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**Interest Spreads and Mandatory Credit Allocations:
Implications on Bank Loans to Small Businesses
in Indonesia¹**

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Abstract:

This study evaluates the significance of three policy related factors in influencing the supply of loans by the private national and state banks to small businesses. The first two are the spread rates between the lending rate and the deposit rate; and between the lending rate and the rate of the certificate of Bank Indonesia (SBI). The third factor is the Bank Indonesia Policy of January 2001 which has effectively abolished a stringent condition whereby each commercial bank (state and private) must allocate at least 20 percent of their total credit outstanding for the small enterprise Loans.

Key Words: Small-Scale Enterprises, Bank Loans, Interest Spreads,
Mandatory Credit Allocation, State and Private National Banks,
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1. Introduction

Indisputably, small businesses have been the most vibrant sector of the Indonesian economy during the peak- and the post-1997 financial crisis.² With the collapses of domestic conglomerates and large corporations in 1998 and 1999 (the two worst years of the 1997 financial crisis), the contributions of the small businesses on the overall gross domestic product (GDP) of the country were steadily rising, reaching its highest at 43 percent of the total gross domestic products in 1999 (Table 1). More importantly, in average around 90 percent of the annual total employment and entrepreneurs were associated with the small businesses between 1997-2001.

As in any developing and developed nations (Samolyk (1997), Brewer *et.al* (1996)), this industry in Indonesia relies heavily on the banking sector for its working capital. The private and state banks contributed almost an equal share to their total of around 90 percent of the credit outstanding to the small enterprises by the banking sector during the last decade (Figure 1).³ The pre-crisis experiences showed that there were always *strong* and *positive* correlations between the monthly growths of small loans and that of the total outstanding credit for both groups of banks. Yet, despite the return of much-needed robust growths of outstanding credits annually by the private and state banks in recent years, and the respectable growths of the small industry during the crisis, the share of the small enterprise loans have fallen from 2001 to 2002.

In addition, contrasting trends among these small loans had also surfaced starting the second quarter of 1997. While the quarterly average of credit outstanding to the small enterprises by the state banks increased by about 8 percent between

² According to the Small Business Law of the Republic of Indonesia number 9/1995, small businesses cannot have assets (exclusive of building and land) of more than 200 million rupiah and sales of more than one billion rupiah. This enterprise must be owned by an Indonesian citizen, and standing on its own, not part of a business affiliation or business branch owned or dominated or having affiliation directly with medium and big businesses.

³ As for the rest, the regional development bank supplies the majority share. The contribution of the foreign private banks is very insignificant ---less than one percent of the annual average of the total outstanding credits to the small enterprises in the last 10 years.

1997 and 2001, the total small enterprise loans for the private national bank severely dropped by nearly 110 percent for the same period. The significant downfall in the supply of loans by the domestic private banks has in fact largely explained the reported 13 percent drop in the quarterly average of total outstanding small loans by the banking sector in 2001 from the 1997 level.

Furthermore, despite the sharp falls during the first six months of the crisis, the average share of the state bank outstanding small business loans was still at a respectable rate of around 27 percent from 2000 to 2001, roughly four percentage points higher than the peak average of the pre-crisis, reported from quarter 1, 1996 to quarter 1, 1997 (Figure 2). In contrast, with the exception for the last six months of 2000, the quarterly average share of small enterprise credits in the overall outstanding loans of the private banks during the crisis period has been substantially below the level reported during the last two years of the pre-crisis period.

Between 2001 and 2002, small loans from both groups of banks experienced steady declines. The reported shares of the small business loans by the private banks for the second quarter of 2001 onward had hovered back around the lowest levels of the crisis period (at the first two quarters of 1999). Conversely, the small loan share by the state banks at the first quarter of 2002 was still about the same level reported during the pre-crisis period of first quarter of 1997.

What has been the underlying factors generating these periodically contrasting trends in the supply of loans by the two major groups of banks? What were the causes of the overall drops in the small business loans in late 2001 and 2002? Despite the importance of the small businesses and the pressing needs for bank loans by the small-scale enterprises, hardly any recent studies, both theoretical and empirical ones, have looked into these crucial matters in Indonesia. Most of the works on the bank credits of the crisis-affected East Asian economies, including

Indonesia, have focused more on analysing the presence of credit crunches in the overall banking sector (Agung *et.al* (2001) and Gosh and Gosh (1999)).⁴

To address the questions, our study examines closely the quarterly share of the small business loans in the total outstanding credits of: a) private and state banks combined; b) private banks only; and c) state banks only during the pre- and post-1997 financial crisis. We are particularly interested in evaluating the significance of three policy related factors in influencing the supply of the small enterprise loans by these two major groups of banks.

The first two are the spread rates between the lending rate and the deposit rate; and between the lending rate and the rate of the certificate of Bank Indonesia (SBI) (Figure 4 and 5).⁵ Early papers have shown that the negative spread rates have largely been responsible for the sharp drops in the overall bank lending in 1998 and 1999 (Siregar (2002) and Timberg (1999), Agung *et.al* (2001) and Gosh and Gosh (2001)). In this paper, we want to show however that the two interest rate spreads have not adequately explained the trends for the small-enterprise loans during the post-crisis period (the year 2000 and onward).

If we follow the arguments proposed by those early papers, then as interest spreads returned to positive levels in early 1999, positive growth rates of the total credit outstanding by the banking sector should have, therefore, prevailed (Figure 3). Yet, we have not seen the same positive growths for the bank loans to the small businesses. Despite the positive interest rate spreads and positive quarterly growth rates on the total outstanding credits of the state and private banks since the first quarter of 2000, the small business credits experienced negative growths.

In an attempt to generate a better account of the driving forces behind the fluctuations in the small enterprise lending, we consider “the third factor”: the Bank

⁴ Timberg (1999), on the other hand, provides a good survey on recent developments of micro-enterprise finances in Indonesia.

⁵ The certificate of Bank Indonesia is the key instrument that the central bank employs to intervene the market.

Indonesia Policy of January 2001 which has effectively abolished a stringent condition whereby each public bank (state and private) must allocate at least 20 percent of their total credit outstanding for the small enterprise loans.⁶ To our knowledge, no study has incorporated this latest “controversial” central bank policy into the profit maximization function of the bank and empirically tests its implications on the amounts of loans extended by the state bank and the private bank in Indonesia.⁷

By way of preview, we find the three listed factors influenced significantly the shares of loans to the small enterprises by these two groups of banks. Interestingly, the result for the state bank seems to suggest that this group of bank was able to continue expanding its share of small loans despite the negative spread between the lending rate and the deposit rate at the peak of the 1997 financial crisis. The share of the small loans by the private bank, on the other hand, had been adversely affected by the negative spreads. These contrasting findings partly explain the rise and fall in the share of the small loans by the state and private bank from 1997 to 2000, respectively. As for the post 2001, the abolishment of the mandatory credit allocation to the small businesses has largely been responsible for the declines in the small loan shares by these two groups of banks. The impact of this policy measure, has, however, affected the private bank small loans more severely than those of the state banks.

Next section of the paper will briefly review a number of stylised facts on the three potential determinants of the supply of bank credits to the small enterprises. In section 3, we introduce a theoretical framework that captures a number of possible relationships between the supply of credits and its key determinants. The empirical section conducts two sets of unit-root tests (the Augmented Dickey-Fuller and the

⁶ Bank Indonesia Policy No.3/2/PBI/2001. Small enterprise loans are those credits up to 500 million rupiah.

⁷ The controversial aspects of the policy are to be discussed in section 2, 5 and also on the concluding remarks.

Banerjee, Lumsdaine and Stock (BLS) rolling test). Based on the unit-root properties of the series, both the Johansen cointegration tests and the autoregressive distributed lagged (ARDL) error correction model test for the long-run and short-run analysis are conducted. Section 5 of the paper presents further policy analyses based on the test results. A brief concluding remark section ends the paper.

2. Brief Reviews of Trends and Stylised Facts

2.1 Interest Rate Spreads

2.1.2 The Lending and SBI Spreads

One of the extensive debates that have taken place in Indonesia at the initial and worst stages of the 1997 financial crisis was on the desirability of rising key interest rates to defend the local currency and to manage the growth rate of the base money. At its highest level reported in August 1998, the one-month central bank security (1-month SBI rate) rate went beyond 70 percent. During the peak period of the crisis (1998 and 1999), the interest returns of one-month SBI was in fact significantly higher than the lending rate, by an average of more than 20 percent for the private national banks and 30 percent for the state banks (Figure 4).

Between June 1999 and April 2000, the one-month rate of the central bank security reported a steady decline and reached its lowest rate at around 11 percent in April 2000. However, the rate has reverted back to a rising trend since June 2000. In the last 6 months of 2001, the one-month SBI rate reached an average level of well above 17 percent.

2.1.1 The Lending and Deposit Spreads

The combination of the high inflationary pressures and the tight monetary policy to defend the local currency particularly at the first two years of the crisis pushed the deposit rate to increase proportionally to ensure the real interest rate to be marginally above zero. The lending/ working capital rate, on the other hand, could

not rise as much to prevent further defaults on the loans. Subsequently, as the deposit rate exceeded the lending rate in the early 1998, the domestic banking sector in Indonesia experienced a costly period of negative-interest rate spreads (Figure 5). From January 1998 to December 1998, the six-month deposit rate was in average around 7 percent higher than the lending rate. In October 1998, the negative spread was at a staggering rate of 19 percent. The negative spread continued during the first seven months of 1999, with the average spread rate at 2.2 percent. Only starting the second half of 1999 that the spread of lending and deposit rates returned to positive levels.

2.2. Central Bank Policy of January 2001

For about three decades prior to the 1997 financial crisis, Bank Indonesia had to coordinate both roles of being the monetary policy maker and the agent of development. Under the Act of Bank Indonesia, No. 13/1968, Bank Indonesia directly involved in formulating credit policy to small enterprises, providing direct capital assistance and also technical assistance. In its January 1990 policy package, the central bank imposed a mandatory requirement for the commercial banks (state and private) to allocate 20 percent of their total outstanding loans to small-scale businesses.

As parts and parcels of the process to establish an independent central bank, the new Central Bank Law of act No. 23, 1999 has eliminated the role of Bank Indonesia in funding and administering credits for the small and medium enterprises (SMEs). To push further the reform in the banking sector and the independence of the central bank, the Letter of Intents (LOIs) between IMF and the government of Indonesia signed in January 2000 stipulates a future plan to phase out mandatory requirements on the commercial banks lending to SMEs.⁸ Following through with its

⁸ This Letter of Intents can be downloaded from <http://www.imf.org/external/np/loi/2000/idn/01/index.htm>

commitment, Bank Indonesia issued its regulation in January 2001 which officially abolished any requirement for commercial banks (state and private) to place at least around 20 percent of its total credit outstanding to the small enterprises.

3. Basic Theoretical Framework

The objective of this section is to introduce a theoretical framework that incorporates three key potential determinants of the supply of bank loans to the small enterprises. In a competitive model, banks are expected to maximize their profits at each period (Π). Banks absorb deposit from the local economy, and they hold two forms of assets: loans (small enterprise loans (L^s) and medium and large enterprise loans (L^{ml})), and central bank securities (CBS).⁹ Total loans can be expressed as ($L = L^s + L^{ml}$). As price takers, each bank takes as given the rate of loans (r_L), the rate of deposits (r_D), and the rate of central bank securities (r_G). Note here, the loan rates for small and medium to large enterprises for each group of the banks in Indonesia are relatively the same and equal to (r_L). Hence, the choice between extending the loans to the small or the medium-large enterprises will depend on the cost associated with each type of loans.

We assume that the bank only source of fund to be channelled into lending, reserve, and government security is the deposit that they absorb from the public. Deposit (D) = loans (L) + reserve (R) + central bank securities (CBS). Banks must keep a share (res) of its deposit in its reserve. Thus, $R = res.D$ and

$$CBS = [(1 - res).D] - L.$$

The total cost of the bank ($C(L, CBS, D)$) covers all the expenses associated with the management and the risks/uncertainties of its assets (the costs of small

⁹ Since we are not interested on looking at the loans to medium and large enterprises in this study, we lump them into one category.

enterprise loans ($C(L^s)$) plus the cost of the medium and large enterprises loans ($C(L^m)$); the government securities ($C(CBS)$); and its liabilities ($C(D)$).

Incorporating all of the key factors, we can express the profit function of the bank as:¹⁰

$$\Pi = r_L L + (CBS)r_G - (D)r_d - C(L, CBS, D) \quad (1)$$

As discussed, prior to January 2001, the central bank of Indonesia requires the private commercial banks to channel a percentage of their total loans (gg) to the small enterprises. Failure to meet the set share will result in a penalty. Therefore, we need to incorporate the additional “policy cost” to the standard profit function (f).

Lets first assume that the bank complies with the mandatory credit allocation policy imposed by the central bank. The net return from the mandatory loans to small enterprises will therefore be:

$$[(gg * L)r_L] - C(L^s) \quad (2)$$

Alternatively, the bank can choose to disobey the central bank rule and instead invest that amount of loan into government security and/or medium to large enterprises. Obviously, there is a penalty imposed by the monetary authority if the bank opts to do so. For the sake of simplicity, we assume that there will be a fixed lump-sum cost of ($f > 0$).¹¹ The net return of investing on the government security and medium to large enterprises adjusted by the penalty cost could be expressed as:

¹⁰ For a comprehensive analysis on the economic theory of banking, refer to Freixas and Rochet (1997).

¹¹ Since our study is not focusing on estimating the “effective” rate of penalty, we can just impose the fixed lump-sum amount.

$$[\sigma ((gg * L)r_L - C(L^{ml}))] + [(1 - \sigma)((gg * L)r_G - C(CBS))] - f \quad (3)$$

Note: $0 \leq \sigma \leq 1$. The bank will be indifferent between these two choices of alternative assets, as expressed in Equation 2 and 3, if and only if:

$$(ggL)r_L - C(L^s) = [\sigma ((gg * L)r_L - C(L^{ml}))] + [(1 - \sigma)((gg * L)r_G - C(CBS))] - f \quad (4)$$

Where: $f = C(L^s, L^{ml}, CBS) - (1 - \sigma)(gg.L)(r_L - r_G) \quad (4b)$

$$C(L^s, L^{ml}, CBS) = C(L^s) - \sigma C(L^{ml}) - (1 - \sigma)C(CBS) \quad (4c)$$

Adding the “policy cost function” (f) and expressing deposit (D) as $(RES + L + CBS)$ and government security (CBS) as $CBS = (1 - res).D - L$, plus assuming that $Cost(L^s, L^{ml}, CBS)$ is part of the overall management cost $Cost(L, CBS, D)$, the profit equation (Equation 1) can be further modified as follow:

$$\Pi = r_L L + ((1 - res)(R + L + CBS) - L)r_G - (R + L + CBS)r_d - C(L, CBS, D) + ((1 - \sigma)(ggL)(r_L - r_G)) \quad (5)$$

To generate the profit-maximizing amount of loans that the bank should supply to the small enterprises, the first order condition (F.O.C) of the profit function with respect to (L^s) is derived:

$$\frac{\partial \Pi}{\partial L^s} = 0 = ([res + (1 - \sigma)gg](r_L - r_G)) + [(1 - res)r_L - r_d] - \frac{dCost}{dL^s} \quad (6)$$

The F.O.C denotes that a competitive bank will adjust its volume of loans in such a way that the corresponding intermediation margin

$[(res + (1 - \sigma)gg)(r_L - r_G)] + [(1 - res)r_L - r_d]$ equals to the marginal management cost of the loan to the small enterprises $[\frac{dCost}{dL^s}]$. Several interesting analysis can be derived further from Equation (6).

a). A rise in the spread between the lending rate (r_L) and the government security rate (r_G) entails an increase in the bank's supply of loans.

b). A rise in the spread between the lending rate (r_L) and the deposit rate (r_D) is going to increase the supply of loans.

c). A high (gg) will force the commercial bank to extend a larger amount of loans to the small enterprises, in order to avoid costly penalty. On the other hand, a low (gg) provides more freedom for the bank to reduce the size of loans to smaller enterprises to the profit-maximization level. Hence, high (gg) will effectively force the bank to supply more loans and vice versa.

4. Empirics

4.1 Working Model and Data

Based on the theoretical framework in section 2, the following regression equation will be tested:

$$L_{it}^s = \beta_0 + \beta_1(r_L - r_D)_{it} + \beta_2(r_L - r_G)_{it} + \beta_3gg_t + \beta_4crisis_t + \varepsilon_t \quad (7)$$

The crisis dummy variable ($crisis_t$) is added to capture the changes in the overall domestic economic condition due to the 1997 financial crisis in Indonesia. (β_0) and (ε_t) are the constant parameter and the error term, respectively. (t) denotes the time, and (i) represents the three groups of small credit share for: state and private banks combined; state bank only; and private bank only. The test will cover the

period from quarter 1, 1993 to quarter 2, 2002. The availability of quarterly series on the loans to small enterprises dictates our choice of testing period.

(L_{it}^s) are the percentage shares of loans allocated to the small enterprises at time t by both state and private banks combined and by each group of banks individually ---all denominated in the local currency (Indonesian rupiah). The data are sourced from the Bank Indonesia Data Base. Variable L_{it}^s are in the log-forms.¹²

$(r_L - r_D)_t$ is the spread between the lending and the deposit rate at time t . The lending rates for the private and the state banks are the average working capital for 12 months offered by each group of banks. The deposit rates are the average of the annual 3, 6 and 12 months time deposit rates for both the state and the private banks. The data sets are taken from the Bank of Indonesia Data Base. As for the case of the total small enterprise loans of the private and state banks combined, we construct the following weighted interest rate index:

$$(r_L - r_D)_t^T = \left(\frac{priv}{priv + stat} \right) (r_L - r_D)_t^P + \left(\frac{stat}{priv + stat} \right) (r_L - r_D)_t^S \quad (8)$$

Where: $(priv)$ and $(stat)$ are the total credit outstanding to the small enterprise by the private and state banks, respectively. $(r_L - r_D)_t^P$ and $(r_L - r_D)_t^S$ are the lending and deposit spread rates for private and state banks, respectively. From the theoretical framework (section 2), we therefore expect that $(\beta_1 > 0)$.

$(r_L - r_G)_t$ represents the spread between the interest returns of the loan and that of the central bank security at time t . The rate of central bank security is the average of 1 month and 3 month Bank Indonesia Security (SBI) rate. Both of these

¹² Given the negative interest spreads for some periods, the log-forms of the variables cannot be calculated.

series are adopted from the Bank of Indonesia Data Base. β_2 is expected to be positive. For the case of private and state banks combined, we construct the following weighted interest rate index:

$$(r_L - r_G)_t^T = \left(\frac{priv}{priv + stat} \right) (r_L - r_G)_t^P + \left(\frac{stat}{priv + stat} \right) (r_L - r_G)_t^S \quad (9)$$

The definitions of (*priv*) and (*stat*) are the same as before. $(r_L - r_G)_t^P$ and $(r_L - r_G)_t^S$ are the lending and SBI spread rates for private and state banks, respectively.

(*gg*_{*t*}) represents the mandatory small business credit allocation policy imposed by the central bank on the domestic commercial banks. To capture this change in policy, we introduce a dummy variable for (*gg*) where it is equal to one prior to quarter 1, 2001 and equal to zero otherwise. Based on our theoretical analysis, β_3 is positive.

(*crisis*_{*t*}) is the dummy variable. It is equal to zero for quarter 1, 1993 to quarter 1, 1997, and equal to one, otherwise. Higher investment risks are expected during the crisis period, and will therefore likely to deter any expansion of the supply of loans into the economy. We therefore expect β_4 to be negative.

4.2 Test Results

We perform three sequential sets of testing: a) the unit root test; b) the Johansen cointegration test; and c) the autoregressive distributed lags (ARDL) error correction model test. This sub-section will focus mainly on highlighting key empirical findings. As for further “interpretations” and policy related analysis, section 5 of the paper will cover them.

4.2.1 The Unit Root Tests

The commonly used Augmented Dickey Fuller (ADF) testing is first carried out. The results confirm that all relevant series are stationary at first differenced --- Integrated of Order (1), except for variable $(r_L - r_G)_t$ of the private bank, an I(0) series (Table 2). However, given the potential presence of structural breaks associated with the 1997 financial crisis, the low power of the ADF test may not be sufficiently sensitive to differentiate a stationary series from one that is non-stationary, *especially* at the level.

In order to evaluate the unit root property more structurally for each variable at its level, we apply the next set of tests introduced by Banerjee, Lumsdaine and Stock (1992) ---henceforth BLS. The BLS test provides a more in-depth investigation of the possibility that aggregate economic time series can be characterised as being stationary around “ a single or multiple structural breaks”. The BLS test extends the Dickey-Fuller t -test by constructing the time series of rollingly computed estimators and their t -statistics. Following the BLS, we can compute the smallest (minimal) and the largest (maximal) Dickey-Fuller t -test statistics from the rolling test, both of which are compared to their respective critical values (Table 2B). The test results confirm the findings of the ADF tests. It also finds that the null hypothesis of non-stationary at the 5 percent critical value cannot be rejected for $(r_L - r_G)_{it}$ of the private bank at the level. Overall, we can therefore conclude that all variables are integrated of order 1.

4.2.2 The Long-Run Determinants of Small Enterprise Loans

Given the unit-root properties of the relevant series, the presence of a long-run relationship among the variables in Equation 7 for each group (total, state and private) will have to be evaluated. For each testing, the time trend variable is added into the regression equation. If the variable is found to be insignificant, then it will be

excluded from the final testing. The Johansen Cointegration test results are reported in (Tables 3 - 5).

In all three cases, we find one cointegrating relationship at 1 percent significant level for both the “total” regression and the state bank; and at 5 percent level for both regressions of the private bank. Due to their significant Chi-square statistics ($\chi^2(1)$) at 1 percent, the time trend (t) is included only for the state bank case. As for the “total” and “the private bank” regressions, the time trend variable is insignificant, hence it is dropped from the final testing. In all three regressions, the dummy variable is excluded due to its insignificant ($\chi^2(1)$) statistics. The signs of the coefficient estimates of all key variables for both groups of banks are consistent with the theoretical framework, with the exception of the $(r_L - r_D)_it$ for the state bank regression (Table 4).

The results also suggest that the long-run coefficient estimate for the spread rates between the loan and the SBI are significant at 1 percent level of $\chi^2(1)$ for both the private and state bank individually, and at 5 percent for the total regression. As for the spread rates between the loan and deposit, the coefficients are significant at 1 percent level for the state, but only at 5 percent for the private bank and at 10 percent for the “total” case.

Conflicting results are reported from the cointegration testing on the “policy requirement” (gg_t) variable. For the total regression, this variable is found to be theoretically consistent and significant in explaining the long-run supply of the loans to the small enterprises at 1 percent level (Table 3). When we regress the individual group of banks, the variable (gg_t) is found to be insignificant for the state banks, but it is significant at 5 percent level of $\chi^2(1)$ statistics for the private banks (Tables 4 – 5).

4.2.3 The Autoregressive Distributed Lag Error Correction Model

Next, the ARDL Error Correction Model testing is conducted to analyse the short-run determinants of the supply of small enterprise loans for all three cases. We follow the general to specific approach of Henry (1974 and 1977) by starting with four lags and dropping the insignificant lags.¹³ The ARDL error correction model can be expressed as the following: (Equation 10):

$$\Delta L_{it}^s = c_0 + \sum_{k=0} \alpha_{i(t-k)} \Delta L_{i(t-k)}^s + \sum_{k=0} \beta_{i(t-k)} \Delta(r_L - r_D)_{i(t-k)} + \sum_{k=0} \delta_{i(t-k)} \Delta(r_L - r_G)_{i(t-k)} + \sum_{k=0} \varphi_{i(t-k)} gg_{(t-k)} + \gamma crisis_t + \lambda ecm_{t-1} + \varepsilon_t$$

We add the lags of the dependent variable ($\Delta L_{i(t-k)}^s$) to capture the impacts of the previous quarters of loans ---the adjustment component. The coefficient estimate for this lagged dependent variable is expected to be negative, as a substantial growth in the supply of loans at (t-1) will likely to be followed by a lesser amount at time (t). As for the rest of the explanatory variables, the coefficient estimates are expected to be consistent with the theoretical frameworks discussed in section 3. The error correction component (ecm_{t-1}) represents a long-run relationship, and is expected to have a significant and negative coefficient estimate.

$$\sum_{k=0} \alpha_{i(t-k)} > or < 0, \sum_{k=0} \beta_{i(t-k)} > 0, \sum_{k=0} \delta_{i(t-k)} > 0, \sum_{k=0} \varphi_{i(t-k)} > 0, \gamma < 0, \text{ and } \lambda < 0.$$

Confirming the fundamental role of the key explanatory variables, Tables (6 – 8) report significant and theoretically consistent coefficient estimates for the lending and the SBI spread rate variable and (gg_t) at 1 percent to 10 percent critical levels. As for the spread between the lending rate and deposit rate, the coefficients are all

¹³ Given the number of observations and the degree of freedom, we only include four lags. As the test results show that at most only up to three lags are found to be significant for both sets of regression estimates (Table 5 and 6).

significant at either 1 percent or 5 percent, but coefficients for the total loans (Table 6) and the state bank (Table 7) are negative, inconsistent with the prior theoretical expectation.

The significance and negative coefficients (λ) for all three regressions confirm the presence of a long-run relationship between the relevant variables. The sizes of the coefficient indicate that the convergence to the long-run trend is more rapid in the case of the private national banks than that of the state banks. For the lagged variable of loan outstanding ($\Delta L_{i(t-k)}^s$) and the crisis dummy, we find a significant case only for the private national banks and for the state bank, respectively.¹⁴

Several key diagnostic statistics, including the Durbin-Watson (DW), the Ljung-Box Q statistics, the F-statistics (and its probability), the Engle's ARCH test for heteroscedasticity and the Jarque-Bera normality test, are presented for each regression. The F-statistics indicate that the probability is at least 95 percent that one or more of the independent variables are non-zero. The Durbin-Watson statistics and the Q-statistics indicate that the serial correlations are not a problem in any of the regression results. The ARCH results conclude the absence of heteroscedasticity in general. Lastly, the Jarque-Bera test statistics confirm the normality of the disturbances.

4.2.3.1 Testing the Implicit Assumption of Exogeneity

The validity of the econometrics test results posted in tables (6 - 8) crucially depends on the implicit assumption that the right-hand side variables in Equation (10) are statistically exogenous to supply of credits for each of the groups of banks. To test for the statistical exogeneity, we employ the one-sided procedure to test for

¹⁴ When we include ($\Delta L_{i(t-k)}^s$) for the state bank regression, the overall results of the test actually worsened. So we opted not to include this variable, and only focused on the primary explanatory variables.

causality in the sense of Granger (1969). This one-sided Granger causality test is chosen here from a number of alternative causality techniques in the light of the Monte Carlo evidence reported by Geweke, Meese, and Dent (1983).¹⁵

To be consistent with the ARDL error-correction model tests, we consider only the significant variables posted in Tables 6 - 8. Furthermore, since the Granger test is narrowly interpreted here as a test for statistical exogeneity of particular variables within a given model, it seemed more prudent to maintain the same lag specifications as in the early results shown in Tables 6 - 8 when applying the Granger test.¹⁶ From the test results, we can conclude that the implicit assumption of exogeneity for the explanatory variables is generally found to be applicable in all cases. For the sake of brevity, we do not report the test results. But the results can be made available upon request.

5. Policy Implications

5.1 The Loan and SBI Spread Rates

Given high uncertainties facing the local industries, especially at the peak of the crisis in 1998 and 1999, the availability of the Certificate of Bank Indonesia, a relatively secure investment instrument with respectably high interest returns has attracted banks to accumulate a rather generous proportion of their assets in terms of the SBI. This is confirmed by the positive coefficient estimate for variable $(r_L - r_G)_i$ in all three regressions. The database of Bank Indonesia shows that by the end of November 2002, around 23 percent and 45 percent of the outstanding SBI in the domestic economy are being held by the state and the private commercial banks, respectively.

¹⁵ The same procedure was also employed by Darrat and Arize (1990).

¹⁶ We experimented with different lag structures, and consistent overall results were obtained.

As shown also in our model, the high holding of SBI, particularly by the private commercial banks implies less available funds to be channelled as credits to local industries, including those for the small businesses. The empirical results underscore the adverse consequence of the monetary policy adopted by the central bank on the supply of credits to the small enterprises in the country.

5.2 The Loan and Deposit Spread Rates

The positive and significant coefficient estimate for $(r_L - r_D)_i$ for private banks suggests the undesirable consequences of the much sharper increase in the rates of the deposit than those of the lending rates on the *levels* and *shares* of the small business lending (Table 8). Our test results support the claims of Cameron (1999) and Siregar (2003).¹⁷

However, for the state bank, the coefficient for $(r_L - r_D)_i$ is found to be significant and negative (Table 7). Given the share of the state bank loans to small enterprise in average larger than that of the private bank, the coefficient for the spread between lending and deposit is also significant and negative for the “total” case (Table 6). The negative coefficient implies as the spread widens, the larger is the supply of state bank small business loans would be.

The finding for the state bank is theoretically inconsistent, but it does reflect the stylised facts. After experiencing a sharp drop at the early stage of the crisis (the last two quarters of 1997 and first quarter of 1998), the share of the small business loans of the state banks immediately grew positively (Figure 2). This was despite the much more severe and lasting negative spreads between the loan and deposit rates experienced by the state bank than those reported for the private banks (Figure 5). As shown in Figures 2 and 3, the share of the small enterprise credits, on the other

¹⁷ These two studies, particularly Cameron (1999), do not provide much of empirical testing to support their findings.

hand, did not begin to grow persistently until early 1999 when the spread rates have returned to positive levels.

Arguably due to the full supports of the government and the increase of public deposits in the state banks, particularly at the early stage of 1997 financial crisis, the state banks were able to endure the heavy cost of the negative spreads and became the main source of loans to the domestic industries in general, and to the small businesses in particular.¹⁸ By end of December 1997, the total outstanding credits extended by the private bank in Indonesia was about 169 trillion rupiah compared to around 132 trillion rupiah of the state bank. At the end of December 1999, the outstanding loans of the private bank dropped severely to around 56 trillion rupiah, while the number of the state bank dropped at a much less significant rate to around 112 trillion rupiah.¹⁹

¹⁸ With the closures of key private banks, leading to bank run on the private banks at the early stage of the crisis, and under the wide perception that the state banks would be protected by the government, a large share of bank deposits in the country has been moved from the private to the state banks. The data on demand, saving and time deposits for different groups of bank can be downloaded from the web-site of Bank Indonesia (www.bi.go.id).

¹⁹ Subsequently, the much sharper rise in the short-term deposit (such as one month rate) than the longer term (such as one year) had created a substantial and destabilising shift in the time deposits.¹⁹ Between late 1996 to July 1997, the proportion of longer-term deposits (6 month or 12 months) in the domestic banking sector was around 45-50 percent of the total time deposit, with one-month deposits constituting less than 30 percent (Evans (1998)). By July 1998, the share of one-month deposit reached almost 70 percent of the total deposit, while the 6 and 12 month deposits dropped to less than 15 percent. The dominance of very short-term deposits add further element of instability to bank operations, through mismatch between short-term funds and long-term loans. This unfavourable position largely contributes to the worsening of the level of non-performance loans and negative profits experienced by the domestic banking industry in 1998 and 1999 (Siregar (2003)). Overall, the banking industry in Indonesia had experienced a total gross loss of as much as Rp178 trillion by December 1998. Coincide with the end of negative spread rates in early 2000, the banking industry started to post positive gross profits in 2000 and 2001. Reflecting the improvement in the profitability of the banking industry, the percentage of the gross non-performing loans over the total loans of the group of private national banks under the Indonesian Bank Restructuring Agency improved to the level of 18 percent at the end of 2000 from the worst level of 50 percent reported between December 1998 and March 1999.

5.3 Bank Indonesia Policy of January 2001

Based on the significant and positive coefficient estimate of variable gg_t of the Johansen test for the private bank, the central bank policy of January 2001 will likely to have *long-run* unfavourable consequences on the share of the outstanding credits to small enterprises by the national private banks, but not for the state banks (Table 3 and 5). Furthermore, the adverse long-run implication of the abolishment of any mandatory credit allocation to the small enterprises by the private banks seems to have generated the unfavourable consequence of the January 2001 policy on the “total” credit outstanding extended by the state and the private banks combined (Table 3). We recognize however the results for the long-run cases may not be robust due to the available short sample period.

Another interesting analyses can be drawn from the short-run flows. The coefficient estimate of variable (gg) of Table 7 suggests that the abolishment of the mandatory credit allocation policy did not have an immediate impact on the supply of small enterprise loans by the state banks. The test result indicates that there are six months (two quarters) lags. As for the private banks, an immediate implication is reported, with none of the lagged variable (gg) is found to be significant.

The empirical findings for the short-run cases are consistent with the stylised facts. The percentage share of credit outstanding to the small businesses by the private banks started to fall in the first quarter of 2001, while those of the state bank only reported substantial declines starting the third quarter of 2001 (Figure 2). By the end of the third quarter of 2001, the average share of the loan outstanding to small businesses by the private banks has dropped to around 12 percent, while that of the state bank still hovered around 27 percent, significantly higher than the abolished 20 percent requirement.

Our overall test results in general, and for the private sector in particular, validates the concerns shared by the parliament members on the need to reintroduce

the mandatory loan requirement for the small enterprises. In fact, the parliamentary debates in late 2002 and early 2003 had even brought up the possibility of 40 percent allocation of commercial bank loans to the small - and medium-scale enterprises.²⁰

6. Concluding Remarks

This study introduces a profit-maximization model that captures three primary determinants of the supply of bank loans to the small enterprises by the private and the state banks in Indonesia. The empirical investigation confirmed the significant consequences of key interest rate spreads (the loan and deposit spreads; and the loan and SBI spreads) in explaining the fluctuations of the small enterprise loans. Furthermore, the test results also suggest that the abolishment of the mandatory credit allocation has been responsible for the decline in the share of small enterprise loans on the overall credits supplied by the two groups of banks.

Based on this last finding, should Indonesia reinstate the mandatory credit allocation to small enterprises? Recent studies have stressed a number of adverse implications of government interventions, connected lending, and lack of prudential regulation and supervision on the performance of domestic banks and in explaining episodes of banking crisis in 1980s and 1990s (Goldstein and Turner (1996) and Demirguc-Kunt and Detragiache (1997)). Borensztein and Lee (1999) have also concluded that government interventions in the financial markets have caused a number of distortions in credit allocation and pricing in Korea.

Furthermore, which institution should be responsible for monitoring the implementation of the policy? With the lack of any other legitimate and independent authority to assume this role, Bank Indonesia seems to be the only natural candidate.²¹ However, will this create hindrances to the on-going efforts of creating

²⁰ *BISNIS INDONESIA* Daily Newspaper, November 15, 2002.

²¹ Starting May 2003, there have been intensive discussions in the country on initiatives to create an independent institution that has the full responsibilities of monitoring the operations of the domestic financial institutions. Most agree that there is a need for this type of institution.

an independent central bank? From the past experiences of Bank Indonesia, the responsibility of administering credits for domestic industries in general have often clashed with the conduct and target of the monetary policy.

To design appropriate measures to deal with the small business loans, further researches certainly have to be performed. Just looking at the present trends, it is clear however that the role of regional development banks should be enhanced. At the end of December 1997, the small business loans of the regional banks only contributed less than 7 percent of the total small loans by the banking sector. During the crisis, their share had steadily increased and reached around 20 percent by June 2002, only few percentage points lower than the share of the private national banks. The local nature of small business lending requires local expertise for monitoring borrower-specific risks, etc., and hence, appears to suit the inherently more local focus of the regional development bank. Furthermore, as private banks get larger through mergers and consolidations, their business focus is expected to shift toward larger commercial customers.²² The commitment by the local and central governments in Indonesia to push for the decentralization process, through delegations of much larger autonomies from the central government to the provincial government, should largely shape the role of the regional development banks as a provider of financial services to the local industries in each province, including the small businesses in the near future.²³

But many also acknowledge that the establishment of this type of institution will require a good number of years.

²² With the ongoing consolidation and restructuring of the banking industry in Indonesia continue and creating larger banking organizations, many are also apprehensive about the levels of commitments that the private commercial banks have on their allocations of credits to small enterprises. The ongoing consolidation of the banking industry in the United States for instance has shown evidences that as banking organizations grow in size; the needs of smaller business customers may not be met (Peek and Rosengren (1996), Samolyk (1997), Strahan and Wetson (1998), and Avery and Samolyk (2000). Berger et.al (1998) find that small business lending increases following small bank mergers but falls following large bank mergers.

²³ In general the implementation of regional autonomy is regulated by Law No. 22, 1999 on "Local Government" and Law No. 25, 1999 on "The Fiscal Balance Between the Central

References:

- Avery, R. and Samolyk, K. (2000), "Bank Consolidation and the Provision of Banking Services: The Case of Small Commercial Loans", December (mimeo)
- Banerjee, A., Lumsdaine, R. and Stock, J. (1992), "Recursive and Sequential Test of the Unit Root and Trend- Break Hypotheses: Theory and International Evidence", Journal of Business Economic Statistics, vol. 10, pp. 271-287.
- Bank Indonesia (2001), Bank Restructuring: Progress and Outlook, (March).
- Berger, A.N., Kashyap, A.K., and Scalise, J.M. (1995), "The Transformation of the US Banking Industry: What a Long, Strange Trip It's Been", Brooking Papers on Economic Activity (2), pp. 155-218.
- Berger, A.N. and Udell, G.F. (1996), "Universal Banking and the Future of Small Business Lending", in Klausner, M., and White, L. J. (Eds), Structural Change in Banking, Irwin, Homewood, IL, pp. 227-291.
- Berger, A.N., Saunders, A., Scalise, J.M., and Udell, G.F. (1998), "The Effects of Mergers and Acquisitions on Small Business Lending", Journal of Financial Economics, Vol. 50.
- Borensztein, E. and Lee, J.W.(1999), "Credit Allocation and Financial Crisis in Korea", IMF Working Paper 99/20 (Washington: International Monetary Fund).
- Brewer III, Genay, H., Jackson III, W., and Worthington, P.R. (1996), "How Are Small Firms Financed? Evidence from Small Business Investment Companies", Economic Perspectives, Federal Reserve Bank of Chicago, Chicago, IL, November-December, pp.2-18.
- Cameron, L. (1999), "Survey of Recent Developments", Bulletin of Indonesian Economic Studies, Vol. 35, No.1 (April), pp. 3-41.

Darrat, A.F. and Arize, A.C. (1990), "Domestic and International Sources of Inflation in Developing Countries: Some Evidence from the Monetary Approach", International Economic Journal, Vol.4, Number 4, pp. 55-69.

Demirguc_Kunt, A., and Detragiache, E. (1997), "The Determinants of Banking Crises: Evidence from Developing and Developed Countries", IMF Working Paper 97/106 (Washington: International Monetary Fund).

Effendy, A. (2001), "Small and Medium Enterprise Financing in Indonesia", Paper presented at the Keio University, Japan (October).

Evans, K. (1998), "Survey of Recent Developments", Bulletin of Indonesian Economic Studies, Vol. 34, No.3 (December), pp. 5-36.

Farley, J.U., Huinich, M.J., and McGuire, T.W. (1975), "Some Comparisons of Tests for a Shift in the Slopes of a Multivariate Linear Time Series Model", Journal of Econometrics, Vol.3, pp.297-318.

Freixas, X. and Rochet, J.C. (1997), Mircoeconomics of Banking, the MIT Press, Cambridge, Massachusetts, London, England.

Geweke, J. Meese, R., and Dent, W. (1983), "Comparing Alternative Tests of Causality in Temporal Systems", *Journal of Econometrics*, February, pp. 161-194.

Goldstein, M. and Turner, P. (1996), "Banking Crises in Emerging Economies: Origins and Policy Options", *BIS Economic Papers*, No. 46, Bank for International Settlements.

Granger, C.W.J., "Investigating Causal Relations by Econometrics Models and Cross-Spectral Methods", *Econometrica*, July 1969, pp. 424-438.

Henry, D.F. (1974), "Stochastic specification in aggregate demand model of the United Kingdom", Econometrica, vol. 42, pp. 559-578.

Henry, D.F. (1977), "On The Time Series Approach to Econometric Model Building", in Sims, C.A. (Ed.), New Method in Business Cycle Research, Federal Reserve Bank of Minneapolis.

Nakamura, L.I. (1993), "Commercial Bank Information: Implications for the Structure of Banking", in Klausner, M., and White, L. J. (Eds), Structural Change in Banking, Irwin, Homewood, IL, pp. 227-291.

Peek, J. and Rosengren, E.S. (1996), "Small Business Credit Availability: How Important Is the Size of the Lender?", in Saunders, A. and Walter, I. (Eds), Universal Banking: Financial System Design Reconsidered, Irwin, Burr Ridge, IL.

Samolyk, K.A. (1997), "Small Business Credit Markets: Why Do We Know So Little About Them?", FDIC Banking Review, 10, no. 2, pp:14-32.

Siregar, R. (2003), "Interest Rate Policy and Its Implication of the Banking Restructuring Programs in Indonesia during the 1997-financial crisis: An Empirical Investigation", (forthcoming) in F. Sjöholm and J. Tongzon (eds), Institutional Change in Southeast Asia, Routledge Press (forthcoming).

Strahan, P.E. and Wetson, J.P. (1998), "Small Business Lending and the Changing Structure of the Banking Industry", Journal of Banking and Finance, 22, pp. 821-845.

Tambunan, T.T.H (2000), Development of Small-Scale Industries during the New Order Government in Indonesia, Ashgate, Vermont, USA.

Timberg, T.A. (1999), "Small and Micro-Enterprise Finance in Indonesia: What Do We Know?", a paper prepared for USAID-funded Partnership for Economic Growth (PEG) Project.

**Table 1:
Share of Small, Medium and Big Scale Enterprises**

Share of Small, Medium and Big Scale Enterprises in Total GDP (in %)					
	1997	1998	1999	2000	2001
Small Scale	40.45	41.83	43.08	39.93	39.40
Medium Scale	17.41	16.03	15.65	15.23	15.34
Large Scale	42.14	42.15	41.27	44.84	45.26
Share of Small, Medium and Big Scale Enterprises in Total Entrepreneurs (in %)					
	1997	1998	1999	2000	2001
Small Scale	99.84	99.85	99.86	99.85	99.85
Medium Scale	0.15	0.14	0.14	0.14	0.14
Large Scale	0.01	0.01	0.01	0.01	0.01
Share of Small, Medium and Big Scale Enterprises in Total Employment (in %)					
	1997	1998	1999	2000	2001
Small Scale	87.62	88.66	88.75	88.79	88.59
Medium Scale	11.78	10.78	10.71	10.67	10.85
Large Scale	0.60	0.58	0.54	0.54	0.55

Source: Database of Bank Indonesia

**Table 2:
ADF Unit-Root Test**

Variable	Statistics	# of Lags ^a	Remarks
Private Bank:			
L_{it}^s	-1.8532	4 (with intercept)	I(1)
	-4.1157	3 (none) ^b	
$(r_L - r_D)_{it}$	-2.9069	1 (none)	I(1)
	-5.1788	1 (none)	
$(r_L - r_G)_{it}$	-2.7842	1 (none)	I(0)
State Bank:			
L_{it}^s	-2.6717	1 (with intercept)	I(1)
	-3.2016	1 (none)	
$(r_L - r_D)_{it}$	-1.8379	1 (none)	I(1)
	-3.3802	1 (none)	
$(r_L - r_G)_{it}$	-2.4058	1 (none)	I(1)
	-3.6070	1 (none)	
Total:			
L_{it}^s	-2.4093	1 (with intercept)	I(1)
	-3.5220	1 (none)	
$(r_L - r_D)_{it}$	-2.8706	1 (none)	I(1)
	-3.5461	1 (none)	
$(r_L - r_G)_{it}$	-2.9135	1 (none)	I(1)
	-4.7143	1 (none)	

^a/ The number of lags is determined by the Akaike Information Criterion statistics. ^b/None: without both intercept and time trend.

**Table 2b:
BLS Rolling Unit-Root Test at the Level***

		Total	Private	State
L_{it}^s	Maximum	-0.0439	0.9707	-1.3987
	Minimum	-0.9782	-0.1475	-3.5880
$(r_L - r_D)_{it}$	Maximum	-0.3289	-0.4746	-1.0207
	Minimum	-0.8068	-3.2977	-4.6666
$(r_L - r_G)_{it}$	Maximum	-0.3162	-0.1591	-0.3975
	Minimum	-0.5194	-0.4779	-0.4009

* At the first difference, these variables are all stationary. Hence we can conclude, all of them are I(1) series. The results for the first difference can be made available upon request to the author. Number of lags included here are consistent with the size that we use for the ADF. Critical Value for # of Obs < 100 at 5 percent level: At Maximum: -1.49; at Minimum: -5.01

**Table 3:
Johansen Cointegration Test for Total Outstanding Credits (Private and State)**

Eigenvalue	Likelihood Ratio	1 Percent Critical Value	Number of Cointegrating Equations
0.5879	63.98	47.21	None*
0.4349	32.96	29.68	At most 1
0.2413	12.98	15.41	At most 2
0.0903	3.31	3.76	At most 3
(*) indicates 1 cointegrating equation at 1% significance level. # of lags = 2; Log Likelihood = -96.00 Normalized Cointegrating Coefficients: $L_t^s = 2.981 + 0.172gg_t + 0.015(r_L - r_D)_t + 0.009(r_L - r_G)_t$ <div style="display: flex; justify-content: space-around; width: 100%;"> (15.28)* (3.52)*** (3.92)** $\chi^2(1)$ </div> *significant at 1 percent ** significant at 5 percent; *** significant at 10 percent.			

**Table 4:
Johansen Cointegration Test for the State Banks**

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	Number of Cointegrating Equations
0.752	82.16	62.99	None*
0.345	31.91	42.44	At most 1
0.294	16.68	25.32	At most 2
0.109	4.17	12.25	At most 3
(*) indicates 1 cointegrating equation at 1% significance level. # of lags = 1, Log Likelihood = -127.23 Normalized Cointegrating Coefficients: $L_t^s = 2.813 - 0.082(r_L - r_D)_t + 0.093(r_L - r_G)_t + 0.017gg_t + 0.011t$ <div style="display: flex; justify-content: space-around; width: 100%;"> (10.75)* (19.99)* (0.024) (13.44)* $\chi^2(1)$ </div> *significant at 1 percent ** significant at 5 percent; *** significant at 10 percent.			

**Table 5:
Johansen Cointegration Test for the Private National Banks**

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	Number of Cointegrating Equations
0.8547	82.87	47.21	None*
0.2230	17.28	29.68	At most 1
0.1939	8.70	15.41	At most 2
0.0396	1.37	3.76	At most 3

(*) indicates 1 cointegrating equation at 5% significance level.

of lags = 3; Log likelihood: -34.64
Normalized Cointegrating Coefficients:

$$L_t^s = 0.073(r_L - r_D)_t + 0.085(r_L - r_G)_t + 0.250gg_t + 2.381$$
(3.54)**
(47.97)*
(6.30)**
 $\chi^2(1)$

*significant at 1 percent ** significant at 5 percent; *** significant at 10 percent.

**Table 6:
ARDL Error Correction Test for Total Credit Outstanding (State and Private)**

Dependent Variable: ΔL_t

Variable	Coefficient	Std. Error	t-Statistics	Probability
Δgg_{t-2}	0.0935	0.0481	1.9421	0.0623
$\Delta(r_L - r_D)_t$	0.0138	0.0049	2.7976	0.0092
$\Delta(r_L - r_D)_{t-1}$	-0.0232	0.0068	-3.4123	0.0020
$\Delta(r_L - r_G)_t$	0.0126	0.0021	5.8483	0.0000
$\Delta(r_L - r_G)_{t-2}$	0.0127	0.0029	4.3832	0.0001
ECM_{t-1}	-0.3244	0.1360	-2.3845	0.0241

Total Number of Observations: 38
Adjusted R-squared: 0.693
Durbin-Watson Stat: 1.927; Prob(Q(1))=0.978; Prob(Q(2))=0.952;
Prob(Q(4))=0.0.992 ARCH(Prob(LM)): 0.884; F-stat: 13.808; Prob (F-stat): 0.0000;
Prob(JB) = 0.101

**Table 7:
ARDL Error Correction Test for The State Banks**

Dependent Variable: ΔL_t

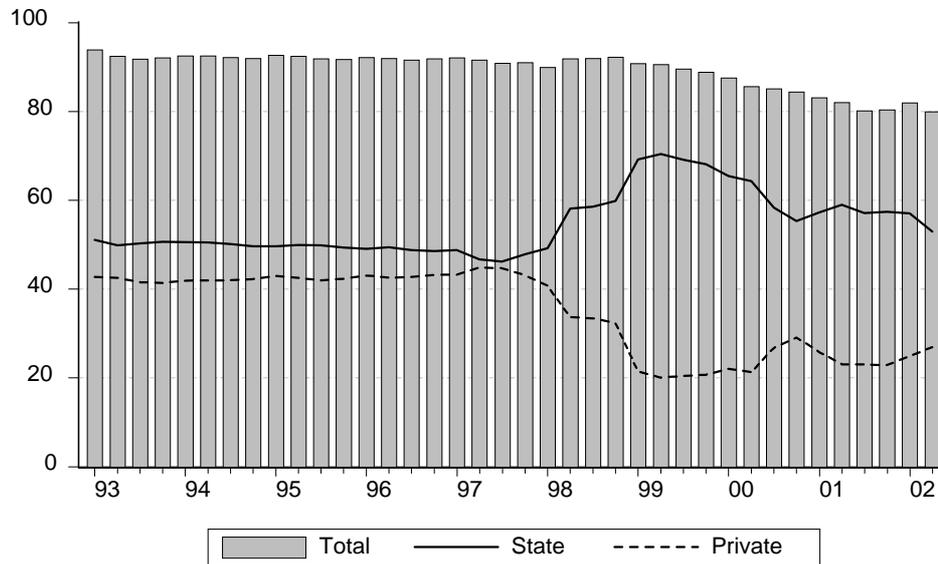
Variable	Coefficient	Std. Error	t-Statistics	Probability
$\Delta(r_L - r_D)_{t-1}$	-0.0301	0.0057	-5.3221	0.0000
$\Delta(r_L - r_G)_t$	0.0174	0.0022	7.8591	0.0000
$\Delta(r_L - r_G)_{t-2}$	0.0096	0.0023	4.1240	0.0003
$\Delta(gg)_{t-2}$	0.1365	0.0474	2.8772	0.0077
ECM_{t-1}	-0.2197	0.0398	-5.1557	0.0000
$Dummy_t$	-0.4422	0.0954	-4.6365	0.0001
Total Number of Observations: 38 Adjusted R-squared: 0.661 Durbin-Watson Stat: 2.436; Prob(Q(1))=0.068; Prob(Q(2))=0.161; Prob(Q(4))=0.300 ARCH(Prob of LM): 0.698; F-stat: 10.48; Prob (F-stat): 0.0000; Prob(JB) = 0.547				

**Table 8:
ARDL Error Correction Test for the Private National Banks**

Dependent Variable: ΔL_t

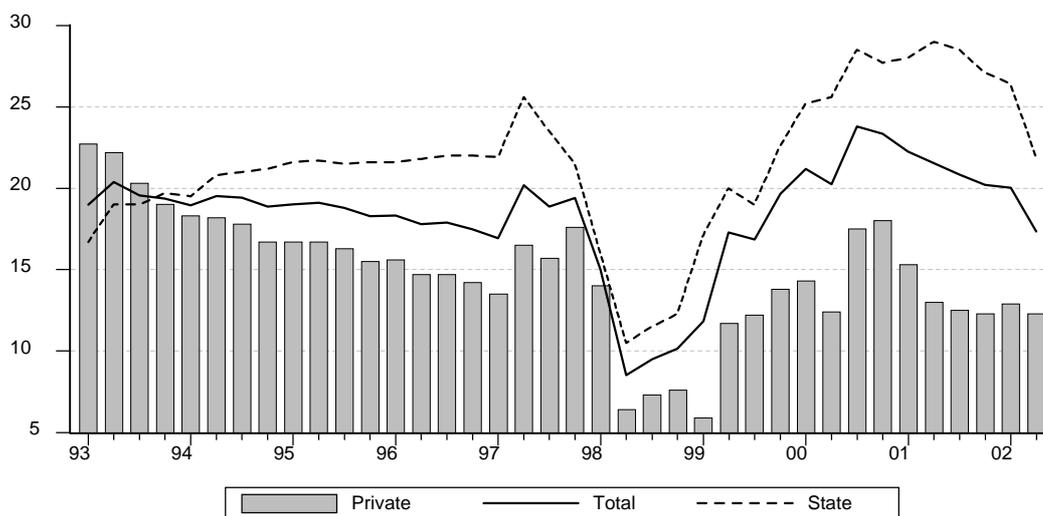
Variable	Coefficient	Std. Error	t-Statistics	Probability
ΔL_{t-1}	-0.6609	0.1188	-5.5613	0.0000
$\Delta(r_L - r_D)_{t-2}$	0.0176	0.0083	2.1154	0.0431
$\Delta(r_L - r_G)_t$	0.0312	0.0036	8.7922	0.0000
$\Delta(gg)_t$	0.1173	0.0531	2.2077	0.0353
ECM_{t-1}	-0.2276	0.0430	-5.642	0.0000
Total Number of Observations: 38 Adjusted R-squared: 0.698 Durbin-Watson Stat: 1.861; Prob(Q(1))=0.742; Prob(Q(2))=0.422; Prob(Q(4))=0.132; ARCH(Prob(LM)): 0.150; F-stat: 16.729; Prob (F-stat): 0.0000; Prob(JB): 0.726				

Figure 1:
Shares (%) of Total Credit Outstanding to Small Enterprises in The Banking Sector



Source: Database of Bank Indonesia

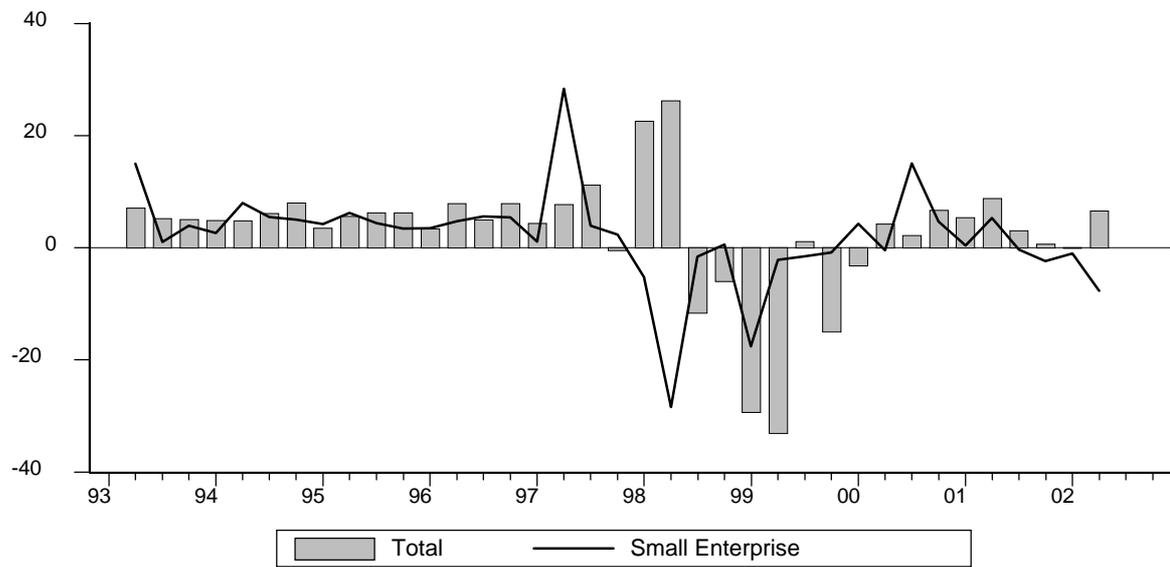
Figure 2:
Share (%) of Credit Outstanding to Small Enterprises



“Total “ captures the share of the small business loans out of total private and state outstanding loans.

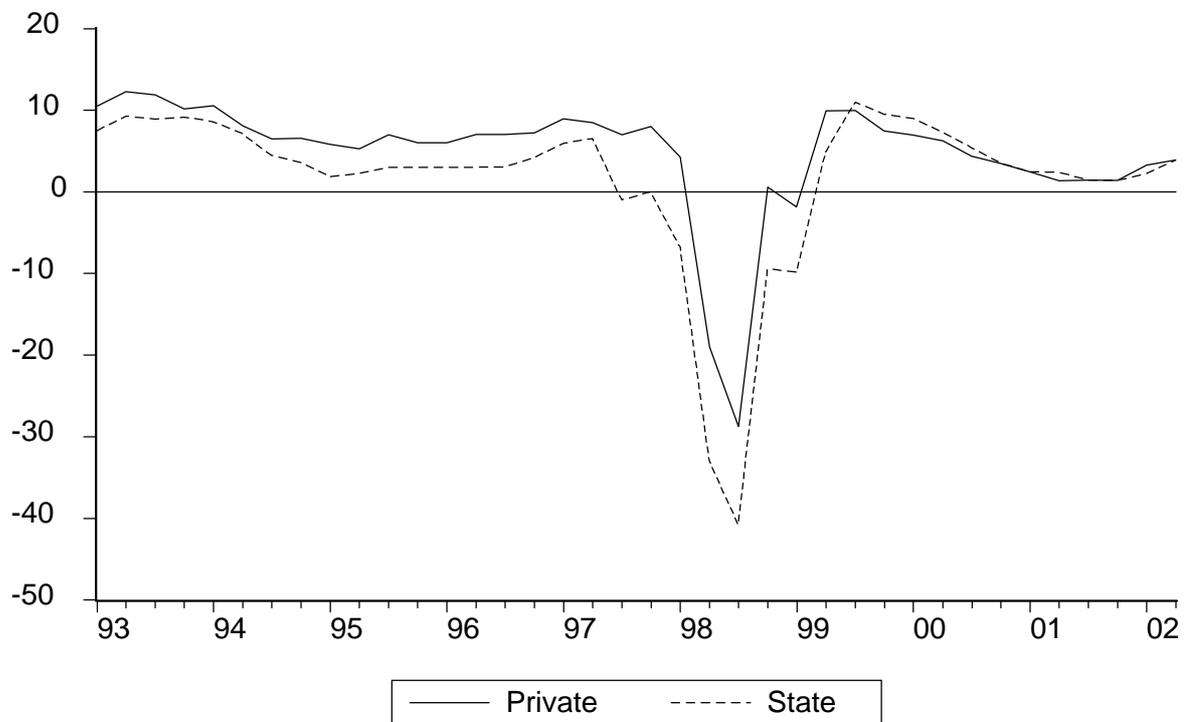
Source: Database of Bank Indonesia

Figure 3:
Growth Rate of Total Outstanding Bank Credits and Small Enterprise Loans
 (in %)



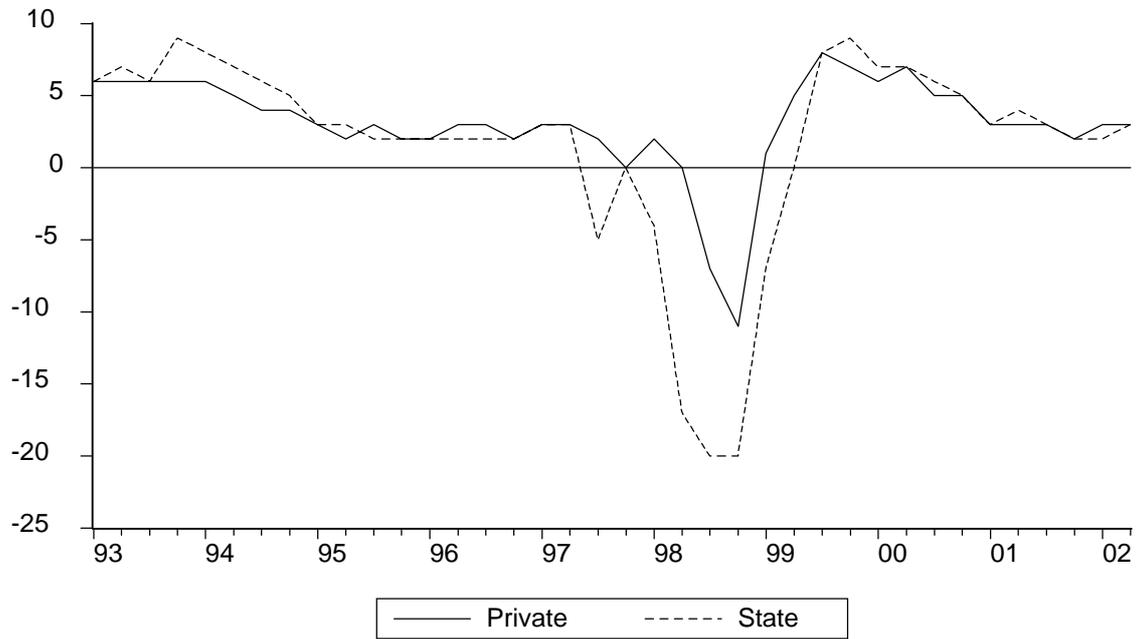
Source: Database of Bank Indonesia

Figure 4:
Loan-SBI Spread Rate



Source: Database of Bank Indonesia

**Figure 5:
Loan-Deposit Spread Rate**



Source: Database of Bank Indonesia.