Abstract of the Doctoral Dissertation

Empirical Analyses of Financial Markets

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This doctoral dissertation consists of five chapters concerned about experimental study on the Japanese bank loan market from the view of disequilibrium analysis, confirmation of liquidity effect in the process of monetary policy executed by Bank of Japan, changes in features of foreign exchange market since the Euro introduction, modification of GARCH-in-Mean model of Lennon and Saikkonen (2006) and the limitation of GJR model in the case of *inverse* asymmetry volatility process, respectively.

In chapter 1 we give a brief overview on this doctoral dissertation.

In chapter 2, entitled as *Empirical Analysis of Japanese Bank Loan Market from the View of Disequilibrium Analysis*, we study experimentally the Japanese bank loan market from 1973 to the early of 2004. Following methods of Asako and Uchino (1986) we take empirical regression on the basic model at first. Then we expand their model to carry out additional investigations. Our results show that Japanese bank loan market had been disequilibrium in this period. The accruing of trading account securities held by bank

sector has been negatively affecting the loan supply. By introduction of a time dummy variable into the structure equation system we show that there are changes in both the loan demand and supply sides since the half of 1990's. This is helpful for us to explore whether there has been credit crunch since the puncture of bubble economy. On the other hand, Our results also prove that disequilibrium analysis is still a useful tool in studying Japanese bank loan market.

In chapter 3, entitled as *Testing The Liquidity Effect With Equilibrium Interest Rate*, we utilize the results of disequilibrium analysis in chapter 1 to test whether there are liquidity effects in Japan. It is instinctive to consider that there will be negative relationship between the monetary growth and the interest rate like the ups and downs in the money market. However, it is difficult to show the existence of this liquidity effect. Here, we use the equilibrium interest rate to test if there are liquidity effects in Japanese loan market from the standpoint of macroeconomics. Our conclusions are: (1) The interest rates negatively respondent to the growth in the money supply regardless of whether it is anticipated or not. That is there are liquidity effects in a short run; (2) The use of the equilibrium interest rate can allow us to take the growth in money supply as the exogenous. It is unnecessary to consider the identification problem.

In chapter 4, entitled as *Transfiguration of foreign exchange market since the Euro introduction*, We confirm that there are changes in the feature of foreign exchange market since the Euro introduction through empirical experiments on 5 major exchange rate series in the world. In the last decades, foreign exchange market had expanded greatly. Then it is meaningful to investigate whether there have been changes in foreign exchange market, and if there have, what changes had taken place since the introduction of Euro. Our find-

ings here are: (1) We confirm there is asymmetry in the volatility process of Japanese Yen versus US Dollar exchange rate. However, we have also found another kind of asymmetry, which shows that the volatility after a positive shock is larger than the one after a negative disturbance, in the volatility processes of both Australian Dollar and New Zealand Dollar versus US Dollar exchange rates. (2) Through inducing a time dummy variable in GARCH(1,1) model, we ascertain that there are changes in volatility processes of AUD, CAD, GBP and NZD since the Euro introduction. (3) Since the Euro introduction correlations between these main currencies become closer than before. Dynamic correlations have the trend of becoming larger.

In chapter 5, entitled as *Test the existence of mean effect in an improved GJR-in-Mean Model*, we improve the model of Lanne and Saikkonen (2006) by taking account of asymmetry in volatility process, and conduct empirical experiments on both JPY/USD exchange rate and major stock exchange indices in the world. Lanne and Saikkonen (2006) prove that the mistaken inclusion of an intercept term in GARCH-in-Mean model could weaken the power of the standard Wald test on the mean effect parameter. However, they do not take account of asymmetry in volatility process. By modification of GJR-in-Mean model we find there is mean effect in JPY/USD exchange rate in GJR(1,1)-in-Mean model without intercept. We also prove there are both mean effect and volatility asymmetry simultaneously in estimations of GJR(1,1)-in-Mean on DOW, FTSE, SSMI, AORD and HSE. In comparison with results of Lanne and Saikkonen (2006) the extension of GJR-in-Mean is reasonable and successful.

References

[1] K., Asako, Y., Ucino (1986) Japanese bank loan market –From the view of disequilibrium analysis, *Financial Research (in Japanese)*, **6**()1, 61-98.

[2] Lanne, M., Saikkonen, P., (2006) Why is it so difficult to uncover the risk-return tradeoff in stock returns? *Economics Letters* **92**, 118-125.