1. INTRODUCTION

The financial management theory explains that use of debt in the capital structure provides the potential of increasing the shareholder’s earning but, it is a double-edged sword. When the economic conditions are conducive, financial leverage helps in increasing the earning per share but during turbulent business environment when the companies are exposed to high operating risks a high level of debt may yank them into a situation of financial distress. Financial distress arises when a firm is not able to meet its obligations of interest payment and principal repayment to its debt-holders. The
firm’s continuous failure to make payment to debt-holder can ultimately lead to the insolvency of the firm. When the firm is in financial distress, the creditors suffer the most as the equity holders of the firm have a limited liability.

For revival of such financially distressed firms Corporate Debt Restructuring (CDR) mechanism was introduced by Reserve Bank of India (RBI) in the year 2001 as a voluntary, non statutory system that allows a company with multiple lenders and loans of more than Rs.20 crores to restructure those loans according to the plan approved by 75% or more of its lenders. The scheme involves reformation of existing debt of a company by extending the repayment period, reduction of interest rates, conversion of debt into equity, conversion of un-serviced portion of interest into term loans and foregoing certain amount of debts. The mechanism was meant to restructure corporate debt “for the benefit of all concerned” (CDR cell, 2016) by reviving the corporate facing financial difficulties because of factors beyond their control on one hand and providing safety for the money lent by the banks and financial institutions on the other.

The years 2008 to 2016 witnessed an enormous growth in the amount of debt restructured under CDR system during which the aggregate number of cases as per data available on the website of CDR cell rose from 184 (aggregate debt amounting to rupees 865 million) in 2008-09 to 530 cases (aggregate debt amounting to rupees 4030 million) in 2015-16 resulting in an increase of 188% in the number of cases and a massive 365% increase in the aggregate debt restructured. The surge in amount of restructured debt has been attributed to the unfavorable global situation over the years (Rastogi & Mazumdar, 2016) and to the mounting debt of companies along with a drop in the returns. Despite the fact that there has been a mammoth growth in restructured advances of banks under the CDR system, no studies have been conducted to measure the impact of the CDR scheme on the performance of the firms. RBI in its Financial Stability Report, 2014 highlighted the need for carrying out a net economic value impact assessment of CDR cases. Additionally, there have been arguments from various experts that the scheme is being used as a tool for escaping the liabilities by companies that are heavily indebted with a very little paid up capital and reserves available and where the management has severely failed in executing their plans and policies and destroyed the financial health of the company. Rajoriya (2012) criticized the mechanism as being misused by companies and by unscrupulous borrowers who are taking undue advantage of the system by diverting, siphoning funds for personal benefits of directors/promoters resulting in heavy losses to public sector banks, financial institutions. Bamzai (2013) opined that the mechanism helps businessmen and promoters in rolling over the debt and stay afloat rather than closing a failed business which is in stark contrast to the Chapter 11 of US bankruptcy code that allows such companies to reorganize their business.

This paper is an attempt to measure the effectiveness of CDR mechanism in revival of companies by analyzing the performance of the firms in the years following debt restructuring. The paper is organized into four sections: the first section provides the related literature and establishes the hypothesis based on available studies that seek to measure performance after a restructuring procedure, the second section provides details related to data collection
method and sampling procedure, the third section presents methodology and findings based on data analysis and the last section presents conclusion and suggestions for improvement in the present mechanism of CDR.

2. RELATED LITERATURE AND HYPOTHESIS SETTING

An extreme debt load forces the managers to make cuts that lead to short term gains but cripple long term efficiency of the firms (Jacobs, 1991). The CDR framework was formulated with an objective of helping a corporate that is facing such crippling effects and inability to service excessive debt so that it can survive. Under the CDR system lenders and borrowers come together to formulate such plans that will aid the distressed corporate in getting a way out of its problems. This will also help in saving the stressed assets of the lenders which would otherwise be lost. Since its introduction many firms have taken recourse of the mechanism for restructuring of their debts, not many studies, however have been conducted to measure the impact of the CDR mechanism either on the borrower or on the lenders. Therefore, for the purpose of this study the theoretical background would be developed by drawing ideas from these limited studies and other studies that focus on measuring the post restructuring performance of the firms. The focus would be on studies that measure post bankruptcy performance as the firms that participate in bankruptcy restructuring face similar problems and are distressed as in case of firms that are participate in the CDR process. Since, the firms under CDR get their debt restructured in the form of debt equity swap; debt forgiveness etc., therefore, the studies concerning such issues and other forms of financial restructuring and performance measurement would also be discussed in the following section.

According to Bowman et al. (1999), although a restructuring exercise may have immediate intermediate effects in the form of increased strategic focus, greater economies, cash flows, greater employee satisfaction but ultimate effects are traceable only after a long period of time. These effects can be measured by changes in market performance i.e. abnormal returns reflected in share prices adjusted for market trends and by changes in accounting performance i.e. return on equity and return on investment. Azman and Muthalib (2004) studied the impact of corporate debt restructuring mechanism on the capital structure and profitability of the Malaysian firms by using t-test, Wilcoxon matched pairs signed rank test and the effect size test. The study concluded that scheme was able to improve the profitability of the companies significantly, however, not much effect was found on the capital structure of sample companies. Rastogi and Mazumdar (2016) examined the movement in stock prices as a measure of shareholder value when an announcement is made with respect to the admission of firm into the CDR mechanism. The study found that equity holders get excess returns after the announcement as the information relating to debt restructuring is perceived to be an indicator of better performance in the future. Since CDR aims to benefit the borrowers as well as the lender it would be interesting to know what impact it had on banks who participate in the mechanism. A study by Mallick (2015) examined the effectiveness of CDR mechanism from lenders’ perspective. By using a stochastic frontier
analysis approach for measuring market power and its interactive effect with CDR on bank stability find evidence that the stability of banks that participated in the mechanism increases substantially following the implementation of the programme and such increase is limited to a threshold level of market power beyond which the effects subside.

Denis and Denis (1995) reported that many firms encounter subsequent financial distress after completing leveraged recapitalizations and show poor operating performance, low assets sale proceeds and negative returns on their stock prices. In contrast many studies examining the impact of financial restructuring report significant performance improvements more specifically in case of leveraged buyouts and management buyouts that involve an increase in debt of the company (Bowman et al., 1999). For example, Smart and Waldfogel (1994) and Phan and Hill (1995) exhibited that leveraged buyouts that involve more of debt financing improves operating performance and labor productivity because such restructuring involves disposal of unprofitable diversified assets, increased decentralization and reduced hierarchical complexities. These studies were in support of Jensen (1986) who argued that debt financing leads to increase in efficiency as it compels the management to use the free cash to service debt payments rather than spending on unprofitable projects which would involve excess staff and perquisites for their own utility.

Gilson et al. (1990) in a study that investigates reorganization choice of financially distressed firms report that shareholders have tendency to avoid bankruptcy and the stock returns are high when debt is restructured out of court. Gilson (1997) and Goto and Uchida (2006) argued that even after firms restructure their debt out of court their leverage levels remain high and they have to approach their creditors again for restructuring of debt in future. Such debt restructuring is intended to avoid stock delisting of distressed firms (Goto & Uchida, 2006). Similar results were found by Inoue et al. (2010) in a study that seemed to analyze the post restructuring performance of Japanese firms that received out of court restructuring by banks after the burst of bubble economy that prevailed in Japan from 1990 to 2005. They reported that profitability of firms did not improve drastically after restructuring and when compared with their industry peers the firms were lagging far behind. In a study that evaluated the total cash flows produced by the firm's assets and rate of return received by the investors of the firms that emerged from bankruptcy Alderson and Betker (1999) find that such firms when compared to benchmark portfolios neither over perform nor underperform after reorganization. They, however, report that such firms had poor accounting performance and their operating margins were below industry median. Michel et al. (1998) reported similar results in an analysis of post bankruptcy performance of emerged firms and find that performance is much below their projected levels. In case of restructuring that involves downsizing operating performance of firms improves significantly as compared to past performance and industry median as these firms are able to reduce various cost associated with sales, labor, capital and research and development expenditures (Espahbodi et al., 2000).

A company under CDR mechanism will most likely have its debt being swapped by the equity interests given to the lenders of the
company. Debt for equity swaps and other forms of financial restructuring show modest positive returns and in some cases have even resulted in negative returns (Bowman et al., 1999). In a study on investigation of market reaction towards debt restructuring announcements Nor et al. (2007) using event study approach find that such information conveys significantly to the market and the effects are mostly negative. Damijan (2014) examined the extent of financial leverage of Slovenian firms and report that firms had unsustainable levels of debt which affects their performance in terms of productivity, employment, exports, investment and caused a threat to their survival. He opines that comprehensive bank restoration in the form of timely corporate debt restructuring will help in economic recovery of such firms.

Previous studies have reported mixed arguments regarding the impact of restructuring on the performance of the firms. The studies that have a focus on out of court restructuring (Gilson, 1997) and (Goto & Uchida, 2006) find that performance does not improve greatly after restructuring and firms have to approach for a subsequent restructuring which is in contrast to what Azman and Muthalib (2004) observed. Further, various criticisms surrounding the mechanism of CDR in India, a framework similar to out of court restructuring, are an indication that the system has not proved to be sufficient for turning around an ailing corporate and improving its performance.

The present study aims to analyze the post restructuring performance of firms that get their debt restructured under the CDR mechanism to understand whether these financially distressed firms were able to perform better than their pre restructuring years’ performance and match their industry peers in terms of performance. Hypothesis of the study are:

- **H0**: Debt restructuring of firms under CDR mechanism improve the profitability of the firms to the level equivalent to their industry peers.
- **H1**: Debt restructuring of firms under CDR mechanism do not improve the profitability of the firms and their profitability remains lower than their industry peers.

### 3. DATA COLLECTION AND SAMPLE

The information about the CDR proposals is not available in public domain in case of unlisted companies and in case of listed companies also the information is limited to moving of such applications and no other details about the proposal is disseminated (Rajoriya, 2012). The CDR cell does not share the information about the companies that enter into debt restructuring scheme on accounts of confidentiality and information cannot be sought through Right to Information (RTI) Act (Economic Times, 2014). Therefore, the following procedure was pursued for identifying the companies that restructured their debt under CDR system. Firstly the words “CDR”, “Corporate Debt Restructuring” and “Debt recast” were searched on the websites Economic Times, Business Standard, TheHindubusinessline, Sify.com, livemint.com and moneycontrol.com. This helped in identifying 176 companies that were in news related to CDR at some point of time. It was then identified, which of these companies are listed on largest stock exchange of India i.e. Bombay Stock Exchange (BSE) so as to find out the date when the companies got a letter of approval (LOA) from the CDR cell with respect to
debt restructuring. This was done because CDR being a ‘material’ information needs to be disclosed to stock exchange by every listed company (Rastogi & Mazumdar, 2016). Thereafter, 85 companies were dropped as 43 companies were not listed on BSE and another 41 companies did not mention anything in their exchange filings about debt restructuring activity under CDR scheme, one company mentioned that it was under CDR but did not mention the exact date of letter of approval. Finally, this study confines to 91 companies about which exact date of letter of approval from CDR was available. The year-wise breakup about number of sample firms that received debt restructuring under CDR has been presented in Table 5. The accounting data are obtained from Prowess- database compiled by the Centre for Monitoring Indian Economy (CMIE).

4. MEASURING PERFORMANCE AFTER DEBT RESTRUCTURING

For evaluating the post bankruptcy performance of firms Alderson and Betker (1999) used the ratio of operating income to sales. The ratio of operating income as a percentage of total income (hereafter referred to as operating margin) has been used in this study. Operating income is the earning of the firm before interest, taxes, depreciation and amortization. Further, following Inoue et al. (2010) the performance of sample firms has been measured in relation to their peers in the industry. The idea behind this comparison is that the firms that are facing financial problems and are receiving a workout from their lenders must be able to improve their situation and match their industry peers so as to justify their rehabilitation package. This performance standard is often used in research on financial distress. Also, interest coverage ratio has been used to identify changes in the capability of the company to meet its interest obligations. This measure is of particular importance from the viewpoint of the banks and creditors (Inoue et al., 2010) as, one of the primary objective of CDR mechanism is to provide safety to the money lent by banks. A period of five years before and after debt restructuring has been taken so as to measure the performance after restructuring.

To test hypothesis H0 and H1, we measure post restructuring performance of sample firms in two stages. First, the post-restructuring performance of the sample firms has been compared with their pre-restructuring performance and second, the performance of the sample firms over the years has been matched with their industry median.

Table 1 represents the median and mean values of the absolute accounting variables of the sample firms ranging from the year-5 to year+5 of restructuring event. All of the median operating margin measures exhibit a decreasing trend from the year -5 to year+5. Although, the operating performance of the firms improved in the year +1 after restructuring, the mean operating margin measures are negative for the year following two years after restructuring and they continue to be negative up to year +5. This suggests that firms were not able to improve their performance even after going through CDR mechanism.

For comparing changes in this measure from the pre-to-post restructuring period, we follow the methodology used by Atiase et al. (2004). For calculating change, the year before restructuring (year -1) has been taken...
as the base year and pre restructuring change is defined as the difference between the year -5 and year -1 and it is represented by pre_rest. Post restructuring change has been analyzed for up to 4 years and 5 years by measuring the difference between the year +4 and year -1 (post_rest4) and the difference between year +5 and year -1 (post_rest5), respectively. We use Wilcoxon signed rank test here to check whether the decrease in performance that occurred during post restructuring period is significantly different from the decrease that occurred during pre restructuring period. The results of the test in Table 2 indicate that the sample firms faced a sharp decline in operating performance in the years post restructuring and this decline is significantly more than the decline that occurred in the pre restructuring period. These results are inconsistent with Hypothesis H0 and support hypothesis H1 and led us to conclude that the sample firms have experienced a continuous deterioration in their performance and CDR mechanism was not sufficient enough for revival of such firms.

When the measure of operating performance is industry adjusted (Table 3), the proportion of sample firms with operating margin below their industry median goes on increasing from 21.34% in year-5 to 64.36% in the year of restructuring. This suggests that up to 5 years before restructuring most of the sample firms were performing significantly above their industry peers but operating performance declined over the years and they had to approach for a restructuring of their debt. Also, after restructuring we see that most of the firms i.e 61% in year +4 and 58% in year +5 are still below their industry median. For the sample firms the industry adjusted median of

| Year | No. of firms | Mean Operating Margin | Median operating margin |
|------|--------------|-----------------------|-------------------------|
| -5   | 89           | 18.57%                | 16.09%                  |
| -4   | 89           | 17.49%                | 15.15%                  |
| -3   | 90           | 15.64%                | 14.59%                  |
| -2   | 91           | 14.52%                | 13.48%                  |
| -1   | 91           | 14.62%                | 10.18%                  |
| R    | 87           | 0.38%                 | 4.08%                   |
| +1   | 72           | 5.87%                 | 7.37%                   |
| +2   | 52           | -2.24%                | 9.55%                   |
| +3   | 35           | -4.20%                | 9.48%                   |
| +4   | 23           | -39.58%               | 7.23%                   |
| +5   | 19           | -11.54%               | 7.9%                    |

| Table 2. Wilcoxon Signed Ranks Test |
|-------------------------------------|
| Ranks                              | N     | Mean Rank | Sum of Ranks | Test statistics |
|-------------------------------------|-------|-----------|--------------|----------------|
| post_rest4 - pre_rest               |       |           |              |                |
| Negative Ranks                      | 20    | 11.35     | 227          | Z = -3.263*    |
| Positive Ranks                      | 2     | 13.00     | 26           | Asymp. Sig. (2-tailed) = 0.001 |
| Total                               | 22    |            |              |                |
| post_rest5 - pre_rest               |       |           |              |                |
| Negative Ranks                      | 15    | 10.6      | 159          |                |
| Positive Ranks                      | 4     | 7.75      | 31           |                |
| Total                               | 19    |            |              |                |
| a. Based on positive ranks.         |       |           |              |                |

Table 1. Operating Performance Measures of Sample firms prior to and following debt restructuring under CDR
operating margin is positive before the restructuring year and it becomes negative for the years after restructuring. This suggests that the sample firms, although performing significantly above their industry median in the year-5, year-4, year-3 and year -2 were not able to sustain their performance after restructuring and they fell below their industry median in the year+1, year+3, year+4 and year+5. These results are in support of hypothesis H1.

The interest coverage ratio of the sample firms around debt restructuring event have been reported in Table 4. The median interest coverage ratio is significantly less than one in year-1 and it is negative in the restructuring year. The median interest coverage improves in the year after restructuring from -0.28% in restructuring year to 0.29% in the year +2 but it again becomes negative in the year+3 after restructuring and remains significantly less than one in the year+4. The initial improvement in the interest coverage may have been because of the relief the firms received as a part of debt restructuring package under CDR mechanism instead of genuine progress. These results point out that the CDR mechanism has been largely insufficient in improving the real business of the firms that underwent debt restructuring. However, since post five year restructuring data was not available for a large number of firms, it would be interesting to know if there are any changes in the results when such data becomes available.

| Year | -5 | -4 | -3 | -2 | -1 | R | +1 | +2 | +3 | +4 | +5 |
|------|----|----|----|----|----|---|----|----|----|----|----|
| N    | 89 | 89 | 90 | 90 | 91 | 87 | 72 | 52 | 35 | 23 | 19 |
| Percentage with negative operating margin | 1.12% | 1.12% | 5.56% | 7.69% | 16.48% | 41.38% | 26.39% | 21.15% | 22.86% | 30.43% | 21.05% |

| Operating margin | Industry adjusted median | 5.72%*** | 3.61%*** | 3.96%*** | 3.42%*** | 1.305% | - | 5.08%*** | 0.94% | -0.63% | -1.05% | -0.24% |
| Percentage < industry median | 21.34% | 25.84% | 26.66% | 37.36% | 47.25% | 64.36% | 59.72% | 46.15% | 51.42% | 60.86% | 57.89% |

This table shows changes in interest coverage of firms that received debt restructuring package under CDR mechanism. The year in which the firm received the debt restructuring package is represented as R. Year -1 corresponds to the year before restructuring and the year+1 corresponds to the year after restructuring. The industry adjusted median is calculated by subtracting the industry median (based on industry classification under Bombay Stock Exchange) from the raw variable for the corresponding year in which a particular firm received the package. Operating margin represents EBDITA as % of total income.

*** Significantly different from zero at the 1% level. (two-sided Wilcoxon signed rank test)
* Significantly different from zero at the 10% level. (two-sided Wilcoxon signed rank test)
5. CONCLUSION

The study attempted to analyze the post restructuring performance of firms that received debt restructuring under CDR mechanism introduced by the RBI in the year 2001 for revival of corporate facing financial difficulties. The findings show that the sample firms continued to face a decline in their operating performance in the years post restructuring and the debt restructuring package under the mechanism did not help them in turning around their business and improving their performance. This finding is in confirmation with the hypothesis H1 as the profitability of most of the firms was significantly lower than their industry peers for the five years after restructuring. Most of the sample firms continued to have a poor interest coverage suggesting that even five years post restructuring they were not in a position to service their debts. The results of the study give an impression that the sample firms were facing distress due to certain uncontrollable factors because of which the debt restructuring package under CDR could not fetch desired outcomes in terms of performance. Further research could be conducted for making an in-depth analysis of firms within a particular industry to filter the impact of macro-economic and other extraneous variables.

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