Cash Flow Based Ratio vs. Accrual Based Ratio

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This study was carried out to examine whether cash flow can be a good predictor to financially distressed companies. Thirty companies have been identified as financially distress companies based on the PN4 listing obtained from the Bursa Malaysia (MSE). The financial data of financially distress companies were studied over a period of ten years from 1993-2002. Cash Flow Based ratio and Accrual Based ratios were calculated using the financial data obtained from these companies. The study hypothesized that there is a difference in trend between Cash Flow based ratio and Accrual Based ratio for financially distress companies. Based on both the types of ratio calculated, trend analyses were conducted. It was found out that there is no obvious pattern obtained from the graph plotted using average figure for each type of ratio. Even though cash flow based ratio gives mixed results on its ability to predict financially distress company, it is still useful for inter-company comparisons.

INTRODUCTION

The East Asian countries at the center of the recent crisis were for years admired as some of the most successful emerging market economies, owing to their rapid growth and the striking gains in their populations' living standards. With their generally prudent fiscal policies and high rates of private saving, they were widely seen as models for many other countries. No one could have foreseen that these countries could suddenly become embroiled in one of the worst financial crisis of the postwar period.

The Asian financial crisis officially began in April 1997 when the depreciation of the Thai baht triggered a contagious effect on the currencies of Malaysia, Indonesia, Philippines and then South Korea. This soon led to a region wide economic downfall in which GDP crashed in one country after another (Francisco & Sen 2000). Corporate bankruptcy has reached an unprecedented level especially in South East Asia. Corporate bankruptcy brings with it economic losses to management, stockholders, employees, customers, and others, together with great social and economical cost to the nation such as the increasing level of unemployment (Kyung Sung *et al.,* 1999).

Even though the Asian financial crisis officially began in April 1997, we must understand that the crisis cannot happen overnight. It must have started earlier. Most of these bankruptcy companies have been reporting profit in their Profit and Loss account. So what went wrong? In order to answer this question we must acknowledge that although the companies reported profit in their financial report, it does not mean that the companies have sufficient cash in their hand. It may be tied up to large amount of stock or any unrealized profit.

Many researchers have been trying to come out with bankruptcy prediction model which sole purpose is to predict financial distress in the company. Several models have been developed such as ratio model i.e. Altman Z-score model and cash flow model.

All of these models are operating under the same assumption that before the company went into bankruptcy, it must show certain symptoms, which can be seen if the shareholders, investors, creditors and many others users can detect it before hand. Frequently, management attempts to deal with the financial difficulty is revealed through investing, financing and operating cash flow. Foster and Ward (1997) mentioned that financial health and stability requires maintaining cash flow equilibrium. Events such as recession can upset a company's cash flow equilibrium by causing cash flow from operations to drop unexpectedly. Managers will take certain actions such as cutting dividend, cutting costs and others to regain back the equilibrium. Not all managers' action will be successful, unsuccessful action will further cause deterioration of finances and eventually bankruptcy.

Beaver (1968) highlighted the relevance of cash flow information for predicting bankruptcy. He mentioned that cash flow from operation, calculated by net income plus depreciation and amortization to total debt had the lowest misclassification error relative to common accrual measures of financial health.

The purpose of this study is to compare the trend between cash flow based ratio and accrual based ratio for companies listed under PN4 of Bursa Malaysia. The role of cash flow information in discriminating between bankrupt and non-bankrupt companies remains a contentious issue (Sharma 2001). In a number of literature reviews on bankruptcy prediction, the common view is that cash flow information does not contain significant incremental information content over accrual information in discriminating between bankrupt and non-bankrupt companies. However cash flow still becomes one of the most important tools in evaluating company performance and it future prospect.

LITERATURE REVIEW

Cash flow is defined as a statement of cash inflows and cash outflows resulting from investing, financing or operating activities (Belkaoui, 1993). Malaysia Accounting Standards Board (MASB – 5) defines Cash Flow Statement as inflows and outflows of cash and cash equivalents. As compared between the two definitions above, it seems that MASB 5 has a wider coverage by including the term cash equivalents.

There are two different definition of cash flow that has been used in the previous studies. The first group of studies (such as Beaver – 1968; Altman – 1968; Blum – 1974; and Mensah – 1983) has defined cash flow as income plus depreciation. The second group of studies (such as Casey and Bartczak – 1984; and Gentry *et al.,* – 1985) has defined cash flow as income adjusted for all accruals.

The users of financial statements have showing an increased interest in cash flow information. Thus, it indicates that the cash flow statement is very important to all the users. According to MASB 5 (para 4), when a cash flow statement is used in conjunction with the rest of the financial statements:

1. Provides information that enable users to evaluate the changes in net assets of an enterprise and its financial structure (including its liquidity and solvency);

2. Ability of the company to adapt to changing circumstances and opportunities;

3. Ability of the company to generate cash and;

4.   Enhance comparison between companies.

Cash flow information is useful because it provides more accurate yardstick for gauging debt and dividend paying ability (Casey and Bartczak, 1984). In addition, Giacomino and Mielke (1993) noted that relative performance evaluation is one important use of cash flow ratios, which can be viewed in terms of sufficiency and efficiency.

There are two different opinions on whether cash flow information can be used to predict the bankruptcy of a company. Previous studies (such as Beaver, 1966; Blum, 1974; Norton and Smith, 1979; and Mensah, 1983) noted that cash flow information is relevance for predicting failure of the business. However, studies such as Casey and Bartczak (1984), Gentry *et al.,* (1985) and Gombala *et al.,* (1987) showed different result that supported the cash flow information are irrelevance in predicting the bankruptcy problems.

Beaver (1966) examined how well the financial ratios could predict failure of the firms. An investigation of the financial statement data of 79 failed and 79 non-failed firms during the period 1954 through 1964 have been conducted. The results showed that financial ratios can be used in the prediction of failure for at least five years prior to event.

In addition, Blum (1974) examined the predictive accuracy of the Failing Company Model in assessing the probability of business failure. Data drawn from balance sheets, income statements, and stock market prices up to six years prior to failure were gathered for 115 failed and 115 non-failed firms during the years 1954 to 1968. In general the results showed that the cash flow over total debt ratio found to be significant predictor. This result is similar to Beaver (1966).

Further, Norton and Smith (1979) conducted a study with the main objective to compare the prediction of bankruptcy based on ratios computed from general price level (GPL) financial statements to the prediction based on ratios computed from traditional historical cost (HC) financial statements. A total of 30 bankrupt and 30 non-bankrupt U.S. firms were identified that fulfilled the sample selection criteria during the years 1971 to 1975. Financial ratios were computed from both the traditional and GPL financial statements and the SPSS discriminant analysis was used for the bankruptcy classifications. It was found there is little different between ratios computed from GPL and HC financial statements in the bankruptcy prediction. In addition, the results indicate that cash flow/total assets and cash flow/ total debt are the best discriminant model three years prior to failure.

Lee (1982), a strong advocate of cash flow reporting, showed that the fall of Laker Airways was foreseeable on a cash flow basis. His analysis of cash flow form operation (CFFO) revealed that Laker Airways was in financial trouble three years prior to failure while profits were increasing as failure approached.

Aziz, Emanuel and Lawson (1988) and Aziz and Lawson (1989) define cash flow as entity cash flow equal to lender cash flow plus shareholder cash flows as the framework for their study investigating the ability of cash flow to predict financial distress. They used this identity since they perceived corporate bankruptcy to be closely related to firm valuation, which in turn is closely related to their definition of cash flows. Both study use MDA and logistic regression and they found out that cash flow variables correctly classified bankrupt and non-bankrupt firms with a high degree of accuracy up to five years prior. With the objective of testing their bankruptcy prediction model, they compare it with Z model Altman's (1968), their model performed comparably. Aziz, Emanuel and Lawson (1988) cash flow model is substantially more likely to predict a bankruptcy up to five years prior to the bankruptcy. They sample consists of companies that failed during the period of 1971-1982.

Aziz and Lawson (1989) with samples of bankrupt and non-bankrupt companies from the period of 1973-1982, obtained results similar to those described above. Aziz and Lawson (1989, p.62) consequently concluded that cash flow failure prediction models:

"With the cost of incorrectly classifying a potentially bankrupt firm in mind, it appears that Casey and Bartczak (1984) suggestion to deemphasize cash flows in tracking the financial health of firms would be a retrogressive step."

Ward (1994) conducted a study that supported the view that cash flow can be used as a bankruptcy predictor. The objective of the study is to determine if cash flow information is more useful to creditors in predicting financially distressed mining, oil and gas firms than it is in predicting financial distressed firms in other industries. 334 U.S. firms of which 245 were healthy and 89 were financially distressed were chosen as a sample. The results indicates that cash flow information is useful to creditors for predicting financially distressed mining, oil and gas industry especially cash flow from investing activities.

Recent study conducted by Kyung Sung *et al.,* (1999) to develop bankruptcy prediction models suitable for normal and crisis economic condition. Under normal condition, the major variables in predicting bankruptcy were cash flow to

total assets. Cash flow to total liabilities became major variables in bankruptcy prediction model during crisis economic condition.

In contrast to the above studies, Casey and Bartczak (1984) investigated 60 U.S firms that had filed petitions for bankruptcy during the period 1971-1982 and matched them with 230 companies chosen at random from similar industry. Three variables were calculated; (1) operating cash flow (OCF), (2) operating cash flow divided by current liabilities (CL), and (3) operating cash flow divided by total liabilities (TL). Casey and Bartczak concluded that none of the three operating cash flow variables were strong indicators of overall classification of failure and non-failure companies. Casey and Bartczak suggested that while OCF data did not contain predictive power, it can be used in other applications such as predicting loan default and identifying potential targets companies for acquisitions.

With the objective of examining the predictive ability of operating cash flow when used in combination with accrual-based ratio, Casey and Bartczak (1985) used the same data as per previous study conducted by them in 1984 and testing the data using Multiple Discriminant Analysis (MDA). It was found out that cash flow ratios did not significantly increase the predictive ability of the accrual MDA.

In their review of bankruptcy studies, Gentry *et al.,* (1985) and Gombola *et al.,* (1987) reached conclusions supporting Casey and Bartczak (1985). Specifically, Gentry *et al.,* (1985) determined that cash flow from operations did not improve the classification of failed and non-failed companies. In their study, Gentry *et al.,* (1985) used 33 companies as sample for bankrupt companies and same number of companies for non-bankrupt companies.

Gombola *et al.,* (1987) conducted a factor analysis of 21 accrual ratios and three cash flow ratios using 77 failed companies and matches non-failed companies with the objective of determining whether cash flow from operating is important in predicting corporate failure after the mid-1970s. They calculated 21 accruals ratios and 3 cash flow from operations (CFFO) ratio. Their results consistent with Casey and Bartczak (1985), where cash flow from operating were insignificant predictors of failure.

The literature examining the value of cash flow information for predicting failure can be summarized as inconsistent and inconclusive. While Casey and Bartczak (1984; 1985), Gombola *et al.,* (1987) and Gentry *et al.,* (1985) demonstrated the CFFO does not possess incremental information content over accrual information in predicting failure, comparable studies by Gilbert *et al.,*

(1990), Aziz, Emanuel and Lawson (1988), Aziz and Lawson (1989) and Ward (1994) show that CFFO adds significant predictive power.

In addition, Simons (1994) and DeAngelo and DeAngelo (1990) examined the relationship between cash flow and dividend. Again the results obtained were different. Simons (1994) make a conclusion that there was no significant different between the variables. While study conducted by DeAngelo and DeAngelo (1990) showed a different results, it showed that more than half of the sample faced binding debt covenants in year's managers reduced dividend. It showed that cash flow do effect dividend changes.

RESEARCH OBJECTIVE

The objective of this is to investigate whether there is a significant different in trend between cash flow based ratio and accrual based ratio. In order to do so, a working hypothesis needs to be created and before that, a working definition of cash flow needs to explain in clear. The reason is that previous studies on this subject give different definition in their research such as net income plus depreciation, depletion and amortization (Beaver 1966, Deakin 1972)

As per Malaysian Accounting Standard Board (MASB) 5, cash flow in the current study is defined as a statement of cash inflows and cash outflows resulting from investing and operating activities.

RESEARCH METHODOLOGY

Financial information for thirty (30) debt restructuring companies under PN4 listing will be collected from the Bursa Malaysia (MSE).

After identifying the sample companies, the researcher will recalculate all the sample company cash flow. As mentioned earlier in the literature review, there are quite a number of researchers who did not really agree on the definition on cash flow. For the purpose of this study, the researcher will use the format provided by MASB in MASB 5 in recalculating cash flow for the sample companies.

The recalculation of cash flow will be done for ten (10) years prior to the declaration of debt restructuring. At the same time all the four ratios will be calculated using cash flow figure and also accrual figure.

SAMPLE SELECTION

The test data collected comprise of thirty (30) debts restructuring. The financial information of the selected companies will be obtained from the annual reports submitted to Bursa Malaysia (MSE).

The company will only be included in the sample if it satisfied the following conditions:

1. The company announced debt restructuring during the year 2003.

2. All necessary financial statement data from the MSE is available for ten (10) fiscal years prior to debt restructuring.

3. he firm does not belong to financial industry.

The current study used company that makes debt-restructuring announcement during the year 2003 as a sample because the most current cases are preferred.

The current study exclude companies that listed under financial industry because companies under this category are require by the government to maintain quite a substantial amount as a reserve. Furthermore this industry also governs under different set of act which is Banking & Financial Institution Act (BAFIA). Companies from unit trust industry are also excluded from the study.

DATA ANALYSIS

The current study used both descriptive analysis and trend analysis. Descriptive analysis will be used to provide background of the result obtained from the study. It will serve two purposes; to explore the data and to summarize the results. It also measures of central tendency such as mean, mode and median.

Trend analysis (based on average) will be done for each type of ratio in order to see any significant movement in trend prior to debt restructuring announcement. Specifically, the ratios used are:

Table 1: List of Ratio Use.

No.	Ratio	Cash Flow Based	Accrual Based
1.	Current ratio	Cash flow / Current liabilities	Current assets / Current liabilities
2.	Net profit margin	Cash flow / Sales	Net profit after tax / Sales
3.	Earning per share (EPS)	Cash flow / No of share issued	Net profit after tax / No. of share issued
4.	Total assets turnover ratio	Cash flow / Total Assets	Sales / Total Assets

As per research done by Deakin (1972) and Largay & Stickney (1980), they proved that cash flow over total assets have good predictive capabilities to differentiate between healthy and unhealthy companies. While as early as 1968, current ratio and net profit margin have already been used in cash flow predictive study. Beaver (1968) used both of these ratios together with other 12 type of ratio. Giacomino & Mielke (1993) also used net profit margin as in their study. In a study conducted by Gombola & Ketz (1983), they used earning per share as part of their studied component in order to test the predictive ability of cash flow.

RESULTS

Descriptive Analysis

Figure 1 shows the composition and industry membership of a selected sample. It clearly shows that 13 out of 30 companies are in industrial products sector while four companies are in properties, consumer and trading and services sector each. Only one company belongs to mining sector.

Trend Analysis

Under these analysis four (4) graphs was plotted for each type of the ratios. It was plotted based on the average annual figure of financially distress companies and for a period of 10 years prior to debt restructuring announcement.
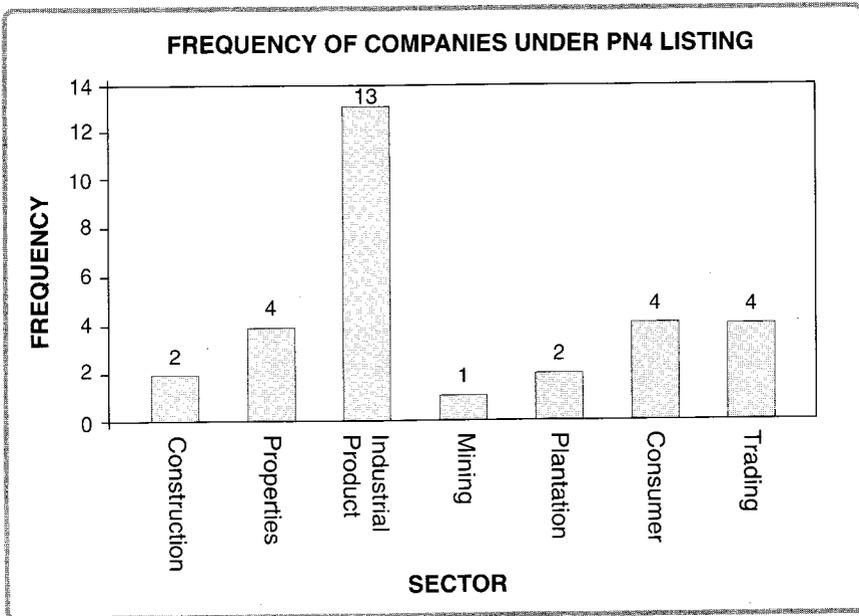
Figure 1: Frequency of Companies Under PN4 Listing
as at March 2003.

Figure 2; indicates the ability of the company to service its current liabilities. The ratio showed that there was specific trend during year 1995, which 8 years before debt is restructuring. Both type of ratio showed a downward trend in their figure while for cash flow based the downward trend can be seen since 1993. While accrual based ratio started to decline from the year 1995. For accrual based ratio, it experiencing a sharp decline in their figure from above 1.50 to below than 0.50 in five years starting from year 1995 to 1999 and gradually decline to an almost negative figure one year before debt-restructuring announcement.

Cash flow based ratio draw a much grimmer picture because in 1994 it already showed a downward trend. From 1997 to 2002, there was an increment in the trend but only in the year 2002, it become a positive figure of 0.02682

By replacing current assets figure with cash flow figure, the real ability of the company to service its current liabilities can be seen. The companies face that problem since 1993 where the ability to service its current liabilities was only

RM0.33 for every RM1 of current liabilities. Normally the investors will look at the current ratio or quick ratio in order to determine the ability of the firm to meets its obligations. One major flaw using this ratio is that it does not taken into consideration receivables, which one of the item classify as current assets and actually not readily convertible into cash. By using cash flow as a substitute form current assets, it is argue that it can be a better measurement.
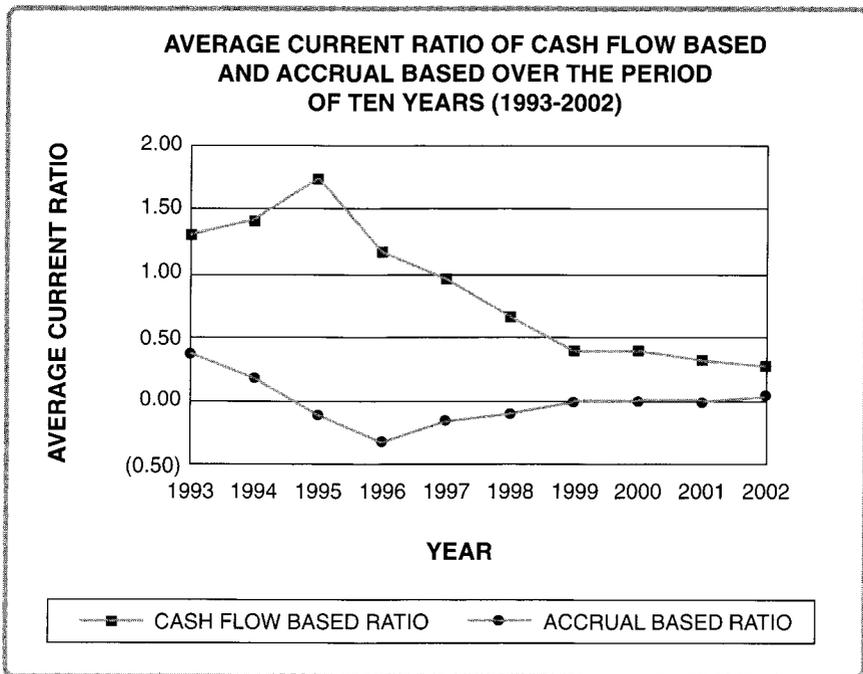

Figure 2: Average Current Ratio of Cash Flow Based and Accrual Based Over the period of Ten Years (1993-2002).

AVERAGE EARNINGS PER SHARE OF CASH FLOW BASED AND ACCRUAL BASED OVER THE PERIOD OF TEN YEARS (1993-2002)
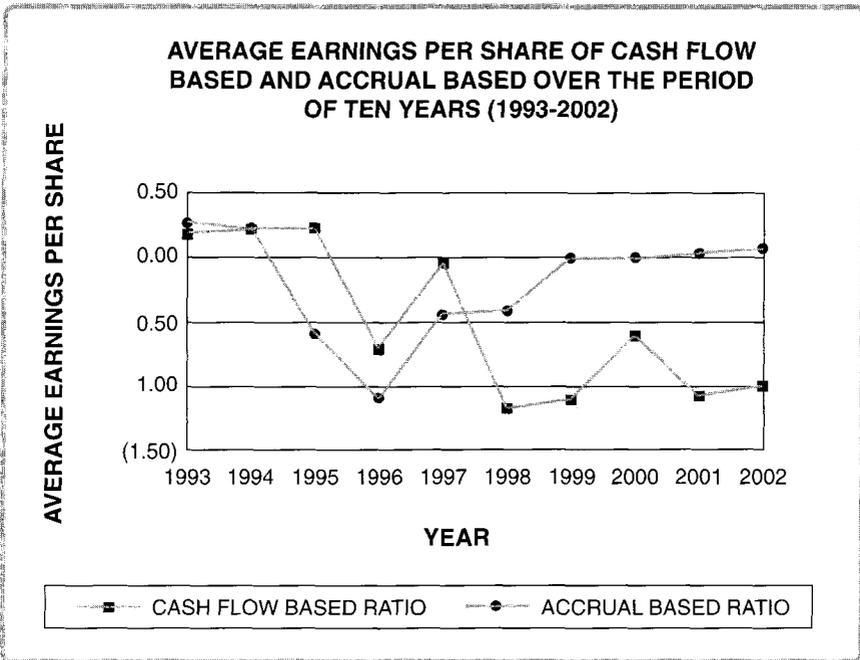
Figure 3: Average Earning Per Share of Cash Flow Based and Accrual Based Over the period of Ten Years (1993-2002).

Earning per share or commonly known as EPS can be classifies as profitability ratios based on resources. This ratio indicates the company's ability to generate profits from the use of its assets. Based on Figure 3, both ratios showed the same result which is the diminishing of the share value. In the first half (1993 – 1997) of the study period, cash flow based ratio shows a sharp inclined towards negative value in the year 1995 and reach it bottom in 1996. While for accrual based ratio the inclined only happen in the year 1996. In 1997, both ratios show a steep increase. In the second half (1998-2002), the opposite result occurred where the accrual based ratio indicate a better predictor of company in financial distress. It seems that the ability of cash flow to predict the diminishing value of the share deteriorated five years before the debt restructuring announcement.

AVERAGE NET PROFIT MARGIN OF CASH FLOW BASED AND ACCRUAL BASED OVER THE PERIOD OF TEN YEARS (1993-2002)
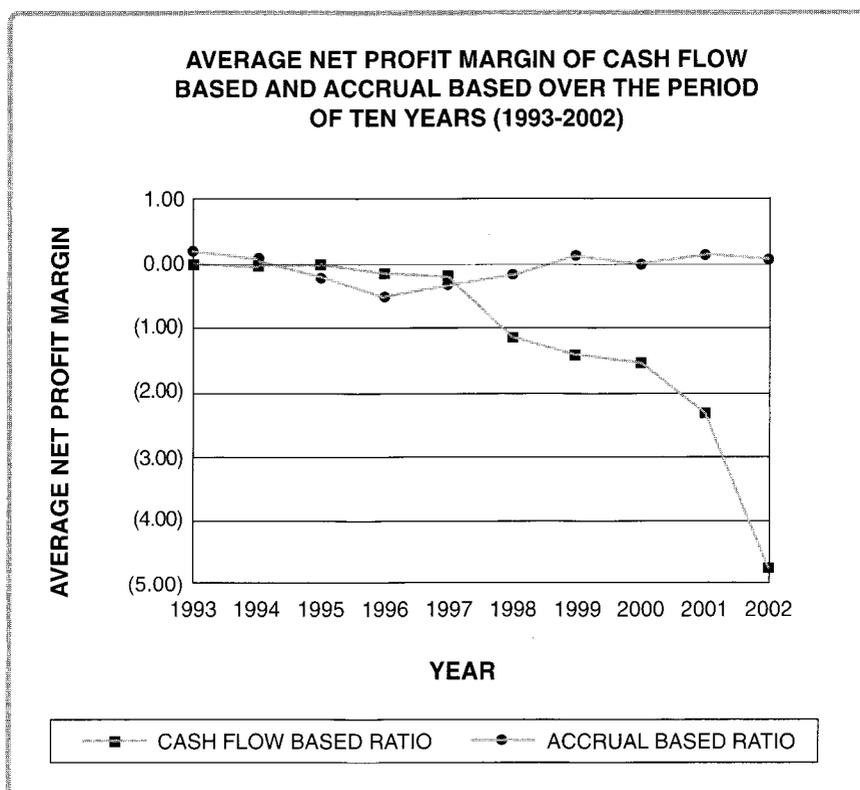

Figure 4: Average Net Profit Margin of Cash Flow Based and Accrual Based Over the period of Ten Years (1993-2002).

Based on the result in Figure 4, accrual based ratio point to a specific trend where the value of net profit margin keeps going down all the way up to one year before debt restructuring. Cash flow based ratio indicates a very small deviation in its trend. Cash flow based ratio seems to be unable to detect the diminishing value of net profit margin. These clearly indicate that the accrual based net profit margin ratio is a better predictor than cash flow based ratio.

In figure 5, trend for both cash flow based and accrual based ratio shows an almost same trend. The trend line for both ratios remains almost constant through out 1993 to 2002. The main difference between these two ratios is that cash flow based indicates a more degree of inefficiently as compared to accrual based.

AVERAGE TOTAL ASSETS TURNOVER RATIO OF CASH FLOW BASED AND ACCRUAL BASED OVER THE PERIOD OF TEN YEARS (1993-2002)
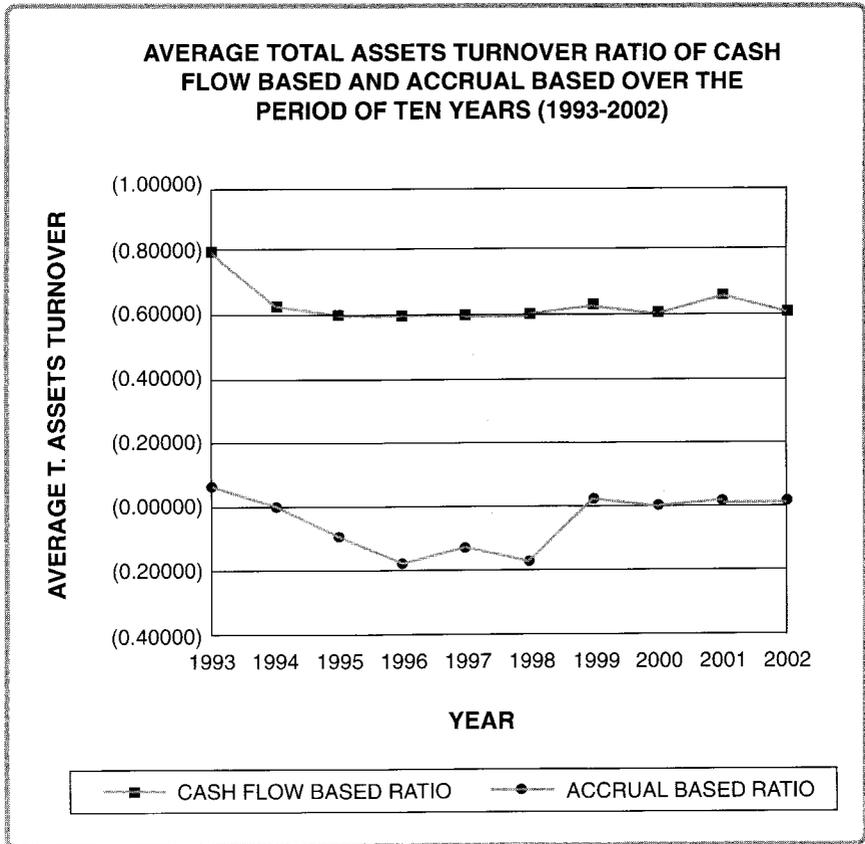
Figure 5: Average Total Assets Turnover of Cash Flow Based and Accrual Based Over the period of Ten Years (1993-2002).

CONCLUSION

This study was carried to examine whether cash flow can be a good predictor to financial distress companies. Using companies selected from Bursa Malaysia (MSE), thirty (30) have been identified as a sample. The ratios were chosen based on their usage in previous studies.

Consistent with Casey and Bartczak (1984, 1985), the results contains in this research is against cash flow statement as a predictor for financially distress

companies. The results also consistent with research done by Gombola *et al.,* (1987) whose conclude that cash flow from operation was insignificant as a predictor.

Based on the trend analysis, it was found that there is no clear pattern emerges from the graph plotted using the average figure for each of the ratios (current ratio, EPS, net profit margin and total assets turnover). In some figure, accrual based ratio seem relatively to do better in predicting companies financial distress.

The average cash flow over total assets and cash flow over current liabilities shows a certain trend where the average figures were negative during eight years before debt restructuring announcement and positive average figures starting from four years before restructuring. Most probably action taken by the management such as disposing of unprofitable assets has increased its cash flow and at same time reduced its total assets.

In conclusion, even though cash flow information has no predictive ability to predict financial distress, it is still useful for inter-companies comparison or provides assistance in selecting potentially useful variables in decision models (Gombola and Ketz 1983). Cash flow information could also perform better not as a predictor of financial distress companies but as a predictor of loan defaults, since the decisions to default based on the availability of cash in the companies and not so much of politics and other extra market forces (Casey and Bartczak 1984).

Another consideration also should be given to the period of the study that could probably affect the results of the study. The current study used the data collected from the 1993 to 2002. Thus the year 1997 and 1998, which were included together, could considerably affect the companies. It is a common knowledge that during this period our country involved major economic downturn.

The results in the current study raises several issue, which can be better explain through future research. It is suggested that a research is conduct by using different type of companies as a sample such as limited companies since this type of company normally face difficulties getting support once they face major financial problems. A research should be conducted in order to examine whether exist any significant difference if the sample companies belong to the same industry sector.

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