Analysis of Quality of Assets for Securitization

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Abstract

Securitization is the act through which a company pools its illiquid assets to form financial securities that are then issued to investors who will receive interest payment. Residential mortgages, commercial mortgages, auto loans or credit card debt obligations are some of the illiquid assets that are generally converted into securities. Securitization market in India is expected to reach an all-time high of ₹2 trillion in the near future. The rising importance of securitization in Indian economy needs to be looked at closely. The research was aimed at assessing the quality of assets of corporates along with the effectiveness of the securitization process and solvency position of the corporates under study. The study focuses on 20 high market capitalization companies trading in the NSE for the time period between 2014-2019. Ratio Analysis, Dupont Analysis and Altman Z score were used to assess various performance metrics like solvency, efficiency, and risk exposure and asset quality. Majority of the companies showed positive results in all these areas except for some turnover ratios.

Key Words: Securitization, Asset Quality, Altman Z Score, Risk, Liquidity

INTRODUCTION

Securitization is the act of combining various types of contractual debt like residential mortgages, commercial mortgages, auto loans or credit card debt obligations and selling their related cash flows to third party investors in the form of securities like bonds, pass-through securities or collateralized debt obligations (CDOs). Securities that are backed by mortgage receivables are called Mortgage Backed Securities (MBS) and others are called Asset Backed Securities (ABS). Mostly illiquid assets are securitized by banks and financial institutions. Mortgages are an example of illiquid assets that take a long time to realize in full. In order to realize the full potential of such assets banks and financial institutions convert them into liquid assets via securitization. Thousands of such loans will be pooled and parts of these pools will be sold as securities. The investors get repaid from the principal and interest cash flows collected from the underlying debt.

The first securitization deal in India happened way back in 1991 - when the Citibank raised Rs 16 crore from GIC Mutual Fund by securitizing some of its auto loans. GE capital and ICICI Credit Corporation are some of the early birds to catch securitization in early 90's. It has come a long way since then. The securitization market was affected in the past by various regulatory and taxation concerns. When undertaken by banks, financial institutions and non-banking financial companies (NBFCs), securitization in India is regulated and governed by the Reserve Bank of India (RBI) under the provisions of the 2006 and 2012 Guidelines on Securitization of Standard Assets (RBI Guidelines) for standard assets and by the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (SARFAESI Act) for stressed financial assets. After the global financial crisis of 2008 cantered on subprime lending and securitization, regulators across the globe put more vigorous mechanisms in place to regulate their markets. To insure against a misuse of securitization in India, the RBI introduced revisions to the RBI Guidelines in 2012 mandating banks, NBFCs and financial institutions securitizing their standard assets to retain "skin in the game" and have a continuing stake in the performance of the securitised assets, referred to as the minimum retention requirement (MRR). It was also mandated that such assets had to be held by the originating entity for a minimum length of time, being the minimum holding period (MHP) that the loan or financial asset must stay on the books of an originator before it can become a part of the pool to be securitised.

A recent ICRA report has stated that with non-bank financial companies and housing finance players depending more on securitization for raising funds, the volume in the market is likely to cross Rs 2 lakh crore in FY2020. In the nine months ended December 31, 2019, NBFCs and housing finance companies (HFCs) together raised Rs 1.57 lakh crore through securitization route compared to Rs 1.44 lakh crore in the year-ago period.

The RBI has proposed new rules to securitize mortgages and enhance their marketability making it easier for home financiers and para banks to access cash and adding momentum to India's corporate loans market. The RBI's move would make additional liquidity available to NBFCs, which have a significant share in overall credit disbursement but are struggling to raise funds cheaply after the IL&FS defaults.

At present, the secondary market for corporate loans in India is dominated by transactions of banks in non-performing assets and is constrained by sparse information on pricing and recovery rates. The proposal to set up a committee on housing securitization markets and task force for secondary markets for corporate loans is a positive announcement for long-term development of the credit supply mechanism by attracting a wider set of investors.

LITERATURE REVIEW

V Sridhar (2002) [1] examined securitization in India using variables like awareness level of securitization, legislative changes, investor education and mandatory rating of structured obligations to suggest that in the absence of a securitization act there are certain taxation and legal concerns with the securitization vehicle such as treatment for true sale, stamp duties, taxation and accounting among others. Securitization facilitates liquidity, fresh asset creation, better pricing and proactive management of asset portfolios for originators. Most of the deals have been privately placed with the majority of them being bilateral fully bought out deals. Securitization can provide vital funding for the infrastructure sector while MBS can do the same for housing finance companies. The rising number of bank mergers would also necessitate more CDOs.

Praveen Mohanty (2005) [2] has observed that the securitization market in India has recorded the fastest growth rate in Indian debt market. Data from rating agencies show a healthy growth from about ₹4000cr in 2001-02 to an estimated ₹30000cr in 2004-05 while numbers of deals for the same period have gone up from 10 to over 80. It is seen in India primarily as a funding source. The variable considered in the study includes risk transfer, growth rate, legal, regulatory and tax related hindrances. The conclusion was that securitization enables transfer of a wide variety of risks from one entity to another and it can be made more attractive through certain regulatory and legal changes.

Lloyd Dube (2006) [3] looked at the suitability of Securitization as a means of financing low-cost housing in South Africa. The private investors showed little or no interest in utilizing the R68 bn low cost housing market of South Africa through securitization. An analysis of the 1996 census shows that 1.5 million households live in formal houses in urban areas and 1.6 million live in makeshift houses in the rural areas. Credit Risk, incentives to financial institutions, legal, social and economic environment were considered as the main factors in the study. The study identified the need for the government to undertake low cost housing development partnerships with developers and financial institutions. Changes were recommended to the existing legal framework and institutional structures to encourage securitization.

Srinivas Gumparthi, Manickavasagam Venkatachalam, G. Sollarasu (2010), [4] the ultimate aim of any investor is to maximize his returns and minimize his risk. In order to achieve this aim diversification of investment is made by investors in various types of securities which may lie at a continuum between highly risky and risk free. Commercial Mortgage Backed Securities (CMBS) is one such type of instrument where people who are willing to take benefit of real estate boom, but are not backed by real estate knowledge, can invest in these pooled and repacked loans on commercial property mortgages. The need for the study is to help the investors in better investment decision while investing in CMBS. The level of risk involved to get an `x' rate of yield could be determined by analyzing the various characteristics in a CMBS pool affecting the yield, thereby finding out the level of relationship between each independent variable (LTV, DSCR, Loan Term, Amortization term, etc.) and the dependent variable (yield). This study gives an investment pattern for the investors which can be applied for property evaluation for investment decisions.

Viral V. Acharya, Philipp Schnabl and Gustavo Suarez (2011) [5] says that Asset-backed commercial paper conduits (special purpose vehicles managed by large commercial banks) experienced a shadow-banking “run” and played a central role in the early phase of the financial crisis of 2007-09. Banks had set up conduits to securitize assets worth $1.3

trillion while insuring the newly securitized assets using explicit guarantees. The research considered variables like structure of guarantees, likelihood of capital constrained banks setting up conduits, effect of guarantees on conduits, extent of realized risk transfer and bank's exposure and stock returns. It was concluded that the major reason for setting up conduits was to carry out regulatory arbitrage. The conduits were a form of securitization without proper risk transfer.

M Jayadev and RN Rao (2012) [6] identified that in the Indian context, microfinance gained momentum in 1992 with the introduction of the Self Help Group (SHG)-Bank Linkage program by the National Bank for Agriculture and Rural Development. Interviews with senior executives of microfinance institutions like Grameen Koota and Equitas on securitization transactions were carried out. Absence of true sale, originating and servicing, uniqueness of asset class, borrower profile, and group credit behaviour and risk mitigation were the variables considered in the study. The conclusion was that securitization deals are a well-structured and suitable funding option as they are affordable and at the same time easy to carry out for MFIs.

R Gandhi (2015) [7] observes that the Indian market is still at a nascent stage driven by the needs for meeting priority sector lending targets by banks. The band of originators and investors is narrow with NBFCs as the main originators and banks as investors. Public Sector Banks are mostly absent. Asset backed securitization (ABS) is the largest securitization class in India. The Indian Securitization market which reached a high of 63,730 crore by March 2008 dwindled down to 28,800 crore in March 2014. The factors under consideration included global regulatory initiatives, Indian regulatory measures, and legal, taxation and stamp duty issues. The research calls attention to advantages provided by securitization to originators, investors, financial markets and servicers, trustees, brokers, credit rating agencies. The major global initiatives to regulate securitization like Basel III modified Basel II, Capital Requirements Directive along with directives by G20, FSB are mentioned. RBI plays the role of regulator by ensuring that financial intermediaries engage in securitization prudently. The research concludes that the asset securitization market in India is raring to go and move forward.

Nidhi Bothra (2016) [8] observed that despite being in existence for over two decades, the securitization market in India continues to be in its nascent stages. In India, Commercial

Vehicle (CV) is the most dominant class in asset securitization. Next, micro loans having a 36% market share in FY 20163. In FY 2016 the number and the volume of micro loan transactions increased by 66% and 80% respectively. 30 of the 52 Originators in ABS space were MFIs. The variables considered in the study included tax issues, regulatory changes, priority sector lending and foreign portfolio investing. It was concluded that recent changes in taxation and allowing FPIs to invest in securitized debt instruments is expected to accelerate growth of securitization in India.

J Romero-Torres, S Bhatia and S Sural (2017) [9] understood that banks are reaching their exposure limits in infrastructure lending due to bad loans and weak profitability. Among public sector banks (PSBs), the problem is more acute. Since 2016, PSBs have accumulated nearly 88% of the nonperforming assets (NPAs) of the banking sector, compared with their 70% asset base. Compounding the banking sector's problems are the new Basel III norms for bank capital, which will be fully implemented by 2019. Floating interest rate, stamp duty, capital allocation issues, syndication of banks and homogeneity of the underlying asset pool were taken as variables in the study. This research identified – asset selection, credit enhancement, floating to fixed interest rate conversion as success factors for the recommended ABS structure to function and achieve its objectives.

Daniela Gabor (2019) [10] has observed that it is paradoxical that 10 years after Lehman, global policy forums have again turned to securitization as a financial instrument that can support the global efforts to reorient finance towards more sustainable activities. These include the OECD's low-carbon infrastructure push, the MDBs plans to optimize balance sheets, or the G20 to promote Infrastructure as an Asset Class as a pilot sector for the new, finance-driven development agenda. The variables under consideration included pathways to securitization, sustainability and accountability, financial stability and developmental impact. Structural ambition of securitization for sustainability is to reorganize the financial systems from bank-based to capital-markets based models. The paper states that securitization for sustainability goals will speed up the financial system transformation in poor and emerging countries leading to a fragile global financial system.

PROBLEM STATEMENT

Securitization as a structured finance mechanism provides advantages like risk management, higher liquidity, cost effective financing, marketability of securities and portfolio diversification opportunities to banks, NBFCs and other financial institutions. The securitization volume in India was at Rs. 1.57 lakh crores for December 2019 while it was Rs. 1.44 lakh crores a year ago and the volume is estimated to rise exponentially in the coming years. The rising importance that securitization holds for the Indian economy means that the process should be closely observed and understood. While securitization can provide many benefits to the parties involved it can also be dangerous as it is seen as one of the contributors to the global financial crisis of 2008. Thus the study has been undertaken to analyse the quality of assets for securitization of corporates.

To analyse the above mentioned problem; this study aims to analyse the quality of assets owned by large corporates in India. Along with this the study also focuses on assessing the effectiveness of the securitization process and the solvency position of the corporates.

OBJECTIVES

The objectives of this research are as given below;

- Assessing quality of assets owned by corporates.
- Assessing effectiveness of the securitization process.
- Evaluating solvency position of corporates by using Altman Z score.

RESEARCH METHODOLOGY

Research Design is longitudinal study coming under descriptive analysis as repeated observations of the same variables are carried out over a period of time. Sampling Design - The samples selected for the research includes 20 companies with high market capitalization. These companies were chosen out of the companies trading in the NSE (National Stock Exchange) having high market capitalization and long term borrowings. Analysis Tools used in this research uses tools like ratio analysis, dupont analysis and altman z score to analyse the data. The efficiency, solvency, coverage quality and risk levels of the corporates are assessed using the tools. The data used for the analysis is secondary data collected from annual reports and online sources. The data has been collected for a period of 5 years from 2014-19.

DATA ANALYSIS

Table 1: **Long Term Debt to Equity Ratio**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	0.29	0.26	0.27	0.32	0.35
TATA motors	0.63	0.65	0.65	0.46	0.82
Sun Pharmaceutical Industries	0.062	0.064	0.068	0.066	0.063
Mahindra & Mahindra	0.059	0.072	0.083	0.067	0.131
Apollo Tyres	0.32	0.26	0.16	0.06	0.1
JK Tyres	0.78	0.89	0.98	1.04	1.25
Ashok Leyland	0.04	0.07	0.19	0.37	0.5
Larsen & Toubro	0.05	0.11	0.16	0.2	0.23
Asian Paints	0.0012	0.0013	0.0015	0.0059	0.0076
Ultratech cements	0.53	0.53	0.17	0.12	0.24
Dr Reddys Labs	0.03	0.04	0.04	0.09	0.09
Dabur India	0.0066	0.0476	0.0549	0.0003	0.0003
Shree Cements	0.24	0.25	0.07	0.08	0.08
Havells India	0.01	0.022	0	0	0.018
JSW Steel	0.75	1.05	1.17	1.43	1.16
Indian Oil Corporation	0.31	0.16	0.2	0.28	0.48
Biocon	0.0002	0.01	0.0202	0.0228	0.0044
Britannia Industries	0.0001	0.0001	0.0002	0.0003	0.0006
Bharat Petroleum Corporation	0.64	0.43	0.46	0.49	0.51
Torrent Pharma	0.74	0.9	0.49	0.48	0.8

From the table given above it is observed that 16 of the companies stayed below 0.50 meaning they have very low risk because of lower debt obligations and indicates good solvency. 3 of the companies stayed between 0.50 and 1 meaning they have moderate risk. Only 1 company stayed above 1 meaning it has high risk attached to it.

Table 2: **Long Term Debt to Capitalization Ratio**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**	**2014-15**
Reliance Industries	0.23	0.21	0.21	0.24	0.26
TATA motors	0.39	0.39	0.39	0.31	0.45
Sun Pharmaceutical Industries	0.059	0.06	0.063	0.062	0.059
Mahindra & Mahindra	0.056	0.068	0.077	0.063	0.115
Apollo Tyres	0.24	0.2	0.14	0.05	0.09
JK Tyres	0.44	0.47	0.49	0.51	0.56
Ashok Leyland	0.03	0.07	0.16	0.27	0.33
Larsen & Toubro	0.04	0.1	0.13	0.17	0.19
Asian Paints	0.0012	0.0013	0.0015	0.0059	0.0075
Ultratech cements	0.34	0.34	0.14	0.1	0.19
Dr Reddys Labs	0.03	0.04	0.04	0.08	0.08
Dabur India	0.0065	0.0454	0.052	0.0003	0.0003
Shree Cements	0.19	0.2	0.06	0.07	0.07
Havells India	0.009	0.021	0	0	0.017
JSW Steel	0.43	0.51	0.54	0.58	0.53
Indian Oil Corporation	0.24	0.14	0.16	0.22	0.32
Biocon	0.0002	0.0099	0.0198	0.0223	0.0044
Britannia Industries	0.0001	0.0001	0.0002	0.0003	0.0006
Bharat Petroleum Corporation	0.39	0.3	0.31	0.33	0.34
Torrent Pharma	0.42	0.47	0.33	0.32	0.44

The table given above indicates that 19 of the companies has stayed below 0.50 meaning they have very low risk from debt obligations while 1 company has stayed between 0.50 and 1 indicating moderate risk compared to other companies. With the exception of this company all others showed good solvency position.

Table 3: **Proprietary ratio**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	0.52	0.51	0.53	0.52	0.54
TATA motors	0.36	0.34	0.36	0.41	0.3
Sun Pharmaceutical Industries	0.61	0.61	0.62	0.63	0.61
Mahindra & Mahindra	0.65	0.64	0.67	0.63	0.58
Apollo Tyres	0.57	0.55	0.54	0.62	0.53
JK Tyres	0.27	0.23	0.24	0.22	0.19
Ashok Leyland	0.46	0.42	0.44	0.42	0.38
Larsen & Toubro	0.42	0.42	0.45	0.42	0.43
Asian Paints	0.68	0.67	0.68	0.59	0.58
Ultratech cements	0.48	0.48	0.61	0.56	0.54
Dr Reddys Labs	0.78	0.69	0.71	0.66	0.65
Dabur India	0.71	0.73	0.7	0.64	0.63
Shree Cements	0.63	0.59	0.69	0.72	0.66
Havells India	0.59	0.57	0.66	0.66	0.65
JSW Steel	0.34	0.33	0.3	0.29	0.34
Indian Oil Corporation	0.34	0.39	0.38	0.4	0.31
Biocon	0.86	0.87	0.88	0.84	0.78
Britannia Industries	0.71	0.7	0.7	0.55	0.5
Bharat Petroleum Corporation	0.32	0.34	0.32	0.36	0.32
Torrent Pharma	0.57	0.52	0.66	0.67	0.55

The table given above shows that 13 of the companies has more than 50% of their total assets financed by proprietors funds indicating external financing is lesser and risk is also lesser. 7

of the companies have less than 50% of their total assets financed by proprietors funds indicating the rest are financed through external borrowings adding more risk.

Table 4: **Fixed Assets Turnover Ratio**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	1.18	0.97	0.84	0.98	1.73
TATA motors	2.41	2.14	1.58	1.58	1.38
Sun Pharmaceutical Industries	1.74	1.56	1.49	1.64	1.81
Mahindra & Mahindra	4.24	4.38	4.48	4.41	4.94
Apollo Tyres	1.71	1.59	1.63	2.33	2.74
JK Tyres	2.21	1.75	1.72	1.7	1.99
Ashok Leyland	4.56	4.35	3.81	3.62	2.48
Larsen & Toubro	10.81	9.66	8.59	7.24	6.95
Asian Paints	3.34	3.52	4.41	4.58	5.46
Ultratech cements	0.91	0.76	0.98	0.97	0.98
Dr Reddys Labs	2.08	1.73	1.79	2.01	2.65
Dabur India	5.85	5.24	5.17	8.02	8.02
Shree Cements	2.04	1.9	2.55	1.66	1.83
Havells India	3.18	2.87	4.76	4.99	5.16
JSW Steel	1.26	1.2	0.97	0.68	0.98
Indian Oil Corporation	3.67	3.26	3.02	3.02	4.1
Biocon	1.95	1.81	2.02	1.92	2.2
Britannia Industries	7.46	7.47	9.56	11.02	12.37
Bharat Petroleum Corporation	5.53	4.97	4.69	5.27	8.5
Torrent Pharma	0.7	0.53	1.12	1.45	1.01

The table given above indicates that 11 companies has ratio below 3 indicating low efficiency in generating sales using fixed assets. 7 of the companies has ratio between 3 and 6 indicating moderate efficiency in generating sales using fixed assets and only 2 companies has ratio above 6 indicating high efficiency in generating sales using fixed assets.

Table 5: **Total Asset Turnover Ratio**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	0.48	0.47	0.44	0.51	0.83
TATA motors	1.13	0.97	0.74	0.75	0.72
Sun Pharmaceutical Industries	0.26	0.24	0.22	0.21	0.21
Mahindra & Mahindra	1.01	1.01	1.09	1.14	1.17
Apollo Tyres	0.9	0.77	0.89	1.15	1.45
JK Tyres	1.01	0.89	0.84	0.91	1.03
Ashok Leyland	1.57	1.5	1.41	1.45	1
Larsen & Toubro	0.68	0.63	0.63	0.61	0.66
Asian Paints	1.23	1.2	1.2	1.49	1.58
Ultratech cements	0.6	0.54	0.6	0.61	0.64
Dr Reddys Labs	0.65	0.54	0.59	0.58	0.6
Dabur India	1.11	0.95	1.01	1.29	1.47
Shree Cements	0.75	0.63	0.75	0.58	0.81
Havells India	1.39	1.23	1.23	1.35	1.42
JSW Steel	0.71	0.75	0.64	0.49	0.61
Indian Oil Corporation	1.66	1.49	1.38	1.54	1.91
Biocon	0.32	0.29	0.32	0.3	0.64
Britannia Industries	1.84	1.99	2.25	2.57	2.88
Bharat Petroleum Corporation	2.56	2.35	2.2	2.49	3.41
Torrent Pharma	0.46	0.35	0.55	0.73	0.52

As per the table given above 18 of the companies has a relatively low ratio below 2 indicating lower efficiency in generating sales using total assets. 2 of companies has ratio above 2 indicating relatively better efficiency in generating sales using total assets.

Table 6: **Capital Employed Turnover Ratio**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**	**2014-15**
Reliance Industries	0.71	0.73	0.66	0.73	1.13
TATA motors	1.91	1.72	1.24	1.25	1.32
Sun Pharmaceutical Industries	0.4	0.37	0.33	0.31	0.32
Mahindra & Mahindra	1.46	1.48	1.49	1.69	1.76
Apollo Tyres	1.2	1.11	1.43	1.76	2.46
JK Tyres	2.11	2.06	1.78	2.01	2.48
Ashok Leyland	3.32	3.35	2.71	2.51	1.73
Larsen & Toubro	1.57	1.35	1.22	1.2	1.25
Asian Paints	1.82	1.79	1.75	2.5	2.69
Ultratech cements	0.82	0.74	0.84	0.96	0.97
Dr Reddys Labs	0.81	0.76	0.8	0.81	0.86
Dabur India	1.55	1.25	1.37	2	2.32
Shree Cements	0.96	0.86	1.03	0.75	1.13
Havells India	2.33	2.11	1.86	2.04	2.15
JSW Steel	1.2	1.11	0.98	0.71	0.81
Indian Oil Corporation	3.65	3.25	2.98	3	4.17
Biocon	0.37	0.32	0.36	0.35	0.82
Britannia Industries	2.57	2.84	3.22	4.63	5.74
Bharat Petroleum Corporation	4.9	4.82	4.65	4.64	6.97
Torrent Pharma	0.63	0.48	0.67	0.97	0.7

The table given above shows that 14 of the companies has relatively lower ratios below 2 indicating lower efficiency in generating sales using capital employed. 6 of the companies has ratios above 2 indicating better efficiency in generating sales using capital employed.

Table 7: **Inventory Turnover Ratio**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	8.4	7.33	7.11	8.32	9
TATA motors	14.75	9.04	7.8	8.27	7.47
Sun Pharmaceutical Industries	3.5	4.11	3.21	3.34	3.53
Mahindra & Mahindra	13.79	17.81	15.73	15.03	15.75
Apollo Tyres	5.89	5.89	5.1	8.48	7.49
JK Tyres	6.61	6.23	6.35	7.86	8.2
Ashok Leyland	10.66	14.77	7.5	11.42	9.52
Larsen & Toubro	26.64	29.34	36.77	31.19	25.83
Asian Paints	6.27	6.4	5.67	7.74	6.37
Ultratech cements	10.72	9.47	10.61	10.29	8.23
Dr Reddys Labs	5.25	5.01	5.32	5.97	5.76
Dabur India	8.45	7.85	8.81	9.32	9.84
Shree Cements	7.19	6.08	6.41	6.76	7.01
Havells India	5.2	4.97	6.56	6.88	7.53
JSW Steel	7.05	6.33	5.57	5.37	5.28
Indian Oil Corporation	7.31	6.41	5.76	8.76	9.23
Biocon	3.29	3.93	4.41	4.22	5.27
Britannia Industries	14.45	15.47	13.79	20.49	20.54
Bharat Petroleum Corporation	13.74	11.28	10.2	13.81	16.46
Torrent Pharma	4.09	3.19	4.32	5.46	4.37

As given in the above table it is inferred that 6 of the companies has inventory turnover ratios between 3 and 6 indicating a lower efficiency in managing inventory while 10 companies has turnover between 6 and 12 indicating relatively better efficiency in managing inventory. Only 4 of the companies has turnover above 12 indicating higher efficiency in managing inventory.

Table 8: **Altman Z score**

Year/Company	**2018-19**
Reliance Industries	2.12
TATA motors	2.01
Sun Pharmaceutical Industries	5.42
Mahindra & Mahindra	4.88
Apollo Tyres	2.93
JK Tyres	1.53
Ashok Leyland	2.37
Larsen & Toubro	2.90
Asian Paints	22.86
Ultratech cements	5.59
Dr Reddys Labs	17.60
Dabur India	29.90
Shree Cements	8.51
Havells India	12.66
JSW Steel	1.82
Indian Oil Corporation	4.89
Biocon	12.39
Britannia Industries	31.51
Bharat Petroleum Corporation	3.57
Torrent Pharma	3.80

As per the table given above only 1 company has a score below 1.81 meaning it is in the distress zone in terms of bankruptcy risk. 6 of the companies have a score between 1.81 and 2.99 meaning they are in the caution zone in terms of bankruptcy risk. 13 of the companies have a score above 2.99 meaning that they are in the safe zone in terms of bankruptcy risk.

Table 9: **DuPont Analysis**

Year/Company	2018-19
Reliance Industries	8.67%
TATA motors	9.12%
Sun Pharmaceutical Industries	3.57%
Mahindra & Mahindra	14.02%
Apollo Tyres	7.75%
JK Tyres	10.24%
Ashok Leyland	23.80%
Larsen & Toubro	12.74%
Asian Paints	24.02%
Ultratech cements	8.79%
Dr Reddys Labs	10.07%
Dabur India	31.86%
Shree Cements	9.91%
Havells India	18.66%
JSW Steel	23.34%
Indian Oil Corporation	15.55%
Biocon	6.92%
Britannia Industries	27.78%
Bharat Petroleum Corporation	19.41%
Torrent Pharma	14.86%

The table given above indicates that only 2 companies have return on equity between 0 and 6% indicating high level of risk. 11 companies has return on equity between 7% and 15% indicating moderate level of risk while 7 companies has return on equity above 16% indicating low level of risk.

Table 10: **Year on Year Fixed Assets Growth Rate**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**
Reliance Industries	5%	5%	21%	25%
TATA motors	7%	-2%	3%	3%
Sun Pharmaceutical Industries	0%	13%	15%	1%
Mahindra & Mahindra	14%	14%	6%	18%
Apollo Tyres	10%	18%	46%	15%
JK Tyres	-7%	7%	1%	12%
Ashok Leyland	5%	15%	1%	-5%
Larsen & Toubro	4%	1%	-7%	-1%
Asian Paints	22%	40%	4%	29%
Ultratech cements	-1%	60%	0%	5%
Dr Reddys Labs	-6%	0%	6%	35%
Dabur India	0%	3%	43%	6%
Shree Cements	12%	52%	0%	-6%
Havells India	12%	120%	18%	7%
JSW Steel	12%	-1%	1%	14%
Indian Oil Corporation	11%	8%	6%	10%
Biocon	11%	4%	6%	14%
Britannia Industries	13%	42%	22%	24%
Bharat Petroleum Corporation	13%	10%	20%	28%
Torrent Pharma	1%	97%	9%	8%

In terms of year on year fixed assets growth rate the table given above shows that 12 of the companies recorded positive growth rates over the 5 yr. period. 8 of the companies recorded negative growth rates at certain time periods over the 5 yr. period.

Table 11: **Fixed Assets to Total Assets**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	0.41	0.49	0.53	0.52	0.48
TATA motors	0.47	0.45	0.47	0.47	0.52
Sun Pharmaceutical Industries	0.15	0.15	0.15	0.13	0.11
Mahindra & Mahindra	0.24	0.23	0.24	0.26	0.24
Apollo Tyres	0.52	0.49	0.55	0.49	0.53
JK Tyres	0.46	0.51	0.49	0.54	0.52
Ashok Leyland	0.34	0.34	0.37	0.4	0.4
Larsen & Toubro	0.06	0.07	0.07	0.08	0.09
Asian Paints	0.37	0.34	0.27	0.33	0.29
Ultratech cements	0.66	0.71	0.61	0.63	0.65
Dr Reddys Labs	0.31	0.32	0.33	0.29	0.23
Dabur India	0.19	0.18	0.2	0.16	0.18
Shree Cements	0.37	0.33	0.3	0.35	0.44
Havells India	0.44	0.43	0.26	0.27	0.28
JSW Steel	0.57	0.62	0.66	0.72	0.62
Indian Oil Corporation	0.45	0.46	0.46	0.51	0.47
Biocon	0.16	0.16	0.16	0.16	0.29
Britannia Industries	0.25	0.27	0.24	0.23	0.23
Bharat Petroleum Corporation	0.46	0.47	0.47	0.47	0.4
Torrent Pharma	0.66	0.67	0.5	0.5	0.52

As given in the table above 5 of the companies has ratios above 0.50 indicating more than 50% of total assets of such companies are made up of fixed assets whereas 15 of the companies has ratios lesser than 0.50 indicating less than 50% of total assets of such companies are made up of fixed assets.

Table 12: **Fixed Assets to Equity**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**	**2014-15**
Reliance Industries	0.78	0.95	1	0.99	0.88
TATA motors	1.29	1.33	1.3	1.15	1.75
Sun Pharmaceutical Industries	0.25	0.25	0.24	0.2	0.19
Mahindra & Mahindra	0.37	0.36	0.36	0.41	0.4
Apollo Tyres	0.92	0.88	1.02	0.8	0.99
JK Tyres	1.71	2.23	2.05	2.41	2.8
Ashok Leyland	0.75	0.82	0.85	0.95	1.05
Larsen & Toubro	0.15	0.15	0.16	0.2	0.22
Asian Paints	0.55	0.51	0.4	0.55	0.5
Ultratech cements	1.37	1.49	1.01	1.11	1.22
Dr Reddys Labs	0.4	0.46	0.46	0.44	0.35
Dabur India	0.27	0.25	0.28	0.25	0.29
Shree Cements	0.58	0.56	0.43	0.48	0.67
Havells India	0.74	0.75	0.39	0.41	0.42
JSW Steel	1.68	1.9	2.21	2.52	1.8
Indian Oil Corporation	1.31	1.16	1.19	1.28	1.51
Biocon	0.19	0.18	0.18	0.19	0.38
Britannia Industries	0.34	0.38	0.34	0.42	0.46
Bharat Petroleum Corporation	1.46	1.39	1.45	1.32	1.25
Torrent Pharma	1.58	1.73	0.9	0.99	1.25

The table given above shows that 7 of the companies has ratio above 1 indicating that a large portion of fixed assets are financed by riskier long-term loans. 13 of the companies has ratio below 1 indicating that a large portion of fixed assets are financed by investments of shareholders and retained earnings.

Table 13: **Fixed Assets to Long term funds**

Year/Company	2018-19	2017-18	2016-17	2015-16	2014-15
Reliance Industries	0.6	0.76	0.78	0.75	0.65
TATA motors	0.79	0.8	0.79	0.79	0.96
Sun Pharmaceutical Industries	0.23	0.24	0.22	0.19	0.18
Mahindra & Mahindra	0.34	0.34	0.33	0.38	0.36
Apollo Tyres	0.7	0.7	0.88	0.76	0.9
JK Tyres	0.96	2.23	2.05	2.41	2.8
Ashok Leyland	0.73	0.82	0.85	0.95	1.05
Larsen & Toubro	0.14	0.15	0.16	0.2	0.22
Asian Paints	0.55	0.51	0.4	0.55	0.49
Ultratech cements	0.89	0.97	0.86	0.99	0.98
Dr Reddys Labs	0.39	0.44	0.45	0.4	0.32
Dabur India	0.26	0.24	0.26	0.25	0.29
Shree Cements	0.47	0.45	0.4	0.45	0.62
Havells India	0.73	0.74	0.39	0.41	0.42
JSW Steel	0.95	0.92	1.02	1.04	0.83
Indian Oil Corporation	0.99	1	0.99	0.99	1.02
Biocon	0.19	0.18	0.18	0.18	0.37
Britannia Industries	0.34	0.38	0.34	0.42	0.46
Bharat Petroleum Corporation	0.89	0.97	0.99	0.88	0.82

Torrent Pharma	0.9	0.91	0.6	0.67	0.69

The table given above show that only 1 company has a ratio above 1 indicating fixed assets are more than long term funds and this depicts operational inefficiency of that company. 19 of the companies has ratio less than 1 indicating that company has sufficient long-term funds to cover its fixed assets.

Table 14: **Fixed Assets to Long Term Debt**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**	**2014-15**
Reliance Industries	2.67	3.68	3.65	3.06	2.5
TATA motors	2.05	2.04	2.01	2.52	2.13
Sun Pharmaceutical Industries	3.95	3.96	3.5	3.05	3.01
Mahindra & Mahindra	6.15	5	4.33	6.12	3.09
Apollo Tyres	2.89	3.43	6.49	14.44	9.69
JK Tyres	2.18	2.51	2.1	2.31	2.24
Ashok Leyland	21.02	11.65	4.52	2.58	2.09
Larsen & Toubro	3.32	1.38	1.06	0.98	0.97
Asian Paints	445.35	401.25	272.1	92.99	65.6
Ultratech cements	2.57	2.79	5.74	9.03	4.99
Dr Reddys Labs	14.72	11.05	11.09	5.08	3.99
Dabur India	40.63	5.26	5.09	994.6	937.89
Shree Cements	2.42	2.27	6.38	6.25	8.62
Havells India	77.37	34.68	0	0	24.05
JSW Steel	2.22	1.79	1.88	1.76	1.55
Indian Oil Corporation	4.11	6.85	5.84	4.51	3.13
Biocon	968.29	18.17	8.9	8.13	85.25
Britannia Industries	5355.81	4105.17	1975.2	1456.92	786.52

Bharat Petroleum Corporation	2.27	3.21	3.13	2.64	2.4
Torrent Pharma	2.12	1.92	1.81	2.05	1.55

As per the table given above 3 of the companies has fixed assets that can cover the long term debt less than 2 times while 17 of the companies has fixed assets that can cover long term debt more than 2 times indicating very good long term debt coverage capability.

Table 15: **Fixed Assets to Debentures**

Year/Company	**2018-19**	**2017-18**	**2016-17**	**2015-16**	**2014-15**
Reliance Industries	8.39	14.66	286.46	209.58	149.86
TATA motors	5.2	4.12	4.16	5.76	4.57
Sun Pharmaceutical Industries	-	-	-	-	-
Mahindra & Mahindra	12.84	11.28	9.93	18.32	15.53
Apollo Tyres	6.57	5.95	8.67	37.16	32.37
JK Tyres	-	-	-	-	-
Ashok Leyland	-	-	34.58	12.82	8.81
Larsen & Toubro	3.45	3.31	2.79	3.01	3.67
Asian Paints	-	-	-	-	-
Ultratech cements	18.63	17.79	9.36	37.08	8.25
Dr Reddys Labs	-	-	-	-	-
Dabur India	-	-	-	-	-
Shree Cements	-	-	-	-	-
Havells India	-	-	-		-
JSW Steel	29.67	16.86	14.39	8.34	5.74
Indian Oil Corporation	-	-	-	-	-
Biocon	-	-	-	-	-
Britannia Industries	-	-	-	-	-

Bharat Petroleum Corporation	23.29	36.5	78.32	-	-
Torrent Pharma	5.64	4.03	2.86	7.52	-

As per the table given above 10 of the companies that issued debentures were found to be capable of easily covering the obligations using fixed assets showing very good debenture coverage capability.

CONCLUSION

The quality of assets owned by corporates was assessed on the basis of solvency ratios, turnover ratios and Dupont analysis. Most of the companies showed positive results except in the case of few turnover ratios. The fixed assets of majority of the companies witnessed positive growth and they were found to be capable of easily covering the liabilities at low risk levels. This showed that the effectiveness of securitization process was good. Altman Z score indicated that only one company comes under the distress zone in terms of bankruptcy risk. These along with the positive solvency ratios of the companies indicate a good solvency position for majority of the companies.

Compliance with Ethical Standards:

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