

THE INFLUENCE OF E-BUSINESS ON CORPORATE PERFORMANCE THROUGH OPERATIONAL COMPETENCE AS THE INTERVENING VARIABLE

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Abstract

This study was conducted to determine whether e-business had any significant influence on corporate performance mediated by operational competence as the intervening variable. The samples of this study included 60 companies in the financial industry listed on the Indonesian Stock Exchange. A SEM-PLS analysis was administered to test the hypotheses proposed in this study. The results of this study showed that (1) e-business influenced the corporate performance and corporate operational competence (2) operational competence influenced the corporate performance (3) operational competence partially mediated the influence of e-business on corporate performance.

Keywords: E-business, operational competence, ROA, ROE, Indonesia

INTRODUCTION

In this modern era, technology grows at a rapid rate. The advancement in technology, directly and indirectly, influences the trading system, transactions, and money circulation. Before the era of technology advancement, transactions used to be done traditionally directly from hand to hand, between buyers and sellers. They made face to face transaction in which two parties set up a certain agreement. Currently, the advancement in technology eliminates some factors that used to limit traditional transaction including facilities, distance, space and time. Nowadays, customers can find and any goods from anyone within their fingertip without being restricted by all those constraints. This easiness boosts the development of E-business and e-business

becomes increasingly important along with the rapid advancement of information and telecommunication system.

The website is one of affordable e-business platform that provides information within vast coverage. The website also allows anyone from all over the world to get access to information as long as an internet connection is available.

Many companies invest a massive amount of capital in technology advancement within its operational activities in order to establish better capability and competitiveness (Benitez-Amado & Walczuch, 2012; Chae, Koh, & Park, 2017; Chen et al., 2014; Kim, Shin, Kim, & Lee, 2011). Even though, the massive investment in technology advancement sometimes does not run as expected (Carr, 2003).

A number of studies have been done, with the main focus on the influence of IT on supply chain and manufacturing activities (Ajamieh, Benitez, Braojos & Gelhard, 2016; Devaraj, Krajewski, & Wei, 2007; Sanders, 2007). Yet, those studies have not yet provided clear limitation about the influence of IT investment on corporate operational capability and performance (Benitez, Chen, Teo, & Ajamieh, 2017). The significant gap within a dynamic relationship between IT and operational capability and its influence on corporate performance has intrigued the researcher to conduct a study on this issue.

The focus of this study was on the role of IT which was reflected in e-business technology which is a part of IT Capability Investment (Chae, *et. al.*, 2007). This study also investigated how IT affects business value. E-business technology has been able to improve the company operational management system by allowing real-time information exchange in any part of the supply value chain (Benitez et al., 2017; Devaraj et al., 2007; Setia & Patel, 2013).

On the other side, Carr (2003) claims that regardless of how much investment in IT capability is made, it would not significantly influence the corporate performance since IT is already a common commodity that any big companies can afford. This fact reduces the potential of making the profit from either the operational domain or financial domain.

The effort to make IT investment aiming at the right target to fulfill the company's expectation and effort to improve corporate competitiveness from the investment is challenging. Company management should carefully build IT infrastructure that effectively improves the corporate performance, especially financial performance (Ajamieh et al., 2016; Kim et al., 2011; Pan, Pan, & Lim, 2015; Wang, Chen, & Benitez-Amado, 2015).

Regarding the corporate operational management system, this study focused on analyzing corporate operational capability (Setia & Patel, 2013) which refers to the ability of a company in utilizing its operational capability. Based on a study done by (Tatikonda, Terjesen,

Patel, & Parida, 2013), operational competence is measured by several indicators, one of which is the gross margin.

Furthermore, this study also attempted in determining whether e-business influences corporate performance through operational competence as the intervening variable. The subjects of this study included all companies in the financial industry which are listed on the Indonesian Stock Exchange.

This paper is divided into five sections. Section one describes the literature review, the framework of the study and the formulation of hypotheses. The second section explains the method of the study, including the explanation on the sample of the study and operational definition of the variable. The third section shows the result of the empirical study. The fourth section presents the analysis, discussion and the conclusion of this study. The last section states the limitation of the study and suggestions for further research.

LITERATURE REVIEW

E-Business and Operational Competence

E-business refers to business activities that employ internet technology. E-business allows a company to interact with its consumers through both internal and external data processing in a more efficient and flexible way. (Devaraj *et.al.*, 2007) state that e-business capability of a company deals with the ability of a company to utilize internet technology in information exchange, transaction process, coordination, and in facilitating interaction between customers and supplies (Louis & François, 2008; Sanders, 2007)

E-business technology allows companies to develop their operational competence by increasing the operating profit margin (Benitez et al., 2017; Chae et al., 2017; Chen, Wang, Nevo, Benitez, & Kou, 2017; Wu, Yenyurt, Kim, & Cavusgil, 2006). Using the web-based technology, companies are able to perform real-time, accurate and on-time information exchange including information related to the price and products shared to suppliers from the upper course to the lower ones (Benitez, *et.al.*, 2017), enabling companies to manage its operational margin more effectively and efficiently (Devaraj et al., 2007; Wu et al., 2006).

Benitez et.al (2017) found out that e-business technology positively influences corporate operational competence. Moreover, other researchers have also confirmed that e-business has the certain influence on corporate operational performance (Devaraj et al., 2007; Louis & François, 2008; Setia & Patel, 2013; Tatikonda et al., 2013). Regarding those views, the first hypothesis of this study was formulated as follows.

H1: E-business positively influence corporate operational competence

E-Business and Corporate Performance

E-business offers a brand new way of communication which is more flexible to create a new market for the stakeholders (Konings & Roodhooft, 2002). In a study done by Konings & Roodhooft (2002), e-business has been found to have a positive influence on corporate performance. This finding goes in line with a study conducted by Mishra (2011) in which e-business network has been confirmed to have a significant influence on corporate performance. Superior e-business capability might turn into an intangible asset for a company (Bharadwaj, Bharadwaj, & Konsynski, 1999). It also supports the improvement of corporate performance (Bi, Davison, & Smyrnios, 2015, 2017). Results of some empirical studies indicate that e-business has a positive influence on corporate performance, both in operational performance and financial performance (Chen et al., 2017; Chen et al., 2014; Kim et al., 2011; Mithas, Tafti, Bardhan, & Goh, 2012; Schlosser, Beimborn, Weitzel, & Wagner, 2015). Based on the explanation above, the second hypothesis of this study was formulated as follows.

H2: E-business positively influences corporate performance

E-business, Operational Competence and Corporate Performance

Corporate performance improves when a company is able to increase its operating profit margin (Benitez-Amado & Walczuch, 2012). Hence, better management of operating margin improves corporate performance (Tatikonda et al., 2013).

H3 : Operational Competence positively influences Corporate Performance

On the other side, IT investment in the form of e-business technology also reinforces the corporate performance (Chae et al., 2017; Chen et al., 2017; Sanders, 2007). This occurs since the accommodation of e-business technology makes information access easier (Benitez et al., 2017).

Regarding the results of previous studies, this study was intended to examine whether e-business has any influence on corporate performance, especially the improvement in financial performance mediated by operational competence. The third hypothesis of this study was formulated as follows.

H4: E-business positively influences corporate performance through operational competence

Referring to the background, literature basis, and hypothesis formulation, a model has been proposed in this study, showing the correlation among E-business, Operational Competence, and Corporate Performance. The model shows both direct and indirect influence on the correlation between e-business and corporate performance. Indirect influence indicates the

presence of influence between those two variables mediated by operational competence as the intervening variable.

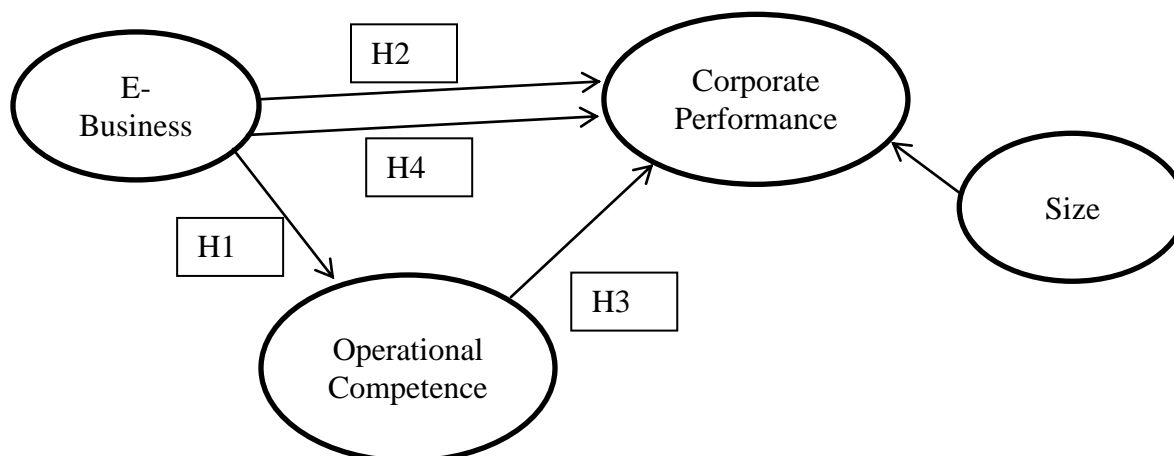


Figure 1. Proposed Model of Research

METHOD

Population and Sample

The proposed model was tested using the secondary data obtained from the database of the Indonesian Stock Exchange (IDX) (<http://www.idx.co.id>). The secondary data were in the form of a financial report of Indonesian companies' corporate performance Indonesian Capital Market Directory / ICMD) and the information was retrieved from the official corporate websites.

The population of this study included companies in the financial industry listed on the Indonesian Stock Exchange (IDX). Sampling was done using a purposive sampling method, in which 60 companies of the 2014-2016 period were selected as the samples. The sampling was done based on these following criteria.

1. The company runs an official corporate website
2. The company released a complete financial report
3. The corporate financial report is marked positive

Operational Definition and Variable Measurement

Corporate Performance

Corporate performance is the dependent variable of this study. In this study, corporate performance refers to the financial performance of a company. Financial performance can be

measured by the return on assets (ROA) and return on equity (ROE). Both ROA and ROE were employed to measure the variables as they are valid indicators that reflect the financial performance of a company. Thus, the two measurements were considered valid in representing the corporate financial performance.

E-business

E-business is the independent variable of this study. E-business variable was measured using 26 indicators adopted from Benitez *et.al.*, (2017) by calculating the accumulation of e-business services in each company to interact with its customers and suppliers. The information was obtained from official corporate websites.

Operational Competence

The second independent variable of this study is operational competence. Operational competence is the percentage of gross profit against the total sale. In this study, this variable was measured using the Operating Profit Margin ration. This indicator was adopted from a study done by Tatikonda *et .al.*, (2013).

Size

In order to obtain good internal validity, a researcher should put another variable outside the proposed hypotheses into control as the variable might influence the latent endogenous variable (Sholihin & Ratmono, 2013). The controlling variable of this study is the company size. In order to obtain data related to the normally-distributed total asset, the total asset value was converted using the log natural from the company total asset.

Analysis Technique

A Structural Equation Modelling (SEM) is a type of multivariate analysis which was employed as the statistical analysis technique in this study (Sholihin & Ratmono, 2013). The analysis was conducted using WarpPLS version 3.0 software. Furthermore, PLS was also administered to test the hypothesis of this study and to examine both direct and indirect influences in the proposed model. The use of SEM-PLS as the estimation method regards the fact that SEM-PLS have been proven valid in simultaneously testing complex methods and they are also able to analyze variables which cannot be directly measured (Henseler, Hubona, & Ray, 2016), besides they also include the margin of error calculation (Hair Jr, Hult, Ringle, & Sarstedt, 2016).

ANALYSIS AND FINDINGS

Evaluation of the Measurement Model (*Outer Model*)

This model specifies the correlation between latent variables and their indicators. In the other words, the outer model defines how each indicator correlates with its latent variable. The evaluation was done in this study as validity and reliability tests. The result of the PLS analysis on the outer model is presented in Table 1 and Table 2.

Validity Test

The interpretation of the validity test can be seen from the combined loading, cross loading and Average Variances Extracted (AVE) as follows.

Table 1. The Results of Validity Test

INDICATOR	CONSTRUCT				SE	P Value
	EB	OC	FP	SIZE		
EB	1.000	0.000	0.000	0.000	0.083	<0.001
OPM	0.000	1.000	0.000	0.000	0.084	<0.001
ROA	-0.128	0.143	0.883	-0.324	0.171	<0.001
ROE	0.128	-0.143	0.883	0.324	0.101	<0.001
SIZE	0.000	0.000	0.000	1.000	0.062	<0.001

Source: Output of WrapPLS 3.0, 2017

There are two criteria to justify whether the external model meets the convergent validity requirements for the construct; loading value must be greater than 0.70 and the p-value should be significant (<0.05). In addition, AVE value should be greater than 0.50 (Hair Jr et al., 2016). The loading value is required to be greater than 0.70 because the limiting latent variable should be able to at least explain the variance of each indicator by 50% (Sholihin & Ratmono, 2013).

Table 2. The Result of Validity Test

CONSTRUCT	AVE
EBT	1.000
OC	1.000
FP	0.883
SIZE	1.000

Source: Output of WrapPLS 3.0, 2017

Tables 1 and 2 show that e-business (EB), operational competence (OPM), Financial Performance (ROA and ROE), and company size (SIZE) variables have met the convergent validity requirements as their loading values are greater than 0.70 and p values are significant (<0.01). When AVE value is compared to each construct, the value is also greater than 0.50, indicating that the construct has adequate discriminant validity.

Reliability Test

The validity test can be interpreted from two measures of the reliability of research instruments, namely Composite reliability coefficients and Cronbach's alpha coefficient. Both coefficients should be greater than 0.70 regarding the minimum requirement of a reliable construct (Hair Jr et al., 2016). The results of the reliability test are shown as follows.

Table 3. The Result of Reliability Test

	EB	OC	FP	SIZE
Composite Reliability	1.000	1.000	0.876	1.000
Cronbach's Alpha	1.000	1.000	0.717	1.000

Source: Output of WarpPLS, 2017

It can be seen in Table 3 that the EB composite reliability coefficient value is 1.000, OC is 1.000, FP is 0.876, and SIZE is 1.000. The Composite reliability coefficients of each construct have fulfilled the predetermined requirements, which should be greater than 0.70. While Cronbach's alpha value of EB is 1.000, OC is 1.000, FP is 0.717, and SIZE is 1.000. Thus, it can be concluded that each value of each construct has met the predetermined requirements of a reliable construct.

Model Evaluation (*Inner Model*)

Partial Least Square analysis was administered to measure the structural model (inner model) using WarpPLS version 3.0 program, which result is presented as follows.

Table 4. The Result of Model Evaluation (*Inner Model*)

Model	<i>R-Squared</i>	<i>Q-Squared</i>
Corporate Performance (FP)	0.588	0.605
Operational Competence (OC)	0.188	0.193

Source: Output of WarpPLS, 2017

Goodness fit of the structural model (inner model) is indicated by the R-squared value. Table 4 shows the R-Squared value for Corporate Performance (ROA and ROE) is 0.588. It implies that the e-business variable and operational competence explain 58.80% of corporate performance, while the remaining 41.20% is influenced by other factors that are not discussed in this research model. Furthermore, the R-Squared value for operational competence is 0.188 which means that e-business explains 18.80% of the operational competence variable, in which the rest 81.2% is under the influences of factors which are not discussed in this study.

Q-squared is a non-parametric measure which is obtained from blindfolding algorithm. Q-squared aims to measure how far the constructed model predicts the variable (Hair Jr et al., 2016). It can be inferred from the data that Q-squared value for the company's performance which is 0.605 indicates that the proposed model has adequate predictive relevance since Q-squared value > 0 (Sholihin & Ratmono, 2013). Exogenous variables such as e-business variable and operational competence also have predictive relevance to the company's performance variables. The Q-squared value for operational competence is 0.193 and it shows that the proposed model in this study has predictive relevance since Q-squared value > 0. As an exogenous variable, e-business has predictive relevance on operational competence.

Hypotheses Testing

Hypotheses testing was done by analyzing the path coefficient to examine the effect of a latent variable using the bootstrapping method, which results are presented in tables 5 and 6. Whereas, the result of analysis on a structural model of the study using WarpPLS 3.0 can be seen in Figure 2.

Table 5. Path analysis

<i>Path</i>	<i>Path Coefficient</i>	<i>P-Values</i>	Margin of Error	Note
EB→OC	0.433	<0.001	0.075	Strong and Significant
EB→FP	0.502	<0.001	0.092	Strong and Significant
OC→FP	0.491	<0.001	0.081	Strong and Significant
EB'→FP	0.322	<0.001	0.097	Strong and Significant

Source: Output of WarpPLS, 2017

Table 6. The Relationship of Controlling Variable

<i>Path</i>	<i>Path Coefficient</i>	<i>P-Values</i>	Standard of Error	Note
SIZE→FP	-0.136	0.141	0.125	Weak and Insignificant

Source: Output of WarpPLS, 2017

Table 7. VAF Measurement

Description	<i>path coefficient</i>
Direct Influence	0.502
Indirect Influence (0.322*0.491)	0.158
Total Influence	0.660
VAF (Direct Influence/Total Influence)	0.760

Source: Output WrapPLS, 2017

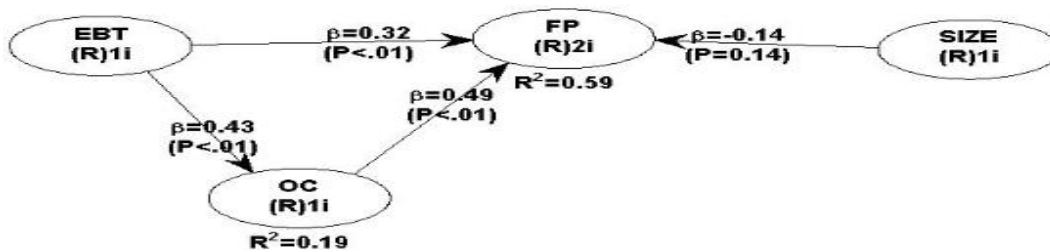


Figure 2. The Structural Model

Effect size is categorized into three categories: weak (0.02), medium (0.15) and strong (0.35) (Hair Jr et al., 2016; Kock, 2014). The effect size value below 0.02 shows that the influence of the latent variable predictor is very weak even though the p-value is significant (Sholihin & Ratmono, 2013).

H1:: E-business positively influences the operational competence

Based on the result of the hypothesis testing presented in Table 5, e-business has a certain influence on operational competence. It is implied by the path coefficient of 0.433 with a p-value of 0.000 <0.01 that e-business has a strong and significant influence on operational competence. Therefore, it can be assumed that the higher the e-business owned by the company, the higher the operational competence. Regarding the result of the hypothesis testing, hypothesis 1 is accepted.

H2:: E-business positively influences corporate performance

In the hypothesis testing, the direct influence test had been previously performed prior to the involvement of the intervening variable. The result indicated the presence of e-business influence on corporate performance. It can be inferred from table 5 that e-business influences the corporate performance. Hypothesis testing can be concluded from the path coefficient of 0.502 with a p-value of 0.000 <0.01, showing that e-business has a strong and significant

influence on corporate performance. Hence, it can be assumed that the higher the e-business owned by the company, the higher the corporate performance. Based on these results it can be stated that hypothesis 2 is accepted.

H3:: Operational competence positively influences the corporate performance

Table 5 shows that operational competence has an influence on corporate performance. The path coefficient of 0.491 with the p-value of 0.000 <0.01 means that e-business has a strong and significant influence on operational competence. Thus, the higher the e-business owned by the company, the higher it's corporate performance. Regarding this result, hypothesis 3 is accepted.

H4: E-business positively influences the corporate performance through operational competence

Hair Jr et al (2016) stated that the method developed by (Preacher & Hayes, 2008) is likely more suitable for SEM-PLS for it has higher statistical power than the method developed by Sobel. If a direct significant is found in the first test, the mediating variable can be inserted into the model. In this study, the results of the test showed that the indirect effect was significant. Thus, the value of Variance Accounted For (VAF) was then calculated. The results of the calculation of VAF values can be seen in table 7. VAF value was found at 0.76, indicating that operational competence shares a partial mediation (Hair Jr et al., 2016). Therefore, it can be stated that hypothesis 4 is accepted.

Investment in IT can improve the operational and financial performance of a company (Chae et al., 2017; Chen et al., 2014). This happens as adequate IT capability enables a company to obtain and exchange real-time information which supports company performance (Devaraj et al., 2007; Kim et al., 2011; Louis & François, 2008; Mishra, 2011; Sanders, 2007).

This study focuses on examining the influence of e-business on corporate performance by conducting tests using panel data on a sample of 60 companies in financial sector service industry listed in the Indonesia Stock Exchange (IDX).

The first finding shows that e-business owned by the company has a significant influence on corporate operational competence. Companies that have good e-business capabilities also have adequate ability to manage their margins to earn maximum profit. This result goes in line with the findings of previous studies which reported that IT capability has an influence on both operational competence and operational performance (Setia & Patel, 2013; Wang et al., 2015; Wu, Mahajan, & Balasubramanian, 2003; Wu et al., 2006).

IT / e-business capability is known to give a real contribution to corporate performance. Results of empirical studies show that e-business has a significant influence on corporate performance. It means that companies that have e-business tend to have better corporate performance, especially in the terms of financial performance profit making.

The results of this study support the studies conducted by (Ajamieh et al., 2016; Bharadwaj et al., 1999; Bi et al., 2015, 2017; Chen et al., 2014) which report that IT capability which in this context refers to e-business has an influence on corporate performance. Operational competence of a company is stated adequately if the company has a good operating profit margin. Operating profit margin is a financial ratio that shows a company's ability to generate profits. It can be concluded that the greater the operating profit margin of a company, the better its financial performance (Benitez et al., 2017).

Empirical data obtained in this study show that operational competence has a significant influence on corporate performance. This result is supported by a number of previous studies in which operational competence has been confirmed to have certain influence on corporate performance (Benitez-Amado & Walczuch, 2012; Devaraj et al., 2007; Kim et al., 2011; Konings & Roodhooft, 2002; Pan et al., 2015; Tatikonda et al., 2013). The last empirical results show that operational competence partially mediates the relationship between e-business and corporate performance.

CONCLUSIONS

In the modern era, the E-business phenomenon is a phenomenon that has been highly developed especially in the country of Indonesia. Regarding the analysis and the discussion of this study, it is confirmed that e-business shares a positive influence on operational competence and corporate performance. Whilst, operational competence also has a positive influence on corporate performance. Finally, operational competence has been found as an intervening variable that partially mediates the relationship between e-business and corporate performance. The results of the study show how important the role of E-business is for the business operations of a company especially in the financial services sector. In practice, this sector must be aware that companies must improve e-business technology-based services that focus on supplier and customer value chains which will ultimately improve the company's financial performance so that the company's value will also increase. This is in accordance with accounting theory which has a basic assumption in every business situation, namely going concern which means that the company can operate indefinitely.

LIMITATIONS AND FURTHER RESEARCH

There are no studies that are free from limitations. This study suffers from several limitations including the limited number of samples in which only companies of financial sector service industry were involved. In addition, the research period is only in a three-year period. This study also involved limited indicators to explain the construct of this study. Future researchers are encouraged to increase the number of indicators in order to obtain a better explanation of the construct. They are also suggested to involve longer research period for at least 5 years and the samples should not only be selected from one industry.

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