

BANKING MARKET STRUCTURE AND GROWTH: CASE OF INDONESIA

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The principle objective of this paper is to investigate the empirical relevance of the impact of economic and financial crisis on market structure of banking sector and economic growth. The study shows that the relationship between market structure and economic development changes in the period of before and after the crisis. Before the crisis, the market structure negatively affects the economic growth. After the crisis market structure of the banking industry promotes the growth in the economy. We also find that credit channeled by banks to domestic manufacturing industry is not adequate enough to support the economic growth to the level prior the crisis.

Keyword : Market structure, Economic growth, Banking

INTRODUCTION

Indonesia's banking system crashed during the 1997-98 economic and financial crises that were triggered by the contagion impact of exchange rate and interest rate shocks in South East Asia. This crisis leads to the insolvency of many Indonesian businesses and banks. As a result, economic growth has slowed down, as the net cost of the banking crisis to the government is about 50% of annual GDP which is the second highest in the world after Mexican crisis in 1992 (Mishkin, 2004).

In order to restore the crashed banking sector, Indonesian government has carried out the recapitalization and restructuring programs. Part of its recapitalization program was changing its capital regulation by reducing the required Capital Adequacy Ratio (CAR) from 8% to 4%. Banks with CAR less than 4% but more than minus 25% considered to be potentially worth saving, but need to be recapitalized. Those with CAR less than minus 25%, have to be liquidated. Moreover, Indonesia Bank Restructuring Agency (IBRA) was set up to carry out the financial sector restructuring programmers.

As the result of the restructuring and recapitalization programs, number of banks reduced from 238 banks in 1997 to 134 banks in 2004.

Banking Sector: data: no of banks, Total Assets, Total Loans, NPL.

TABLE 1.
Number of Commercial Banks

Group of Banks	1997	1998	1999	2000	2001	2002	2003	2004
State	7	5	5	5	5	5	5	5
Regional	27	27	24	26	26	26	26	26
Private National	160	129	91	81	80	77	76	72
Joint Venture	34	34	39	29	24	24	20	20
Foreign	10	10	10	10	10	10	11	11
Total	238	205	169	151	145	142	138	134

Source : Bank Indonesia, 2004.

A study by Bank Indonesia shows that although the macroeconomic climate has relatively improved after the crisis, the credit supply from banks remains inadequate to encourage the economic growth to the level prior the crisis (Agung et al, 2001). Economic indicators during and after the crisis are as follows:

TABLE 2.
Economic Indicators

	1999	2000	2001	2002	2003	2004F	2005F
Real GDP growth	0.80%	4.90%	3.40%	3.70%	4.10%	4.50%	5.00%
Nominal size of GDP (USD bio)	141.3	151.3	141.4	173.1	207.8	226.4	264
GDP per capita (USD)	684	721	663	800	946	1,016	1,167

Source : Bank Indonesia, 2004.

Extensive studies have been done to analyze the impact of banking market structure and economic development, and its long run output growth. Not many studies have been done, however, on the role played by the banking market structure in the dynamic economic conditions. This paper analyses the impact of restructuring and recapitalization programs on market structure and market concentration. Furthermore, study on impact of market restructuring on economic growth is carried out to provide evidence of whether the strategy actually achieves the desired results.

This study provides a preliminary study on impact of economic crisis on banking market structure and economic growth. This paper shows that banking sector market structure has significant impact on economic growth before and after the crisis period. Although the impact has changed, where

before the crisis the concentration of banking market structure negatively affect the economic growth and after the crisis the market concentration positively affect the economic growth. The paper also finds that after the crisis, credit channeled to the manufacturing industry from the banks is negatively supporting the economic growth. Further study of the impact of economic crisis on the riskiness of the manufacturing industry is required to get insightful analysis.

LITERATURE REVIEW

Relationship between economic growth and financial system has become a debatable issue for decades. Some economists show their skepticism about the role of the financial system. Robinson (1952), for example, argues that economic development creates demands for particular types of financial arrangements, and financial system responds passively to these demands. On the other hand, other economists argue that financial system plays important role in economic growth. For instance, Walter Baghot (1873) and John Hicks (1969) assert that financial system played a critical role in awaken industrialization by facilitating the mobilization of capital. Levine (1997) uses a cross-country study, shows that the functioning of financial systems is vitally linked to economic growth. Specifically, countries with larger banks and more active stocks market grow faster than countries with poorly developed financial systems. Moreover, his study suggests that in some countries differences in financial development have critically influenced economic development.

Some studies have focused their research on investigating the role of banks on economic growth. Schumpeter (1912) suggests that well functioning banks encourage technological innovation by identifying and funding entrepreneurs that will potentially implement the innovative products and production process. Diamond and Dybig (1983) show that banks can eliminate liquidity risk and accelerate growth. Gorton and Penacchi (1990), however, argue that banks will only emerge to provide liquidity if there are sufficiently large impediments to trading in security markets.

It is not possible to study role of banking sector on economic growth without incorporate the market structure of the banking industry. Theoretically, banking sector market structure has significant impact on the economic growth. The theoretical views, however, are contradictory in deciding whether the impact of banking market structure on economic growth is positive or negative. Classical market theory suggests that any departure from perfect competition in the credit market causes inefficiencies that would disturb firm's accessibility to credit, thus hindering economic growth. (Cetorelly and Gambera, 2001). Banks with monopoly power would determine equilibrium with higher loan rates and a smaller quantity of loan able funds than perfect competition. This would clearly reduce economic growth. Pagano (1993) shows the negative effect of market structure in a simple growth model. Theories that support the hypothesis of positive impact of banking sector's market structure derives from the greater incentive for monopolistic banks to establish lending relationship, which in turn

promotes firms' access to investment funds. Myer (1988, 1990) and Petersen and Rajan (1995) point out that a bank willing to bearing initial informational costs by establishing lending relationship with newly founded firms, if it can share in their future stream of profits, should they turn out to be successful. This cannot happen in the highly competitive credit markets since banks know that they may not be able to maintain a relationship with successful firms since once these firms are established they will seek the lowest cost supply of credit available in the market. Banks that did not invest initial resources in funding the unknown firms would have a cost advantage in offering better credit conditions. This free riding problem makes competition in banking can induce credit rationing. Potentially high quality but young and unknown entrepreneurs may not get funded.

Empirical evidence shows the positive role of concentrated credit market for economic development, Cohen (1967) shows the positive role played by Banca Commercial Italian and Creditor Italian for Italy, two banks whose combined assets accounted for about 60 percent of the total market. Mayer (1990) focuses on how Japan's post war development has been boosted by their main bank system. On the other hand, cross-country empirical study by Cetorelli and Gambera (2001) find that concentration in the banking sector determines a general deadweight loss that depresses growth. However, they also find evidence that bank concentration promotes the growth for those industries that are more in need of external finance by facilitating credit access to firms.

In addition of these conflicting views and evidence, there are limited studies investigating the impact of changes in banking market structure due to changes in the economic condition on economic growth.

METHODOLOGY

Based on the literature of impact of banking sector market concentration on economic growth, and considering the current situation in Indonesia, we use the model developed by Cetorelli and Gambera (2001) as follows :

$$\text{Growth} = \text{Constant} + a \text{ Bank Development} + b \text{ Bank Concentration} + d \text{ Per capita GDP} + e \text{ Fraction of value added} + f \text{ Period dummy} + \text{Error}.$$

MODEL SPECIFICATION

Endogenous variable:

Measurements used for the endogenous variable, economic growth, is the average (compounded) rate of growth of real value added for each industrial sector from 1994 – 2003.

Exogenous variables:

- ❑ Bank Development: The amount of credit that the banking sector supply for productive uses is one of the most significant measures of financial development. This is measured by ratio of private domestic credit (supplied to manufacturing industry) to GDP, expected to have positive sign.
- ❑ Bank Concentration: Measured in total assets of 3 biggest banks due to the contradictory theory may have negative or positive sign.

- Fraction of value added: value added shares of each sector in manufacturing industry captures an industry specific convergence effect. Theoretically, sectors that have already grown substantially in the past are unlikely to continue to grow at a high rate in the future. The coefficient is expected to have a negative sign.

Control Variables:

- Per capita GDP: Captures the convergence effect of the economy as a whole to its long-run steady state, expected to have a negative sign.
- Period Dummy :
- 0 = Pre Crisis (1994 – 1997)
- 1 = Post Crisis (1998 – 2003)

The model is estimated by OLS for overall period as well as before and after crisis periods. We perform Chow test to justify the use of dummy variable to separate periods of before and after crisis in the overall model.

Data:

Pooled cross section and time series data is used in this study that cover sample period of 1994 to 2003. We use period of before crisis of 1994 to 1997 and recovering period from the crisis of 1998 to 2003. We include the restructuring and recapitalization program for the banking sector is 1998 to 2000 in the recovering period.

RESULTS AND ANALYSIS

Table 1 below shows the mean, standard deviation and the significance of mean difference of the variables used in the model before and after the economic crisis.

TABLE 3.
Descriptive Statistics of Variables

	Mean		Std.Dev.		T-Paired Test
	Before Crisis	After Crisis	Before Crisis	After Crisis	
Growth in Value Added Industry	0.025	0.048	0.143	0.084	-1.051
Fraction of Value Added Industry	0.091	0.091	0.116	0.134	0
Log of per-capita GDP	6.438	6.834	0.153	0.068	-8.498***
Bank Development	0.556	0.218	0.045	0.015	12.771***
3-bank Ratio	0.544	0.626	0.093	0.02	-1.5

* indicates rejection of the null hypothesis at the 10% significance level, ** indicates 5% significance level and *** indicates 1% significance level.

The descriptive statistics show that even though the mean of the variables have changed after the crisis, only means of per capita GDP and bank development that are significantly different than before the crisis.

The mean of 3-bank ratio shows that before the crisis the total assets of three biggest banks capitalize 54% of the industry. After the crisis, the total assets of three biggest banks cover about 63% of the industry.

In table 2 we present the results of regressions based on the model specification describe in equation (1) with the dependent variable of average (compounded) rate of growth of real value added for each industrial sector as economic growth measurement.

The regression on overall period shows that market concentration (as measured by 3-bank ratio) has negative and significant estimated coefficient. This result supports the hypothesis of negative impact of market concentration that introduces inefficiencies which would damage firm's accessibility to credit, thus hindering economic growth. The result also shows that dummy period variable is positive and significant, which leads to the further investigation of how the coefficients of this model would differ if we apply the model in before and after the crisis period.

TABLE 4.
The Average Effect of Bank Concentration on Industrial Growth
Dependent Variable: Industrial Growth

Regressor	Overall	Before Crisis	After Crisis
Fraction of Value Added Industry	-0.106	-0.281**	-0.024
	0.071	0.113	0.086
Log of per-capita GDP	-0.344***	-0.429**	-1.454*
	0.098	0.171	0.89
Bank Development	0.850***	0.696*	-3.182**
	0.282	0.385	2.557
3-bank Ratio	-0.386**	-0.289*	3.009*
	0.166	0.246	1.721
Dummy	0.478***		
	0.092		
C	1.966***	2.532	-11.081*
	0.651	1.1496**	6.559
R-squared	0.406	0.583	0.06
Observations	110	55	55
Adjusted R-squared	0.377	0.55	-0.015
Durbin-Watson stat	1.637	1.948	1.659

* Indicates rejection of the null hypothesis at the 10% significance level, ** indicates 5% significance level and *** indicates 1% significance level.

The results show that the nature of relationship between economic growth, bank development and market concentration changes before and after crisis period. Before the crisis, bank development (measured as ratio of credit supplied (to manufacturing industry) to GDP) has positive and significant coefficient and the level of market concentration has a negative effect and significant coefficient. This result supports the hypothesis that even though the supply of credit to the manufacturing industry has positive impact to the economic growth, the concentration of banking market structure imposes a dead-weight loss in the economy as a whole. This findings support the previous study that high concentration in the banking market structure had lead to weak corporate governance of banks (Enoch et al, 2001), even though prudential requirements and regulations such as legal lending limits were introduced to improve the corporate governance.

After the crisis, the coefficient of bank development is negative and significant whilst coefficient of market concentration is positive and significant. The change of relationship between economic growth, bank development and market concentration after the crisis shows that, contrary to the results before the crisis period, the concentrate banking market structure provides greater incentive for monopolistic banks to establish lending relationship, which in turn promotes firms' access to investment funds. Hence the concentrate banking market structure promotes the growth in the economy. However, the economic growth is not supported by the credit channeled to the manufacturing industry. The changing sign of relationship between economic growth, bank development and market concentration in the period of before crisis and after crisis could be explained by changing in banking sector policy in channeling the loan to the manufacturing industry that may also show the risk aversion attitude of bank's management towards manufacturing industry after the crisis the period.

Conclusion

The findings of our study suggest significant impact of change in economic conditions in explaining impact of banking sector market concentration on economic growth. There is evidence that bank concentration has a negative effect on growth before the crisis period. This finding is consistent with theoretical framework that higher bank concentration results in lower amount of credit available in the economy as a whole. The relationship changes after the crisis period, where the concentration of the market structure in fact promotes the growth of the economy, even though the credit supplied to the manufacturing industry do not support the economic growth. This might be explained by the change of bank's credit policy and the riskiness of the manufacturing industry after the crisis.

Recommendations for Further Research

This study provides a preliminary study on impact of economic crisis on banking market structure and economic growth. Investigating the relationship between banking sector market structure and economic growth using

simultaneous equations acknowledging that economic growth and market structure are interdependence would provide more insightful analysis in explaining the role of banking sector on economic growth. Furthermore, study on bank's assets, liabilities and capital management using the Structure-Conduct-Performance paradigm of industrial organization theory would provide comprehensive analysis on the relationship between banking sector market structure and economic growth.

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