

## COMPARATIVE STUDY WORKING CAPITAL OF INDIAN SELECTED SECTORS

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### INTRODUCTION

**“Working Capital is the Life-Blood and Controlling Nerve Center of a business”**

- ◆ Working capital is commonly defined as the difference between current assets and current liabilities.
- ◆ **WORKING CAPITAL = CURRENT ASSETS-CURRENT LIABILITIES**

The management of current assets on the basis of the following points:1) Current assets are for short period while fixed assets are for more than one year

2) The large holding of current assets, especially cash, strengthens liquidity position but also reduce overall profitability, and to maintain an optimal level of liquidity and profitability, risk return tradeoff is involved holding current assets.

3) Only current assets can be adjusted with sales fluctuating in the short run. Thus, the Firm has greater degree of flexibility in managing current assets. The management assets help a firm in building a good market reputation regarding its business and economic conditions.

The working capital management precisely refers to management of current assets. A firm's working capital consists of its investment in current assets, which include short-term assets such as: Cash and bank balance, Inventories, Receivables (including debtors and bills), Marketable securities.

There are two major concepts of working capital:

- 1) Gross working capital
- 2) Net working capital

### CONCEPT OF WORKING CAPITAL

➤ **Gross working capital:**

It refers to firm's investment in current assets. Current assets are the assets, which can be converted into cash with in a financial year. The gross working capital points to the need of arranging funds to finance current assets.

➤ **Net working capital:**

It refers to the difference between current assets and current liabilities. Net working capital can be positive or negative. A positive net working capital will arise when current assets exceed current liabilities. And vice-versa for negative net working capital.

### DEFINITIONS OF WORKING CAPITAL

**According to C.W. Gestenbergh-**

“A Working capital is ordinarily defined as the excess of the current assets over current liabilities”.

**According to Lawrence. J. Gitmen-**

“The most common definition of working capital is the difference of the firm's current assets and current liabilities.”

**According to one school of thought,** working capital represent all current assets of a company.

**According to Hoagland** “working capital is descriptive of that which is not fixed. but the more common use of working capital is to consider it as the difference the book value of the current assets and current liabilities”

### FACTORS AFFECTING THE WORKING CAPITAL

The firm must estimate its working capital very accurately because excessive working capital results in unnecessary accumulation of inventory and wastage of capital whereas shortage of working capital affects the smooth flow of operating cycle and business fails to meet commitment. So, finance manager must estimate right amount of working capital. The finance manager must keep in mind following factors before estimating the amount of working capital.

1. Length of operating cycle: The amount of working capital directly depends upon the length of operating cycle. Operating cycle refers to time period involved in production. It starts right from acquisition of raw material and ends till payment is received after sale. The working capital is very important for smooth flow of operating cycle. If operating cycle is long than more working capital is required whereas for company having short operating cycle, the working capital requirement is less.
2. Nature of business: The type of business, firm is involved in, is the next consideration while deciding the working capital. In case of trading concern or retail shop the requirement is less because length of operating cycle is less. The wholesalers as compared to retail shop require more working capital as they have to maintain large stock and generally sells goods on credit which increases length of operating cycle. The manufacturing company requires huge amount of working capital because they have to convert raw material into finished goods, sell on credit, maintain the inventory of raw material as well as finished goods.
3. Scale of operations: The firms operating at large scale need to maintain more inventory, debtors, etc. So, they generally require large working capital whereas firms operating at small scale require less working capital.
4. Business cycle fluctuation: During boom period the market is flourishing so more demand, more production, more stock, more debtors, which means more working capital is required. Whereas during depression period low demand less inventory to be maintained, less debtors, so less working capital will be required.
5. Seasonal factors: The working capital requirement is constant for the companies which are selling goods throughout the season whereas the companies which are selling seasonal goods require huge amount during season as more demand, more stock has to be maintained and fast supply is needed whereas off season or slack season demand is very low so less working capital is needed.
6. Technology and Production cycle: If a company is using labour intensive technique of production then more working capital is required because company needs to maintain enough cash flow for making payments to labour whereas if company is using machine intensive technique of production then less working capital is required because investment in machinery is fixed capital requirement and there will be less operative expenses.  
In case of production cycle, if production cycle is long then more working capital will be required because it will take long time for converting raw material into finished goods whereas when production cycle is small lesser funds are tied up in inventory and raw material so less working capital is required.
7. Credit allowed: Credit policy refers to average period for collection of sale proceeds. It depends on number of factors such as creditworthiness, of clients, industry norms, etc. If company is following strict or short-term credit policy, then it can manage with less working capital also.
8. Credit avail: Another factor related to credit policy is how much and for how long period company is getting credit from the suppliers. If suppliers of raw material are giving long term credit then company can manage with less amount of working capital whereas if suppliers are giving only short period credit then company will acquire more working capital to make payments to creditors
9. Operating efficiency: The firm having high degree of operating efficiency which requires more working capital as compared to firms having low degree of efficiency which requires more working capital. Firms having high degree of efficiency have low wastage and can manage with low level of inventory also and during operating cycle also these firms bear less expenses so they can manage with less working capital also.
10. Availability of raw materials: If raw materials are easily available and there is ready supply of raw materials and inputs then firms can manage with less amount of working capital also, they need not

maintain any stock of raw materials or they can manage with very less stock. Whereas if supply of raw material is not smooth then firm needs to maintain large inventory to carry on operating cycle smoothly. So, they require more working capital.

11. **Level of competition:** If the market is competitive then company will have to adopt liberal credit policy and to supply goods on time. Higher inventories have to be maintained so more working capital is required. A business with less competition or with monopoly position will require less working capital as it can dictate terms according to its own requirements.
12. **Inflation:** If there is increase or rise in price then the price of raw materials and cost of labour will rise, it will result in an increase in working capital requirement.  
But if company is able to increase the price of its own goods as well, then there will be less problem of working capital. The effect of rise in price on working capital will be different for different businessmen.
13. **Growth prospectus:** Firms planning to expand their activities will require more amount of working capital as for expansion they need to increase scale of production which means more raw materials, more inputs, etc. So more working capital also.

## FACTORS AFFECTING WORKING CAPITAL.

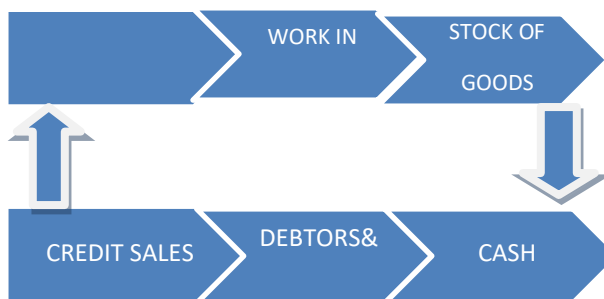
- 1.LENGTH OF OPERATING CYCLE
- 2.SCALE OF OPERATION
- 3. SEASONAL FACTORS
- 4. CREDIT ALLOWED
- 5.OPERATING EFFICIENCY
- 6.LEVEL OF COMPETITION
- 7.GROWTH PROSPECTS
- 8.NATURE OF BUSINESS
- 9.BUSINESS CYCLE FLUCTUATION
- 10. TECHNOLOGY AND PRODUCTION CYCLE
- 11. CREDIT AVAIL
- 12. AVAILABILITY OF RAW MATERIAL
- 13. INFLATION

**FACTORS AFFECTING REQUIREMENT OF WORKING CAPITAL**

NAME OF THE FACTOR	REQUIREMENT OF MORE WORKING CAPITAL	REQUIREMENT OF LESS WORKING CAPITAL
Nature of business	Manufacturing concern because of processing work.	Trading concern because of production.
Scale of operation	Large scale operation because of huge inventory.	Small scale operation because of small inventories.
Business cycle	During boom period because of more production.	During depression because of less production.
Seasonal factors	Peak season because of more demand.	Lean season because of low demand.
Credit allowed to customers	Sales on 'credit basis'	Sales on 'cash basis'
Credit availed from suppliers	Purchase on 'cash basis'	Purchase on 'credit basis'
Inflation Vs Deflation	During inflation, due to high price level for raw material, wages, etc.	During deflation, due to low price level.
Operating cycle/Turnover of working capital. It is time period from	Long operating cycle	Short operating cycle.

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purchase of raw material to realisation from debtors.



Availability of raw material

Higher lead time to acquire raw material, so higher stock of raw material would be needed.

Lower lead time, so less stock of raw material would be needed.

Growth prospectus  
Level of competition

High growth prospectus.  
High competition would require high amount of stock keeping.

Low growth prospectus.  
Low competition would require less amount of stock keeping.

Productive cycle	Long production cycle	Short production cycle.	
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**LITURATURE REVIEWS**

**According to Ghosh & Maji, (2003)** conclude that in the study the efficiency of working capital management of the Indian cement companies during 1992 – 1993 to 2001 – 2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, this paper also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period.

**Mohammad, Morshedur & Rahman, (2011)** observe in his research study to identify the relationship between working capital management and profitability of the Textiles industry. In the study they found out that there is no significant relationship between the working capital management and profitability.

**Sayedta Tahmina Quayyum, (2012)** examine in the research several industries. The main objective of the research is to find out which industry is significantly influenced by the working capital components. In the study the concluded that except the food industry there exists is a significant relationship between the working capital components and profitability.

**Asghar ali & Syed Atif ali, (2012)** investigated the impact of working capital management on profitability by analyzing the 15 companies at random from chemical textile and engineering sectors undertaken 5 companies from each sector listed on Karachi stock exchange for period 2003 to 2008. Regression analysis technique was used for analyzing data the result revealed that working capital management having positive effect on total assets and profitability of the 15 firms listed Karachi stock exchange and the also highlight that efficient management of inventories can enhance the profitability.

**According to Fayaz Ali shah and wajjid khan, (2012)** in this paper observe the impact of cash conversion cycle on profitability of the firms undertaken 46 companies from textile sector listed on Karachi stock exchange for a period of (2003-2009). They used ordinary least square and was taken the return on assets as dependent variable and cash conversion cycle, number of days account payable, number of days account receivable and number of

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days inventory were taken as independent variables. So, the result shows that the dependent variable is affected by all independent variables.

**According to Iqbal and Zhuqman, (2012)** examined the relationship between working capital management and profitability of 85 non-financial firms in Pakistan for a period from 2008 to 2013. The data was obtained from the firm's financial statements. Panel least square and correlation techniques were used for data analysis. Result of the study show that there is strong positive relation between ROA and size, GDPGR and sales growth of the firms. They also suggested that profitability and value of the firm managers can improve by dropping account payable days, account receivable days and inventory turnover in days.

**According to Kirva, (2012)** examined the relationship between the working capital management variables and the gross profit of the manufacturing firms listed on Nairobi stock securities exchange for the period (2006-2010). Multiple regression and correlation analysis techniques were used for analyzing data. According to the study their profitability of the firm has positive relationship with average payment period and average collection period but has negative relationship with inventory turnover in days. They also recommended that managers should collect the receivables soon as possible and reduce the cash conversion cycle.

**According to Bashir and Ahmed, (2013)** studied that the impacts of working capital management on profitability of the 100 non-financial firms listed on Karachi stock exchange for the period 2005-2009. They used panel data in the research and have analyzed by regression and Lagrange multiplier test. The result of the study suggested that there is positive relationship between the average collection period, current ratio, size, leverage and profitability. But there is significant negative relationship between average payment period, inventory turnover in days and profitability of the firms.

**According to malik.M and waseem ullah, (2013)** the relationship between the working capital management variables and profitability of the firms on the basis of 25 companies from textile sector listed on Karachi stock exchange. The data were taken from the secondary data and correlation and regression analysis techniques used for data analysis. They observed that there is positive relationship between the firm's profitability and the inventory, cash and account receivable while there is significantly negative relationship between account payable and profitability of the firms.

**According to Rehman and khan, (2013)** the influence of working capital management variables on the performance of small medium enterprise for period from 2006 to 2012 in Pakistan. Return on assets was taken as dependent variable and independent variables were cash conversion cycle, number of days account receivable, number of days account payable and number of days inventory. In addition, some other variables were taken as debt ratio, growth and size of the firm. In the result they found that account payable, growth and size have negative relationship with the firm profitability whereas account receivable, cash conversion cycle, number of days inventory and debt ratio has positive relationship with the firm profitability.

**According to Ponsian & chrispin ( 2014)** analyzed three manufacturing companies listed on dar es Salam stock exchange for the period (2002-2012) and they take the data from the annual report of the companies and dar se Salam stock exchange. For the quantification basis they used the Pearson's correlation and regression analysis. Result suggested that there is strong positive relationship between the profitability and cash conversion cycle and there is strong negative relationship between the profitability and average payment period, average collection period, inventory turnover in days and liquidity.

**According to Gachira, (2014)** investigated the impact of working capital management on the profitability of the 39 non-financial firms for period 2009 to 2013 listed on the Zimbabwe stock exchange. Panel and regression analysis techniques were used for analyzing the data the result show that there is a positive relationship among cash conversion cycle, inventory turnover, and debtors' days on the profitability and there is negative relationship between debt to assets ratio, current ratio and creditors days on the profitability.

## RESEARCH METHODOLOGY

### 3.1 Research Objectives:

This study has the following objectives:

1. To assess trends of working capital on profitability of selected Indian sectors.
2. To analyse of working capital management sectors

**Significance of this Research:**

It seems obvious that working capital policy has some impact on the profitability of the Indian selected companies like cement, steel, IT and FMCG. There exists a relationship between working capital policy and profitability of the selected Indian four sector cement, steel, IT and FMCG, but still diminutive research had conducted Indian selected companies. Therefore, the purpose of the study is to find out the relationship between impact of working capital on profitability by using the profitability ratio measurement.

Furthermore, I tried to develop better and practical understanding of the association between the variables and tried to meet the gap in the academic literature over this issue.

**Scope of the research study:**

Researchers all over the world established the concept that working capital management policy is the way of achieving high profitability. Any Indian enterprises should have a strong policy in order to manage properly their working capital. There are many ways to measure the profitability of a business entity. Return on equity, return on assets, and return on capital employed etc, are some of the methods employed to measure the profitability of a business.

**Research method:**

Quantitative method followed in this study because the collected data in the form of numerical digits and I have used statistical tools for analysis.

**Sample size:**

Various manufacturing companies listed at Indian Stock Exchange were selected for this study, the main reason for selecting only the 40 listed companies is the reliability and accuracy of the information given by them, then compare to other. In this study Total 40 Indian selected companies out of total companies listed at BSE/NSE in 2018. Convenient sampling methods used to choose the sample and availability of reports set as a standard to select a company for sample.

LIST OF COMPANIES			
IT SECTORS	CEMENT SECTORS	FMCG SECTORS	STEEL SECTORS
HCL TECHNOLOGIES LTD	ACC LIMITED	Britannia Industries Ltd	Jindal steel & power ltd
INFOSYS	AMBUJA LIMITED	Colgate	Tata steel ltd
L&T INFOTECH	BINANI	HUL	Usha martin
MINDTREES	BIRLA COPORATION	ITC	Mukund ltd
Mphasis	HEIDEBERG CEMENT INDIA LTD	JOHNSON & JOHNSON	Kamdhenu Ltd
NIIT Technologies	JK CEMENT	NETSLE	Tata metaliks ltd
ORACAL FINANCIAL SERVICES	RAMCO	MARICO LTD	Kirlosker ferrous industries ltd
TCS	SHREE CEMENT	P&G	Srikalahasthi pipes ltd
TECH MAHINDRA	STAR CEMENT	PARLE AGRO	Kalyani steel ltd
WIPRO	ULTRA TECH	THE GODRAGE	Sunflag iron & steel ltd

**Time period**

the present study covers the period of five year spanning from year 2008-09- to 2017-2018. the period of ten year is sufficient to the result. Moreover, many of companies were incorporated before this period and the complete data of ten years is available, so researcher has selected this period.

**Research Hypotheses:** Research Hypothesis After reviewing the literature on various studies conducted on the impact of working capital on company's profitability for instance (Qayum (2011) and Gill et al. (2010), the researcher developed the following hypothesis;

**Data collection and data analysis**

In this study I have collected by secondary method. I found data source from annual reports from websites like Capitaline, money controland, BSE, NSE.

I have used tool for data analysis:

- 1) Accounting tool: Ratio analysis and Trend analysis
- 2) statistical tool: average (mean), variance, ANOVA

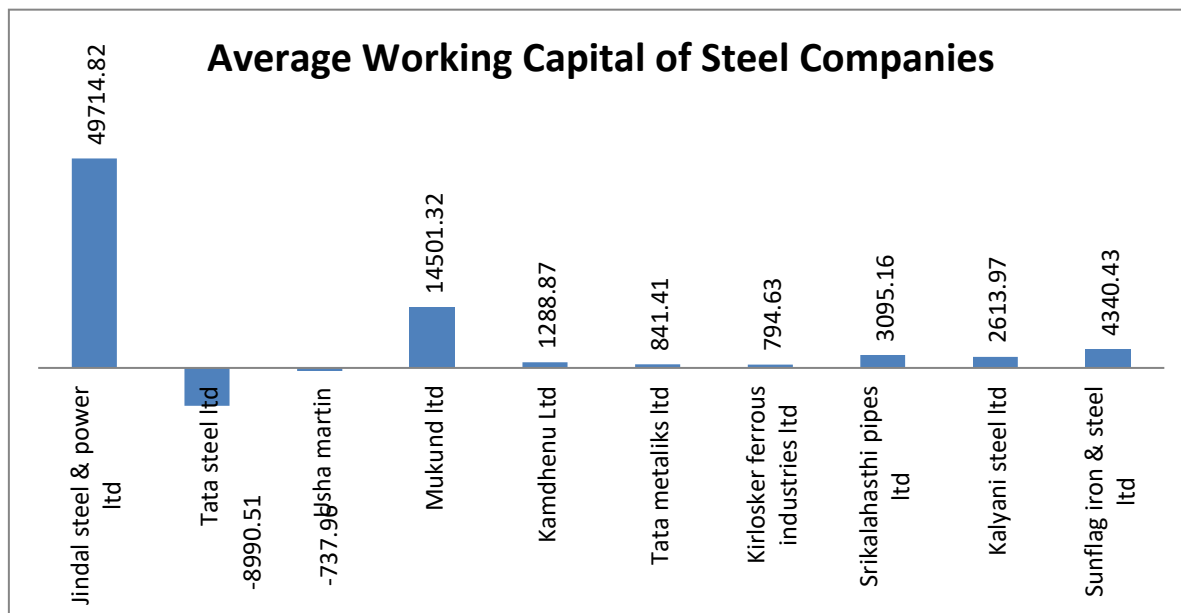
**DATA ANALYSIS**

**Data analysis of Working Capital**

**1. ANALYSIS OF STEEL SECTORS**

**Average Working Capital of Steel Companies**

Company	WORKING CAPITAL
Jindal steel & power ltd	49714.820
Tata steel ltd	-8990.510
Usha martin	-737.960
Mukund ltd	14501.320
Kamdhenu Ltd	1288.870
Tata metaliks ltd	841.410
Kirlosker ferrous industries ltd	794.630
Srikalahasthi pipes ltd	3095.160
Kalyani steel ltd	2613.970
Sunflag iron & steel ltd	4340.430
Total	6746.214

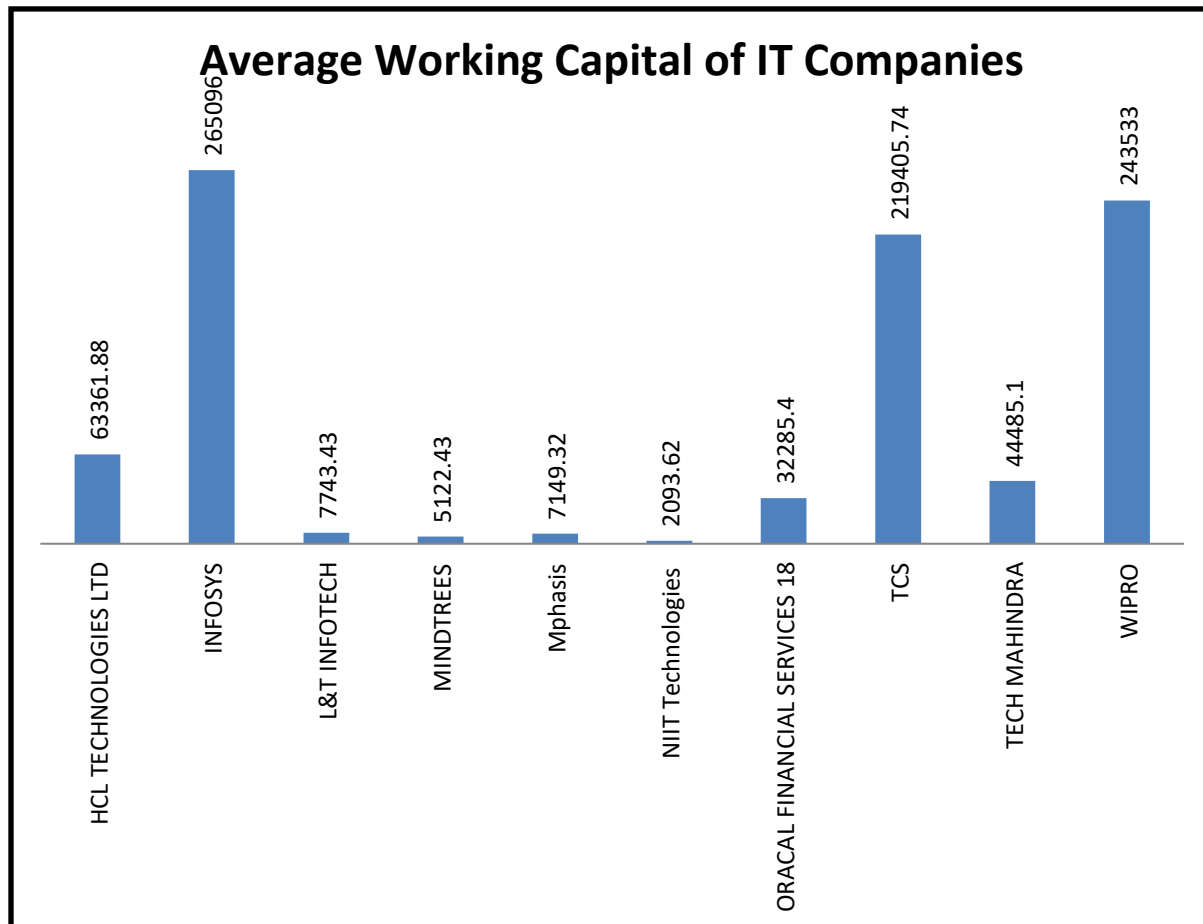


**2. ANALYSIS OF IT SECTORS**

**Average Working Capital of IT Companies**

Company	WORKING CAPITAL
HCL TECHNOLOGIES LTD	63361.880
INFOSYS	265096.000
L&T INFOTECH	7743.430
MINDTREES	5122.430
Mphasis	7149.320
NIIT Technologies	2093.620

ORACAL FINANCIAL SERVICES 18	32285.400
TCS	219405.740
TECH MAHINDRA	44485.100
WIPRO	243533.000
Total	89027.592

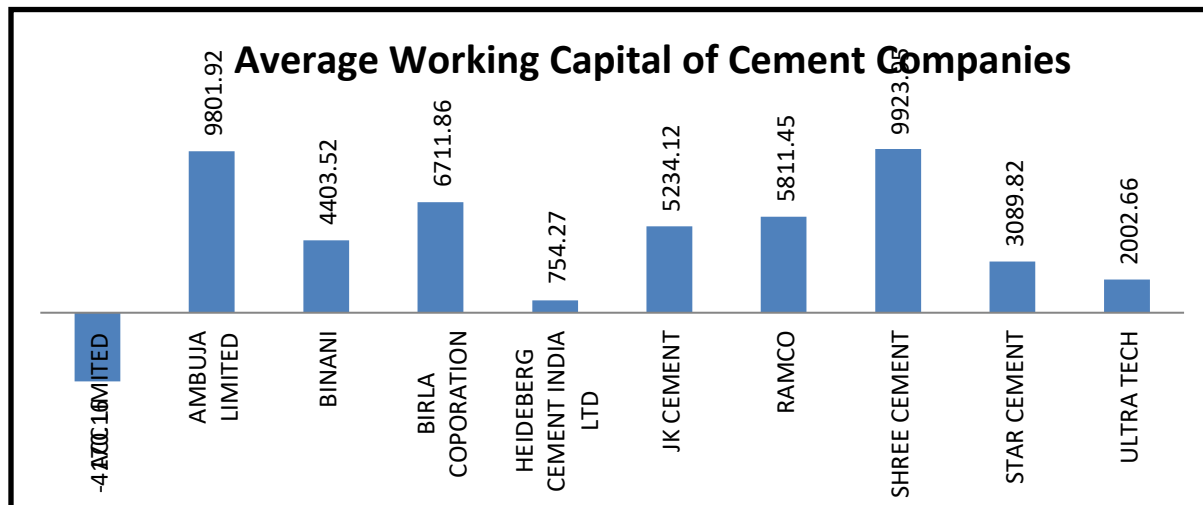


**3. ANALYSIS OF CEMENT SECTORS**

**Average Working Capital of Cement Companies**

Company	WORKING CAPITAL
ACC LIMITED	-4170.160
AMBUJA LIMITED	9801.920
BINANI	4403.520
BIRLA COPORATION	6711.860
HEIDEBERG CEMENT INDIA LTD	754.270
JK CEMENT	5234.120
RAMCO	5811.450
SHREE CEMENT	9923.950
STAR CEMENT	3089.820
ULTRA TECH	2002.660
Total	4356.341

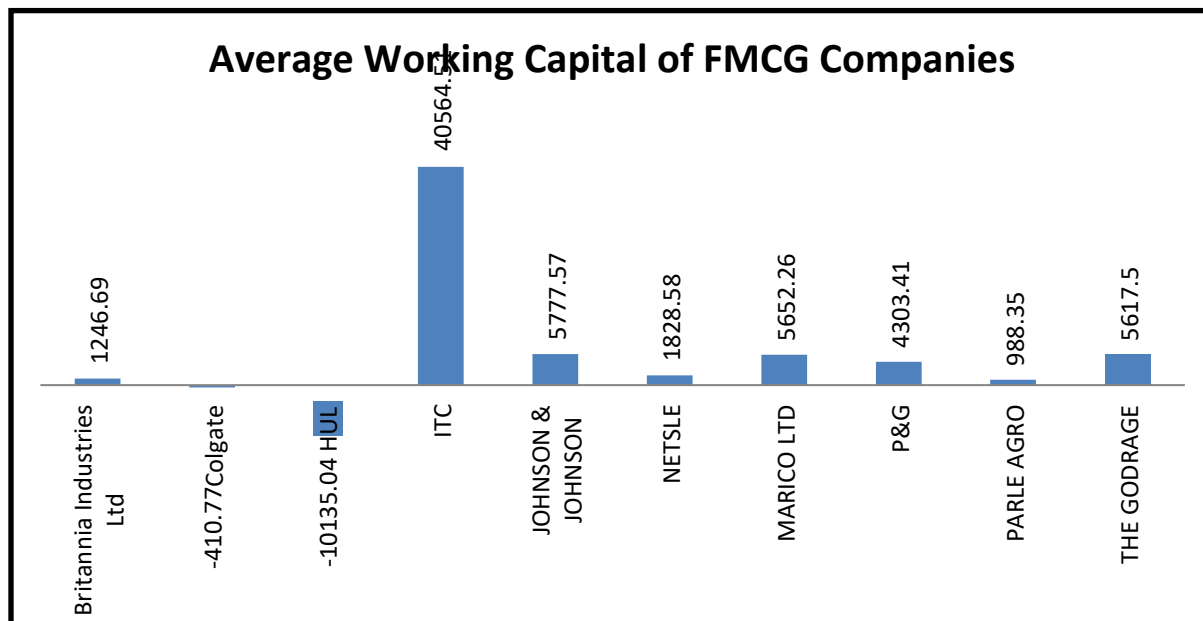




**ANALYSIS OF FMCG SECTORS**

**Average Working Capital of FMCG Companies**

Company	WORKING CAPITAL
Britannia Industries Ltd	1246.690
Colgate	-410.770
HUL	-10135.040
ITC	40564.510
JOHNSON & JOHNSON	5777.570
NETSLE	1828.580
MARICO LTD	5652.260
P&G	4303.410
PARLE AGRO	988.350
THE GODRAGE	5617.500
Total	5543.306

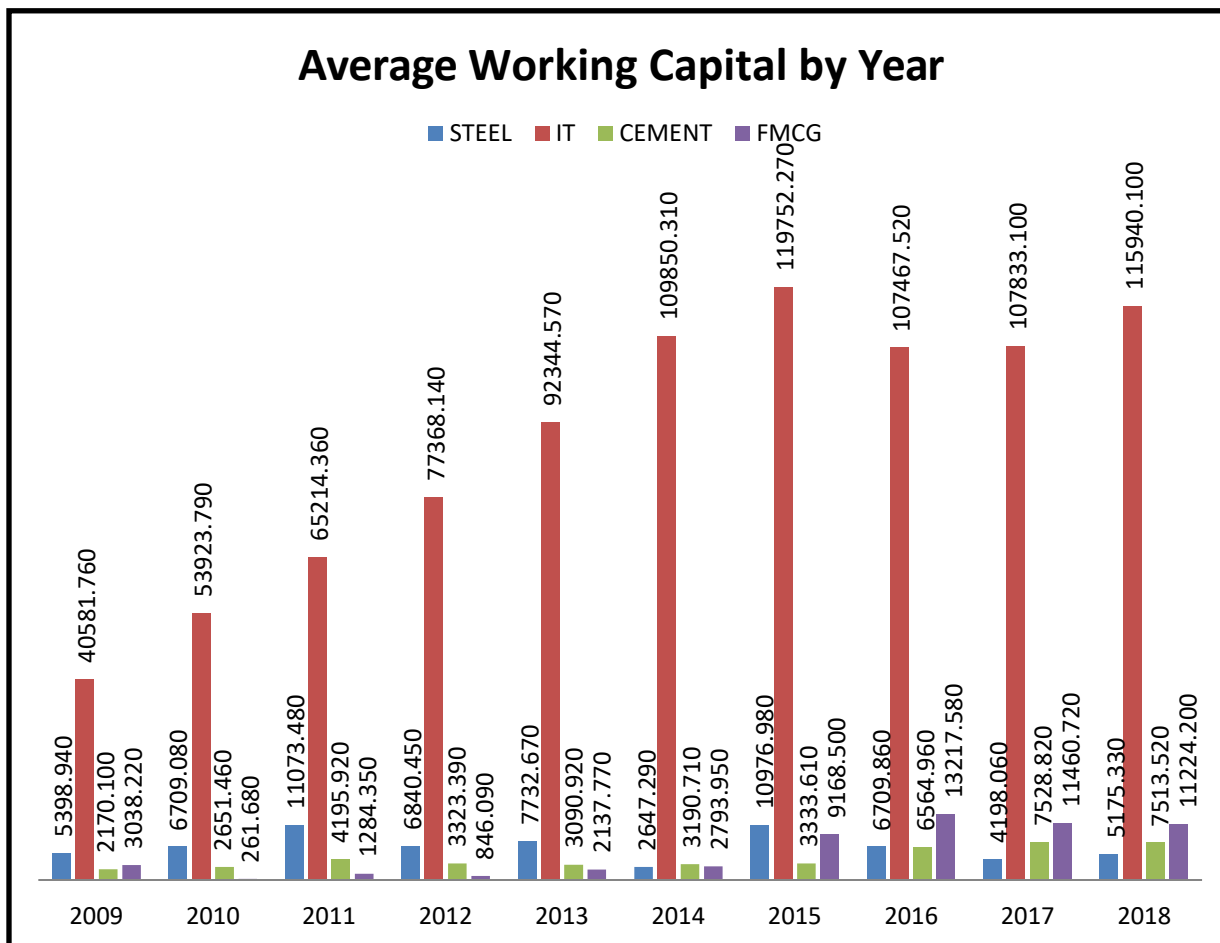


**ANALYSIS OF SELECTED INDIAN SECTORS**

**Average Working Capital by Year**

**Average Working Capital by Year**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
STEE	5398.	6709.	11073	6840.	7732.	2647.2	10976.	6709.8	4198.0	5175.3
L	940	080	.480	450	670	90	980	60	60	30
IT	40581	53923	65214	77368	92344	10985	####	10746	10783	11594
	.760	.790	.360	.140	.570	0.310	####	7.520	3.100	0.100
CEM	2170.	2651.	4195.	3323.	3090.	3190.7	3333.6	6564.9	7528.8	7513.5
ENT	100	460	920	390	920	10	10	60	20	20
FMC	3038.	261.6	1284.	846.0	2137.	2793.9	9168.5	13217.	11460.	11224.
G	220	80	350	90	770	50	00	580	720	200



The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data that IT sector has highest working capital of 89027. RS as compared to lowest working capital of 4356.341 Rs registered for sector.

**ANOVA ANALYSIS:**

**1. ANALYSIS OF STEEL SECTORS:**

**Descriptive Statistics**

**WORKING CAPITAL**

Company	N	Sum	Mean	Variance
Jindal steel & power ltd	10	497148.2	49714.820	526434143.777
Tata steel ltd	10	-89905.1	-8990.510	1203874382.810
Usha martin	10	-7379.6	-737.960	12601832.136
Mukund ltd	10	145013.2	14501.320	14904746.622
Kamdhenu Ltd	10	12888.7	1288.870	117053.867
Tata metaliks ltd	10	8414.1	841.410	783505.592
Kirlosker ferrous industries ltd	10	7946.3	794.630	218053.256
Srikalahasthi pipes ltd	10	30951.6	3095.160	1176149.280
Kalyani steel ltd	10	26139.7	2613.970	244017.902
Sunflag iron & steel ltd	10	43404.3	4340.430	721049.176
Total	100	674621.4	6746.214	397104207.344

**INTERPRETATION:**

The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data that Jindal **steel ltd** has highest average working capital of 49,714.820 Crores Rs as compared to to lowest

working capital of -8990.510 Crores Rs registered for sector tata company.

Further analysis has been performed to check the significant different in the average working capital of selected sectors. Following hypothesis has been framed as tested with the help of ANOVA.

**Hypothesis 1**

**H0:** There is no significant difference in the average working capital of selected steel sectors.

**H1:** There is significant difference in the average working capital of steel sectors.

The results of ANOVA test conducted to check the significant difference in selected steel companies is presented in table below

**ANOVA Table**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	23463642117.318	9	2607071346.369	14.804	.000
Within Groups	15849674409.762	90	176107493.442		
Total	39313316527.080	99			

The results of ANOVA test conducted to check the significant difference in average working capital of Steel sectors is presented in table below;

The results of ANOVA test conducted to check the significant difference in the average working capital across Steel sectors as presented in table above reject the null hypothesis that there is no significant difference in the working capital of selected steel sectors

(F 14.804, df 9, p < 0.05). Thus, we conclude that there is significant difference in the average working capital of steel sectors

**2. ANALYSIS OF IT SECTORS:**

**Report**

**WORKING CAPITAL**

Company	N	Sum	Mean	Variance
HCL TECHNOLOGIES LTD	10	633618.8	63361.880	1970626629.104
INFOSYS	10	2650960.0	265096.000	4679675404.444
L&T INFOTECH	10	77434.3	7743.430	10795642.709
MINDTREES	10	51224.3	5122.430	10037540.293
Mphasis	10	71493.2	7149.320	10225463.337
NIIT Technologies	10	20936.2	2093.620	1465709.953
ORACAL FINANCIAL SERVICES	10	322854.0	32285.400	345030538.653
18				
TCS	10	2194057.4	219405.740	10520357868.892
TECH MAHINDRA	10	444851.0	44485.100	1294334025.211
WIPRO	10	2435330.0	243533.000	3438305734.444
Total	100	8902759.2	89027.592	12696407354.428

**INTERPRETATION**

The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data that Infosys Ltd has highest average working capital of 2,65,096 Rs as compared to lowest average working capital of two lowest working capital of Mphasis 209 3.620 Rs registered for Mphasis.

Further analysis has been performed to check the significant different in the average working capital of selected sectors. Following hypothesis has been framed as tested with the help of ANOVA.

**Hypothesis 1**

**H0:** There is no significant difference in the average working capital of selected IT sectors

**H1:** There is significant difference in the average working capital of selected IT sectors.

The results of ANOVA test conducted to check the significant difference in average working capital ratio of selected IT companies is presented in table below;

**ANOVA Table**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	1056416637075.040	9	117379626341.671	52.682	.000
Within Groups	200527691013.374	90	2228085455.704		
Total	1256944328088.414	99			

The results of ANOVA test conducted to check the significant difference in average working capital of cement sectors is presented in table below;

The results of ANOVA test conducted to check the significant difference in the average working capital across cement sectors as presented in table above reject the null hypothesis that there is no significant difference in the working capital of selected cement sectors (F 52.682, df 9, p < 0.05). Thus, we conclude that there is significant difference in the average working capital of cement sectors.

**3. ANALYSIS OF CEMENT SECTORS:**

**Report**

**WORKING CAPITAL**

Company	N	Sum	Mean	Variance
ACC LIMITED	10	-41701.6	-4170.160	124078609.732
AMBUJA LIMITED	10	98019.2	9801.920	23290702.631
BINANI	10	44035.2	4403.520	15326045.186
BIRLA COPORATION	10	67118.6	6711.860	4669378.018

HEIDEBERG CEMENT INDIA LTD	10	7542.7	754.270	2787821.773
JK CEMENT	10	52341.2	5234.120	1161454.562
RAMCO	10	58114.5	5811.450	6440229.576
SHREE CEMENT	10	99239.5	9923.950	9805131.781
STAR CEMENT	10	30898.2	3089.820	4252739.804
ULTRA TECH	10	20026.6	2002.660	54296282.872
Total	100	435634.1	4356.341	38728153.055

**INTERPRETATION**

The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data Shree Cement that has highest average working capital of 9923.950 Rs as compared to lowest average working capital of 754.270 Rs registered for Heidelberg cement India.

Further analysis has been performed to check the significant different in the average working capital of selected cement companies. Following hypothesis has been framed as tested with the help of ANOVA.

**Hypothesis 1**

**H0:** There is no significant difference in the average working capital of selected cement sectors

**H1:** There is significant difference in the average working capital of selected cement sectors.

The results of ANOVA test conducted to check the significant difference in average working capital of selected cement companies is presented in table below;

**ANOVA Table**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	1619111588.995	9	179901287.666	7.310	.000
Within Groups	2214975563.407	90	24610839.593		
Total	3834087152.402	99			

The results of ANOVA test conducted to check the significant difference in the average working capital across cement sectors as presented in table above reject the null hypothesis that there is no significant difference in the working capital of selected cement sectors (F 7.310, df 9, p < 0.05). Thus, we conclude that there is significant difference in the average working capital of cement sectors.

**4. ANALYSIS OF IT SECTORS:**

**Report**

**WORKING CAPITAL**

Company	N	Sum	Mean	Variance
Britannia Industries Ltd	10	12466.9	1246.690	12352998.103
Colgate	10	-4107.7	-410.770	1194262.749
HUL	10	-101350.4	-10135.040	87683484.376
ITC4	10	405645.1	40564.510	1145823798.957
JOHNSON & JOHNSON	10	57775.7	5777.570	10989657.802
NETSLE	10	18285.8	1828.580	32458104.184
MARICO LTD	10	56522.6	5652.260	5025840.512
P&G	10	43034.1	4303.410	8442619.663
PARLE AGRO	10	9883.5	988.350	237023.303
THE GODRAGE	10	56175.0	5617.500	3542971.167
Total	100	554330.6	5543.306	276700938.238

**INTERPRETATION**

The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data ITC ltd that has highest average working capital of 40564.510 crores Rs as compared to lowest average

working capital of two lowest (-410.770) crores Rs registered for Colgate ltd.

Further analysis has been performed to check the significant different in the working capital of selected FMCG Sectors. Following hypothesis has been framed as tested with the help of ANOVA

**Hypothesis 1**

**H0:** There is no significant difference in the working capital of selected FMCG sectors.

**H1:** There is significant difference in the working capital of selected FMCG sectors.

The results of ANOVA test conducted to check the significant difference in working capital of FMCG sectors is presented in table below;

**ANOVA Table**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	15623636038.238	9	1735959559.804	13.274	.000
Within Groups	11769756847.338	90	130775076.082		
Total	27393392885.576	99			

**INTERPRETATION**

The results of ANOVA test conducted to check the significant difference in the average working capital across FMCG sectors as presented in table above reject the null hypothesis that there is no significant difference in the working capital of selected FMCG sectors (F 13.274, df 9, p < 0.05). Thus, we conclude that there is significant difference in the working capital of FMCG sectors.

**Report**

**WORKING CAPITAL**

Sector	N	Sum	Mean	Variance
STEEL	100	674621.4	6746.214	397104207.344
IT	100	8902759.2	89027.592	12696407354.428
CEMENT	100	435634.1	4356.341	38728153.055
FMCG	100	554330.6	5543.306	276700938.238
Total	400	10567345.3	26418.363	4637659415.606

The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data IT SECTORS that has highest average working capital of 89027.592 crores Rs as compared to lowest average

working capital of 4356.341 crores Rs registered for CEMENT SECTORS.

Further analysis has been performed to check the significant different in the working capital of selected sectors Following hypothesis has been framed as tested with the help of ANOVA.

**INTERPRETATION**

**Hypothesis 1**

**H0:** There is no significant difference in the working capital of selected sectors

**H1:** There is significant difference in the working capital of selected sectors

The results of ANOVA test conducted to check the significant difference in working capital of selected sectors is presented in table below;

**ANOVA Table**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	522940982173.438	3	174313660724.479	51.999	.000
Within Groups	1327485124653.472	396	3352235163.266		
Total	1850426106826.910	399			

## INTERPRETATION

The results of ANOVA test conducted to check the significant difference in the working capital across selected sectors as presented in table above reject the null hypothesis that there is no significant difference in the working capital of selected sectors ( $F 59.999$ ,  $df 3$ ,  $p < 0.05$ ). Thus, we conclude that there is significant difference in the working capital of selected sectors.

## FINDINGS CONCLUSION

Considering the research objective, present study has used secondary data collected for selected companies from four sector viz. Cement, IT, FMCG and Steel. The major findings emerging from data analysis are as follow;

- The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data IT SECTORS that has highest average working capital of **89027.592** crores Rs as compared to lowest average working capital of **4356.341** crores Rs registered for CEMENT SECTORS.
- The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data that Jindal **steel ltd** has highest average working capital of **49,714.820** Crores Rs as compared to lowest working capital of **-8990.510** Crores Rs registered for sector tata company.
- The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data that Infosys **Ltd** has highest average working capital of **2,65,096** Rs as compared to lowest average working capital of two lowest working capital of **Mphasis** **209 3.620** Rs registered for Mphasis.
- The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data **Shree Cement** that has highest average working capital of **9923.950** Rs as compared to lowest average working capital of **754.270** Rs registered for **Heidelberg cement**.
- The analysis of average (mean) working capital is presented in table and graph above. It can be seen from the data **ITC Ltd** that has highest average working capital of **40564.510** crores Rs as compared to lowest average working capital of two lowest (**-410.770**) crores Rs registered for **Colgate Ltd**.

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