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The Performance of Vulture Investment in Distressed Debt

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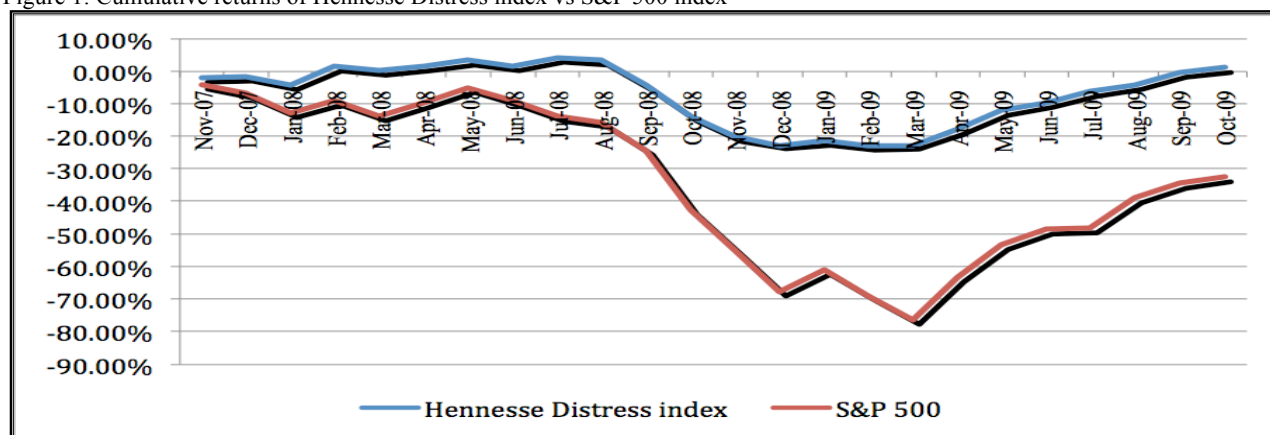
1. Introduction

1.1 Introduction to vulture market

The financial crisis in 2008 led the world economy into recession and created difficult circumstances in the global credit markets. This event creates a question mark whether buyout firms would be able to create value at the same rate as in previous years because deals became harder to finance and firms were not able to leverage their deals to the same old ratio. Because of the difficult environment, one can expect that fundraising level of private equity firms would drop. However, based on PreQin database and PreQin 2008 report, the first half of 2008 provided the most successful fundraising figures in the history of the private equity, with a total of \$324.4 billion being raised, which is \$0.6 billion higher in comparison with the same period in 2007. However, there is significant change in the strategy of private equity as they start increasing transaction flow into companies that file for bankruptcy. Between the two periods, buyout fundraising dropped by 18% while distressed private equity fundraising increased by 28%. The fundraising figure is unexpected given the high uncertainty due economic slowdown between the two periods.

The worsened in economic condition has increased distressed investment opportunities, as considerable numbers of companies are likely to default and fall into distressed situations. This fact is supported by Rosenberg (1992), who illustrated the cyclicity of distressed investing, as vulture investors see their investment activity increasing significantly during financial crises. One of the reason why private equity going vulture are the strong returns of the distressed investing sector during difficult time in economy. Figure 1 show the cumulative returns of Hennesse Distress index against S&P 500 index during financial crisis 2007-2009; the data are collected from DataStream database.

Figure 1: Cumulative returns of Hennesse Distress index vs S&P 500 index



Owsley and Kaufman (2005) explained that the key strategic advantage for vulture investors is the controlling positions that they seek to take in distressed companies. The controlling positions would make them be able to take a much more pro-active role in the restructuring process, originating organizational and strategic changes, in addition to taking a position in debt related assets. The expertise of vulture investors in restructuring on many different levels is the most important reason on the strong returns that created by this sector in recent years. The similarities in the approach of general buyout strategy and vulture strategy make private equity firms can easily switch to the latter one when the economy forced them to do so.

Based on PreQin report 2008, big investment and private equity firms have successfully raised money from the market to invest in distressed opportunities; Oaktree Capital Management's at \$10.9 billion and Cerberus at \$7.5 billion for all their distressed fund while Carlyle successfully closed one of their distressed fund at \$1.35 billion in 2008. Furthermore, Matlin Patterson, a private equity firm that focused on distressed controls investment across a range of industries, has successfully raised \$5.0 billion at the end of 2007. Additionally, in 2005, distressed debt, turnaround and special circumstances funds accounted for only 3% of the market, with this proportion growing consistently to reach a figure of 9% of the overall market in 2008. In conclusion, PreQin data showed that vulture investing is increasingly becoming a key component of the overall private equity market. This thesis studied the overview of vulture strategy and its performance in distressed investing sector during 1992-2008.

1.2 Goal of the thesis

In this thesis, I am interested in the performance of distress investment of vulture investors. The interest is based on numerous of previous research about vulture investing. Hotchkiss and Mooradian (1997) and Altman and Hotchkiss (2005) investigated the relationship between the role of vulture investors and their post-restructuring performance. Anson (2002) studied what factors has driven the growth of vulture market and the investor strategy, while Whitman and Diaz (2009) studied the relations between post-restructuring performance, the strategy of vulture investors and the economy.

Anson (2002) argued that investing in distressed securities has universally been used as takeover strategy and purchasing distressed public debt is one of the common approaches of the vulture strategy. Investigating the performance of the distressed bond, which vulture investors initially had bought, is one of many approaches to measure the performance of vulture strategy. This investigation is the main study of this thesis. The investing strategy using distressed debt is discussed further in section 2.2.

In order to analyze the performance of distressed bond, publicly available data are needed. In general, only firms that emerged from Chapter 11 whose data are still publicly available. As a result, this thesis only focuses on vulture investors who successfully bring the distressed company out from Chapter

11. Unlike Hotchkiss and Mooradian (1997) who studied all vulture investors, this thesis investigates only successful vulture investor. The characteristics and the performances of successful vulture inventors are studied and compared with distressed firms who also successfully emerged from Chapter 11 without any vulture involvement.

One can argued that by omitting the not-emerged firms from the sample, which include the non-successful vulture investors, will weakens the analysis of vulture investors' performance. However, the main goal of the thesis is to investigate the characteristics and the difference between performances of the non-vulture and the vulture whose firms emerged from Chapter 11, and also to understand the economic reason behind the difference. Therefore, omitting the not-emerged firms from the sample is justified.

The bankruptcy period is chosen in this thesis as a timeframe to investigate whether, during reorganization, the involvement of vulture investors is reflected on the performance of distressed public debt that they hold.

This thesis also investigates the improvement in financial ratios of distressed firms such as: productivity, leverage, asset turnover, liquidity and profitability. The improvement in financial ratios post-restructuring period is used as alternative explanation concerning the performance of vulture investors.

Additionally, following Whitman and Diaz (2009), the thesis analyzes how the changed environment in financial market affects the performance of vulture investor.

The main research questions are therefore as follow:

- ❖ What is the relationship between the vulture strategy (Active, Active/Noncontrol and Passive) and the post-restructuring performance of distressed firms using different data (1993-2008), and how do these results relate to the findings of Hotchkiss and Mooradian (1997)?
 - Are the results in line to the results obtained by Hotchkiss and Mooradian (1997)?
- ❖ How significant is the relation between economic conditions of financial market and the post-restructuring performance of distressed firms using specific strategy?
 - Does the changed environment in financial market affect the strategy or/and the performance of vulture investor?
- ❖ What factors can explain the post-restructuring performance?

1.3 Approach

Numerous steps are taken to answer the research questions. For a detailed description on the methodology used see section 3. Firstly, a literature study is performed to give an overview of vulture investors, the vulture market and the relationship between their strategy and their performance within reorganization periods and one year thereafter.

Secondly, following the first research question, the methodological approach of this thesis will very much similar with Hotchkiss and Mooradian (1997). The approach of Moyer (2005) is used to determine the distressed firms in the financial market. Whitman and Diaz (2009) argument on the consequences of changed environment in financial market towards the performance of investor or companies is used to form the hypotheses relating the optimization of vulture strategy. I cannot elaborate to the exact description on changed environment on Whitman and Diaz (2009) since they are focused to financial meltdown during 2007-2008. Nevertheless, we use it as a starting point to analyze the other changes in financial market during 1993-2008. Furthermore, a universal risk approach to vulture investing by Calandro and Crootof (2006) is also used to measure the performance of specific strategy

Thirdly, performance data of individual or institution that involved in vulture strategy is used. The performance of vulture funds¹ during specific periods is compared with the results of the thesis using Hotchkiss and Mooradian (1997) approach within the same period (1993-2008). The data concerning the average performance of vulture investors is collected from Hennesse distress index² while the data concerning Hotchkiss and Mooradian (1997) approach is collected from Thomson Financial Database.

1.4. Main Results

Based on descriptive statistics, the bond annual unadjusted returns of vulture strategy underperform the non-vulture with and average of 32.58% and 45.58% respectively. Subsequently, after adjusted with distress index, the bond annual excess-returns of vulture investor still underperform the non-vulture with an average of 18.78% and 31.04% respectively. Furthermore, there are two variables that have significant effects on annual unadjusted returns and annual market adjusted returns. The variables are; asset turnover of distressed firms at the time of bankruptcy and amount of days that firms needs to spend in order to emerge from Chapter 11.

¹ Vulture fund is a pool of various vultures project that mostly sold in an individual package.

² The Hennessee Distressed Index is index of funds whose primary investment focus involves securities of companies that have declared bankruptcy and/or may be undergoing reorganization. Investment holdings range from senior secured debt to the common stock of the company.

Vulture involvements have mixed effects on distressed bond returns during reorganization period. On average, vulture investors increase the bond annual unadjusted return by 0.03% whereas passive vulture involvement by 0.21%. Surprisingly, active vulture involvements have negative effects on distressed bond performance. Vulture-board decreases the bond annual unadjusted returns by -0.11% and vulture-board/management by -0.15%. Similar effects also occurred on the annual market adjusted return of distressed bond. In spite of that, the mixed effects of vulture involvement are statistically insignificant.

Even though vulture involvement have positive effects on the speed of reorganization, the effects is statistically not significant. Furthermore, the economic condition at the time of emergence, the asset turnover and the profitability of distressed firms at the time of bankruptcy have significant effects on the amount of days that distressed firms needed to emerge from chapter 11.

On average, vulture involvement improves the liquidity, the productivity, the asset turnover, the leverage and the profitability level of distressed firms. However, the improvements of financial ratios post-restructuring period are statistically insignificant.

1.5. Structure

The rest of the thesis is structured as follows. In Section 2, past empirical findings are analyzed concerning post-restructuring performance of distressed firms in relation with specific strategy or role that being taken by vulture investors. Section 3 explains the definition of distressed debt, methodologies of the study and followed by the used data in this thesis in more detail. The results of the study can be found in section 4, after which alternative explanations on the similarity and/or difference between the results in section 4 with previous findings are evaluated in section 5. Section 6 concludes and discusses possibilities for further research.

2. The Overview of Vulture Investing

2.1. *Vulture investor and distressed debt investing*

Vulture is a metaphor that is used to describe a situation when investor seems to pick the bones of troubled companies based on their preference to invest in business that is dying. They try to find opportunities to buy stock, bonds, bank debt and other securities at very low prices in order to produce substantial profits later, when the company distributes assets to creditors and shareholders in its reorganization or so called emerged from Chapter 11. Consequently, vulture investors will experience huge loses in the event where restructuring fails.

At several events, the company will be worth much more dead than alive, thus, vulture investors will create profit when it sold off in pieces. The event that called liquidation will not be discussed in this thesis, as we try to measure the performance of vulture investment in long term. Vulture investors include; private investor, leveraged-buyout funds, investment bankers, workout specialist and junk bond investment manager. These distressed debt investors have a strategy that is quite similar to private equity which requires a significant capital in specific company security in order to get control of the entire entity. In this thesis the influence of vulture investors' role on firms that defaults their public debt is analyzed using Hotchkiss and Mooradian (1997).

What differs vulture with private equity, are that vulture investors usually purchase bank loans and/or public bonds while private equity usually purchase equity to gain the control of the distressed firms. Those debts of troubled companies that bought by them include subordinated debt, junk bonds, bank loans, and obligator to suppliers. Their targets are mostly companies that may have already defaulted on their debt or under bankruptcy protection. Based on Altman and Hotchkiss (2005), the market for distressed debt securities has grown more than fivefold in 2005 since a decade ago. Indeed, distressed securities world, which includes all kinds of securities that located below investment grade debt, became very popular. In the last decade, vulture has successfully bought their target through below par/distressed bank loans, debtor-in-possession loans, second lien notes, trade claims/ receivables, credit default swaps, preferred stock as well common stock, right/warrants, collateralized debt, bond and loan obligations, futures, option, bridge and mezzanine loans among others from secondary market.

Rosenberg (1992) explained that modern vulture investing started in the economic crisis in 1929, though market just started to notice this specific strategy in 1980s. In 1980s, the market for vultures grew impressively as results of downturn in utilities sector, such as energy, oil and steel market in United States. The vulture investors, who look for value at every stage of target-company's life cycle, have performed well (Hotchkiss and Mooradian, 1997).

A company might be suitable acquisition target in the point of view of arbitrage opportunity as their stock is undervalued. They mostly become vulture investors' target when the company is in bankruptcy, close to bankruptcy or heading towards liquidation, or still in the process of Chapter 11. Hotchkiss and Mooraadian (1997) argued that the reason behind the growth either in 1929 or 1980s is explained by severe downturn in several sectors of the economy in United States. Another reason that explained this growth in the end 1980s was the revision of bankruptcy code in 1978. Under the new code in Chapter 11, bankrupt companies are encouraged to reorganize as management is allowed to keep their jobs during the period of bankruptcy where the old code prevent them to do such thing. However, how big the influence of this new code for vulture investors' performance is beyond the scope of this thesis, I suggest you to read Moyer (2005) for deeper explanation.

In October 1987, the stock market is crashed and followed by the collapse of junk bond. At the end of 1980s, merger and acquisitions became cold and silent as opportunities for junk bond-financed leveraged buyouts has dried up. When the economy is unhealthy, default rates incline and risk spreads loosen. This event is endangering long credit strategies as investors lose from declining bond prices and rising credit spreads. This spreads are sensitive to liquidity that is a leading indicator to equities and the economy. According to Altman database, there was nearly 4 billion dollar of corporate debt that defaulted in 1988. This amount became doubled to 8 billion dollar in 1989, where in 1991 that number soared to 18 billion dollar. This event was explained with 10.3 percent of defaulted junk bond in 1991 in comparison with 2.7 percent in year 1988. The defaulted bond was in line with surging business Chapter 11 filling to the U.S. bankruptcy courts.

Hotchkiss and Mooraadian (1997) explained that during the periods of increasing default rate of corporate debt, discount investor began to shift their strategy from passive purchaser to an active vulture, as the downturn in economy was seen as an opportunity from their point of view. They discovered that the vulture market will grow when defaulted level of bond increase. In 1991, the market value of vulture investment in distressed and defaulted securities was at \$49 billion with \$98 billion par value, substantially increased from years before. Consequently, one can assume that vulture growth has positive relation with default rate level. Altman and Hotchkiss (2005) supports the assumption as they found the slow growth of vulture strategy when the default rates plunged in 1995 to only 1.2 percent, when companies have easy access to capital due to strong economy. Furthermore, based on the Preqin database, distressed private equity fund raised an aggregate of 7.8 billion dollar during the dotcom crash in 2000 and continued to increase in 2002 with 12 billion dollar, while the fundraising started declining in 2003 when U.S. economy became healthy and companies have easy access to capital market.

However, Whitman and Diaz (2009) argued that the consequences of financial meltdown during 2007-2008 have changed the market for distressed securities in addition the operations and feasibility for

companies concerning their access towards capital market. They argued that this meltdown would further affect towards the performance of vulture investor. Based on Credit Suisse data, by the end of 2007, investing in distressed securities is found as an inefficient strategy for numerous fund managers because of forced selling. Investor whose mandate does not permit fund manager to hold such securities that being defaults or downgraded are often obliged to sell them, mostly at a discount.

Even though it seems that vulture investors gain profits at the expense of troubled companies, vulture investor has an essential role in the economy in term of providing liquidity, as they are willing to purchase claims or securities of distressed companies from creditors (Moyer, 2005). In late 1990's when the secondary market for distressed bank debt has established, investor could purchase distressed and default securities through practically any bank or brokerage firm. Their role in the economy is important since banks or financial institution could unload distress securities as they avoid the time and the agitation of bankruptcy reorganization of the borrowers that could endanger their rating as a lender. In some cases of active vulture, investors also bring equity capital besides purchasing the distressed securities that can make difference concerning the lifecycle of that company.

One can argue that the existence of secondary market certainly has important elements in explaining the growth of vulture investing. Anson (2002) explain that the availability of many types of commercial loans that are available for resale have effect towards the growth of vulture market. Banks' proactive risk management techniques to offload non-performing and sub-performing loans in the markets at attractive discount also affect the growth of this market. By the end 1990s, large percentages of troubled companies were small and mid-sized. Consequently, vulture-investing strategies has changed, as they were concentrated on smaller deals (Altman and Hotchkiss, 2005). Based on these facts, one can assume that the size of investment will affect the performance of vulture investor. In order to find the best strategy of vulture investors, various involvements of vulture investors in helping companies during reorganization is investigated. These topics will be discussed later on in this chapter.

Anson (2002) argued that distressed debt investors are rarely concerned with the timely payment of interest and principal, as payments of principal and interest are long since past. Instead, they are more concerned with the viability of the company as a going concern. Specifically, Anson argued that vultures would evaluate the company's business plan in detail for restoring profitability. Alternatively, if the company is already in bankruptcy, they will review the company's plan of reorganization. In this respect, distressed debt investors operate very similar to equity investor. Hence, their interest is the long-term profitability of the company. Consequently, one can assume that distressed investing is very cyclical because credit markets are also cyclical in nature. For example, in the last decade we have seen number of economic events that influenced the activity of vultures, such as Asian and Russian financial crisis, the dotcom crash and presumably 2007-2009 credit crisis. However, it is difficult to find the bottom of the

credit cycle. Therefore, Casa, Rechsteiner and Lehman (2007) argued that distressed investing should be seen as long-term investment.

2.2. *Investing strategy*

Vulture is not a strategy that solely use fixed income credit or equity investment. It is a combination of both with various credit related sub-strategies that give a modern risk-return structure where the asset is a stand-alone individual security. Anson (2002) argued that the performance of this asset class has extremely low return correlation with other asset classes; thus, their performance should not be affected by the returns of other investment strategies. His argument contradicts with Altman (2005) that argued the performance of vultures is in line with hedge funds as they are one of the main investor.

As Anson (2002) argued that investing in distressed securities has universally been used as takeover strategy. Purchasing distressed debt is a common approach to gain an equity investment stake in the company as the vultures agree to forgive the debt they own in return for a portion of equity stake in the company. The swap is believed to be helpful in shortening the bankruptcy period. In bankruptcy court, investor can place bid and win the auction for discounted price. Mostly, the cash bid is lower than the book value of the assets. This strategy is quite interesting since; those cash from the auction will used first to pay creditors in full. As soon as holder of outstanding senior bonds received full payment, the cash will be used to pay unsecured creditors with mostly 20% to 30% on the dollar while existing equity shareholder received no payment since their value was wiped out by the bankruptcy, allowing the company to refinance their operation and even old debt with a new debt.

Finding the most appropriate vultures methods requires set of skills that involve fundamental valuation of distressed debt and equity asset and also technical legal and fixed income knowledge. Certain vultures are more active in helping companies concerning their internal problem while others are not. On one side, several vultures would frequently be seen as arranging mergers, furnishing debtor-in-possession and other loans, and helping to underwrite rights offerings that would provide the capital needed for emergence from Chapter 11 as Altman and Hotchkiss (2005) had explained. On the other side, some vultures just being passive and give the power to incumbent manager.

Based on table 1, active vultures would rarely invest in any securities unless they could be assured that they would have a controlling position in the company. Most of them would try to acquire at least a third of a class of debt, because it is enough to block any confirmation plan from going through if the plan is not in line with their strategy. Vulture investors do help in restructuring programs, such as in determining exactly which creditors and shareholders that will be paid and how to finance company's needs on its next life, and for some cases, installing new manager. Hotchkiss (1995) found that retaining pre bankruptcy management is strongly related to worse post bankruptcy performance. Additionally, he also

found that when pre-bankruptcy management remains in the office, firms often fail to meet cash flow projections prepared during reorganization. Nevertheless, there is no standard model for distressed debt investing, as each distressed situation requires unique approach. Altman and Hotchkiss (2005) divide the strategy into three different ways. Table 1 gives an overview of vulture strategy that previously discussed by Altman and Hotchkiss (2005).

Table 1: Investment Styles in Distressed Debt Investing (Altman and Hotchkiss, 2005)

Active control	Active/Noncontrol	Passive
Requires one-third minimum to block and one-half to control	Senior secured, Senior unsecured	Invest in undervalued securities trading at distressed levels
Restructure or even purchase related business	Active participation in restructuring process; influence process	Substrategies: trading/buy-hold/senior
Hold a seat in board and also in management	Hold a seat in board	Do not involve in board or management
Take control of company through debt/equity swap	Generally do not control	Trading oriented; sometimes get restricted
Exit two to three years	Holding period of one to two years	Holding periods of six months to one year

The most basic investment scenario according Altman and Hotchkiss is passive investment strategy. The distressed securities are bought, as investor believed that the distressed bond traded below fair value. These contrarian investor believed this particular investment will rise over time to its fair value and results a high returns in the event of buy and hold strategy at maturity date or just sold when the return are high enough (Sandler, 1989). Previous studies explained that there are various reasons on why investors have such expectation on increasing value of distressed bond. It may be that the market failed to recognize the underlying business cycle of a firm, which led to a failure of market valuation. Other reason is the difficulty to understand the structural aspect of the bond as we had seen in recent financial crisis in 2008. Additional reason such as repurchasing activity of bonds could drive up prices; hence, investor will observe the state of affairs to determine the rationality of investment regarding the buy in point and the exit point. Consequently, investor also needs to analyze thoroughly the risk-rewards trade offs of firms with complex capital structure.

In some unique distress situations, vulture investors might discover an undervalued security but expects that in order to realize higher values, active participation will be required. Consequently, such flexible approaches are needed. Additionally, Whitman and Diaz (2009) argued that the key characteristics, which traditionally separated good distressed investors from the rest of the market, were a strong contrarians viewpoint. Their views on actively involved in situations and transactions that the

mainstream investor would avoid are the one that distinguish vultures from others. As a consequence that returns become higher, more vultures that were once passive have shifted to an activist role. In order to have strategic advantage position in debt restructuring plan of distressed firms, vulture investors could consolidate large blocks of debt or bonds. In this strategy, vulture needs to be able in working with management or organizing other stakeholder during reorganization process.

Furthermore, as risk become much greater when one become an active vulture, they might maneuver themselves onto creditors' committee or build a stockpile of bonds or commonly known as vultures funds. This funds itself can consist of only one particular vulture investment or consist of several vulture investments. Amenc, Martellini and Vaissie (2002) believed that vulture funds offer diversification as the conditional correlation³ between the vulture fund returns and stock and bond market indices are relatively similar to unconditional correlation⁴. These funds mostly target distressed firms that are small or mid-sized and undervalued. Additionally they also involved in the reorganization plan and also acquired blocks of stocks or bonds. Furthermore, from organizational and regulatory perspective, they do not face the requirements that given to mutual funds or pension funds. How vulture funds operate is quite similar to hedge funds that explained by Boyson and Mooradian (2007). However, being involved actively in distress firms does not necessarily controlling the whole entity during Chapter 11 and after the reorganization period. The investor could actively participate in the restructuring process by only being a member of the creditor committee that usually receive a seat in the board of distressed company.

One of standard transformation that distressed company undergoes in the Chapter 11 process is the deleveraging of its capital structure, where part of the debt is being replaced by equity after emergence. Pre-bankruptcy equities are mostly disappeared in the new emergence capital structure. Therefore, debt holder and mostly bondholder might end up as equity holders. Indeed, when active vultures purchased distress bond, they actually try to obtain an equity stake in distressed company.

Altman and Hotchkiss (2005) argued that one of the advantages of vulture investors is the ability of reducing the complexity of the debt structure through purchasing large parts of the debt claims. Because of that method, vultures are able to emerge from Chapter 11 more quickly. Previous finding of Hotchkiss and Mooradian (1997) showed that the strategy may yield high returns in the event that particular investor so called vultures are aggressively participate in day-to-day basis in reorganization process. Although the securities may be purchased at a discount, the outcome of the negotiation process is very uncertain. This

³ Conditional correlation is calculated by Amenc, Martellini and Vaissie (2002) from a sample that only contains periods corresponding to the most significant decreases or increases in a traditional reference index

⁴ See Schneeweis and Spurgin 1999 for unconditional correlations

thesis investigates the return diversity between different strategies concerning vulture involvement in distressed firms.

2.3. Post-restructuring performance of distressed firms

Previous empirical findings found that poor investment decisions made in bankruptcy will be reflected in the post bankruptcy performance of firms emerging from Chapter 11. The explanation is that Chapter 11 process focuses on management capability as the main source to reorganize unprofitable firms. One that we should know, during bankruptcy process, management still have power beside the creditors committee. LoPucki and Whitford (1993) explained the management's power during Chapter 11 process are based on facts that managers normally remain in control of the firm's daily operations and have an exclusive right throughout the entire period in order to propose a plan of reorganization. However, incumbent management has still too much power in Chapter 11 and could exercise their power in a self-serving manner as Bradley and Rosenzweig (1992) had argued. Therefore, a strong check on management's power is the likelihood of them being removed because of new disciplinary on current inefficiency in distress firms will lead to higher or better performance. That disciplinary scheme could improve either by installing new board or even new management Baird (1986) and Aghion, Hart, and Moore (1992).

In general, vulture investors' goal is to transform the sick business in which they are investing, stabilizing the company so that it can be restructured as a healthy company and try to encourage speedy reorganization as the exit timing of the investment is quite important. Even if one is successful to emerge from Chapter 11, when restructurings drag on longer than expected, a vulture's initial profit can disappear (Moyer, 2005). Through this thesis, every strategy is discussed relating to its exposure towards risk. The quality of investor and management after restructuring will also be discussed slightly in this thesis, as Agrawal, et al (2004) argued that informed investor would be likely outperform average investor. Furthermore, Hotchkiss and Mooradian (1997) also argued that the involvement of vulture investor toward the target firm would also affect the performance of the strategy as they find that the post-restructuring performance to pre-default levels is higher when vulture are active in management and/or gain control.

In summary, as vulture investor behave like a truly equity investor in active control strategy, one can assume that their performance will be in line with private equity firms and companies in S&P 500.

3. Performances and Risk Measurement Methodology

3.1. Distressed firms selection

In order to analyze the activity of vulture investor in distressed firms, one need to define what distress firms are. Moyer (2005) argued that there is no universal definition of distressed debt. One popular way to define distress firms is by looking at the rating systems that being given by debt rating agencies, where the most popular are Moody's investor service and Standard & Poor's.

Primary Bond Rating Classification Scheme:

S&P	Moody's	
AAA	AAA	
AA	Aa	Investment
A	A	Grade
BBB	Baa	
BB	Ba	
B	B	
CCC	Caa	Speculative
CC	Ca	Grade
C	C	
D		

In general, company with CCC rating and below, is categorized as distressed company. Additionally, firms which rating is downgraded two rankings, from investment grade to speculative grade, are also considered as distressed company, for example, from A to BB or from BBB to B. If one buys the stocks of those companies after just being downgraded, one can assume it as a vulture strategy. However, vulture strategy using stock purchases was not analyzed in this thesis, as the study focuses more into distressed bond purchasing.

Furthermore, a violation of the contractual payment terms of loan or bonds could lead to a rating downgrade by credit rating institution as Altman and Hotchkiss (2006) categorized. They associated distress as firm that misses a scheduled loan or bond payment or mostly known as periodic interest obligation. However, the distress firms within S&P and Moody's categories are not automatically defaults

their bonds or filed for bankruptcy protection. The thesis is focus mainly on company who manage to emerge from bankruptcy. Therefore, the definition of distress firms in this thesis are the firms who filed for Chapter 11 in federal district court as a consequence of defaulting their public debt or missing scheduled loan payment.

The bankruptcy itself is observed by looking at firm's formal declaration of bankruptcy in federal district court either for Chapter 7 or Chapter 11, which was collected using New Generation Research Database. Chapter 7 is a petition to liquidate company's asset, where Chapter 11 is an attempt of recovery program which legally known as bankruptcy reorganization. Based on previous finding that categorized vulture as long-term investment vehicle, I omit firms that filed for Chapter 7. I sorted various companies from New Generation Research that described as default companies and looked to find evidence of vulture activity prior to Chapter 11 filling that based on Altman and Mooradian (2005).

Furthermore, a list of investor known specialized in investing in distressed firms is collected from Altman (1991), HighBeam Research Database and Preqin database.

3.2. Risk approach for the strategies and measuring the performance

Once investor has the ability to understand the risk return relation, the best opportunity with great financial reward in vulture market can be found. Consequently, valuing certain strategy is useless when one cannot identify the risk of that strategy. Successful vulture investors understand the risk of investing in distressed situations, although one cannot eliminates such risk, but one can control it. Previous findings have explained that there is several direct and indirect cost of financial distress that could explain fundamental analysis of firm business and financial condition are critical in vulture strategy. Before one try to analyze the fundamental risk return relation, understanding the causes of financial distress of a company is essential. In general, companies become financially distressed when they were unable to meet their current or their future financial obligations such as interest payment, principal payment, refinance and also legal fine⁵. The factors leading to these situations are many and often interrelated, making it hard for an investor to identify the causes and the symptoms of a distress that eventually could lead to a bankruptcy.

In this thesis, several proxies or financial indicators are used in order to measure the performance of vulture investor. Deterioration of operating performance⁶ is a common reason for companies going into

⁵ Fraud and environment related. Asbestos issue is the most common environment-related reason of bankruptcy in U.S

⁶ Productivity of the firm's asset, independent of any tax or leverage factor, is used to explain the operating performance for firms in the sample. The operating performance ratio is calculated from earnings before interest (EBIT) / total asset.

financial distress. There are many reasons that lead to such deterioration such as; cyclical economic downturn, competition, regulation, unrealistic business plan and poor management. The influence of that deterioration is also taken into account in explaining the vulture returns in this thesis. Altman, Halderman and Narayanan (1997) used the ratio of operating performance as proxy of credit risk. The credit risk is the probability that the contractual payment terms of loan or bond are breached. In general, firms are valued relative to their future cash-flow-generating capability since any general obligation or full recourse debt of a firm is implicitly backed by a firm's cash-flow. However, in the case of distressed companies where cash-flow are very volatile and mostly have negative EBIT made this variable being inadequate to analyze. Therefore, the loan or bond may be conditioned on receiving an adequate pledge of collateral. The proxy of firms' capability to repay their loan and debt using pledged collateral is known as the firm leverage position or also called as the asset coverage⁷.

Previous studies also used cumulative probability over the life of a company⁸ in explaining distress investing. However, this ratio is not used in this study because it would likely give a bias picture as retained earnings of company before bankruptcy could be very negatively high. After emergence from Chapter 11, this ratio would be positively high as the old equity-holder is wipe off during reorganization, giving company a chance to adjust accounting data of their retained earnings.

The other main risks that vulture investors commonly have are business risk and the lack of liquidity. Agrawal (2004) found that financially troubled firms suffer the cost of reduced liquidity. Additionally, the risk of investing in this market is highly firms' specific and idiosyncratic. The risk on delayed reorganization also needs to be taken into account. Concerning financial position of distressed firm, high degrees of financial liquidity allow for advantageous and timely realization of business opportunities. Additionally, financial flexibility provides a cushion during times of economic crisis or sudden and unexpected downturn in a company's business. Therefore, it is worth to analyze the liquidity level of a firm at the time of bankruptcy and investigate on how financial liquidity played role in the process of Chapter 11. Consequently, a measure of the net liquid asset of the firms relative to the total capitalization at the time of chapter 11 filing is used as a proxy of liquidity risk⁹

Feder and Lagrange (2002) argued that investing in a company that filed for Chapter 11 creates risks that are quite different than non-distressed investing. They found, beside the liquidity risk due

⁷ Company leverage position or asset coverage is calculated from total liabilities/ total asset.

⁸ Cumulative probability over the life of a company is calculated from retained earnings / total asset. Retained earnings are the total amount of reinvested earnings and/or losses of a firm over its entire life. Distress firms mostly have retained deficit (negative retained earnings) at the time of chapter 11 filing.

⁹ Liquidity proxy that used is working capital / total asset. Working capital is defined as the difference between current asset and current liabilities

overleveraged, investors also need to make judgments about the viability of the business, management quality, its position in market and other issues concerning whether the business will succeed or not and also valuation of the company assuming it can emerge from Chapter 11.

Asset-turnover¹⁰ ratio is also used to measure management risk of distressed company. In their study, Feder and Lagrange (2002) found that one possible explanation of bankruptcy is bad management. This ratio evaluates the effectiveness and the efficiency of incumbent (pre-bankruptcy) management in generating sales revenue from investment back into the company. Consequently, the higher the ratio is, the more effective and efficient use of the company's asset have become. Operating profit margin¹¹ is also used in this study in order to measure company's profitability or operating risk. This margin reflects on how company can control its operation costs relating to its sales and profit.

Previous studies by Eberhart, Moore, and Roenfeidt (1990), Franks and Torous (1994), Gilson, John, and Lang (1990) and Weiss (1990) have shown that the most efficient reorganization process is the one with the highest value creation relating to all costs. In spite of that, measuring directly the efficiency of reorganization only, could lead to bias results. Therefore, an indirect measure is used in this study; the length of time required to emerge from Chapter 11. Based on his study, Weiss argued that resolving financial distress through Chapter 11 reorganization is more efficient than an out-of-court restructuring. It is, therefore, essential to look into the characteristic of Chapter 11 reorganization and try to analyze the efficiency of it and its connection with vulture involvement.

Gilson (1995) found that two unknowns affect the annual return of investing in distressed securities: the dollar recovery that realized by the securities and the amount it requires actualizing reorganization. Furthermore, he also argued that the returns depends on two key values: the true value of firm's asset and the value firms paid to claimholders under reorganization plan through asset selling. However, the substitution of the administrative bankruptcy process through the market produce some difficulty in valuing firms emerging from bankruptcy as Gilson, Hotchkiss and Ruback have stated in their study (2000). Industry where distressed companies are active also affect the performance as Bhagat Moyen and Suh (2005) found that manufacturing firms which filed for Chapter 11 has an advantage to emerge from bankruptcy in comparison with other industry.

Vulture Bond Returns

Distress investing may offer great potential, but only if the investor is willing to possess significance risk. Consequently, returns on distressed debt securities have a unique profile. On one part, Hradsky and Long

¹⁰ Asset-turnover is calculated from net sales/ total asset

¹¹ Operating profit margin is calculated from EBIT (earning before interest and tax) / total sales

(1989) found that securities returns of distressed company started to become negative approximately 18 months before default as the market internalizes information on the weak condition of the issuer. On the other part, Altman (2005) found high variable returns of distressed securities during 1997 to 1990, which as high as 37.9% in 1987 and 26.5% in 1988 but as low as 23% in 1989. Surprisingly, vultures' performance suffered from 1995 to 1998 as defaulted bank loans underperformed the S&P 500 index from 1996, according to the Altman-NYU Salomon center indexes. However, vultures still considered as successful investor since securities that they held from companies emerging from bankruptcy often outperformed the distressed indices.

The relations between distress performances and vultures involvements in distressed companies are the main objective of this study, whether vultures use active or passive strategy either in short-term or long-term. Furthermore, based on the vultures' performances concerning distressed company, I try to observe the effects of the amount of investment, firms' liquidity problem, the industry where the company operate, or other variables that are still related to improvement in firms' reorganization.

The vulture returns during bankruptcy period are calculated with an assumption that vulture becomes involved or acquired distressed bond just before the company filed for Chapter 11. The vulture return is calculated from the day company filed for Chapter 11 until the day of emergence regardless the kind of vulture investors involved. Altman and Hotekiss explanation on vulture involvement and different holding periods that has been discussed in the table 1 is not fit for my study, as I investigated the returns of various vulture strategies within the same period, which is reorganization period. Furthermore, due to difficulty on finding other company in the market with similar book-to-market ratio as most of the vulture target is company in Chapter 11, distress indices are used as a benchmark for vulture performance. Merrill Lynch and Hennessee index are the most well known distress index, the latter one is used in this study as the available data fits the timeframe of this study, which is from 1992 to 2007. The vulture "bond" returns are calculated as follows:

P_{it} = bond price of company i on day t following emerged from chapter 11

P_{i0} = bond price of company i on the day company i filled for chapter 11

ric = $\log(P_{it}) - \log(P_{i0})$ = unadjusted return of company i

$ricz$ = annual unadjusted return of company i

Determinants of Distress Bond Returns

Furthermore, to understand the reason behind the vulture performance, a regression model is implemented as follows;

$$\begin{aligned}
 ricz = & \alpha + \beta 1 NBER + \beta 2 Productivity + \beta 3 Leverage + \beta 4 Asset Turnover + \beta 5 Liquidity + \\
 & \beta 6 Profitability + \beta 7 High-Yield + \beta 8 Size + \beta 9 Bankruptcy Period + \beta 10 Vulture Involvement + \varepsilon
 \end{aligned}
 \tag{1}$$

The dependent variable *ricz* in equation (1) is annual unadjusted return of company *i* that is measured before using bond prices of distressed company. Economic condition when a company emerged from chapter 11 is used to analyze the relation between macroeconomic condition and vultures' performance. NBER data is used to explain the macroeconomic condition whether an economy in recession or in expansion. Based on previous research, NBER is expected to have a positive relation with distress returns, as company that filed for Chapter 11 that driven by the recession will emerged when the economy turn back into the expansion. This variable is used to analyze on which economic condition vultures performs optimally.

Furthermore, previous findings explained the cycle of vulture investing, where the strategy grows when the default rate of junk bonds, or so-called high-yield bond, becomes high. High-Yield is returns in barclays junk bonds index in U.S. market during reorganization period of company *i*. Based on Altman (2005), this variable is expected to have positive relation with vulture performance.

Furthermore, various ratio such as; Productivity, Leverage, Asset Turnover, Liquidity and Profitability are used in the regression to investigate risk-related-returns of distress investing. During the last 10 years, vultures seem to have a preference in small and mid-sized company. Consequently, one can assume that big size firm is more difficult to emerge from Chapter 11; thus, the size of the firm bought by vulture investors is expected to have negative relation with post-bankruptcy performance. Therefore a proxy of firm Size¹² is used in regression (1). An indirect measure is used to investigate the relation between the efficiency of reorganization and the returns of investing in distressed bonds. Bankruptcy period used in regression (1) is the total days that company spent in Chapter 11. Variable Vulture Involvement¹³ indicates the fraction of vultures' involvement in the firm. It is a proxy of vulture activity in distressed company as Moyer (2005) found that active involvement in distressed company would result in speedy reorganization, hence, better results in comparison with passive involvement. There is also signaling effect when vultures being active in acquired company during reorganization, either held a place in their board or even in the management of acquired firm. Therefore, variable vulture involvement,

¹² Variable Size is calculated from log(revenue)

¹³ Variable Vulture Involvement is a dummy variable concerning investor position in distress firms. The vulture involvement is divided no involvement, passive involvement and active involvement that include a) vulture board only and b) vulture board and vulture management. The dummy variable is 1 for an involvement of particular strategy and 0 for no involvement.

especially active vulture, are expected to have positive effects on vulture performance as Hockiss and Mooradian (1997) found a superior vulture performance in the event where the vultures become involved in board member or management during and after reorganization.

Equation (2) is fairly similar with previous equation. However, in this equation I used market adjusted return (r^{*icz}) as the dependent variable. The market adjusted return of company i is calculated by using bond prices of distressed company and Hennessee distress index.

$$r^{*icz} = \alpha + \beta_1 NBER + \beta_2 Productivity + \beta_3 Leverage + \beta_4 Asset Turnover + \beta_5 Liquidity + \beta_6 Profitability + \beta_7 High-Yield + \beta_8 Size + \beta_9 Bankruptcy Period + \beta_{10} Vulture Involvement + \varepsilon \quad (2)$$

I_{ct} = Distress market index level on day t where company i emerged from chapter 11

I_{c0} = Distress market index level on the day company i filled for chapter 11

$r^{*ic} = r_{ic} - [\log(I_{ct}) - \log(I_{c0})]$ = market adjusted return of company i

r^{*icz} = annual market adjusted return of company i

The dependent variable in equation (2) illustrate investor return in single distressed company i in comparison with investing in pool of distressed company or so called vulture funds. The performance of vulture funds will be examined in order to explain the benefit of diversification in vulture market. Equation (2) used the same sample and also has the same independent variable with the same time period as equation (1).

Vulture effect on speed of the reorganization

Obrestad (2009) argued that purchasing distressed debt is similar with writing a put on the debt holder's assets because of the obligation that debt holders have to pay for the difference between asset value and default-free debt value. Additionally, potential loss in value investor could have, as the option is in the money when they bought distressed debt, is also similar with writing a put. Vulture investors want to reduce the value of this put option, and therefore have great incentives to speed up the reorganization. Consequently, regression (3) is used to investigate the ability of vulture investor towards the speed of reorganization, which could possibly affect their returns. In this regression, the dependent variable is amount of days spend in chapter 11. The amount of days that company i needed to emerge from chapter 11 is used as a proxy of the speed of reorganization.

$$Days\ spend\ in\ chapter\ 11 = \alpha + \beta_1 NBER + \beta_2 Productivity + \beta_3 Leverage + \beta_4 Asset Turnover + \beta_5 Liquidity + \beta_6 Profitability + \beta_7 High-Yield + \beta_8 Size + \beta_9 Vulture Involvement + \varepsilon$$

(3)

Equation (3) also used the same independent variables as I tried to investigate how much the risk of distressed firms that being represented by the proxies affect the speed of reorganization. NBER should has positive relation as company tend to perform better when the economy in expansion, while big firm should reorganize faster than small one which also lead to an expectation of positive relation between size and dependent variable.

Post-restructuring performance of distressed firms

New evidence from Altman and Hotchkiss (2005) explained that distressed investing in debt securities give returns with range from 12% to 25% in yearly basis depending on the strategy of the investor. According to Gilson (1995), a simple but useful model to use in analyzing the returns of vulture investing is to view the firm as pie. The size of the pie represents the present value of the firm's asset. The pie is cut into slices, with each slice representing a financial claim on the firms' cash flow. The slices of the pie and profit that vulture investor purchased need to grow larger in order to gain positive and required returns. Vulture investors considers the business risk of the company as an important one since they are not concerned with the short-term payment of interest and debt service but rather the ability of the company to execute a business plan. Therefore, long-term horizons vision is required. In that sense, one can assume that distressed debt investors act like truly equity investor, hence, a form of a private equity investing in the event for active control strategy.

Furthermore, Kucher and Meitner (2004) found that weak correlation between causes of distress with turnaround returns. Consequently, one can assume that post-restructuring performance of distressed firms is not affected by the causes of distress. Using market data to analyze vulture performance is quite intriguing as Ross (1977) explained that the underlying value of distressed company is not observable by the market. The management during reorganization is the one who understand the real value of the company. Therefore, the performance of management is analyzed using company financial data. In order to support the empirical finding of vulture involvement and its relation to bonds' performance, I rely to various indicator of performance from accounting data collected from financial statement starting one year before reorganization until one year after emerged from Chapter 11 to analyze this issue. The indicator of performance is operating efficiency that was analyzed using total revenues per total asset. The appendix summarizes the data sample and its source. To understand the vulture involvement concerning improvement in distressed company during and after reorganization, following regression was made;

$$\Delta Proxy = \alpha + \beta1 NBER + \beta2 Size + \beta3 Proxy Pre-bankruptcy + \beta4 Period + \beta5 Vulture Involvement$$

(4)

The dependent variable $\Delta Proxy$ is calculated from the difference between the proxy value one fiscal year after reorganization and one fiscal year before bankruptcy. Equation (4) is used to investigate the affect of vulture involvement towards several proxies. The proxies are productivity, leverage, asset-turnover, liquidity and profitability. The utility of these proxies are already discussed in previous section. For this regression, company's accounting data from one fiscal year prior to bankruptcy and one fiscal year after reorganization is used.

Hotchkiss and Mooradian (1997) believed that improvement in post-restructuring performance relative to pre-bankruptcy is higher when vultures become board members or manager of the target company. They also found that the returns are negatively related to the priority of the claim purchased. Their results suggest that vulture investors serve to discipline manager of companies in financial distress. Hotchkiss and Mooradian also found that the post-merger performance of firms acquired in bankruptcy is also better than the matching non-bankrupt transactions. They explained that potential sources of operating gains for the bankrupt acquisitions are reductions in operating expenses and employment. Consequently, one can assume that decreasing employment level during reorganization has positive relation with vultures' returns. Meanwhile, Altman, Eberhart and Aggrawal (1999) found weak evidence of positive excess returns in the short term and strong evidence of positive excess returns in the long term in the event that investors are willing to exchange their old claims on the formerly bankrupt firms with only equity. They explained that the exchange securities might reflect information on the stock's intrinsic value that is not fully reflected in the stock price during reorganization. La porta's finding (1997) also supported that market was mostly surprised by the post emergence performance of distress firms in the sample.

3.3.Data

Table 3 summarizes the data used in this study and the source. The study is based on 588 companies that defaulted on public debt and filed for chapter 11 between 1992 and 2007 in US bankruptcy court. The list was collected using New Generation Research Database¹⁴. This study only focuses on the companies that managed to emerge from their Chapter 11 filing, and those whose public debts remained tradable during bankruptcy period and after reorganization either on the market or OTC.

From the viewpoint of the risks and returns in distress investing, the identification and analysis of causes of distress as well as the success of turnaround measures are important aspects. Previous finding by Owsley and Kaufman (2005) revealed that the primary causes of corporate crises that lead to financial or

¹⁴ New Generation Research Database : <http://www.bankruptcydata.com/>

economic distress of a company are situation in the economy or industry, financing problem and organization or management crisis. The argument on the relation of the economy as the most important factor is analyzed using NBER data as a proxy of economic condition whether US is in recession or expansion.

Table 3. Summary of data and the source

<i>Data</i>	<i>Source</i>
Chapter 11 filings, Reorganization Plan	New Generation Research database
Bond prices, NBER, Barclays U.S. junk bond index	DataStream database
10-K and 13-D filings	U.S. Securities and Exchange Commission
Hennesse Distress Index	Hennesse Group LLC
Vulture identifications through newspaper	Highbeam Research database

External causes for distressed situations such as legal and environment with an example of fraud and asbestos claim are also can be found in US bankruptcy court. However, previous finding of Gaughan (2005) found that only 1.2% of the time that fraud is the cause of bankruptcy. Nevertheless that 1.2% is including two mega-bankruptcies such as Enron and WorldCom that could shift the average further from the median. These companies are not included in my sample, as the outcomes of these bankruptcies are asset liquidations and partial acquisitions by other firm. On the other side, there are several companies in the sample that faced hundreds and even thousands of lawsuits, such as tobacco and asbestos lawsuit. Many of these companies cannot meet the financial pressures cause by these lawsuits and went to bankruptcy court as this procedure enables them to keep operating. However, the importance of distress reason should not be overweighed as solving a corporate crisis depend heavily on the characteristic's of particular company. The point is strengthened by Kucher and Meitner's (2004) finding on weak correlation between causes of distress with turnaround returns. Therefore, company specific factors are identified by many previous studies as the most important reason of corporate crises.

Furthermore, from 588 companies that defaulted their public debt between 1992 and 2007, only 6% of those companies went to Chapter 11 with the reason of legal and environmental issue. For that reason, such argument on distress reason will not be discussed further. From the 588 samples, companies with asset size lower than US\$ 50 million are omitted from the sample as Gilson (1997) argued that small company have different reason to reorganization in comparison with mid or large company. I also omit company who is active in financial industry from the sample as the characteristics of firms in financial industry are not comparable with other companies from other industries in the sample. Based on these restrictions, 105 companies are sufficient to be used for this study. The collected distress companies in the sample are them who manage to emerge from bankruptcy while their public debts were still tradable

during Chapter 11 process. Companies that happened to file Chapter 11 more than once between 1992 and 2007 will be counted once.

Vulture identifications

The vulture involvement in reorganization of distressed companies is identified using Hotchkiss and Mororadian (2005) definition of vulture involvement from table 1. Furthermore, I also used their vulture identification when a news story describes the vulture involvement in the target firm and information from 13-D filing that stated the event when the vulture becomes an equity holder of the firm. However, their approach on describing vulture involvement in target firms using news and 13-D filing post bankruptcy could be mislead if one tries to analyze bond returns of vulture investor. The mislead is a results of an event when vulture investors still possessed company bonds or debt claims after bankruptcy and did not swapped to equity, thus 13-D filling will miss this vulture investor as buyers of public debt do not appeared in 13-D filings. This type of vulture investors is known as vulture funds. Therefore, in order to analyze bond returns of vulture investors correctly, additional approach is used. Using the additional approach, the vulture involvement is also checked from their deposition of distress bond at the time of bankruptcy using data from New Generation research. A vulture strategy is considered when they hold company's bond at the time of bankruptcy and do not sell it during chapter 11 and still possessed it at least 3 months after the company emerged.

To determine whether the vulture investors take an active role in the governance and reorganization of the distressed firms, I look at the changes in management that took place when the company is in Chapter 11 or after the emergence. There are three different categories of involvement: a) Passive; No sign of vulture involvement in the governance of the company b) Active/Non-control; the vulture appoints one or more directors to the board of the company c) Active/Control: vulture investors nominates either the new CEO, Chairman of the board or both. As for the investigation of whether vultures were involved in the reorganization or not, I used newspaper searches from Highbeam Research database and 10-K filings from SEC to determine the level of involvement in the governance and reorganization. As several companies in the sample did not filed their 10-K after the company emerged from Chapter 11, individual reorganization plan of Distress Company that they submit to bankruptcy court is used to analyze vulture involvement during the reorganization process as in changes in board and /or management.

4. Results

4.1 Descriptive statistic

As Table 3 shows, within the sample, a total of 69 cases (66%) of 105 companies are identified where vultures are involved in the reorganization process of distressed firms while their bonds are still tradable. There are 22 cases (21%) where the vulture investors show signs of passive involvement in the reorganization. The vultures are frequently active in the reorganization of the companies either only being in the board or being actively involved at management level. In 14 cases (13%) the vulture obtains board seats in the company, and in 33 cases (31%) the vulture actively nominates the CEO or other high profile position in management and also receives board seats in the target firm. From the sample, on average, firms have a pre-bankruptcy total asset book value of \$2,325 million, with a median of \$772 million. The reason for this great dispersion between average and median of the sample relates to the fact that there were several big bankruptcies included in the sample. Small companies have less complex capital structures in comparison with large firms; hence, vulture investors can gain control over target firms more easily in the event of smaller reorganizations. However, the median asset size is larger for the companies

Table 3; Mean (Median) of sample firms one fiscal year prior to bankruptcy

	Sample	Days in Chapter 11	Total Assets	Productivity ¹	Leverage ²	Asset Turnover ³	Liquidity ⁴	Profitability ⁵
All company in the sample	105	481	2,325,837,523	-11.30%	128.09%	108.61%	-20.97%	-27.50%
	100%	393	772,852,000	-2.79%	107.27%	91.85%	-7.64%	-2.77%
Non Vulture Involvement	36	441	1,964,602,917	-16.55%	129.35%	107.85%	-24.29%	-40.82%
	34%	375	755,750,000	-9.06%	106.66%	77.17%	-7.74%	-4.76%
Vulture Involvement	69	502	2,514,307,753	-8.57%	127.43%	109.01%	-19.24%	-20.56%
	66%	402	815,729,000	-1.60%	107.27%	98.25%	-7.64%	-1.64%
Passive Vulture	22	568	3,173,091,955	-9.22%	132.93%	94.59%	-40.58%	-21.52%
	21%	300	735,368,000	-1.14%	106.33%	92.22%	-18.19%	-1.31%
Vulture Board	14	469	2,660,126,429	-6.49%	126.42%	152.47%	-23.83%	-10.85%
	13%	427	1,198,507,000	-11.22%	108.09%	107.75%	-14.11%	-9.73%
Vulture Management	33	473	2,013,255,817	-9.01%	124.19%	100.18%	-3.06%	-24.04%
	31%	443	645,710,000	-1.48%	109.86%	94.47%	-0.64%	-1.51%

¹Productivity = EBIT/total asset

²Leverage = total liabilities/total asset

³Asset Turnover = total revenue/total asset

⁴Liquidity = working capital/total asset

⁵Profitability = EBIT/total revenue

with vulture investments in comparison with non-vulture investment, thus, based on descriptive statistics between vulture and non-vulture involvement, there might be preferences of vulture investors towards

involvement in larger companies. Nevertheless, when I investigated for various vulture involvements and its relation to asset size, mixed results are obtained.

Passive vulture investors invested the most with an average of pre-bankruptcy total asset book value of \$3,173 million and it seems that passive vulture has no preferences towards smaller companies with median asset size \$735 million, which is similar with non-vulture investment. This similarity between median of total asset size for non-vulture investment and passive vulture are explained as they are not trying to gain control of the target firm, therefore, the size of the investment or asset of distressed companies is not essential for passive vulture. The descriptive statistic of total asset size for active vultures is puzzling since vultures that are active only in board have the highest median in the table with \$1,198 million while vultures that are also active in the management have the lowest median \$645 million and an average of \$2,660 million and \$2,013 million respectively. Based on these results I cannot conclude that active vulture has any preferences concerning the asset size of target firms at the time of bankruptcy.

Previous studies, which argued on the professional capability of active vulture bringing an impact towards the speed of reorganization, are basically different for reorganization that involves tradable bonds in that period. In general, firms with non-vulture involvement took an average of 441 days and a median of 375 days to emerge from bankruptcy. This is in contrast to firms with vulture involvement that need an average of 502 days and a median of 402 days to come out from Chapter 11. It might, that those tradable bonds bring complexity on capital structure for vultures as outside investor during reorganization. The complexity of a firm's capital structure could lead to a longer time needed to come out of Chapter 11 as Franks and Torous (1989) found that the more complex the company's financing is in terms of number of creditors, the longer it takes for a company to reorganize out of Chapter 11.

Companies in financial distress typically suffer from some combination of poor operating performance, which either is firm-specific or industry-related combined with a non-optimal financial structure. From table 3, the productivity level of defaulted companies one fiscal year before they filed for Chapter 11 is very low with an average of -11.30% and median of -2.79%. The negative productivity level gives investors a picture of how big the credit risk in particular distress companies is. However, there is a massive difference between the distress investing choice of non-vulture and vulture investors. The statistic showed that the vulture investor tend to invest cautiously as they invest in companies with better productivity level with a median of -1.60% in comparison with the -16.55% level of non-vulture investors. Their preferences could be caused by their "experience" in distress market where investors need to take the credit risk into account as distressed companies returns are very volatile, hence, their interest from the bonds they hold would likely be postponed or not paid at all during reorganization. Therefore, vultures invest in companies where cash flow will likely more easily be improved during reorganization.

Furthermore, when vulture have an influence in management, they are willing to accept higher credit risk than in the event where they are only hold positions in the board with an average of productivity level of -9.01% and -6.49% respectively. However, the leverage position or so called asset coverage of default companies one year before bankruptcy where non-vulture and vulture being involved were relatively at the same level with an average of 129.35% and 127.43% respectively. Additionally, the asset coverage of passive vulture and active vulture is also quite similar.

Even though the average asset turnover ratio of distress companies, one year before bankruptcy, is quite similar between the one with vulture and non-vulture with 109.01% and 107.85% respectively, the vultures seem to invest more in companies with better asset turnover. It can be seen from the median of asset turnover ratio with 98.25% when vultures are involved and 77,17% when vultures are not involved. Furthermore, both passive and active vultures seem to have preferences in investing in companies with reasonable asset turnover. The liquidity ratio, one year before bankruptcy, of distressed companies in the sample have an average of -20.97% and a median of -7.64%. From their negative ratio, it can be concluded that distressed companies on average have a poor liquidity condition, as their current liabilities were higher than their current assets one year prior to their bankruptcy. Even though the average of the liquidity ratio between non-vulture and vulture has a difference of -5%, their median is similar with -7.74% and -7.64% respectively.

The striking statistics are found between vulture strategies where the differences are very large. The preferences of vulture investors concerning liquidity of their target firms one year before bankruptcy are diverse with; average of -40.58%, -23.83%, -3.06% and median of -18.19%, -14.11%, -0.64% for passive vulture, vulture board, and vulture management respectively. Therefore, based on descriptive statistics, vulture investors seem not to have any preferences in the liquidity condition of their target firms. Alternative explanation is that the vulture investor is more concerned with operational difficulty of their target firms rather than their liabilities or leverage position. From table 2, from the profitability ratio one can assume that vulture tends to get involved more with distress company that have better profitability at the time of bankruptcy than the ones where vultures are not involved; with an average of -20.56% and median of -1.31% while the non vulture have very negative average profit of -40.82% and median of -4.76%. The scale of operating losses signifies that many firms in the sample are not just financially distressed but also economically distressed. The magnitude of the influences of these proxies towards vulture returns is analyzed later in this thesis.

4.2 Bond Returns

The vulture strategy discussed in this thesis is distress investing through bond purchasing. Therefore, it is worthy to analyze the bond returns as a proxy of vulture performance during reorganization. Table 4 shows the bond returns of various vulture strategies in comparison with distress bond returns where vulture investors are not involved. Distress companies in the sample have average liabilities, one fiscal year before bankruptcy, of \$2,507 million with median of \$836 million. Whereas the average bond price at the time of bankruptcy is 38.90% with median of 29.00% of its par value.

Based on table 3, vulture investors seem to have more appetite for firms with big liabilities at times of bankruptcies with a median of \$916 million while distressed companies without vulture involvement have liabilities with a median of \$767 million. However, the higher liabilities are mostly followed with higher complexity in organizing the creditor during reorganization which eventually leads to longer days spent in Chapter 11, as the table 3 shows that distress company without vulture investor only need, on average, 441 days to emerge from Chapter 11, while distress company that affiliated with vulture investor took 61 days longer to emerge from Chapter 11. The vulture itself holds bonds with an average value of 40.04% from its par with a median of 35%. After emergence, these bond prices increased to 52.50% from its par value on average, with a median of 53.50%. If one tries to compare the nominal returns, distressed bond return where vulture investors are involved outperform the distressed bond without vulture involvement. However, one needs to take the amount of days spent in Chapter 11 into account. As a result, after the returns being annualized, the bond returns of vulture underperform the non-vulture with an average of 32.58% and 45.58% respectively.

Table 4; Mean (Median) of distress bond returns during chapter 11

	Sample	Days in Chapter 11	Total liabilities (US\$ mil)	Bond Price at Bankruptcy date	Bond Price at Emerged date	Annualized return	Distress Index	Excess Return
All company in the sample	105	481	2,507,846,587	38.90	49.68	37.04%	14.05%	22.98%
		393	836,915,479	29.00	50.00	15.31%	13.63%	0.50%
Non Vulture Involvement	36	441	1,889,336,692	36.69	44.27	45.58%	14.55%	31.04%
		375	767,904,500	27.88	36.50	8.65%	13.65%	0.19%
Vulture Involvement	69	502	2,830,547,401	40.04	52.50	32.58%	13.80%	18.78%
		402	916,082,000	35.00	53.50	15.69%	13.63%	0.50%
Passive Vulture	22	568	3,501,681,413	45.14	63.46	46.62%	12.43%	34.18%
		300	1,442,364,500	40.00	64.06	23.74%	13.31%	9.93%
Vulture Board	14	469	2,660,126,429	35.91	40.70	22.95%	15.12%	7.83%
		427	1,198,507,000	24.50	27.00	0.94%	11.39%	-10.45%
Vulture Management	33	473	2,174,257,503	38.40	50.19	27.30%	14.14%	13.16%
		443	740,831,000	29.00	35.50	15.73%	14.19%	-2.78%

In the event vulture becomes involved in management and board, their bonds return during reorganization were, on average, 27.30% annually, while it was 22.95% annual return when vulture becomes only involved in the board of the distressed firm. Surprisingly, passive vulture earns the highest returns among the vultures with an annual return of 46.62% annually, similar with distressed bond returns when vulture not involved. Passive vultures, in theory, should perform the same as non-vulture; although the “vulture” labels it self could give signaling effect and help the reorganization process. The argument could be right, as the median of days needed to emerge from Chapter 11 of firms affiliated with passive vultures is 300 days. It was 75 days faster from the one needed by firms that have no connection with vulture investors. The underperformance of two other vultures strategies are contradicted with previous research from Altman and Hotchkiss that have found, on average, the firms that are affiliated with vulture, no matter what, outperform the normal distress firms.

Henneesse distress index is used to analyze the excess return in table 4. The results demonstrate once again that on average, the distressed bond return of firms that are not affiliated with vultures outperform the ones affiliated with vultures, by an annual excess returns of 31.05% and 18.78% respectively. The vulture once again underperforms with vulture management having an annual excess return of 13.16% and 7.83% for vulture board. Consequently, passive vulture gains similar patterns with the non-vulture involvement with an annual excess return of 34.18%. The similarity between returns of passive vulture and non-vulture is as expected as passive vultures leaves all the decisions during reorganization to incumbent management; the same as non-vulture involvement still used incumbent executives.

The descriptive results of table 3 and table 4 showed an overview how vultures invested in distressed companies relating to their preferences that analyzed by the proxies used and also relating to their returns during reorganization process that studied using bond returns. However, the descriptive statistics do not explain the relation between those proxies and bond returns. Therefore, multivariate analysis is performed using equation (1) in order to explain on how much the proxies in table 5 and other alternative independent variables can explain distress bond returns and the relation with vulture involvement. Other variables that are used in this multivariate analysis are, NBER, High-yield and Size. Additionally, other indirect measurement such as bankruptcy period is also used in this analysis.

From table 5, I found that economic recession at the time that the company emerged from Chapter 11 has a negative relation with bond returns. When the economy is in recession, the bond returns from distressed companies will be lowered by an average of -0.40%. However, this negative relation between recession and bond returns is only significant for vultures' involvement in general. When I investigated those relations for various vulture strategies, the significance of the relations disappeared.

Table 5; Determinants of annual unadjusted return using equation (1)

<i>Annual Return</i>	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.67617	0.72028	0.61398	0.74959
NBER	-0.44960***	-0.40732	-0.42306	-0.44129
Productivity	0.16429	0.15229	0.16536	0.16492
Leverage	-0.20799	-0.20668	-0.20130	-0.20034
Asset Turnover	-0.12816*	-0.12002**	-0.13052*	-0.13492*
Liquidity	0.04588	0.09673	0.08173	0.09360
Profitability	-0.25838	-0.25689	-0.24526	-0.24786
High-Yield	7.18022*	7.17306*	7.07270*	7.08473*
Size	0.01522	0.01244	0.02253	0.01589
Period	-0.00037***	-0.00040***	-0.00039***	-0.00038***
Vulture	0.03308			
Passive		0.21151		
Board			-0.11046	
Management				-0.15293

***Significant at 10%

**Significant at 5%

*Significant at 1%

Productivity level of distressed firms at the time of bankruptcy seems to have a positive effect on their bond return. This does make sense as this ratio reflects the credit risk of distress firms as Altman, Halderman and Narayanan (1997) argued in their study. Consequently, firms that have lower credit risk at the time of bankruptcy will have superior bond returns during reorganization. This argument can be explained, as market will value the companies with lower credit risk more than their counterpart. Indeed, during reorganization, it is possible that new investors try to buy these bonds and increasing demand could eventually increase the price at the end. However, I cannot assure the strength of the argument, as the results are statistically not significant.

Furthermore, based on the regression, the higher the leverage ratio of distressed firms, the lower their bond returns will be during Chapter 11. Higher liabilities at the time of bankruptcy illustrate that the firm is not capable to repay their loan or debt using pledged collateral, which also eventually affects bondholder's wealth. When one tries to calculate distressed bond returns, a great deal of it is affected by market perception, and overleveraging is never good in the eye of the market. Therefore, low demand for the bonds during Chapter 11 might lead to lower bonds returns. Nevertheless, the insignificance of leverage level towards bond returns leads to unsolved question on how genuine the leverage position affects distressed bond returns.

Surprisingly, the regression illustrated that asset turnover has significant negative returns. The results explained that the distressed firms that have the highest asset-turnover would have the lowest bond returns. Furthermore, the analysis on proxy of management risk discussed before, lead to an argument that bond returns of companies that have bad management at the time of bankruptcy will outperform the ones with good management. It seems puzzling as previous studies found that effectiveness and efficiency are regarded as important factors during reorganization, however, of my findings show the contrary. The

puzzling thing of my finding is added by the negative effect of profit level of distress firms at the time of bankruptcy towards its bonds return during reorganization. Nevertheless, the profitability is insignificant for every regression; thus, this ratio should not be weighed that much in explaining distressed bond return.

Furthermore, distressed companies that have a high ratio of working capital towards total assets will outperform the ones with the low ratios. The flexibility to provide a cushion in terms of liquidity have a positive effect towards bond returns, as the market cannot recognize the true value of distressed firms and its business plan, therefore they see the liquidity level as a shield if the firms performed worse than they expected. Regrettably, the results are not statistically significant, thus, it cannot be assumed that one should invest in a distressed company with better liquidity to gain better bonds returns.

High yield bond, surprisingly, has significant positive effect on bond returns. For every 1% increase in high yield bond, distressed bond return will increase by 7%. At first sight, the results appear to be contradictory to previous findings that found vulture is growing when the default rate of high yield bond becomes very high. However, when the default rate becomes lower as results that company being emerged from Chapter 11, this could eventually increase the returns of these particular securities. Because defaulted companies are very bad in terms of default rate of their bonds, a 1% increase in high yield bond can be interpreted with a very large improvement towards bond returns. So in that sense, vulture bonds move in the same pattern as high yield bonds or hedge funds since the latter investors are the main financiers of high yield bonds.

The size of distressed firms at the time of bankruptcy have a overall positive effect towards bond returns, strengthening the old finding that argued bigger firm is more certain to emerge from chapter 11, which lead to better bond performance during reorganization. Although the finding is in line with previous research, it cannot be concluded that the results are comparable since the results are insignificant for every strategy. On the other side, amount of days spent in chapter 11 turns out to have a significant negative effect on bond returns. The results are corresponding with Gilson's (1997) study that found that the shorter the firms are in Chapter 11, the better it is for the vulture investor. One of the arguments that he said is related with a high transaction cost of the securities if the company is in chapter 11, therefore the speed of reorganization will affect their bond performance. From the same regression (1), I found a positive relation between vulture involvement in distressed firms and its bond returns. However, when the analysis breaks into individual strategies, it occurs that only passive investors have positive results while board and management vulture have a negative effect. The results tackle old findings that argued that active vulture would outperform non-active. Nonetheless, the statistical results are not significant. Therefore, it cannot be concluded on how far vulture involvement affects distressed firms' performance.

Furthermore, after performing equation (2) in order to explain the determinants of annual market adjusted returns, it occurred that the results from table 6 are similar with the one of equation (1) or table 4

except for NBER where it become insignificant in the event of vulture involvement. The significance of determinants of excess return in table 6 are comparable to the results in table 4, thus, the same conclusion can be drawn. In conclusion, based on 105 default firms in the sample, there is no significant effect of vulture involvement in distressed firms towards their bond returns.

Table 6; Determinants of annual market adjusted return using equation (2)

<i>Excess Return</i>	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.62888	0.67309	0.55352	0.69520
NBER	-0.40530	-0.35603	-0.37642	-0.39621
Productivity	0.21287	0.19958	0.21477	0.21435
Leverage	-0.18670	-0.18470	-0.17891	-0.17811
Asset Turnover	-0.12847***	-0.11957***	-0.13167**	-0.13619**
Liquidity	0.05653	0.11611	0.09589	0.10690
Profitability	-0.31538	-0.31267	-0.30006	-0.30312
High-Yield	6.79763*	6.78102*	6.67180*	6.68724*
Size	0.00839	0.00588	0.01713	0.01007
Period	-0.00038***	-0.00042***	-0.00041***	-0.00040***
Vulture	0.04840			
Passive		0.24471		
Board			-0.11832	
Management				-0.15808

***Significant at 10%

**Significant at 5%

*Significant at 1%

4.3 Time in Chapter 11

A previous finding of Morse and Shaw (1988) argued that various mechanisms for reorganizing financially distressed firms lie along continuum, where creditors and debtors are free to choose the form that provides the greatest benefit at lowest cost given their unique circumstances. Consequently, they found that a shorter bankruptcy period of distressed firms is the best option as the direct costs are lower while the recovery rates will be better as a company spends less time in Chapter 11. Therefore, one can argue that the speed of reorganization would indirectly affect the performance of vultures. Equation (3) is performed to analyze the determinants of reorganization speed and also to investigate whether vulture has any influence or not towards the number of day distressed firms spend in Chapter 11.

As expected, NBER at the time of emergence from Chapter 11 has a significant positive relation with the amount of days that default firms spend in reorganization. In the event that the US economy is in recession¹⁵, it took around 460 more days for companies to emerge from Chapter 11. The results are in line with the previous finding that argued, when economy in the expansion, it is much easier for firms to

¹⁵ NBER takes value of 1 when the US economy is in recession, and takes value of 0 when the US economy is in expansion

reorganize their debt, thus, default firms easily emerge from Chapter 11 when the economy is in expansion.

Furthermore, better productivity level or credit risk of distressed firms at the time of bankruptcy will eventually shorten the amount of days that particular firms spend in Chapter 11. The same thing also applies for a firms' leverage position, whereas, firms that have better asset coverage will emerge from Chapter 11 faster than those with a high leverage ratio. However, both the relation of firms' productivity and leverage condition at the time of bankruptcy towards the speed of reorganization appears to be statistically insignificant. Therefore, it cannot be concluded that productivity and leverage condition explain the development of reorganization speed.

Table 7; Determinants of Period using equation (3)

<i>Period</i>	Coefficient	Coefficient	Coefficient	Coefficient
Constant	-3004*	-2914*	-2954*	-2941*
NBER	464*	478*	478*	465*
Productivity	-73	-82	-75	-76
Leverage	58	56	60	58
Asset Turnover	-121*	-113*	-117*	-121*
Liquidity	218*	235*	243*	229*
Profitability	122*	116*	125*	120*
High-Yield	120	164	76	134
Size	177	170	176	173
Vulture	-44			
Passive		99		
Board			-106	
Management				-49

***Significant at 10%

**Significant at 5%

*Significant at 1%

From table 7, asset turnover, liquidity and profitability of distressed firms, one year prior to Chapter 11 filing, have statistically significant relations with the speed of reorganization. Distressed firms that have a high asset turnover will have shorter days in Chapter 11. The results are as expected since Gilson (1990) argued that firms who have good management easily emerge from Chapter 11 relating to the effectiveness and the efficiency of management at the time of bankruptcy. Surprisingly, liquidity and profitability of the firms have a negative relation with the speed of reorganization. Firms who have a better liquidity position will spend more days in Chapter 11. Those firms, who have better liquidity, might find problems in reorganizing their debt with the current holders during making the reorganization plan. The problem occurred because holders are reluctant to accept management plan on deleveraging current debt into future equity in emergence company if firms' current liquidity is not that bad. Whereas, company who have very bad liquidity have an advantage to more easily to negotiate with current debt holder as the holder realize by lengthening the bankruptcy period of firms with bad liquidity position will harm the recovery rates.

The significance of the negative relation between profitability and speed reorganization is also puzzling. An alternative explanation could be that in accounting terms, as distressed firms mostly have very high impairment of goodwill and other intangible assets in their operating expense. Furthermore, there is also a high legal or settlement cost for firms with asbestos and fraud. Firms, who were not profitable before bankruptcy, were the firms that already put those costs into their consolidated statements of operations prior to bankruptcy. So when the company is going into bankruptcy, the cost is already paid, and the company can focus on reorganize the firm. Consequently, firms who were profitable before the bankruptcy are the firms that did not put those costs into their income statements. Therefore, they need to take care of those costs during Chapter 11, which complicates the reorganization process that eventually could cost more time. Even though the results show that big firms took more time in Chapter 11; the relation is statistically not significant. Additionally, the movement in high yield bond in delaying companies to emerge from Chapter 11 is also statistically insignificant.

Table 7 showed that vulture investors bring positive influence towards the speed of reorganization, whereas the involvement of vulture investors will speed up the reorganization with 44 days in comparison to non-vulture involvement. However, when the regression broke into particular vulture strategy, only active vultures bring a positive influence while passive vultures delay the reorganization process. It seems being only active in the board will speed up the reorganization by more than being active in management as well.

In the event vulture is active in board only, it could speed up reorganization by 106 days than without any involvement, while active in management only speeds the reorganization up by 49 days. The advantage of changing board or management by the vulture investor can be interpreted as additional information into the market or so called signaling effect on the positive prospects for the reorganized firm. Nonetheless, the entire effect of vulture involvement on the speed of reorganization is not statistically significant. Therefore, it is still an open question on how professionalism and capability of the vulture investor can affect the length of Chapter 11.

5. *Alternative regression*

Previous studies have used accounting measures to identify improvement in firm post-bankruptcy performance following various events of leveraged buyouts, management buyouts, mergers and also distress investing. Measuring the improvement in firm post-bankruptcy performance is the second study in this thesis. Various variables for the second study are obtained from New Generation Research, DataStream and from firm's 10-K statements from one-year prior and after the bankruptcy, gathered from the SEC database. However, from 105 firms that are collected in the sample for first study, there are only 55 firms that filed their 10-Ks one-year following the emergence from Chapter 11.

Excluding 50 firms from the first study could lead to bias results on explaining the effect of vulture involvement. Therefore, I regress equation (1), (2) and (3) once again using adjusted sample in order to analyze the accuracy of the first study's results. From Table 1, 2 and 3 from the appendix, it can be concluded that the main results of the first study hold where there are no statistically significant effects of vulture involvements towards bond annual and excess returns during reorganization and also towards the speed of reorganization. Nonetheless, the determinants or characteristic happens to be different where in the second study, asset turnover of firm one year prior of bankruptcy become statistically not significant while liquidity does have a significant positive impact on bond annual and excess return. The remaining results still hold for equation (1) and (2) using the adjusted sample. Furthermore, NBER becomes not statistically significant on explaining the speed of reorganization using adjusted sample, whereas, size of the firms at the time of bankruptcy becomes statically significant in explaining days spent in Chapter 11. Therefore, in the second study, bigger firms took more days in Chapter 11. Ultimately, the change in significance of the determinants relating to dependent variable will not endanger the study, as the main analysis still holds where the effect of the vulture investor remains statistically not significant for every state.

Table 8 show the change in proxies value one fiscal year before bankruptcy and one fiscal year after reorganization. From table 8, the companies in the adjusted sample appear to sell large amounts of their asset during Chapter 11, as the results showed that total assets are reduced with a median of 31.84%. Firms that are non-affiliated with vulture investor have the tendency to sell their assets more during a reorganization in comparison with the one that is affiliated with vulture investor as the median of total asset change are -54.41% and -40.34% respectively. However, firms who installed new management-affiliated with vulture, occurred, surprisingly, to be very aggressive in selling their asset in order to reorganize their debt during chapter 11 with a median of -66%. Furthermore, all the proxies; productivity, leverage, asset turnover, liquidity and profitability of the firms in the sample are improving after Chapter 11, although several firms still have negative ratio.

Table 8; Change in proxies; one fiscal year before bankruptcy and one fiscal year after reorganization

	Sample	Days in Chapter 11	Total Assets	Δ Productivity ¹	Δ Leverage ²	Δ Asset Turnover ³	Δ Liquidity ⁴	Δ Profitability ⁵
All company in the sample	55	548	-0.20%	8.88%	-41.17%	19.95%	30.98%	21.32%
		500	-31.84%	4.41%	-29.57%	13.03%	12.87%	7.26%
Non Vulture Involvement								
Non Vulture Involvement	19	561	-1.61%	12.92%	-32.80%	16.81%	28.59%	24.07%
		513	-54.41%	4.09%	-22.25%	25.12%	12.87%	7.03%
Vulture Involvement								
Vulture Involvement	36	541	0.37%	6.76%	-45.60%	21.60%	32.24%	19.87%
		500	-40.34%	4.61%	-32.81%	11.90%	13.17%	7.36%
Passive Vulture	13	553	-10.49%	13.14%	-33.73%	23.33%	33.04%	5.37%
		268	-48.87%	4.81%	-32.33%	17.42%	7.26%	6.92%
Vulture Board	10	509	25.16%	7.02%	-60.34%	19.15%	43.21%	15.39%
		446	-30.80%	16.24%	-58.17%	10.00%	24.82%	17.54%
Vulture Management	13	522	-4.03%	0.17%	-46.12%	21.76%	7.91%	10.16%
		611	-66.00%	-0.83%	-29.57%	11.67%	2.25%	0.86%

¹Productivity = EBIT/total asset

²Leverage = total liabilities/total asset

³Asset Turnover = total revenue/total asset

⁴Liquidity = working capital/total asset

⁵Profitability = EBIT/total revenue

The improvement of productivity and profitability of firms that are affiliated with vulture is not as good as the improvement of firms where vultures are not involved during the reorganization with an average of 6.76%, 19.87% and 12.92%, 24.07% respectively. Consequently, one can argue that vulture involvement is not optimizing the improvement of productivity and profitability as firms that are not involved gain better improvement in terms of those ratios. An alternative explanation is that vultures, after bankruptcy filing, tend to bring very high impairment value of intangible asset into the income statement of the firms they are involved in, which eventually increases the operating expense that leads to a lower EBIT. Additionally, reorganization cost when vultures are involved higher than when they are not; this also affects the productivity and profitability of firms one fiscal year after emergence. Surprisingly, vulture managers look as if they fail to bring any improvement in productivity with an average of 0.17% and median of -0.83%.

Furthermore, table 8 also shows that vulture investors tend to improve firms' working capital during reorganization and post-restructuring, thus, the capability of their current asset to cover current liabilities are improved. Vultures want to improve their liquidity as they try to build a new cushion that can prevent them back to Chapter 11 when it is needed. Vultures are also believed to bring new discipline to management concerning efficiency (asset turn-over), therefore, assets that cannot produce a turnover are sold during reorganization. Finally, vulture investors, either through the creditor committee, board or

Table 9; Determinants of proxies using equation (4)

ΔLiquidity	Coefficient	Coefficient	Coefficient	Coefficient
Constant	-0.15167	-0.16121	-0.19459	-0.18016
NBER	-0.03859	-0.05704	-0.04307	-0.03765
SIZE	0.01021	0.01135	0.01483	0.01349
Liquidity Pre-B	-0.96756	-0.94952	-0.95818	-0.95978
Period	0.00003	0.00003	0.00003	0.00003
Vulture	0.04900			
Passive		0.10727***		
Board			-0.03406	
Management				-0.01186
ΔProductivity				
Constant	-0.54430	-0.57505	-0.59878	-0.59766
NBER	0.11494	0.09881	0.11628	0.11479
SIZE	0.02254	0.02536	0.02750	0.02755
Productivity Pre-B	-0.97553	-0.96720	-0.96237	-0.96139
Period	0.00001	0.00001	0.00000	0.00001
Vulture	0.06354			
Passive		0.07489		
Board			-0.00093	
Management				-0.01211
ΔAsset Turnover				
Constant	0.78119	0.76289	0.73766	0.73141
NBER	-0.18637	-0.19763	-0.18531	-0.18641
SIZE	-0.03026	-0.02826	-0.02638	-0.02593
Asset Turnover Pre-B	-0.04376	-0.04381	-0.04911	-0.04939
Period	0.00014	0.00014	0.00013	0.00013
Vulture	0.05105			
Passive		0.04958		
Board			0.01063	
Management				0.00936
ΔLeverage				
Constant	-0.14725	-0.07765	-0.13973	-0.07430
NBER	-0.10605	-0.10930	-0.12417	-0.10442
SIZE	0.03949	0.03352	0.03775	0.03330
Leverage pre-B	-0.88485	-0.89129	-0.88032	-0.89490
Period	0.00002	0.00002	0.00002	0.00002
Vulture	-0.08767			
Passive		0.00381		
Board			-0.08574	
Management				0.03510
ΔProfitability				
Constant	-1.36000	-1.38984	-1.40018	-1.40975
NBER	0.20643	0.18992	0.20969	0.20962
SIZE	0.06566	0.06913	0.07012	0.07071
Profitability pre-B	-0.75607	-0.74628	-0.74730	-0.74714
Period	-0.00005	-0.00006	-0.00007	-0.00007
Vulture	0.07806			
Passive		0.07045		
Board			0.01572	
Management				0.02347

***Significant at 10%

**Significant at 5%

*Significant at 1%

management, are more successful in reorganizing or even cancelling and deleveraging firm's debt with their reorganization plan. The leverage level of firms where vulture investors are involved is decreased by an average of more than 45% while the other only decreased by 33.80%. The decrease in debt is mostly explained by the amount of debt swapped into new equity once the company successfully emerged from Chapter 11.

Nevertheless, economists cannot conclude such arguments on vulture involvement before one can prove the significance of the statistics. Therefore, I employ equation (4) to analyze the relation between vulture involvement and the improvement of such proxies' one fiscal year after emergence of Chapter 11. From table 8, state of the U.S. recession at the time of emergence, brings a negative effect towards improvement in liquidity and asset turnover. The reason is that recession adds another complexity for firms such as difficulty to optimize the restructuring and refinancing the debt. Recession also delays the liquidation process of several assets, and finally it also has an effect on operating performance as recession tend to deteriorate firms total revenue. This complexity, eventually, affects the liquidity, productivity and leverage. Surprisingly, the realization of firm emerged from Chapter 11 during recession has a positive influence on productivity, leverage and profitability improvement. However, these puzzling results are statistically not significant.

The size of the firms at the time of bankruptcy do bring positive effects since bigger firms will gain better improvement concerning firms' liquidity, productivity and profitability. Additionally, the results explain that bigger firms tend to increase their liabilities during reorganization and post bankruptcy. The findings are supported by previous studies of Altman and Hotchkiss (2005), Hotchkiss and Mooradian (1997) and Branch and Ray (2002). They argued that regardless of the size of the company; those that emerged from Chapter 11 will have better leverage conditions. My findings show that all of the companies have a better leverage condition although bigger firms experience the largest improvement.

Moreover, bigger firms appear to have higher management risk one-year fiscal year after emergence from Chapter 11 since the turnover ratio is lower than the turnover from one year prior to bankruptcy. In spite of that, the results are once again statistically insignificant; hence, the effects of firm's size towards the proxies still need to be answered. Furthermore, all of the proxies at the time of bankruptcy have a negative effect on its' improvement one year after emergence. As an example, the company who has the best liquidity at the time of bankruptcy would experience the worst improvement in their liquidity. This improvement also applies to firms' improvement in productivity, asset turnover, leverage and profitability.

The relation between the amounts of days that companies spend in Chapter 11 with their improvement in particular proxies is also investigated in table 8. It occurs that firms who spend more days in Chapter 11 will show better improvement in their liquidity, productivity and asset turnover one year after the emergence from chapter 11, while, it condenses their profitability and leverage improvement. The reason could be that particular companies have more time to orchestrate the optimal reorganization, which optimizes the improvement of the proxies. However, being in Chapter 11, brings an external cost such as market perception and expectation on companies' service and product. Furthermore, as a result of the longer period in Chapter 11, the chance of losing customers could rise which eventually increases the operating risk and lowers the profitability. For that reason, improvement in profitability will be low in the event that company spends many days in Chapter 11. Nevertheless, the regression results concerning period towards the improvement in those proxies are statistically not significant. Therefore, one cannot argue that amount of days that companies spend can affect the improvement in liquidity, productivity, asset turnover, leverage and profitability.

Overall, vulture investors improve liquidity, productivity, asset turnover, leverage and profitability of the firms they are involved with. The regression, based on financial data one-year prior to bankruptcy and one year after emergence from Chapter 11, indicates that vultures improve the proxies with an average of 0.066%. Passive vulture investors have a similar effect, although, the results found that passive involvement of a vulture reduced the improvement of leverage. In the event that the vulture investors decide to join the board of the firms without installing new management, they look as if they improved firms' asset turnover, leverage and profitability. However, they do worsen company liquidity and productivity.

Furthermore, when vultures decided to install new management into the firms, it occurs that this strategy aggravates the results that are achieved by vulture board since table 8 shows that by being active in management worsens the leverage condition by 0.035%. In spite of all the results, there is only one event that vulture involvement is statistically significant in the regression; the one with the involvement of passive vultures on liquidity improvement for 0.10727%. Finally, because of others involvement in particular proxies are not statistically significant, it is worth to question previous findings on the role of vulture investor, and compared to my sample that based on firms that successfully emerged from Chapter 11 while still trading its bond in the market.

6. Conclusion

Vulture involvements have mixed effects on distressed bond returns during reorganization period. On average, vulture investors increase the bond annual unadjusted return by 0.03% whereas passive vulture involvement by 0.21%. Surprisingly, active vulture involvements have negative effects on distressed bond performance. Vulture-board decreases the bond annual unadjusted returns by -0.11% and vulture-board/management by -0.15%. Similar effects of vulture involvements also occurred on the annual market adjusted return of distressed bond.

Vulture involvements also have mixed effects on the speed of reorganization. In general, vulture involvements speed up the reorganization by 44 days in comparison with the non-vulture. Furthermore, active vulture involvements speed up the reorganization by 106 days and 49 days for vulture-board and vulture-board/management respectively. The results of the thesis strengthen the study from Hotchkiss and Mooradian (1997). However, passive vulture involvement slow downs the reorganization period by 99 days.

Furthermore, on average, vulture involvements improve all of the post-restructuring financial indicators of distressed firms; the liquidity, the productivity, the asset turnover, the leverage and the profitability. In that regard, active vulture involvements have negative effect on the improvement of distressed firms' liquidity and productivity.

Based on the results, it can be concluded that, on average, distressed bond investor do create value. However all of the value creation of vultures on distressed bond, speed of reorganization and improvement in financial indicators are statistically not significant.

Future research should expand the time frame of the measurement by including the real exit time of the vulture as previous studies explained that vulture investors expect the returns by selling the company either privately or through an IPO. In the event of vulture strategy, the company is sold after the company emerges from Chapter 11 or years after. Future research should also analyze the profit of deleveraging that vulture investors obtain at the time of reorganization.

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Appendix

Table 1; Mean (Median) of sample firms one fiscal year prior to bankruptcy; adjusted sample

<i>Pre-bankruptcy</i>	Sample	Days in	Total Assets	Productivity ¹	Leverage ²	Asset	Liquidity ⁴	Profitability ⁵
		Chapter						
All company in the sample	55	548	3,665,021,386	-10.79%	116.36%	98.92%	-20.80%	-24.36%
		500	1,529,356,000	-2.79%	103.56%	86.20%	-8.05%	-2.00%
<i>Non</i>								
<i>Vulture Involvement</i>	19	561	3,031,795,684	-19.89%	112.19%	108.37%	-21.90%	-41.69%
		513	2,429,914,000	-2.79%	99.98%	83.27%	-8.05%	-0.84%
<i>Vulture Involvement</i>	36	541	3,999,223,840	-5.99%	118.55%	93.93%	-20.22%	-15.22%
		500	1,513,990,500	-3.32%	103.76%	90.06%	-8.08%	-2.43%
Passive Vulture	13	553	4,469,876,923	-27.66%	107.87%	76.35%	-30.50%	-27.66%
		268	2,309,609,000	-1.64%	100.03%	62.21%	-18.08%	-1.64%
Vulture Board	10	509	3,457,999,100	-7.68%	120.45%	98.41%	-36.57%	-14.09%
		446	1,410,686,500	-15.00%	108.09%	103.09%	-26.92%	-14.60%
Vulture Management	13	522	3,944,897,480	-2.52%	127.77%	108.06%	2.65%	-3.66%
		611	1,498,625,000	-1.58%	110.36%	105.79%	-0.04%	-1.51%

¹Productivity = EBIT/total asset²Leverage = total liabilities/total asset³Asset Turnover = total revenue/total asset⁴Liquidity = working capital/total asset⁵Profitability = EBIT/total revenue

Table 2; Determinants of Annual return using equation (1)

<i>Annual Return</i>	Coefficient	Coefficient	Coefficient	Coefficient
Constant	3.32324	3.46890	3.01411	3.05128
NBER	-0.49144	-0.54121	-0.52656	-0.46012
Productivity	-0.17970	-0.23683	-0.21033	-0.21099
Leverage	-0.34892	-0.30121	-0.28483	-0.25380
Asset Turnover	-0.17782	-0.14523	-0.20464	-0.20052
Liquidity	0.69307***	0.77298**	0.79158**	0.92343**
Profitability	0.02978	0.04437	0.08283	0.06820
High-Yield	5.75437*	5.62656*	5.50860*	5.61144*
Size	-0.08167	-0.09680	-0.05958	-0.06394
Period	-0.00055***	-0.00054**	-0.00061**	-0.00060**
Vulture	0.00569			
Passive		0.39849		
Board			-0.30747	
Management				-0.41866

***Significant at 10%

**Significant at 5%

*Significant at 1%

Table 3; Determinants of Excess return using equation (2) adjusted sample

<i>Excess Return</i>	Coefficient	Coefficient	Coefficient	Coefficient
Constant	3.46925	3.60002	3.15359	3.19366
NBER	-0.46656	-0.51638	-0.50051	-0.43651
Productivity	-0.13213	-0.18898	-0.16135	-0.16152
Leverage	-0.32960	-0.28073	-0.26640	-0.23772
Asset Turnover	-0.17521	-0.14440	-0.20317	-0.19884
Liquidity	0.65889***	0.74044**	0.75585**	0.88033**
Profitability	-0.03245	-0.01627	0.02060	0.00582
High-Yield	5.72976*	5.59611*	5.48579*	5.58771*
Size	-0.09819	-0.11215	-0.07550	-0.07999
Period	-0.00055***	-0.00054**	-0.00062**	-0.00060**
Vulture	0.01700			
Passive		0.39992		
Board			-0.29836	
Management				-0.39994

***Significant at 10%

**Significant at 5%

*Significant at 1%

Table 4; Determinants of speed of reorganizationreturn using equation (3); adjusted sample

Period	Coefficient	Coefficient	Coefficient	Coefficient
Constant	-2926	-2833	-2873	-2854
NBER	619	641	612	639
Productivity	-100**	-106***	-118***	-115*
Leverage	114*	102**	125*	123**
Asset Turnover	-136**	-119***	-123***	-120**
Liquidity	471	465	494	511
Profitability	131	115	132	122
High-Yield	-395	-332	-418	-364
Size	174*	165*	168*	166*
Vulture	-139			
Passive		-24		
Board			-109	
Management				-83

***Significant at 10%

**Significant at 5%

*Significant at 1%

Table 5; Mean (Median) of sample firms one fiscal after emergence; adjusted sample

<i>Post-reorganization</i>	Sample	Days in Chapter		Total Assets	Productivity ¹	Leverage ²	Asset Turnover ³	Liquidity ⁴	Profitability ⁵
		11							
All company in the sample	55	548		3,657,839,154	-1.91%	75.18%	116.59%	10.18%	-3.04%
		500		1,042,473,000	3.38%	76.96%	94.89%	10.46%	3.17%
<i>Non Vulture Involvement</i>	19	561		2,982,920,789	-6.97%	79.40%	125.18%	6.70%	-17.61%
		513		1,107,734,000	0.94%	76.96%	97.68%	7.79%	0.56%
<i>Vulture Involvement</i>	36	541		4,014,046,068	0.76%	72.96%	112.06%	12.03%	4.65%
		500		903,204,500	3.95%	74.21%	92.21%	12.52%	4.03%
Passive Vulture	13	553		4,000,898,308	4.97%	74.14%	99.69%	17.63%	5.37%
		268		1,180,810,000	4.12%	82.64%	94.89%	13.38%	6.92%
Vulture Board	10	509		4,327,900,500	-0.66%	60.11%	105.05%	6.64%	1.31%
		446		976,137,000	4.39%	56.64%	78.18%	8.66%	4.68%
Vulture Management	13	522		3,785,767,343	-2.35%	81.66%	129.82%	10.56%	6.50%
		611		509,477,000	1.72%	78.50%	113.15%	7.41%	2.58%

¹Productivity = EBIT/total asset

²Leverage = total liabilities/total asset

³Asset Turnover = total revenue/total asset

⁴Liquidity = working capital/total asset

⁵Profitability = EBIT/total revenue