Financial deregulation, banking development, and the likelihood of banking fragility: the case of Indonesia

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CHAPTER 8
SUMMARY, MAJOR FINDINGS, POLICY RECOMMENDATIONS, AND FURTHER RESEARCH STUDIES

8.1. Opening Remarks

This last chapter presents the summary, major findings, policy recommendations and further research studies which could follow this thesis. Presentation of this chapter is divided into five sections. Section two presents the summary and the major findings of this thesis. Section three examines the policy recommendations related to the findings of this thesis. Section four investigates further research studies and some concluding remarks in the last section.

8.2. Summary and Major Findings

The Indonesian financial sector before the 1983 financial deregulation was distorted. The central bank was setting deposit rates in state banks and setting lending rates for priority economic sectors. The central bank was also applying a credit ceiling policy and providing liquidity credits for priority economic sectors at subsidised rates. These conditions contributed to a repressive financial system.

The 1983 financial deregulation fundamentally changed the Indonesian financial sector. State banks were freed to set deposit interest rates, the financing from the central bank for priority economic sectors was reduced substantially, and the credit ceiling policy in the banking sector was abandoned. Consequently, banks were able to mobilise funds to finance credit and were free to determine their lending to the private
sector. In a deregulated financial system, interest rates play an important role in attracting savers and determining the ability of banks to mobilise funds and therefore, their ability to supply credit to the private sector.

The 1983 financial deregulation assisted the economy by removing financial repression, creating a broadly networked banking sector, and increasing saving through the banking sector. The abandonment of the credit ceiling policy and increased saving through the banking sector increased the ability of banks to provide credit to the private sector. Financial deregulation, however, increased competition among banks. Increased competition contributed to a reduction in the profitability in most groups of banks and the largest decline in profitability up to mid 1997 was in state banks.

The impact of financial deregulation might differ among groups of banks, especially between state banks and national private banks. The dominance of the state banks as a group as measured by the share of assets was gradually reduced. The share of assets held by state banks fell from 68.5% to 41.7%, while the share of assets held by national private banks increased from 11.5% to 42% at the end of 1987 and 1996 respectively. The share of saving that can be mobilised by state banks fell from 67.6% to 30.3%, while the share of saving that can be mobilised by national private banks increased from 17.1% to 60.4% at the end of 1983 and June 1997 respectively. The share of credit from state banks fell from 78.3% to 35.6%, while the share of credit from national private banks increased from 11.7% to 52.9% at the end of 1982 and June 1997 respectively. State banks and national private banks held the major share in the banking system in Indonesia up to June 1997. Moreover, if there is a problem in either state banks or national private banks as a group, it might lead to problems in the banking system as a whole as the share of state banks and national private banks as a group was very substantial in the system.
An increase in saving through the banking sector following financial deregulation contributed to increasing the availability of credit from the banking sector, which in turn contributed to increasing private investment. These mechanisms contributed to increasing financial intermediation and credit from banks plays an important role as a channel between saving through the banking sector and private investment. It implies that the financial sector, especially the banking sector, was significant in the process of economic development up to June 1997.

Financial deregulation, however, is often also associated with increasing banking fragility due to the moral hazard for bank owners especially if there is lack of supervision and/or minimal law enforcement. The moral hazard of the bank owners contributed to them taking excessive risks, through devices such as the interlocking ownership between financial and non-financial firms which opened venues for extending excessive credit to affiliated companies. Even though there was a Legal Lending Limit (LLL) regulation to regulate the maximum credit that could be extended to affiliated companies, the number of banks that violated the LLL regulation tended to increase. 46 out of 250 banks violated the LLL regulation at the end 1994 compared with 52 out of 239 banks at the end of 1996. National private banks have the largest number of banks that violated the LLL regulation, as 39 out of 154 national private banks violated the LLL regulation at the end 1996. Number of banks that violated the LLL increased dramatically after the 1997 financial and banking crises, and 137 out of 208 banks violated the LLL regulation at the end of 1998. A dramatic increase in the number of banks that violated the LLL regulation after 1997 might be related to the large depreciation of the domestic currency. In addition, an “intervention” in extending credit also contributed to increasing the level of non-performing loans as credit was extended based on non-market mechanisms. All of those factors contributed to the
weaknesses in the banking sector even before the onset of the 1997 financial and banking crises. As a result, the benefits of financial deregulation proved not to be sustainable when the 1997 currency crisis hit Indonesia.

The contagion effects of the currency attack are not spread in a purely random way, but are most likely to occur in countries that have low foreign exchange reserves, substantial real exchange rates appreciation, and a weak banking system (Sachs, Tornell, Velasco (1996), and Tornell (1999)). Those weaknesses, especially low foreign exchange reserves and a weak banking system, were present in Indonesia before the onset of the currency crisis in 1997.

- There was very high percentage of short term foreign debt to the foreign exchange reserves which stood at 176.6% at the end 1996. The percentage of debt service and short term foreign debt to foreign exchange reserves reached 294.2% at the end 1996. In addition, this high proportion of short term foreign borrowing was associated with foreign borrowing by the private sector due to a lack of regulation of foreign borrowing by the "pure" private sector. A ratio of more than 100% of short term foreign borrowing compared with foreign exchange reserves indicates that if the foreign creditors are not willing to rollover their credits, there would be insufficient reserves to cover repayment of foreign borrowings.

- There was a relatively high ratio of broad money (M2) to foreign exchange reserves, which was 6.3 at the end 1996, even the ratio of M1 to foreign exchange reserves at the end 1996 was 1.4. Consequently, if there was a panic, foreign exchange reserves were not enough to convert saving through the banking sector into foreign exchange.

- Weaknesses in the banking sector which were indicated by a large ratio of credit to GDP tended to increase overtime. An increase in credit to the private sector was
associated with financial deregulation policy which freed the banks to determine credit to the private sector. A large ratio of credit to GDP indicates a large exposure of credit to the private sector. The growth in real credit was 17.1% compared with the growth of real GDP at 7.8% in 1996. According to the findings of Caprio and Klingebiel (1997), a growth of real credit higher than double the growth real GDP is associated with the existence of banking problems.

- The weakness of the banking sector caused by lack of supervision and/or lack of law enforcement was indicated by the relatively large number of banks that violated the legal lending limit regulation.

Those above economic indicators suggest the weaknesses in economic fundamentals in Indonesia before 1997. Those weaknesses made the economy vulnerable to an attack on its currency. As foreign exchange reserves were relatively low, the currency attack could not be controlled by draining foreign exchange reserves. Consequently, there was few options instead to float the foreign exchange rate. The market intervention from the third week of July 1997 until the day before the rupiah was floated on 14 August 1997 in the spot market amounted to US$1.5 billion (Djiwandono (2000b)), but this was insufficient to turn the tide given the political uncertainties at the time.

A currency crisis is often the trigger to the financial and banking crises in emerging countries due to asymmetric information which causes deterioration in balance sheets especially in the financial sector (Mishkin (1999a)). Unfortunately, when the currency crisis hit Indonesia in 1997, there were many non-economic rumors that contributed to lower the domestic currency to an unreasonable level. The value of the rupiah declined dramatically, from Rp.2,599/US$ at the end of July 1997 to Rp.4,650/US$ at the end of December 1997 and then to Rp.10,375/US$ at the end of
January 1998 when there were rumours about the health of the then president Soeharto. A large depreciation of the domestic currency increased the equivalent value of foreign borrowing and reduced the net worth of borrowers and even led to negative net worth for many large borrowers. The negative net worth of borrowers leads to an investment collapse (Gertler and Rose (1996)) and it contributed to the problems in the Indonesian economy including problems in the banking sector. The decline in borrowers' net worth affected the domestic banking sector as many large borrowers obtained funds from foreign sources and domestic banks simultaneously. Therefore, the 1997 currency crisis rapidly moved to the financial and banking crises.

The government responded to the financial crisis by approaching the International Monetary Fund (IMF) in the very early stages of the crisis. The first agreement with the IMF was signed at the end of October 1997. After that, the economy including the monetary and banking sectors were under an IMF supported program for Indonesia which was summarised in the Memorandum on Economic and Financial Policies (MEFP) submitted to the IMF via the letter of intent (LOI) from the Government of Indonesia.

The monetary policies required under the IMF program included a tight monetary policy to defend the domestic currency and the promotion of central bank autonomy (central bank independence). The theoretical argument for central bank independence is based on the intention to lower or eliminate the potential for undesirable political opportunism associated with the political economy of the business cycle (Hillman (1999)). The promulgation of the Act of the Bank Indonesia number 23 of May 1999 has provided a legal basis for political and economic independence for the Central Bank of Indonesia (Bank Indonesia). The independence of the central bank was also followed by a requirement for increased accountability
which was stated in the Act of Bank Indonesia of 1999 as the obligation of the central bank to submit a report regarding the implementation of its tasks and authority to the House of Representatives.

On the other hand, financial sector policies under the IMF program are as follows: closing unviable banks, establishing proper procedures and policies to deal promptly with weak but viable financial institutions, resolving problems of state banks and regional development banks, improving the institutional and legal framework for banking operations to ensure the emergence of a sound and efficient financial system, a recapitalisation program for potentially viable private banks, merger and recapitalisation of state banks, and a strengthened banking supervision system. It is argued that at the theoretical level, those policies are consistent with the policies that have been widely used in countries which made substantial progress in restoring their financial sectors.

The closure of weak banks and recapitalisation of banks were significant policy measures. In the recapitalisation program, the government set the criteria of banks that can be included in the recapitalisation program and the government will supply 80% of the capital inadequacy to achieve a 4% capital adequacy ratio (CAR), in the form of bonds, and the shareholders and/or new investors have to inject a minimum 20% of the capital inadequacy. Using this transparent criteria, the government closed 38 banks, took over 7 banks, and committed to recapitalise 9 banks in March 1999. In addition, before March 1999, the government had closed, taken over and frozen a number of banks; but these policies were not linked to the March 1999 recapitalisation program policy. Moreover, total banks in Indonesia (excluding the rural credit banks) declined substantially from 239 banks at the end of 1996 to 170 banks in March 1999.
The 1997 financial and banking crises reduced financial intermediation dramatically. The ratio of credit to total assets after 1997 declined dramatically from 81% to 34% at the of 1996 and June 1999. The annual growth rate of credit to the private sector in June 1999 decreased by 59.9% compared with an increase of 26.1% in June 1997. The ratio of credit from total banks to saving through the banking sector (loan/deposits ratio of the banking sector) declined from 108.5% at June 1997 to 41.3% in June 1999. It suggests that there was considerable financial disintermediation after 1997. Hence, financial deregulation in Indonesia had two major outcomes with opposite effects as follows.

- Financial deregulation contributed to removing financial repression by bringing interest rates to positive levels close to market interest rates, and increased competition among banks by easing entry to the banking industry, and increasing fund mobilisation as indicated by increasing saving through the banking sector, and increased credit from banks to the private sector. These positive effects of financial deregulation contributed to increased financial intermediation function of the banking sector. An increase in financial intermediation is in line with Shaw's debt intermediation view for deregulating the financial sector in developing countries.

- Financial deregulation, however, also contributed to increasing the weakness of the banking sector which was accompanied by a lack of law enforcement. The weaknesses in the banking sector were indicated by a large ratio of credit to GDP and a large growth of real credit. A large increase in credit to the private sector in the very short period following financial deregulation is often followed by increasing non-performing loans in the future. Besides, the number of banks that violated regulations, such as the legal lending limit (LLL) regulation, tended to increase. It indicates that there was a lack of law enforcement which contributed to
increasing moral hazard. The weaknesses in the banking sector and lack of law enforcement contributed to increasing the likelihood of banking fragility leading to banking problems resulting from financial deregulation.

These two major issues associated with the benefits and costs of financial deregulation in Indonesia are the focus of this thesis. This thesis explores the relationship between interest rates, saving through the banking sector, credit from banks, and private investment by using the financial deregulation hypothesis; and the determinants of the probability of banking fragility for the case of Indonesia.

To explore the financial deregulation hypothesis of the relationship between interest rates, saving through the banking sector, credit from the banking sector, and private investment in Indonesia, the Johansen cointegration tests and error correction mechanisms are used. The selection of the Johansen cointegration method is based on the argument that the study emphasised long run relationships and the equations deal with the multivariate case (more than two variables are included in the estimation of the cointegration test).

On the other hand, to investigate whether financial deregulation variables influenced banking fragility in Indonesia, the determinants of banking fragility were analysed by using the logit and probit methods. The selection of the logit and probit models is based on the argument that the dependent variable represents a binary quantitative response which the value only consists of one and zero. The dependent variable is the dummy variable for banking fragility and the binary responses are associated with the existence of banking fragility or there is no banking fragility. Consequently, the construction of the dummy variables for banking fragility is important and this study follows the study of Demirguc-Kunt and Detragiache (1998a, 1998b).
The summaries of the major findings of this econometric testing are as follows.

1. The unit root tests in this thesis were done not only by using the conventional tests associated with the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) methods but also by using the unit root tests considering the possibility of a structural break as proposed by Perron (1989). As discussed earlier, the argument for using the unit root test considered with a structural break is associated with the structural break caused by the 1997 financial and banking crises. If the 1997 financial and banking crises are not considered in the unit root test, it implies that the financial and banking crises are assumed to be just a big outlier and the result is biased to non-rejection. The procedure of using the unit root test is conditional on the presence of a structural break which allows a one-time exogenous change in intercept and trend simultaneously (model C of Perron (1989)). It is assumed that the break time is known, and was caused by the 1997 financial and banking crises. The results of the unit root tests conditional on the presence of a structural break for most of the variables are consistent with the ADF test, the exception being the inflation rate. The results of the unit root tests conditional on the presence of a structural break indicate that the inflation rate is stationary in the level, but the ADF result indicates that the inflation rate is not stationary in the level. Consequently, inflation rates cannot be included in the cointegration test, and the real term such as real deposit rates, real lending rates, and real SBI rates should be used instead of separating nominal interest rates and the inflation rate.

2. The Johansen cointegration test for saving through the banking sector, credit from total banks, credit from state banks, credit from national private banks, and private investment indicate that they are cointegrated with their specified variables
respectively. As a result, the error correction mechanisms for those equations are valid.

3. Real deposit rates were positive and significantly influenced real saving through the banking sector in the long run, at least up to the second quarter of 1997. The finding of the positive relationship between real deposit rates and real saving through the banking sector is consistent with the findings of Warman and Thirlwall (1994) for Mexico, Athukorala (1996) for India, and Darsono (1999) for Indonesia. The variables and methodology which were used by Darsono (1999) in estimating the saving function were somewhat different from this thesis. This study found that an increase of 1% in real interest rates was associated with an increase in real saving through the banking sector by about Rp.1.02 billions in the long run for the sample period 1983:1-1997:2. However, when the sample period is extended to 1999:2, the long run impact of real interest rates became insignificant. After 1997:2, deposit interest rates increased dramatically but it was followed by an increased inflation rates. This condition indicated increasing risk and the lack of credible financial policy. Therefore, this finding supports the notion that a moderate positive real interest rate which was accompanied by a credible financial policy is a potent factor to mobilise funds through the banking sector.

4. Saving through the banking sector is the dominant source of credit availability from banks. It is found that the long run impact of real saving through the banks after being adjusted by minimum reserves is positive and significant in influencing real credit from the banks for the sample periods 1984:1-1997:2 and 1984:1-1999:2. In the long run, an increase of 1% in real saving through the banking sector taking account of minimum reserve requirements is associated with an increase in real credit from total banks by 0.99% for the sample period 1984:1-1997:2. The
impact of real saving after minimum reserve requirements on real credit from total banks is lower for the sample period 1984:1-1999:2 which is an increase of 1% in real saving through the banking sector after being reduced by minimum reserve requirements is associated with increasing real credit from total banks by 0.92% in the long run for the sample period 1984:1-1999:2. This lower parameter might related to the reduced intermediation of the banking sector after 1997. The finding of the positive and significant effects of saving though the banking sector on credit from banks is consistent with the findings of Warman and Thirlwall (1994) for Mexico and Athukorala (1996) for India. However, they did not separate the credit function into groups of banks. This thesis has estimated separately the credit function of state banks and national private banks.

5. Real savings through state banks and national private banks after being adjusted for minimum reserve requirements are also positive and significantly influence real credit from state banks and national private banks. The parameter of real saving in state banks is higher than that in national private banks. It is found that the parameter of real saving after minimum reserves is 1 and 0.67 for state banks and national private banks respectively, for the sample period 1984:1-1997:2. It suggests that in the long run an increase of 1% in saving though state banks after adjustment for minimum reserve requirements is associated with an increase in credit from state banks of 1%, while a 1% increase in saving through national private banks after being reduced by minimum reserve requirements is associated with an increase in credit from national private banks of 0.67% for the sample period 1984:1-1997:2. When the sample period is extended to 1999:2, the impact of real saving after being reduced by minimum reserve requirements on real credit
is not significant for state banks but it is positive and significant for national private banks.

6. The elasticity of real credit from total banks with respect to real saving through the banking sector after being reduced by minimum reserve requirements taken together with the impact of real interest rates on real saving through the banking sector which is 0.01, for the sample period 1983:1-1997:2, will indicate the impact of deposit interest rates on real credit from total banks. It is found that an increase of 1% in real deposit rates can be associated with an increase in the supply of real credit from total banks by Rp.0.96 billion in the long run. The finding supports the evidence that a moderate increase in real deposit rates has a significant and positive impact on the supply of credit from the banking sector, at least up to the second quarter of 1997.

7. Real credit from total banks, state banks, and national private banks is not only influenced by real saving adjusted for minimum reserve requirements but is also hypothesised to be influenced by other variables such as real borrowing from Bank Indonesia, real lending rates, real SBI rates and real capital. The impact of real borrowing from Bank Indonesia to total banks on real credit from total banks is positive and significant for the sample period 1984:1-1997:2 and the parameter is relatively high at 0.31. It suggests that in the long run, an increase of 1% in real borrowing from Bank Indonesia to total banks is associated with an increase in credit from total banks by 0.31% for the sample period 1984:1-1997:2. When the sample period is extended to 1999:2, the impact of the borrowing from Bank Indonesia becomes negative and significant. This negative and significant impact of real borrowings from Bank Indonesia on real credit from total banks for the sample period up to 1999:2 should be interpreted cautiously and this negative
impact might be related to the 1997 financial and banking crises. This finding suggests that the variable borrowing from Bank Indonesia is potent to influence credit from banks, at least up to 1997:2.

8. Real capital equity of total banks and real SBI rates do not significantly influence real credit from total banks. Interestingly, the impact of real capital equity of state banks and national private banks significantly influences real credit from state banks and national private banks respectively for the sample period 1984:1-1997:2, but the signs are contrasting. The sign of the real capital equity on real credit from state banks is negative but it is positive for national private banks. However, when sample period is extended to 1999:2, the impact of real capital equity on credit becomes positive and significant for both state banks and national private banks. It is found that in the long run an increase in real capital equity of Rp.1000 is associated with an increase in real credit by Rp.3.7 and Rp.2.3 for state banks and national private banks respectively for the sample period 1984:1-1999:2. In addition, real lending rates negatively and significant influence on real credit from total banks for the sample period 1984:1-1997:2 and 1984:1-1999:2.

9. Real credit from total banks is positive and significantly influences real private investment in the long run, at least up to the second quarter of 1997. The significant impact of real credit from total banks on real private investment is consistent with the findings of Athukorala (1996) for India. This study found that in the long run, a 1% increase in real credit from total banks is associated with an increase in real private investment by 0.42%. However, when the sample period is extended to 1999:1, the impact of real credit on real private investment becomes insignificant. This finding supports the evidence that credit from banks has a significant role in financing private investment, at least up to 1997:2.
10. Real private investment in the long run is also positive and is significantly influenced by real net capital flows of the private sector. It is an interesting result that real private investment is positive and significantly influenced by credit from total banks and net capital flows. It is found that in the long run an increase of US$1 in net capital flows to the private sector is associated with increased real private investment of about US$0.41 (at June 1997 exchange rates) for the sample period 1983:1-1997:2. The positive and significant impact of real credit from total banks and real net capital flows to the private sector supports the evidence that real private investment was strongly associated with both credit from domestic banks and net capital flows of the private sector (foreign sources), at least up to the second quarter of 1997.

11. Real private investment in the long run is not significantly influenced by real public investment for the sample period 1983:1-1997:2 and 1983:1-1999:1. This finding contrasts with the findings of Athukorala (1996) for India, which found that there was a long run positive relationship between lagged government investment and private investment in India. The relationship between public investment and private investment in Indonesia, however, does exist in the short run. It is found that there is a significant and negative relationship between lagged real public investment and real private investment in the error correction model. It suggests that in the short run, public investment and private investment are substitutes.

12. Taken together, the elasticity of real private investment with respect to real credit (0.42) and the parameter of real deposit rates to real saving (0.01) and elasticity of real credit from total banks with respect to real saving through the banking sector after being reduced by minimum reserve requirements (0.99), suggest that in the
long run a 1% increase in real deposit rates is associated with an increase about Rp.0.40 billion in real private investment through the supply of real credit from the banking sector (total banks). It implies that an increase in real interest rates at moderate levels contributed to increasing private investment through the availability of credit from the banking sector. In other words, financial deregulation contributed to increasing private investment through credit availability effects, at least up to the second quarter of 1997. It is in line with Shaw’s debt intermediation view, which is that an increase in financial intermediation contributed to increased investment. Hence, this finding contributes to the evidence that an increase in interest rates at a moderate level accompanied by a credible financial policy will contribute to increasing private investment through the credit availability effect.

An increase in credit to the private sector, however, might also contribute to increasing the probability of banking fragility. An increase in credit to the private sector is often associated with financial deregulation policy. In this study, the ratio of credit to the private sector to total assets, lagged growth of real credit, and the spread between lending and deposit interest rates are used as proxies for financial deregulation variables (see Kaminsky, Lizondo, and Reinhart (1998)). The likelihood of banking fragility, however, might be related to other factors. Therefore, the probability of banking fragility in Indonesia is hypothesised not only to be influenced by financial deregulation variables but also to be influenced by macroeconomic and group bank specific variables.

Details of the results of the determinants of the probability of banking fragility in Indonesia are summarised as follows.

13. Probability of banking fragility in Indonesia is significantly associated with the progress of the financial deregulation variables and group bank specific variables
for the sample period 1986:3-1997:2. Interestingly, this thesis found that all proxy variables for financial deregulation consistently contributed to increasing the probability of banking fragility for both the sample periods 1986:3-1997:2 and 1986:3-1999:2. It implies that financial deregulation variables are strongly related to the probability of banking fragility even before the onset of the 1997 financial and banking crises. On the other hand, the probability of banking fragility for the sample period 1986:3-1999:2 is not only related to financial deregulation variables and group bank specific variables but is also related to macroeconomic variables.

14. Macroeconomic variables that most significantly influence the probability of banking fragility for the sample period 1986:3-1999:2 are depreciation of the domestic currency and lagged short term interest rates. This thesis found that an increase in lagged short term interest rates is associated with an increased probability of banking fragility. It indicates that interest rate shocks contributed to increasing probability of banking fragility in the near future in the sample period 1986:3-1999:2. The lag of short term interest rates, however, is not significant in influencing the probability of banking fragility for the sample period 1986:3-1997:2 but the sign is positive and it is consistent with the hypothesis. The insignificance of lagged short term interest rates should be seen cautiously as the impact of short term interest rates might be through other channels such as through the spread between lending and deposit interest rates.

15. Depreciation of the domestic currency does not significantly influence the probability of banking fragility for the sample period 1986:3-1997:2. The insignificance of the depreciation of the domestic currency is associated with the relatively constant depreciation of the domestic currency before August 1997 as during that period the central bank was ready to intervene in the market to maintain
foreign exchange rates within a band. The insignificance of the depreciation of the domestic currency on the probability of banking fragility is consistent with the findings of Demirgüç-Kunt and Detragiache (1998a). However, when the sample period is extended to 1999:2, the depreciation of the domestic currency is a positive and significant influence on the probability of banking fragility. The finding suggests that a larger depreciation of the domestic currency is associated with a larger probability of banking fragility for the sample period 1986:3-1999:2. This finding is in line with the findings of Gonzalez-Hermosillo, Pazarbasioglu, and Billings (1997) for Mexico.

16. All proxy variables for the progress of financial deregulation are significantly associated with probability of banking fragility for the sample periods 1986:3-1997:2 and 1986:3-1999:2. This thesis found that a larger lagged ratio of credit to total assets is associated with a larger probability of banking fragility. It indicates that a larger exposure of credit is related to a larger credit risk in the near future that will result in an increase in the level of non-performing loans. This finding is supported by the positive and significant impact of the lagged growth of real credit on the probability of banking fragility. The finding strongly suggests that a larger lagged growth of real credit is associated with a larger probability of banking fragility. This finding supports the evidence that the problem of the banks was related to the “boom bust cycle” even before the onset of the 1997 financial and banking crises. Moreover, this finding indicates that the changes in growth of credit to the private sector on the probability of banking fragility does not alter in the immediate aftermath of the changes in the growth of credit but rather it changes over time. The evidence of the “boom bust cycle” is consistent with the findings of

17. The other variable related to the progress of financial deregulation that influences the probability of banking fragility, for the sample period 1986:3-1997:2 and 1986:3-1999:2, is the spread between lending and deposit interest rates. A larger spread between lending and deposit interest rates is associated with a larger probability of banking fragility. Large differences between lending and deposit interest rates might be associated with the slower adjustment of lending rates to go down than deposit interest rates.

18. The group bank specific variable that significantly affects the probability of banking fragility for the sample periods 1986:3-1997:2 and 1986:3-1999:2 is the ratio of capital to total assets. This thesis found that a lower ratio of capital to total assets is related to an increased probability of banking fragility. This finding strongly supports the evidence that low capital was associated with increasing the probability of banking fragility even before the onset of the 1997 financial and banking crises. Meanwhile, a larger growth in the share of credit to the trade sector is associated with a larger probability of banking fragility for the sample period 1986:3-1997:2, while a larger growth in share of credit to services sector is associated with a larger probability of banking fragility for the sample period 1986:3-1999:2 but it is not significant for the sample period 1986:3-1997:2.

19. Other group bank specific variables that significantly influence the probability of banking fragility for the sample period 1986:3-1999:2 are the lag in the ratio of credit in foreign currency denominations to total credit and the growth in ratio of saving through the banks to total assets. This thesis found that a larger lagged ratio of credit in foreign currency denominations to total credit is associated with a
larger probability of banking fragility. This finding suggests that a large
depreciation of the domestic currency contributed to increasing the probability of
banking fragility through the exposure of credit in foreign currency denominations.
Moreover, this thesis also found that a lower growth in the ratio of saving through
the banks to total assets is associated with a higher probability of banking fragility
for the sample period 1986:3-1999:2. This finding supports the evidence that bank
panic contributed to increasing the probability of banking fragility in the sample
period 1986:3-1999:2. The significance of this variable might be related to the
closing of 16 banks following the agreement with the IMF in the early November
1997. However, bank panic is not significant when using the sample period up to
the second quarter 1997.

20. The DUM variable which has a value of one for state banks and zero otherwise is
positive but it is not significant for the sample periods 1986:3-1997:2 and 1986:3-
1999:2. The positive but insignificance of the DUM variables suggests that there is
no evidence that probability of banking fragility in state banks is higher than that in
national private banks for the both sample periods.

8.3. Policy Recommendations

Financial deregulation in Indonesia was associated with the abolition of the
credit ceiling policy for the banking sector and administration of interest rates for state
banks, and was followed by the elimination of entry restrictions to banking which had
positive and negative effect for the financial sector. It led to increased saving through
the banks, which in turn increased the availability credit from banks. Most of this
saving was used to extend credit to the private sector until the onset of the financial
and banking crises in 1997. However, capital equity of banks played a minimal role in
extending credit to the private sector. The low role of the capital equity accompanied by a dominant factor of saving through the banks in financing credit to the private sector contributed to weakening the balance sheet of the banking sector as it led to excessive risk taking in extending credit and even tended to encourage unsound lending practices. The owners of the banks took excessive risks, as they would lose only a small part if a project failed but they would get a high benefit if the project was working well. This contributed to the crisis and leads to the following recommendations.

1. *Increasing Capital of Banks.* An increase in capital for banks is important in order to lower the moral hazard of the banks' owners. In addition, it has been found that low capital of banks was strongly associated with a high probability of banking fragility. Therefore, an increase in the capital of banks in line with international standards might contribute to reducing the moral hazard of the banks' owners. The moral hazard of the banks' owners might be reduced when they face the full cost of their actions and in turn they will assume the additional risks associated with their actions. An increase in bank capital in line with the international standards will assist the soundness of the banking sector.

2. *Prudent Credit Policy.* It has been found that credit from the banking sector is important to finance private investment, but when the growth in real credit is lagged, it is significantly associated with a banking fragility. It indicates that a large increase in credit from the banking sector will increase private investment, but it also increases the probability of banking fragility in the near future. It implies that the increased credit from the banking sector was not sustainable, because of the possibility of an increased level of bad debts. Therefore, the central bank should consider the development of a credit policy for the banking sector. Credit policy
should be prudent to obtain the optimal result. The freedom of the banking sector to extend credit to the private sector should be considered wisely so these credits would not threaten the soundness of the banking sector.

3. Improving Banking Supervision and Law Enforcement. Unsound practices in extending credit from banks are possible when there is a lack of either supervision or law enforcement. Minimal supervision and law enforcement will open the venue for “collusion” between supervisors and the banks, and might also open the venue for intervention from other parties. It is argued that even the best regulation will not give fruitful results when there is a lack of supervision and law enforcement. The improvement in supervision must be accompanied by improvements in law enforcement.

4. Promoting Market Discipline. The development of the banking sector should be followed by improved market discipline. An undisciplined market will impact on the soundness of the banking sector. For example, the managed exchange rate system before August 1997 contributed to the willingness of the private sector to take currency risks as the depreciation of the currency was relatively constant. This experience discouraged hedging of foreign borrowings by the private sector and consequently when the currency crisis hit most of the foreign borrowing was unhedged. This factor is one of the reflections of an undisciplined market that was not under the control of the central bank. A lack of oversight by the central bank contributed to the increasing the risks of financial deregulation in Indonesia as private investment was financed by domestic banks and foreign borrowing simultaneously. This meant that the banking sector faced large indirect risks from a large depreciation of the rupiah, as borrowers often had unhedged foreign
borrowings which affected their ability to repay banks when the currency crisis arose. This was compounded by the problems caused by crony capitalism.

5. *Encourage long-term capital inflows.* Capital inflows to the country should be directed to the long-term capital inflows, while short-term capital inflows should be discouraged. It is argued that long term capital inflows are more sustainable, while short term flows are very sensitive to “market sentiments” and can easily be reversed when confidence drops. In fact, when the confidence suddenly drops, net capital outflows begin and the country faces macroeconomic and microeconomic problems. From this lesson, a fundamental economic policy to reduce instability should be to lower short-term capital inflows. However, this could discourage some foreign lenders and needs to be sensitively applied.

8.4. Suggestion for Further Research

It has been argued that financial deregulation in Indonesia contributed to increasing the financial intermediation function of the banking sector. An increase in financial intermediation to finance efficient investment is an important argument of Shaw (1973) for deregulating the financial sector in developing countries. It cannot be rejected statistically that saving through the banking sector is an important variable to determine credit from the banking sector and credit from banking sector contributed positively to private investment, at least up to the second quarter of 1997. Therefore, the role of credit from the banking sector is important as a channel between saving through the banking sector and private investment. On the other hand, it cannot be rejected statistically that all variables for the proxy of financial deregulation are strongly related to the probability of banking fragility. A large increase in credit to the private sector is associated with increasing probability of banking fragility in the near
future. It implies that an increase credit to the private sector will result in an increasing the level of non-performing loans in the near future. Therefore, an increase in credit to the private sector is not sustainable to finance private investment. On these grounds, there is a link between financial deregulation, private investment, and banking fragility. Therefore, it is an important role for the central bank to optimise the benefits of the financial deregulation and minimalise banking unsoundness. An unsound banking sector leads to inefficiencies in credit allocation and this has additional negative implications for the real economy at large. However, when the banking system functions properly, the linkage between monetary policy instruments and economic performance will operate as generally expected in contributing both to policy effectiveness and efficiency (Guitian (1997)). With regard to the issue of the banking soundness and the effectiveness of the monetary policy, further research is required to investigate the following.

• **Monetary Policy Transmission.** The development of the banking sector and capital market will influence the transmission of monetary policy. It is important for the central bank to investigate the transmission of monetary policy by considering the exact situation of the banking sector and the development of the capital market in order to improve the effectiveness of monetary policy.

• **Regulation of the Capital Adequacy Ratio (CAR) related to the sustainability of the banking sector.** The soundness of the banking sector is important to improving the effectiveness and efficiency of monetary policy. Guitian (1997) argues that the relationship of sound banks to macroeconomic and monetary performance is bi-directional. Banks are “derivative” institutions in that their soundness and stability reflect those of the economy as a whole, and their own performance responds to macroeconomic policies. It indicates that the soundness of the banking sector is
important not only for the banking sector but also for the sustainability of macroeconomic and monetary performance. This study has found that capital of banks is significant in influencing the probability of banking fragility. Therefore, improvements in this might be related to the Capital Adequacy Ratio (CAR). Further research on the regulation of the CAR associated with the sustainability of the banking sector is needed to investigate the level and components of CAR that can maintain the soundness of the banking sector. If the banking sector is sound, the monetary policy from the central bank can be transmitted to the economy effectively.

- **Determinants of Banking Fragility by using the Individual Data Bank for Investigating Early Warning System for the Banking Sector.** It is important for the central bank to examine the determinants of banking fragility by using individual banks to construct an early warning system for the banking sector. By using data and information from individual banks, the investigation of the determinants of the banking fragility will be more detailed and comprehensive and the results can be used for the central bank policy makers as an early warning system. The “warning” would send signals to the central bank undertake appropriate policy in order to maintain a sound banking sector.

8.5. Concluding Remarks

The reality of Indonesia’s economic success before 1997 and current problems are somewhere between in two extremes. During the “success” period, the government adopted a managed exchange rates system and the depreciation of the foreign exchange rates were predicted. The benefit of this system was relatively constant and predictable depreciation. This assisted the government to maintain price stability. However, this
system provided an implicit guarantee to domestic firms and they borrowed directly from overseas without hedging their liabilities. Consequently, it contributed to sending misleading signal to the economy. Exchange rates in Indonesia following the floating exchange rate system, however, were very volatile and this was partly related to non-economic factors. For example, the value of the rupiah has increased gradually following the resignation of the then President Soeharto, from Rp.14900/US$ at the end of June 1998 to Rp.6726/US$ at the end of June 1999. This gradual appreciation of the rupiah, however, was not sustainable, and the value of the rupiah declined from Rp.7100/US$ at the end of 1999 to Rp. 9595/US$ at the end of 2000 and fell even further in March-April 2001 in line with the “political crisis”. Therefore, the value of the rupiah was not sustainable up to March 2001 and capital outflows continued.

Negative net capital flows of the private sector were US$13,846 millions in 1998, US$9,922 millions in 1999, and US$4,763 million in the second quarter 2000. In addition, the banking sector is still not able to extend credit to the private sector optimally. The ratio of credit from total banks to saving through the banking sector (loan to deposit ratio) is still low (37.3%) at the end of 2000 and in turn it slowed improvements in the real sector. However, the interest rates has declined substantially, for example lending interest rates of working capital declined from 28.8% at June 1999 to 17.7% at December 2000. In general, the financial and banking crises which started in 1997 was not over by the end of 2000.

Finally, there is an important lesson that can be learnt from the experience of the link between financial deregulation and the financial and banking crises in Indonesia. The most important lesson is related to the design and implementation of monetary and banking sector policies by emphasising the risks which might follow those policies and the degree law enforcement required to support them. When there
was minimal law enforcement, the policies might be not working optimally and increased moral hazard. Therefore the desirable policies should be backed by political will from the government for improving law enforcement. Central Bank independence is crucial in this regard.