THE EFFECT OF DEBT RESTRUCTURING SCHEME ON THE FIRMS' CAPITAL STRUCTURES AND PERFORMANCES OF MALAYSIAN FIRMS

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ABSTRACT

Previous studies have found that the out-of-court restructuring strategy was one of the most preferred restructuring exercises practiced during the 1997 Asian financial crisis (see Haley, 2000; Mako, 2001). The out-of-court strategy is a strategy that involves negotiation between a company, its creditors and other related parties to find the best solution for the company's debts problems without having to resort to legal proceedings. This strategy seems popular, as many Asian countries have adopted it. In Malaysia, such strategy is facilitated by the Corporate Debt Restructuring Scheme (CDRC) and the progress of the CDRC is very encouraging (see Chotigeat and Lin, 2001; Nor Azimah 2001). However, the effect of the scheme on its listed companies has never been tested. Therefore, this study has examined the effect of the CDRC's debts restructuring scheme on the companies' performances based on seven public listed companies which had successfully completed the scheme before or by the year 2000. This study analyzed two areas, i.e., the companies' capital structures (using six leverage ratios) and the companies' financial performances (using three profitability ratios). The hypotheses of this study are that (a) there will be a significant decrease in the companies' leverage ratios after the restructuring process, and (b) there will be a significant increase in the companies' profitability ratios after the restructuring process. Based on the paired sample *t*-test, the Wilcoxon matched-pairs signed rank test and the effect size test, the study finds little evidence to support the hypothesis on the capital structures but finds sufficient evidence to support the hypothesis on the financial performances. Thus, this study concludes that the scheme did not greatly improve the companies' capital structures, but did improve the companies' financial performances.

1.0 INTRODUCTION

Borrowing is beneficial to companies as a tax shield but it can also increase the risk to the companies. For example, during bad times, a company's burden may increase to a level at which it is unable to fulfill its obligation to service the interests on the debts. With losses and excessive debts, the situation may trap the company to financial distress.

The 1997 Asian financial crisis had forced many companies into financial difficulties (see Gray, 1999; Nor Azimah, 2001). With the increase in the market interest rates, the situation

worsened, as many highly leveraged companies[1] were unable to meet their interest payment commitments.

Norezuan (1999) studies the effect of leverage on the stock prices before and after the 1997 Asian crisis using the CAPM.[2] His sample consists of 84 public listed companies, and is divided into three different quintiles based on the market capitalization. Each quintile is further divided into two groups with different levels of leverage using the total debts to total equity ratio (TDTE). The results indicate that the low leveraged companies experienced lower decline in returns compared to the higher leveraged companies. Thus, the study concludes that high levels of leverage can negatively affect the companies' performances.
Mansor and Jin-Ken (2001) examine the leverage patterns among Malaysian firms using three leverage ratios, i.e., total debts to total assets (TDTA), long-term debt to total capitalization (LDTCZ) and long-term debt to total debts (LDTD). They also studied on the effect of leverage on the companies' financial performances. The leverage is defined using the TDTA, and the financial performances are measured using three profitability ratios, i.e., return on asset (ROA), return on equity (ROE) and economic value-added (EVA), they have divided the companies into four quartiles based on the level of TDTA and analyze the data using the ANOVA and the Kruskal-Wallis tests. The results found that the means of firms with a lower leverage ratio have always outperformed, i.e., the means of profitability ratio always been higher than the means of firms with a higher leverage ratio. Thus, the results also demonstrate that leverage has significant impact on the financial performances of the companies.

Normally, the companies with high debt and leverage ratios would possibly face financial difficulties when the economic conditions worsen. One possible scenario where such circumstances arise is when there is an increase in interest rates, and such an event is common during times of economic crisis. The increase in the interest rate caused by the Asian 1997 financial crisis had affected many companies (see Mako, 2001). This is because the income of the companies is not enough to sustain the interest obligations once the interest rate is at the depressing and uneconomic level (Norezuan, 1999). When companies are unable to meet the debt repayment schedules, they are further burdened with heavier debts. Due to this unfavorable economic condition, there was an increase in the number of companies filing for bankruptcies. Nor Azimah (2001) provides evidence that in Malaysia there were 681 cases of dissolution in 1996, 1,898 cases in 1997, 4,800 cases in 1998, and 3,778 cases up to September 1999.

The respective governments in the Asian countries including Malaysia took some precautionary measures to assist the companies that were financially troubled during the crisis. They encouraged corporate restructuring schemes either through legal proceedings or under informal out-of-court settlements. However, many countries favored the latter method as it is found to be more effective in assisting the financially troubled companies (see Mako, 2001).

2.0 CORPORATE RESTRUCTURING SCHEMES

Haley (2000) states that there are at least three broad strategies that exist for corporate restructuring schemes, namely centralized, decentralized and the London approach to

[1] Refer 3.1: Theory on capital structure for the meaning of leverage.
[2] CAPM or capital asset pricing model, is a model that relates the required rate of return for a security to its risk as measured by beta. CAPM predicts the relationship between the risk and equilibrium expected returns on risky assets (Bodie et. al, 1998).

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restructuring schemes. In the centralized approach, the governments play significant roles and the approach requires a high level of stakeholders' confidence in the government. These types of strategies are suitable for small corporate debts and simple corporate structures. This approach was used in Sweden in the early 1990s and in Hungary in the mid 1990s.

The second strategy, i.e., the decentralized approach, is proven to be more effective for restructuring companies with large debts and more complex corporate structures. This is when the financially troubled companies enter into a restructuring agreement voluntarily with their creditors without the government's involvement. This strategy was commonly adopted in the United States (US) in the 1990s.

The third strategy, i.e., the London approach, is known as an intermediary approach. It evolved in the United Kingdom (UK) during the recession of the early 1970s. The strategy involves informal guidelines and out-of-court negotiations. The government acts only as a mediator in this voluntary agreement between companies and their creditors. The parties involved in the restructuring schemes are encouraged to follow specific guidelines set out by the government. The main objective of the guidelines is to minimize losses among all parties concerned (Mako, 2001).

Nor Azimah (2001) studies the implementation of the Malaysian corporate restructuring framework both before and after the Asian financial crisis in 1997. She states that financially troubled companies are normally given two options to proceed with restructuring, i.e., statutory[3] or non-statutory options.[4]

After the outbreak of the economic crisis in 1997, the Malaysian government established three new bodies, i.e., Pengurusan Danaharta Nasional Berhad, Danamodal Nasional Berhad, and the CDRC. While restructuring schemes under the Danaharta and Danamodal are considered as statutory options, the restructuring scheme under the CDRC is a non-statutory one.

2.1 The CDRC

The CDRC was introduced in July 1998 and operated under the auspices of Bank Negara Malaysia, i.e., the central bank of Malaysia. The main objective of the CDRC is to assist highly leveraged companies in restructuring their debts. As a non-statutory body, the role of the CDRC is to act as an advisor and mediator between the parties involved in the debt restructuring arrangement.

The idea of the CDRC is very similar to the London approach adopted in the UK. The strategy involves feasible restructuring schemes without having to resort to legal proceeding or liquidations. All the workouts are achieved informally and there are no legal liabilities involved until the debt restructuring agreement is formally signed.

Voluntarily corporate debt restructuring is the most preferable alternative to legal proceedings (Gray, 1999; Nor Azimah, 2001). This option is less expensive but yields the most desirable results as compared to other enforcement or liquidation proceedings. There are

[3] In the case where companies are not able to restructure under the non-statutory option, companies may be forced to enter into legal proceedings, i.e., the statutory option. The Malaysian Companies Act, 1965 provides three clauses, i.e., Section 176, Sections 182-192, and Sections 211-318 for statutory debt restructuring.
[4] The workouts are guided by informal guidelines and settlements are reached by out-of-court procedures.

various techniques that can be adopted to restructure the debts, for example conversion of debt to equity, debt write-off, equity injection, reduction in the paid up capital, debt payment rescheduling, and term extensions. The first four techniques result in capital restructuring and thereby affecting the leverage ratios of the companies' concerned while the latter two techniques provide flexibility and extend the time of settlement for the companies.

The success of the out-of-court debt restructuring strategies depends on the credibility of the mediator and requires the cooperation of all parties involved in the restructuring scheme. It is also very important to have sufficient resources and competent expertise to plan the workout (Haley, 2000).

As at 31st December 2001, the CDRC had received 86 applications amounting to RM66.81 billion of debts. However, only 63 cases were accepted totaling RM56.74 billion of debts. There were 10 rejected cases[5] (total debts amounting to RM2.642 billion) and 13 withdrawn cases[6] (total debts amounting to RM7.427 billion).

Of the 63 accepted cases, 11 cases (total debts amounting to RM2.47 billion) have been transferred to Danaharta[7] and the remaining 52 cases (total debts amounting to RM54.27 billion) were entered into the workout. On a cumulative basis, the CDRC has succeeded in resolving the debts of 37 cases (total debts amounting to RM34.49 billion) and another 15 cases (total debts amounting to RM19.79 billion) were still outstanding[8] or being revised.[9] Table 1 below summarizes the details.

Table 1: Companies' status at 31 December 2001

Status as at 31 December 2001			
Cases discharged	Total debts RM ('000)	No. of cases	% of cases
Rejected cases	2,642	10	4
Withdrawn cases	7,427	13	11
Subtotal	10,069	23	15
Cases accepted			
Outstanding	18,038	12	27
Revised	1,747	3	3
Resolved	34,489	37	51
Transferred to Danaharta	2,470	11	4
Subtotal	56,744	63	85
Total application to the CDRC	66,813	86	100

[5] Rejected cases are the cases that either did not meet the CDRC requirements or agreements between parties involved cannot be reached. Most of these companies have had Special Administrators or Receivers or Managers appointed.

[6] Withdrawn cases refer to the companies that had voluntarily withdrawn their applications. Most of these cases have been or are being resolved outside the CDRC.

[7] The companies are being resolved with Danaharta's assistance mainly through the appointment of Special Administrators, or where Danaharta is the largest creditor.

[8] Outstanding cases refer to the cases that are pending for creditors' approval.

[9] Revised cases refer to the cases where the restructuring plan has to be revised after receiving creditors' approval.

Sources: The CDRC's status report May 2002[10]

Unfortunately, the assistance of the CDRC is not readily accessible to all companies. Companies need to fulfill the basic requirements in order to seek the assistance of the CDRC and to proceed with the restructuring process.[11] The requirements are (a) the companies must have viable and ongoing business operations, (b) the companies must not be in the process of receivership or liquidation, (c) the companies must have debts or total aggregate bank borrowings exceeding RM50 million, (d) the companies must have borrowings from more than one bank, (e) the companies must have obtained a Restraining Order pursuant to Section 176 (10) of the Companies Act, 1965, and (f) the creditors must be local financial institutions.

3.0 RESEARCH HYPOTHESES

Before developing the research hypotheses, the theory on capital structures and financial distress will first be reviewed.

3.1 Theory on Capital Structures

A capital structure is defined as a combination of debt and equity to finance the capital required in a company (Harrington, 2001). If the capital market in which the company operates is perfect, whatever combination there is in the capital structures will not have any impact on the company's value. In this case, companies are free to choose whatever combination of capital structures they wish. Nevertheless, in the real world, market imperfections do exist and thus, capital structures can have an impact and be an important aspect in the companies' portfolio and risk management. In an imperfect market, the companies need to decide on the optimal capital structures in order to maximize their value (Hickman et. al, 2001).

The proportion of debt in the companies' capital structures is called leverage (Hickman et. al, 2001). The term financial leverage is used to indicate the impact of debt financing on the shareholders' rate of return. In certain conditions, higher leverage can increase the companies' returns. For example, equity would become smaller if it is replaced by debt. Furthermore, the number of shares outstanding would also shrink when the companies' repurchase and retire their own shares. So, if equity shrinks disproportionately faster than earnings, the ROE and EPS will increase dramatically as the debt increases (Norezuan, 1999). In addition, debts or borrowings could also bring about a positive impact on the companies' value through tax shields (Mansor and Jin-Ken, 2001).

On the other hand, leverage can also worsen the companies' value (see Higgins, 1992; Hickman et al., 2001). For example, when the leverage increases, the earning after tax in the companies will decrease. Moreover, if the companies have return on capital employed less than the after-tax cost of debt, the ROE and EPS will decrease with increasing leverage as the companies are earning lesser than their obligations to pay interest on their borrowings (Norezuan, 1999). Normally, this situation happens if the companies are facing bad financial conditions or during an economic crisis (Norezuan, 1999; Harrington, 2001).

[10] For the latest update, please refer to http://www.bnm.gov.my.
[11] Refer to the term of references of the CDRC at http://www.bnm.gov.my/cdrc/terms.html.

Therefore, this study expects that the leverage or debt ratios in the companies will decrease after the debt restructuring process. This is to minimize the companies' risks of further financial difficulties. At the same time, this study also believes that the creditors would preserve their rights more in these debt restructuring negotiations. The leverage ratios should be lower after the restructuring process in order to maximize the creditors' interest. Thus, the first research hypothesis is as follows:

H1: There are significant decreases in the companies' leverage ratios before and after the debt restructuring process.

3.2 Hypothesis on Financial Performances

The decision to seek the debt restructuring assistance is driven by the needs of the companies to improve their performances. Although this study expects major differences in the companies' capital structures, it is also believed that the debt restructuring scheme will result in an improvement in the companies' financial performances. Therefore, this study expects the profitability ratios in the companies to be higher after the debt restructuring process. Thus, the second hypothesis is:

H2: There are significant increases in the companies' profitability ratios before and after the debt restructuring process.

4.0 SAMPLING PROCEDURE

The sample consists of public listed companies that had successfully completed the debt restructuring process under the CDRC before or by the financial year 2000. This time frame is chosen to allow for at least two years of analysis after the debt restructuring process.[12] The reason for excluding the non-public listed companies is due to the difficulty in obtaining data from those companies.[13]

4.1. Sample Selection Process

The list of companies listed under the CDRC was extracted from the CDRC's report available in its website.[14] As at 31st December 2001, only 23 companies had fully implemented their debt restructuring plans. As 8 of these companies are private companies, the sample involved is reduced to 15. Out of these 15 companies, only 7 companies had disclosed information concerning the year of completion of restructuring process in their annual reports.[15] Thus, the final sample consists of only 7 companies and is disclosed in Table 2 below. The background of the company is briefly discussed in Appendix 1.

[12] By the time this study was conducted, most of the data required for the study are only available till financial year 2001.
[13] Only public listed companies are required to publish an annual report to the public as per the KLSE listing requirement.
[14] Please refer to the CDRC's website at http://www.bnm.gov.my/cdrc.html.
[15] The findings were found in the companies' annual reports in year 1999, 2000 and 2001.

Table 2: List of sample companies

No	Name of companies	Industry (Classification in KLSE)	Board Listed	Completed F/year
1	United Engineers (Malaysia) Berhad	Construction	Main Board	1999
2	Renong Berhad	Construction	Main Board	2000
3	Eksons Corporation Berhad	Investment property	Main Board	2000
4	Tongkah Holdings Berhad	Investment property	Main Board	2000
5	TIME Engineering Berhad	Trading and services	Main Board	2000
6	Formis (Malaysia) Berhad	Trading and services	Main Board	2000
7	Tenco Berhad	Trading and services	Second Board	2000

4.2 Variables Measurement

As mentioned earlier, there are two areas to be observed in this study. Thus, there are two types of measurement involved. The first is the measurement of capital structures. The three main leverage ratios used are (a) the TDTA, (b) the LDTCZ, and (c) the LDTD. The choice of these leverage ratios is consistent with Mansor and Jin-Ken's (2001) study. It is believed that the debt restructuring process has a significant impact on the proportion of debts in the companies. Therefore, the selection of these ratios is suitable in measuring the changes in the capital structures of the companies after the debt restructuring process.

In addition, this study has included another three leverage ratios which are extracted from the Bloomberg database. These leverage ratios are (a) the long-term debt to total capital ratio (LDTCP), (b) the total debts to total capital ratio (TDTCP), and (c) the total assets to total equity ratio (TATE). The inclusion of these ratios is to enable the examination of a wider aspect of changes in the companies' capital structures.

The second type of measurement is the financial performances measurement. The three profitability ratios used are (a) the ROA, (b) the ROE, and (c) the EPS. The selection of the first two ratios is consistent with Mansor and Jin-Ken's (2001) study. However, the third ratio is used as an alternative to the EVA used by them.

The reason for choosing the EPS is that it is an indication of how much investors are willing to pay for a ringgit of a company's earning. Harrington's (2001) argues that the EPS is a typical starting point for market analysis. EPS is also the most common measure and can be easily understood. Therefore, to give a wider insight into financial performances, the use of the EPS was chosen instead of the EVA, as the EVA is closely related to the ROE (Kaplan and Atkinson, 1998).

4.3 Sources of Data

Most of the data are extracted from the Bloomberg database. All the ratios available in the Bloomberg are taken without any modification, while the ratios not available in the database

are computed manually based on the data available in the Bloomberg, companies' annual reports and the KLSE annual companies handbooks. Two ratios that were computed manually are the LDTCZ and LDTD.

4.4 Organization of Data

For the purpose of this study, the two-year periods before and after the debt restructuring process are compared. The average of the leverage and profitability ratios in the two years before the debt restructuring process are compared with the average of the leverage and profitability ratios in the two years after the process. This enables us to test whether there is any significant change or difference in the companies' capital structures and financial performances in the years before and after the debt restructuring process.

However, in order to have a wider picture of the changes in the companies' capital structures and financial performances, it is insufficient to compare the two years before and the two years after the restructuring process only. Therefore, this study includes another six-year periods before the restructuring years to be compared to the years after the restructuring process. All these six years are also grouped into two-year periods. The way the years are divided into two-year periods is shown in Table 3 below.

Table 3 Two-year periods before and after the restructuring

Year the debt restructuring was completed	Years before debt restructuring				Years after debt restructuring
	P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}	P_{AR}
1999	1991-1992	1993-1994	1995-1996	1997-1998	1999-2000
2000	1992-1993	1994-1995	1996-1997	1998-1999	2000-2001

After organizing the data, the means of leverage and profitability ratios in the years after the restructuring process are compared to each of the two-year periods before the debt restructuring process. However, the main concern in this study is to examine and discuss the differences in the means between the two years before and the two years after the restructuring process only, i.e., P_{BR1} and P_{AR}.

5.0 DESCRIPTIVE ANALYSIS

Table 4 below presents the descriptive statistics of the test variables for periods P_{BR1} and P_{AR}. The mean, median, standard deviation, minimum level, maximum level and number of samples in those periods are computed in the table. As the table reports, the means of the three leverage ratios (i.e., the TDTA, LDTCZ, and TDTCP) decreased while the means of the other three leverage ratios (i.e., the LDTD, LDTCP, and TATE) increased after the restructuring. On the other hand, the means of all of the profitability ratios (i.e., the ROA, ROE, and EPS) increased after the restructuring.

The results indicate that there are equal numbers of leverage ratios which have decreases and increases in the mean after the restructuring process. Nevertheless, the findings did not provide much evidence to support the first hypothesis. The first hypothesis expects the leverage ratios to decrease after the restructuring process to minimize the companies' risks.

Meanwhile, there is an interesting finding for the profitability ratios. The results show that the means of all the profitability ratios have increased after the completion of the restructuring process. Thus, the findings seemed to support the second hypothesis. The increases in the ratios indicate that there are improvements in the companies' financial performances, even tough some of the ratios are still negative for both periods. This scenario is possible as the effect of the scheme is analyzed in a short period of time after the restructuring process. The companies are assumed to be recovering from their huge loss accumulation during the crisis years. The results of the descriptive test however, do not explain whether the changes in the means of the ratios between the two periods (P_{BR1} and P_{AR}) are statistically significant.

Table 4: Descriptive Statistics

Test Variables	Mean		Median		Standard deviation		Minimum Level		Maximum Level		N
	$P_{BR\ 1}$	P_{AR}	P_{BR1}	P_{AR}	$P_{BR\ 1}$	P_{AR}	P_{BR1}	P_{AR}	P_{BR1}	P_{AR}	
TDTA	88.86	57.57	61.25	74.13	48.77	32.35	57.04	4.06	185.80	89.71	7
LDTCZ	78.62	66.92	61.46	81.88	104.86	41.31	-4.47	0.28	303.17	126.41	7
LDTD	31.08	70.43	6.24	79.26	35.19	31.29	1.04	1.76	84.44	94.44	7
LDTCP	25.15	55.73	7.04	61.21	27.87	33.08	1.45	0.24	70.00	101.41	7
TDTCP	115.56	69.32	82.41	83.51	68.66	37.90	66.50	6.82	237.61	119.92	7
TATE	437.99	687.60	387.23	357.07	735.83	648.45	-538.69	164.75	1711.19	1795.12	7
ROA	-22.75	-0.01	-11.66	2.48	25.82	13.48	-59.80	-27.55	1.31	10.60	7
ROE	-16.75	28.63	-49.27	22.31	134.35	63.38	-156.41	-65.04	262.44	125.90	7
EPS	-110.59	-1.96	-49.20	74.13	130.49	77.86	-339.30	-163.50	29.40	72.30	7

5.1 EMPIRICAL RESULTS OF THE CAPITAL STRUCTURE

By using the univariate analysis, we can examine whether the changes, i.e., either increases or decreases in those leverage and profitability ratios, are statistically significant between the periods immediately before and after the restructuring.

5.1.1 PARAMETRIC TEST ON DEBT RATIOS

The results of the paired sample *t*-test for the TDTA, LDTCZ, and LDTD are shown in Table 5 while the results of the paired sample t-test for the LDTCP, LDTCP, and TATE in Table 6. The reason for segregating the analysis into two tables is that Table 5 discusses the variables that are identified in the literature (the first three leverage ratios) while Table 6 discusses and the variables chosen from the Bloomberg database (the second three leverage ratios). The results of each of the ratios are discussed below:

The first and second rows of Table 5 below report the results of TDTA and LDTCZ respectively. The results indicate that there are no significant differences in the means of the TDTA and LDTCZ between the periods P_{BR1} and P_{AR}. Although the mean of total debts to total assets and long-term debt to total assets decreased after the restructuring (refer Table 4), the decreases are found to be statistically not significant. Thus, the findings do not support the first research hypothesis.

As mentioned earlier, the inclusion of other periods before the restructuring is aim at providing a comprehensive picture of the changes in the ratios. Therefore, the presentation of these findings is only to provide extra information for the study.

The third row of Table 5 below reports the results for the LDTD. It is interesting to find that there is a significant difference in the means of the LDTD between the periods P_{BR1} and P_{AR}. Thus, it can be concluded that there was a significant increase in the long-term debt immediately after the restructuring process. This finding, however, is in contrary to the first research hypothesis.

Table 5: Paired samples t-test for the first three leverage ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	TDTA	-4.054 (0.015)**	-2.422 (0.052)*	-0.705 (0.507)	1.073 (0.325)
	LDTCZ	-4.311 (0.013)**	-3.825 (0.009)***	-3.825 (0.040)**	0.230 (0.826)
	LDTD	-1.614 (0.182)	-1.574 (0.166)	-2.273 (0.063)*	-2.629 (0.039)**

The upper figures are the t value
The figures in parentheses are the significant level
* *Significant at 0.10*
** *Significant at 0.05*
*** *Significant at 0.01*

Table 6 below presents the results for the other three leverage ratios. Similar to the third leverage ratio, the results indicate that there is significant difference in the means of the LDTCP between the periods P_{BR1} and P_{AR} (refer the first row of Table 6). This indicates that the increased in the mean ratio is statistically significant between the two periods. The results,

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again, imply that the percentage of the long-term debt to total capital has significantly increased after the restructuring process. Therefore, this finding is also in contrary to the first research hypothesis.

The other two ratios are found to be statistically not significant between the periods P_{BR1} and P_{AR}. The findings, therefore, conclude that there is no significant change in the TDTCP between the years immediately before and after the debt restructuring process.

Table 6: Paired samples t-test for the other three leverage ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	LDTCP	-4.127 (0.015)**	-4.063 (0.007)***	-3.124 (0.020)**	-2.303 (0.061)*
	TDTCP	-3.364 (0.028)**	-2.374 (0.055)*	-0.775 (0.468)	1.234 (0.263)
	TATE	-2.052 (0.109)	-1.941 (0.100)*	-1.478 (0.190)	-1.107 (0.311)

The upper figures are the t value
The figures in parentheses are the significant level
* *Significant at 0.10*
** *Significant at 0.05*
*** *Significant at 0.01*

5.1.2 NON-PARAMETRIC TEST ON DEBT RATIOS

Table 7 below reports the results for the Wilcoxon matched-pairs signed rank test for the first three leverage ratios. Consistent with the previous test, the difference in the means for the TDTA and LDTCZ (between the periods P_{BR1} and P_{AR}) are found to be statistically not significant. On the other hand, the difference in the means of the LDTD between the periods P_{BR1} and P_{AR} is found to be statistically significant. Thus, the results of this non-parametric test (for the first three leverage ratios) are consistent with the results of the parametric test discussed above.

Table 7: Wilcoxon matched-pairs signed rank test for the first three leverage ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	TDTA	-2.023 (0.043)**	-1.690 (0.091)*	-0.845 (0.398)	-0.676 (0.499)
	LDTCZ	-2.023 (0.043)**	-2.197 (0.028)**	-2.028 (0.043)**	-1.014 (0.310)
	LDTD	-1.214 (0.225)	-1.521 (0.128)	-1.690 (0.091)*	-1.859 (0.063)*

The upper figures are the z value
The figures in parentheses are the significant level
* *Significant at 0.10*
** *Significant at 0.05*

Table 8 below presents the results for the Wilcoxon matched-pairs signed rank test for the remaining three leverage ratios. The results indicate that the difference in the means of the TDTCP is found to be statistically not significant between the periods P_{BR1} and P_{AR}, while the

difference in the means of the LDTCP and TATE between periods P_{BR1} and P_{AR} is found to be statistically significant.

The results for the LDTCP and TDTCP are consistent with the previous parametric test. The results for the TATE indicate that there is significant difference in the means of the TATE between the periods P_{BR1} and P_{AR}, which is contrary to the results of the *t*-test. Hence, the findings for the TATE in the parametric test are not supported.

Table 8: Wilcoxon matched-pairs signed rank test for the three other leverage ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	LDTCP	2.023 0.043)**	-2.197 (0.028)*	-2.197 (0.028)**	-1.859 (0.063)*
	TDTCP	-1.753 (0.080)*	-1.859 (0.063)*	-0.845 (0.398)	-0.676 (0.499)
	TATE	-1.826 (0.068)*	-1.153 (0.249)	-0.169 (0.866)	-1.690 (0.091)*

The upper figures are the z value
The figures in parentheses are the significant level
* *Significant at 0.10*
** *Significant at 0.05*
*** *Significant at 0.01*

5.1.3 MEASURES OF EFFECT SIZE

This section provides the results of the effect size test using the Eta squared test. For this study, Eta squared with a value higher than 0.25[16] will indicate that there is significant interaction/correlation in the sample between two periods, which indicates that there is significant difference in the means ratio between in the two periods (P_{BR1} and P_{AR}).

Table 9 below presents the results of the Eta squared test. The results show that the Eta squared of the LDTD and LDTCP is higher than 0.25. This indicates that the means of these two ratios have significant interaction/correlation in the periods P_{BR1} and P_{AR}. Therefore, these findings are consistent with the findings of the parametric and non-parametric tests above, which show that there is significant difference in the means of the LDTD and LDTCP between the years immediately before and after the restructuring.

Meanwhile, the Eta squared for the other ratios (TDTA, LDTCZ, TDTCP, and TATE) is lower than 0.25. Therefore, this shows that there is no significant interaction/correlation in the means of these ratios between the years immediately before and after the restructuring process.

[16] The Eta squared can be interpreted as the degree of correlation for the sample (Kirk, 1982; Tabachnick and Fidell, 1989) where the value of Eta ranges from –1 to 1. The cut-off point of 0.25 is based on the middle value of Eta < -0.50 and Eta > 0.50. Thus the value of the Eta squared must be higher than 0.25.

Table 9 Measure of effect sizes (for the leverage ratios)

Leverage ratios	$ETA^2 > 0.25$
TDTA	0.161
LDTCZ	0.009
LDTD	0.535*
LDTCP	0.469*
TDTCP	0.202
TATE	0.170

** $ETA^2 > 0.25$*

5.2 EMPIRICAL RESULTS OF THE FINANCIAL PERFORMANCES

The results of each test on the profitability ratios are discussed below.

5.2.1 PARAMETRIC TEST ON PROFITABILITY RATIOS

The results of the paired sample t-test in Table 10 indicate that there are no significant differences in the means of all the three ratios for the periods under study. Although the mean of this ratio increased after the restructuring, the increase is statistically not significant.

Table 10: Paired samples t-test for the three profitability ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	ROA	2.221 (0.113)	1.287 (0.254)	0.351 (0.737)	-1.813 (0.120)
	ROE	-0.702 (0.533)	-0.789 (0.466)	-0.940 (0.384)	-0.738 (0.488)
	EPS	0.759 (0.490)	0.874 (0.416)	0.544 (0.606)	-1.768 (0.128)

The upper figures are the t value
The figures in parentheses are the significant level

5.2.2 NON-PARAMETRIC TEST ON PROFITABILITY RATIOS

Table 11 below presents the results of the Wilcoxon matched-pairs rank signed test for the three profitability ratios. Consistent with the previous parametric test, the results also found that there is no significant difference in the means of the ROE between the periods P_{BR1} and P_{AR}.

However, the findings for the other two profitability ratios are contrary to those of the previous parametric test. The results of this test indicate that the difference in the means of the ROA and EPS are statistically significant between the periods P_{BR1} and P_{AR}. As both the means of these ratios increased after the restructuring process, this indicates that the increase in the means of these two ratios is statistically significant. Therefore, it can be concluded that there is significant increase in the means of the ROA and EPS between the years immediately before and after the debt restructuring process. Thus, this finding lends their support for the second hypothesis.

Table11: Wilcoxon matched-pairs signed rank test for the three profitability ratios between periods.

		P_{BR4}	P_{BR3}	P_{BR2}	P_{BR1}
P_{AR}	ROA	-1.826 (0.068)*	-1.153 0.249)	-0.169 (0.866)	-1.690 (0.091)*
	ROE	-0.730 (0.465)	-0.943 (0.345)	-1.014 (0.310)	-0.845 (0.398)
	EPS	-0.135 (0.893)	-0.676 (0.499)	-0.169 (0.866)	-1.690 (0.091)*

The upper figures are the z value
The figures in parentheses are the significant level
* *Significant at 0.10*

5.2.3 MEASURES OF EFFECT SIZES

Table 12 below presents the results of the Eta squared test. The results show that the Eta squared for the ROA and EPS is higher than 0.25. These results indicate that there is significant interaction/correlation in the means of the ROA and EPS in the periods P_{BR1} and P_{AR}. The findings are consistent with the findings in the non-parametric tests above, which show that there is significant difference in the means of the ROA and EPS between the years immediately before and after the restructuring process. Thus, the results of the non-parametric test are more reliable than the results of the *t*-test.

Table 12: Measure of effect sizes (for the profitability ratios)

Profitability ratios	$ETA^2 > 0.25$
ROA	0.354*
ROE	0.083
EPS	0.342*

* $ETA^2 > 0.25$

6.0 SUMMARY AND CONCLUSION

After comparing all the findings, it can be concluded that none of the leverage ratios had decreased significantly after the restructuring process. Thus, it can be concluded that the debt restructuring scheme did not bring about any significant improvements in reducing the level of debts in the companies' capital structures.

On the other hand, the tests on financial performances indicate that the differences in means of the ROA and EPS are statistically significant between the years immediately before and after the restructuring. As the mean of these two ratios increased after the restructuring (refer Table 4), this suggests that the earnings in the companies have significantly increased. As the results of these two ratios support the second hypothesis, therefore, it can be concluded that the companies' financial performances did improve after the debt restructuring process.

There are three main limitations to this study. The most significant one is the size of the sample involved. The second is that the companies cannot be further analyzed by sectors due to the inherent limitations of the sample size. Therefore, the results may not be generalized to all the companies' under the debt restructuring scheme.

The third limitation is that, although the results of this study show that the effect of the scheme on the companies' leverage structures are not very outstanding, the two-year period after the restructuring process is considered to be too early to judge the effectiveness of the scheme and the credibility of those parties involved. As the scheme is new, the scheme might face many unexpected problems that slow down its effectiveness. Moreover, the scheme concentrated on restructuring huge amounts of corporate debts and involved many long-term strategies, thus, the real effect of the scheme in the companies' capital structures might be not be seen in the short time period considered by this study.

In the future, other researches need to address the above mentioned weaknesses to refine the study. Although the study was conducted during the early years of debt restructuring scheme, this study can be useful as it provides a basis for future research. It would be interesting to know whether the companies' capital structures and financial performances remain the same or improve over a longer period of time.

Other relevant issues may also be considered for a more comprehensive study in the future. For example, future research can include more ratios or include a comparison of performances between those companies which are not under the CDRC. Also, other aspects of change such as the perception of creditors, shareholders, employees or the public are also interesting as further in depth study.

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