Indonesia's Ponzi Economy: Does Financial Crisis Give a Lesson

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Atma Jaya Catholic University, Kompas Daily

January 2008

Indonesia's *Ponzi* Economy:
Does Financial Crisis Give a Lesson?[1]

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VERY PRELIMINARY
(do not quote; suggestion welcome)

Abstract

After ten years of Asian crisis, it is still unclear what the roots of crises are really. This paper seeks to the explanation of the evolution of the capitalism system in Indonesia for gaining an important indication of the root of crisis as well as the future risk of crises of the Indonesia's economy. This paper uses the micro evidence based on firm-level data in order to understand the behaviour of economic agents due to financial crisis by a question of whether the behaviour changes. Specifically, this paper is concerned with the financing behaviour of the firms in understanding the capitalism system which exists and evolves in Indonesia today based on the Minsky's taxonomy (*hedge*, *speculative* or *ponzi* system of capitalism). Furthermore, this paper should have an implication in policies level by giving an early warning, whether Indonesia is still vulnerable to the crisis in the future. This paper begins by analyzing the financial ratio of listed companies in Indonesia by 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.

Key words: financing policies, financial instability, financial crisis
JEL classification: D21, G0, G3

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[1] This paper is prepared for the 5th EuroSEAS Conference, September 12-15th, 2007 at the University of Naples 'L'Orientale' , Italy.

1. Introduction

Even after ten years of Asian crisis, it is still unclear what really the roots of crises. Whether internal fundamental economic system rather than global financial system has to be responsible to this turbulence. Whether the macro factors rather than micro factors propagate the mechanism. Whether it is liquidity problem rather than solvability problem of the economy. Whether corruption and political governmental system is responsible, and so on.

For most scholars, the emergence of the fashionable generation of crisis is neither predictable nor understandable. Intense debates on the causes, onset and evolution of the 1997 East Asian financial crisis have been sparking among scholars. Krugman (1998) focuses on the links between moral hazard and over-investment in the presence of asymmetric information of the financial sector that commonly presence in the developing countries such as South East Asian countries. Furman and Stiglitz (1998) note premature financial sector liberalization and weak institution as the main sources of crisis in South East Asian countries.

Moreover, the question of whether Asian crisis was caused by fundamental factor rather than by speculative attack of liquidity holders became another important central debate. Fundamental view (Corsetti, Pesenti and Roubini 1998) accuses that the structural imbalances rooted deeply on the economies across Asian countries since long-time before the date of crisis is a main factor causing the Asian financial crisis. They contend that all indications are of structural fragility in the financial and corporate sectors.

Meanwhile self-fulfilling or panic view (Radelet and Sachs 1998) assumes that the panic of the liquidity holder in across Asian countries is a main source of the width and depth of crisis. Since globalization, financial liberalization and capital market integration enhance capital mobility, countries integrating their domestic financial market into global market would become more fragile and prone to crisis. Theoretically, the panic behaviour of liquidity holders is exacerbated by the asymmetric information and agency problem rising to the herd

behaviour of economic agents. This phenomenon is common in developing countries like Indonesia. It should be, to date, an important explanation why severe crisis happened in such fairly performing economy across Asian countries.

Some scholars convince that even though structural imbalances in economy played an important role in most Asian countries, the herd behaviour of economic agents (self fulfilling prophecy) amplifies the crisis (Kumar and Debroy, 1999). However, the distinction is between those who believe that the crisis was due purely to structural weaknesses in the affected economies, and those who believe it was structural weaknesses combined with financial panic. Krugman (1999) reveals the anecdotal description of this opposing approach as a debate of "fundamentalist" and "self-fulfilling" crisis stories.

Meanwhile, the question of whether the blame should be allocated to domestic policies or to the volatile nature of the global financial system comes to be other central debates on the causes of the crisis. Hausmann and Panizza (2002) point up the inability of most countries to borrow abroad in their own currency and borrow in local currency at long maturities and fixed rates even at home as a main source of the financial fragility, especially in developing countries. The "original sin" argument basically pinpoints the global financial system as a main source of crisis, especially in emerging countries.

Ranciere and Tornell (2004) mention about the systematic bailout guarantees policies as a main source of the risk taking behavior of agencies, which could lead to aggregate financial fragility and to occasional crises. Furthermore, they add that this risk taking would reduce the effective cost of capital and allow borrowers to attain greater leverage and invest more.

Despite the intense debates, the impact of crisis is merely evident. Kregel (1998) mention that the Asian financial crisis is doubly unfortunate, because it has set income and wealth levels in these counties back some ten years. In Indonesia, due to crisis, unemployment

has increased significantly from 6 million of people on the onset of people into 20 million in the aftermath of crisis. To be worse, the number of people living under the poverty line is estimated to have risen to 80 million, or about 40 percent of the population. Indeed, the failure of the financial sector caused growth to collapse.

The economic downturn was very dramatic. Following a currency crisis in Thailand in June 1997, monetary authority in Indonesia or Bank Indonesia decided to adopt a free-floating exchange rate policy on August 14th 1997, since the depreciation of Rupiah has been very high. Afterward, Indonesian Rupiah (IDR) depreciated sharply to United States Dollar (USD) from 4,950 IDR in December 1997 to 15,000 IDR in June 1998 or more than three times.

This paper proposes to analyse the crisis in Indonesia by employing "Financial Instability Hypothesis" proposed by Hyman Minsky (1978). The innovative Minsky's explanation relies on the linkage between macro variables and micro factors within economic capitalistic system. He mainly argues that instability is endogen in the dynamic of the system of capitalist by which *hedge* become *speculative*, whereas speculative become *ponzi*. It is therefore argued that the roots of crisis is endogenously embedded within a system of capitalist. Accordingly, it is important to explore the behaviour of the agents of capitalist within the economic system.

This paper intends to explain descriptively the evolution of the capitalism system in Indonesia in order to gain an important indication of the future risk of crises of Indonesia's economy. This paper uses the micro evidence based on firm-level data in order to understand the behaviour of economic agents in Indonesia due to financial crisis: whether the behaviour change. Specifically, this paper is concerned with the financing behaviour of the firms in Indonesia in order to extrapolate the capitalism system existing in Indonesia today based on the Minsky's taxonomy (hedge, speculative or ponzi system of capitalism). Furthermore, this

paper should have an implication in policies level by giving an early warning, whether Indonesia is still vulnerable to the crisis in following days.

This paper begins the study by analyzing the financial ratio of listed companies in Indonesia by 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. Macro indicators are taken from IFS (International Finance Statistic) provided by International Monetary Fund (IMF).

2. Cycle and Crisis: an Endogenous Instability

2.1. Keynesian explanation

Inspired by Jawaharlal Nehru -an Indian prominent scholar- on his famous statement on history and the victors, Radelet and Sachs (1998) lead their analysis on Asian financial crises by following statement: "Financial history, it seems, is written by the creditors. When a financial crisis arises, it is the debtors who are asked to take the blame".

It is true that in the most analyses of Asian crisis, incomplete internal market system indicated by unsound regulation, weak supervision, partial deregulation and liberalization, rampant corruption, weak corporate governance or insider dealing is cited as a major problem provoking the 1997 financial crisis around Asian countries [2]. These systemic market discrepancies led to inefficient investment spending and underscored the stability of banking system by provoking bank runs behaviour.

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[2] Jack Glan & Ajit Singh (2004) mentioned "Greenspan-Summers-IMF thesis" to demonstrate the typical perspective of donor or creditor concerning with the Asian crisis, which suggested that the fundamental causes of the Asian crisis lay in the microeconomic behaviour of economic agents in these societies – in the Asian way of doing business.

It is really evident that domestic market system does matter, and that the rampant corruption, weak governance and inefficient market system in developing countries are severely present. However, they are not the sole factor. Financial globalization, governance on global financial system, international capital fluctuation and international financial architecture should be also included in the analyses of the developing country financial instability. However, there is a common understanding that instability is inevitable in such a global financial system, especially for the case of developing countries where the market inefficiency is severe.

In the models of the fashionable crises, financial factor is mostly referred to as a central variable in the mechanism of crisis, whereas conventional theory has neglected it. Neo-classical model of finance assumes that the relation between finance and investment is irrelevant (Modigliani and Miller, 1958). And this irrelevance of finance on investment decision is based upon the argument that market works efficiently and agents react by perfect rationality. Thus, the decision on investment is supposed to be taken efficiently under the perfect market hypothesis. As consequence, the difference source of finance would be nothing to do with firm value and investment decision.

These two basic virtues are subject to criticism since a very long time ago. In his *General Theory*, especially in chapter 12 on "The state of long-term expectation", Keynes (1936) is concerned with the difference behaviour between speculative and entrepreneurial agents and their impact on the investment decision. In this chapter, Keynes emphasizes that the factor of the *state of confidence* of the economic agents does really matter on investment decision.

> *"The state of long-term expectation, upon which our decisions are based…..also depends on the "confidence" with which we make this forecast—on how highly we rate the likelihood of our best forecast turning out quite wrong. If we expect large changes but are very uncertain as to what precise form these changes will take, then our confidence will be weak" (Page 108).*

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State of confidence is psychological matter by nature, which is referred to an endogenous variable, which contains an "animal spirit" in Keynes' argument. In this context, the decision to invest or not would be depended on the expectation and confidence of economic agents by which the provision of information in the market and also the future incentive to the market participants become important factors inducing decision. Since the decision to invest contains a state of confidence, so that the speculation may be born. On the question of the speculative action, Keynes in the same book describes:

> "A conventional valuation which is established as the outcome of the mass psychology of a large number of ignorant individuals is liable to change violently as the result of a sudden fluctuation of opinion due to factors which do not really make much difference to the prospective yield; since there will be no strong roots of conviction to hold it steady" (Page 111).

Keynes' statement on the expectation and investment decision is merely evident in the case of great crash in 1929. The panic behaviour devastated the firm value by declining share prices in capital market, which followed by the rising debt burdens. Irving Fisher (1933) referred to this phenomenon as a "debt inflation" by which the state of confidence inducing firm's net worth diminished the investment activity. There was a financial factor, which propagated the impact of the price decline on the collapse of investment.

These two theoretical foundations, Keynes on expectation and Fisher on debt deflation, become an important ingredient in the alternative view of finance and monetary economics. These theories also affect the hypothesis of endogenous financial instability such as developed by Minsky.

2.2. Minskian approach

Hyman Minsky is recognized as a scholar who made a seminal contribution to the development of financial Keynesianism during his lifetime (1919 – 1996). Minsky's research

emphasized the central role of finance in modern economies at a time when finance was not important in most mainstream macroeconomic research (Fazzari, 1999).

Minsky gave to finance in his analysis of investment and macroeconomics long before this topic became fashionable in the mainstream. Considering Minsky for understanding the relation between finance, investment, and the crisis is therefore inevitable. Minsky believes that productive or real sector as well as investment level should be defined by micro units of production. The financial condition of these micro units is subsequently important to have an impact on investment activities.

Before the wave of crises in 1990s, Minsky (1975) have developed a simple model to explain financial risk in which the evolution of the liability structure of firms over the course of a boom become a pivotal factor affecting financial crises. Related to the 1997 Asian crises, Arestis and Glickman (1999) point out that Minsky's Financial Instability Hypothesis (FIH) would seem to have obvious application to the recent experience of financial crisis in Asia[3]. They argued that Minsky's works does indeed offer the basis for a convincing interpretation of the crisis in Asia and on which has important implication for policy.

Minsky argues that the systemic instability of a closed, developed capitalist economy depends upon the evolution of liability structures of the firms that comprise it. In closed economy with the normal dynamic of a capitalist economy increase financial opportunities, which then enhance speculative behaviour[4]. FIH attempts to provide a theory of *systemic* financial fragility, arguing that phases of over-caution and over-exuberance in financial practices are generated not by random causes but rather by the internal workings of the economic system (Sethi, 1992).

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[3] According to Arestis and Glickman (1999), while many commentators may have been influenced by Minsky's ideas, so few have attempted to use them explicitly as a basis analysing the crisis.
[4] Minsky's model is about closed capitalist economy, which may lead to that many recent studies do not refer directly to his model.

During booms of the dynamic capitalist economic system, an undervaluation of risks and an expansion of the supply of funds, which could boost speculative activities are common. Arza and Espanol (2006) provide an empirical evidence of the Argentian firm behaviour and argue that in a context of full financial liberalization, defined in terms of both international capital mobility and domestic financial deregulation, these mechanisms might be exacerbated because with less intervention there might be fewer quality control (i.e. more indiscriminate credit), and with a larger supply of funds from different sources there will be increased liquidity. Schroeder (2002) heighten that these structures become increasingly fragile over the duration of a boom simply through their (seemingly) independent finance and investment decisions as they strive to accumulate.

Kregel (1998) argue that an open (developing or developed) economy is vulnerable to a financial crisis much earlier in the business cycle than what Minsky's closed, developed economy model suggests. If a widening interest rate spread triggers capital flight and the devaluation of domestic currency, the interest rate effect upon cash flows is compounded. Arestis and Glickman (1999) put forth a Minskian analysis which suggests that, like Kregel, financial crisis in an open economy arrives earlier than in a closed economy by arguing that the Minskyan stages be redefined to include the effects of exchange rate fluctuations along with vulnerability to increases in the interest rate[5].

Weller (1999) using Minskyan approach argue that the vulnerability of emerging economies to currency and banking crisis increase after financial opening. Vulnerability of both crises (currency and banking) increased to follow liberalization in both, internal and external financial system. External liberalization means that domestic market receives more liquidity, which increases both productive and speculative projects. Internal liberalization

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[5] Arestis (2005) identify a number of key theoretical propositions of the financial liberalization thesis which are challenged by serious difficulties.

characterized by deregulation and liberalization policies induces to enhance banking development in domestic market as well as credit channelling to corporate sector.

Related to the recent theoretical development on financial crisis, Minsky (1991) have mentioned the problem of the balance sheet problem in economy as described as follows.

> *"A capitalist economy can be described by a set of interrelated balance sheets and income statements. The liabilities of the balance sheet are commitments to make payments either on demand, when a balance sheet are either financial or real and they yield receipts either as the contract is fulfilled, as some underlying productive process generates income, or as they are sold or pledged. This balance sheet – income statement way of looking at the economy results in a need to focus on how the prices on the balance sheet and the cash flows that are generated and committed, all measured in a common denominator the money of the economy, are determined".*

For Minsky, a firm's financial structure is crucial to its investment. Furthermore, according to him capital market assets generate cash as a compensation for their participation in the production process, financial assets generate cash as the maker is able to fulfill commitments. Minsky have indicated that micro sector behavior or corporate finance behavior could be an important factors affecting macro economic fragility.

Minsky (1980) have developed the distinction between *hedge, speculative* and *ponzi* financial postures. According to him, *Hedge* financing has the normal cash flow large enough to meet both principle and interest that are due on debts, *Speculative* financing has the income of the debtor large enough to meet the interest but not the principle payment and *Ponzi* finance takes place when not enough is earned to meet the interest due on debts. *Speculative* finance involving rolling over debts and *Ponzi* finance involves the capitalization of interest.

Financial crisis therefore can be identified if the financial structure needs to be heavily indebted, involving a large element of either *Ponzi* finance or *speculative* finance which can become *Ponzi*. *Hedge* financing is robust but speculative and *Ponzi* financial structures are fragile. In the liberalized financial system, firms can borrow short-term foreign debt to finance domestic long-term assets which should enhance the speculative behavior of the firms.

According to Arestis and Glickman (1999), financial liberalization motivates firms to be super-speculative financing units.

In globalize financial system, Minsky's taxonomy on financing profile provides an important indicator for the appraisal of the potential for a financial crisis or the borrower and the impact on the lender when there is a change in external factors, such as interest rate or exchange rate. Kregel (2004) explain that a hedge profile requires the largest change in receipts or commitments to become a speculative profile, while a firm that starts out in speculative financing may become a Ponzi financing profile with a much smaller variation in internal or external conditions since its margin of safety represented by the excess of expected receipts over certain commitments is lower.

2.3. Finance, investment and crisis

There are three important problems intervenes in the recent crisis, which are innovation of financial products (derivatives market), national deregulation policies and international financial integration (Boyer et al. 2004). It comprises the three different levels, namely firm, national and global-level sources of instability, which result in the high fragility in the nowadays-global financial system.

Boyer et al. (2004) provide seven propositions in understanding the recent series of crises. First proposition is concerned with the presence of the asymmetric information in financial market, which implies in the inefficiency of market allocation and enhance the incertitude. Second proposition accentuates on the problem of pro-cyclical risk taking behaviour, which is referred to as a main source of the most recent crises. Third proposition is about financial factor, which plays an important role in the mechanism of crisis by its financial accelerator multiplied by the coincidence with other combination factors.

In fourth proposition, it is described that banking system plays a determinant role in the mechanism of financial crisis. Fifth proposition explains on that systemic severe crises could be resulted in the incoherence of macro economic regime. Sixth proposition deals with the compatibility of national financial institutions with international ones. For example, financial deregulation policies in national level have preceded the prudential code of conduct in international level. And finally in the seventh proposition, innovation of financial product and internationalisation of financial operation are regarded as important factors by which financial instability transformation should be determined.

This following Figure 1 shows how optimism, state of confidence, and financing behaviour of economic agents (households, firms or governments) induce fragility in the continuous cycles. Optimism will lead to risk taking behaviour resulting in financial fragility and default probability. The evaluation of action will be a turning point from the fragility and if the level of confidence is come back, the optimism will be present again. And the cycle of fragility will reproduce again.

Figure 1. Cycle of Financial Fragility
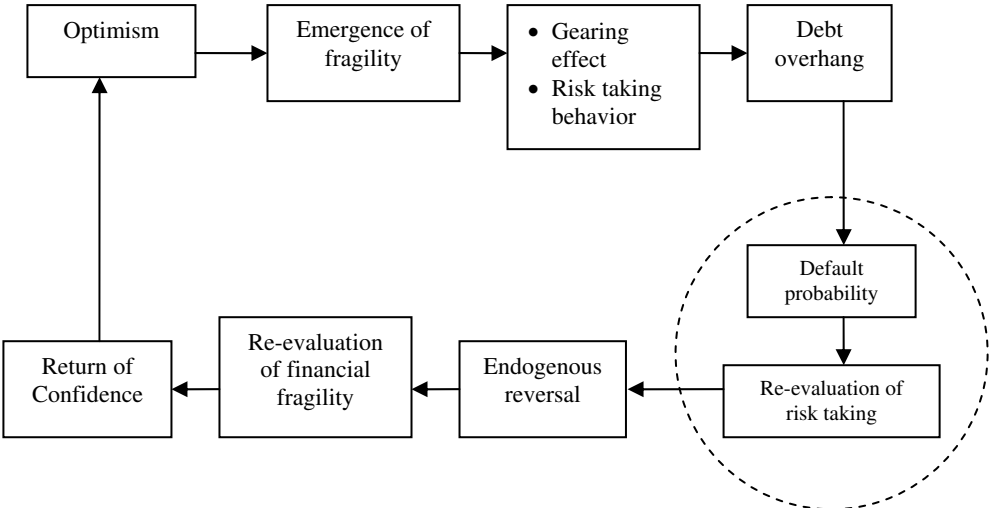
Note: dashed line is a zone of fragility
Source: Boyer et al. (2004)

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In the figure above, gearing ratio or ratio of debt to equity indicating the ratio of external and internal finance is an important indication of the financial fragility. It is due to that the higher a company's degree of leverage, the more the company is risky to be bankrupt[6].

Corbett, et al. (1999) describe liberalisation policy with fixed-exchange rate tends to bear risk of financial crisis. When there is negative shocks, economy would jump to the crisis. In this sense, panic behaviour could be included as a negative shock, so that fundamental weakness would be easily accompanied by self-fulfilling behaviour, which subsequently lead to a full-fledged crisis.

Figure 2. Liberalisation and Crisis
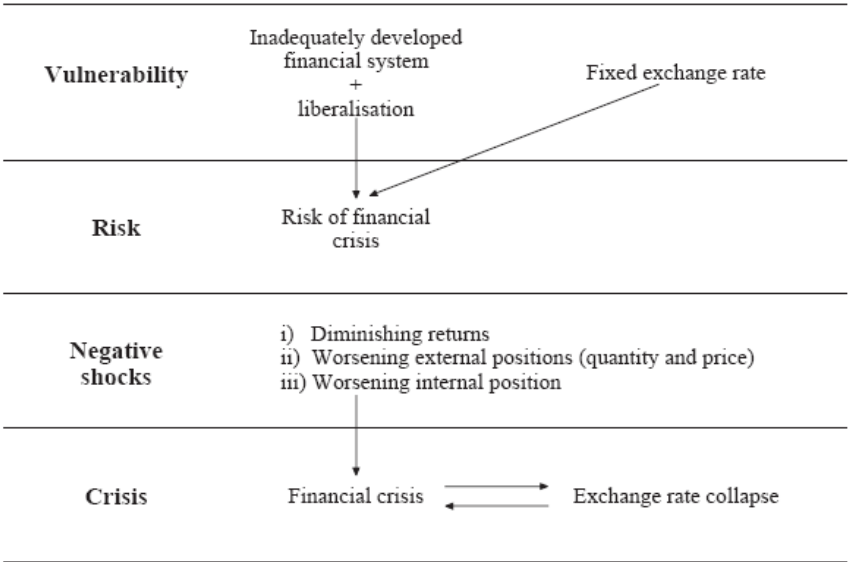
Source: Corbett et al, 1999

Financial liberalization has furnished with an opportunity to corporate level to accessing credit by mobilising both channels, domestic and global financial market. The financial liberalization is usually followed by credit boom, which implies directly to the firm capital structure or corporate balance sheet in which firms commonly have an excessive debt

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[6] The first empirical research of this dissertation is dedicated to investigate the financial fragility by examining the gearing ratio or the gearing effect in Indonesia.

both in foreign currency and in short term maturity. In such a situation where corporate balance sheets are burdened by debts, especially in foreign currency and in short term maturity, shocks would deteriorate largely the corporate balance sheets. In such a case, we can say that credit channels play an important role to propagate shocks by inducing corporate net worth.

Following an exchange rate depreciation, corporate net worth in both sectors, banking and non-financial firm, was experiencing a great difficulties which subsequently would be followed by a presence of credit constraint condition. If firms have serious financing constraints, they would diminish their capacity to invest. And in such a serious investment problem, macroeconomic would be slowdown indicated by a collapse of productive sector or a low economic growth.

In a simple-linear way, the paper follows this following flow of thinking:
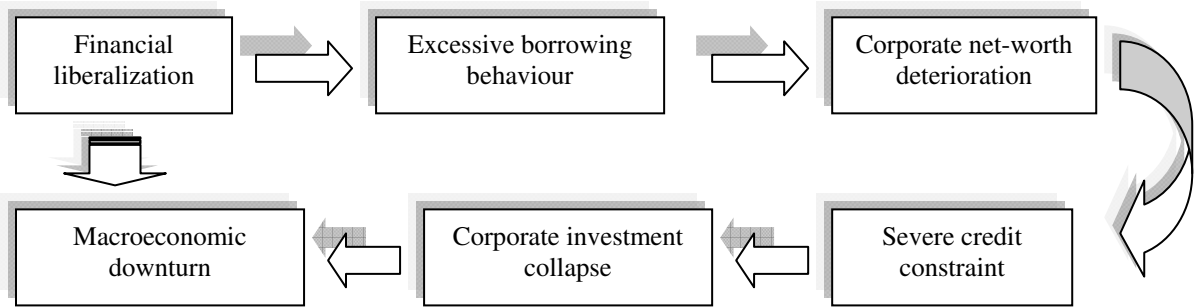
Source: Prasetyantoko, 2007.

3. Empirical Study: Descriptive Analysis

By graphical observation, generally, due to the 1997 currency depreciation, firm investment level in all sectors diminishes significantly. There is a dramatic change in investment, from positive to negative. But, it seems that sector 6 (property, real estate & building construction sector) has a high investment volatility. Investment over capital stock in 1995 was almost two times higher than the second highest. Then it became the highest negative investment (over capital stock) in 1998.

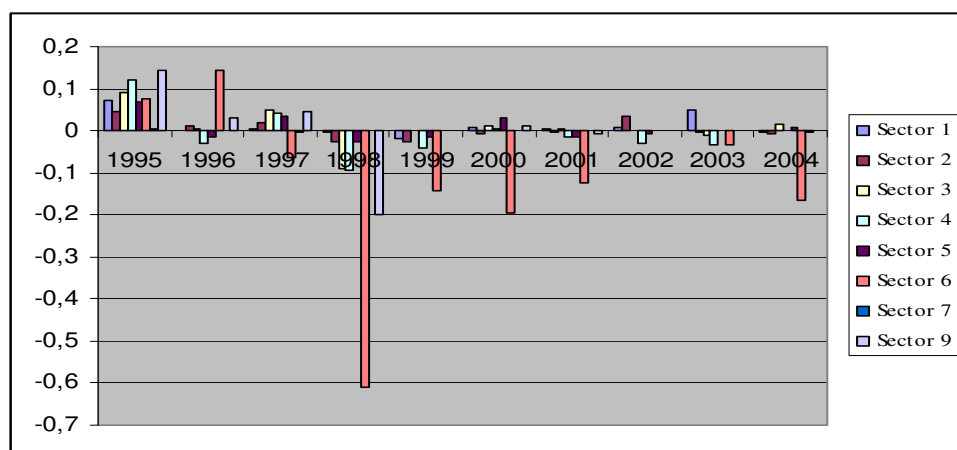**Graph 1. Median of Investment over Capital Stock**
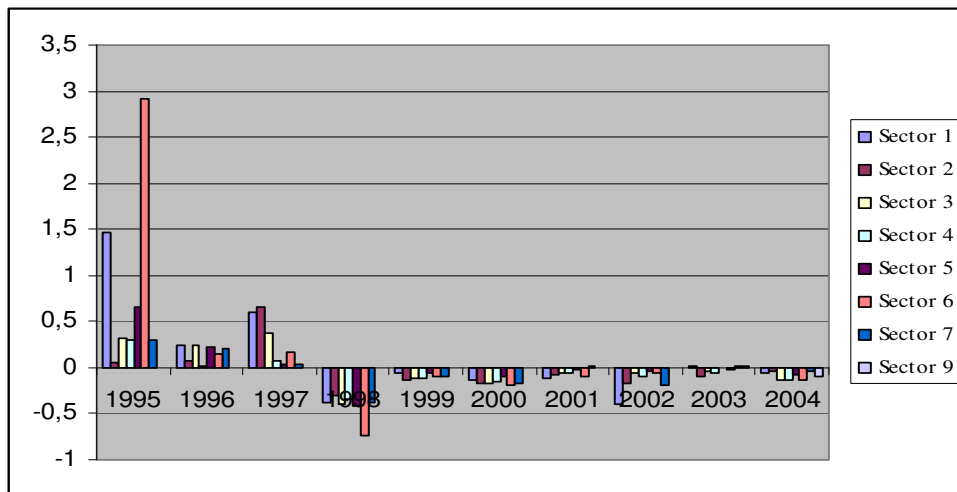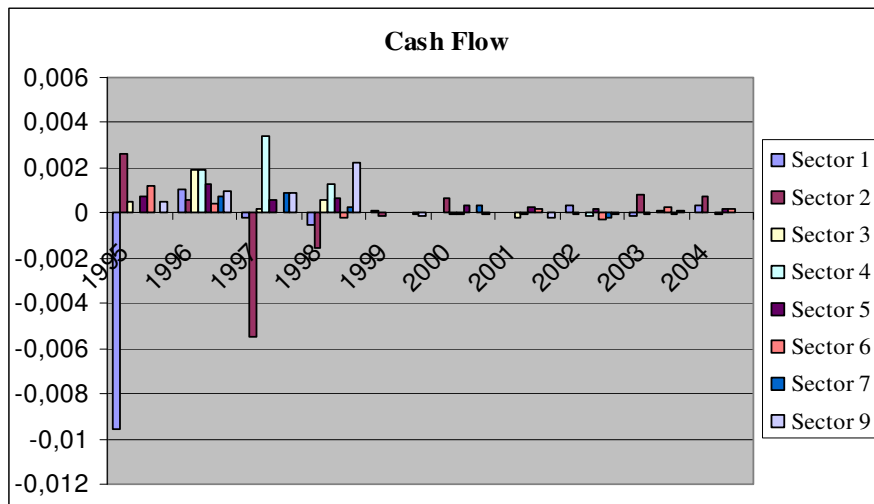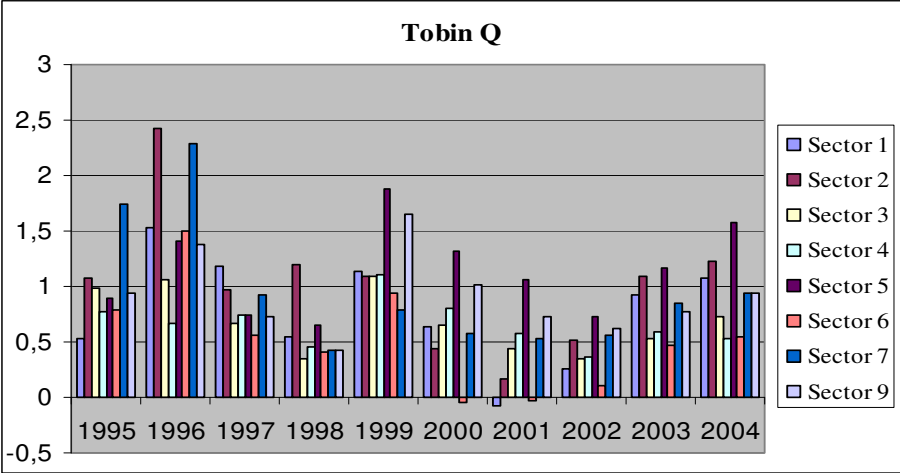

Source: author's calculation based on JSX's database and Indonesian
Capital Market Directory provided by ECFIN

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

In graph 2, change of inventory over capital stock before crisis was mostly positive, even though there was a negative change in some sectors. Sector 6 (property, real estate & building construction sector) has the worse condition since it's inventory declined sharply in 1998 and never returns to be positive until 2004. Some other sectors succeed to reach positive condition. Sector 1 (agriculture sector) is the "star" since it succeeds to turn from negative to positive condition and maintain this for three years until 2003.

Graph 2. Median of the Change of Inventory over Capital Stock

Meanwhile, by observing graph 3, it seems that due to currency depreciation firms in sector 2 (mining) decrease significantly their cash flow. From this graph, we also see that though firms in sector 4 (miscellaneous industry), which include industries such as machinery and heavy equipment, automotive and components, cable and electronics, have the highest level of cash flow in 1997 among other sectors, the cash flow level of these firms decreased in 1998 and it became zero in 1999.

Graph 3. Median of Cash Flow over Capital Stock

Graph 4 shows us that, in general, market expectation in all sectors has increased since 2002 after the declining in 2000 and 2001 but it seems that firms in sector 5 have the highest

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performance in the capital market. In 2001, there were two sectors, sector 1 (agriculture) and sector 6 (property, real estate and building construction), that experienced a negative value of Tobin Q.
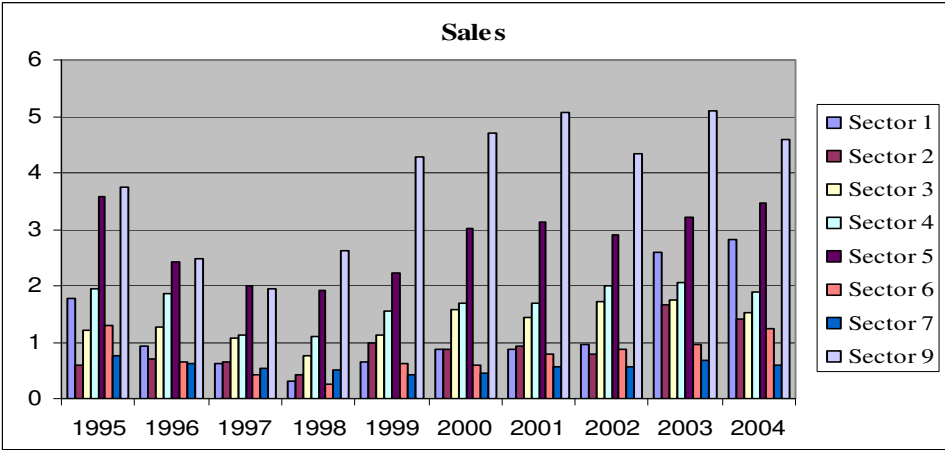
Graph 4. Median of Tobin Q

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

By data descriptive in graph 5, we find that sector 9 (trade, service and investment) gain most profitable revenue among other sector. Currency crisis does not affect the sales of the firms in this sector. Overall, all sectors show a positive improvement in their total sales after the crisis shock in 1997.
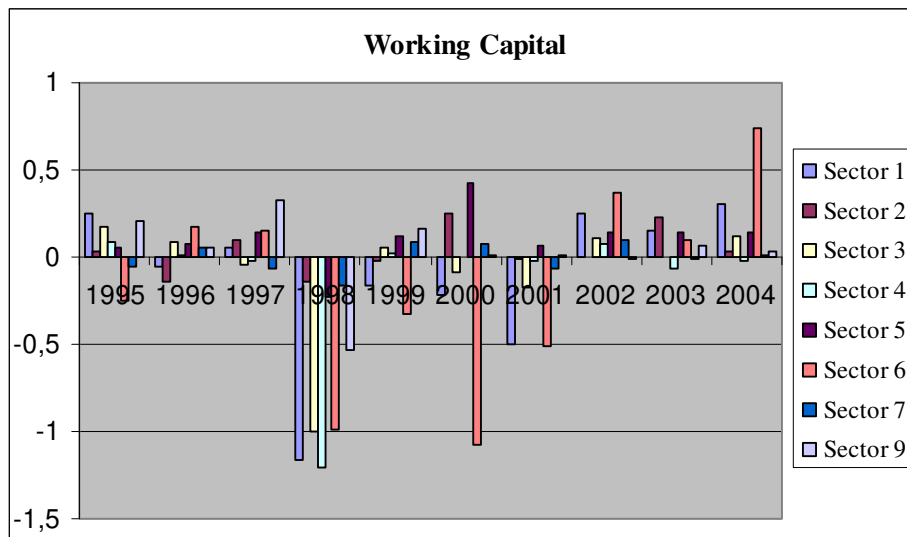
Graph 5. Median of Total Sales over Capital Stock

In term of working capital, in the aftermath of crisis, firms in sector agriculture have smallest ratio of working capital to capital stock among other sectors. Based on the graph below, we can see that all sectors had negative working capital in 1998.

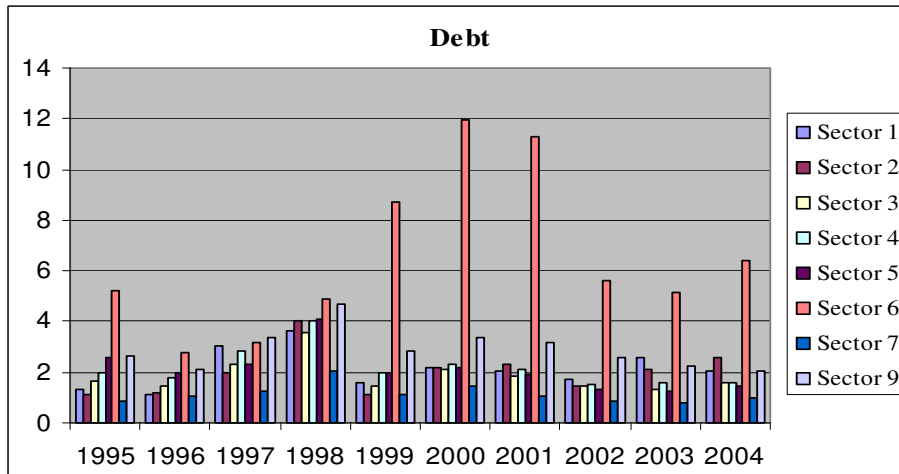**Graph 6. Median of Working Capital over Capital Stock**

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

In the following graph 7, it is important to note that property sector has a high ratio of debt which could be risky. Property sector is basically an unproductive sector. This descriptive data support the regression result due to the role of property sector (non-tradable sector) in risk to exacerbate crisis in Indonesia.

Graph 7. Median of Total Debt over Capital Stock

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

4. Discussion and Conclusion

The main question in this paper is: whether the economic agents behavior due to financial crisis change or stay the same.

In a rational business[7], investment is valued based on it's expected payoffs and risks. It (investments) are undertaken if their value exceeds acquiring and installing costs. In other words, investment is made if it can produce profit. So simply we can say that investment is very important in term of income generation.

Investment is financed through internal or external finance. When financial market imperfections occur, internal finance is less costly than external finance. This condition therefore implies that firms with higher profits would invest more.

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[7] Economic agents are assumed to be rational.

In an open economy, globalization, financial liberalization and capital market integration are the main factors that boost capital movement. Sources of fund may come from anywhere. This makes, for a given level of interest rates, external finance can compete internal finance.

Our empiric data shows that median of investment over capital stock declined sharply due to financial crisis in 1997. Meanwhile, total debt over capital stock increased slightly in period 1996-1998. In 1998, investment over capital stock started to be negative when total debt over capital stock reached the highest point, except for sector 6 (property, real estate & building construction sector). This sector reached the highest point in 2000.

Fazzari, Hubbard and Petersen, in their study about firm's behavior in investing, pointed out that firms which pay high dividends can finance additional investment by reducing their dividends. This can be categorized as internal finance. Firms which pay low dividends must rely on external sources since they can not reduce such dividends.

By descriptive data, we can find that cash flow may have association with investment. In 2000-2004, low level of cash flow is accompanied by negative investment. The cash flow-investment relationship had also been addressed by Fazzari et al (1998).

In Tobin's q (Tobin, 1969), q summarizes all information about the future that is relevant to a firm's investment decision. A natural economic interpretation of q says that: a one-unit increase in the firm's capital stock increases the present value of the firm's profits by q, and thus raises the value of the firm by q. This implies that q is the market value of a unit of capital.

Our data shows that Tobin Q decreased slightly from 1996-1997-1998. This declining seems to be the sign of crisis. But, if we look at a wider observations, we will see that Tobin Q fluctuate with about for or five years cyclical period.

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