CHAPTER 4

4. RESEARCH RESULTS AND FINDINGS

4.1 ALTMAN'S Z" SCORE

Based on the Altman's Z" Score classification, during pre-crisis, findings in Table D1 and Figure D1 in *Appendix D* show that 16 out of 29 samples company (55.17%) were in financially healthy. 41.38% of the companies were in grey area and only Bescorp[13] was in bankrupt looming area. During 97 crisis, the percentage of healthy company had reduced substantially to 24.14%. Similarly, 24.14% of selected companies were in the "grey" area and 51.72% were in bankrupt looming area. There are three companies shown improvement on their financial health during post-crisis i.e. Ekovest, GCorp and Setegap. All of them were in the "grey" area during pre-crisis.

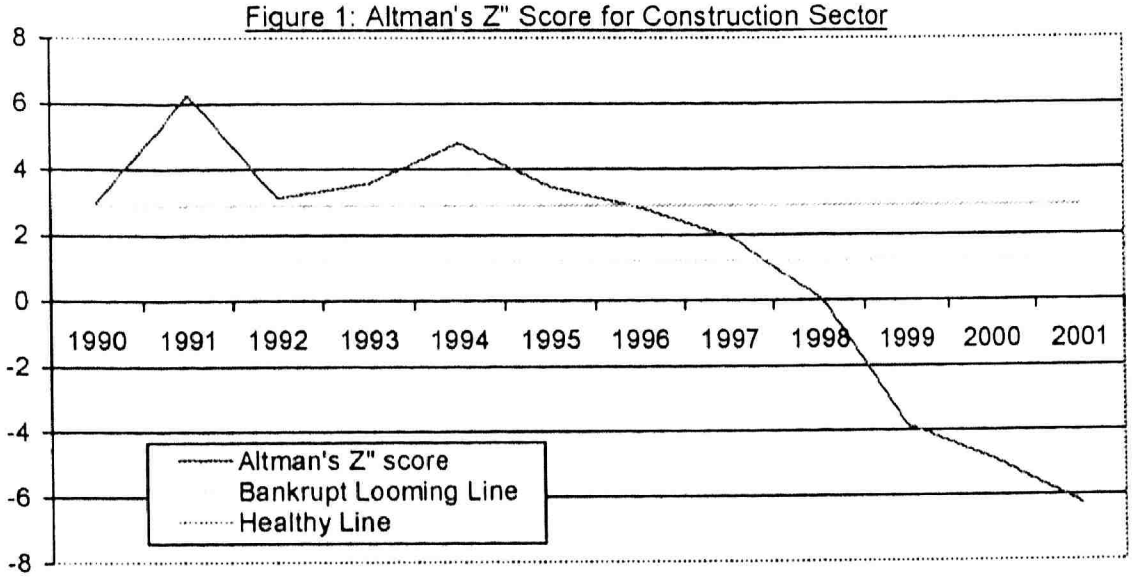
Only 20.69% of the total sampling were financially healthy through out all financial periods i.e. Brem, Gamuda, IJM, Propel, RoadBld and YTL. They have an average Z" Score of 7.78, 5.30, 6.22, 3.72, 10.7 and 5.63 respectively, from 1990 to 2001. Companies such as Abrar, Acta, BPuri, Intria, Mancon, Muhibah, NamFatt, Pilecon, Promet, Renong, Bescorp, Bridegcon, CPerdana, and SCK were fell under the category of bankrupt looming area, during crisis and post-crisis. Most of them have negative Z" score. Findings show that a significant percentage of companies fell under the "grey" area. Hence, to justify their financial performance will have to depend on results of other financial ratios.

Figure 1 below shows that construction sector was financially healthy from 1990 to 1996. It fell under the "grey" area in 1997. Then, it deteriorated from 1998 to 2001 under the bankrupt looming area. This suggests that construction sector started facing severe financial difficulties in 1998 where the impacts of the crisis was fully realised. It was due to the delay impacts of 97 crisis. Average Z" score for this sector are 3.74 in pre-crisis, -0.6 in crisis,

[13] See *Appendix C* for full name of the companies.

and –5.41 in post-crisis; see Table D1 in *Appendix D*. Based on Altman's Z" score the construction sector was deteriorated further in the post-crisis period. Findings seem to contrast the literature findings that the sector had shown recovery after the crisis.

Figure 1: Altman's Z" Score for Construction Sector



4.2 TOBIN'S Q

Surprisingly, the finding of Tobin's Q does not seems to support the findings of Altman's Z" Score. The companies that have had valuable growth opportunities were not those financially healthy companies predicted by Altman's Z" Score and vice versa. However, results seems to suggest that there is no clear correlation[14] between Altman's Z" score and Tobin's Q; that is a company with valuable future growth opportunities does not put the company in good financial health in future. During pre-crisis, 20.69% of the samples have valuable growth opportunities. It has declined to 13.79% during crisis, and 6.9% during post-crisis, see Table E1 and Figure E1 in *Appendix E*. There is only one company that portrayed a valuable growth opportunities i.e. UEM for all financial periods. However, UEM was de-listed from KLSE recently.

[14] To determine more accurately the correlation relationship between Altman's Z" score and Tobin's Q, a details studies need to be carried out and it's out of the scope of this study.

Companies that had indicated valuable growth, during pre-crisis, were Abrar, Acta, Intria, Mancon, Renong and UEM. Two of the growing companies (i.e. Intria and UEM) continued to show better growth opportunities during the crisis. In this financial period, MTD and SunInc had improved their growth opportunities to 1.14 and 3.42, respectively. MTD was able to keep its valuable growth opportunities after the crisis, whereas, SunInc failed to do so.

Figure 2: Tobin's Q for Construction Sector

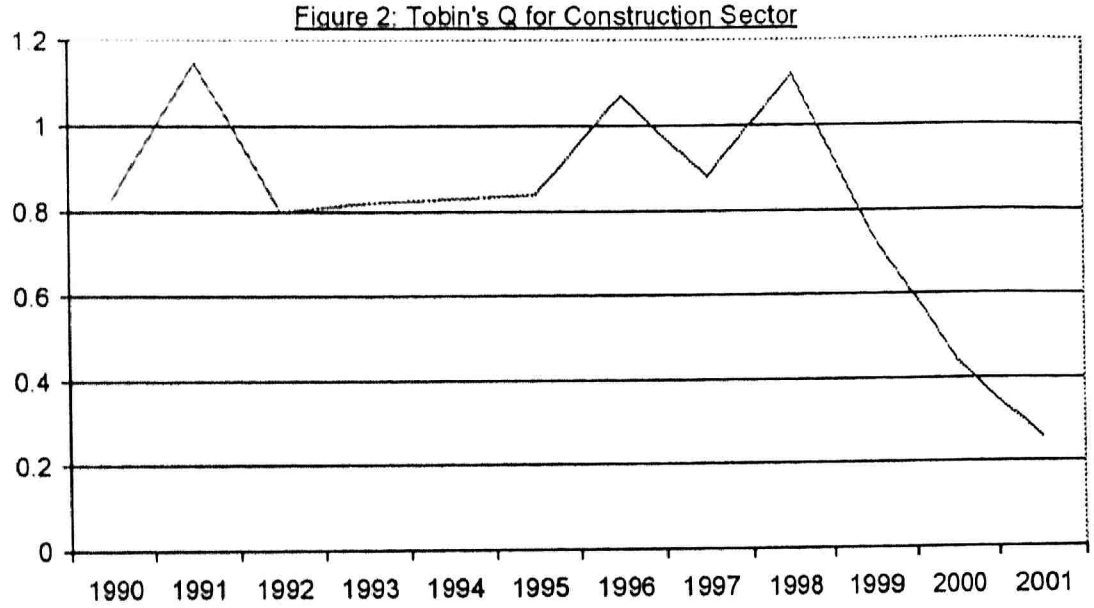


Figure 2 above illustrates the Tobin's Q of construction sector from 1990 to 2001. Generally, the construction sector didn't shows valuable future growth opportunities for all financial periods. Surprisingly, this sector showed valuable future growth opportunities in 98, while it was severely hit by the crisis. The future growth opportunities decelerated rapidly after 98 till 2001. In average, Tobin's Q are 0.88 in pre-crisis, 0.93 in crisis, and 0.38 in post-crisis, see Table E1 in *Appendix E*.

4.3 PERCENT CHANGE IN FIXED ASSETS

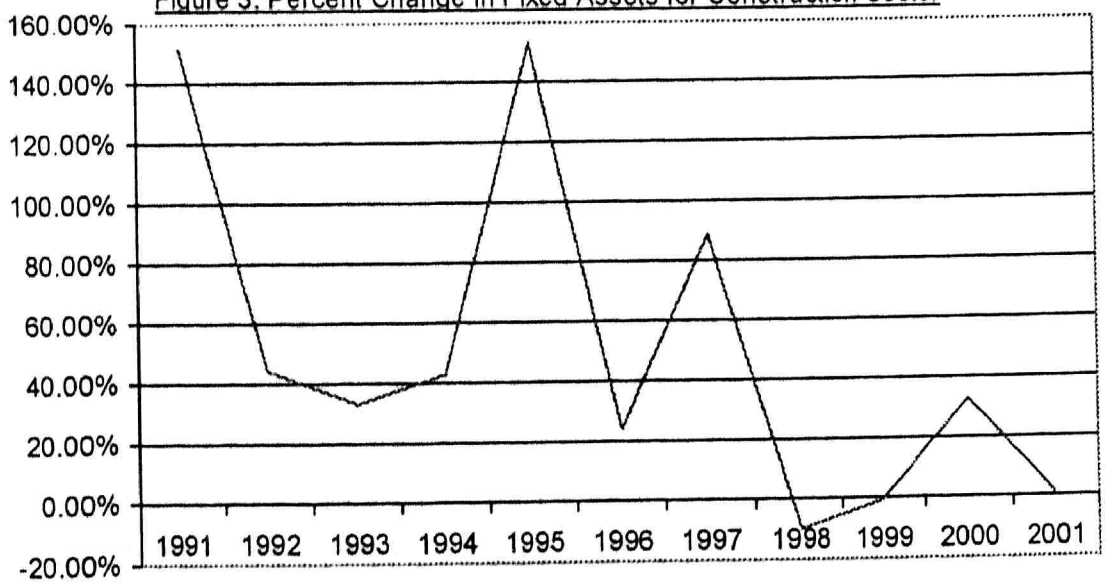
Table F1 and Figure F1 in *Appendix F* show the percent change in fixed assets for the construction companies. 96.55% of the selected companies were experienced growth in their fixed assets, during pre-crisis. Financial crisis had quite a significant impact on the growth in fixed assets; it caused the percentage of construction firms that having positive growth of fixed

assets reduced to 55.17%. This figure reduced further, during the post-crisis, to 34.48%. Results indicate that 44.83% companies were experienced a negative growth in their fixed assets after the crisis.

Before crisis, 34.48% of the construction companies have a marvellous fixed assets growth of more than 50%. 55.17% of the firms have more than 10% growth rate, they are considered good. Only 3.45% were experienced contraction. Companies that were faced contraction during crisis and post-crisis are Abrar, Acta, HoHup, Pilecon, Propel, Promet, Bescorp, CPerdana, SCK and Setegap.

Renong had an average growth of 830.68% in fixed assets during pre-crisis. It showed an extraordinary growth in the construction sector. However, during the crisis it showed a negative average growth of 40.8%. Due to the government intervention to rescue, Renong again showed a positive average growth in fixed assets of 376.68% during post crisis. Also, prior to crisis, YTL's fixed assets growth was at 167.10%. It decelerated to 21.85% during crisis. After the crisis, YTL again experience a high growth of fixed assets of 573.25%.

Figure 3: Percent Change in Fixed Assets for Construction Sector



Overview of the construction sector, the results are similar to the findings of Leong and Chan (2001). That is a high growth of 67.83% during pre-crisis, reduction of growth to 25.84% during crisis, and 17.73% during post-crisis; see Table F1 in *Appendix F*. Finding in Figure 3 above indicates that fixed assets of construction sector changes dramatically up and down before the crisis. It experienced a negative growth in 98 and 99. After the crisis, this sector was again return to positive growth.

4.4 LEVERAGE

Construction sector in Malaysia was running on very high leverage during pre-crisis. In this period, 82.76% of the selected samples had more than 60% capital gearing, see Table G1 in *Appendix G*. During crisis, 72.41% samples with more than 60% financial leverage and 17.24% samples were running on shareholders' fund deficit. High gearing, during pre-crisis, caused further indebtedness as those high gearing companies trying to turn their business around by increased borrowings. But after crisis, they are still in high indebtedness. Findings show that increase leverage will put the company in financial difficulties. This finding is supported by the fact that stricter lending regulation[15] imposed from financial institutions caused many construction companies in trouble and their projects in pending position, during 97 crisis.

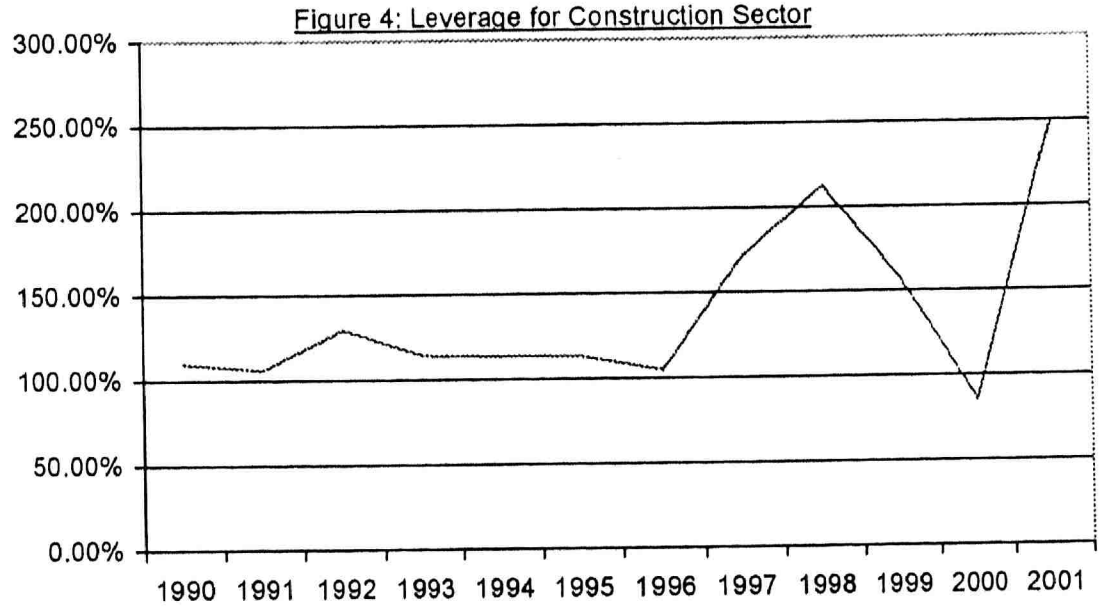
Before crisis, some companies had its gearing more than 200% of it shareholder's equity i.e. Ekovest, Mancon and CPerdana. Furthermore, Bescorp were running deficit in shareholder's funds. During crisis, BPuri, Renong, UEM, Bridgecon and CPerdana have very high leverage. That is BPuri at 16690.12%, Bridgecon at 1014.58%, CPerdana at 807.79%, follow by Renong at 519.35% and UEM at 445.49%. Companies that showed a low leverage are Brem, Gamuda, GCorp, RoadBld and YTL. They have an average leverage of 50.47%, 47.84%, 56.13%, 17.06% and 79.41%, respectively. All these companies are financially healthy according to Altman's Z" score, except GCorp was under grey area during pre-crisis and post crisis.

[15] Reaction due to the increasing NPLs in the construction sector.

This suggests that company with lower leverage is financially healthier than high leveraged company.

Construction sector had a constantly high leverage of 103.04% on average, prior to the crisis. Its leverage was increased further during the crisis, reaching 212.33% in 98 and dropped back to 157.32% in 99, see Figure 4[16]. After the crisis, leverage of this sector was further reduced to 85.14% in 2000 and bounced back to 249.08% in 2001. In Average, leverage of construction sector during crisis was 176.01% and it, then, reduced slightly to 167.79% after crisis. The findings show that the 97 crisis has caused the increment of about 67% in leverage of the sector. This finding suggests that high leverage will cause financial stress during economic crisis.

Figure 4: Leverage for Construction Sector



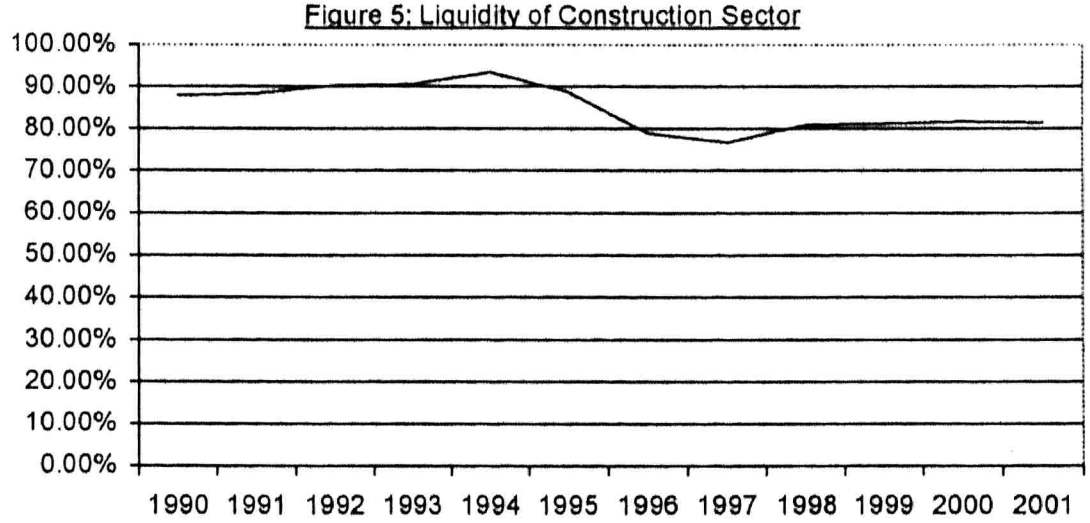
4.5 LIQUIDITY

Table H1 and Figure H1 in *Appendix H* illustrate that 89.66% of the samples have more than 80% of their liabilities were current during pre-crisis period. This figure decreased to 34.48% during the crisis and 37.93% during post-crisis. This portrays that most of the construction companies were tied heavily with the burden of short-term debts repayment. This contributes a great portion of evidence that when financial crisis hit Asia, most of the loans

became NPLs. MTD, Renong, UEM and YTL had reduced their current liabilities about 50% and below during and after the crisis. During crisis and post-crisis, Gamuda, IJM and Renong have reduced to a lower percentage of current liabilities (lower than 40%).

Figure 5 indicates that the construction sector has high current liabilities throughout all financial periods. It has about 90% of its' liabilities was current from 90 to 95. It current liabilities, in comparison to total liabilities, dropped slightly to 80% in 96 and remained around this figure to 2001. From the result, it's obvious that this sector was burdened heavily by it short term debts throughout all financial periods. This contributes to the finding of Pomerleano that liquidity problem burdened corporations in raising new funds, as they required to service a great portion of short-term repayments. Findings suggested that high current liquidity companies are not liquid in the short run.

Figure 5: Liquidity of Construction Sector



4.6 CASH FLOW TO DEBTS RATIO

Findings in Table I1 and Figure I1 in *Appendix I* show that only 10.35% of the samples having more than 50% cash flow to debts ratio, before crisis. Similarly, 10.35% of the samples were in negative cash flow to debts ratio. 79.3% were having less than 50% cash flow to debts ratio. During the crisis,

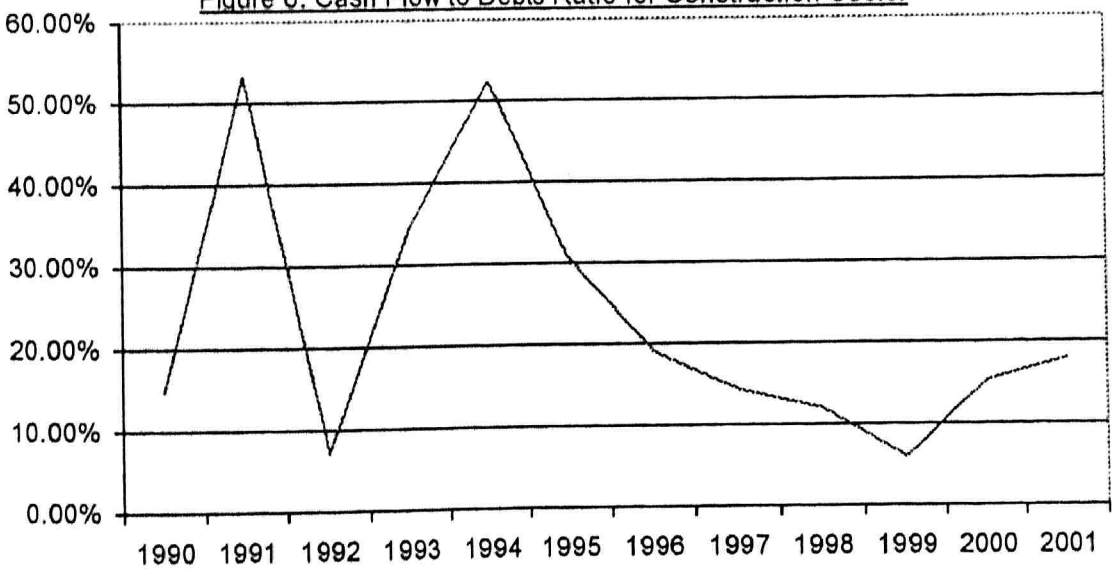
[16] BPuri was excluded in Figure 4 to get a more representative graph for leverage of the construction sector as BPuri has tremendously high leverage during and after the crisis.

55.17% of the companies have negative cash flow to debts ratio, and 31.03% have less than 50% cash flow to debts ratio. This indicates that many companies were facing cash flow problem during the crisis. After the crisis, cash flow problem was reduced, as shown by the findings that the negative cash flow to debts ratio was reduced to 37.93%.

YTL was a cash rich company as it has strong cash flow to debts ratio throughout all financial periods, at 111.22% in average. RoadBld was cash rich prior to the crisis i.e. 381.79%. Its' cash flow to debts ratio reduced to 130.2% during the crisis and it deteriorated further to 42.17% after crisis. Follow by Gamuda with an average of 62.5% cash flow to debts ratio from 1990 to 2001.

Figure 6 below show that the cash flow of construction sector was fluctuated between 10% to 50% from 90 to 94. The industry had an average of 34.67% cash flow to debts ratio during pre-crisis. This represents that construction industry does not had strong cash flow position. The ratio deteriorated to 5.97% in 99. It increased gradually to 17.98% after crisis, as some companies have picking up in their business, see Table I1 in *Appendix I*.

Figure 6: Cash Flow to Debts Ratio for Construction Sector



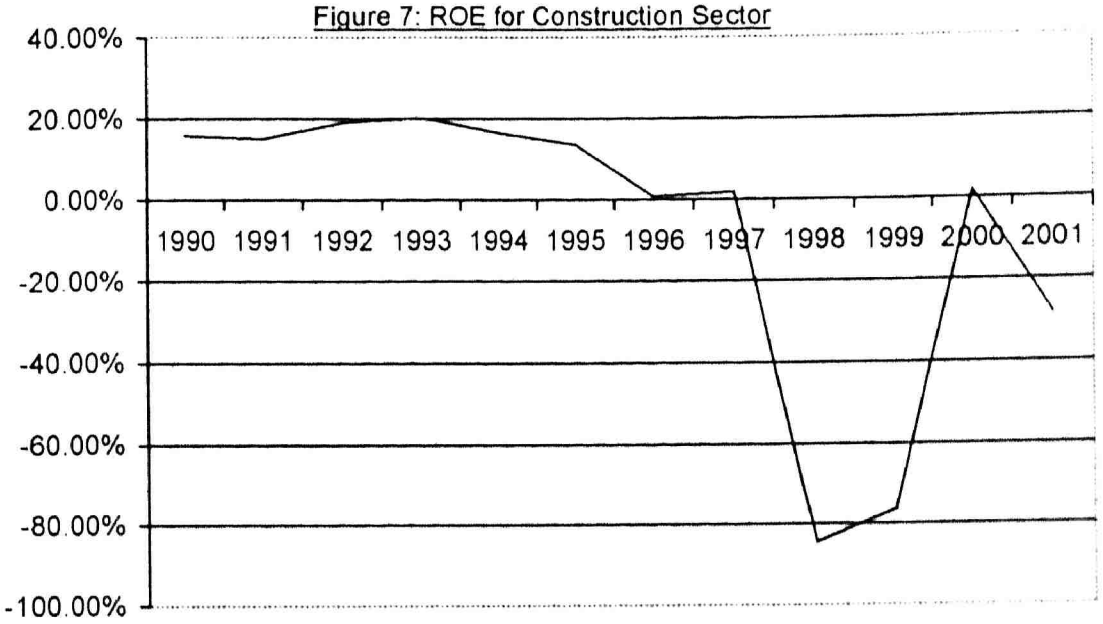
4.7 RETURN ON EQUITY (ROE)

Table J1 and Figure J1 in *Appendix J* exhibit that 65.52% of the samples has good profitability prior to the crisis. Most of them had greater than 15% of return on equity. 17.24% have their returns less than 10% of companies' equity and only one company was not making profit i.e. Bescorp. During the 97 crisis, significant changes were occurred to the ROE of construction companies. 48.28% of the companies were turning into losses from profit. BPuri, Bridgecon, Promet, and CPerdana were suffered tremendous losses of 686.25%, 283.86%, 250.87% and 134.13%, respectively. Also, companies like Abrar, Acta, Intria, Mancon, Renong, Bescorp and SCK were suffered significant losses from 35% to 60% on equity.

High profitable companies had dropped from 65.52% during pre-crisis to 17.24% during crisis. Even after the crisis, the percentage of company that suffered losses was about the percentage during the crisis. 27.59% of the companies were making profit throughout all financial periods i.e. Brem, Ekovest, Gamuda, IJM, Mitra, Propel, RoadBld, UEM, WCT and YTL. Among these companies, WCT, Mitra and Propel have more than 15% ROE in all financial periods.

In general, construction sector has 12.91% of ROE before the crisis, which is considered an outstanding performance, see Table J1 in *Appendix J*. It's very closed to Malaysia country's ROE of 13% found by Pomerleano in his paper. This sector, then, suffered a loss of 52.9% during the financial crisis. After the crisis, losses was reduced to 12.6%. This suggests that construction sector is still not fully recover from the impacts of the crisis. Figure 7 below shows the ROE for this sector from 1990 to 2001. It shows that this sector was suffered huge losses in 98 and 99. The average loss for these two years was 80.4%.

Figure 7: ROE for Construction Sector



4.8 RETURN ON CAPITAL EMPLOYED (ROCE)

Results in Table K1 and Figure K1 in *Appendix K* show that 27.58% of the construction companies have an outstanding performance of more than 15% of ROCE, before the 97 crisis erupted. 24.14% of the construction companies were in good performance of between 10% to 15% ROCE, 44.83% did not performed well (less than 10% ROCE), and 3.45% were making losses. During financial turmoil, the outstanding company dropped sharply to 3.45%, company with good performance decreased to 13.79%. However, companies that were making losses increase rapidly to 41.38%, and 41.38% did not performed well. There was no significant improvement of ROCE shown, during the post-crisis period.

Companies that have outstanding performance during pre-crisis are Brem, Gamuda, HoHup, Mitra, MTD, Muhibah, NamFatt and WCT. Mitra was the best performer throughout all financial periods. It has a consistence ROCE even during crisis and post-crisis, with an average ROCE of 15.52%. Brem, although has the highest average ROCE of 17.56%, was financially vulnerable. Its ROCE declined heavily from 24.31% to 12.94% during crisis,

and it underwent further reduction to 7.63% during post-crisis. Similarly, WCT was suffered ROCE reduction in crisis and post-crisis, with an average ROCE of 14.78%. Also, Propel and YTL experienced lower ROCE during crisis; nevertheless, they managed to increase their ROCE during post-crisis.

Companies that were highly financial vulnerable are Abrar, Acta, Mancon, Pilecon, Promet, Bescorp, Bridgecon, CPerdana and SCK. These companies were suffered losses during crisis and post-crisis. Surprisingly, after crisis, Setegap's ROCE was accelerated steeply from its losses of 0.8% in crisis. Moreover, it did not perform well prior to the crisis.

Figure 8: ROCE for Construction Sector

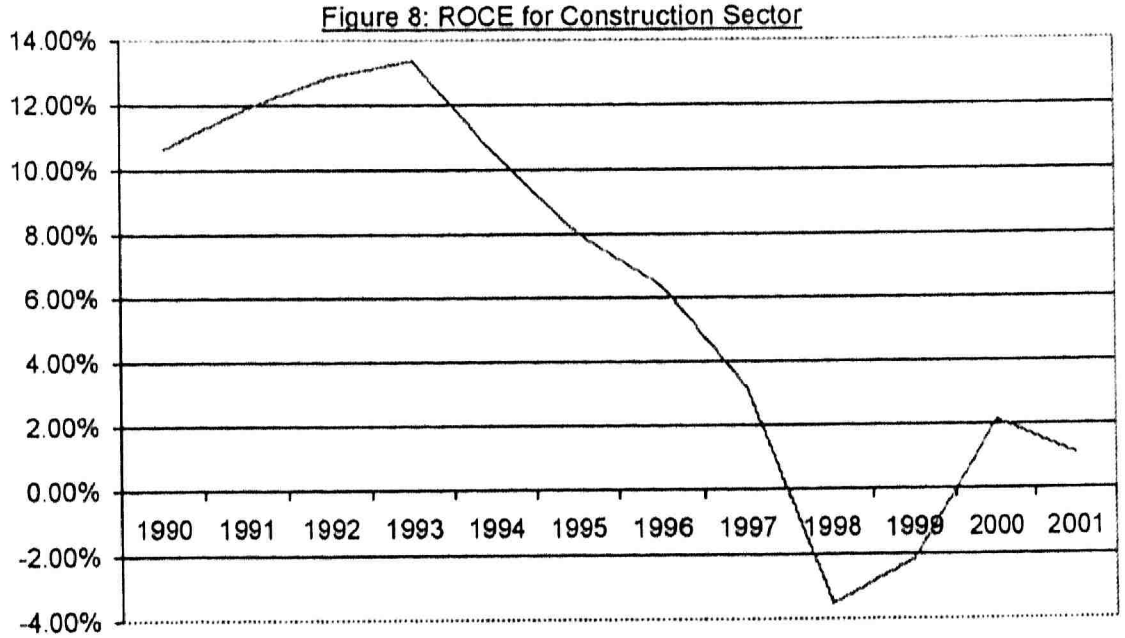
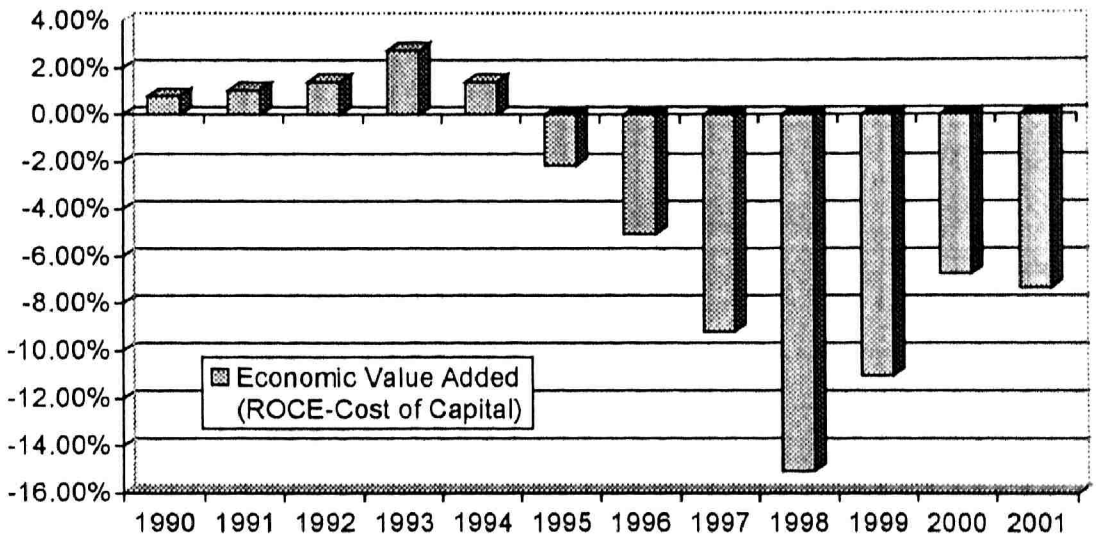


Table K1 in *Appendix K* show that construction sector has 10.68% ROCE during crisis. Again, this is consistence with the findings of Leong and Chan (2001) i.e. 11.9% from 94 to 96. This sector was suffered a losses of 0.8% during crisis and picked up slightly to 1.65% during post-crisis. Findings imply that construction sector is financially vulnerable. Findings in Figure 8 above show that ROCE for construction sector was good from 90 to 94. It started to drop from 95 to 98, when it reached a lowest ROCE of –3.51%. It started to pick up again in 99, and this sector was able to regain profit in 00 and 01.

4.9 ECONOMIC VALUE ADDED (EVA)

Table L1 and Figure L1 in *Appendix L* show the results of EVA for the companies in construction sector for all financial periods. 41.38% of the construction companies have created wealth to their firm before the crisis. It deteriorated to 13.79% during crisis, and raised slightly to 20.69% after crisis. Companies that have added value throughout all financial periods are Mitra and WCT with an average of 5.23% and 4.44%, respectively. The findings suggest that many companies with positive ROCE were actually did not created value to their firms as noted in their EVA performance. From 90 to 01, only 27.59% of the construction companies were having true profit i.e. Brem, Gamuda, HoHup, Mitra, MTD, Propel, RoadBld, and WCT. Surprisingly, YTL and IJM whose where noted to be financially healthy by Altman's Z" score did not create wealth in average.

Figure 9: EVA for Construction Sector



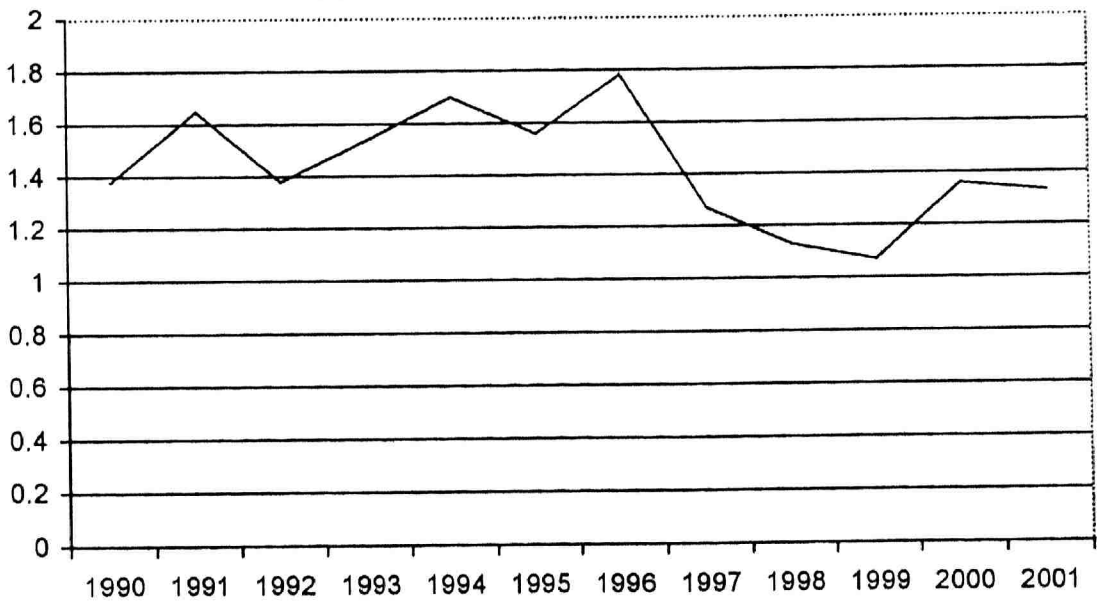
Findings in Figure 9 above and Table N2 in *Appendix N* indicate that construction sector had positive EVA from 90 to 94. The wealth had increase from 0.79% in 90 to 2.77% in 93, and dropped in 1.4% in 94. It was not created wealth two years before the crisis. In 97, EVA of the sector dropped further to –9.19%. The worst case was in 98 with –15.06% EVA. After the crisis, it was improved to an average figure of -6.99%. This again suggests that construction sector was still under the stage of recovery after crisis.

4.10 CURRENT RATIO

Results in Table M1 and Figure M1 in *Appendix M* show that 89.97% of the construction firms are capable of paying off their short term debts with it current assets, before the crisis. Companies that did not have the capability of paying of their short term debts are Abrar, WCT and Bescorp. The percentage dropped to 48.28% during the crisis and increased slightly to 55.17% after the crisis. Companies that experienced poor current ratio due to the crisis are Acta, BPuri, Intria, Mancon, MTD, Muhibah, NamFatt, Promet, Renong, Bridgecon, CPerdana and SCK. Among these firms only Intria and Renong show improvement of the current ratio after the crisis.

Abrar and Bescorp did not showed good current ratio for all financial periods. Surprisingly, WCT, which has quite a good performance for the other financial ratios, had poor current ratio before and during the crisis. HoHup was experienced poor current ratio only after the crisis. This findings support the literature review that HoHup was drying of favour projects from its' parent company.

Figure 10: Current Ratio for Construction Sector



Generally, the construction sector had good current ratio throughout all financial periods with an average of 1.40. Figure 10 above shows that current

ratio of the construction dropped from an average of 1.53 to an average of 1.17 during the financial crisis. This indicates that the crisis did deteriorate the current ratio of the construction sector. During post-crisis, the ratio was gradually increased to an average value of 1.36.