

FINANCIAL LIBERALIZATION AND ECONOMIC GROWTH IN INDONESIA

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Abstract

The objective of this study was to examine the empirical relationship between financial and economic growth by using broad money as a percentage of GDP and bank credit to the private sector as a percentage of GDP as an indicators of financial liberalization. It argues that broad money as a percentage of GDP have a clear disadvantage over economic growth in Indonesia during 1970-2002. The main findings are as follows: First, in short run, the study finds its measure of broad money as a percentage of GDP to have a significantly negative effect on the economic growth, and it measure of bank credit to the private sector as a percentage of GDP has no significantly positive effect on the economic growth. Second, in long run, it finds the impact of broad money as a percentage of GDP and bank credit to the private sector as a percentage of GDP on economic growth to be consistent with the short-run.

Keywords: *Economic Growth; Financial Liberalization; Error Correction Model*

INTRODUCTION

Financial liberalization implies the removal of restrictions such as administrative setting of interest rates, the allocation of credit facilities to preferred sectors and high reserve requirements. It has been argued that negative real interest rate resulting from financial repression in the form of ceilings on interest rate below the rate of inflation reduce financial saving and hence deter economic growth.

Under selective or directed credit programs, banks are required to allo-

cate minimum percentages of their asset portfolios for loans to priority sectors of the economy at subsidized loan interest rate. Part of the critical problem of loan delinquency encountered in virtually all directed credit programs is due to the fact that these subsidized loan rates, which are typically negative in real terms, discourage prompt loan repayment. High delinquency and default rates reduce the flexibility (less credit available for new investment) and increase the fragility of financial systems. There are three main reasons

as to why the financial system stability is important. First, a stable financial system will create trusting and enabling environment favorable to depositors and investors in investing their money in financial institutions as well as to secure interests of small depositors. Second, a stable financial system will encourage efficient financial intermediation which will eventually promote investment and economic growth. Third, a stable financial system will encourage an effective operation of markets and improve distribution of resources in the economy.

Most developing countries which formerly followed restrictive economic policies have started liberalising their financial sector in order to increase economic growth. Thus, the empirical investigation of the impact of financial variables on economic growth in a developing country such as Indonesia is important for researchers and policy makers both in Indonesia and in other developing countries in order to examine the effectiveness of such liberalization policies.

Indonesia had liberalised its financial systems since 1983, in order to increase economic growth by raising the saving channelled to investment. It work, when intermediation function of banking system work properly. If the raising of saving doesn't channelled to investment, it will reduce consumption and deter economic growth. Thus, financial liberalization will bring in harmful implication on output and income.

FINANCIAL LIBERALIZATION AND CRITICS

In 1973, Mc-Kinnon and Shaw both develop models of economic development in which financial liberalization and development accelerate the rate of economic growth. Mc-Kinnon and Shaw show that interest rate ceilings distort the economy in four ways. First, low interest rates produce a bias in favor of current consumption and against future consumption. Therefore, they may reduce saving below the socially optimum level. Second, potential lenders may engage in relatively low-yielding direct investment instead of lending by way of depositing money in a bank. Third, bank borrowers able to obtain all the funds they want at low loan rates will choose relatively capital-intensive projects. Fourth, the pool of potential borrowers contains entrepreneurs with low-yielding projects who would not want to borrow at the higher market-clearing interest rate. Thus the real rate of interest as the return to savers is the key to a higher level of investment, and as a rationing device to greater investment efficiency. The increased quantity and quality of investment interact in their positive effects on the rate of economic growth.

Financial liberalization increases economic growth by raising: (i) the ratio of saving to gross domestic product; (ii) the proportion of saving channelled to investment and (iii) the marginal productivity of capital. Financial liberalization raises productivity by: (i) improving competitiveness, including the availability of information regard-

ing investment projects; (ii) facilitating education and training to financially constrained households by increasing the availability of funds, which enhances human capital accumulation, a necessary factor for raising productivity (Siddiki, 2002:25).

Neostructuralist models predict the opposite effects of financial development and liberalization to those derived from the Mc-Kinnon and Shaw models. In the neostructuralist models, the nominal interest rate which is determined in curb or noninstitutional credit market, adjusts to equate demand for and supply of money and credit. Income adjusts to equilibrate demand and supply in goods market. Any increase in the curb market rate will raise the price level because a rise in the curb market rate increases the cost of working capital, deterring investment, and reduces output (Fry, 1995:109-111).

Stiglitz (1994:20) has criticized financial liberalization on different grounds. His argument focuses on the prevalence of market failures in financial markets. He suggests that there exist forms of government intervention that will not only make these markets function better but will also improve the performance of the economy.

Others critics of McKinnon-Shaw school employ a variety of models to demonstrate that financial liberalization may have negative effects on saving, investment, output, or economic growth. One group show that corporate saving may decline by more than household sector saving would rise in the wake of a rise in real institutional interest rates. A second group demon-

strates that household saving will decline if credit-constrained households are able to borrow after financial liberalization. A third line of attack is to show that, provided subsidized credit is available at the margin, higher real institutional interest rate deter investment. A fourth group adopts the neostructuralist position that higher real interest rate increase production costs, lower real wages, and cause stagflation. A fifth group combines a Cobb-Douglas production function with a portfolio allocation model and Keynesian demand equations to demonstrate that financial liberalization could reduce both prices and output (Fry, 1995:109-110).

EMPIRICAL MODEL SPECIFICATION

Frequently, when dealing with time series data, an econometrician finds that it is necessary to include lagged values of variables in an estimating a model. There are a number of reasons why lags appear in a model. First, they may arise for technological reason, psychological factors, and imperfect information. Economic agents require time to gather relevant information, and this delays the making of decision (Gujarati, 2003:656-663; Thomas, 1997:313-319).

One of the dynamic models is error correction model (ECM). This model avoids the problems associated with simple first difference models. In particular, the inclusion of disequilibrium terms in ECM ensure that no information on the levels of variables is ignored. Since ECM is formulated in terms of first difference, which typically eliminate

the trends from variables, its can play an important role in dealing with potential problems relating to spurious correlation. Provided an ECM is correctly formulated, its disequilibrium error term can also be regarded as a stationary variable. The clear distinction between short and long run effects is a further advantage of the ECM approach. Theory normally involves hypotheses about long-run relationships, the clear distinguishing of long-run parameters in ECM makes this model ideally suited for assesing the validity of such hypotheses (Thomas, 1997:383-390).

The use of an error correction model involved the implisit assumption that some long-term relationship existed between the variables in the model. ECM Engle-Granger requires that all its variables must be integrated of the same order. Granger theorem demonstrated that cointegration is not only a necessary but also a sufficient condition for an error correction representation to exist (Engle and Granger, 1987:252-253). But, if all its variables not integrated at the same order, then used the ECM Wickens-Breusch approach (Wickens and Breusch, 1988:202-204).

To examine the predictions of the King and Levine (1993) model, we explore in this section the impact of financial liberalization to the economic growth in Indonesia. Following traditional practice, we use the extend of liquidity provision by the formal financial sector relative to economic activity to measure financial sector development or financial depth. The under-

lying intuition behind using this indicator is that the capacity of financial intermediaries is positively related to their provision of financial services. One measure of financial depth is ratio of broad money (M2) to GDP. The ratio of M1 or M3 to GDP are alternatives in principle but M1 does not include time deposit, an increase of which is an important goal for interest rate deregulation as predicted by the McKinnon-Shaw hypothesis. The data for M3 is not available and it may also be inflated by loose money resulting from selling of various types of government bonds to finance budget deficits, which is a common phenomenon in Indonesia. Credit allocation to private sector is an another measure for financial liberalization, since the private sector is assumed to be more productive than the government sector.

Thus, the empirical specification of our model to examine the effects on economic growth of financial liberalization can be written as follows:

$$Y = \beta_0 + \beta_1 RM2 + \beta_2 RKS + \beta_3 D1 + \beta_4 u \quad (1)$$

With $\beta_1 \geq 0, \beta_2 \geq 0, \beta_3 > 0$

Where Y is economic growth, measure the gross domestic product (GDP) real (base 1993) growth; RM2 measure broad money supply as a percentage of GDP; RKS measure credit banking to private sector as a percentage of GDP; D1 is a dummy variable financial deregulation 1983. All variables are in percentages; u is a normally and identically distributed error term. Sample periods with annual data from 1970-2002.

We apply error correction model, so equation (1) can be rewritten as follows:

$$DY_t = \alpha_0 + \alpha_1 DRM2_t + \alpha_2 DRKS_t + \alpha_3 RM2_{t-1} + \alpha_4 RKS_{t-1} + \alpha_5 ECT_{t-1} + \alpha_6 D1_t + \alpha_7 u_t \quad (2)$$

where:

$$DY_t = Y_t - Y_{t-1}$$

$$DRM2_t = RM2_t - RM2_{t-1}$$

$$DRKS_t = RKS_t - RKS_{t-2}$$

$$ECT_{t-1} = RM2_{t-1} + RKS_{t-1} - Y_{t-1}$$

And long-term error correction model can be written as follows

$$Y_t = \alpha_0/\alpha_5 + (\alpha_3 + \alpha_5)/\alpha_5 RM2_t + (\alpha_4 + \alpha_5)/\alpha_5 RKS_t + (\alpha_7 + \alpha_5)/\alpha_5 u_t$$

$$Y_t = \beta_0 + \beta_1 RM2_t + \beta_2 RKS_t + \beta_3 u_t \quad (3)$$

ECONOMETRIC RESULTS

First, we testing for stationarity to justifying the cointegration or Wickens-Breusch analysis. The augmented Dicky Fuller (ADF) test results show that variables Y and RKS are I(1), and RM2 is I(2) at the 5% level of significance. The differences of the integration order justifying the use of ECM Wickens-Breusch analysis. The result of ECM regression estimated by OLS can be seen at table 4.

Table 1
ADF test result, I(0)

Variables	ADF statistics	ADF tables	Notes
Y	-2.289347	-2.9627	uroot(C,3)
RM2	-0.744246	-3.5731	uroot(T,3)
RKS	-2.023451	-3.5731	uroot(T,3)

Table 2
ADF test result, I(1)

Variables	ADF statistics	ADF tables	Notes
Y	-3.902378	-1.9530	uroot(N,3)
RM2	-3.043419	-3.5796	uroot(T,3)
RKS	-3.750595	-3.5796	uroot(T,3)

Table 3
ADF test result, I(2)

Variables	ADF statistics	ADF tables	Notes
RM2	-4.447901	-3.5867	uroot(T,3)

Throughout our analyses, t-statistics of the error correction term is positive less than 1 and significant at the 5% level of significance, supporting the Wickens-Breusch analysis. J-B statistic represent the normality test, LM test for autocorrelation, ARCH test for the autoregressive conditional heteroscedasticity, and Chow test for

the stability of the estimate model. All the statistics are statistically insignificant at the 5% level of significance, and therefore eliminating the possibility of the any type of mis-specification. Also demonstrate that, pre and post financial deregulation 1983, the estimate model is stable.

Table 4
ECM Result

Variables	Coefficients	t- statistics	Prob
C	5.47	2.81	0.00
DRM2	-31.62	-4.98	0.00
DRKS	1.26	0.21	0.84
RM2 (-1)	-1.97	-1.31	0.20
RKS (-1)	4.03	1.31	0.20
ECT(-1)	0.79	3.15	0.00
D1	-0.35	-0.28	0.78

R² = 0,8452
 F-stat = 21,83 prob. 0,00
 J-B Stat = 1,79 prob. 0,41
 LM = 0.24 prob. 0,63
 ARCH = 1,27 prob. 0,31
 CHOW(83) = 1,87 prob. 0,14

We found that RM2 has a negative and statistically significant impact on economic growth. In the short run, raising 1 percent of broad money to GDP ratio will decrease the economic growth by 31,62 percent. It implies that financial depth in Indonesia can't be promote the growth. Financial liberalization can't raises the capacity of financial intermediaries to supply credit which increasing investment and economic growth. Financial liberalization only raises the saving, therefore it just has a negatively multiplier effect on the economic growth. In the long-run, RM2

has a consistent sign, that financial depth in Indonesia has a negatively multiplier effect on the economic growth. Stiglitz (1994) argues that credit markets are particularly prone to market failures. This justifies government intervention in the area of prudential regulation and supervision due to the government 's role as an insurer of the financial system. Government intervention, such as encourage lending to sectors with high technological spillovers, accelerates economic growth.

Table 5
Short and Long-run Analysis

Variables	Short-run	Long-run
M2/GDP	-31.62	-1,50
KS/GDP	1.26	6,11

The RKS variable show a positive and statistically insignificant impact on economic growth, and it has a consistent sign for the long-run. The statistically insignificant impact of credit banking to private sector to GDP ratio can be explained as follows: first, there are constraint in the process of restructuring loans due to unfavorable economic condition. The 1997 financial crisis has been so damaging to banking industry, causing non-performing loans (NPLs) to soar to 54 %. Second, the capacity of real sector and corporations to use credit is relatively low consideration the fact that most of them are still being restructured by Indonesian Banks Restructuring Agency (IBRA). New loans is relatively small (indicated by average Loan to Deposit Ratio is below 35 % since 2000). New loans are mostly extended to small-scale and consumers loans which explain why bank lending portfolio is not growing fast. Third, there are potentials for NPLs to increase out of those restructured and un-restructured loans purchased by banks from IBRA (Bank Indonesia, 2003:23). The NPLs also demonstrates that credit allocation to the private sector is highly politically motivated and it is based on political and social influences rather on the productivity of projects (Siddiki, 2002: 28-29).

CONCLUSIONS

This paper empirically examines the effects on economic growth (Y) in Indonesia of financial liberalization which measures by broad money as a percentage of GDP (RM2) and bank credit to the private sector as a percentage of GDP (RKS). Empirical results reveal that RM2 is negative statistically significant, and RKS is statistically insignificant. The negative effect of RM2 support the perspective of Stiglitz (1994), which emphasises the need of government intervention that will not only make the markets function better but will also improve the performance of the economy. Credit allocation to the sectors with high technological spillovers, accelerates economic growth. The statistically insignificant impact of RKS maybe due to the non-performing loan and credit allocation to the private sector is highly politically motivated and it is based on political and social influences rather on the productivity of projects.

In principle, liberalization in Indonesia should be treated as a process, rather than an instantaneous event. As more data become available we would hope the details of this process could be examined more deeply.

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LAMPIRAN

A. Unit Root Test

1. Y

UROOT(T,3) Y I(0)

ADF Test Statistic	-2.855167	1% Critical Value*	-4.2949
		5% Critical Value	-3.5670
		10% Critical Value	-3.2169

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(C,3) Y I(0)

ADF Test Statistic	-2.289347	1% Critical Value*	-3.6661
		5% Critical Value	-2.9627
		10% Critical Value	-2.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(T,3) DY I(1)

ADF Test Statistic	-3.749023	1% Critical Value*	-4.3082
		5% Critical Value	-3.5731
		10% Critical Value	-3.2203

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(N,3) DY I(1)

ADF Test Statistic	-3.902378	1% Critical Value*	-2.6453
		5% Critical Value	-1.9530
		10% Critical Value	-1.6218

*MacKinnon critical values for rejection of hypothesis of a unit root.

2. RM2

UROOT(T,3) RM2 I(0)

ADF Test Statistic	-0.744246	1% Critical Value*	-4.3082
		5% Critical Value	-3.5731
		10% Critical Value	-3.2203

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(T,3) DRM2 I(1)

ADF Test Statistic	-3.043419	1% Critical Value*	-4.3226
		5% Critical Value	-3.5796
		10% Critical Value	-3.2239

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(T,3) D(DRM2) I(2)

ADF Test Statistic	-4.447901	1% Critical Value*	-4.3382
		5% Critical Value	-3.5867
		10% Critical Value	-3.2279

*MacKinnon critical values for rejection of hypothesis of a unit root.

3. RKS

UROOT(T,3) RKS I(0)

ADF Test Statistic	-2.023451	1% Critical Value*	-4.3082
		5% Critical Value	-3.5731
		10% Critical Value	-3.2203

*MacKinnon critical values for rejection of hypothesis of a unit root.

UROOT(T,3) DRKS I(1)

ADF Test Statistic	-3.750595	1% Critical Value*	-4.3226
		5% Critical Value	-3.5796
		10% Critical Value	-3.2239

*MacKinnon critical values for rejection of hypothesis of a unit root.

B. Error Correction Model

Dependent Variable: DY

Method: Least Squares

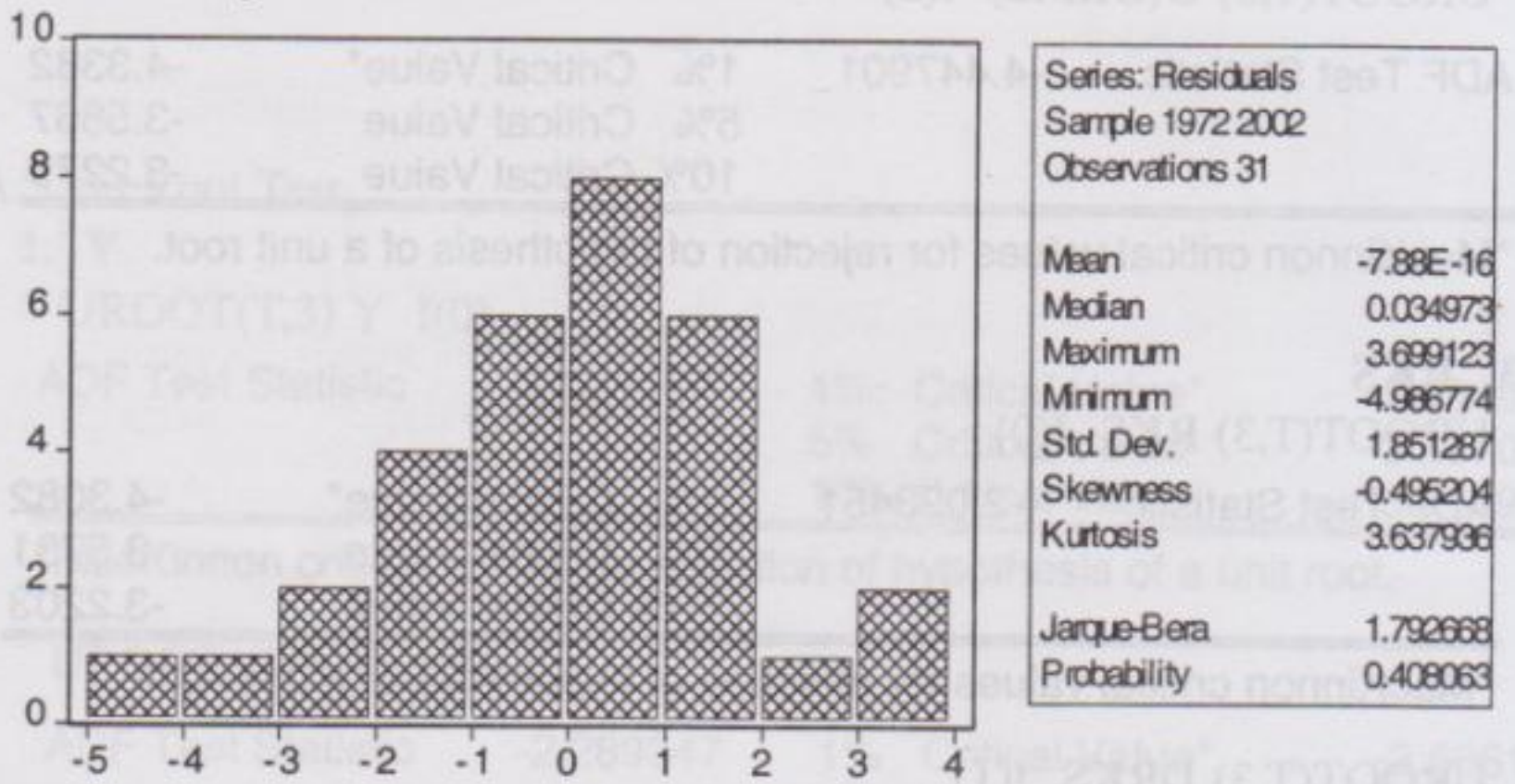
Date: 07/30/05 Time: 21:00

Sample(adjusted): 1972 2002

Included observations: 31 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.473904	1.950590	2.806281	0.0098
DRM2	-31.62239	6.347472	-4.981887	0.0000
DRKS	1.259402	6.044868	0.208342	0.8367
RM2(-1)	-1.971651	1.504515	-1.310489	0.2024
RKS(-1)	4.033102	3.077405	1.310553	0.2024
ECT(-1)	0.788759	0.250688	3.146370	0.0044
D1	-0.348493	1.247363	-0.279384	0.7823
R-squared	0.845156	Mean dependent var	-0.103226	
Adjusted R-squared	0.806445	S.D. dependent var	4.704642	
S.E. of regression	2.069802	Akaike info criterion	4.488463	
Sum squared resid	102.8179	Schwarz criterion	4.812266	
Log likelihood	-62.57117	F-statistic	21.83244	
Durbin-Watson stat	1.851601	Prob(F-statistic)	0.000000	

C. Normality Test of ECM



D. Autocorrelation Test of ECM

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.237456	Probability	0.630662
Obs*R-squared	0.316779	Probability	0.573550

E. Heteroskedasticity Test of ECM

ARCH Test:

F-statistic	1.271579	Probability	0.306538
Obs*R-squared	3.840146	Probability	0.279251

F. Stability Test of ECM

Chow Breakpoint Test: 1983

F-statistic	1.868369	Probability	0.139100
Log likelihood ratio	14.37597	Probability	0.025707

Chow Forecast Test: Forecast from 1983 to 2002

F-statistic	3.285282	Probability	0.095524
Log likelihood ratio	82.12171	Probability	0.000000