

An Empirical Study on Determinants of Capital Structure

Dr. Janet Jyothi Dsouza* and Dr. Ravinarayana K.S**

*Associate Professor, Department of Management Studies, Ballari Institute of technology and Management, Ballari

**Assistant Professor, Department of Business Administration, Vijayanagara Sri Krishnadevaraya University, Ballary

1. Introduction

In the financial sector, the capital structure is the most questionable issue and continues to make researchers think. The capital structure refers to the combination of debt and capital used by a company to finance its assets. The capital structure is one of the most important decisions taken by the financial administration. The structure of corporate finance include dividend policies, project financing, issuance of long-term securities, financing of mergers, purchases, etc. One of the many objectives of a corporate financial manager is to guarantee the lowest cost of capital and, therefore, the wealth of shareholders. The capital structure is one of the effective administrative tools for managing the cost of capital. An optimal capital structure is achieved at a point where the cost of capital is minimal. Much of the empirical research on the determinants of corporate capital has been addressed to companies. More recent studies have examined listed companies in developing countries. There are very few articles published on the determinants of Indian companies and this document intends to provide further evidence for these questionable arguments. In the context of the structure of capital in the Indian context they are examined.

2. Literature review

Sheridan Titman, Roberto Wessels (1988) examined the illustrative vitality of a couple of the most recent hypotheses of surest capital shape. The inspect expands observational artworks on capital shape thought in 3 ways. it utilizations factor scientific strategy that mitigates the estimation issues experienced when working with intermediary variables. We discover that obligation stages are adversely identified with the "distinctiveness" of a company's line of making business. **Albertode et al., (2001)** studied the firm qualities which are the determinants of capital structure reliable with outstanding logical speculations, and the manner in which institutional attributes affect capital shape. They built up an objective change model. The results are predictable with duty and money related trouble hypotheses and with the association among venture and financing choices; they likewise give extra proof on the pecking request and free income speculations. **Saumitra and Bhaduri (2002)** investigated the costs in achieving an ideal capital shape and addresses the size issue that emerges in light of the inconspicuous idea of the qualities impacting the perfect capital shape. The outcomes also confirm the ways of life of rebuilding costs in accomplishing a most satisfying capital shape. **Panno (2003)** explored the observational determinants of capital structure decision by breaking down security issues prepared by organizations in the UK and Italy. furthermore, to looks at how organizations really choose among funding instruments at a given time and in various money related contexts. Range of the examination was somewhere in the range of 1992 and 1996. An expressive model of decision is created and afterward assessed utilizing Logit and Probit estimation systems, and utilizing information two examples, which thought to be illustrative of specific money related environment. The outcomes give proof of intriguing contrasts among the two monetary

markets, for the most part associate the possibility of UK advertise being increasingly testable & on a basic level progressively reliable with the fundamental remedies of the later advancements of capital structure hypothesis. **Graham et al, (2004)** examined how much the determinants of SMEs' capital frameworks change between European countries. The utilization of compelled and unlimited relapses to confine the US of America-effect from the company unique-impact. The impacts demonstrate that varieties are presumably to be because of nation contrasts notwithstanding company-precise ones. **Rataporn et al., (2004)** explored the determinants of capital structure of organisations working inside Asia Pacific spot, in 4 countries with novel jail, financial and institutional conditions, explicitly Thailandd, Malayshia, Singapore and Australlia. The impacts advocate the capital shape selection of organizations is affected by methods for the earth wherein they work, just as organization novel components perceived inside the surviving writing. **Shantharu and Buvanendra (2007)** examination is to build up a starter concentrate to investigate the determinants of capitalstructure of Srii Lankan recorded assembling and administrations segment organizations utilizing firm dimension board information .Range of the investigation was for the time period of 2003 – 2007. Profitability, Tangibility, Size and Growth rate are utilized as free factors, while influence proportions, for example, complete obligation proportion, long haul obligation proportion and shortterm obligation proportion were the ward variables.OLS sham relapse display was utilized here.The results demonstrate that just productivity variable was factually huge with influence proportions (with all out obligation proportion and momentary obligation proportion) at assembling organizations. In the mean time all the chose factors, aside from substance were altogether related with somewhere around one of the influence proportions in administrations organizations. **Natalya and Delcoure (2007)**

investigated whether the capital structure determines in rising Central and Eastern European (CEE) nations help customary capital structure thought progressed to give a clarification for western economies. The features that influence companies effect choices are distinctions & budgetary imperatives of the banking frameworks, difference in criminal frameworks administering firms' activities, investors, & bond holders rights security, complexity of decency & security markets, & friends administration. **Chang et al., (2009)** determined the Determinant of Capital Structure choice using equation modelling approach. Range of the Study was 1988-2003 They used a multiple indicators and multiple causes (MMIC) model, with redefined indicators. It is found that growing is the most vital determinant of capital structure choice, followed by productivity, volatility and uniqueness.

Eduardo and Kimura (2011) examined the impact of time, firm, venture and use-degree determinants of capital shape. Various leveled direct displaying in order to research the overall significance of these tiers. It documented various vital roundabout effects of factors at big business and usa-levels on organization determinants of influence, just as a few auxiliary varieties inside the financial conduct between firms of created and rising nations. **Pal (2014)** studied the determinants of capital structure decision of Indian steel Industries. This considers is fundamentally experimental in nature about 37 Indian steel organizations recorded under NSC and BSC establish the example of stud. Relationship and relapse methods are used. It is discovered that substantial quality, non obligation charge shield, size, and development openings have impact of influence of Capital Structure of organizations. **Eldomiaty (2007)** evaluated the determinants of corporate influence in Egypt dependent on the suppositions of three speculations of capital structure i.e a). Tradeoff, b) pecking request, c) free money flow.

The philosophy utilized is the halfway change autoregressive model to gauge the pace of long and momentary obligations. It is discovered that companies utilize both extended haul and transient commitment to modify the influence with a relative dependence on extended haul commitment. **Harsh Purohit and Shivi (2012)** endeavors to break down the critical determinants of capital structure in Indian assembling enterprises in the most recent decade. In the course of recent years, money related business analysts and specialists have attempted to bring a greater amount of logical and prescient comprehension in corporate account; this has been finished by getting ready formal speculations that can be tried by observational investigations of corporate and financial exchange behaviour. This ponder conveys us to the most imperative issue to building up a very much characterized and thorough hypothesis of capital structure which additionally discovers appropriateness in a real market situation and planning experimental tests that are sufficiently amazing to give a premise to picking among the different speculations. **Jõeveer (2013)** investigates the hugeness of firm-explicit, institutional, and macroeconomic factors in clarifying variety in influence utilizing an example of firms from nine Eastern European nations. It is discovered that Nation-explicit elements are fundamental determinants of variety in influence for little unpublished organizations, while company-explicit elements clarify the vast majority of the variety in influence for recorded and extensive unlisted organizations. Around half of the variety in influence identified with nation factors is clarified by known macroeconomic and institutional variables, while the rest of clarified by immeasurable institutional contrasts. **Anshu and Sharma (2014)** recognized the imperative determinants of capital structure of 870 recorded Indian organisations containing private area organizations and government organizations. Scope of the investigation was 2001-2010. Ten free aspects and three ward factors have been

tried utilizing relapse examination. It has been discovered that elements, for example, productivity, development, resource substantial quality, estimate, cost of obligation, charge rate, and obligation serving limit have huge effect on the influence arrangement picked by companies in the Indian setting. **Bülent et al., (2015)** applied the several capital structure theories to companies that are private, minor, and/or outside the business industry in these economies. It is discovered that the trade-off theory is mainly suitable for understanding the financing selections of large private organisations in the non-manufacturing segment and when the economic environment is steady. **Singh et al., (2015)** recognized the huge determinants of capital structure of the recorded Pharmaceutical organizations in NSE/BSE. Range of the examination was amid the period 1999-2013 The examination utilizes connections and numerous relapse investigation, to discover the connection between Debt-value proportion (i.e., Dependent variable) and determinants of capital structure (autonomous factors) It is discovered that the approach suggestion is that the money related supervisors .**Akhtar (2015)** discovered the determinants of capital structure for 515 US based global and household companies Range of the Study was 1973 - 1992 Fixed impacts boards information strategies are connected for estimation. It is discovered that there is aa solid relationship among influence and corporate duty rates for both local and global firms. **Soni (2017)** endeavor made to recognize the components influencing the capital structure choices of the organizations in FMCG Sector in India. The examination has been directed on 15 driving FMCG organizations working in India. Every one of these organizations are recorded on the Bombay Stock Exchange and are a piece of S and P BSE Fast Moving Consumer Goods Index. Scope of the examination was a time of 5 years for example 2011-12 to 2015-16. For the examination, one ward variable for example Obligation Equity Ratio and seven free

factors for example productivity, substantial quality, liquidity, estimate, business chance, non-obligation charge shield and inclusion proportion have been utilized.

3. Statement of the Problem:

Capital is a vital source for all firms; its supply is uncertain which depends upon the dynamic surroundings. Manufacturing units investments are capital intensive thus they are required to establish optimal capital mix in order to achieve profits from their investments, in order to do that they have to establish the cheapest blend of debt & equity in the capital structure of these firms. The background of this study is to recognize the various factors that determine the Capital structure of a company.

4. Scope of the Study:

The fundamental aim of this study is to determine the factors that determine the Capital Structure of manufacturing firms in India. This study is on the determinants of Capital structure by studying the firm's capital structure through financial statements and comparing it with the Competitors capital structure. This study helps a manufacturing company to choose the optimal mix of capital structure which includes Debt and Equity financing.

5. Research Design:

This study makes use of inferential research design to set up the relationship among Dependant and Independent Variables. It is generally used in quantitative research used for quantifying relationships between dependant and independent variable and come to conclusions.

Summary of variables:

Abbreviations	Variable	Measurement
TLEV	Total Leverage	Total Liabilities/Total Assets
SLEV	Short-term Leverage	Short-term liabilities /total Assets
LLEV	Long-term Leverage	Long-term liabilities /Total Assets
LIQ	Liquidity condition	Current Assets /Current Liabilities
TANG	Tangibility	Tangibility fixed Asset s/Total Assets
PROF	Profitability	Earnings before tax /Total Assets

Data collection:

The data composed for this study is collected through secondary sources i.e. from Internet and from published reports like Annual reports , Balance sheets, and profit and loss Statements of the firm. The data used is taken for a time period of 10 years from 2009-2018 of 6 Manufacturing and Automation companies in India are taken into concern to assess the better capital structure.

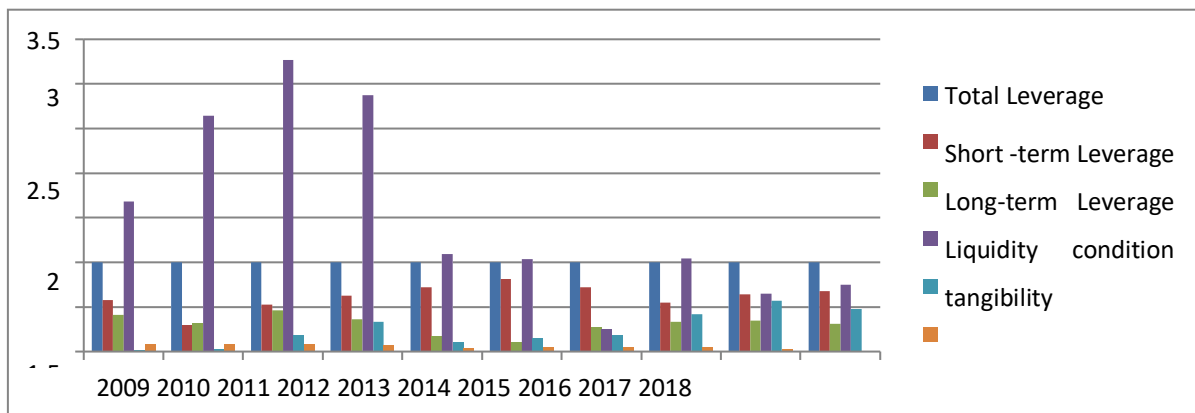
Company Name	No of Years Analysed
V-Pack Automations Pvt Ltd	10 years (2009-2018)
SEL Manufacturing Company	10 years (2009-2018)
ABB Ltd	10 years (2009-2018)
Universal Office Automation Ltd	10 years(2009-2018)
SMVD Poly Pack Ltd	10 years(2009-2018)
Affordable Automation Ltd	10 years(2009-2018)

6. Analysis and Interpretation

We have analysed the data of 5 companies in the following section.

1. V-Pack Automations Pvt Ltd.

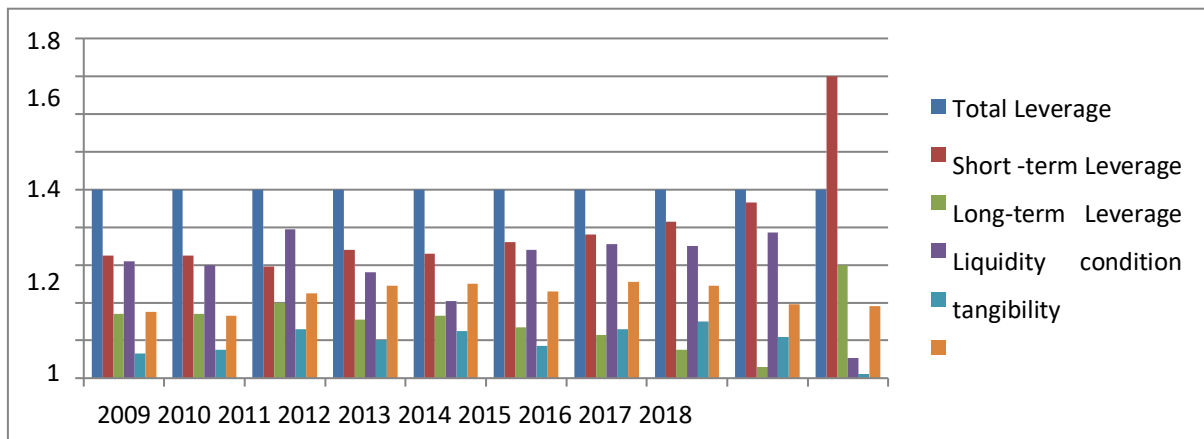
Abbe	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabilities/ Total Assets	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities/total Assets	0.58	0.3	0.53	0.63	0.72	0.81	0.72	0.55	0.64	0.68
LLEV	Long-term liabilities/ Total Assets	0.41	0.32	0.46	0.36	0.17	0.11	0.27	0.33	0.35	0.31
LIQ	Current Assets/ Current Liabilities	1.68	2.64	3.27	2.87	1.09	1.03	0.25	1.04	0.65	0.75
TANG	Tangiability fiixed Assets /Total Assets	0.02	0.02	0.19	0.33	0.1	0.15	0.18	0.42	0.57	0.48
PROF	Earnings before tax /Total Assets	0.09	0.08	0.08	0.07	0.04	0.06	0.05	0.05	0.03	0.01



The Total Leverage of V-Pack automations is same i.e 1 for all the 10 years, Short term Leverage had a gradual rise from 0.58 in the year 2009 to 0.81 in the year 2014 and there a slow fall from the next year with 0.72 in 2015 and 0.55 in 2016 at present i.e in 2018 it is 0.68. The Long term leverage had a lot of fluctuations over the 10 years where it was 0.41 in the year 2009 and 0.31 in 2018. The liquidity condition fell down in the year 2018 i.e 0.75.the tangibility ratio was 0.48 in the year 2018, the profitability ratio has fallen down over 10 years.

SEL Manufacturing Company

Abbre.	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabilities /Total Assets	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities/ total Assets	0.65	0.65	0.59	0.68	0.66	0.72	0.76	0.83	0.93	1.6
LLEV	Long-term liabilities/ Total Assets	0.34	0.34	0.4	0.31	0.33	0.27	0.23	0.15	0.06	0.6
LIQ	Current Assets /Current Liabilities	0.62	0.6	0.79	0.56	0.41	0.68	0.71	0.7	0.77	0.79
TANG	Tangibility fixed Assets/ Total Assets	0.13	0.15	0.26	0.2	0.25	0.17	0.26	0.3	0.22	0.23
PROF	Earnings before tax/ Total Assets	0.35	0.33	0.45	0.49	0.5	0.46	0.51	0.49	0.39	0.38

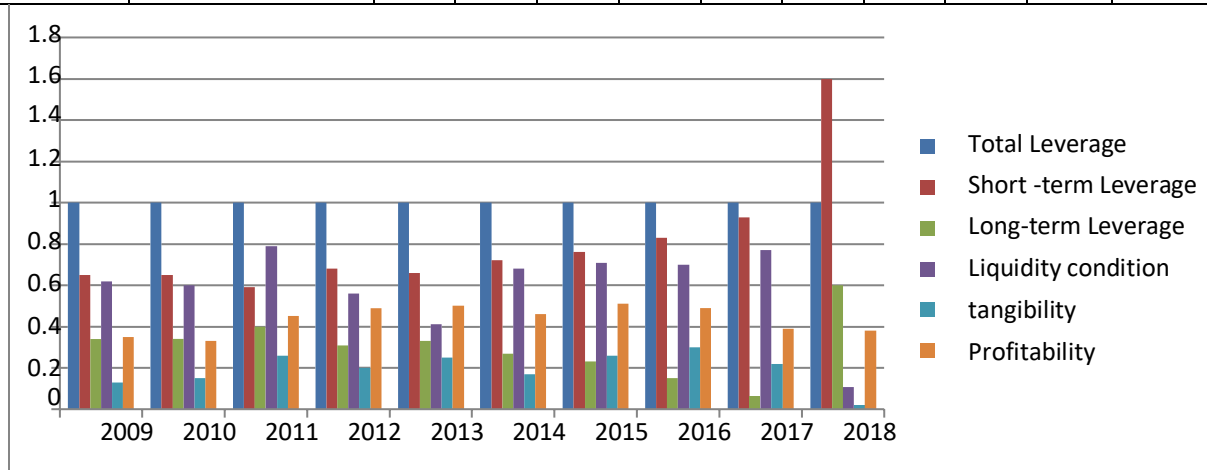


The Total leverage is 1 for all the 10 years. The Short term leverage has been constantly in rise from 0.65 in 2009 to 1.6 in the year 2018. The Long term leverage had a fall in its ratio from 0.34 in 2009 to 0.06 in 2017 but it rose again to 0.6 in 2018. The Liquidity condition had a continuous rise from 2009 to 2018. The tangibility ratio had fluctuations over the 10 years. Profitability Ratio had also seen fluctuations where initially it rose in 2009 and faced a fall in

2014 and the downfall continued to 0.38 in 2018.

3. ABB

Abbrev.	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabilities/ Total Asset	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities/ total Assets	1.52	1.26	1.33	1.39	1.12	1.05	1.03	0.93	0.87	1.36
LLEV	Long-term liabilities/ Total Assets	0.99	0.99	0.99	1	0.88	0.81	0.88	0.83	0.84	0.99
LIQ	Current Assets/ Current Liabilities	1.23	1.24	1.2	1.2	1.29	1.3	1.3	1.45	1.5	1.1
TANG	Tangibility fixed Asset/ Total Assets	0.47	0.49	0.4	0.46	0.34	0.39	0.35	0.41	0.54	0.73
PROF	Earnings before tax/ Total Assets	0.22	0.26	0.35	0.29	0.43	0.48	0.57	0.56	0.59	0.55

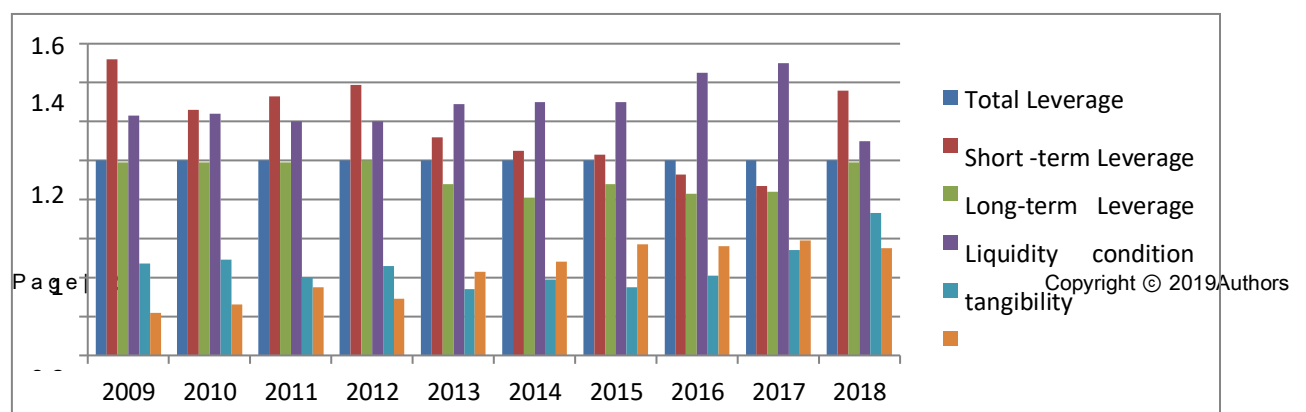


The Total leverage is 1 for all the 10 years .the short term leverage had a gradual fall from 1.52 in 2009 to 1.36 in the year 2018. The long term leverage had been seen very low fluctuations it was 0.99 in the year 2018. The liquidity ratio was 1.1 in the year 2018. The

tangibility ratio had a gradual rise from 0.47 in 2009 to 0.73 in 2018. The profitability ration had a rise initially and it fell in the year 202016 and rose again to 0.55 in 2018.

4. Universal Office Automation:

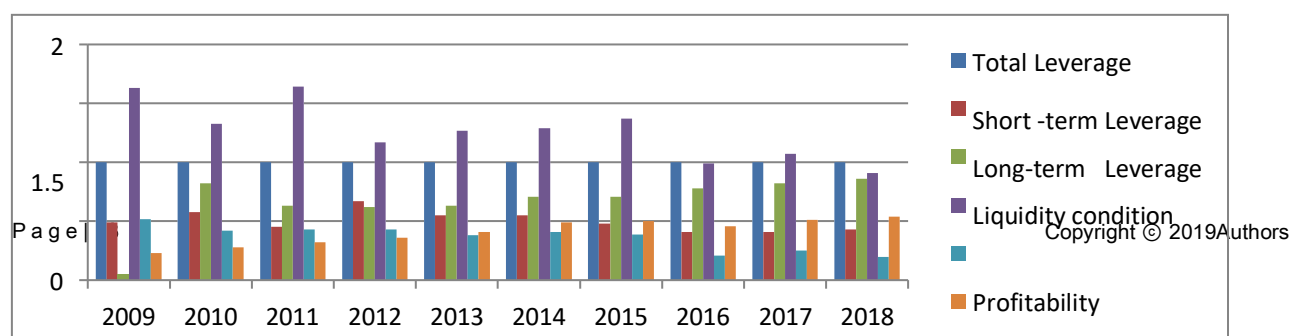
Abbrev.	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabiilities /Totall Asset	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities /total Assets	2.48	2.41	1.55	1.52	2.11	1.34	1.37	1.44	1.56	0.58
LLEV	Long- term liabilities/ Total Assets	0	0	0.77	0.77	0	0.73	0.76	0.8	0.76	0.08
LIQ	Current Assets/ Current Liabilities	0.34	0.37	0.11	0.1	0.14	0.15	0.07	0.06	0.14	0.66
TANG	Tangibility fixed Asset/ Totall Assets	0.13	0.09	0.04	0.02	0.01	0	0	0	0	0
PROF	Earnings before tax/Total Assets	0.35	0.36	0.45	0.49	0.52	0.54	0.43	0.39	0.37	0.36



The total leverage was 1 for all the 10 years. The short term leverage was high in the year 2009 and fell up to 0.58 in 2018. The long term leverage was 0 in the 2009 and was 0.08 in the year 2018. The Liquidity ratio was 0.34 initially and gradually rose to 0.66 in 2018. The tangibility fell to 0 from 2014. The profitability ratio was 0.36 in the year 2018.

5. SMVD Poly Pack:

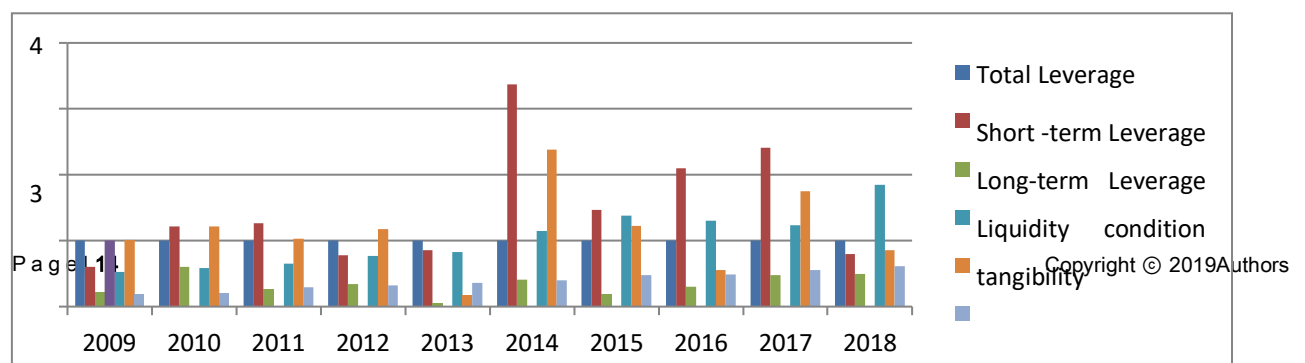
Abbrev.	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabilities/ Total Assets	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities /total Assets	0.49	0.58	0.45	0.67	0.55	0.55	0.48	0.41	0.41	0.43
LLEV	Long-term liabilities/ Total Assets	0.05	0.82	0.63	0.62	0.63	0.71	0.71	0.78	0.82	0.86
LIQ	Current Assets/ Current Liabilities	1.63	1.33	1.64	1.17	1.27	1.29	1.37	0.99	1.07	0.91
TANG	Tangibility fixed Asset/ Total Assets	0.52	0.42	0.43	0.43	0.38	0.41	0.39	0.21	0.25	0.2
PROF	Earnings before tax /Total Assets	0.23	0.28	0.32	0.36	0.41	0.49	0.5	0.46	0.51	0.54



The Total leverage is 1 for all the 10 years .the Short term leverage had seen fluctuations there has been rise and fall over 10 years currently its 0.43. The long term leverage had a gradual rise from trhe year 2009 to 2018 and it was 0.86 in the year 2018. The Liquidity ratio had seen a gradual fall from 1.63 in 2009 to 0.91 in 2018. The tangiability ration has also seen a downfall to 0.2 in 2018. The Profitability ratio it had a rise ,it was 0.54 in the 2018.

6. Affordable Automation Ltd:

Abbrev.	Measurement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TLEV	Total Liabilitiies/ Totall Asset	1	1	1	1	1	1	1	1	1	1
SLEV	Short-term liabilities/total Assets	0.6	1.22	1.26	0.78	0.86	3.37	1.47	2.1	2.41	0.8
LLEV	Long-term liabilities/ Totall Assets	0.22	0.6	0.26	0.34	0.05	0.41	0.19	0.3	0.48	0.5
LIQ	Current Assets/ Current Liabilities	0.53	0.58	0.65	0.77	0.83	1.15	1.38	1.3	1.24	1.85
TANG	Tangibility fixed Assets/Total Assets	1.01	1.22	1.03	1.18	0.18	2.38	1.23	0.56	1.75	0.86
PROF	Earnings before tax/ Total Assets	0.19	0.21	0.29	0.32	0.36	0.4	0.48	0.49	0.56	0.61



The total leverage was 1 for all the 10 years. The short term leverage fell to 0.8 in the year 2018. The short term leverage had a gradual rise over 10 years and was 0.5 in the year 2018. The Long term leverage had a rise which was 0.5 in the year 2018. The Liquidity ratio had also an increase and rise over the years and it was 1.85 in the year 2018. The tangibility ratio fell over the years, it was 1.01 in the year 2009 and it fell to 0.86 in 2018. The Profitability ratio had a rise, it was 0.61 in the year 2018.

Conclusion:

V-Pack – It is found that V-pack has a Capital Structure that focuses more on Short term capital i.e. the Debt capital. The Debt capital ratio is more than Equity Capital ratio. SEL- The Debt capital ratio i.e. the short-term leverage is more than equity capital ratio. It is found that the capital structure of this corporation focuses more on Debt capital. ABB- The capital structure of ABB focuses on Debt financing where its finance through short term capital. Universal Office Automation: It is found that Universal Office Automation has a capital structure that focuses more on Debt financing. The Debt capital ratio is more than equity capital. SMVD Poly Pack: The capital structure SMVD poly pack focused on Equity financing i.e. through long term capital. The equity financing ratio is more than Debt financing ratio. Affordable Automation Limited: It is found that affordable Automation limited capital structure focuses on Short term i.e. the Debt capital Financing.

The study explored the Determinants of Capital Structure of the manufacturing and Automation companies. Dependant variables like Total leverage, Short-term leverage and Long term leverage which are measurements of leverage are regressed depending on various company factors like Profitability, Liquidity, and Tangibility. From the analysis we can conclude that Companies are Opting for Short term capital that is the Debt capital rather than Equity capital. Though there is a combination of both in the companies but most of the capital is acquired through Debt financing.

References

1. Titman , S., & Wessels, R. (1988). The Determinants of Capital Structure Choice. *The journal of finance*, pages 1-19.
2. Hall, G. C., Hutchinson , J. P., & Michaelas, N. (2004). Determinants of the Capital Structures of European SMEs. *Journal of Business and Accounting*, pages 711-728.
3. Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *journal of Multinational Financial Management*, Pages 387-405
4. Miguel, A., & Pindado, J. (2001). Determinants of capital structure: new evidence from Spanish panel data. *Journal of corporate finance*, Pages 77-99.
5. Bhaduri, S. N. (2002). Determinants of capital structure choice: a study of the Indian corporate sector. *Applied Financial Economic*, Pages 655-665.
6. Noulas, A., & Genimakis, G. (2011). The determinants of capital structure choice: evidence from Greek listed companies. *Applied Finanacial Management*, Pages 379-387 .
7. Köksal, B., & Orman, C. (2015). Determinants of capital structure: evidence from a major developing economy. *Small Business Economics*, pp 255–282.
8. Bodla, B. S., & Kaur, R. (2015). Determinants of Capital Structure-A study of selected Pharma Companies. *Asian Journal of Research in Business Economics & Management*, pp. 28-34.
9. Chang, C., Lee, A. C., & Lee, C. F. (2009). Determinants of capital structure choice: A structural equation modelling approach. *The Quarterly Review of Economics and Finance*, Pages 197-213.
10. Delcoure, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics & Finance*, Pages 400-415.
11. Eldomiaty, T. I. (2007). Determinants of corporate capital structure: evidence from an emerging economy. *International Journal Of Commerce And Management*, pp.25-43.
12. Handoo, A., & Sharma, K. (2014). A study on determinants of capital structure in India. *IIMB Management Review*, Pages 170-182.
13. Jõeveer, K. (2013). Firm,country macroeconomic determinants of capital structure:Evidence from transition economics. *Journal of Comparative Economics*, Pages 294-308.
14. Kayo, K. E., & Kimura, H. (2011). Hierarchical determinants of capital structure. *Journal of Banking & Finance*, Pages 358-371.
15. Panno, A. (2003). An empirical investigation on the determinants of capital structure: the UK and Italian experience. *Applied Financial Economic* , Pages 97-112.
16. Purohit, H., & Khanna, S. (2012). Determinants of Capital Structure in Indian Manufacturing Sector. *Asia-pacific journal of management research and innovation* , Vol 8, Issue 3,.
17. Shrabanti Pal. (2014). A Study On Capital Structure Determinants Of Indian Steel Companies. *Journal of Finance*.
18. Shumi Akhtar. (2015). Determinants of Capital Structure for Multinational and Domestic Corporations. *Accounting and Finance*, Pages 319-349.
19. Buvanendra, S. (2007). Capital structure determinants: Evidence from manufacturing and services sector companies in Sri Lanka. *Accounting and Finance*.

20. Soni, D. A. (2017). Determinants of Capital Structure: A Study of Indian FMCG Sector. *Asian Journal of Management*, 8(4):1120-1130.