Financing Policies and Firm Vulnerability in Indonesia

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Abstract

This paper argues that financing policies of the firms are central in propagating financial crisis. Studies on the linkage between macro-fragility and micro-vulnerability around financial debacle are common, especially after East-Asian and Mexican crisis in the 1990s. By focusing on the case of Indonesia, this paper investigates the relationship between the financing choice of the firms and their vulnerability in the mid of macro economic fluctuation. First step is to examine the impacts of macro variables on capital structure. Second is to investigate the impact of capital structure and firm performance. Accordingly, this paper takes into account the impact of macroeconomic fluctuation on firm healthiness where capital structure choices play pivotal role in the mechanism.

Key words: capital structure, financial crisis, firm vulnerability, performance, Indonesia

JEL Classifications: D21, F3, G32

I. Introduction

Before Asian crisis in 1997, analysis of the linkage between corporate balance sheet and macro economic variables is relatively neglected. And in the post-crisis period several researches are oriented to search the cause of the macro financial fragility by focusing on the micro variable.

Terms of vulnerability and fragility itself are commonly used interchangeably. Dornbusch (1997) describe that vulnerability will happen if something goes wrong, then suddenly a lot goes wrong. In such a sense, financial vulnerability has emerged widespread around the world in the 1990s, indicated by a series of crisis: Russia (1992 – 1993), Mexico (1994-1995) and East Asian countries (1997-1998).

Meanwhile, domestic financial vulnerability is commonly associated with the global financial system, where financial liberalization becomes a pivotal mechanism to integrate domestic financial system into global system (Eichengreen, Hausmann and Panizza 2003)[1]. Moreover, by considering that banking sector is a major intermediation of the circulation of capital, it is also usually argued that liberalization guaranteed by implicit promises of a government, who is ready to give bailout of bad out-turns become important source of the vulnerability.

By such a definition, vulnerability could be understood as the shock that negatively impact the financial sector where government has a risk to take over the responsibility by bailing out the financial sector.

In Indonesia, since exchange rate was pegged in certain targeted value, the 1988 financial sector liberalization have stimulated corporate sector to access foreign loan directly without hedging policies. Afterward, most of Indonesian firms have been leveraged in short-term foreign debt. Two conditions emerged, namely "currency mismatch" and "maturity mismatch". These two typical conditions are commonly referred to as factors triggering financial vulnerability.

The main objective of this paper is to show how financing policies in firm sector in Indonesia contribute to the financial fragility and macro economic vulnerability. To do that, the strategy of this paper is as follow; first this paper captures the impact of macro economic factors on capital structure choices of Indonesian firms. The impact of industrial sector is also examined. Afterward, this paper describes the relation between capital structure choices and firm performance for capturing the impact of financing policies on firm healthiness.

[1] They mention that in the liberalizing financial system, the inability of country to borrow loan in the local currency become an "original sin" which stimulates the financial vulnerability and then financial crisis.

Therefore, this paper provides a comprehensive analysis by including country specific factors, industrial sector factors and firm specific factors in analysing firm vulnerability around financial crisis in Indonesia.

This evidence could shed light on the question of whether the corporate structure compounded the financial crisis or whether corporations were the innocent victims of a financial crisis brought on by other factors. Since crisis hit in 1997 around Asian countries, financing policies of the firms are widely assumed as important sources of crisis. Therefore, corporate sector is an active actor in propagating crisis.

2. Description of Financing Policies in Indonesia

It is widely accepted that capital structure of firms around Asian countries contributes to the financial fragility and financial crisis (Pomerleano 1998; Claessens *et al*. 2000; Booth *et al*. 2001, Allayannis *et al*. 2003). Furthermore, those studies also show that most firms in Asian countries have been fragile before crisis hit, where profitability declines and leverage increase before the crisis. Hence, it is difficult to argue that currency depreciations were solely needed because of macroeconomic reasons (Bris *et al*. 2002).

Pomerleano (1998) show a thematic point that comes across all the result of the corporate financial analysis is unsustainable rapid and probably excessive investment in fixed assets financed by excessive borrowing in some Asian countries. And even in post crisis period, firms in Asia become more fragile (Bris *et al*. (2002). Or in other words currency depreciations did not help to improve the financial behaviour of most Asian companies.

The combination of high investment and relatively low profitability in some countries meant that much external financing was needed (Claessens *et al*. 1998). They argue that some of the vulnerabilities in corporate financial structures that have become a very apparent factor in triggering and aggravating East Asia's financial crisis, were thus already in existence in the early 1990s.

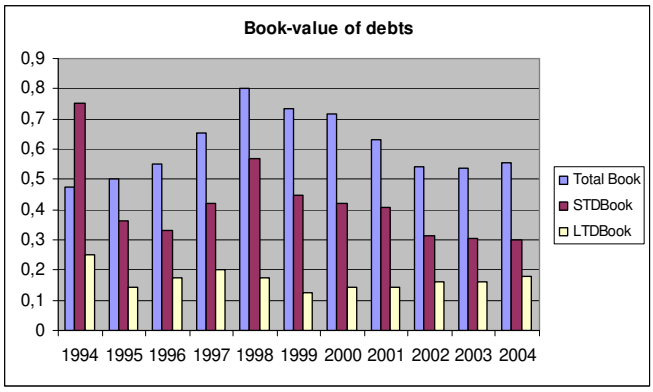
This paper begins the study by analyzing the financial ratios of listed companies in Indonesia using the accounting data provided by the Jakarta Stock Exchange (JSX) and Indonesian Capital Market Directory published by ECFIN (Institute for Economic and Finance Research) in various publications. The accounting data covers the period 1994-2004. We include all non-financial sectors and exclude the financial sector, since the debt structure of banks and investment institutions is not comparable to that in other sectors. This paper uses panel data analysis with 2.366 observations from 278 companies listed in JSX during the period 1994 – 2004. The impact of the 1997 crisis on firm level is a major concern of this

paper. This paper therefore differentiates three important periods, namely before crisis (1994 – 1996), during crisis (1997 – 1998), and post-crisis period (1999 – 2004).

Related to the issue of the relationship between corporate balance sheet and macro economic condition, Gray and Stones (1999) explain three operational tools to gauge such a relation, namely simple financial indicators, corporate profit simulations and economic value estimate (EVE). Simple financial indicators, such as the ratio of corporate debt to equity and the ratio of debt to assets, can serve as rough-and-ready gauges of the vulnerability of corporations to macroeconomic shocks. In this initial research, this paper provides descriptive financial indicators on debt ratio and profitability. It could be leading indicators for analyzing the corporate vulnerability.

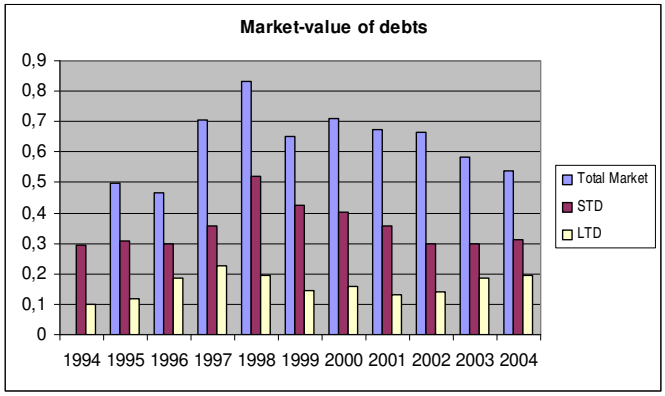
In these following graphs, it is shown several key ratios that fluctuate over times (1994 – 2004). Graph 1 and graph 2 describe how debt ratios fluctuate during times. Before crisis hit in 1997, the debt ratios tend to increase in both book and market value measurements. Debt in market value has a higher fluctuation than those of book value since market value is valuated based upon stock prices. For comparing to the neighboring countries, Fan *et al*. (2004) give an explanation that Indonesia is one of the five highest leverage ratios together with South Korea, Thailand, India and Brazil.

Graph 1. Median (%)



Note: Total Book is sum of book value of leverage as the ratio of total debt to total debt plus book value of equity. LTBook is long-term book value of leverage (long-term debt deflated by total debt plus book value of equity). STBook is short-term book value of leverage (short-term debt deflated by total debt plus book value of equity)
Source: author's calculation based on data from JSX'database and Indonesian Capital Market Directory (IDMD) - Ecfin

Graph 2. Median (%)



Note: Total Market is sum of market value of leverage as the ratio of total debt to total debt plus market value of equity. LTMarket is long-term market value of leverage (long-term debt deflated by total debt plus market value of equity). STMarket is short-term market value of leverage (short-term debt deflated by total debt plus market value of equity)
Source: author's calculation from various sources

Claessens *et al*. (2000) describe that long-term debt was low in East Asia during pre-crisis period. We can see in graph 1 and 2 that short-term debt dominates capital structure among Indonesian firms in all periods of study. It is likely true that firms in Asia become even more fragile after the crises. By descriptive data of this paper, we can see that in post-crisis period short-term debt was still dominating.

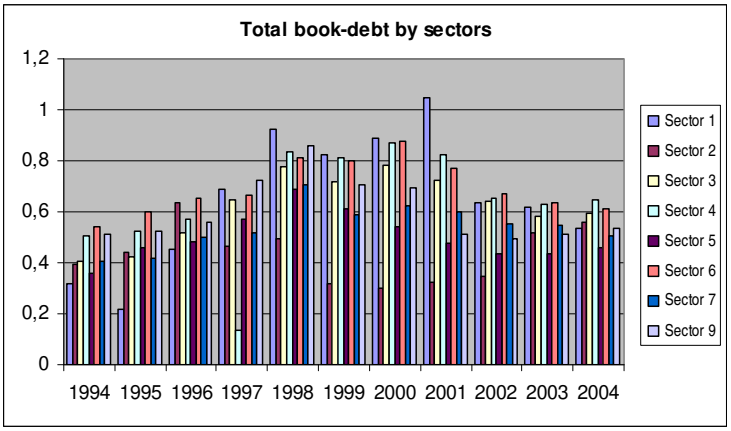
Like other neighboring countries in East Asia, Indonesia have been exposed to external capital rather than internal capital for financing the firms. This high rates of investment meant that companies in East Asian countries had to turn to external financing to make up for the lack of capital from retained earnings (Claessens *et al*. 2000). It is common phenomenon in developing countries where ratios of book value of debt tend to increase during recessions and fall during expansionary periods due to business cycle effects (Booth *et al*. 2001).

Following graph (3, 4 and 5) show the composition of total debt, long-term and short-term debts (all in book values) by industrial sector. We can see that following a financial crisis in 1997, most of industrial sector undermined higher debt-ratio in which the mechanism of balance-sheet effects was present. It is important to note that agriculture sector (sector 1) have a highest increase of debt ratio which could indicate that this sector had a high burden of foreign debt.

In term of short-term debt, sector 4 (miscellaneous industrial sector) containing machinery and heavy equipment, automotive and components, textile and garment, cable and electronics industries had a highest ratio when crisis hit. It can be explained that this sector

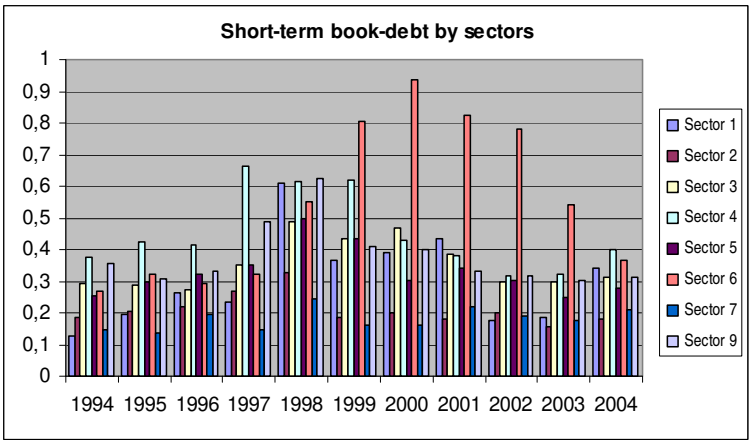
have a high import component, so that they have to fulfill their operation by acquiring high short-term debt in foreign currencies.

Graph 3. Median (%)



Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
Sector 1 = agriculture
Sector 2 = mining
Sector 3 = basic industry & chemical
Sector 4 = miscellaneous industry
Sector 5 = consumer good industry
Sector 6 = property, real estate & building construction
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

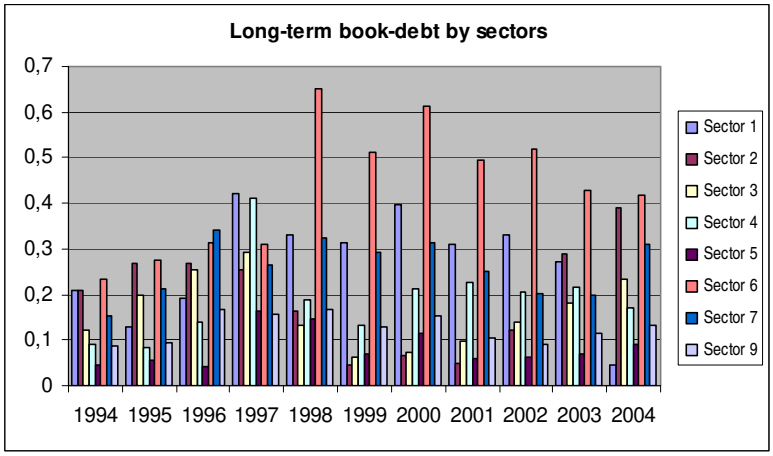
Graph 4. Median (%)



Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
Sector 1 = agriculture
Sector 2 = mining
Sector 3 = basic industry & chemical
Sector 4 = miscellaneous industry
Sector 5 = consumer good industry
Sector 6 = property, real estate & building construction
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

Generally, following a financial crisis sector property (sector 6) has a highest debt ratio showed by high median debt ratio in both, long-term and short-term ratio.

Graph 4. Median (%)



Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
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Sector 2 = mining
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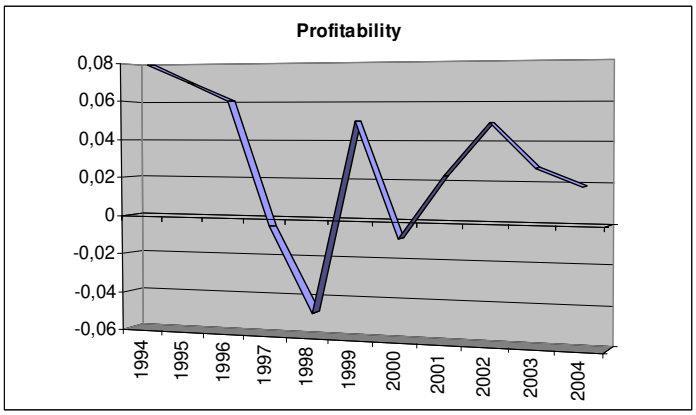
Sector 5 = consumer good industry
Sector 6 = property, real estate & building construction
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

These following two graphs describe two important determinants of capital structure, namely profitability and growth opportunity. These variables are shown for giving insight idea how firm performance before crisis hit in 1997.

In graph 5, we can see that during 1994 – 1996 (before crisis period), Indonesian firms have diminished their profitability. It is confirmed that high investment with low profitability have resulted the high debt ratios. In graph 4, in term of growth opportunities Indonesian firms have a high fluctuation, whereas in the onset of crisis growth opportunities of Indonesian firms tend to diminish. It can be said that on the onset of crisis, Indonesian firms have been in danger since several "early warning system" in micro level have had emerged indications of financial distress. At least firm level data provide evidence that before crisis, firms have experienced unhealthy conditions.

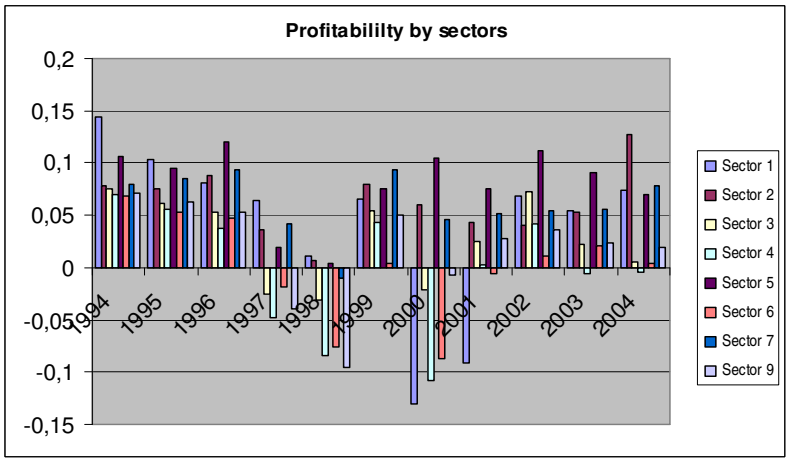
Graph 5. Median (%)



Note: Profitability is measured by ROA (Return on Assets)
Source: author's calculation from various sources

This following graph (graph 6) show how is profitability in industrial sector. Sector 3, 4, 6 and 9 are sectors in which crisis impacted much in their performance indicated by high loss in their profitability.

Graph 6. Median (%)

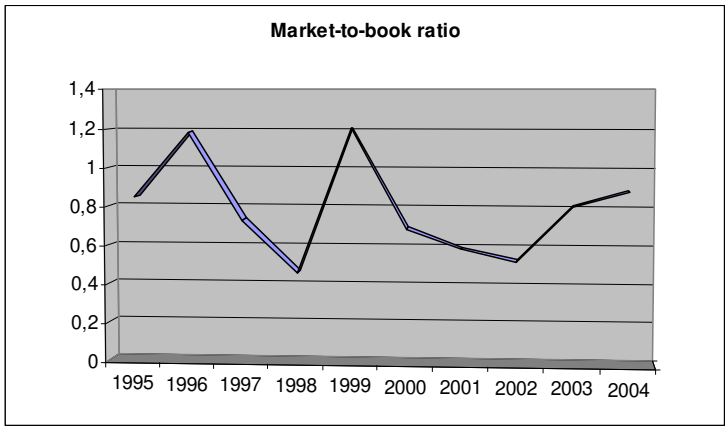


Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
Sector 1 = agriculture
Sector 2 = mining
Sector 3 = basic industry & chemical
Sector 4 = miscellaneous industry
Sector 5 = consumer good industry
Sector 6 = property, real estate & building construction
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

Market-to-book ratio measures the growth opportunities by considering the market expectation of the firms. In many literatures, market-to-book ratio is used to mention Tobin Q which is measurement of the market expectation (opportunities) in the future of the firms.

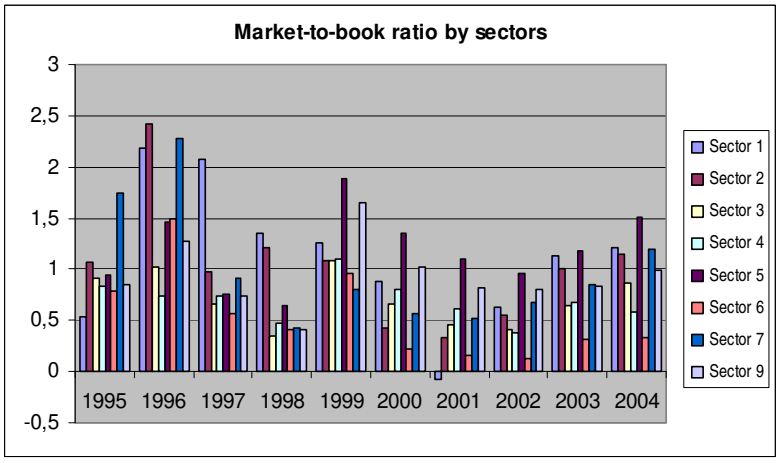
This trend is influenced by fluctuation in capital market. We can see that in general, the trend of Q value of firms in Indonesia was decreasing following a financial crisis.

Graph 7. Median (%)



Note: Market-to-book ratio is market value of equity deflated by book value of equity for measuring growth opportunities of firms.
Source: author's calculation from various sources

Graph 8. Median (%)



Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
Sector 1 = agriculture
Sector 2 = mining
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Sector 4 = miscellaneous industry
Sector 5 = consumer good industry
Sector 6 = property, real estate & building construction
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

Several studies (Claessens et al. 2000; Pomerleano 1998) confirm that in Asian countries debt ratios have increased and firm performance have decreased in the onset of crisis. They also shed light on how these conditions have been leaded by some institutional or countries specific factors.

3. Empirical Evidence

3.1. Simple Model

In equation (1) this paper uses two groups of measurements with six proxies of leverages as dependent variables. First group is leverage in book value which is divided into three proxies: total book value, long-term book value and short-term book value of debts. And second group is leverage in market value with three proxies, namely total market value, long-term market value and short-term market value of debts. By these proxies we have comprehensive measurements in where we can extrapolate the static impact (book value) and dynamic impact (market value) simultaneously of the macro shocks on firm-level conditions. By short-term and long-term (book and market value) we can also evaluate the issues of debt maturities.

This first regression captures macro variables or country specific factors on capital structure choices.

(1)

$$\textbf{Leverages}_{it} = \alpha + \beta_1 \, \mathbf{X}^{\mathbf{macro}}{}_t + \varepsilon_{it}$$

where

Leverages:

1. Total book value of debt = total debt deflated by total debt plus book value of equity
2. Long-term book value of debt = long-term debt deflated by total debt plus book value of equity
3. Short-term book value of debt = short-term of debt deflated by total debt plus book value of equity
4. Total market value of debt = total debt deflated by total debt plus market value of equity
5. Long-term market value of debt = long term debt deflated by total debt plus market value of equity
6. Short-term market value of debt = short term debt deflated by total debt plus market value of equity

Macro variables

1. Inflation = $\frac{WPI_t - WPI_{t-1}}{WPI_{t-1}}$, where WPI is wholesales price index
2. Interest rate US prime = annual interest rate in US
3. Interest IDR = annual interest rate in Indonesian Rupiah (IDR)
4. Real GDP growth = $\frac{Y_t - Y_{t-1}}{Y_{t-1}}$, where Y is nominal gross domestic product
5. Stock value = $\frac{Stockvalue}{GDP_N}$
6. Real Exchange Rate = $\frac{E_N * WPI_{USA}}{WPI_{IND}}$, where E_n is nominal exchange rate

In equation (2), regressions are employed to capture the relationship between capital structure choices and firm healthiness. Claessens *et al*. (1998) explain that the combination of high investment and relatively low profitability in some countries meant that much external financing was needed. The weak performance and risky financial structures of corporate mostly centered on capital structure choices.

(2)

$$\mathbf{Performance_{it} = \alpha + \beta_1 X^{leverage}_{it} + \beta_2 X^{macro}_{t} + \varepsilon_{it}}$$

For measuring firm performance this paper uses three measurements, namely profit margin, turn over and Altman Z-score.

1. Margin = Earning before tax deflated by total sales
2. Turn over = Total sales deflated by total assets
3. Altman Z-score use five ratios in a company's financial statements: working capital to total assets, and retained earning to total assets, earning before tax to total assets, market value of equity to total liabilities, and net sales to total asset. In equation it should be as follow (equation 4)

(3)

$$\mathbf{Z = 1.2(X1) + 1.4(X2) + 3.3(X3) + 0.6(X4) + 1.0(X5)}$$

X1 = Working Capital/Total Assets

X2 = Retained Earning/Total Assets

X3 = Earning Before Taxes/Total Assets

X4 = Market Value of Equity/Total Liabilities

X5 = Net Sales/Total Assets

Categorization

$Z > 2.99$	= healthy company
$1.81 < Z < 2.99$	= gray zone
$Z<1.81$	= unhealthy company

3.2. Financing Policies and Macro Variables

Corporate financing policies are likely induced by a combination of factors related to firm specific factors as well as industrial and macro economic variables. In comparative studies across countries, macro economic factors and others country specific variables are commonly considered to be more relevant and more powerful factors in explaining capital structure rather than industrial factors in concerning countries. This section focuses on macro economic factors, such as inflation, interest rate, economic growth, stock value and real exchange rate, influencing the capital structure of Indonesian firms.

Table 1 (see appendix) show that most of leverage measurements have positive and significant relation (except long-term book debt) with a set of macro economic variables. Booth *et al*. (2001) find that in developing countries, higher economic growth tends to cause the increase of total book value of debt and long-term book value of debt ratios, whereas higher inflation causes them to decrease. Meanwhile Fan *et al.* (2004) show that for Asian countries higher inflation is associated with lower leverage but is only weakly associated with shorter debt maturity.

In line with the findings of Fan *et al* (2004), this research finds that inflation is positively related to short-term book debt and short-term book debt and total book debt in Indonesia. It means that capital structure choice in shorter debt maturity is not influenced by the increasing of inflation rate. But in long-term book debt and long-term market debt, inflation decrease leverages, though it is weak.

Booth *et al*. (2001) find a negative but insignificant relationship between leverage and inflation in their samples of 10 developing countries. Meanwhile Demirguc-Kunt and Maksimovic (1999) find a significant negative relationship between debt maturity and inflation for developed and developing countries.

In this study, we find that real GDP growth is negatively related to long-term book debt and long-term market and also total market debt. Meanwhile real GDP growth is positively related with total book debt, short-term book debt, and short-term market debt. But in general, real GDP growth is stronger associated with market value of debts rather than book value of debts, since the level of significant is relatively high (1 percent and 5 percent). However, this relation is different with most theoretical predictions, such as Booth *et al.* (2001) who predict positively association in total book value of debt and long-term book debt. In Indonesia, economic growth decreases with long-term book debt.

Interest rate in both US prime and Indonesian Rupiah are negatively associated with total book debt, long-term book debt and short-term book debt (though all correlation in both interest rates is not significant). But in market value of debt, both interest rates influence differently. Interest rate in domestic market, which is in Indonesian Rupiah, is positively related with total market debt, meanwhile interest rate in foreign market, which means US prime, positively associated with short-term market debt.

Some studies provide empirical evidence how currency crisis aggravated firm capital structure and then firm performance. Balance sheet effect mechanism shows that exchange depreciation have induced corporate sector by exacerbating firms' balance sheet with significant amount of foreign liabilities (Krugman, 1999; Labato *et al*., 2003). Since revenue of most companies is in local currency, augmentation of foreign liabilities has jeopardized most of Indonesian companies. In their case, many companies have demanded more debt to recover their maturity debt. But some of them have to restructure their business, if not they have to close their activities. However, the impact of the crisis on the firm level is various, whereas one important transmission of the exchange rate depreciation and firm-performance is through the impact of leverage.

Surprisingly, this study found that real exchange rate is weakly related to leverage. The real exchange rate is positively and significantly related to total book debt, long-term book debt and total market debt. In other measurements of debt, real exchange rate is not associated with. It means that leverages increase with real exchange rate, higher exchange rate higher debt. It could be interpreted into two senses: first since balance-sheet mechanism works the value of debt is increase with exchange rate depreciation, and second depreciation of exchange rate require more debts to defend from risk bankruptcy.

Allayanis *et al*. (2003) show that debt denominated in foreign currency deteriorate firm performance and enhance financial fragility in East Asian countries. In other sense, Booth et al. (2001) explain the business cycle effect commonly happens in developing

countries in where book-debt ratios tend to increase during recessions and fall during expansionary periods.

In this study, it is shown how macro economic variable interrelates with leverages. Fan *et al*. (2004) link macroeconomic variables with debt maturities by supposing that countries with large amounts of bank deposits tend to have shorter debt maturities and countries with a greater presence of insurance companies have longer debt maturities. By cross-country data, they also find that the countries in which the firm resides, is a more important determinant of how it is financed than its industry affiliation.

This paper considers stock market development and government international reserve as important institutional variables influencing capital firms' structure choice. Stock market development induces capital structure choice, since it provides opportunities for firms to access external capital by selling their shares. Meanwhile, government international reserve becomes important leading indicator of crisis which should be important variable for estimating firms' financing policies.

By table 1, we can see that, in general, stock market development is positively related to book value but is negatively related to market value of debts. Stock market development increases with total debt and short term book debt. It can be said that stock market development increase with total book and long-term book debts, but decrease with long-term market debt, though it is weakly associated.

3.3. Financing Policies and Firm Healthiness

Some researches are concern on the impact of large depreciation on the firm performance (Forbes 2002; Desai *et al*. 2004)[2]. But it is likely neglected research on the impact of capital structure choices with firm healthiness[3].

This paper uses three measurements of firm healthiness in three senses, which are margin, turn over and Altman Z-score. The last proxy is widely used for measuring the risk to bankruptcy of firms. It is important to evaluate the capital structure choices and firm healthiness, since most recent studies of crisis mention about financing policies as the important sources of financial fragility.

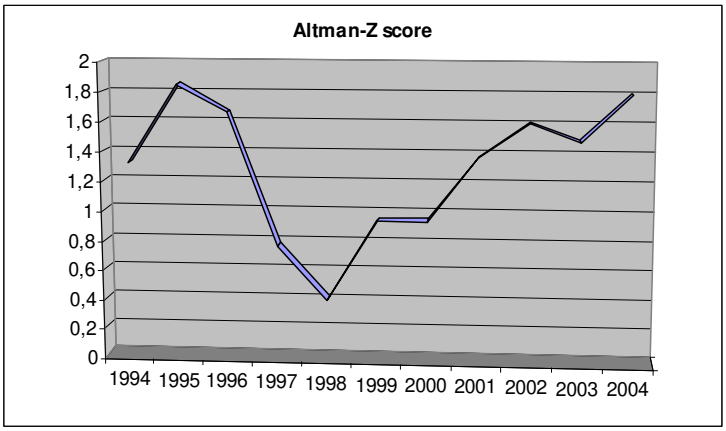
Graph 9 shows how Altman Z score fluctuates overtimes. Consistent with other measurement of performance in before crisis period Altman Z –score tend to diminish. For

[2] Theoretically, depreciations could enhance the firm competitiveness for export-oriented firm. But for others, large depreciation would be followed by a decline in output and severe recession

[3] Balance sheet effect perspectives are more giving attention on debt denomination not on the capital structure its self. See for example, Bonomo *et al*. 2004, Labato *et al*. 2003, Bleakley and Cowan 2002.

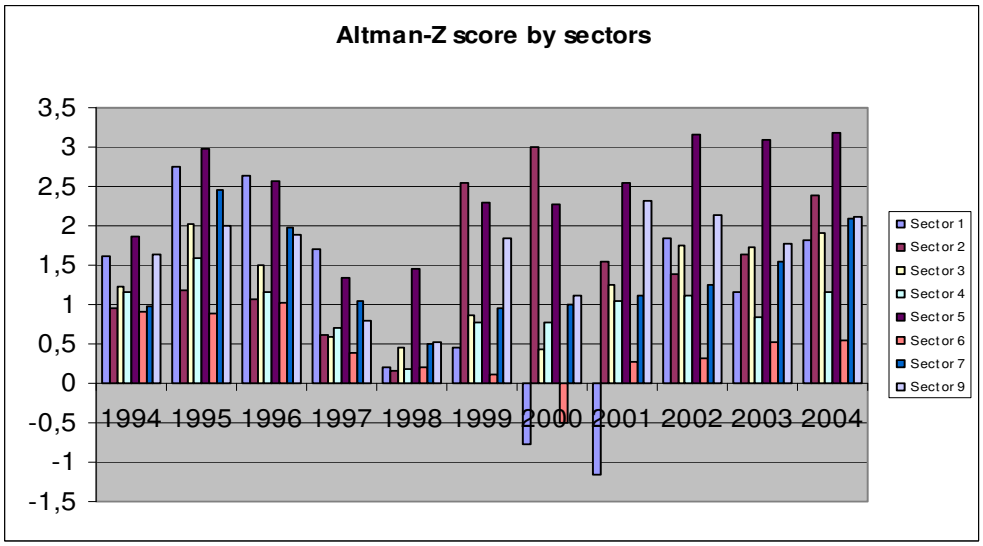
remembering, firms with Altman Z-score >2.99 are healthy companies, 1.81< Z <2.99 are grey zone and >1.81 are unhealthy companies. By these categorizations, actually in before crisis period most Indonesian firms are in grey zone, if not unhealthy condition.

Graph 9. Median



Source: author's calculation from various sources

Graph 10. Median



Source: author's calculation based on JSX's database and Indonesian Capital Market Directory provided by ECFIN
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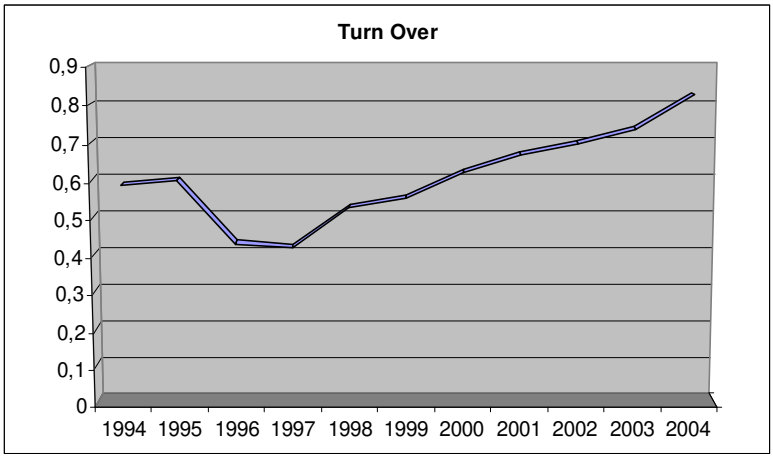
Sector 7 = infrastructure, utilities & transportation
Sector 9 = trade, service & investment

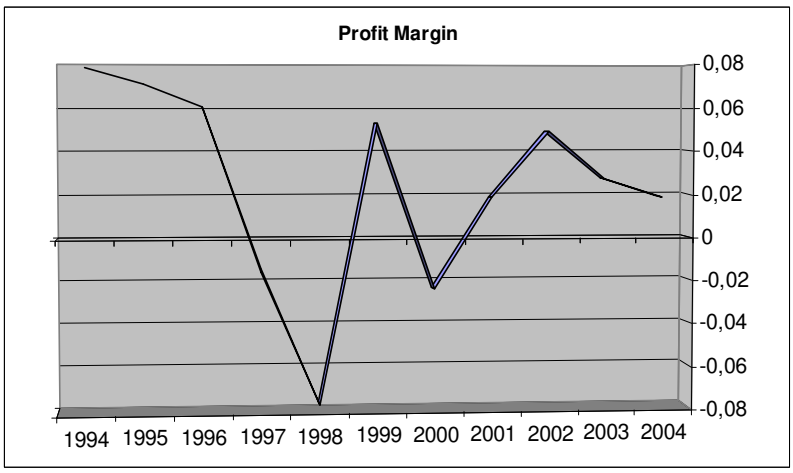
Other proxies of performance, namely turn-over and margin, show the comparable tendencies. Turn over was declining in the onset of the 1997 financial crisis, whereas the impact of currency crisis in the mid of 1997 was extremely wide on margin of Indonesian firms (see Graph 11 and 12).

Graph 11. Median (%)



Turn over is sales deflated by total assets
Source : author's calculation from various sources

Graph 12. Median (%)



Profit margin is earning before tax (EBIT) deflated by total sales
Source : author's calculation from various sources

In table 6 (appendix), we can see that most ratio of debts are negatively related to firm performances by several different proxies. It means that, in general, more debt is riskier to bankruptcy as well as less margin and less turn over. Total book-debt and total market-debt are negatively related to margin in 1 percent level of significance. Meanwhile, total market-debt is negatively related to margin, turn over and bankruptcy in 1 percent of significance.

Based on the level of significance, book value of debts is more powerful in estimating margin whereas in turn over market value of debts is better.

4. Conclusion

This paper brings a comprehensive explanation of capital structure and firm vulnerability around financial crisis in Indonesia. By the stages of analysis, we can find that exchange rate induce severely capital structure choices of Indonesian firms. Indeed, the macro fluctuation becomes a pivotal variable influencing the debt ratio of the firms, whereas the level of debt provokes firm vulnerability.

By samples of 278 listed companies in Jakarta Stock Exchange, we can find that before crisis hit in 1997, the debt ratios tend to increase in both, book value and market value of debts. In market value, the fluctuation is higher since it is calculated by ratio of debt to market value of equity which the later is valuated based on stock prices. In the descriptive analysis, we can also see that short-term debt dominates capital structure among Indonesian firms. Accordingly, Indonesia firms have had a serious problem in the onset of crisis, whereas firms have diminishing profit with higher fluctuation in their growth opportunities.

These findings are confirmed with some measurements of performance or healthiness. By Altman Z-score for measuring the risk to bankruptcy of firms it seem that in the onset of crisis, most of Indonesian firms have been in grey zone, if not unhealthy condition. Same tendencies have happened in margin and turn over.

This paper provides empirical evidences how capital structure exacerbates firm vulnerability, and than financial fragility. These findings are important for better understanding of the 1997 financial crisis in Indonesia by bringing country specific, firm specific and also industrial sector specific factors where capital structure is influenced by macro shocks. Then, these financing policies aggravate firm-level performances.

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Appendix

Tabel 1. Macro and Capital Structure

	Total Book		*LTBookLev*		*STBookLev*		*TMarketLev*		*LTMarket Lev*		*STMarketLev*	
Intercept	0.7471	***	0.3251	***	0.5017	***	0.3840	***	0.3078	***	0.2750	***
	(0.0630)		*(0.0354)*		*(0.0683)*		*(0.0296)*		*(0.0389)*		*(0.0313)*	
RER	0.0000	***	0.0000	***	0.0000		0.0000	***	0.0000		0.0000	***
	(0.0000)		*(0.0000)*		*(0.0000)*		*(0.0000)*		*(0.0000)*		*(0.0000)*	
Domestic Interest Rate	-0.0049	**	-0.0030	**	-0.0024		0.0021	**	0.0014		-0.0004	
	(0.0024)		*(0.0014)*		*(0.0027)*		*(0.0011)*		*(0.0014)*		*(0.0012)*	
US Interest Rate	-0.0553	***	-0.0286	***	-0.0339	***	-0.0234	***	0.0193	***	-0.0121	***
	(0.0052)		*(0.0029)*		*(0.0057)*		*(0.0024)*		*(0.0031)*		*(0.0026)*	
Inflation	0.2287	***	0.0348		0.2294	***	0.0988	***	0.1028	***	-0.0193	
	(0.0447)		*(0.0255)*		*(0.0485)*		*(0.0193)*		*(0.0262)*		*(0.0226)*	
Real GDP	0.0235	**	-0.0080		0.0376	***	-0.0052		0.0219	***	-0.0092	*
	(0.0114)		*(0.0064)*		*(0.0126)*		*(0.0050)*		*(0.0069)*		*(0.0056)*	
Stock Market Development	0.7049	***	0.2361	***	0.5841	***	0.1392	***	-0.0598	*	0.0241	
	(0.0606)		*(0.0344)*		*(0.0665)*		*(0.0276)*		*(0.0366)*		*(0.0305)*	
Number of obs	2539		2378		2363		2345		2308		2367	
R^2	0.1192		0.0721		0.0707		0.1624		0.0446		0.0169	
X^2 Hausman	1217.46		37.00		25.08		1.58		6.09		15.35	
Prob X^2	0.0000		0.0000		0.0003		0.9538		0.4137		0.0177	
Specification	FE		FE		FE		RE		RE		FE	

FE is Fixed Effect, RE is Random Effect, *, **, *** denote significance at the 10, 5 and 1 percent levels, respectively. Standard deviation is reported in parentheses for specifications

Table 2. Total Book Value of Debt and Firm Healthiness						
	Altman-Z		*Turn Over*		*Margin*	
Intercept	4.4724	***	1.3578	***	0.3023	***
	(0.5504)		*(0.0806)*		*(0.0229)*	
Total Book	-3.5854	***	-0.0330		-0.1497	***
	(0.1921)		*(0.0246)*		*(0.0081)*	
Inflation	-0.8534	**	0.1514	***	-0.1419	***
	(0.3895)		*(0.0507)*		*(0.0164)*	
Domestic Interest Rate	0.0467	**	-0.0092	***	0.0035	***
	(0.0211)		*(0.0027)*		*(0.0009)*	
US Interest Rate	-0.0772	*	-0.0490	***	-0.0070	***
	(0.0472)		*(0.0062)*		*(0.0020)*	
RER	-0.0001		0.0000		0.0000	***
	(0.0001)		*(0.0000)*		*(0.0000)*	
Real GDP	0.1451		-0.0190		0.0057	
	(0.1042)		*(0.0137)*		*(0.0043)*	
Number of obs	2539		2533		2517	
R^2	0.1483		0.0559		0.2496	
X^2 Hausman	14.86		7.75		14.35	
Prob X^2	0.0214		0.2570		0.0260	
Specification	FE		RE		FE	

FE is Fixed Effect, RE is Random Effect, *, **, *** denote significance at the 10, 5 and 1 percent levels, respectively. Standard deviation is reported in parentheses for specifications

Table 3. Short-term Value of Debt and Firm Healthiness						
	Altman-Z		*Turn Over*		*Margin*	
Intercept	3.6957	***	1.4048	***	0.2529	***
	(0.6428)		*(0.0797)*		*(0.0266)*	
STDMarket	-2.3197	***	0.0344		-0.0809	***
	(0.3980)		*(0.0494)*		*(0.0148)*	
Inflation	-0.7524	*	0.1608	***	-0.1512	***
	(0.4535)		*(0.0562)*		*(0.0184)*	
Domestic Interest Rate	0.0286		-0.0104	***	0.0031	***
	(0.0248)		*(0.0031)*		*(0.0010)*	
US Interest Rate	0.1198	**	-0.0541	***	0.0007	
	(0.0552)		*(0.0068)*		*(0.0022)*	
RER	-0.0003	***	0.0000		0.0000	***
	(0.0001)		*(0.0000)*		*(0.0000)*	
Real GDP	0.2061	*	-0.0267	*	0.0062	
	(0.1224)		*(0.0152)*		*(0.0049)*	
Number of obs	2308		2304		2286	
R^2	0.0296		0.0590		0.1371	
X^2 Hausman	77.52		37.72		5.94	
Prob X^2	0.0000		0.0000		0.4304	
Specification	FE		FE		RE	

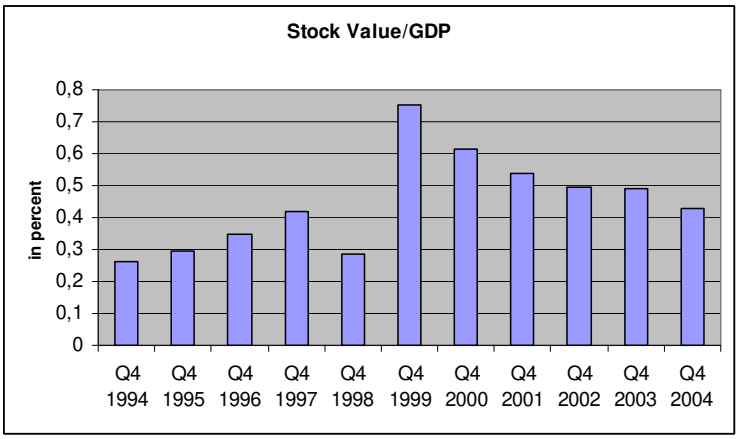
Table 4. Long-term Value of Debt and Firm Healthiness					
	Altman-Z		*Turn Over*		*Margin*
Intercept	2.9069	***	1.3531	***	0.2274
	(0.5971)		*(0.0767)*		*(0.0253)*
LTD Market	-0.0977		-0.0737		0.0495
	(0.4441)		*(0.0570)*		*(0.0166)*
Inflation	-0.9594	**	0.1629	***	-0.1594
	(0.4286)		*(0.0550)*		*(0.0180)*
Domestic Interest Rate	0.0275		-0.0098	***	0.0027
	(0.0228)		*(0.0029)*		*(0.0009)*
US Interest Rate	0.0676		-0.0502	***	-0.0007
	(0.0505)		*(0.0065)*		*(0.0021)*
RER	-0.0002	***	0.0000		0.0000
	(0.0001)		*(0.0000)*		*(0.0000)*
Real GDP	0.0823		-0.0252	*	0.0044
	(0.1117)		*(0.0144)*		*(0.0047)*
Number of obs	2367		2361		2348
R^2	0.0138		0.0571		0.1400
X^2 Hausman	34.35		81.86		10.40
Prob X^2	0.0000		0.0000		0.1087
Specification	FE		FE		RE

Table 5. Total Market Value of Debt and Firm Healthiness						
	Altman-Z		*Turn Over*		*Margin*	
Intercept	5.9654	***	1.4698	***	0.2903	***
	(0.6177)		(0.0857)		(0.0259)	
TotalMarket	-8.1724	***	-0.2541	***	-0.2293	***
	(0.5014)		(0.0596)		(0.0177)	
Inflation	-0.5401		0.1870	***	-0.1413	***
	(0.4131)		(0.0514)		(0.0172)	
Domestic Interest Rate	0.0567	**	-0.0101	***	0.0043	***
	(0.0230)		(0.0029)		(0.0009)	
US Interest Rate	-0.0756		-0.0503	***	-0.0073	***
	(0.0528)		(0.0066)		(0.0021)	
RER	0.0000		0.0000		0.0000	***
	(0.0001)		(0.0000)		(0.0000)	
Real GDP	0.0870		-0.0148		0.0020	
	(0.1102)		(0.0139)		(0.0046)	
Number of obs	2345		2339		2323	
R^2	0.1306		0.0661		0.1706	
X^2 Hausman	17.67		6.34		4.57	
Prob X^2	0.0071		0.3858		0.6004	
Specification	FE		RE		RE	

Table 6. Short-term Value of Debt and Performance						
	Altman-Z		*Turn Over*		*Margin*	
Intercept	4.3135	***	1.4250	***	0.2684	***
	(0.6737)		(0.0770)		(0.0239)	
STD Book	-3.3072	***	-0.0110		-0.1464	***
	(0.1975)		(0.0263)		(0.0082)	
Inflation	-0.7853	*	0.1626	***	-0.1402	***
	(0.4181)		(0.0551)		(0.0174)	
Domestic Interest Rate	0.0459	**	-0.0100	***	0.0038	***
	(0.0229)		(0.0030)		(0.0009)	
US Interest Rate	-0.0337		-0.0545	***	-0.0038	*
	(0.0509)		(0.0067)		(0.0021)	
RER	-0.0001	**	0.0000		0.0000	***
	(0.0001)		(0.0000)		(0.0000)	
Real GDP	0.2201	*	-0.0252	*	(0.0073)	
	(0.1151)		(0.0151)		0.0047	
Number of obs	2363		2359		2341	
R^2	0.1210		0.0599		0.2473	
X^2 Hausman	10.94		20.57		14.33	
Prob X^2	0.0901		0.0022		0.0261	
Specification	RE		FE		FE	

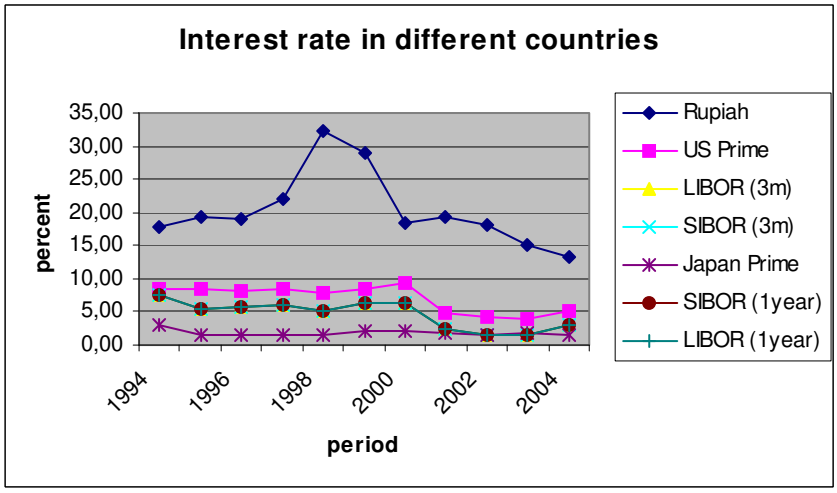
Table 7. Long-term Book Value of Debt and Performance						
	Altman-Z		*Turn Over*		*Margin*	
Intercept	3.1999	***	1.3550	***	0.2491	***
	(0.5887)		*(0.0757)*		*(0.0253)*	
LTD Book	-1.2827	***	-0.1099	**	-0.0346	**
	(0.3845)		*(0.0494)*		*(0.0147)*	
Inflation	-0.9702	**	0.1594	***	-0.1602	***
	(0.4237)		*(0.0544)*		*(0.0179)*	
Domestic Interest Rate	0.0275		-0.0097	***	0.0027	***
	(0.0226)		*(0.0029)*		*(0.0009)*	
US Interest Rate	0.0361		-0.0519	***	-0.0022	
	(0.0507)		*(0.0065)*		*(0.0021)*	
RER	-0.0002	***	0.0000		0.0000	***
	(0.0001)		*(0.0000)*		*(0.0000)*	
Real GDP	0.0661		-0.0259	*	0.0037	
	(0.1112)		*(0.0143)*		*(0.0047)*	
Number of obs	2378		2372		2359	
R^2	0.0191		0.0586		0.1357	
X^2 Hausman	42.04		57.72		8.05	
Prob X^2	0.0000		0.0000		0.2345	
Specification	FE		FE		RE	

Graph 1



source : Indonesian Central Bank, Bank Indonesia

Graph 2



LIBOR = London Inter Bank Offering Rate, SIBOR = Singapore Inter Bank Offering Rate

Source : Indonesian Central Bank, Bank Indonesia