CHAPTER 5

Conclusion

To free baht valuation is a macroeconomic policy to reduce protection the market risks in exchange rate that affects to any individuals to depend more on themselves. The risk management is necessary for any individuals to be more responsive to change in the global financial current .

Given evolution of the global financial system and the financial liberalization in several countries during the last few years. there have been a lot of movements of the international cash flows causing extreme fluctuations of exchange rates and interest rates. For Thailand, we have become financially liberated in 1989. Recently The Bank of Thailand has replaced the basket system pegging US dollar. that severely shook baht values. with managed floating system.

In the past . although complicated regulations of government would help prevent public debt problem. Easier borrowing by private sector and losening strict regulations created a big problem of bad debt. thus pushing the government to depend on foreign aid funds by borrowing directly among severe fluctuation of exchange rates of all currencies. During 1980 to 1983, although Thai government had faced the world recession, it could avoided facing criticle problems like others developing economics because it had no problem of default debt. This is because it had little of external debts and the fluctuation of THB/US exchange rates during that period.

However, at the present, causes of the economic crisis is stemmed from both real sectors and financial sector, forcing the extreme fluctuation of exchange rates

that drove the burden of government's external debts higher. Hence, the financial management of government's external debts is an essential to solve any emerging problems in the near future.

For the past 3-4 years, many financial research teams proposed a financial model called "Value-at-Risk" model that is an advance statistical method for measuring market risk of both interest rate and the exchange system. They used Risk Matrices mapping for certain exchange rates used by each creditor where we can analyze relationships of any Risk Vertices for risk diversification by decreasing concentration of debts in some currencies and /or some maturity. Hence, we can find expected present values of total external debt and possible maximum present values of total external debt.

As Thai government have never issued zero coupon bonds as benchmark, we should discount cash flows with swap coupon rate to get the zero coupon rate for several maturity by using bootstrapping, a basic method of present value theory. It is a main concept of decomposing cash flow into zero coupon for each maturity. For example, if there is an annual payment within four years that could be assumed as foreign cash flows. we can map into four risk vertices of zero coupons according to each coming of payments. We should regard that government bonds have been represented by combinations of amounts of cash flows in a given currency at specified dates in the future. The synthetic government zero coupon rate positions have described the distribution of money flows overtime. These flows have been described by the amounts to be paid and their maturity.

And we then proposed scenarios by using two circumstances. Firstly, on stable exchange rate scenario; we have an assumption of a circumstance where the government can manage the movement of exchange rate variation by using managed

floating policy similar to the basket system policy between 1995 and 1996. Secondly, an unstable exchange rate scenario; we have another assumption of a circumstance where a market mechanism fully affect the floating exchange rates on a present condition of economic crisis. The results not only show us more maximum present values of the external debt, because of the change from basket system to floating system, but recommended about the management for issuing a new bond and loan in both circumstances that can decrease or minimize increase in value at risk of government's total external debt.

Moreover, we had yet studied conditions and preferences of any sources to reflect a picture of issuing government's bonds and loans in the past and to imply a means of additional borrowing by consideration of maturity periods, interest rate as well as preference and other conditions of sources.

Bunching is not the only one reason to consider the diversification of external debt into any currencies, but we should also analyze the relations of the price returns of any currencies. The flexible payment or borrowing in each currency is the most important management technique for avoiding the relationships of currencies rising the higher risk. So, Thai negotiators should not only care about interest, maturity period, grace period, other original term, but also about the present value of debt the capability of payment, a peak period of payment, the relationships of currencies borrowed, as well.

For proper risk management, an individual should adopt financial instruments to analyze and correctly monitor market situation. In practice, we can simulate practically such individual's financial status following the situations expected by executive manager or specialist.

This thesis needs to emphasize the processes of risk management of government's direct external debt, and to put the concept of two scenarios, stable and unstable exchange rate, into the model in order to be a means of implementing government's the risk management. It is a new concept different from the original one. by finding the present value of the external debt instead of viewing only outstanding principal, and finding the maximum present value of the external debt in baht currency to show actual liability for managing government's financial status rather than focusing merely on debt plans.

At present, Thailand's managed floating system results in unstable baht against foreign currency values that Thai government have to pay debt in, especially US dollar and Japanese Yen. So the government should examine the possible maximum loss of payment and if it would create a new loan, what currency, how to minimize risk

I purpose the methodologies to analyze the present value of maximum loss of payment for Thai government's the direct external debt caused from issuing amortized loans and bonds to aboard that could be incurred with 95 percentage level of confidence over a day, a month, a year holding period based on risk of change price. Risk is uncertainty of future outcomes measured by variance of returns. Thus we focus on two factors of market risk; 1.interest rate 2.exchange rate.

For analysis of the maximum loss , we use two methods; Analytical and Monte Carlo Simulation. Then we use DelVaR method to choose a currency for issuing a new bond or amortized loan. Firstly I standardize risk vertices and calculate their price return, variance of price returns. Secondly I map cash flow of external debt into the standardized risk vertices. Under Analytical method, I combine any securities to be whole one, then calculate expected value and value at risk, and finally get its

maximum present value. And under Monte Carlo Simulation, we used properties of a set of multivariate normal random variables(MVN) which simulate risk manager's view how a future trend of distribution of price returns would differ from historical one. I assume that distribution is not different. hence I determine MVN(0.1) that has s mean zero and variance one, for comparing results from two means. Analytical and Monte Calo Simulation. Whether were alike or not with concept of DelVaR,

A ratio of value at risk of cash currency risk vertices to estimate value at risk of whole one is value at risk increment or decrement by issuing one baht of debt denominated in each currency.

Under an assumption no payment of interest rates and principals during July 1,1997 – September 8, 1997.The results show that the expected present value of the debt increased 47.61%, or in baht value , 54.4 billion baht

Value at risk increased 89.85%, or in baht value , 32 billion baht, thus the maximum present value of the debt increased 57.66% or in baht value, 86.45 billion baht. By using Analytical method. the maximum present value of the debt up to 1,859 billion baht on first of July. By using Monte Carlo Simulation method, the debt was at 1,879 billion baht, increasing from 1,259 billion baht . This indicates that the two method yield the same result.

Furthermore, under the scenarios of baht values stable, the government can issue a new loan to decrease total value at risk. If we issue the new loan denominated in Swiss France on baht, we can decrease 0.7 satang of value at risk. And if we issue one baht debt denominated in US dollar or Japanese Yen, the value at risk will only increase 0.07 and 4.67 satang respectively. However, under the scenario of baht value unstable, the government can not diversify risks associated with external debt denominated in any currencies. It faces increase in value at risk up to 15-20 satang

for issuing a baht of a new bond, for example, if the external debt is issued in US dollar or Japanese Yen, value at risk will increase by 18.31 or 20.34 satang respectively.

However, to obtain the best options for risk management, the financial markets should be closely monitored. These thesis findings would be considered as another option or relevant parties in government sector to effectively analyze manage risks in external debts burdens in order to achieve the almost benefits for the whole kingdom.