The Effect of Implementation of E-Commerce System, Customer Relationship Management (CRM) and Investment Product Quality on Customer Loyalty and Company Performance

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Abstract
The objective of this study is to determine the effect of implementation of e-commerce system, customer relationship management (CRM) and investment product quality on customer loyalty and company performance. The population of this study is the employees of PT Danareksa Investment Management. The number of samples in this study are 40 respondents. The questionnaires were distributed to the respondents by using saturation sampling technique. This study used multiple linear regression analysis method in conduct the research. T-test was used to determine the effect of partial and significance between one independent variable to one dependent variable and F-test was used to know the effect and significance between some independent variable to one or more dependent variable. The result of this study shows that e-commerce system (X1), customer relationship management (CRM) (X2), and investment product quality (X3) positively and significantly have effect on customer loyalty (Y1) and company performance (Y2). Based on the results, the company needs to improve e-commerce application systems, optimize the implementation of CRM systems and investment product quality to be more competitive.

Keywords: E-Commerce, CRM, Investment Product Quality, Customer Loyalty, Company Performance

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Introduction

PT Danareksa Investment Management (DIM) was established in 1992 as a subsidiary of PT Danareksa (Persero) which has been operating since 1976, as an Investment Bank, a non-bank financial institution owned by the Government of Indonesia. DIM is the pioneer of Mutual Fund industry in Indonesia. In 1996, DIM launched the first Indonesian mutual fund Danareksa Mawar, Danareksa Anggrek and Danareksa Melati.

The more investment products issued by the Investment Managers (MI) in the mutual fund industry market and the better competing competitor's product performance then the quality of DIM's investment products should have better product performance or net asset value (NAV) by investors.

Implementation of e-commerce system and CRM is an information system solution that is expected to help market and improve the sale of investment products to investors and can improve customer loyalty and corporate performance.

Based on the description above, the research will focus more on how the effect of e-commerce system implementation, CRM and investment product quality on increasing customer loyalty and company performance. DIM's investment products must have a good product performance and increase over time so as to attract new investors and retain old investors. There is an investment product that needs to be upgraded to become a superior in the investment or mutual fund market. It becomes a challenge for the Marketing and Sales Agent (SA) in offering or selling the investment product to the more conscientious and selective customer on selecting the investment product.

This study discusses the factors that are expected to influence or improve customer loyalty and company performance with the implementation of e-commerce system, CRM and maintain quality of investment products. The research respondents involved are employees of each unit and partner in PT DIM who are related to the use of e-commerce systems, CRM systems or the ownership of DIM's investment fund (mutual funds).

Literature Review

E-Commerce

Today and the future, information technology will play an important role in improving the quality of services provided by businesses. One technology that truly brings the information revolution in the community is internet technology and it is rightly considered the third wave of revolution after the agricultural and industrial revolutions. The foremost part of business today is e-Commerce. Effect of e-commerce has emerged in all areas of business, ranging from customer service to new product design.

Understanding E-Commerce according to David Baum written in the book Darussalam (2007) namely: "E-Commerce as one set of dynamic technologies, applications, and business processes that connect the company, consumer and a

particular community through electronics transactions and trade in goods, service and information made electronically ".

E-commerce can be categorized as follows:

Table 1. Different Models of e-Commerce

	C (Consumer)	B (Business)	G (Government)
C Consumer)	C2C	C2B	C2G
B (Business)	B2C	B2B	B2G
G (Government)	G2C	G2B	G2G

Waghmare (2012) has defined the following types of e-commerce:

- B2B E-Commerce:

Companies that do business with each other.

- B2C E-Commerce:

Businesses that sell to the general public.

- C2C E-Commerce: There are many sites that offer free classified ads, auctions, and forums where individuals can buy and sell.
- Others: G2G (Government to Government), G2E (Government to Employees), G2B (Government for Business), B2G (Business to Government).

According to Gaertner and Smith (2001), the results of the literature and empirical studies of issues that can be identified with respect to E-Commerce advantages and disadvantages include:

1. Finance and sales
2. Purchase
3. Convenience and information
4. Administration and communication.

Judging from the theory studied by Gaertner and Smith, the authors are interested to use the variables that exist, because the identification of profit and loss for the seller can be associated with the perspective of company performance.

Customer Relationship Management (CRM)

CRM is a strategy that focuses on creating customer satisfaction and long-term relationships by integrating multiple functional areas of the company to achieve competitive advantage (Payne & Frow, 2005).

According to Kotler and Keller (2009), Customer Relationship Management (CRM) is the process of managing detailed information about each customer and carefully managing all the "touch points" of customers in order to maximize customer loyalty. There are four key capabilities in CRM strategy (Gordon, 2002): technology (technology that supports CRM), people (skills, abilities and attitudes of people who manage CRM), processes (processes used by companies to access and interact with customers in create new value and satisfaction).

Sheth, Parvatiyar and Shainesh (in Ariyanti, 2006; Natalia, 2009; Mokodongan, 2010; and Ardiyhanto, 2011) suggest that there are three CRM programs that must be applied to achieve the objectives:

1. Continuity marketing is a marketing program that is nurturing to maintain and enhance customer loyalty.
2. One to one marketing is an individualized marketing program aimed at satisfying the unique needs of customers.
3. Partnering Program is a program in which a company engages in a partnership in the form of cooperation with other parties to serve and meet customer needs.

Product quality

According to Kotler and Armstrong (2012) the meaning of product quality is the ability of a product to perform its functions, it includes the product's overall durability, reliability, precision, ease of operation and repair, and other valued attributes. Product quality dimensions according to Mullins, Walker, and Larréché, (2005) consist of Performance (performance) that is related to the basic operating characteristics of a product; Durability, which means how long the product lasts before it has to be replaced; Conformance to specifications, ie the extent to which the product meets the specifications or does not find defects in the product; Features, are product characteristics designed to improve product functionality or consumer interest in the product; Reliabilty, is the probability that the product will work satisfactorily or not within a certain period of time; Aesthetics, related to how the product looks; Perceived quality, is often the result of the use of measurements made indirectly because there is a possibility that consumers do not understand or lack of information on the product.

Customer Loyalty

According to Griffin (2003), consumer loyalty is more related to behavior than with attitude. A loyal customer is a person who undertakes the activity of purchasing goods or services that meet the following criteria: repurchase periodically, purchase other products offered by the same manufacturer, recommend the product or service to others.
According to Kotler and Keller (2009) also defines customer loyalty as the long term success of a particular customer. Through this definition, Kotler and Keller wants to explain that consumers will be loyal measured through the following three things: Word of mouth: recommending others to buy; Reject another: refuse to use another product or show immunity to the pull of a competitor; Repeat purchasing: how often to re-purchase. Success or failure of a company in creating a loyal customer depends on the company's ability to create value and continually strive to improve it.

Company performance

There are several methods of measuring company performance that can be used as a reference. Wade, Porac, Pollock, and Graffin (2006) in his research measure the performance of the company from the financial side (Accounting Measures) that is by using the Return Marker and Return on Equity (ROE). To calculate Market returns as the company's total annual stock, assuming the dividend is re-invested.
Changes in the business world cause the financial performance is no longer adequate in measuring company performance. The company needs a method that can measure the overall performance. Balanced Scorecard pioneered by Kaplan and Norton (1992)

is a method of measuring company performance that focuses on both financial and nonfinancial aspects.

Balanced Scorecard is a management, measurement, and control system that can give managers an understanding of business performance in financial, customer, internal business and learning and growth perspectives.

Framework

The theoretical framework of this paper is presented below.

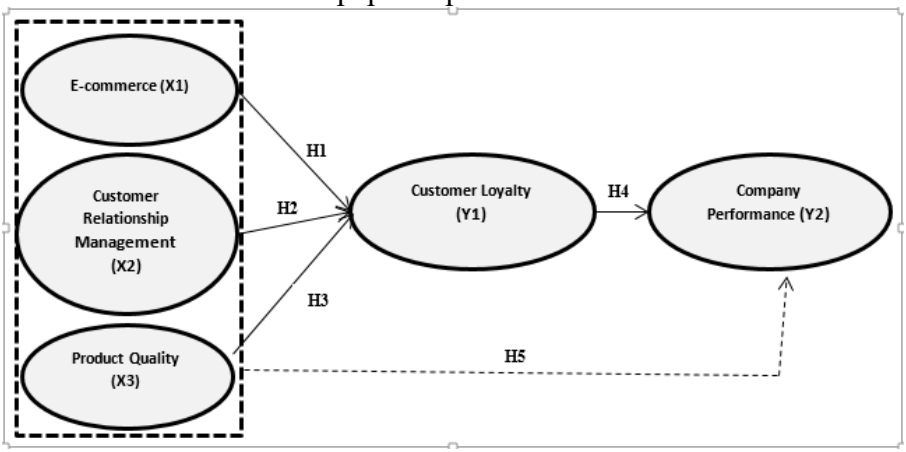


Figure 1. Theoretical Framework

According to the backgrounds and literature review, to find out the result of this study, some hypotheses have been proposed.

1. H1: E-commerce system has positive effect on customer loyalty.
2. H2: CRM has positive effect on customer loyalty.
3. H3: Investment Product Quality has positive effect on customer loyalty.
4. H4: Customer loyalty has positive effect on company performance.
5. H5: E-commerce system, CRM and investment product quality have positive effect on company performance.

Methodology

This study used questionnaire to collect the data. The population of this study is the employees of PT Danareksa Investment Management. By using non probability sampling method that is saturation sampling, obtained 40 respondents who are all members of the population. The questionnaires were distributed to the respondents using a software tool (google forms) through the Company's internal network.

The variables used in this study are identified as follows:
1. Y2: Company Performance as dependent variable
2. Y1: Customer Loyalty as intervening variable
3. X1: E-Commerce system as independent variable
   X2: CRM as independent variable
   X3: Investment Products Quality as independent variable

The variable of E-commerce application system is measured using Gaertner and Smith's theory (2001), CRM system is measured using Sheth, Parvati yar and Shainesh (in Ariyanti, 2006; Natalia, 2009; Mokodongan, 2010; and Ardiyhanto, 2011). The quality of investment products is measured using theories of Mullins et al. (2005). Customer Loyalty is measured using Kotler and Keller's theories (2009) and Company Performance variable is measured using the theories of Kaplan and Norton (1996).

Hypothesis data testing is conducted by using multiple linear regression method. But before going through the regression test, firstly tested the validity, reliability, and normality of the data. In the multiple linear regression method, the tests are divided into:

Partial Test (T Test)
Test T means to test the partial regression coefficient. This test is performed to determine the significance of the role partially between independent variables to the dependent variable by assuming that other independent variables are considered constant.

Simultaneous Test (F Test)
F test is used to test the influence of independent variables (independent) collectively to dependent variable (dependent).

Results and Discussion

Validity, Reliability, and Normality Tests

Validity and reliability tests are the process of testing whether the questions are already valid and reliable. If the questions are valid and reliable, then the questions are able to measure the factors. The results of validity test show that all items which consist of X1 as 9 items; X2 as 13 items; product quality (X3) as 7 items; customer loyalty (Y1) as 6 items; company performance (Y2) as 10 items have r-statistics greater than r-table as 0.3120. It means that all items are valid.
In reliability test, the results show each variable have cronbach's alpha value greater than 0.60. Based on Ghozali (2009), the data are reliable.

Table 2. Reliability Test

Variable	Reliability Statistics	
	Cronbach's Alpha	N of Items
X1	0.914	9
X2	0.932	13
X3	0.864	7
Y1	0.909	6
Y2	0.947	10

Normality test using Kolmogorov - Smirnov method

Based on the normality test using Kolmogorov - Smirnov method, the results obtained as below:

Table 3. Normality Test

Variable	Sig
X1	0.147
X2	0.148
X3	0.161
Y1	0.136
Y2	0.184

All variables show sig value greater than 0.05, so it can be concluded that the data has a normal distribution.

Analysis the effect of E-Commerce System (X1), CRM (X2) and Investment Product Quality (X3) on Customer Loyalty (Y1)

Table 4. Coefficient of Determination (R2) of X1, X2, X3 on Y1

Variable	R^2	Contribution
X1	.281	28.1%
X2	.596	59.6%
X2	.608	60.8%

From the table above, it showed that coefficient of determination (R2) X1 = 0.281 or 28.1%, so it can be concluded that the contribution of E-Commerce System on Customer Loyalty of 28.1% while the remaining 71.9% is the contribution of other factors.

The amount of coefficient of determination (R2) X2 = 0.596 or 59.6%, so it can be concluded that contribution of CRM on Customer Loyalty of 59.6% while the remaining 40.4% is contribution from other factors.

The amount of coefficient of determination (R2) = 0.608 or 60.8%, so it can be concluded that contribution of investment product quality on Customer Loyalty of 60.8% while the remaining 39.2% is contribution from other factors.

Simple Linear Regression

The relationship of variables E-Commerce System (X1), CRM (X2), Investment Product Quality (X3), on Customer Loyalty (Y1) can be partially seen from the value of beta or standardized coefficients in the following table.

Table 5. Coefficient

Variable	Constant	Beta	T
X1	6.412	.443	3.851
X2	.573	.433	7.480
X2	-.773	.844	7.673

The table above shows the simple linear regression equation between variable E-Commerce System (X1), CRM (X2), Investment Product Quality (X3), on Customer Loyalty (Y1) as follows:

1. Y1 = 6.412 + 0.443 X1

It can be explained that if there is no E-Commerce System (X1), then customer loyalty (Y1) will be 6.412 and the coefficient value of 0.443 explains that each addition of one value of variable X1 will increase customer loyalty by 0.443 times .

2. Y1 = 0.573 + 0.433 X2

It can be explained that if there is no CRM (X2), then customer loyalty (Y1) is 0.573 and coefficient number 0.433 explains that each addition of one value of variable X2 will increase customer loyalty equal to 0.433 times.

3. Y1 = -.773 + 0.844 X3

It can be explained that if there is no improvement of product quality (X3), then the increase of customer loyalty (Y1) is -0.773 and the coefficient number of 0.844 explains that each addition of one value of variable X3 value will increase customer loyalty (Y1) increase of 0.844 time.

Partial Test (T Test)

Test T is conducted to know the effect of E-Commerce system (X1), application of CRM system (X2) and Quality of investment product (X3) on Customer Loyalty (Y1).

The t-statistics of X1 is 3.851 and the t-table value at 0.05 is 2.024.

This shows that t-statistics > t-table (3.851 > 2.024) which means Ho is rejected. It can be stated that E-Commerce System (X1) has an effect on Customer Loyalty (Y1).

The t-statistics of X2 is 7.480 and the t-table value at 0.05 is 2.024.

This shows that t-statistics > t-table (7.480 > 2.024) which means Ho is rejected. It can be stated that CRM (X2) has an effect on Customer Loyalty (Y1).

The t-statistics of X3 is 7.673 and the value of t-table at 0.05 is 2.024.

This shows that t-statistics > t-table (7.673 > 2.024) which means Ho is rejected. It can be stated that Investment Product Quality (X3) has an effect on customer loyalty (Y1).

Analysis the effect of Customer Loyalty (Y1) on Company Performance (Y2)

Coefficient of determination (R2) of Customer Loyalty (Y1) on Company Performance (Y2) is 0.637 or 63.7%, so it can be concluded that the contribution of Customer Loyalty (Y1) on Company Performance (Y2) is equal to 63.7% while the remaining 36.3% is the contribution of other factors.

Simple Linear Regression

The relationship of Customer Loyalty (Y1) on Company Performance (Y2) can be partially seen from the value of beta or standardized coefficients in the table below.

Table 6. Coefficient of Y1 on Y2

Variable	Constant	Beta	T
Y1	15.940	1.075	8.170

Y2 = 15.940 + 1.075 Y1
From the above equation, it can be explained that if there is no Customer Loyalty, then Company Performance is 15.940 and the coefficient number 1.075 explains that each addition of one value of variable Customer Loyalty will increase Company Performance by 1.075 times.

Partial Test (T Test)
The value of t-statistics Y1 is 8.170 and t-table value at 0.05 is 2.024.
This shows that t-statistics > t-table (8.170 > 2.024) which means Ho is rejected. So it can be stated that the variable Customer Loyalty (Y1) has an effect on Company Performance (Y2).

Analysis the effect of E-Commerce system (X1), CRM (X2) and Investment Product Quality X3) on Company Performance (Y2).

Table 7. Coefficient of Determination (R2) of X1, X2, X3 on Y2

Model	R	R Square	Adjusted R Square
1	.836[a]	.698	.673

From the table above, the amount of coefficient of determination (R2) = 0.698 or 69.8%, so it can be concluded that the contribution of variables E-Commerce system (X1), CRM (X2) and Investment Product Quality X3) to increase Company Performance (Y2)is 69.8% while remaining 30.2% is contribution of other factors.

Table 8. Correlation Coefficient

		Correlations[a]			
		X1	X2	X3	Y2
Y2	Pearson Correlaion	.534**	.809**	.689**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	40	40	40	40
** Correlation is significant at the 0.01 level (2-tailed).					
* Correlation is significant at the 0.05 level (2-ailed).					

Based on the above table, obtained the results as follows:
There is a positive and significant relationship between variables E-Commerce system (X1), CRM (X2) and Investment Product Quality X3) to Company Performance (Y2), where at:
X1 value r (40) = 0.534; p < 0.01;
X2 value r (40) = 0.809; p < 0.01;
X3 value r (40) = 0.689; p < 0.01.

Multiple Linear Regression

The relationship of variables E-Commerce system (X1), CRM (X2) and Investment Product Quality X3) on Company Performance (Y2) partially can be seen from the value of beta or standardized coefficients in the table below.

Table 9. Coefficient X1, X2, X3 on Y2

Model		Standardized Coefficients		T
		B	Beta	
1	(Constant)	1.771		.365
	X1	.198	.176	1.673
	X2	.433	.574	4.004
	X3	.295	.203	1.506

The table above shows the multiple linear regression equation between the independent variables X1, X2, X3 to Y2 with the following equation:
Y2 = 1.771 + 0.198 X1 + 0.433 X2 + 0.295 X3
From the above equation, it can be explained that:
1) Constants of 1.771 means if the variables X1, X2 and X3 value is 0, then the value of Y2 is 1.771.
2) If variable X1 increases by one value assuming variable X2 and X3 remain, then Y2 will increase by 0.198. Coefficient of positive value means a positive relationship between X1 and Y2.
3) If variable X2 increases by one value with assumption variable X1 and X3 remain, then Y2 will increase by 0.433. Coefficient of positive value means a positive relationship between X2 and Y2.
4) If the variable X3 increases by one value assuming variable X1 and X2 remain then Y2 will increased by 0.295. Coefficient of positive value means a positive relationship between X3 and Y2.

Table 10. F-Test

Model		Mean Square	F
1	Regression	217.575	27.771
	Residual	7.835	
	Total		

The F-statistics is 27.771 with the significance level 5% which greater than F-table of 2.84. It means Ho is rejected or Ha accepted so it can be stated that the variables X1, X2 and X3 have significant effect on Y2.

Table 11. Summary of Research Results

From the results of research that has been done can be seen in the table as follows:

X	Y	Hypothesis Result	Percentage of Effect
E-Commerce (X1)	Customer Loyalty (Y1)	H1 accepted	28.1%
CRM (X2)		H2 accepted	59.6%
Investment Product Quality (X3)		H3 accepted	60.8%
Customer Loyalty (Y1)	Company Performance (Y2)	H4 Accepted	63.7%
E-Commerce (X1) CRM (X2) Investment Product Quality (X3)		H5 Accepted	69.8%

Based on the above table explains the results of research as follows;
X1 (e-commerce system) has an effect of 28.1% on Y1 (customer loyalty)
X2 (CRM) has an effect of 59.6% on Y1 (customer loyalty),
X3 (investment product quality) has an effect of 60.8% on the increase in Y1 (customer loyalty),
Y1 (customer loyalty) has an effect of 63.7% on (company performance) Y2
E-Commerce (X1), CRM (X2), Investment Product Quality (X3) have effect of 69.8% on Y2 (company performance).

Conclusion

This research is conducted to find out whether there is effect of implementation of e-commerce system, CRM and investment product quality on customer loyalty and company performance. Based on the results of the calculation and hypothesis testing in the previous chapter, then obtained the following conclusions:

1. Implementation of e-commerce system, CRM and investment product quality have significant effect on customer loyalty and company performance. This means that if the implementation of E-Commerce system, CRM and Investment Product Quality have increased then Customer Loyalty and Company Performance will also increase.
2. Customer Loyalty has a significant effect on company performance. This means that if Customer Loyalty improves then DIM's Business Performance will also increase.
3. Implementation of e-commerce system, CRM and investment product quality simultaneously have strong and significant effect on the increase of Customer Loyalty and Company Performance.

Recommendation

1. Suggestions for the managerial side of the DIM company
- The implementation of the E-Commerce system obtains a 28.1% appraisal by the respondents so that there is still a need to improve the services provided.
- Implementation of CRM and product quality of competitive investment will increase customer loyalty and company performance.

2. Suggestions for further researchers
- Increase the number of samples and add new indicators to obtain more accurate results.
- Researchers not only spread the questionnaire but do other instruments such as interviews in subsequent research.

Limitations of Research
In this study, the authors face limited time to complete a relatively short study while the sample requirement is large enough so that it can affect the condition of the research conducted.

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