

The Influence of Foreign Exchange Risk towards Shareholder Value

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Abstract: Multinational companies that have foreign exchange debt will be burdened with foreign exchange risk because the cash flows in local currencies will be affected by contractual obligations. Cash flow fluctuations may have an impact on shareholder value. There was a research gap on the influence of foreign exchange risk towards shareholder value. In Indonesia, the depreciation of Rupiah rate on foreign exchange rate triggers fluctuation on income and liabilities. The purpose of this study is analyze the influence of foreign exchange risk towards shareholder value with foreign-debt based hedging as a mediation variable. Model developed based on the balancing theory and the contracting theory. Panel regression model applied to analyze the empirical research on public companies listed in the Indonesia Stock Exchange. The findings proved that the foreign exchange risk had positive effect on shareholder value with the foreign-debt based hedging as mediation. So companies that have had foreign exchange risk should apply foreign-debt based hedging to maximize the shareholder value. The findings of this study have theoretical implication that supported contracting and balancing theory.

1 INTRODUCTION

Globalization has encouraged many companies to extend their business, but it has also exposed them to foreign exchange fluctuations. Thus, company management should manage variability of their cash flows from foreign operations due to foreign exchange fluctuations (Bartram 2007). Fluctuations in foreign exchange rates have increased firms' exchange rate exposure and affected the firms' sustainability (Yusgiantoro 2004).

International financial management is based on the perspective that the fundamental purpose of financial management is to maximize shareholder value (Eun et al. 2012). The company's goals can be achieved through the implementation of financial management functions with accurate, considering any financial decisions taken will affect other financial decisions that impact on shareholder value (Fama 1980; Jensen 1986).

International financial risk management is mainly based on the irrelevant Modigliani-Miller proposition. Further, most of the companies live in market imperfections so that the maximization of shareholder value should take into account agency

problems. Financial risk management should applied to manage cash flow fluctuations, which may have an impact on shareholder value fluctuations. The deminishing in cash flow fluctuations will reduce the market imperfections costs, so it will provide more cash flow for shareholders, and will increase the expected shareholder value (Eiteman 2010).

When a multinational company has liabilities in foreign currency from international transactions, the company is facing foreign currency exposure because the cash flows in local currencies will be affected by contractual obligations. With the increase in global business, contracts with foreign currencies become a norm so the urgency of the management of foreign exchange exposure is greatly increased. Companies that have foreign exchange exposure is facing foreign exchange risk.

Some empirical research had studied the influence of foreign exchange risk towards shareholder value (Berry 2006; Clark and Judge 2008; Khediri 2010; Afra and Alam 2011). However, based on previous empirical findings, there is no valid conclusions regarding the influence of foreign exchange risk towards shareholder value. This study will explore the influence of foreign

exchange risk towards shareholder value, and expected to obtain findings that contribute both theoretically and empirically.

In the last decade, the Indonesian economy grew stable and reached an average of over 6% per year. But in 2013, the exchange rate depreciated 6.3% derived from the uncertainty of global economic recovery and external imbalance following the widening current account deficit, so it caused imbalance in the domestic foreign exchange market (Bank Indonesia 2014).

To anticipate the negative impact of foreign exchange rate fluctuation and to protect the shareholders' value, then the multinational companies conduct corporate hedging policy. Hedging will ensure that the value of the foreign currency used to pay or the amount of foreign currency that will be received in the future will not be affected by changes in foreign exchange rate fluctuations. Corporate hedging policy could contribute to maximize shareholder value. Public companies in Indonesia were also exposed to foreign currency exposure, but the implementation of the corporate hedging policy was limited already. Some companies conduct foreign exchange derivatives, while the others conduct foreign debt to hedge their cash flows variability. A synthesis of both of them is expected to perform better than partial hedging policy (Paranita 2014).

This study was based on two research problems. First, there was a research gap on the influence of foreign exchange risk towards shareholder value. Second, there were still limited studies on corporate hedging on public companies in Indonesia, while the depreciation of Rupiah rate on foreign exchange rate triggers fluctuation on income and liabilities. So the purpose of this study is to develop theoretical and empirical models to analyze the influence of foreign exchange risk and the corporate hedging policy on shareholder value.

Originality of this study is the synthesis of the perspective of balancing theory and contracting theory as a basic theoretical framework of the influence of foreign exchange risk towards shareholder value.

2 THEORETICAL FRAMEWORK

2.1 Agency Theory

There was separation of ownership and control of the company so that the distribution of stock ownership in the company becomes an important matter. However, these conditions could potentially lead to conflicts between the owner and the manager. Jensen (1976) suggested that the agency

relationship occurs when the principal delegates authority to the agent to perform some decision making on behalf of the principal and conceptualized as a series of contracts.

In corporate risk management, agency issues have been shown to influence managerial behavior on risk and hedging. Agency theory also explains the purpose of integration between shareholders, management, and creditors caused by the asymmetry distribution of income, which makes the company in a very risky condition (Myers and Smith 1987). So the agency theory implies that hedging policy has significant influence on shareholder value (Fite and Pfeiderer 1995).

2.2 Balancing Theory

The major point in the corporate financial decision is to establish an optimal capital structure. Determination of the optimal capital structure composition of funding will be used to finance its assets. Determination of capital structure policy involves a trade off between risk and return. The higher total debt increases cash flow volatility or company's business risk but at the same time it also increases the expected return. However, increasing the expected return for issued the optimal debt would raise the stock price. Optimal capital structure is the capital structure that balances risk and return so that it can maximize the stock price (Modigliani and Miller 1963; Myers 1984).

Business owners tend to use debt at a certain level in order to maximize shareholder value. Manager behavior can be controlled through participation in corporate ownership. Ownership of these shares can align the interests of managers and owners of the company. The implication shows that the managers act more cautiously in determining the capital structure of the company (Jensen and Meckling 1976; Mao 2003).

2.3 Contracting Theory

The organization was viewed as a legal entity which has a series of contracts either explicitly or implicitly between individuals within the organization. The series of contracts will provide useful insight for the organization. Organizational behavior is the behavior of the balance of complex contract system, built to maximize agents and have different purposes (Jensen 2000).

Jensen and Meckling (1976) stated that an agency relationship is a series of contracts, in which the principals delegated to several groups of agents to decide policy on behalf of the principals. Conflicts of interest between managers, shareholders, and creditors increase understanding the importance of the implementation of the contract. The contract structure of an organization will limit the risks faced

by the agency through the specification of fixed or varied payment based on specific performance. In general, the agent's compensation contract plan reflects the separation of management decision and control decision.

2.4 Hedging Theory

Hedging is the strategy to protect the value of the company from exposure to foreign exchange rates fluctuations. Multinational company which decides to hedge against their transaction exposure could use the money market instruments. The basic principle of hedging is to perform a balancing commitments in the same foreign currency, which is the second commitment for the same number of initial commitment, but opposite in sign (Eiteman 2010).

Corporate hedging policy with foreign exchange derivatives and foreign debt was applied by multinational companies which had the agency problems related to foreign exchange exposure. Foreign exchange derivatives is used to hedged foreign exchange risk due to the fluctuations in assets and liabilities denominated in foreign currency (Hu and Wang, 2006; Al Shboul and Alison, 2009; Schiozer and Saito, 2009). The foreign debt is used as a natural hedge for companies which has revenues in foreign currency to issued foreign debt to reduce the foreign exchange risk (Davies et al., 2006; Klimczak, 2008; Otero et al., 2008; Gonzalez et al., 2010). Foreign-Debt Based Hedging as a hedging policy synchronization derived from foreign exchange derivatives and foreign debt is expected to affect perform better than partial hedging policy (Paranita 2014).

Having manage the risk of foreign exchange fluctuations, the foreign-debt based hedging contribute in securing the company's cash flow. The stability of the cash flow have a significant impact on the increase in shareholder value of the company (Suriawinata 2004); (Magee 2009), (Aretz and Bartram 2010). Agency problems affect the foreign-debt based hedging, and the foreign-debt based hedging affect shareholder value. Therefore, foreign-debt based hedging which is the synchronization of foreign exchange derivatives and foreign debt may become a mediation between foreign exchange risk towards shareholder value.

2.5 Hypotheses Development

Hypotheses about the implications of foreign exchange risk towards shareholder value have developed based on the positive theory of risk management, the Capital Asset Pricing Model (CAPM), which analyzes the relationship between risk and return in asset management. For companies with great financial performance, high risk capital structure could have stock price appreciation. This

could happens because most of the investors avoid the high risk company, so they offering higher returns. The shareholder value can be described by the signaling theory. Shareholder value as one of the company's financial performance reflect the market interpretation of signalling information published. The company financed the project with debt or equity in a certain amount, then the market interprets the composition and financial performance in the company's stock price appreciation (Ross 1977).

Nowadays there are an abundant contracts in foreign currencies denominated, so the management should focus on the increasing of foreign exchange exposure. Multinational companies would be affected by foreign exchange exposure since they have to manage the cash flows of contractual obligations or receivables (Magee 2009). A derivative transaction is a payments contract between the parties, whose value is derived from the value of the asset, reference rate or index. Some research suggests that companies with tight financial constraints and foreign exchange exposures tend to use foreign currency derivative (Geczy et al. 1997; Al-Shboul and Alison 2009).

Companies use the optimal capital structure that balances the benefits and cost in the use of debt. If the benefits of the use of debt is still large, then the debt can be issued. But if the cost of using debt outweigh the benefits, then the debt is not keeping up (Myers 1984). This concept encourages multinationals companies to issue foreign debt to hedged foreign currency exposure. The foreign debt is used as a natural hedge for companies which has revenues in foreign currency to issued foreign debt to reduce the foreign exchange risk (Kedia and Mozumdar 2003).

Foreign-debt based hedging as a corporate hedging policy synchronization with foreign exchange derivatives and foreign debt is expected to affect more synergistic than partial hedging policy (Paranita 2014). Refers to the balancing theory and the signaling theory, we developed the hypothesis 1 that the higher foreign exchange risk, the more foreign-debt based hedging applied.

Signalling theory stated shareholder value as one measure of the company's financial performance which reflects the market interpretation of signal information published on the company. The higher foreign exchange risk and the higher the risk of its business, the market expects a high return. This way impact in the increase of stock price and furthermore shareholder value. Refers to signaling theory, we developed the hypothesis 2a that market appreciate the foreign exchange risk so it could increase shareholder value.

Contracting theory argues that when companies manage projects with international capital, they will

experience the uncertainty of future cash flows in domestic currency. Foreign-debt based hedging policies reduce the uncertainty by reducing the volatility of cash flows. Although these risks were nonsystematic, but not only affect the company's risk. It also directly affects shareholder value. The higher foreign exchange risk, the more intensive the company apply foreign-debt based hedging. Refers to hedging theory and signaling theory, we developed the hypothesis 2b that the foreign-debt based hedging could increase shareholder value.

Foreign-debt based hedging will be respond positively by the market because it reflects fluctuations in cash flow stability and sustainability of the company's operations. Market appreciate it as a positive policy and the company's stock price appreciation happened. It will eventually increase the shareholder value. Refers to hedging theory and signaling theory, we developed the hypothesis 3 that the foreign-debt based hedging could be a mediation between the influence of foreign exchange risk towards shareholder value.

3 RESEARCH METHOD

Population in this study are all companies listed on the Indonesia Stock Exchange (IDX) in 2013-2016. The sampling method was purposive sampling. Financial companies had been excluded from the sample since their business activity require derivatives to be used for trading purpose or speculative motive. Disclosure of hedging policy explored by content analysis from the notes to the annual report of each company. Based on the purposive sampling, we had got 66 companies in 2013-2016 each. Thus, the total number of panels data that meet the criteria are 264 data.

Foreign exchange risk proxied by foreign sales to total sales ratio, which is reflects the composition of the foreign revenue to total revenue that contains risk of fluctuations in foreign exchange rates. It draws on research by Al-Shboul and Alison (2009), Clark and Mefteh (2011), as well as Junior Rossi (2011). Foreign-debt based hedging proxied by foreign debt to total assets ratio, which is the synchronization both foreign exchange derivatives and hedging policy with foreign currency debt. It reflects the effectiveness of corporate hedging compared to the amount of assets of the company. It draws on research by Aabo (2006), Clark and Judge (2008), Klimczak (2008), Otero et al. (2008), Schiozer & Saito (2009), Gonzales (2010), and Paranita (2014). Shareholder value proxied by market-to-book-value of equity ratio, which is

reflects the estimated value of a company from the ratio of market capitalization divided by shareholder's equity. It draws on research by Suriawinata (2004), Eldomiaty (2006), and Paranita (2014).

In order to observe the interaction between foreign exchange risk, foreign-debt based hedging and shareholder value, panel data regression model is used. According to Gujarati (2009), there are four options in the panel data regression models, i.e. the Pooled Ordinary Least Squares (OLS) model, Cross Section Fixed Effects Model (FEM), Period Fixed Effects Model (FEM), and Random Effects Model (REM). To determine the best models between Pooled OLS Model and Fixed Effects Model, Redundant Test is used. While for determining the best model between the Fixed Effects Model and Random Effects Model, the Hausman test is used.

To examine the empirical research model with mediating variables, it sets two structural equation models as follows:

$$HED = \beta Y1X1FR + \epsilon 2 \dots\dots\dots (1)$$

$$SV = \beta Y2X1FR + \beta Y2Y1HED + \epsilon 1 \dots\dots\dots (2)$$

where :

- SV = market-to-book value of equity, representing shareholder value.
- FR = foreign sales to total sales ratio, representing foreign exchange risk.
- HED = foreign debt to total assets ratio, representing foreign-debt based hedging.

4 ANALYSIS AND RESULT

4.1 Model 1

Empirical results for hypotheses were analyzed using four models of data panel. The results of data analysis of Model 1 can be summarized in the following table :

Table 1: Empirical Results

Method		FR
Pooled OLS	Coeff.	0,0080
	Prob.	(0,6292)
Fixed in Cross	Coeff.	0,0274
	Prob.	(0,4894)
Fixed in Period	Coeff.	0,0087
	Prob.	(0,6023)

Random	Coeff.	0,0111
	Prob.	(0,6153)

Then we conduct the Redundant Test and Hausman Test as follows :

Table 2: Redundant and Hausman Test

Redundant Test	F-statistic	4,6926
Cross Section Fixed Effect		(0,0000)
Redundant Test	F-statistic	0,6989
Period Fixed Effect		(0,5534)
Hausman Test	Chi-squared	9,8056
Cross Section Random Effect		(0,0203)

Redundant Test on Cross Section Fixed Effect Model is used to test the null hypothesis that the estimator Cross Section Fixed Effect Model has no difference with the Pooled OLS model. F-statistic value of 4.6926 with a probability of 0.0000 is significant at α 0.05 indicates that the null hypothesis is rejected, or in other words the Cross Section Fixed Effect Model is better than Pooled OLS Model.

Redundant Test on Period Fixed Effect Model is used to test the null hypothesis that the estimator Period Fixed Effect Model has no difference with the Pooled OLS model. F-statistic value of 0.6989 on 0.5534 probability is not significant at α 0.05 indicates that the null hypothesis can not be rejected, or in other words Period Fixed Effect Model no difference and not better than Pooled OLS Model.

The statistical test was developed Hausman χ^2 distribution asimtosis. If the null hypothesis is rejected, then the meaning of Cross Section Random Effect Model is not appropriate because the random-effect correlated with the possibility of one or more independent variables. χ^2 value of 9.8056 with a probability of 0.0203 is significant at α 0.05 indicates that the null hypothesis can be rejected, or in other words the Cross Section Fixed Effect Model is more appropriate than the Cross Section Random Effect Model.

Based on Redundant Test and the Hausman test, it can be stated that in this regression model, the most appropriate model is Cross Section Fixed Effect Model (FEM). Thus, the results of the data analysis regression model can be expressed as follows :

$$\text{HEDit} = 0,0274 \text{ FRit}$$

t-stat. (3,1733)
 prob. (0,0018)

4.2 Model 2

While the results of data analysis of Model 2 can be summarized in the following table :

Table 3: Empirical Results

Method		HED	FR
Pooled OLS	Coeff.	-0,1423	-0,1072
	Prob.	(0,7951)	(0,4654)
Fixed in Cross	Coeff.	1,4714	0,1398
	Prob.	(0,0010)	(0,5676)
Fixed in Period	Coeff.	-0,1249	-0,1143
	Prob.	(0,8213)	(0,4399)
Random	Coeff.	0,0818	0,00336
	Prob.	(0,0095)	(0,8530)

Then we conduct the Redundant Test and Hausman Test as follows :

Table 4: Redundant and Hausman Test

Redundant Test	F-statistic	12,7298
Cross Section Fixed Effect		(0,0000)
Redundant Test	F-statistic	0,2039
Period Fixed Effect		(0,8936)
Hausman Test	Chi-squared	14,0155
Cross Section Random Effect		(0,0072)

Redundant Test on Cross Section Fixed Effect Model is used to test the null hypothesis that the estimator Cross Section Fixed Effect Model has no difference with the Pooled OLS Model. F-statistic value of 12.7298 with a probability of 0.0000 is significant at α 0.05 indicates that the null hypothesis is rejected, or in other words the Cross Section Fixed Effect Model is better than Pooled OLS Model.

Redundant test on Period Fixed Effect Model is used to test the null hypothesis that the estimator Period Fixed Effect Model has no difference with the Pooled OLS Model. F-statistic value of 0.2039 on 0.8936 probability is not significant at α 0.05 indicates that the null hypothesis can not be rejected, or in other words Period Fixed Effect Model no difference and no better than Pooled OLS Model.

The statistical test was developed Hausman χ^2 distribution asimtosis. If the null hypothesis is rejected, then the meaning of Cross Section Random Effect Model is not appropriate because the random-effect correlated with the possibility of one or more independent variables. χ^2 value of 14.0155 with a probability of 0.0072 is significant at α 0.05 indicates that the null hypothesis can be rejected, or

in other words the Cross Section Fixed Effect Model is more appropriate than the Cross Section Random Effect Model.

Based on Redundant Test and the Hausman test, it can be stated that in this regression model, the most appropriate model is Cross Section Fixed Effect Model (FEM). Thus, the results of the data analysis regression model can be expressed as follows :

$$SV_{it} = 0,1398 FR_{it} + 1,4714 HED_{it}$$

t-stat.	(3,0572)	(3,3329)
prob.	(0,0676)	(0,0010)

Cross Section Fixed Effect Model incorporates all observations but still accommodating each unit cross section to have intercept dummy variables. This model accommodates the heterogeneity of inter-unit cross section with its own intercept value. If the cross section of this study unit is a company registered in the Indonesia Stock Exchange this model assumes that each company will have a different intercept. These differences reflect the characteristic of each company, such as economies of scale, managerial styles, types of markets served, and so on.

4.3 Hypothesis 1

Hypothesis 1 testing results states that the effect of foreign exchange risk on foreign-debt based hedging indicated by the coefficient of 0.0274 in the direction of a positive relationship. The test results of the causality is not enough evidence to be able to accept the hypothesis 1 as the result of the analysis shows the significance value of t at 3.1733 and probability value of 0.0018 which means that the effect is not significant at $\alpha = 5\%$. Based on the results of empirical testing, the hypothesis 1 can be rejected or unacceptable.

Foreign exchange risk is measured with the foreign sales to total sales ratio, which reflects the composition of foreign sales from international transactions compared to total sales. In this study, it had been proven that there is no influence of foreign sales to total sales ratio on foreign-debt based hedging. In our samples, mostly companies have had less foreign sales than the total sales, so this variable had not significantly affect companies to apply foreign-debt based hedging. This empirical test results do not support the research findings by Pramborg (2005); Berry (2006); Eldomiaty et al. (2006); and Clark and Judge (2008) in significance.

4.4 Hypothesis 2

The hypothesis 2a testing result states that the effect of foreign exchange risk on shareholder value

indicated by the coefficient of 0.1398 in the direction of a positive relationship. The test results of this causal relationship is evidence to be able to accept the hypothesis 2a for the results of the analysis showed the significance value of t at 3.0572 and probability value of 0.0676, which means a significant influence on $\alpha = 5\%$. Based on the results of empirical testing, then the hypothesis 2a is declared acceptable. Thus, the results of this study empirically find sufficient evidence that the foreign exchange risk significantly have positive effect on shareholder value. Foreign exchange risk proxied by foreign debt to total asset, which is indicates the effectiveness of the use of foreign currency-denominated debt to total assets of the company.

While the effect of foreign-debt based hedging on shareholder value indicated by the coefficient of 1.4714 in the direction of a positive relationship. The test results of this causal relationship is evidence to be able to accept the hypothesis 2b for the results of the analysis showed the significance value of t at 3.3329 and probability value of 0.0000, which means a significant influence on $\alpha = 1\%$. Based on the results of empirical testing, then the hypothesis 2b is declared acceptable. Thus, the results of this study empirically find sufficient evidence that the foreign-debt based hedging significantly have positive effect on shareholder value. Foreign-debt based hedging proxied by foreign debt to total assets ratio, which is indicates the effectiveness of the use of foreign currency-denominated debt to total assets of the company. The increase in foreign debt to total assets ratio can increase shareholder value. The results support the findings of empirical test by Clark and Judge (2008); Eldomiaty et al. (2006); Aabo (2006); Magee (2009); Aretz and Bartram (2010).

4.5 Hypothesis 3

Foreign exchange risk with proxy foreign sales to total sales ratio significantly have positive influence on shareholder value with a coefficient of 0.1298. Foreign-debt based hedging proxied by the interactions between hedge ratio and the foreign debt ratio, which reflects the foreign debt to total assets ratio. The value of the coefficient indirect effect of foreign exchange risk towards shareholder value through mediation foreign-debt based hedging is equal to 0.2403. Indirect effect coefficient is greater than the direct effect coefficient, so that the hypothesis 3 which states foreign-debt based hedging could be mediation between the influence of foreign exchange risk towards shareholder value is acceptable.

It means while the foreign exchange risk grow up, companies will apply foreign-debt based hedging, so that the shareholder value will increase. The results of this study empirically find sufficient evidence that foreign exchange risk can increase shareholder value through foreign-debt based hedging as mediation. The findings of this study are expected to contribute to fill in the research gap on the influence of foreign exchange risk on shareholder value. The results support the findings of empirical studies by Clark and Judge (2008); Eldomiaty et al. (2006); Aabo (2006); Magee (2009); Aretz and Bartram (2010).

Based on a literature review and analysis of data, our study had developed models to analyze the influence of foreign exchange risk towards shareholder value with hedging policy as a mediation variable. The model of foreign-debt based hedging was derived from synthesis of the contracting theory and the balancing theory.

The concept of foreign-debt based hedging support contracting theory and balancing theory. The concept of hedging policy with foreign currency derivative supports contracting theory which states that the conflict of interest between managers, shareholders, and creditors increase understanding of the importance of the contract (Jensen and Meckling 1976). Hedging contracts with foreign currency derivative is a means to limit the risk of fluctuations in cash flows encountered agents, as well as potentially detrimental to shareholders. The concept of hedging policy using foreign debt supports balancing theory, which states that the funding company uses an optimal capital structure that balances the benefits and costs on the use of debt (Modigliani and Miller 1963; Myers 1984).

The findings of this study also support the hedging theory which states that multinational companies to hedge against exposure to the transaction, can use the money market instruments. The basic principle of hedging is to perform a balancing commitments in the same foreign currency, which is the second commitment for the same number of initial commitment, but opposite in sign (Eitman 2010). Empirically, the findings of this study concluded that the foreign exchange risk significantly have an influence on the maximization of shareholder value through foreign-debt based hedging as mediation. It means while the foreign exchange risk grow up, companies will apply foreign-debt based hedging, so that the shareholder value will increase.

This study uses all companies listed in Indonesia Stock Exchange in all sectors, except for the financial sector. As such, the findings of this study can be used as a reference for investors. Factors that

proven empirically contribute to shareholder value is foreign exchange risk and foreign-debt based hedging. Thus, the investor can make such factors as the benchmarks prospective because of the potential to maximize shareholder value.

5 CONCLUSION

Based on a literature review and analysis of data, our study had developed models to analyze the influence of foreign exchange risk towards shareholder value with hedging policy as a mediation variable. The model of foreign-debt based hedging was derived from synthesis of the contracting theory and the balancing theory.

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