THE EFFECTIVENESS OF DCD AND FORWARD CONTRACT IN MANAGING FOREIGN EXCHANGE RISK

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Abstract
Globalization has increase the nature of competition among firms, mainly firms engaged in international trading by the increasing volatility of exchange rates. The existence of the unavoidable foreign exchange risk has brought the development of various kinds of foreign exchange risk management tools; include hybrid securities such as Dual Currency Deposit (DCD) introduced by Development Bank of Singapore. This paper tries to elaborate the effectiveness of DCD innovative instruments in minimizing foreign exchange risks compare to traditional forward contract. The analysis tool being used is option theory applied to data of an innovative product. The results showed that prediction of future spot rate plays a vital role in deciding instruments choose to manage foreign exchange risk. Hence, it is desirable to predict the direction and magnitude of future spot rate in order to optimize the effectiveness of both instruments.

Keywords: foreign exchange risk management, hedging, innovative instruments

Abstrak
Globalisasi telah meningkatkan kompetisi antar perusahaan, terutama yang terlibat dalam perdagangan internasional dengan meningkatnya volatilitas pergerakan kurs mata uang. Munculnya risiko nilai tukar telah membawa serta pertumbuhan berbagai alat manajemen risiko nilai tukar, diantaranya adalah sekuritas hibrid seperti Dual Currency Deposit yang diperkenalkan oleh *Development Bank of Singapore* (DBS). Tulisan ini bertujuan untuk mengelaborasi efektivitas DCD sebagai instrumen keuangan inovatif dalam meminimalkan risiko nilai tukar dibandingkan dengan kontrak Forward. Alat analisis yang digunakan didasarkan pada teori opsi. Hasil penelitian menunjukkan bahwa prediksi nilai tukar spot di masa yang akan datang berperan penting dalam menentukan instrumen yang akan digunakan dalam mengelola risiko perubahan nilai tukar. Dengan demikian dibutuhkan kemampuan untuk memperkirakan arah dan besaran nilai tukar yang akan datang guna mengoptimalkan efektivitas kedua instrumen tersebut.

Kata kunci: *foreign exchange risk management, hedging, innovative instruments*

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1. Research Background

Nobody would argued that globalization has changed many faces of the world include the financial market. The fact that nowadays we are facing the possibility of global recession is triggered by the fall of US financial market after August 2007 subprime mortgage crisis. United States is currently being blamed of by the G7 members due to its failure in controlling its balance of payment and budget deficit, which resulted in depreciating value of dollar (Kompas, February 10, 2008). Although the Federal Reserve Bank has cut its interest rate by 75 basis points at the end of January, much has to be done before the US financial market and the financial market around the globe could regain its position back to normal as before the crisis.

The dollar weakened proves the currency vulnerability in the open economy as a result of globalization. The fact that globalization enhance international trading also brought inherent risk in the form of exchange rate volatility. In condition characterized by higher volatility in the international markets and spectacular cases of derivatives losses, it is necessary to implement risk management practices. Therefore, it is not surprising that the foreign exchange risk management has much attention both from practitioners as well as in the academic profession (Bartram, 2001).

The awareness of using derivatives as a mean to manage foreign exchange risk worldwide has rise on average by 5.1% per year over the period 1988-1998, except for currency swaps, which showed a faster growth rate (Bartram, 2001). Further, Bartram stated that nonfinancial firms utilize derivatives more often and to a larger degree over time. Bartram added that based on survey conducted for US firms, 50% of US non-financial firms used derivatives in 1998 in which 83% of the user are large in terms of firm size. The changes in foreign exchange rate itself as the source of risk is accounted for 76% (Bodnar, Hayt, and Marston (1998) in Bartram (2001)). According to research done by Jesswein, Chukck, and Folks (Hanafi, 2003: 251) the most common tool used to hedge foreign exchange risk is a derivative instrument called forward. 93.1% respondents being surveyed by the researchers use it. This result is similar with Yazid, Hussin, and Razali (2007) for Malaysian manufacturers. They stated that to mitigate foreign exchange fluctuations, all the manufacturers being sampled use forward contracts.

Another study by Bartram (2001) also supported the fact that most common tools used by the non-financial firm to hedge its foreign exchange risk are forward currency contract. It is use by 72% of US non-financial firm surveyed, whereas OTC options only used by 37% sample. Forward is a type of instrument, which gives the buyer a specific exchange rate quotation now for the future settlement. The risk in using this instrument lies in the possibility of losses whenever the direction of future exchange rate different from the prediction. Consider an Indonesian Rupiah based firm that buys cotton from a US firm for delivery in six months. If the firm predicts that the foreign currency (dollar) will appreciate in value against the domestic currency (Rupiah,) he will buy the dollar forward. Nonetheless, if at maturity of the contract, his prediction is inaccurate because dollar depreciated against Rupiah then he will suffer losses. He can buy the foreign currency cheaper in the market than fulfilling his

obligation in forward contract. In other words, by using forward currency contracts, the firm locks-in the Rupiah cost of its cotton purchase and at the same time sacrificing the possibility of potential gain resulted from Rupiah-dollar exchange rate movements that may occur before delivery and payment. The extensive use of forward contracts in hedging short-term payables or receivables resulted from transaction, which is widely known, as transaction exposure is a form of a tactical risk management strategy (Meulbroek, 2002).

Another instrument called option, which gives the buyer a right and not an obligation to buy or sell foreign currency at the maturity of the contract with price quoted before, and then minimizes the limitation of forward contract as stated above. By using option, the downside risk is minimized while retaining the upside potential (Meulbroek, 2002). Nowadays banking sector has gone further by developing another instrument, which combine the nature of option instruments and bank time deposits-as their conventional product, known as dual currency deposits (DBS, 2008). This is possible because of the development of financial and electronic technologies such as computers, which make it possible for the creation of wide-ranging set of financial instruments (Meulbroek, 2002). This innovative instruments offered by banks has answered the challenge raised by the firm (Yazid, Hussin, and Razali , 2007).

As a newly marketed product resulted from innovation done by banking sector, the effectiveness of this instrument in hedging foreign exchange exposure has to be measured. However, no studies thus far have done that. The purpose of this study is to give insight to the potential user of these instruments, mainly companies engage in international trading, to manage their foreign exchange risks. The previous variant of these hybrid securities are known as DBS (Deposito Berjangka Swap) which combine time deposit and swap. This study examines further to empirically measure the effectiveness of another variant of hybrid securities, which combine time deposit and option. The use of forward contract as the benchmark lies to its widespread use by the firms in managing foreign exchange risk (Jesswein, et al., 1995). To limit the scope, this research only observing foreign exchange risk management tools available to be used to manage transaction exposures which is defined as the effect of unanticipated changes in real exchange rates on nominal cash flows (Carter, et al., 2002). The reason for limiting the scope is that the transaction exposure is primarily short-term and hence is commonly hedged by using financial derivatives.

2. Literature Review

The goal of corporate finance is to maximize the market value of the owner's existing equity (Ross et al., 2006: 9). It is understandable because for a corporation, shareholder is the last party to receive asset distribution hence the more asset are left for the shareholders, the wealthier they become. To maximize firm value, risk management plays an important role because it influence directly and indirectly by financial risks such as foreign exchange risk (Bartram, 2001). Although pros and cons still exist as whether or not to hedge foreign exchange risk, there are some benefits of managing foreign exchange risks (Bartram, 2001): a) Risk management by the firm can facilitate risk

management by the firm's equity holders. By holding a larger fraction of cash or hedging with derivatives, investor decrease their systematic exposures but at *the cost of decreasing expected returns. The availability of these targeted* financial instruments greatly enhances of investors in managing systematic risk exposure for themselves, if they know the firm's risk exposure. b) Risk management by the firm can create value in ways that investors cannot duplicate for themselves. c) Risk management can increase firm value by decreasing financial distress costs firm-based risk management can increase shareholder wealth by reducing the costs associated with financial distress, moderating the risk faced by important non-diversified investor, decreasing taxes, reducing monitoring costs, and lowering the firm is funding costs. d) Risk management can add value by lowering the risk faced by important non-diversified investors. e) Risk management can increase firm value by reducing taxes. f) Risk management can lead to easier and better performance evaluation, thereby reducing external monitoring costs and consequently the firm's capital costs. g) Risk management can add to firm value by providing internal funding for investment projects.

Another study concerning the relationship between risk management and firm value was conducted by Bartram (2001). Bartram argues that due to significant resources are committed to risk management activities thus it is an indication of corporate risk management to increase firm value. Empirical evidence gathered later on finally supported the argument. Bartram found that because of realistic capital market imperfections, such as agency costs, transactions costs, taxes and increasing costs of external financing, risk management at the firm level represents a means to increase firm value to the benefit of the shareholders. Therefore, it is not surprising if today risk management has developed significantly. The effect of financial hedging on foreign exchange exposure studied further by Allayanis and Ofek (1997); Simkins and Laux (1996) in Carter et al. (2002). In terms of risk management tools used to hedge foreign exchange risks, a study by Carter et al. (2002) of 208 US multinational corporations (MNC) over the period 1994 to 1998 find that the use of currency derivatives, particularly forward contracts, is associated with reduced levels of foreign-exchange exposure.

The exchange rate volatility that has existed since the 1970s which is exacerbated by globalization that happened 30 years ago and makes it necessary to investigate the means by which firms manage their foreign exchange exposures and the effectiveness of their risk management techniques (Carter, et al., 2002). Further, Geczy, Minton and Schrand (1997) in Carter et al. (2002) investigate the use of currency derivatives by firms and find that corporations with extensive exposure to foreign exchange risk are more likely to use currency derivatives. The use of derivatives tools in managing foreign exchange risk becomes eminent in this study. Firms especially those who are exposed to foreign exchange risks which is common in this globalize world are likely to intensify its hedging practices to minimize risk thus enhancing firm value. The need of these firms in turn has triggered banking sectors to create new innovative products to fulfill the dispersed needs of the firms. Recently, in Italy as stated by Brandolini et al. (2000), the quest for reliable risk management

tools has grown mainly in response to the demand of institutional investors such as pension fund.

In recent years, Indonesian financial system also witnessed the emergence of new financial products as a result of innovation. The ability to innovate and create new risk management tools is essential for banking sector to exist in the tighter competition (Bossone, 1999: 48). One way to innovate is to combine its existing products such as time deposit with a derivatives instruments known as option. This is known as Dual Currency Deposits (DCD) product. The possession of option characteristics in DCD implies that DCD is suitable when the firm is uncertain about its future foreign currency cash flow. Nonetheless, whenever firm facing future, contractually fixed foreign currency cash flow, in which the only source of uncertainty is the exchange rate, the use of forward to hedge the exposure might be better (Carter et al., 2002). Further, Moosa (1998: 406) stated that it is more important to predict the direction of exchange rate rather than the magnitude. Thus, we argue that the effectiveness of those instruments in hedging transaction exposure will largely determined by direction of future exchange rate assuming a certain future cash flow.

3. Research Method

As a preliminary research, this research is explorative in essence that it tries to provide objective assessment towards a newly marketed foreign exchange risk management tools by comparing its return to forward contracts. The population of this research is all currency derivatives products that is available in managing foreign exchange exposure and traded in Indonesian market. The sample is forward product launched by Lippobank and a new product known as DCD, which possess option characteristics launched by Development Bank of Singapore. Although Lippobank itself has launched similar product know as Exchange Deposit, nonetheless, the selection of DCD is due to its uncommon underlying currency, which is Australian Dollar. The sampling technique used is purposive sampling because sample is selected based of certain criteria set by researcher. The criteria is the availability and completeness of data needed. Type of data needed for the calculation are DCD interest rate and swap points, DCD exercise/strike price, current and future spot rate, and forward rate. The analysis will be done in three stages that are measuring risk, return of DCD product in stable and volatile exchange rate, measuring risk, return of forward contract in stable and volatile exchange rate, and compare return of both instruments. The instrument is considered more effective if its return exceed return of the other instruments.

In measuring risk and return for both instruments, we use three scenarios according to the possibilities of exchange rate movement in the future that is appreciation of Indonesian Rupiah (IDR), constant value of IDR and the depreciation of IDR. The list of variables used and its measurement is stated below:

Table 1. Measurement of Variables

Variables	Definition	Measurement
Return	Total gain or loss experienced on an investment over a given period. (Gitman, 2006: 226)	a) DCD return: Total return = Interest of DCD + Return from Exchange Rate Differential b) Forward return: Total Return = Return from Exchange Rate Differential – Interest of forward down payment c) Differential (ERD): Return from ERD = (Future Spot Rate – Strike Price)/Strike Price
Risk	The change that actual outcome may differ from those expected; the chance of financial loss or the variability of returns associated with a given asset (Gitman, 2006: 226)	The dispersion of return from current spot rate
Effective	The ability to achieve higher result by utilizing a certain cost	Return of DCD – return of forward Positive value indicate superiority of DCD and negative value indicate superiority of forward

Note: This research use forward rate in substitution of strike price

4. Results and Discussion
4.1. Risk and Return Profile of Dual Currency Deposits

Dual Currency Deposits is a product that gives the buyer a fixed interest rate that is higher than interest obtained from conventional time deposit. It also gives option to its buyer to exercise or not to exercise his (her) right to buy (sell) foreign currency at the maturity of the deposits. The buyer will experience risk of not getting the needed currency at the maturity of the contract if the prediction of his (her) future exchange rate (known as exercise/strike price) differ from the actual future exchange rate.

Two types of DCD contracts available in the market recently are IDR base AUD and AUD base IDR. The difference between these two products is the result expected from the buyer. If the buyer wants to get foreign currency (AUD) because he (she) imports some goods from Australia, then he (she) should hedge his (her) obligation by buying IDR base AUD. On the contrary, for exporters who will receive future payments in AUD, he (she) should hedge his (her) receivables/asset by buying AUD base IDR. The rest of the paper will focus on IDR base AUD product because it is more likely for IDR to depreciate against AUD hence showed the need of importers to hedge their AUD payables.

Figure 1 depicts the structure of IDR base AUD product. The maximum price of foreign currency paid by the buyer is the exercise price. Above this price, the decision is depend on the buyer himself whether or not to exercise his (her) right to buy AUD. In this case, the buyer is facing risk of not getting the foreign currency needed.
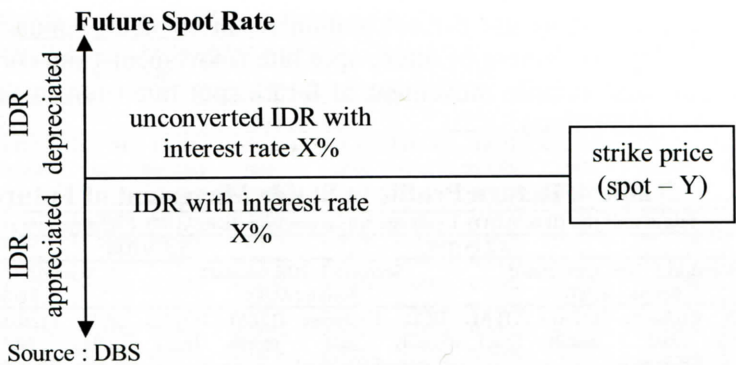
Future Spot Rate

Source : DBS

Figure 1. The Structure of IDR Base AUD Product

Based on DBS proposal as shown in Table 2, there is a linkage between the magnitude of interest rate and the moneyness of option in the form of swap point between spot exchange rate and strike price. Consider if the spot rate is currently Rp8,320/AUD and the buyer predict that the future spot rate at maturity of contract (strike price) will be Rp8,295/AUD then he (she) will choose spot -25 (second option).

Table 2. IDR Base AUD Proposal

Option	Base Currency	Alternative Currency	Option Type	Spot Rate	Swap Point	Strike Price	DCD interest rate
1	IDR	AUD	AUD Call / IDR Put	IDR 8,320	0	IDR 8,320	10.09%
2	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-25	IDR 8,295	8.99%
3	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-50	IDR 8,270	8.39%
4	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-75	IDR 8,245	7.07%
5	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-100	IDR 8,220	6.11%
6	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-125	IDR 8,195	6.11%
7	IDR	AUD	AUD Call / IDR Put	IDR 8,320	-150	IDR 8,170	6.11%

Source: DBS Proposal, Jan 3, 2008

The higher the magnitude of swap point (without considering the direction), the higher the probability that the options will end in the money thus the lower the interest rate offered. To optimize the return, buyer should take into account this possibility, which is called exchange rate differential return.

Table 3. Input of DCD Return Calculation

Foreign currency needed	AUD	100,000
IDR currency needed	IDR	832,000,000
Spot exchange rate	IDR	8,320
Duration (days)		30
Interest rate (IDR)		9%
Interest rate (AUD)		5%
Strike price	IDR	8,320

Source: DBS

The following are the calculation result by using inputs from Table 3, both in stable movement of future spot rate (movement from current spot rate= 25 points) and volatile movement of future spot rate (movement from current spot rate= 150 points).

Table 4. Return Profile in Stable Movement of Future Spot Rate

Exchange rate at maturity (IDR/AUD)				Exchange rate at maturity (IDR/AUD)				Exchange rate at maturity (IDR/AUD)			
IDR	8,295			IDR	8,320			IDR			8,345
Scenario 1: IDR appreciated Return (AUD)				Scenario 1: IDR constant Return (AUD)				Scenario 1: IDR depreciated Return (AUD)			
DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)	DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)	DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)
1.17%	0.00%	1.17%	14.00%	1.17%	0.00%	1.17%	14.00%	1.16%	-0.30%	0.86%	10.36%
1.00%	0.30%	1.30%	**15.65%**	1.00%	0.00%	1.00%	12.00%	1.00%	-0.30%	0.70%	8.37%
0.92%	0.30%	1.22%	14.65%	0.92%	0.00%	0.92%	11.00%	0.91%	-0.30%	0.61%	7.37%
0.75%	0.30%	1.05%	12.64%	0.75%	0.00%	0.75%	9.00%	0.75%	-0.30%	0.45%	5.38%
0.67%	0.30%	0.97%	11.64%	0.67%	0.00%	0.67%	8.00%	0.66%	-0.30%	0.37%	4.38%
0.59%	0.30%	0.89%	10.64%	0.58%	0.00%	0.58%	7.00%	0.58%	-0.30%	0.28%	3.38%
0.50%	0.30%	0.80%	9.63%	0.50%	0.00%	0.50%	6.00%	0.50%	-0.30%	0.20%	**2.39%**

Two things worthwhile to note from the result, they are the direction and magnitude of future spot rate. In terms of magnitude, it is clear that the highest return (15.65%) in the slight appreciation of IDR will be obtained when the swap point (spot-25) equal to exchange rate differential (Rp8,320/AUD – Rp8,295/AUD). Nonetheless, in a state where IDR slightly depreciated, the lowest return (2.39%) occurred when the swap point reach the highest level (spot-150).

In a state where the IDR slightly appreciated (from Rp8,320/AUD to Rp8,295/AUD), the DCD return for every swap point is higher than the reverse condition (IDR constant and depreciated). The risk of failure in predicting the direction (IDR depreciated as opposed to appreciated) as shown in Table 5 is negative return compare to the current spot rate.

Table 5. Risk Profile in Stable Movement of Future Spot Rate

Swap point	Total Return	
	IDR appreciated	IDR Depreciated
0	0.00%	-3.64%
-25	3.65%	-3.63%
-50	3.65%	-3.63%
-75	3.64%	-3.62%
-100	3.64%	-3.62%
-125	3.64%	-3.62%
-150	3.63%	-3.61%

Similar with return pattern in a stable movement of future exchange rate, the highest return (28.14%) will be achieved when the IDR largely appreciated with the swap point equal to exchange rate differential (Rp8,320/AUD – Rp8,170/AUD). When IDR is largely depreciated and constant, the return pattern remains the same that is the smaller the swap point, the higher the return (lower loss).

Table 6. Volatile Movement of Future Spot Rate

Exchange rate at maturity (IDR/AUD)				Exchange rate at maturity (IDR/AUD)				Exchange rate at maturity (IDR/AUD)			
IDR	8,170 IDR				8,320 IDR				8,470		
Scenario 1: IDR appreciated Return (AUD)				Scenario 1: IDR constant Return (AUD)				Scenario 1: IDR depreciated Return (AUD)			
DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)	DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)	DCD monthly interest	Exchange rate differential	TOTAL/ month	TOTAL (p.a.)
1.17%	0.00%	1.17%	14.00%	1.17%	0.00%	1.17%	14.00%	1.16%	-1.77%	-0.61%	**-7.29%**
1.00%	0.30%	1.30%	15.65%	1.00%	0.00%	1.00%	12.00%	1.00%	-1.77%	-0.77%	-9.29%
0.92%	0.60%	1.53%	18.32%	0.92%	0.00%	0.92%	11.00%	0.91%	-1.77%	-0.86%	-10.28%
0.76%	0.91%	1.67%	20.00%	0.75%	0.00%	0.75%	9.00%	0.75%	-1.77%	-1.02%	-12.28%
0.67%	1.22%	1.89%	22.70%	0.67%	0.00%	0.67%	8.00%	0.66%	-1.77%	-1.11%	-13.28%
0.59%	1.53%	2.12%	25.41%	0.58%	0.00%	0.58%	7.00%	0.58%	-1.77%	-1.19%	-14.27%
0.51%	1.84%	2.35%	**28.14%**	0.50%	0.00%	0.50%	6.00%	0.50%	-1.77%	-1.27%	-15.27%

The risk of failure in predicting the direction (IDR depreciated as opposed to appreciated) as shown in Table 7 is similar with stable movement of exchange rate. They only differ in magnitude, which is larger in a volatile movement of future spot rate.

Table 7. Risk Profile in Volatile Movement of Future Spot Rate

Swap point	Total Return	
	IDR appreciated	IDR Depreciated
0	0.00%	-21.29%
-25	3.65%	-21.29%
-50	7.32%	-21.28%
-75	11.00%	-21.28%
-100	14.70%	-21.28%
-125	18.41%	-21.27%
-150	22.14%	-21.27%

Based on above results, we conclude that return of DCD will not depend on the nature of future spot rate (stable or volatile), rather will largely depends on the accuracy of direction (appreciate or depreciate) and the amount of swap point. This result is in line with the statement given by Moosa (1998). Since the swap, point is derived from future spot rate prediction then it is clear that the correct prediction of future spot rate will plays a vital role in acquiring the highest return from DCD.

4.2. Risk and Return Profile of Forward Contract

Forward contract does not give the buyer a fixed interest rate but a guarantee that at the end of the contract, the buyer will get the foreign currency (AUD) needed. Although forward contract does not charge price like option's premium, nonetheless for forward contract arranged by Lippobank, the forward actual cost lies in the requirement of setting aside a proportion of money as down payment for the contract at the date when the buyer enter the contract. Potential cost for buying AUD forward is the upside potential when future spot rate lower that forward rate (IDR appreciated against AUD).

Table 8. Forward Risk and Return in a Stable and Volatile Movement of Future Spot Rate

Return and Risk	Future Spot Rate					
	8,295	8,320	8,345	8,170	8,320	8,470
	IDR appreciated	IDR constant	IDR depreciated	IDR appreciated	IDR constant	IDR depreciated
Return from exchange rate differentiation	-7.59%	-3.98%	-0.38%	-25.62%	-3.98%	17.65%
Net cost of D.P.	3.06%	3.06%	3.06%	3.06%	3.06%	3.06%
Total return	**-4.53%**	**-0.92%**	**2.68%**	**-22.56%**	**-0.92%**	**20.71%**
Risk	**-3.61%**	**0%**	**3.60%**	**-21.64%**	**0%**	**21.63%**

Table 8 concluded that whenever future spot rate lower or exactly the same with forward rate (IDR appreciated or constant) by assuming forward rate= Rp8,320/AUD, the buyer of forward contract will experience loss. This is clearly seen in risk calculation where negative result is obtained in an appreciation of IDR. The highest return will be achieved when the future spot rate higher than forward rate (IDR depreciated) and the return will be higher in the more volatile future spot rate movement.

4.3. Effectiveness of DCD and Forward

As mentioned before, to measure the effectiveness of DCD and forward, we compare return of both instruments and then calculating the mean differential. In a stable movement of future spot rate, DCD seems to outperform forward contract in all of the three scenarios, except when IDR depreciated 150 points from strike price. It is emphasizes through DCD mean return which is higher than forward return in all scenarios. The forward return will reach the highest and outperform DCD when IDR depreciate in a volatile movement of future spot rate. It is clearly seen from the negative sign in average differential result. Hence, it can be concluded that DCD is more effective than forward in managing foreign exchange exposure in an appreciation of IDR against AUD.

Table 9. Return of DCD and Forward in a Stable and Volatile Movement of Future Spot Rate

Stable Movement of Future Spot Rate				Volatile Movement of Future Spot Rate			
Future spot rate	8,295	8,320	8,345	Future spot rate	8,170	8,320	8,470
	IDR appreciated	IDR constant	IDR depreciated		IDR appreciated	IDR constant	IDR depreciated
DCD. Spot -0	14.00%	14.00%	10.36%	DCD. Spot -0	14.00%	14.00%	-7.29%
Spot -25	15.65%	12.00%	8.37%	Spot -25	15.65%	12.00%	-9.29%
Spot -50	14.65%	11.00%	7.37%	Spot -50	18.32%	11.00%	-10.28%
Spot -75	12.64%	9.00%	5.38%	Spot -75	20.00%	9.00%	-12.28%
Spot -100	11.64%	8.00%	4.38%	Spot -100	22.70%	8.00%	-13.28%
Spot -125	10.64%	7.00%	3.38%	Spot -125	25.41%	7.00%	-14.27%
Spot -150	9.63%	6.00%	2.39%	Spot -150	28.14%	6.00%	-15.27%
DCD mean return	12.69%	9.57%	5.95%	DCD mean return	20.60%	9.57%	11.71%
Forward	-4.53%	-0.92%	2.68%	Forward	-2.56%	-0.92%	20.71%
Mean differential	17.22%	10.49%	3.27%	Mean differential	23.16%	10.49%	-32.42%

In the contrary, forward is more effective when IDR depreciated against AUD. Thus, it can be proved that direction of future exchange rate plays a vital

role in determining the effectiveness of those instruments in managing foreign exchange exposures.

4.4. Conclusions and Limitations

This study examines the effectiveness of using DCD to manage foreign exchange risk compare to Forward contract. Our findings are: DCD is more effective when in the future IDR is predicted to appreciate against AUD and the swap point predicted exactly match the spot rate differential. The return profile of DCD product to hedge importer obligation largely influenced by prediction accuracy of future spot rate direction and does not depend on the nature of future spot rate (stable or volatile). In other words, the correct prediction of future spot rate will plays a vital role in acquiring the highest return from DCD. Forward contract is more effective than DCD only when IDR is depreciated against AUD and the magnitude is higher when the movement of future spot rate is volatile. The effectiveness of each instruments is depend on the direction of future exchange rate assuming a certain future cash flow.

This research only focused on foreign exchange risk resulted from export and import transaction from importer point of view hence it can't be compared to AUD base IDR DCD product. This research excludes the possibility of uncertain future foreign cash flow thus limiting the analysis of option characteristics inside DCD product. This research only analyzed one type of DCD product known as regular DCD product which is the modest type of DCD product and do not compare the result with USD base IDR product.

References

Bartram, S., 2001, Corporate Risk Management as a Lever For Shareholder Value Creation, *Working Paper*, http://www.ssrn.com, downloaded on January 2008.

Brandolini, D., M. Pallota and R. Zenti, 2000, *Risk Management in Asset Management Company: A Practical Case*, http://www.ssrn.com, downloaded on January 2008.

Bossone, B., 1999, What Makes Banks Special?, *World Bank Policy Research Working Paper No. 2408*.

Carter, D.A., C. Pantzalis and B.J. Simkins, 2002, *Firmwide Risk Management of Foreign Exchange Exposure by US Multinational Corporation*, http://www.ssrn.com, downloaded on January 2008.

DBS, 2008, DCD Proposal, DBS 3 Januari 2008.

Gitman, L.J., 2006, *Principal of Managerial Finance*, Boston, USA: Pearson Addison Wesley.

Hanafi, M.M., 2003, *Manajemen Keuangan Internasional*, Jogjakarta, Indonesia: BPFE

Jesswein, K.L, C.C.Y. Kwok, and W. Folks, 1995, Corporate Use of Innovative Foreign Exchange Risk Management Products, *Columbia Journal of World Business*, 70-82.

Kompas, *AS Jadi Target Kecaman G7*, Minggu, 10 Februari 2008, halaman 1

Lippobank, 2007, *How to Manage FX Risk & Maximize Return on Investment*, Lippobank, 20 Juni 2007.

Lippobank, 2007, *Structured Investment Product Proposal*, Lippobank, 4 Mei 2007.

Meulbroek, L.K., 2002, *Integrated Risk Management for The Firm: A Senior Manager's Guide*, http://www.ssrn.com, downloaded on January 2008.

Moosa, I.A., 1998, *International Finance: An Analytical Approach*, Mc Graw Hill Inc.

Ross, S., R.W. Westerfield and B.D. Jordan, 2006, *Corporate Finance: Fundamentals*, seventh edition, Mc Graw Hill Inc., International edition.

Yazid, A.S., M.R. Hussin, and A.R. Razali, 2007, *Foreign Exchange Risk Management (FERM) Practices Among Malaysian Manufacturers*, Proceeding of 3rd International Conference, Trisakti University, 294-301.