales are directly proportional with ROA, ROE and ROS and have at least a 99% statistical meaning. This means that, a company which has a high level of OE (and Equity together with Sales) also has a big profitability and vice versa. Two other variables, consisting of Assets and ER, are inversely proportional with ROA (or ROE and ROS) and have a minimum 95% statistical meaning. In other words, big scales of capital and highly independent JSCs have a small profitability. This result is similar to the results in Item 4.1, when these two variables are inversely proportional with OE which is represented by TAT or ET.

Table 8. Return on equity

Unit of measurement: Time

JSCs	2011	2012	2013	2014	2015	Average
1. FPT	43.75	33.92	30.84	27.5	25.08	32.22
2. DGW	21.56	23.44	18.68	43.76	22.03	25.89
3. ELC	20.02	18.31	5.45	9.34	10.27	12.68
4. TIE	13.33	12.37	21.11	4.84	4.55	11.24
5. CMT	8.18	3.64	8.04	6.75	6.35	6.59
6. CMG	- 16.35	1.72	3.95	19.12	15.02	4.69
7. SGT	- 14.55	- 48.33	0.039	6.86	5.56	- 10.08
TAM	10.85	6.44	12.59	16.88	12.69	11.89

Source: Data are calculated based on audited financial statements of enterprises.

Table 9. Regression ROA with TAT, Assets, Equity, ER and Sales

```
. reg ROA TAT Asset Equity ER Sales
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Source	SS	df	MS			
Model	.095197436	5	.019039487	Number of obs =	168	
Residual	.064117268	162	.000395786	F(5, 162) =	48.11	
Total	.159314703	167	.00095398	Prob > F =	0.0000	
				R-squared =	0.5975	
				Adj R-squared =	0.5851	
				Root MSE =	.01989	

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TAT	.0442802	.0076701	5.77	0.000	.0291339	.0594265
Asset	-.0000112	3.26e-06	-3.43	0.001	-.0000176	-4.73e-06
Equity	.0000274	7.09e-06	3.87	0.000	.0000134	.0000414
ER	-.0388843	.0121213	-3.21	0.002	-.0628205	-.0149481
Sales	3.58e-06	1.58e-06	2.27	0.024	4.67e-07	6.70e-06
_cons	.036725	.0074083	4.96	0.000	.0220956	.0513544

Source: Result of regression by Stata 12.

Table 10. Regression ROE with ET, Assets, Equity, ER and Sales

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. reg ROE ET Asset Equity ER Sales
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Source	SS	df	MS			
Model	.734148733	5	.146829747	Number of obs =	168	
Residual	.32178993	162	.001986358	F(5, 162) =	73.92	
Total	1.05593866	167	.006322986	Prob > F =	0.0000	
				R-squared =	0.6953	
				Adj R-squared =	0.6859	
				Root MSE =	.04457	

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ET	.0456586	.0053596	8.52	0.000	.0350749	.0562423
Asset	-.0000145	7.10e-06	-2.04	0.043	-.0000285	-4.42e-07
Equity	.0000358	.0000156	2.30	0.023	5.00e-06	.0000666
ER	-.1032857	.0289691	-3.57	0.000	-.1604913	-.04608
Sales	8.62e-06	3.37e-06	2.56	0.011	1.96e-06	.0000153
_cons	.091835	.0171581	5.35	0.000	.0579527	.1257173

Source: Data are calculated from Stata 12

Secondly, although rich OE is a necessary condition to promote profitability, it is not a sufficient condition. This can be clearly seen with ELC, despite its second position from the bottom in OE, it stands at the third place in ROE (with the TAM period 12.86%) and takes the fourth rank for ROA (with TAM at 7.51%). Even so, the ROS of ELC is at the top of the seven TT JSCs (with TAM over 16%). Besides, in TIE, its arithmetical mean period of circulating turnover of total assets is only at the fifth rank (at 1.09 times) but its ROA climbs to the second position (at 8.57%) after FPT only. Contrarily, despite its rather low OE, ELC has managed costs better and increased profitability

at the third and fourth position of ROE and ROA, respectively. As mentioned in the literature review, OE refers to the circulating turnover of input elements or an ability to create sales while profitability relates to relevant cost management in creating sales. Many TT JSCs generate big sales or have a high circulating turnover of input elements but due to poor cost management, they fail to improve profitability.

From the qualitative and quantitative approach results in seven TT JSCs, it can be concluded that, a high OE can lead to high profitability but high profitability can also originate from a low OE.

5. Conclusions and policy implications

By analyzing the relationship between OE with profitability of TT JSCs listed on the HOSE in the 2011-2015 period, this study draws the conclusion that a high OE is only a necessary condition to improve profitability, not a sufficient one. In other words, a strong OE possibly causes great profitability, but huge profitability can also result from a moderate OE. Because a big profitability can be reached not only by raising sales but also by fair controlling (or reducing) of costs. If a company increases its sales but its operating costs also rise, it is certain that its profitability cannot be high.

From the above results, it is possible to come up with some policy implications for TT JSCs.

Firstly, TT JSCs should explore their resources in order to create more sales by raising the OE of assets, especially the current assets because these assets take a larger proportion in the structure of assets (on average over 64%). These firms have to consider between investing or leasing new equipment and suiting their current situation. Concretely, if the business environment is difficult or fewer contracts are signed, it is better to lease assets and vice versa. Besides, in order to increase sales, firms also need to raise the quality of their product or service, paying more attention to after-sales service as well. This is an effective way to increase the OE of a firm and is also a necessary condition to raise its profitability.

Secondly, these surveyed firms should restructure their assets. This movement aims to suit their business' features and lead to greater sales. A suitable structure for assets shows the reasonable using of capital and helps a company not only save its costs of mobilizing capital but also its mobilized capital. This also means a company promotes mobilized capital for its business operation or expands its scale of capital and assets as well. In other words, a reasonable structure of assets is a necessary condition for increasing sales.

Thirdly, along with increasing (or stabilizing) sales, these enterprises should reconsider costs which originate from the processes of production (such as: material supply, producing processes or service implementation) as well as non-production processes (selling costs, business administrative costs and financial costs) so as to save (or cut) these costs. In fact, many companies have to use different solutions to increase sales as well as OE but they also generate more costs which leads to them being unable to raise their profitability. Apart from that, some firms are only interested in raising sales which leads to a lack of interest in cost saving. As a result, despite their OE being raised, their profitability cannot be improved.

Finally, low OE firms should continue their tight cost controlling and keep their decreasing turnover of costs greater than the increasing turnover of sales. This would help companies improve considerably and stabilize their profitability.

By researching the relation between OE with the profitability of TT JSCs listed on the HOSE, this paper contributes both on certain theoretical (clarifying their links) and practical content (giving solutions to increase both OE and profitability). This study also describes partly the current business operation of these companies. Besides, while some firms overcame difficulties in the economic crisis period, there are others that still maintain their long weak business operation. With the above conclusions and implications, the research provides more or less interested people generally and TT JSCs in particular with information and helps them make decisions that are suitable for their benefit.

However, as the data of these TT JSCs being only for a five-year period, it is not long enough to have a large research sample. A related study in the future may be undertaken including more industries rather than the TT field only and a study over longer time would

predict more precisely a relationship between OE with profitability and elements which affect them in companies.

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