The Dynamics of Corporate Financial Distress in Emerging Market Economy: Empirical Evidence from the Indonesian Stock Exchange 2004-2008

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Abstract

This paper empirically examines the dynamics of financial distress among non-financial companies listed on the Indonesian Stock Exchange (IDX) during the period of 2004-2008. Two different events affected the performance of public companies being financial distress. In 2005, there was an oil price shock when the government cut off subsidy for local oil price. Another event in 2007-2008 is the impact of sub-prime mortgage in the USA, where US Dollar repatriation makes global financial crisis included Indonesia.

Mostly, financial burden of public companies in Indonesia are cost of money, mainly due to having bank loan and issuing corporate bond. Therefore, the analysis uses Debt Service Coverage (DSC) as a proxy financial distress. DSC becomes one of the most important indicators for commercial bank to see financial condition prior to lending as well as underwriting of bond issuance. This paper would also analyze corporate financial distress by mapping companies in to the steps of process integral financial distress in declining financial performance from good companies, early impairment, deterioration and cashflow problem. Furthermore, mapping will also been done for five different industrial sectors, i.e. agricultural business, mining, manufacture, contruction/properties and services/trade.

The results show that oil price shock and sub-prime mortgage crisis have different impacts on the financial performance of the companies listed on the IDX. The impacts seem also varies across different industrial sectors. The evidence indicated that the mining companies are the most affected companies by global financial crisis in 2008, whereas manufacturing companies are the most affected companies by oil price shock in 2005.

Keywords: Debt Service Coverage (DSC), Corporate Financial Distress, Indonesia Stock Exchange (IDX).

1. Introduction

Phenomenon of financial difficulties among public companies listed in the Indonesian Stock Exchange (IDX) had been occurred in line with the oil price shock in 2005 and sub-prime mortgage crisis in 2008. These two different cases lead corporate financial distress of the public companies in Indonesia. In 2005, when Indonesian government reduced subsidy for oil price locally, this made cost of production increased and squeezing profitability. Terefore, many companies in IDX had been delisting as effect of a big losses and shortage of cash. The indication can be recognized by increasing non performing loan (NPL) in commercial banks from IDR 61 trillion in October 2005 to IDR 68 trillion in March 2006. The same phenomena had been occurred in 2008, when the business activities were contraction in international market due to global financial crisis. The NPL increased again from IDR.55.4 trillion in November 2008 to IDR. 60.6 trillion in March 2009. Thus, public companies listed on Indonesia Stock Exchange (IDX) are very sensitive to external factor shocks.

Research on financial distress has been carried out for many years in many countries, especially in industrial countries. **Altman** (1996) studied the financial ratios of public companies which affect to corporate financial distress in the the United States. **Outtecheva** (2007) analyzed probability of financial distress risk and the way of companies to avoid financial distress in NYSE. **Almeida** and **Philippon** (2000) analyzed risk adjusted cost of financial distress of public companies in the United States which have issued corporate bonds and have difficulties to pay coupon and its bond. **Fitzpatrick** (2004) conducted empirical research on the dynamic of financial distress of public ompanies in the United States, whereas **Gennaiola** and **Rossi** (2006) explored the optimal resolution of financial distress in Sweden.

On the other hand, only a few studies have been done in developing countries. **Chang (2008)** studied the **c**orporate governance characteristics of financially distressed firms in Taiwan. **Hui dan Zhao (2008)** explored the dynamic of financial distress among 193 companies which have financial distress experience in China 2000 until 2006. **Zulkarnain (2006)** analyzed the corporate financial distress among Malaysian listed firms during the Asian Financial Crisis. **Ugurlu and Hakan** (2006) conducted a research to predict corporate financial distress for the manufacturing companies listed on Istambul Stock Exchange for periode of 1996-2003.

As far as Indonesia is concerned, couples of studies have been conducted. **Almilia** (2006) studied three financial ratios: profit margin, financial leverage and liquidity ratio (current assets to current liabilities) which affect to corporate financial distress in Jakarta Stock Exchange during 1998 – 2001, where many companies got financial difficulties following Asian Financial Crisis in 1997-1998. **Sukana** (2006) study financial ratios of manufacture companies in Indonesia Stock Exchange (IDX) to predict bankruptcy.

Due to the limited literature concerning financial distress among public companies in the developing countries, this paper is therefore devoted to study the dynamics of financial distress among public companies listed in the IDX. The results of this paper will enrich the scientific knowledge about the dynamics of financial distress in the memerging market such as Indonesia, which have been relatively less explored.

The rest of the paper is organized as follows. In section 2 we explain the data and methodology. Section 3 gives statistic descriptive and explanatory mapping analysis. Section 4 Empirical results and discuss about financial strategic implementation. Section 5 summarized the research finding and gives concluding remarks.

2. Data and Methodology

In this research we use secondary data from audited financial statement of 220 non financial companies listed on Indonesia Stock Exchange (IDX) for the period of 2004 - 2008. Several financial indicators have been selected to make a model of corporate financial distress and tabulation data have been made for the steps of integral corporate financial distress. The research focus on ability of the companies to fulfill its obligation to the third parties such as: interest rate, repayment bank loan, coupon bond, vendors' obligation, employee's obligation as well as dividend pay out.

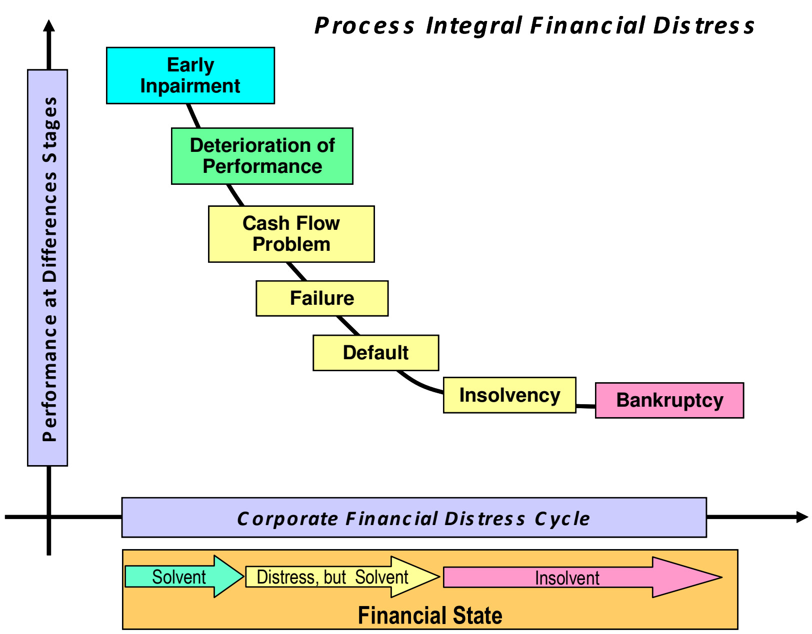
In our evaluation, we use Debt Service Coverage (DSC) ≤ 1.2 is a proxy of corporate financial distress (Ruster, 1996). Debt Service Coverage (DSC) as a proxy of corporate financial distress is difined by the ability of company to fulfill its obligation to the third parties in current liabilities. This means internally generated fund consist of Earning after Tax (EAT) plus depreciation of fixed assets plus amortization of intangible assets should be higher than its obligation to the third parties and share holders at the short term period of time. The computation DSC can be defined as follows:

$$\mathrm{DSC} = \frac{\mathrm{EAT} + \left(\left(\mathrm{Depreciation} + \mathrm{Amortization}\right) + \mathrm{Interest\ atau\ Coupon}\right) - \mathrm{TAX}}{\mathrm{Principle} + \mathrm{Interst\ atau\ Coupon}}$$

Note

EAT	: Earning after tax is the bottom line of profitability
Depreciation	: the cost allocation for fixed assets e.g. machineries, building etc
Amortization	: the cost allocation for intangible assets e.g. pre-operating cost, patent
Principal	: Installment of periodically loan payment or repayment of corporate bond
Interest	: interest rate of the bank loan
Coupon	: the interest rate of corporate bond.

Figure 1: Process Integral Corporate Financial Distress



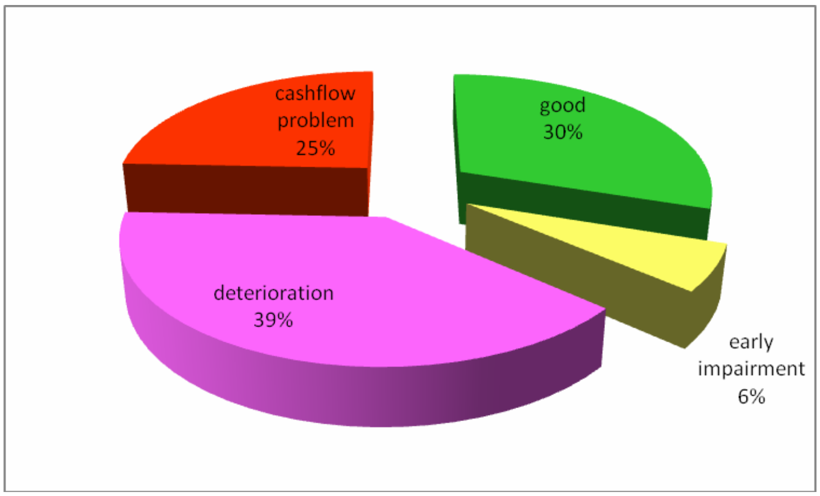
Source: Modified from Outecheva (2007)

To distinguish companies' financial condition we classify the companies following process of integral financial distress. There are four different conditions, namely: Good, Early impairment, Deterioration and Cash flow problem. Companies which have decreasing in revenue more than 20% are categorized Early impairment, decreasing in profit more than 20% are categorized Deterioration and companies which has negative operation cash flow are categorized cash flow problem. The next steps of of integral corporate financial distress are fail, default payment, insolvency and bankruptcy. The process of integral financial distress can be seen in Figure 1.

3. Empirical Result

In this section, we will present the main finding of our analysis concerning financial distress among companies listed in the IDX 2004-2008. During this period, we found 220 companies which have complete financial statement during the period of 2004-2008. Following the steps of integral corporate financial distress, the 220 companies can be divived into four different clusters: Good Company, Early Impairment, Deterioration and Cash flow problem. On average, during the period 2004-2008 there are 30% good companies, 6% Early Impairment, 39% Deterioration and 25% Cashflow ProblemThat means. There is only 30% out of 220 public companies in IDX have good financial condition (see Figure 2).

Figure 2: Proportion of the 220 Non Financial Companies which are listed on Indonesia Stock Exchange (IDX) for the period of 2004-2008



Further analysis shows that financial conditions of public companies were fluctuative. In 2005, the number of good company was dropped from 104 to 92, while the deterioration companies increased from 62 to 71 from. This was happen when Indonesian government cut of oil subsidies for local market which increase production and operational costs and cut the profit. Even though increasing oil price is catagorized as part of sytematic risk, the companies can solve the problem internally by implementing efficient cost. Similar result is also found in 2007-2008, where good company dropped from 45% 1n 2007 to 22 % in 2008. During this period, number of good companies dropped from 127 to 93 whereas number of deterioration companies increased from 38 to 69. This is because of the effect of global financial crisis to public companies in Indonesia, where many lenders cut off financial facilities in foreign currencies due to capital repatriation. The number of companies for every step of integral financial distress during 2004–2008 is presented in Table 1.

Table 1: Process Integral Financial Distress of Indonesian public companies 2004-2008

Year	**Good**	**Process Integral Financial Distress**				**Total**
		Early Impairment	***Deterioraton***	***Cashflom Problem***	**Sub-total**	
2004	104	3	62	51	116	220
2005	92	2	71	55	128	220
2006	97	5	62	56	123	220
2007	127	0	38	55	93	220
2008	93	2	69	56	127	220
Average	**103**	**2**	**60**	**55**		

The capital repatriation to financial market in Indonesia --long in IDR and short in all of foreign currencies specially in hard currencies-- makes IDR weaker and foreign currencies strengten. This is catagorized as unsystematic risks, where management of the companies can solve its problem by hedging of foreign exchange risks. By evaluating audited financial report of the companies from several different sectors, we found that decreasing financial condition mostly because of increasing short term liablities to support working capital of expansion business in 2007. However, when the lenders cannot extent the facilties, the companies got difficulties to overcome its problem with higher short term liabilities. Same examples are PT. Aneka Tambang, Tbk. (mining), PT. Arpeni Pratama Ocean Line, Tbk.(shipping Lines), PT. Good Year Tbk.(tire manufacturing), PT.Matahari Putra Prima Tbk.(giant garment trader), and PT. BAT Indonesia,Tbk.(cigarette factory)

During 2005-2007, trend of the IDX increased very dramatically. This makes many companies expand its business aggressively. Furthermore, since interest rate in IDR much higher than interest rate in foreign currencies, many companies took opportunity to have foreign currency loan by consuming various derivative product. As a result, many companies have foreign exchange loss in 2008, their profit dropped significantly due to increasing of interest rate and foreign exchange loss which in line with the global financial crisis. Examples are PT.Good Year and PT.Matahari Putra Prima.

However, some other companies can survive in good financial condition such as: PT. Astra Graphia, Tbk (graphic company), PT. United Tractors,Tbk (heavy equipment company), PT. Unilever Indonesia,Tbk (consumer product manufacture), PT. Telekomunikasi Indonesia,Tbk (telecommunication company). Some strategies have been implementing e.g.: working capital financing have been covered by cesie of account receivable at the same currency, manage debt to equity ratio to control debt service coverage at the save level and tight control in due date of its bank liabilities.

The effect of global financial crisis to five different industrial sectors in 2007 and 2008 can be recognized by changing in Non Performing Loan (NPL). By comparing 2008 and the previous year, mining industry is highest increasing NPL by 90.1%. This means the industry was the biggest sector which had been affected by global financial crisis (See Table 2 for details).

Table 2: Non performing loan for five industrial sectors

Industrial Sector	NPL 2007	NPL 2008	Increase (%)
Agriculture	730	756	3.6%
Mining	131	249	90.1%
Manufacture	2654	3392	27.8%
Construction/Property	404	626	55.0%
Services & Trade	1160	1742	50.2%

Source: Bank Indonesia, Indonesian Banking Statistic-Vol.7, October 2009

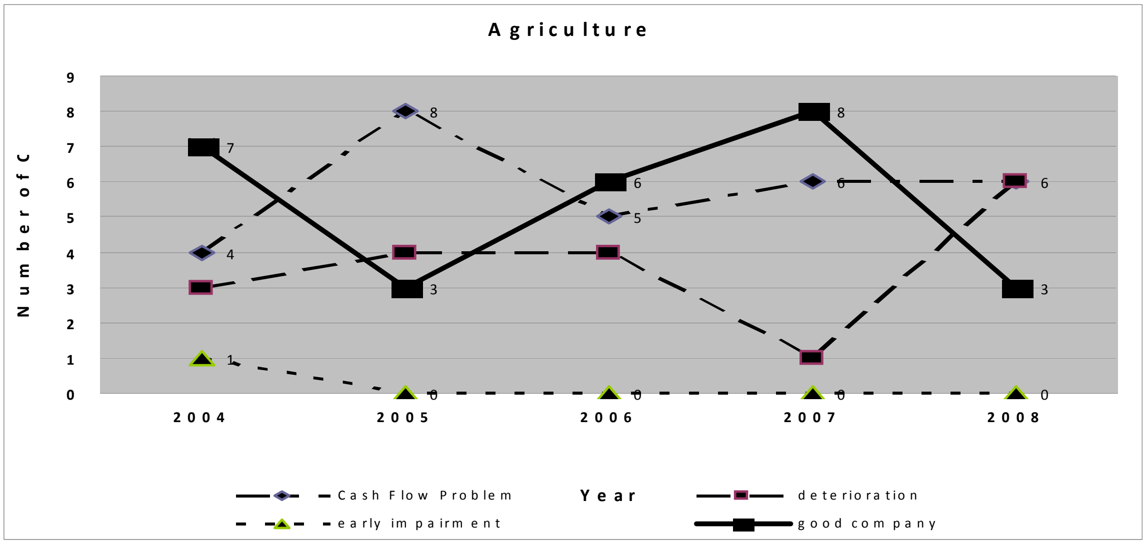
To get more detail picture, we also analyze the dynamics of corporate financial distress in every industrial sector. Here we present not only global map based on the steps of process integral corporate financial distress, but also further analysis based on the five different industrial sectors, such as agriculture, mining, manufacture, properties and construction and services/trading.

3.1. Agriculture Sector

Financial performance of public companies in agricultural sector business was also fluctuative. By looking at the Figure 3, the agribusiness sector had been improving from 2005 up to 2007, where good companies increased and the number of deterioration companies getting smaller. However, by the year 2008 good companies dropped and deterioration companies increased, that means the number of companies in cash flow problem had been increasing in compare to those of the previoes year.

Most of the agriculture companies are export oriented. Therefore, the companies very easy to get loan in foreign currencies either for long term or short term loan. Unfortunately, when global financial crisis at the fourth quarter 2007 and during 2008, the lender can not extend its loan due to capital repatriation. This makes short term liabilities of the companies increased very sudden. Hence, interest rate in foreign currencies increased and IDR getting weaker.

Figure 3: Mapping of four steps integral corporate financial distress in sgriculture sector



Global financial crisis had made economic global contraction. By weaker capacity of the buyer in import countries, the revenue of export producer decreased. The contradiction between trend of source of fund and use of fund makes many companies in agriculture business got financial difficulties, either deterioration or cash flow problem. For example: PT.Tirta Mahakam Resources, Tbk (Agriculture company), its revenue dropped and its short term liabilities increased dramatically due to earlier loan repayment. Even though most of the loan have been given by local bank to expand its business, many of them in foreign currencies in order to get lower interest rate suc as: US.Dollar, Euro, Singapore Dollar and Yen.

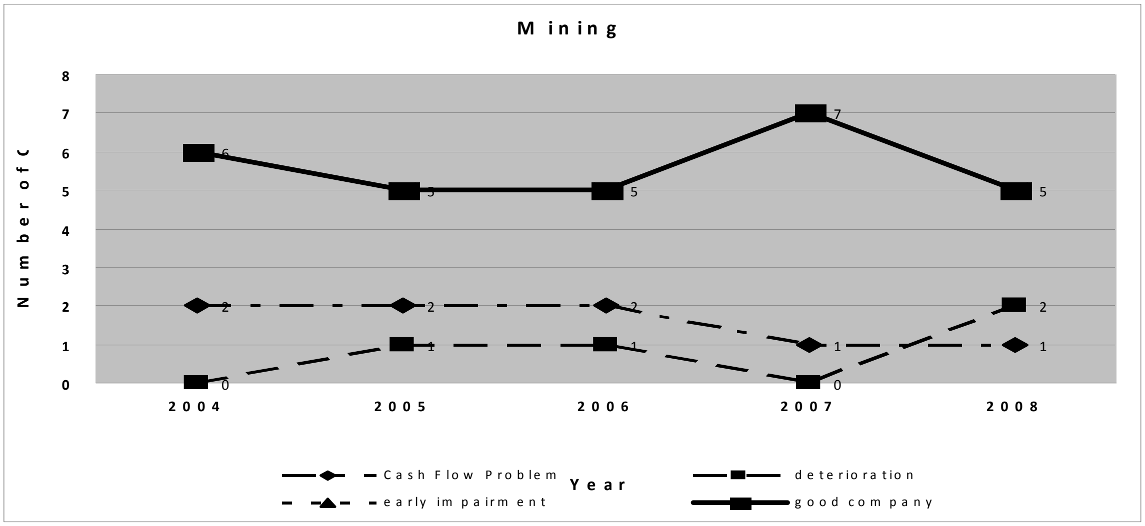
Similar problem are also happened for other agriculture companies suc as: PT Tunas Baru Lampung, Tbk, PT.Dharma Samudera Fishing Industries, Tbk and PT. Wahana Phonix Mandiri, Tbk. Even though revenue increased in 2008 comparing to the previous year, its high foreign exchange loss makes company loss at the current year.

However, some companies are still in good financial condition such as: PT.Astra Agro Lestari Tbk, PT. Selamat Sampurna Tbk, PT. Sierad Produce, Tbk and PT. Bakri Sumatera Platation Tbk. Most of the companies implement neutral hedge strategies by setting up sinking funds from accumulation of retain earning in the same currency with their liabilities. Therefore, the companies can survive to face global financial crisis.

3.2. Mining Industrial Sector

Not many public companies in mining sector are listed in Indonesia Stock Exchange (IDX). Similar with other sectors, the companies in mining industry also have same figure in 2005 where the number of good companies decreased and number of deterioration companies increased. In 2007, most of the companies are in good financial condition. By 2008, however, the number of good companies decreased again, whereas the number of companies in deterioration and cash flow problem increased.

Figure 4: Mapping of four different status of financial condition in mining industry.



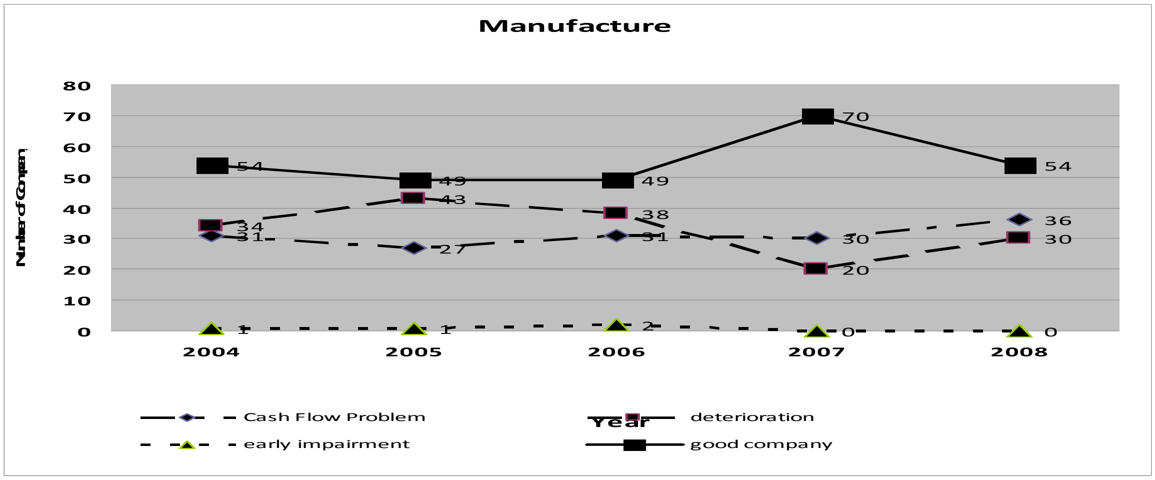
Most of the mining industry companies also export oriented. As the same as agriculture business, the squeezing business in the global market in 2008 makes the revenue decline. On the hand its financial facilities in foreign exchange can not be extended. Without foreign exchange risk management properly, the companies' income can not cover its liabilities e.g.: PT.Aneka Tambang Tbk. Its liabilities increased very dramatically when the revenue was going down. Another company such as PT. Petrosea Tbk had their revenue increased in 2008, but it also experienced a high foreign exchange loss. Eventhough some of the loss are still unrealized loss, as a public company should declare in mark to market valuation in its financial statement.

Other companies are consistently in good financial condition such as: PT.Bumi Resources Tbk. (coal mining company). Its revenue increased very significant and company cut off its short term liabilities. This strategy made the company succeeded to overcome foreign exchange loss by strengthening US Dollar. The same strategy has also been implemented by PT.Cita Mineral Investindo Tbk, by cutting off bank loan so that the interest expense also decreased.

3.3. Manufacturing Sector

The biggest number of company in IDX is manufacture industry. This sector has different figure in compare to two other sectors. The manufacturing industry did not any significant change in number of good companies. The number is increased in 2007, then dropped again in 2008, whereas the number of companies in deterioration increased as a result of the global financial crisis.

Figure 5: Mapping of four different status financial condition in manufacture sector

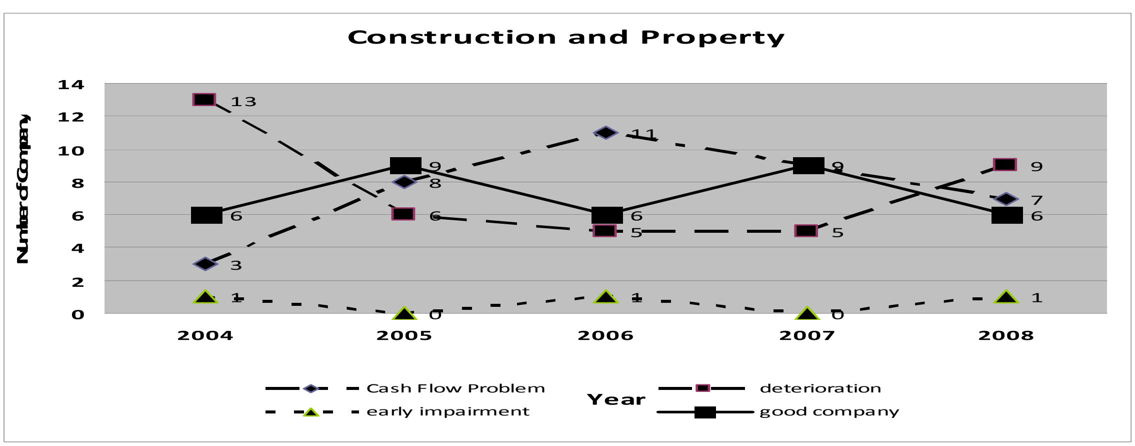


In 2005, when fuel oil price increased due to the Indonesia government cut off its subsidy, manufacturing companies were survive to overcome increasing operational costs. Even though it was categorized as systematic risk, management of the companies can solve the risk by implementing efficient costs in all of the operational activities. However, in 2008 when global financial crisis occurred, many companies did not care in foreign exchange risk management.

3.4. Construction/Property Sector

The number of companies in construction and property sectors listed in the IDX is very limited. When oil price increased in 2005, the companies did not have any effect. However, when global financial crisis in 2008, some of good companies also dropped and number of companies in deterioration and cach flow problem increased. Even though the companies business in local market, some of raw material are import component. Moreover, when local interest rate increase, the revenue of properties sector declined due to the decreased number of housing loan so that the companies got financial difficulties.

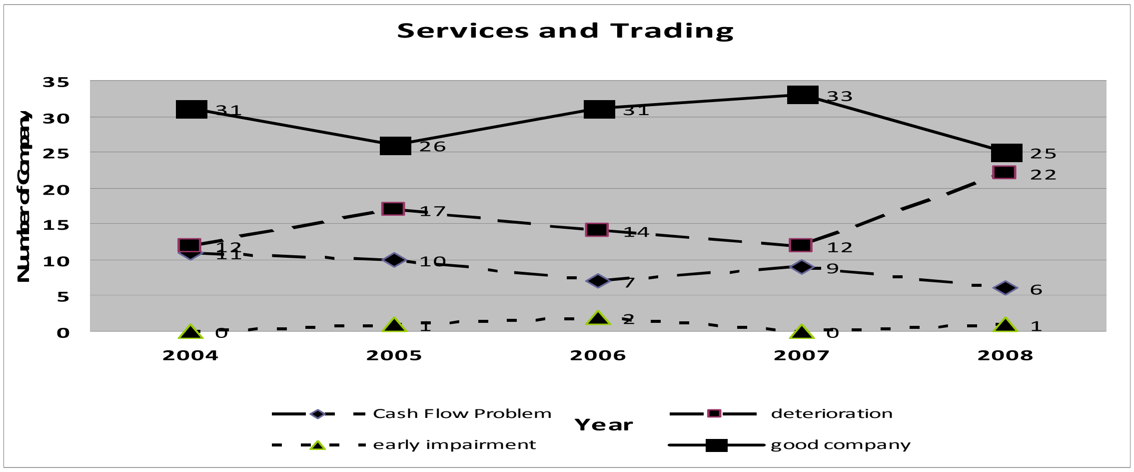
Figure 6: Mapping of four status financial condition in constrution/property sector.



3.5. Services and Trading Sector

Most of the companies in the industry did not susceptible affected by external factors. However in 2008 -- similar with other industry-- number of good companies in services and trading also decreased and companies in cash flow problem increased. The major contribution of decresing good companies are coming from services such as: shipping and other logistic companies where the business activities related to international trading. This indicated that economic activities had been squeezing due to declining of purchasing power.

Figure 7: Mapping of four status financial condition in services and trading sector



Among 220 non-financial public companies which are listed on IDX between 2004 – 2008, there are only 21 companies (from various industrial sectors) that have good financial condition for the whole period. This means the companies never been in the steps of process integral corporate financial distress. Complete list of the 21 companies are presented in Table 3.

Table 3: List of Consistent Good Companies for the period of 2004-2008

N0	Company Name	Industrial Sector
1	UNITED TRACTORS Tbk (UNTR)	Services and Trade
2	AKR CORPORINDO, Tbk (AKRA)	Services and Trade
3	ASTRA GRAPHIA Tbk (ASGR)	Services and Trade
5	CITRA TUBINDO, Tbk (CTB)	Manufacture
6	FAST FOOD INDONESIA, Tbk (FAST)	Services and Trade
7	SEMEN GRESIK (PERSERO) Tbk (SMGR)	Manufacture
8	HANJAYA MANDALA SAMPOERNA Tbk. (HMS)	Services and Trade
9	JAYA REAL PROPERTY, Tbk (JRPT)	Construction/Property
10	KALBE FARMA, Tbk (KLBF)	Manufacture
11	MULTI BINTANG INDONESIA, Tbk (MLBI)	Manufacture
12	ASTRA AGRO LESTARI, Tbk (AALI)	Agriculture/Agribisnis
13	MANDOM INDONESIA, Tbk (MANDI)	Manufacture
14	UNILEVER INDONESIA Tbk (UNLV)	Manufacture
15	LION METAL WORKS, Tbk (PT. LMW)	Manufacture
16	BUKIT ASAM (PERSERO) Tbk(PTBA)	Mining
17	RODA VIVATEX, Tbk(RDTX)	Manufacture
18	SELAMAT SEMPURNA Tbk(SMSM)	Agriculture/Agribisnis
19	TELEKOMUNIKASI INDONESIA, Tbk(TLKM)	Services and Trade
20	TEMPO SCAN PACIFIC, Tbk (PT. TSPC)	Services and Trade
21	ENSEVAL PUTERA MEGATRADING, Tbk(EPMT)	Services and Trade

4. Conclusion Remarks

The status of financial condition has been distinguished by mapping based on process integral financial distress, start from good companies, early impairment, deterioration and cash flow problem have affected financial distress companies which are listed on IDX during the research period of 2004-2008. The number of good companies in 2008 decreased in compare to the previous year. This indicated that public companies in IDX affected by global financial crisis which have been occurred at fourth quarter 2007 and during 2008. On the other hand, the number of deterioration companies and cash flow problem companies are increased. In general, every time number of good companies going down, companies in the status of deterioration increased.

By mapping the financial distress condition across five different industrial sectors, the results indicated that mining companies are the most affected by global financial crisis where its non performing loan increased 90% by the end of 2008. However, manufacuturing companies are the biggest contributor of non performing loan due to its domination (the biggest share) in IDX. The results also suggest that management of public companies must control its financial performance very carefully in order to get information in advance whether the companies are still in good financial condition or have already at the stage of financial distress. This is important to know earlier about the symptom of financial distress.

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