

THE IMPACT OF WORKING CAPITAL
MANAGEMENT ON FINANCIAL PERFORMANCE:
EVIDENCE FROM THE SUGAR SECTOR OF PAKISTAN



By

Farwa Abbas

01-220182-004

MBA Thesis

In

MBA Finance (3.5 Years)

Bahria University Islamabad

Fall, 2018



Bahria University Islamabad

**THE IMPACT OF WORKING CAPITAL MANAGEMENT
ON FINANCIAL PERFORMANCE: EVIDENCE FROM
THE SUGAR SECTOR OF PAKISTAN**

A Thesis Presented to

Bahria University Islamabad

In partial fulfilment

of the requirement for the degree of

MBA Finance

by

Farwa Abbas

01-220182-004

Fall, 2018

THE IMPACT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE: EVIDENCE FROM THE SUGAR SECTOR OF PAKISTAN

A Post Graduate Thesis submitted to Department of Business Studies as partial fulfillment of the requirement for the award of Degree of MBA (Finance)

Name	Registration Number
Farwa Abbas	01-220182-004

Supervisor

Dr Shahab Aziz

Assistant Professor Department of BS

Islamabad Campus

Bahria University Islamabad

January, 2022

Final Approval

This thesis titled

THE IMPACT OF WORKING CAPITAL MANAGEMENT
ON FINANCIAL PERFORMANCE: EVIDENCE FROM
THE SUGAR SECTOR OF PAKISTAN

By

Farwa Abbas

01-220182-004

Has been approved

For the Bahria University Islamabad

External Examiner: _____

Supervisor: Dr Shahab Aziz

Assistant Professor Department of Business Studies

Bahria University Islamabad

HoD: Dr. Khalil Ullah Mohammad

Senior Assistant Professor / HOD BS Department

Bahria University Islamabad

Declaration

I Farwa Abbas hereby declare that I have produced the work presented in this thesis, during the scheduled period of study. I also declare that I have not taken any material from any source except referred to wherever due that amount of plagiarism is within acceptable range. If a violation of HEC rules on research has occurred in this thesis, I shall be liable to punishable action under the plagiarism rules of the HEC.

Date: _____

Signature of the student:

Farwa Abbas
01-220182-004

Certificate

It is certified that Registration Number 01-220182-004 Farwa Abbas has carried out all the work related to this thesis under my supervision at the Department of Business Studies, Bahria University Islamabad and the work fulfills the requirement for award of MBA / MS degree.

Date: _____

Supervisor:

Dr Shahab Aziz
Assistant Professor
Department of Business Studies

Head of Department

Dr. Khalil Ullah Mohammad
Senior Assistant Professor
Department of Business Studies

DEDICATION

This thesis is dedicated to my parents, who have raised me to the person I am today. You have been with me every step of the day, through good time and bad. Thank you for all the unconditional love, guidance and support you have given me, helping me to succeed and instilling in me the confidence that I am capable of doing anything I put my mind to. Thank you for everything.

ACKNOWLEDGEMENTS

First and foremost, I am extremely grateful to my supervisor, Assistant Professor Dr Shahab Aziz for their invaluable advice, continuous support, and patience during my Thesis work. His immense knowledge and plentiful experience have encouraged me in all the time of my academic research and daily life. I would also like to express my gratitude to my parents. Without their tremendous understanding and encouragement in the past few years, it would be impossible for me to complete my work.

Farwa Abbas (01-220182-004)

ABSTRACT

THE IMPACT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE: EVIDENCE FROM THE SUGAR SECTOR OF PAKISTAN

Current dynamics shaped by Covid-19 crises, marks the gravity of working capital management (WCM), as an important feature in paving a way towards an entity's success if managed properly. This study explores the impact on financial performance of Pakistani sugar mills by working capital management (WCM). Sugar mills add to national assets, national sales tax revenue and a source of employment for people of Pakistan. This study is done keeping in mind the sectoral importance of sugar mills in overall wellbeing of economy. To explore WCM-profitability relationship, a sample consisting of 23 companies within a time frame of 15 years from FY2006-FY2020 is taken into account. The research is based on secondary data. Measures of working capital management are current ratio CR, inventory turnover ratio IT, and CATAR as independent variables. The measures of financial performance are return on assets ROA, and earnings per share EPS as dependent variables. Analytical tools used are regression analysis, correlation tests, and descriptive statistics. Dynamic panel data methodology has been used in this research. Hypothesis is based on trade-off theory, financing advantage theory, precautionary motive theory, and transaction motive theory. The research revealed that CR and CATAR have significant positive relationship with ROA, and EPS. Whereas, inventory turnover proved to be significant but negative to financial performance. In conclusion, the study proved that working

capital measures have significant role on firm's performance and there is a significant difference among their effects on sectoral basis.

Keywords: Working Capital Management, Financial Performance, Current Ratio, Inventory Turnover Ratio, Current Asset to Total Assets Ratio, Return on Assets, Earnings per Share.

TABLE OF CONTENTS

Chapter No 1 - Introduction.....	Error! Bookmark not defined.
1.1 Background of Study.....	Error! Bookmark not defined.
1.2 Background of problem.....	Error! Bookmark not defined.
1.3 Gap Analysis	Error! Bookmark not defined.
1.4 The sugar industry and relevance of WCM.....	Error! Bookmark not defined.
1.5 Provincial Analysis	Error! Bookmark not defined.
1.6 Significance of the Research.....	Error! Bookmark not defined.
1.7 Scope of the study	Error! Bookmark not defined.
1.8 Problem statement.....	Error! Bookmark not defined.
1.9 Research Purpose	Error! Bookmark not defined.
1.10 Research Questions	Error! Bookmark not defined.
1.11 Research Objectives.....	Error! Bookmark not defined.
1.12 Theoretical framework and hypothesis development.....	Error! Bookmark not defined.
1.13 Current Ratio.....	Error! Bookmark not defined.
1.14 Current assets to total assets ratio	Error! Bookmark not defined.
1.15 Inventory turnover ratio	Error! Bookmark not defined.
Chapter 2: Literature Review	Error! Bookmark not defined.
2.1 Broader Concept.....	Error! Bookmark not defined.
2.2 Diverging view from the world.....	Error! Bookmark not defined.
2.3 Converging onto national level	Error! Bookmark not defined.
2.4 Trade-off theory	Error! Bookmark not defined.
2.5 Transaction Motive Theory.....	Error! Bookmark not defined.
2.6 Precautionary motive theory	Error! Bookmark not defined.
2.7 Financing Advantage Theory	Error! Bookmark not defined.
2.8 Working capital management approaches.....	Error! Bookmark not defined.
2.9 Independent Variables.....	Error! Bookmark not defined.
2.9.1 Inventory Turnover in days ITD.....	Error! Bookmark not defined.
2.9.2 Current Assets to total assets ratio.....	Error! Bookmark not defined.

2.9.3 Current Ratio.....	Error! Bookmark not defined.
2.10 Dependent variable.....	Error! Bookmark not defined.
2.10.1 Financial Profitability	Error! Bookmark not defined.
2.10.2 Return on Total assets (ROA).....	Error! Bookmark not defined.
2.10.3 Earnings per share EPS.....	Error! Bookmark not defined.
Chapter 3 Methodology	Error! Bookmark not defined.
3.1 Introduction	Error! Bookmark not defined.
3.2 Research Design.....	Error! Bookmark not defined.
3.3 Data collection and population	Error! Bookmark not defined.
3.4 Measurement of variables	Error! Bookmark not defined.
3.4.1 Table: Variable construction and references	Error! Bookmark not defined.
3.5 Panel Data Analysis	Error! Bookmark not defined.
3.6 Data Analysis	Error! Bookmark not defined.
3.7 Regression test	Error! Bookmark not defined.
3.8 Co-linearity test.....	Error! Bookmark not defined.
3.9 Correlation matrix	Error! Bookmark not defined.
3.10 Variance Inflation Factor	Error! Bookmark not defined.
3.11 Descriptive statistics.....	Error! Bookmark not defined.
3.12 Hausman Test.....	Error! Bookmark not defined.
3.13 Fixed Effect Model and Random Effect Model	Error! Bookmark not defined.
Chapter 4: Analysis and Findings.....	Error! Bookmark not defined.
4.1 Introduction	Error! Bookmark not defined.
4.1.1 Descriptive statistics	Error! Bookmark not defined.
4.2 Correlation Analysis.....	Error! Bookmark not defined.
4.2.1 Correlation Analysis	Error! Bookmark not defined.
4.2.2 Summary of correlation matrix.....	Error! Bookmark not defined.
4.3 Regression analysis	Error! Bookmark not defined.
4.3.1 Dependent Variable: ROA.....	Error! Bookmark not defined.
4.3.2 Dependent Variable: EPS	Error! Bookmark not defined.
4.4 Variance Inflation Factor VIF.....	Error! Bookmark not defined.
4.4.1 Table: VIF.....	Error! Bookmark not defined.

4.5 Fixed Effect Model	Error! Bookmark not defined.
4.5.1 Dependent Variable: ROA.....	Error! Bookmark not defined.
4.5.2 Dependent Variable: EPS	Error! Bookmark not defined.
4.6 Random Effect Model	Error! Bookmark not defined.
4.6.1 Dependent Variable: EPS	Error! Bookmark not defined.
4.6.2 Dependent Variable: ROA.....	Error! Bookmark not defined.
4.7 Hausman Test.....	Error! Bookmark not defined.
4.8 Results	Error! Bookmark not defined.
4.8.1 Table 1	46
4.8.2 Table 2	46
4.8.3 Table 3	47
4.9 Discussion	Error! Bookmark not defined.
Chapter 5 Conclusions and Recommendations	Error! Bookmark not defined.
5.1 Implications.....	Error! Bookmark not defined.
5.2 Contribution	Error! Bookmark not defined.
5.2.1 Contribution to literature.....	Error! Bookmark not defined.
5.2.2 Contribution to corporate management.....	Error! Bookmark not defined.
5.2.3 Contribution to researchers.....	Error! Bookmark not defined.
5.3 Limitations and scope for further research.....	Error! Bookmark not defined.
5.4 Recommendations	Error! Bookmark not defined.
References	Error! Bookmark not defined.

LIST OF ABBREVIATIONS

α Alpha

Chapter 1
Introduction

1.1 Background of the Study

The working capital management plays a significant part in helping company achieve their objectives by being profitable. This is on account of its strong repercussions on entity's performance (Gomes, 2013). This research is grounded on data collected from 23 sugar firms listed on Pakistan Stock Exchange Market for the period 2006- 2020 and is secondary in nature. The intention of this research is to explore the relationship between both variables with an attempt to traverse the relationship in-between performance of the firms and working capital management. Components of dependent and independent variables will be studied via dynamic panel data analysis.

Two methods used to examine working capital management are dynamic and static methods. Daily routine operations of an entity are focus point of the former method. Liquidity ratios are used by the latter. An example of cash conversion cycle is well defined by dynamic method. (Jimmy D. Moss, 1993); (Haitham Nobanee, 2011); (Lancaster, 1999) whereas, by using statement of financial position, current ratio and quick ratio which comes under head of liquidity ratios, can be measured (Manuel L. Jose, 1996).

In financial management, WCM is a crucial function due to its potential to strengthen an entity and also become the reason of its failure (Deloof M, 2003). An important aspect such as credit restrictions, or those occurring in the situation amidst crisis caused due to COVID-19, or any other situations affecting the ability of entity to reach its goal, strengthens this theory that working capital management (WCM) could be an electromotive force in back of entity's performance. Firms have certain objectives which they set, and then they devise strategies to achieve those objectives just to outperform their competitors. WCM is crucial factor in this regard. Assets and liabilities which are to be liquidated within the time duration of one year, if properly invested in, make WCM more efficient.

Traditionally, area of corporate finance has kept decisions that have long-term implications, as its focal point, leaving behind interim day to day finances together with working capital management. Companies try to manage their typical routine activities to survive and stay in business otherwise they would be in debt. A firm would definitely borrow funds from financial institutions if they feel they are short of petty cash and need money to run their operations. Along this line of reasoning, Westhead and Howorth have thrown light on impression of WCM on profitability of

SME. Influence of WCM is more prominent in larger companies because they possess high percentage of current assets and cash flows highly volatile, also they are prone to insufficient liquidness, often characterizing SMEs. Besides, acquiring long term debt is not easy for firms and they face serious trouble and hassle in acquiring long-term debt so to cater that, firms via short term borrowings accelerate dependability of them, on interim liabilities. All such characteristics of firms mark an efficient WCM a strong ground to uplift financial results which involves an entity's profitability. Working capital also is vital if seen in association with risk and return (Almazari, 2013).

Nevertheless, increased reliance on long term borrowing and financial limitations have led the way of sugar firms to run into conditions of inadequate liquidity and the aftermath of this showed that companies can outperform their competitors only if they give a certain and reasonable importance to their short term finances. Government of Pakistan has also responded to this challenge, by shooting up their efforts towards smoothing access to finances for firms, and by administering proper strategies to be certain about the fact that timely payments are ensured along with other actions. The fact that how a firm can upheave and assign their reserves that were acquired to enhance an entity's performance value and ultimately the wealth of shareholder, is the underlying basis of corporate finance (Chen et al., 2005).

Many decisions in conjunction with considerations such as efficacious and sustainable financial decisions, decisions leading to investments resulting in profits, and enhancing a firm's value require effective and reasonable decisions related to financing. This also involves suitable payout decisions. Decisions related to financing which the firm should take after proper analysis come under the head of working capital, which the firm must manage. This involves areas concerning receivable turnover, cash conversion cycle, time of current liabilities and inventory turnover (Filbeck and Krueger, 2005). Studies show that choosing the right kind of liability whether it is for longer run or shorter run must resonate with the time of a firm's assets is very important, as it lets the firm be in safe hands. If a firm wants to conduct its routine and frequent functions, management of working capital is a must.

Research revealed that working capital does take part in helping firm achieve its objectives and is a significant feature which is crucial in ascertaining the amount of goods manufactured and put on sale to customers. WCM is said to be well planned if payment collections are prompt and disbursements are slow (Nobanee et al, 2011).

Proceeds of sale are in cash but not every time. They are also in the form of credit and generate receivables. Efficient daily operations will receive hindrance if a firm lacks sufficient current assets (Van Horne & Wachowicz, 2007). To a greater extent, decision of sale purchase is settled by deciding the quantity of raw material and supplementing materials on the inventory, which is either bought on cash or on credit.

Among all the sources of financing, firms preferred source is accounts payable. It implies delaying suppliers in getting their payments in return for their products or services. Besides, a prompt payment offered by an entity can bring different discounts, if this is the case then consequently delayed payment can bring fines and such invoices can be really very costly.

Good and effective governance of working capital definitely ensures an entity effective economic radical, giving an entity potential to adapt to changing market dynamics which includes uncertainty in price of raw material, rate of interest, and eventually allows firms to combat the competition in the environment gaining more market share (Appuhami, 2008).

A very important aspect that is critical to an entity's success and cannot be excluded is earning a competitive advantage. Efficient and effective working capital management can pave way to earn competitive advantage for firms and would give them a push in combating competition in market (Korankye and Adarquah, 2013). Components of working capital includes current assets and in case if entity possess inadequate current assets, it would become a reason in causing problems in an entity's operational activities making it difficult for the firm to manufacture products to offer for sale (VanHorne & Wachowicz, 2000). If an entity has poor and insufficient sales or has stakes of unsold inventory, it means that this firm is facing a very low inventory turnover (Ruichao, 2013). Working capital is also studied in relation to liquidity which shows that a firm can go bankrupt if it is facing low liquidity (Dunn & Cheatham, 1993). In the same pattern, a firm with high liquidity can also decrease its capability to earn high profits (Bhattacharya, 2001).

Working capital management can be executed or studied using two different methods. One is named as aggressive working capital approach and the other one as conservative working capital approach (Weinraub & Visscher, 1998). Use of these two approaches differs in their use. The former i.e. working capital approach is used

when an entity utilizes or increases its use of inflows from abroad to capitalize its assets that are current in nature. The latter i.e. working capital approach comes in use if an entity uses more of its current debts than its current assets. Though, if a firm maintains a high amount of cash used for routine activities via aggressive strategy approach of working capital, it can accelerate its results but in this case the risk would be extremely high because the firm would try to keep or sustain a moderately less quantity of cash and cash equivalents and bring down the quantity of its expenditure in inventory. A firm with an ineffective working capital management indicates that the company is facing difficulties in paying off its obligations. Apart from, risk that is higher in nature due to firm's not being certain about lying off its loans is caused by heavy consumption of interim finances to capitalize their assets being current in nature.

1.2 Background of problem

World has turned into a global village because of rapidly changing technology, fast communication systems, advance transportation and growing financial flows. For businesses to avoid glitches they need to have sufficient amount of liquidity. Illiquidity hampers the firm's success so an entity needs to plan their working capital to ensure its success in competitive environment. Initiatives in relation to privatization and globalization by government of Pakistan changed the entire dynamics of economy. Due to nature of its operations, sugar industry faces many challenges. This is because of various factors like interest rate volatility, unstable fuel prices, and unstable economy leading to fluctuations in profit and loss for the firms. Whenever an organization has to take decision regarding profitability, the management is often caught into the dilemma regarding company financial decisions. Industry is seeing a decline in terms of profit creating low value to shareholders, suppliers not getting reasonable prices, salary delays, and profit figures turning negative. They face serious liquidity problems (Malik, Zafar Ullah and Iqbal, Athar, 2012). Among above stated issues, current study probes the effects of working capital management on profitability of sugar sector.

1.3 Gap Analysis

Three fields are significantly important in relation to decisions of corporate finance. Those include decisions related to capital budgeting, capital structure and working capital management. The former two comes under the head of financial management and focus on longer run for investments and returns; however WCM focuses on short term financing decisions (Bhattacharya. H, 2021). Working capital and its impacts are not been studied on sectorial basis as much it is studied on overall economy. Sectors are engines of economy and each sector has different dynamics and characteristics determining their WCM.

The research done in the area of corporate finance has made long term capital decisions including an entity's capital structure, and budgeting as its focus point (Sharma, 2011). The already existing research in the area covering WCM and its repercussions on an entity's profitability has prospered since 2008. Still, existing studies have left many loopholes (Mohsin Vohra, Hasan raza, Muhammad Farukh, Muhammad Mubin, 2014). To start with, extant studies have often grounded their research using listed firms and taking out a sample from their population, but research explained and also as described, working capital management WCM is more pertinent for firms that are not listed. Furthermore, most of the research done has left unnoticed the strong repercussions of working capital management (WCM) on entity's performance in financial aspects, ignoring its potential and kept their focus on influence of WCM on economic profitability. Additionally, extant literature overlooks the fact that WCM and its effect differs and varies from industry to industry. It has also missed out a difference between WCM and entity's policies regarding finance, excluding some references (Abuzayed, 2012; Zawaira and Mutenheri, 2014). And as yet, no study has assessed the WCM and its pertinent influence on entity's performance in the sugar industry till date.

1.4 The sugar industry and relevance of WCM

The sugar industry is significant for Pakistan's economy and steers manufacturing thereof. This section of the research in a nutshell defines the significance and major features of sugar sector of Pakistan. Pakistan is positioned at the 5th rank among all countries with reference to sugar production. Pakistan positions itself at 6th number in regard to cane production. High consumption of sugar in Pakistan makes it 8th largest

consumer of sugar worldwide. Primary material for 90 sugar mills is set on by sugarcane production on an estimated land of 1.2 million hectares. Besides textile industry, Pakistan's sugar industry is the second largest agriculture based industry. Sugar industry and its significance are marked not only because of its size but also due to its domestic importance. It is consumed on domestic level in a lot many ways as sweetener. In past, strong consumer reactions were seen due to price hikes and sudden. Sugarcane is also used in the manufacturing of ethanol, pharmaceuticals, bagasse for paper and chip board production, and a root of organic fertilizer casted off in crop production, other than sugar. Sugar cane is produced along prime rivers of Pakistan, far from flood areas. This sector has seen a rise and fall owing to policies of government. Referring to figures of MY 2015/16 sugarcane manufacturing was 65 MMT, escalating to 75 MMT in MY 2016/17 and to 83 MMT MY 2017/18, prior to seeing a drop of 67 MMT and 66 MMT in MY 2018/19 and MY 2019/20, respectively. Increased production continued in the following years, with 76 MMT in MY 2020/21 and an estimate of 83 MMT in MY 2021/22. This is because of the increase in the area where sugar is planted.

1.4 The sugar industry and relevance of WCM

The sugar sector of Pakistan is known for its non-negligible role in the economy. There are total 81 sugar mills in Pakistan. This sector contributes in employment by employing approximately one lac labor force. Labors involved in the production of sugarcane are more than Nine Million. This labor force comprises of rural population of Pakistan. Requirements of sugar for the country have thus far combated by the existing mills. These mills are going to prove themselves as sufficient for the upcoming three years for the country. Currently, this sector is short of financing terms and conditions to fulfill their needs and government should focus on financing of minimum working capital. This sector is slightly down on its luck because of the ones who owns these mills. This is because most mills are owned by politicians and stand on aid from foreign direct investments. This is one of the reasons that they are facing crises of capitalizing their assets.

Sugar mills add to national assets, adds to national sales tax revenue and a source of employment for people of Pakistan. Without this sector, masses will suffer as it would decrease the GDP. The largest crop contributing its share to agriculture economy is sugarcane which is ranked fourth among cash crops in Pakistan. Market of sugar is volatile in Pakistan. Sugar sector has already seen a jump of 17% in its production. Production in sugar sector can accelerate to 100 million tons. As of now estimated production to be is 87.76 million tons, as reported by Federal Committee on Agriculture FCA.

Significance of this research's independent variable can be marked by the fact that Pakistan and its labors particularly farmers face losses of grave nature by losing billions due to delay in launching of season that relates to crushing of sugarcane by owners of mills. Sugarcane is a fragile, biodegradable commodity so it must be processed in a timely manner. This late start in crushing season is due lo ineffective working capital management. This becomes the reason for moisture loss and reduces weight of the crop. Estimates of sugar consumption are forecasted to be 5.9 MMT. Due to tight supplies in the Pakistan market sugar prices have seen a surge up to 21% since last year. Policies of management and government prices is one the reasons of instability in accessibility of sugar to customers.

1.6 Significance of the Research

Ample research has been conducted and done about working capital management in a lot many countries (Abuzayed, 2012; Zawaira and Mutenheri, 2014). Working capital has been the key feature in paving the way towards success (Obeng, H., Enos, B. K., & Yensu, J. 2021). This research has been done keeping in mind the issues of Pakistani companies. This change is visible in terms of country's financial position. Key decision of each firm is management of WC. Listed companies in Pakistan Stock

Exchange, approximately all in consensus, predicted sugar crop surplus. In terms of sugar industry as a whole greater output level is expected. This would result in acceleration in terms of sugar production which would pave paths for escalation in exports. In recent years, a shift in preferences has been seen in view of farmers as they are more inclined towards cane crop instead of cotton crop. Consumption of cane crop is also predicted to escalate in future. Crushing season of cane crop is marked with high levels of inventory. Sales boost in summer season and at the same time inventory levels begin to reduce. Condition of average working cycle seems to be showing an increasing trend amid last five years. Improvement in trade payables and receivables has also been seen. This collectively shows a rise in net working capital. Covid-19 is one of the main reason and impacted net working capital by bringing an increase in its cycle. Current ratio can be further improved as sugar industry is seeing an increase in requirement of working capital management due to which this industry's short term financing has augmented. This research would help the firms understand the impact of working capital management WCM and would help them devise strategies accordingly. WCM varies from industry to industry (Gill et al, 2011; Sheskia, 2012; Martonen et al, 2013; Ruichao Lu, 2013; Enquist et al, 2014; Aktes et al, 2015).

There is rare consensus of researchers at one determinant of profitability. Researchers are tempted to build consensus of various measures of WCM (Muhammad Tahir, 2016). This research is done with an intention to contribute to developing economy like Pakistan because it is exposed to macroeconomic challenges.

1.7 Scope of the study

This research is being done to dig into the theories of working capital management and checking the repercussions of its different measures on financial performance of the firm. In the area of financial management, WCM is a crucial function because of

its potential to strengthen the firm and also become the reason of its failure. Decisions related to financing which the firm should take after proper analysis come under the head of working capital, which the firm must manage. It is impossible to study all sectors in this research, so this research focuses on sugar industry of Pakistan only. Some companies have seen a decline in this sector and collapsed; only those companies are taken as sample in this study who has maintained their operations from FY2006 to FY2020. Out of 81 mills, 23 mills are taken into consideration. Study focuses on secondary data taken from State Bank of Pakistan. Sugar mills taken into account for the objective of this research are irrespective of their geographical locations. Duration of this research is 3 months. The results of this study are only applicable to respondents of this study and not on all sectors of Pakistan. The main source of data is official website of State Bank of Pakistan SBP. Panel data approach would be used to explore the impact of WCM on firm's performance. Firms used for the purpose of research are given below:

1. Abdullah Shah Ghazi Sugar Mills Ltd
2. Adam Sugar Mills Ltd
3. Al-Abbas Sugar Mills Ltd.
4. Al-Noor Sugar Mills Ltd.
5. Baba Farid Sugar Mills Ltd.
6. Chashma Sugar Mills Ltd.
7. Sindh Abadgar'S Sugar Mills Ltd.
8. Dewan Sugar Mills Ltd.
9. Faran Sugar Mills Ltd.
10. Habib - ADM Ltd.(Habib Arkady LTD.)
11. Habib Sugar Mills Ltd.

12. Haseeb Waqas Sugar Mills Ltd.
13. JDW Sugar Mills Ltd.
14. Khairpur Sugar Mills Ltd.
15. Shakarganj Mills Ltd.
16. Tandlianwala Sugar Mills Ltd.
17. The Premier Sugar Mills & Distillery Co. Ltd.
18. Shahmurad Sugar Mills Ltd.
19. Shahtaj Sugar Mills Ltd.
20. Sakrand Sugar Mills Ltd.
21. Noon Sugar Mills Ltd.
22. Mehran Sugar Mills Ltd.
23. Mirpurkhas Sugar Mills Ltd.

1.8 Problem statement

The already existing research in the area of finance covers WCM and its impact on an entity's profitability but with many loopholes. There is rare consensus of researchers at one determinant of profitability. Researchers are tempted to build consensus of various measures of WCM (Muhammad Tahir, 2016). Extant studies have often marked their research using listed firms and taking out a sample from their population, but research explained and has described, WCM is more pertinent for non-listed firms (Nzioki et al, 2013; Onodje, 2014). Literature overlooks the fact that WCM and its effect differs and varies from industry to industry missing out that there exists a difference between WCM and entity's policies regarding finance, excluding some references. Rarely do, people have knowledge about impacts of financial knowledge on sectors which are greatly contributing in uplifting Pakistan's economy such as sugar sector. This lack of information is because of lack of knowledge about

contribution of financial management in firm's performance. Hence, investigating the mechanism of influence of WCM on financial profitability of entities in terms of performance, by providing evidence from sugar sector of Pakistan is the main purpose of this research. The research would definitely help reduce errors and help firms take better financial decisions resulting in improved financial performance.

1.9 Research Purpose

The purpose of the research is to explore the effects of CR, ITR, and size of firms on return on asset and earning per share of firms from sugar industry listed in stock market in Pakistan.

1.10 Research Questions

From purpose stated above, extracted research questions are mentioned below:

- Does working capital management has significant impact on return on assets?
- Does working capital management has significant impact on earnings per share?

1.11 Research Objectives

The main objectives of this research are stated below:

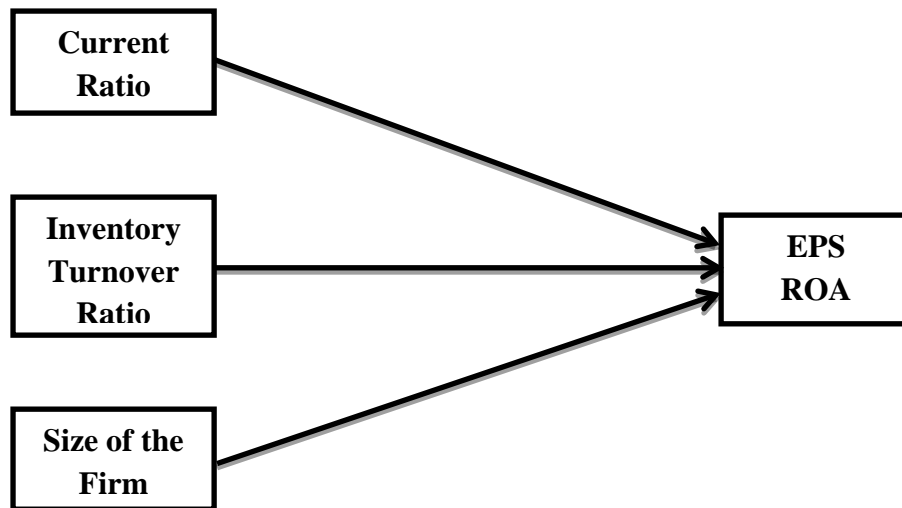
- To assess the impact of working capital management measures on return on assets.
- To assess the impact of working capital management measures on earnings per share.

1.12 Theoretical framework and hypothesis development

The research attempts to explore the relationship between WCM and financial performance of sugar mills in Pakistan. Past empirical studies build the basis on which dependent and independent variables are chosen. Hypothesis are based on resource based theory, and prescriptive theory.

Independent variable: WCM

Dependent variable: Financial Performance



1.13 Current Ratio

Conducted research in the area of WCM showed current ratio as significant part of working capital and has positive impact on return on assets (Sherma and Kumar, 2011; Ray, 2012; Aregbeyen, 2013; Arunkumar, 2018 ; Ramanan, 2018; Zawaira and Mutenheri, 2019). On contrary literature has also shown its negative impact on ROA Shin and Soinen 1998, Rehman and Nasr 2007, and Yadav and Kumar 2019). On basis of above stated facts, study has developed following hypothesis.

H1a: Current ratio has positive relationship with return on assets (ROA)

Higher the current ratio, higher the company be able to pay off its current liabilities which would help boost its EPS (Hanafi dan Halim, 2007). Fahmi 2012, mentioned current ratio as a measure of short term solvency and if company is able to manage its liquidates then it will boost its EPS. Current ratio strengthens EPS and has a positive impact on EPS (Muhammad Tahir, 2016).

H2a: Current ratio has positive relationship with earnings per share (EPS)

1.14 Current Assets to Total Assets Ratio

Size of an entity is gauged by value of its total assets. Dominant market capitalization is a key reason for a firm to control the market. Numerous researches showed positive relationship of CATA with ROA (Falop and Ajilor, 2009; Kareduman et al., 2011; Arunkumar, 2013; Ramenan, 2013; Makori, 2013; Jagongo, 2013; Zawaira, 2016; Mutenheri, 2016; Nejad et al, 2015; Muhammad Tahir, 2016). Previous studies that looked at current assets to total assets proved a positive link between current assets and total assets, as well as return on assets, and yielded encouraging results (Mohamad and Saad, 2010; Ogundipe et al., 2012; Niresh, 2012; Tufail et al., 2013; Mwang et al., 2014).

Only a few other similar research (Salman and Folajin, 57 2014) identified a negative relationship between current assets to total assets ratio and return on assets. The study established the following hypothesis based on the facts and empirical data described above.

H1b: CATAR has positive relationship with return on assets (ROA)

EPS is also positively affected by CATA as showed in various researches (Muhammad Tahir, 2016; Rima Rachmawati, et. al, 2021). Research has also shown no effect of firm size on EPS (Retno Fuji Oktaviani, 2020).

H2b: CATAR has positive relationship with earnings per share (EPS).

1.15 Inventory turnover ratio

It is the imperative component of WCM and shows how quickly a firm converts its inventory into cash. Prior studies demonstrated negative results between inventory turnover ratio and ROA (Kaddumi and Ramadan, 2018). Positive results have also been observed (Chinng et al, 2011; Charitu et al, 2012).

H1c: Inventory turnover ratio has negative relationship with ROA

Pakistani firms are exposed to credit risk (Raheman and Nasr, 2007) effecting their financial performance. It shows a negative impact of IT on EPS. It also varies from one business model to another e (Afza and Nazir, 2007 and 2008). Positive numbers are not always a good sign for firms (Afza and Nazir, 2007 and 2008). A positive impact of IT has been seen on EPS (S. Jakpar, M. Tinggi, T.K. Siang, A. Johari, K.T. Myint, M. Sadique 2017), J. Kasozi (2017).

H2c: Inventory turnover ratio has negative relationship with EPS

CHAPTER 2
LITERATURE REVIEW

2 Literature Review

Dependence on working capital management to maximize their profit is the typical behavior of companies. Management of working capital at a favorable level, in consideration to companies helps them to maximize their costs (Long, 1993); (Deloof & Jeger, 1996). Different aspects were kept in consideration when studying the relationship between WCM and profitability. 43 firms from emerging markets amid 1998 to 2007 were used to investigate the effect of WCM on performance (Charitou et al, 2010). WCM effectiveness and its association with entity's performance was explored by taking into account five manufacturing companies listed on Nigerian Stock Exchange amid 2006 and 2010 (Owolabi and Alu, 2012). Thai firms were also used to check the working capital management repercussions on entity's performance by using 225 listed firms on Thai Stock Exchange amid 2007 and 2009 (Napompech, 2012). (Taringana and Afifa, 2013) took into account 133 firms located in UK amid 2005 and 2009 to check the significance of working Capital Management and its variables on profitability of firms of listed firms of Alternative Investment Market (AIM). This association between WC and its impact on entity's performance was also studied in Pakistan by Iqbal in 2014. An observation of 160 firms specifically the manufacturing firms amid 2005 and 2010, located in Malaysia helped investigate the effect of WCM and entity's performance (Wasiuzzaman, 2015).

Entities that are non-financial in nature were also used in determining the association between WC and performance and were particularly studied by considering 6063 non-financial Portuguese firms (Pais and Gama, 2015). All the results proved minimum investment in WCM to be more effective in terms of maximizing performance which contradicts with many results of previous studies.

The contradiction to above mentioned results has also been seen. Measures of WCM such as days account payable and inventory management days proved a negative but significant relationship in relation to measures of performance particularly ROA. However, variables like CCC and AP proved their positive association with measures of performance particularly returns on assets. This evidence is extracted from a research done on 263 non-financial firms located in India between years 2000-2008 (Sharma and Kumar, 2011). Short term financing has a lot many advantages and can be seen in traditional literature. One of the advantages of investment for shorter run is it is extremely easy to adopt and this adoption is in terms of needs of financing.

Agency problems also get diminished by this flexible adoption of short term financing as it facilitates the relationship because management and those who control their operations. These benefits are temporary in nature. Results revealed that they diminish after reaching their maximum. A group of Spanish companies who utilized conservative strategy as their financing path is an evidence to above stated conclusion. Right balance needs to be crafted out between objectives that are contradictory in nature. These two objectives are liquidity maintenance and value generation for the firms (Shin and Soenen 1998; Wasilewski and Chmielewska 2006; Wasilewski and Zabolotnyy 2009; Sharma and Kumar 2011). Corporate performance is greatly influence by working capital management (Jose et al, 1996).

$$WC= CA - CL$$

CA are used in routine operations of the firm. Current assets include inventory, expenses that are prepaid, short term investments, cash that is receivable within the period of one year and other CA. Net working capital is calculated by deductions of interim liabilities from interim assets. The result obtained as a result of this deduction, whether positive or negative in nature, has an impact on company's performance. If current assets are greater in number than current liabilities, result would be negative in number. This negative number shows a deficit in net working capital. If the resultant number is positive in nature then it shows a surplus. Decisions taken in regard to these interim assets and interim liabilities come under the head of WCM. This management has also been defined in literature as an accounting approach that takes in regard the importance of managing interim assets and interim liabilities. Well planned management is vital as it provides adequate cash for the management of routine operations of a firm. These routine operations generate sales which generates revenue for the firm. It is important for the firm so that they can struggle for their survival. All this explanation marks the importance of WCM for the firms to achieve its objectives.

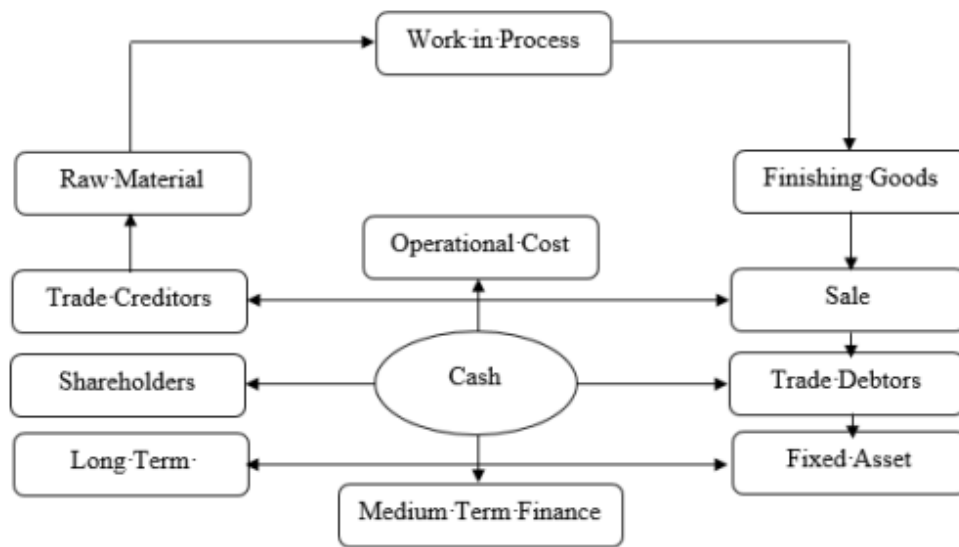


Figure 2.1: A typical Working Capital Cycle
Source: Adapted from Hutchison *et al.*, (2007)

2.1 Broader Concept

The traditional definition stated above would not suffice in understanding the concept of working capital, merely a deduction of current liabilities from current assets. It is not enough to craft a complete structure of working capital. An interim asset or interim liability is of short term in nature if cash conversion or cash due is within the period of one year (L. A. Preve, 2010). This is why these assets and liabilities are said to be current in nature and termed as current assets and current liabilities. Last decade showed that there were fewer complexities in terms of financing as compared to today. This demands financing personnel that is competitive enough to match the current trends of the industry. (Gamze Vural, 2012) gave the definition of working capital and included account payable, accrued salaries, taxes and notes payable in the head of current liability and CA involve securities that are marketable, cash and its equivalents, inventories and current assets. If we narrow the definition of working capital it comes out to be $\text{account receivables} + \text{inventory} - \text{payable accounts}$. So, planning of inventory, AP and receivable comes under the head of working capital (Gamze vural, 2012).

This is the reason that interim assets and liabilities are considered to be concepts of short term nature. Working capital is also referred to as short term concept. Management of working capital is importance and its importance is marked by the

fact that it has strong impact on performance of an entity (Taleb, 2010). Creating wealth for shareholders is the primary goal for any business. It is the reason that corporations make strategies. The strategies devised to create wealth for shareholders are the fundamental part of overall corporate strategies. They ultimately help the firm to combat competition and win huge market share for competitors (Nazir and Azfa, 2008).

Some researchers suggested two views to analyze liquidity. The two views are static and dynamic views. They contradict in their nature. The former takes into account liquidity at any given point in time while the later considers liquidity in terms of operations of the firms (Lancwster et al, 1999; Faris and Hutcison, 2002; Niaz A. B et al, 2011). Another aspect of this research marked the importance of efficient planning of working capital and its impact on performance of firms. Except for accounts receivable period all other variables of working capital management proved to be significant in Nairobi. They have also marked the importance of efficient management of WC and showed how crucial it is for entity's success.

Between years 2010 and 2014, another business was taken to explore this relation of working capital and profitability. Ten food and beverage listed firms in Nigeria were taken into account to empirically explore the repercussions of WCM. The results showed an insignificant and negative relation between measures of working capital, particularly CCC with financial performance however, variable like account receivable showed a negative but significant relationship to profitability. All these results show that high degree of uncertainty exists between working capital measures and financial performance.

Financing in working capital has been done by using two strategies. These strategies are known with the names of conservative and aggressive. If working capital is using debt for longer run as a source of its financing then that strategy would be called as conservative strategy. If the exact working capital has been finances with investments that are short term in nature then the strategy would be known as aggressive strategy (Banos-Caballero et al, 2016). Results revealed an inverted U shaped association of financial performances in relation to investments in working capital. This relationship was evident in companies who chose to you conservative strategy while investing in working capital. Unlike these companies, those companies who chose to use aggressive strategy as their way to fund their working capital revealed in their results, a U shaped relationship in-between investment in WC and financial performance.

Results have also revealed a positive side to financing with short term funding's as they are more flexible and less costly in nature (Banos-Caballero et al, 2016; Jun & Jan, 2003). Costs if minimized would ultimately increase the chances for the firms to earn more profits.

2.2 Diverging view from the world

Working capital comprises of different components that build up its nature. It has various measures like cash, AR, AP, short term debts, and inventories. Working capital has other measures also like CCC, accounts receivables, payables, and their conversion into cash. This cycle is related to operations in business. All these business functions are linked with efficiency in operations of the company (Mun & Jang, 2015). Firms need to manage their interim assets to optimize liquidity and performance and this makes management of working capital mandatory to achieve such objectives (Bolek, 2013). Working capital if effectively managed smoothens day to day activities and operations by providing the firm with short term funds, improving liquidity conditions of firm's (Eljelly, 2004).

Liquidity considerations are mandatory to remove the risk of bankruptcy for the firms. . Management of liquidity has been explained as considering the “efficient planning and controlling of current assets and current liabilities in such a manner that eliminates the risk of the inability to meet short-term obligations, on one hand and avoid excessive investment on the other hand” (Eljelly, 2004). There are two dimensions from which liquidity can be seen. An increase in its value helps the firm flourish and mitigates risks of insolvency and bankruptcy but on the other hand its increase is not seen as beneficial to firm's performance because it constitutes resources (Eljelly, 2004). So, inference can be extracted that an optimal balance needs to be maintained between liquidity and returns to their investments so to keep the firms on track to success.

Net trading cycle developed by (Shin and Soenen, 1998) was adopted in the research mentioned above. They have observed a management tactic of adopting low degree of working capital in initial stages so to enjoy discounts from suppliers resulting due to early payments and ultimately this would increase investments in working capital and would be helpful in boosting sales. Resultantly it proved to be a disadvantage for the firms to invest in working capital as it yielded negative returns. These negative returns were due to the increase in cost of the firms from interest charges. It led them to

risk of insolvency. Findings showed an inverted U shape graph to show the relation between corporate performance and working capital. These results showed that if a favorable or reasonable investment exists in working capital it can easily balance out costs and benefits which would ultimately boost an entity's performance.

Another model was also used to prove this inverted U shape relationship (Nha and Loan, 2015). Between years 2006 and 2014, entities listed on Vietnamese Stock Market were used in the research stated above. Findings of the research suggested that investment levels matter a lot. If there level would be optimum it would be beneficial for the firms and if not it can easily reduce firm's value. So, these results confirm an existence of U shaped inverted association between WC and firm's value. WC and its repercussions were also checked by the entities listed on Zimbabwe Stock Exchange for period 2009- 2013. It used Panel data technique. Regression Analysis was done to find out the association and its significance in terms of profitability of the firms (Gachira, 2014).

The existence of interim assets and interim liabilities not only increase the quantity of total assets and liabilities but if not properly managed can cause serious implications for the firms both in terms of profit and loss (G.A. Afrifa, K. Padachi, 2016; M. Deloof, H. Nobanee, J. Abraham, 2015; K. Padachi, 2006; K. Padachi, 2012). Deloof is considered to be pioneer in working on developing the understanding towards working capital. Then there is also a difference that lies between quoted and non-quoted companies. Quoted companies were always kept into consideration while working on WCM overlooking the fact that how important is working capital in directing non-quoted firms to the path of success. A very important aspect has also been seen missing, proving against backdrop that working capital and its implications differ from industry to industry (S. Fernandez-López, D. Rodeiro-Pazos, L. Rey-Aris, 2020; N. Musau, 2015; S. Vishnani, B.K. Shah, 2007). Notably, no research has been conducted to investigate the implications of WCM in sugar sector.

2.3 Converging onto National Level

Manufacturing firms in Pakistan also highlighted the importance of working capital for a time period of one year which is listed on Karachi Stock Exchange (Iqbal, Ahmad and Riaz, 2009).

They used secondary data for the purpose of research. Variables used were WCM and financial performance. Another researcher used 94 Pakistani firms listed on Karachi

Stock Exchange to investigate the influence of working capital and its implications on performance of the firms (Rehman, 2006; Nasr, 2006). It was done for the period of 1999-2004. Turkish manufacturing firms also proved an association between WCM and profitability of the firms (Samloglu and Demrtgunes, 2008). It was for the period of 1998-2007. Elements of working capital were AR, inventory turnover period, financial leverage and performance of the firms. Indian Cement firms were also used to investigate the efficiency of working capital management during 1992-1993 and 2001-2002 (Ghosh and Maji, 2003). This research instead of using ratios as measures of working capital, used indices instead. These indices were efficiency indices.

Frequency of achieving target efficiency levels were also explored in this research. Individual firms served the purpose in this regard. Results revealed an alarming situation for the country that cement companies aren't performing well for the stated year. Several industries were also taken together in this regard by (Sayeda Tahmina Quayyum, 2012). The underlying purpose of the stated research was to explore how various components of WC affect different industries in a significant way. Resultant results were surprising; except for food industry every industry was prone to implications of working capital.

Component of working capital, called as cash conversion cycle also has an influence on performance of the firms in relation to financial profitability. Ordinary least square technique was tested to elaborate the association between both variables. Results showed that dependent variable is vulnerable to changes in independent variables (Fayaz Ali Shah; Wajid Khan, 2012). Textile industries were again tested to explore the implications of WCM on profitability of the firms (Malik M. Waseem Ullah, 2013).

Holding cash, under ideal capital market assumptions, neither adds nor destroys value. When funds are needed, the firm can always raise funds from capital markets; there are no transaction expenses, and the funds can be used immediately.

2.4 Trade-off theory

The capital markets are expected to be fully functional, funds must always be raised at a reasonable cost. The trade-off theory proposed that businesses make decisions based

on their costs and benefits. To balance the benefits and costs of having cash, set a goal level of liquidity.

2.5 Transaction Motive Theory

Two factors, according to transaction motive theory, determine the relationship between inventory holding period and profitability. The first element assumes that businesses can boost profits by reducing inventory holdings period by retaining the bare minimum of inventory required to meet the demand Production demand is projected. This element assumes that management is aware of the situation. The second element tells that future sales demand determine the provisions needed for inventory levels.

2.6 Precautionary motive theory

According to the precautionary motive theory, inventory holding period and profitability are linked. According to the initial version of this idea, a longer inventory holding period will reduce the risk of a stock out situation (Christiano and Fitzgerald, 1989; Wen, 2005). A stock out situation would be disastrous for the company's bottom line.

2.7 Financing Advantage Theory

This financing advantage theory explains why businesses disregard banking institutions in favor of accepting credit from their suppliers. The link of liquidity and profitability is based on the tradeoff model and is said to be inversely proportional to one another. This implies that business executives must decide current assets to be maintained at each point in time.

2.8 Working capital management approaches

Working capital can be executed or studied using two different methods. One is named as aggressive working capital approach and the other one as conservative working capital approach (Weinraub & Visscher, 1998). Use of these two approaches differs in their use. The former i.e. working capital approach is used when an entity utilizes or increases its use of inflows from abroad to capitalize its assets that are current in nature. The latter i.e. working capital approach comes in use if an entity uses more of its current debts than its current assets. Though, if a firm maintains a high amount of cash used for routine activities via aggressive strategy approach of working capital, it can accelerate its results but in this case the risk would be extremely high because the firm would try to keep or sustain a moderately less

quantity of cash and cash equivalents and bring down the quantity of its expenditure in inventory.

2.9 Independent Variables

2.9.1 Inventory Turnover in days ITD

Research has revealed a positive association between inventory turnover and economic performance of firms. Breakage cost is directly relevant to production and supply chain, if increases to a certain limit, becomes one of the reason to reduce sales. Previous research revealed that reasonable amount of inventory if maintained can prevent sales from losing also t hinders the possibility of incurring huge breakage cost in manufacturing (S. Banos-Cabalero, P.J. García-Teruel, P. Martiniz-Soleno 2014; M. Deloof, 2013, T.A.N.R. Jayarathne, 2014). Optimal inventory if maintained increases possibility of greater discounts on order (Caballero et al, S. Jakpar, M. Tinggi, T.K. Siang, A. Johari, K.T. Myint, M. Sadique, 2017). Research also gave evidence that if backup inventory is maintained, it can prove beneficial for the firms and increases firm value W. Khan (2013). A negative relationship has also been seen between two variables that is day sales outstanding and profitability (D. Cueva, R. Armas-Herrera, 2018; P.J. Gercía-Teruel, P. Martiniz-Soleno, 2007, A.K. Mohsen, E. Mohammadreza, 2012).

Another aspect must also be kept in mind that with inventory comes cost. If inventory level increases costs like maintenance cost, insurance cost, and cost of disposing them off incurs. This becomes one of the main reasons to decrease profitability of the firm. Inventory needs maintenance and to maintain inventory labor is required and firms need to pay wages to their employees in order to work. Human also needs manuals to work efficiently and effectively. All these costs add up and they become the reason to reduce profitability of the firm.

Inventories must be converted into cash if a firm wants to boost its profitability (Nobanee, Abdullatif, & AlHajjar, 2004). The profits of an entity descend if a firm over invests or under invests in its working capital (Padachi, 2006). A contradicting result stating that rate of return will be less if advanced inventory is maintained has also been seen (Koumanakos, 2008). Financial ratios are very significant to companies in a lot many ways. They help the company to monitor their financial position. They help the firm observe their receivables, payables and liquidity positions. The inventory turnover in days TTD is defined in literature as empowering

management of the firm to effectively manage its inventories and the time it took to convert itself into cash without losing its value through sales. Therefore, the ratio is defined by formula mentioned below:

$$\text{ITD} = \text{Inventory} / \text{cost of sales} * 365$$

2.9.2 Current Assets to total assets ratio

Market Reputation of the firm also plays a vital role in reducing cost of financing working capital and its components. Research has showed that firms that enjoy strong market reputations in a positive way and those firms also possess greater quantity of assets to invest in working capital do enjoy financing at a very low cost as compared to other firms in the relevant industry (Fazzari & Petersen, 1993; Mahmood et al., 2019). Short term financing has a lot of advantages in this regard. Considering their advantages in terms of financial profitability of companies, a lot many companies opt short term financing in the area of working capital to boost their productivity (Fazzari & Petersen, 1993; Niskanen & Niskanen, 2006). Such companies with this strategy want to cater their risk of going insolvent and want to combat such risk of bankruptcy (Banos-Cabalero et al, 2010; Mahmood et al, 2019). Research has been done by (Asghar Ali and Syed Atif Ali, 2012) and it was also about impacts of WC on performance of the firms. Fifteen companies were taken into consideration for the intention of this research. Firms chosen were from chemical and textile sectors. Engineering sector was also taken into account. Each company listed was listed on Stock Exchange of Pakistan. It also showed an association between WC and fixed assets and that relationship was positive.

This proves that this is not a negligible factor as it has its influence on performance of the firms. Research has also revealed a positive association that exists between both variables. The current assets to total assets ratio reveals the investment policy's aggressiveness. If the current assets to total assets ratio falls, it indicates that the company is pursuing a conservative investment strategy. A positive current asset to total assets ratio indicates that the company is following a cautious working capital investment strategy. As the ratio of current assets to total assets rises, the level of aggressiveness in the investment policy decreases.

$$\text{CATA} = \text{CA/TA}$$

2.9.3 Current Ratio

Working capital reflects an entity's liquidity position. By liquidity it is meant that firms have sufficient funds to carry out its routine operations. Liquidity can be measured by using two ratios; current and quick. The relation between interim assets and liabilities is determined by CR.

$$CR = CA / CL$$

Its value may be higher or lower depending on the liquidity position a company holds against its competitors. Higher or lower values reflect different meanings in relation to firm's liquidity position. If the value of this ratio would be higher it is an indicator that firm has enough cash to meet its day to day activities. Quick ratio talks about liquid assets that are easily converted into cash in relation with current liabilities. Assets that are convertible into cash easily and really soon are called liquid assets. A condition needs to be met over here that this conversion of assets into cash must be without loss of value.

Liquidity is important to maintain relationships with creditors and suppliers. If company won't be able to pay off their debt in time, it would cost them their reputation. Reputation earns a company healthy discounts that cuts their cost which boost their profitability. Incentives can be missed out if firms lack enough liquidity. Employees are known to be the horses of organization. The strong motivation for them to work is money. This money comes to them in the form of salary, wages and pension. Liquidity is also important in terms of meeting these obligations. If a firm has enough liquidity it can easily meet its employee's obligations. This will give them the motivation to work more on the devised strategies to earn higher profitability. Money is a strong motivator for employees. They expect it to earn it on time so they feel like achieving their personal goals along with professional goals.

Research has been done in Saudi Arabia on a sample of joint firms. It was done to explore rather identify performance in relation to liquidity. The measures used for liquidity in the research stated above were current ratio and CCC also known as cash gap. Results revealed that cash gap is more significant measure to liquidity than CR (Eljelly, 2004). This research has important implications for Saudi firms. A negative relationship amid this research has been seen among liquidity indicators and performance measures. Measures of liquidity also showed significant variations from industry to industry.

2.10 Dependent variable

2.10.1 Financial Profitability

Rate of return on investment is referred as profitability of firms. It is also called as financial profitability. This rate of return on investment is negatively affected if current assets are bombarded with overinvestment (Vishnani and Shah, 2007). Risk is an integral part of business and is always attached to profitability of the firms. This is due to uncertainty in the environment surrounding the business. Policies are devised to cope up with uncertainties associated with businesses. Resources are scarce, so they need to be invested in an optimal way. Only a balanced investment would help boost profitability and cater risk associated with profitability of the business (Ricci and Vito, 2000). To survive in the market and to continue operations of the business without interruptions well-planned strategies of working capital is important.

Maintenance of solvency and profitability of firms, their management is mandatory (Mukhopadhyay, 2004). This management is a must and its importance cannot be neglected (Filbeck and Kruegar, 2005). Working capital targets both liquidity of the firm and also has repercussions on performance of the firm (Rehman and Nasr, 2007). Heavy investments in working capital more than its needs are not recommended as it causes the profits of the firm to diminish. Because if inventories are increased beyond a certain level it would have negative effect on the profitability and the only reason would be the cost. In order to maintain inventory and to convert it into cost, inventories needs to be maintained, stored, taken care of. If there are lost sales then companies also bear the cost of disposing off that inventory. This increase in cost because the major reason of decreased profitability. Costs and profits are inversely related (Arnold, 2008). It is the duty of management to maintain some cash in their backlog to meet emergencies, unexpected events, and uncertainties. Financial management also plays a significant role here. It emphasizes that investment should be made in a smarter way so that it generates maximum returns. Insufficient funds can lead a firm to bankruptcy. So it is advised never to overinvest in working capital.

Macroeconomic situations surround the companies in America and causes greater risk to companies than companies in developing countries. This influences investments in WC (Bayum et al, 2006; Lopez Periz et al, 2018). Some countries do not allow the policy of free economy and restrict their companies in a lot of ways. Restrictions in areas like balance of payments, surplus in commercial markets, inflows in capital

market, greater access to credit by companies, do encourage growth and benefits economic profitability. This finds new areas in the field of investment and opens road to opportunities providing advantage to firms in a lot many ways (Médici & Panigo, 2015). Management needs to balance out their decisions in-between liquidity management and financial profitability. This is impossible without adequate level of spending in working capital. Without the help of enough working capital firms would be able to balance their decisions increasing their possibilities towards achieving their objectives (García-Terul & Martiniz-Solano, 2007; Pas & Pike, 1984).

Working capital is very beneficial to companies if managed properly. This is because of the flexibility in the nature of investments that are made in the scope of working capital. Transformation of WC into cash also incurs cost but that cost is very low (Mielcarz et al., 2018). Cash deficits affect the profitability of companies in many ways decreasing their degree of investment in a lot of arenas. So, if the management is good enough to manage levels of inventory, it would help them to have enough liquidity available in terms of cash available as backup.

These investments in working capital needs to be managed otherwise it diminishes the returns of the company. Overinvestments are often overlooked by the companies and this is one the reasons that firms underperform. Additional financing along with greater opportunity costs is required by the investors if they are to invest in working capital. Research also gave an evidence that there exists negative association between WC investments and performance of an entity; be it financial performance. The reason that was extracted to be the cause of this negative relationship between investment and performance came out to be over investments overlooking their negative impacts on profitability of companies, further increasing the probability of default (Deloof , 2003).

Company's negotiating power with that of their suppliers, manufacturers, advertisers, retailers also gets affected by investments in working capital. This is because they would demand huge discounts in order to reduce their cost of supplying materials. This helps in reducing their cost of delivering product to market by combating with price fluctuations in market. This also reduces the risk of lost sales caused due to low backup of inventory in stock. It becomes a strong reason to reduce the value of the firm in comparison to its competitors (Li et al, 2014) and (Panigrahi, 2017). So, investments are important but maintenance of optimal levels in investments in working capital is mandatory (Ukaegbu, 2014). Results showed an evident negative

association that exists between investments in WC with that of profitability. Studies have revealed contradicting relations, some showed positive relation of working capital with that of performance and some proved negative relationship with regard to profitability (Rehman, 2007; Rehman, Abdul and Mohamed, 2007). Some relationships showed direct linkage and some showed indirect linkages. Measures of working capital like cash receivable period, CCC also known as cash gap, AP, and profitability are inversely related with each other (Molay, 2011).

The empirical investigation is being done to check for the impacts of WCM on financial performance of the firms in the sugar firms particularly. This is because; there exists a dearth of related empirical literature on the firms belonging to sugar sector of Pakistan. The focus on sugar sector is due to the contradiction in stability among various years.

2.10.2 Return on Total assets (ROA)

Contradicting results have been seen of WCM and its components in relation to ROA. One component of working capital, known as cash gap or CCC depicted a negative association with ROA. This research was conducted in Japan (Nobanee, Abdullatif, & AlHajjar, 2004). Undeniable influences of same variable that is working capital and its measure that is cash conversion cycle were seen on firms listed in Istanbul stock exchange ISE. The results also revealed that performance can be ameliorated if we increase working capital effectiveness (Karaduman, Akbas, Caliskan, & Durer, 2011). Strong negative correlation has also been proved in context to components of WCM. ARP, CCC, Inventory turnover days ITD showed a negative relation to ROA which is a measure of profitability of firms. It was studied keeping Indian automobile industry as point of consideration (Greg, 2005). Effect of WC on performance of entities has also been examined (Rehman, Abdul, and Mohamed, 2007). They discovered a negative association between WC measures and measures of performance which were average payment period APP, inventory turnover in days ITD, inventory conversion period ICP, cash conversion cycle CCC also known as cash gap and return on assets ROA respectively. If trade cycle is kept smaller and debt ratio is maintained it leads to better performance of the firm. Level of leverage also impacts significantly the corporate profitability (Oladipupo & Okafor, 2013). Indian companies proved the importance of working capital. It is evident from the results of the study that positive

association exists between working capital and performance (Sharma, 2011). Wealth is an important factor that leads a company to path of success.

Literature showed that greater wealth consequently allows firm to earn more profits. Creditors and institutes easily trust these firms with greater wealth because this lets them draw the picture that will easily pay back loans. So, fund raising is totally not a big problem for wealthier firms. Capital necessities ask for greater loan collection. Financial performance is measured through higher returns. These returns are on total assets (Ali, 2011). ROA is calculated as:

$$\text{ROA} = \text{NI} / \text{Sales} * \text{Sales} / \text{TA}$$

Firm's total assets are used to generate maximum profit. Percentage of profit can be calculated by total earnings against total assets per dollar (Gitman, 2011).

2.10.3 Earnings per share EPS

There are various methods by which financial health of a company can be measured. One such way is through earnings per share EPS. It accesses an entity's financial health. An ordinary share earns for the firm in a market in which an entity is performing, that income earned is termed as earnings per share EPS. Magnitude of its importance can be realized by the value that is given to earnings per share EPS by shareholders of the firm (Edmonds et al., 2013). A survey conducted by (Graham et al, 2005) of a sample of 400 executives, gave the result that majority of those executives considered earnings per share EPS as the major or key performance indicator. Earnings are appealing to investors. Like investors, management also considers earnings attractive. The summarization of these earnings are done under the head of earnings per share EPS (Adkins Matchet Toy, 2016).

Earnings per share EPS has broaden linkages with strategic decisions of the cooperation's. It is the key feature in making decisions about incentive schemes in relation to performance, and negotiations in case of mergers and acquisitions. It is known for its simplicity in calculations. It is delightful for management to witness positive growth in the number of earnings per share EPS (Wet, 2014). This is one of the reasons that when making manuals about performance and thinking about reinforcement strategies, management tie the performance of their managers with earnings per share EPS. It motivates them to work hard to generate a greater positive figure for the firm. Managers know that there rewards and bonuses are directly linked to growth in earnings per share EPS.

$EPS = \frac{NI - \text{Preferred dividends}}{\text{weighted average shares outstanding}}$

All these opinions are contradicting. They contain variations, some research showed a positive relationship while other showed negative relationship. Same is the case with significance and insignificance of variables, as they also have variations. So, it requires further research to be done to check the positive and negative association between inventory turnover and profitability of firm. These studies were more focused on small and medium enterprises. This existing literature proves against this backdrop that there needs to be a detailed research in analyzing the implications of WCM for companies in Pakistan.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

The scientific and organized way to find the answers to given problem is called research methodology. This chapter runs down on research design. This study has used pooled ordinary least square regression model OLS, random effect regression model REM, fixed effect regression model FEM, and Hausman Test.

3.2 Research Design

According to (Bickman and Rog, 2008) research design is “the architectural blueprint of a research project, linking design, data collection, and analysis activities to research questions”. Data is gathered from the official website of State Bank of Pakistan SBP and is in numerical form so quantitative approach will be more appropriate for this research.

3.3 Data collection and population

WCM is undoubtedly an important area of finance due to the fact that if it is mismanaged it can lead to liquidation. On sectorial basis, the sugar sector is chosen due to its significant contribution to revenue generation, tax and employment. Availability of data has guided the selection of sample. Firms undergoing mergers and acquisitions are excluded from the sample like researchers namely (Deloof, 2003; Lazarides and Tryfonides, 2006; Padachi, 2006) have excluded firms from financial sector from their sample data. A sample of 23 firms is selected for a reason that it provides complete enumeration of the population and results are more precise and accurate (Kish 2012). Selected study period is from 2006 to 2020. It is because Karachi Stock Exchange KSE remained inactive before 2000 and market capitalization of firms listed on KSE was extremely low (Khan et al 2014).

Sector	Total firms	Selected firms
Sugar Sector	27	23

Exclusion of firms to be taken as sample is because of two reasons:

1. Unavailability of data
2. They were into mergers and acquisitions

3.4 Measurement of variables

Formulas and abbreviations used in current study are mentioned in table given below:

3.4.1 Table: Variable construction and references

Variables	Construction	References
Return on assets ROA	Earnings before Interest and Tax + Depreciation / Total Assets x100	Jayarathne, 2014; Nejad et al., 2015
Earnings per share EPS	Net Income – (Preferred Dividends) / Number of Common Shares Outstanding	Adkins Matchet Toy, 2016; Wet, 2014
Current Ratio	Current assets / Current liabilities	Zawaira and Mutenheri, 2014; Yadav and Kumar, 2014
Inventory Turnover Ratio	Inventory/cost of sales x 365	
CATAR	CA/TA	Mwang et al., 2014; Salman and Folajin, 2014

3.5 Panel Data Analysis

The impact of WCM on an entity's profitability will be tested using panel data methodology. It allows for pooling of observations over several time periods. It is also called as longitudinal data analysis. Panel data regression, unlike ordinary least square regression covers two dimensions. These two dimensions are cross section units and the other in time series. This nature of panel data makes it suitable for this research because data set provides rich sources of information for accurate analysis. Time series suffer from the issue of multicollinearity which is less likely to happen using panel data methodology. Also, panel data controls individual heterogeneity and call handle large number of observations (Hsiao, 2005, Dougherty, 2011). It is used by many researchers (Padachi, 2006; Rehman and Nasr, 2007; Zariyawate et al, 2009; Erasmus, 2010;Raheman et al., 2010;Keraduman et al, 2011; Osama, 2011; Yassine, 2011). The panel data methodology is more effective in analyzing the empirical findings of study.

3.6 Data Analysis

The quantitative data analysis is using pooled ordinary least square regression model OLS, random effect regression model REM, fixed effect regression model FEM, and Hausman Test. The data has been analyzed using Stata software and the statistics included are as follows:

3.7 Regression test

The study has used regression test to establish the most appropriate model. It describes the relationship between variables. Primary objective of using this test is to determine the rate of change that independent variable causes to another variable. Data evaluation is based on r square, t-statistics and coefficient. The value of r square is represented in percentage and is in-between 0 to 1. Sign of coefficient is used to gauge the linkage between variables. Negative sign shows inverse relationship and positive sign shows positive association between variables.

3.8 Co-linearity test

The study has used correlation and variance inflation factor to detect the problem of co-linearity. If there exists a strong correlation between different measures of variables it raises the problem of co-linearity that states that independent variables are not fully independent.

3.9 Correlation matrix

To measure the potency of association between the variables, study has used correlation analysis (Tabachnick and Fidell, 2007). The positivity and negativity of correlation shows the direct and inverse relation respectively. When there is positive correlation, it is an indication if one variable increases the other also increases. If there exists a negative correlation that means with increase in one variable the other variable decreases. To compute correlation, correlation coefficient is computed and its value ranges from +1 to -1. +1 shows the perfect correlation that exists variables that means if one variable moves up the other variable follows the identical track. Correlation coefficient shows the strength of linear relation between variables.

3.10 Variance Inflation Factor

No statistical test exists that proves if multicollinearity in a problem or not (Berry and Feldman, 1985). Sometimes, predictor variables cause strong influence among variables used in a model. These variances creates problem in regression. Variance inflation measure is useful in case of un-centered variables to detect degree of multicollinearity (Freund Littell and Creighton, 2003). The main feature of VIP is that it measures the multicollinearity impact on the accuracy of estimation.

3.11 Descriptive statistics

It is the main feature of collected data as it is the parameter of quantitative measure. It is used to bridge the sample and is not based on probability theory. It provides

summaries about the sample and between made observations. It serves two purposes. This statistics provides basic information about variables and highlights significant associations between variables.

3.12 Hausman Test

It is also described as test for model specification. In panel data, this test is performed to check what model will be taken into consideration when choosing between fixed and random effects model. Interpreting the results using this model is easy. If the p value is less than 0.05 one must reject the null hypothesis and use fixed effect model.

3.13 Fixed Effect Model and Random Effect Model

There exists no specific accepted methodology for any type of analysis (Shah and Khan 2007). It depends on data selection method, time span and structure and number of variables. Fixed effect model is a class of statistical model in which the values of independent variables are assumed fixed and dependent variables changes in response to independent variables. Variables have different effects at different points in time. Fixed effect model holds the idea variables will have same effect at different points. Random effect model in a panel data is a special case of mixed model. It assumes no fixed effects. If the omitted variables are not related then random effect model is preferred because standard errors of estimates tend to be smaller.

CHAPTER 4
RESULTS AND FINDINGS

4.1 Introduction

This chapter furnishes the purpose of conducted research. Results of the data are depicted in this section and they show the association between WCM and financial performance of sugar sector of the Pakistan. This research has used quantitative analysis in a logical sequence of methods i.e. descriptive analysis, correlation analysis, pooled ordinary least square regression model, fixed effect model, hausman test and random effect random model.

4.1.1 Descriptive statistics

Variable	Observations	Mean	Std. dv	Min	Max
ROA	345	3.5115	0.4813	2.63	3.87
EPS	345	2.8340	1.6579	3.02	3.52
CR	345	3.2340	1.0348	2.98	3.75
INV	345	3.4002	0.4286	1.67	2.05
CATAR	345	2.0123	2.8800	1.09	3.83

This table represents descriptive analysis. The dependent variables are ROA and EPS and independent variables are CR, INV, and CATAR.

Unlike inferential statistics, descriptive statistics summarizes and describes the data. It presents the qualities in the data. Concept of central tendency states that there exists one single variable that best summarizes whole set of measurements. Mean is called the central tendency of the data. Standard deviation is the measurement of average distance between each quantity and mean. It is measure of variability.

To very extent it can be said, ROA has a mean value of 3.5115 with a standard deviation of 0.4813, revealing maximum and minimum value of 3.87 and 2.63 respectively. The positive results of ROA shows that on average firms is profitable. EPS has a mean of 2.8340 with standard deviation of 1.6579, having maximum and minimum value of 3.52 and 3.02 respectively. Maximum value of CR 3.75 shows that some firms are performing well in terms of liquidity. Standard deviation of 1.0348

shows that firms have greater amount of current assets in comparison to total assets. CATAR having a mean of 2.0123 and standard deviation of 2.8800 shows that larger the investment of the firm, greater will be the profitability. Inventory turnover with a mean of 3.4002 and standard deviation of 0.4286 shows that inventory conversion of firms is earning them profits.

These results highlight the significance of economic growth for the Pakistani sugar firms.

4.2 Correlation Analysis

4.2.1 Correlation Analysis

	ROA	CATAR	CR	INV
ROA	1.000			
CATAR	0.501**	1.000		
CR	0.601**	0.342**	1.000	
INV	-0.354**	0.084**	0.296**	1.000

This table represents the correlation matrix. The dependent variable is ROA and independent variables are CR, INV, and CATAR.

4.3 Discriminant Validity

Cells in table show correlation between two specific variables. Table shows that current asset to total asset and return on assets is positively correlated and relationship is highly significant i.e. ($r=0.601$, $p<0.00$). Strong positive correlation is observed between CR and EPS ($r=0.471$, $p<0.00$). Inventory turnover and return on assets are negatively correlated ($r= -0.354$, $p<0.00$)

	EPS	CATAR	CR	INV
EPS	1.000			
CATAR	0.379**	1.000		
CR	0.471**	0.342**	1.000	
INV	-0.329**	0.084**	0.296**	1.000

This table represents the correlation matrix. The dependent variable is EPS and independent variables are CR, INV, and CATAR

Cells in table show correlation between two specific variables. Table shows that current asset to total asset and return on assets is positively correlated and relationship is highly significant i.e. ($r=0.601$, $p<0.00$). Strong positive correlation is observed between CR and EPS ($r=0.471$, $p<0.00$). Inventory turnover and return on assets are negatively correlated ($r= -0.354$, $p<0.00$). Likewise, strong significant and positive relation is observed between CATAR and ROA ($r= 0.501$, $p<0.00$). Moreover, the relationship of CATAR with EPS is essentially significant and positive ($r= 0.379$, $p<0.00$). A negative correlation between inventory turnover ratio has been seen with EPS ($r= -0.329$, $p<0.00$). Table also shows the relationship of independent variable with each other.

4.2.2 Summary of correlation matrix

	ROA	EPS
CR	+ve correlation	+ve correlation
CATAR	+ve correlation	+ve correlation
INV	-ve correlation	-ve correlation

Correlation coefficient along the diagonals of the entire table is all equal to 1 which shows perfect correlation of each variable with itself. These cells on the other hand do not help in interpretation. Correlation matrix is symmetrical this is reason half of the cells of matrix are redundant and unnecessary.

4.3 Regression Analysis

By pooling all observations and running the regression model we get the following results. Primary objective of using this test is to determine the rate of change that independent variable causes to another variable. Data evaluation is based on r square, t-statistics and coefficient. The value of r square is represented in percentage and is in-between 0 to 1. Sign of coefficient is used to gauge the linkage between variables. Negative sign shows inverse relationship and positive sign shows positive association between variables. The following equation analyzes the association between measures of WCM and firm's performance for the panel data.

$$ROA_{it} = \beta_1 CR_{it} + \beta_2 INV_{it} + \beta_3 CATAR_{it} + \varepsilon_{it}$$

$$EPS_{it} = \beta_1 CR_{it} + \beta_2 INV_{it} + \beta_3 CATAR_{it} + \varepsilon_{it}$$

ROA and EPS are representing dependent variables; in case of firms i in period t . and E represent error term also called disturbance term.

4.3.1 Dependent Variable: ROA

	Coef.	p-value	R square
CATAR	0.389	0.045	0.08**
CR	1.451	0.023	0.12**
INV	-0.38	0.039	0.06**

4.3.2 Dependent Variable: EPS

	Coef.	p-value	R square
CATAR	0.691	0.022	0.10**
CR	1.542	0.039	0.13**
INV	-0.3	0.045	0.07**

Tables above show there exists 8% variation in dependent variable (ROA) and 10% variation in (EPS) because of independent variable (CATAR). The value of coefficient tells us about the unit change in dependent variable because of independent variable. Table shows that 1 unit change in CATAR will cause 0.389 unit changes in ROA and 0.691 changes in EPS. From the values it is evident that there exists positive relation between CATAR and ROA, which means that a direct relationship exists between both variables. Furthermore, the p value is less than 0.05 which means that the relationship between these two variables is significant.

There is 6% variation in dependent variable (ROA) and 7% in (EPS) because of independent variable (Inventory turnover ratio). From the table it is evident that 1 unit change in inventory turnover ratio (IV) will cause -0.38 unit changes in ROA and -0.3 unit changes in EPS. There exists negative association between inventory turnover with that of ROA and EPS which means inverse relationship exists between both.

Furthermore, 12% variation in dependent variable (ROA) and 13% variation in (EPS) because of independent variable (current ratio). Due to 1 unit change in (CR) there will be 1.451 unit change in ROA and 1.542 in EPS. The values of coefficient show that there exists positive relation between CATAR and ROA, and in-between CATAR and EPS which means that if IV will increase then DV will also increase. The p value is less than 0.05 which means that the relationship between these two variables is highly significant.

4.4 Variance Inflation Factor VIF

4.4.1 Table: VIF

Variable	VIF	1/VIF
ROA	1.78	0.561
EPS	1.09	0.917
CATAR	1.03	0.9746
CR	1.03	0.9726
INV	1.06	0.9447
Mean	1.198	

The study has applied variance inflation factor to test the collinearity between independent and dependent variables. Multicollinearity has been checked by using the variance inflation factor.

It shows which variables are highly correlated with each other. Table shows that all values are less than standard cut off value of 10, showing that multicollinearity does not seem to be a problem (Welsh, 1980).

4.5 Fixed Effect Model

It is used if researcher assumes that intercept is different for different entities. It is also known as analysis of variance model. This model assumes no assumption. In this model, random variables are treated as if they were non-random. P value is significant is $p < 0.05$. It allows for heterogeneity for all companies that all companies have different intercept values. Here intercept does not vary over time it is time invariant.

4.5.1 Dependent Variable: ROA

Number of observations	345
Number of groups	23
Prob > F	0.0279
R square overall	0.11

	Coefficient	T stats	p
CATAR	2.54	1.98	0.035
CR	1.6044	2.08	0.024
INV	-0.34	-2.06	0.019

4.5.1 Dependent Variable: EPS

Number of observations	345
Number of groups	23
Prob > F	0.002
R square overall	0.10

	Coefficient	T stats	p
CATAR	1.72	2.12	0.042
CR	3.00	2.16	0.002
INV	-0.044	-1.98	0.012

Probability value is less than 5%. It means all the coefficients of this model are not equal to 0. This shows model is well enough to explain the associations between variables. EPS and ROA are the dependent variables and CATAR, CR and inventory turnover are independent variable which are significant to explain ROA and EPS. Tables above show there exists 11% variation in dependent variable (ROA) and 10% variation in EPS due to independent variables.

Current ratio, and current asset to total asset ratio has a positive coefficient that means, there exists a positive association of them with EPS, and ROA. Table shows that 1 unit change in CATA will cause 2.54 unit changes in ROA and 1.72 changes in EPS.

From the table it is evident that 1 unit change in inventory turnover ratio (IV) will cause -0.34 unit changes in ROA and -0.044 unit changes in EPS. There exists negative association between inventory turnover with that of ROA and EPS which means inverse relationship exists between both. Due to 1 unit change in (CR) there will be 1.6044 unit change in ROA and 3.0 in EPS. The values of coefficient show that there exists positive relation between CR and ROA, and in-between CR and EPS which means that if IV will increase then DV will also increase.

4.6 Random Effect Model

It is also called component of variance model. It has common mean value for the intercept.

4.6.1 Dependent Variable: EPS

Number of observations	345
Number of groups	23
Prob > F	0.003
R square overall	0.152

	Coefficient	Z stats	Probability p> z
CATAR	1.52	1.78	0.005
CR	1.77	4.29	0.004
INV	-0.0002	-0.03	0.000

4.6.1 Dependent Variable: ROA

Number of observations	345
Number of groups	23
Prob > F	0.001
R square overall	0.13

	Coefficient	Z stats	Probability
CATAR	1.07	2.31	0.001
CR	1.843	4.90	0.035
INV	-0.001	-0.25	0.000

Probability value is less than 5%. It means all the coefficients of this model are not equal to 0. This shows model is well enough to explain the associations between variables. EPS and ROA are the dependent variables and CATAR, CR and inventory turnover are independent variable which are significant to explain ROA and EPS. Tables above show there exists 13% variation in dependent variable (ROA) and 15% variation in EPS due to independent variables.

Current ratio, and current asset to total asset ratio has a positive coefficient that means, there exists a positive association of them with EPS, and ROA. Table shows that 1 unit change in CATA will cause 1.07 unit changes in ROA and 1.52 changes in EPS.

From the table it is evident that 1 unit change in inventory turnover ratio (IV) will cause -0.001unit changes in ROA and -0.002 unit changes in EPS. There exists negative association between inventory turnover with that of ROA and EPS which means inverse relationship exists between both. Due to 1 unit change in (CR) there

will be 1.843 unit change in ROA and 2.77 in EPS. The values of coefficient show that there exists positive relation between CR and ROA, and in-between CR and EPS which means that if IV will increase then DV will also increase.

4.7 Hausman Test

	b	B	b-B	Sqrt(diag(V_b-V_B)) S.E.
CATAR	-1.50	-1.02	-2.52	3.76
CR	1.5	1.8	-0.3	0.124
INV	-0.00	-0.00	0.00	0.000

The research attempts to select fixed or random effect model based on Hausman criteria. Hausman test (1978) takes hypothesis that random effect is preferred if $p > 0.05$ and is rejected if $p < 0.05$. The results of Hausman test are presented in the table. In the first column variables are mentioned. In the second column the regression coefficient value obtained from fixed effect are mentioned. Third column shows regression coefficient value from running random effect model. The last column shows the standard error.

If $p < 0.05$ then fixed effect model is appropriate.

Test	Chi square	Prob >chi2
Hausman Test	2.872	0.0489

This shows if $\text{prob} > \text{chi}^2$ is lower than 5% confidence level then assumptions for random effect model are violated. Here, fixed effect model needs to be used.

4.8 Results

So, according to fixed effect model

4.8.1 Table 1

Dependent Variable: Return on assets ROA			
Variables	Coefficient	t-statistics	Prob
CATA	2.54	1.98	0.035
CR	1.6044	2.08	0.024
INV	-0.34	-2.06	0.019

4.8.2 Table 2

Dependent Variable: Earnings per share EPS

Variables	Coefficient	t-statistics	Prob
CATA	1.72	2.12	0.042
CR	3.00	2.16	0.002
INV	-0.044	-1.98	0.012

4.8.3 Table 3

Hypothesis accepted/ rejected

Current ratio has positive relationship with return on assets (ROA).	Accepted
Current ratio has positive relationship with earnings per share (EPS).	Accepted
Current assets to total assets has positive relationship with return on assets (ROA).	Accepted
Current assets to total assets ratio has positive relationship with earnings per share (EPS).	Accepted
Inventory turnover ratio has negative relationship with ROA.	Accepted
Inventory turnover ratio has negative relationship with EPS.	Accepted

4.9 Discussion

Each hypothesis was tested by analyzing the relevant empirical data and to deem the hypothesis valid or invalid descriptive analysis, correlation analysis, and regression analysis were performed. Hypothesis is based on different theories like trade off theory, transaction motive theory, precautionary motive theory and financing advantage theory.

Current ratio and financial performance

The results are very much aligned with the previous analysis that showed that CR has a positive and significant linkage with ROA and EPS. Conducted research in the area of WCM showed current ratio as significant part of working capital and has positive impact on ROA and EPS (Sherma and Kumar, 2011; Ray, 2012; Aregbeyen, 2013; Arunkumar, 2018; Ramanan, 2018; Zawaira and Mutenheri, 2019). It showed that hypothesis was true. Correlation table explains that 47.1% of EPS gets positively affected due to positive variation in current assets ratio. ROA also gets affected by 60.1% positively due to positive variation in current assets ratio.

Current assets to total assets and financial performance

Results have also shown that CATA also have significant and positive impact on ROA and EPS. Previous studies that looked at current assets to total assets also proved a positive link between current assets and total assets, as well as return on assets, and yielded encouraging results (Mohamad and Saad, 2010; Ogundipe et al., 2012; Nireesh, 2012; Tufail et al., 2013; Mwang et al., 2014). Correlation table explains that 37.9% of EPS gets positively affected due to positive variation in current assets to total assets ratio. ROA also gets affected by 50% positively due to positive variation in current assets to total assets ratio.

Inventory turnover ratio and financial performance

Inventory turnover ratio has significant but negative linkage with EPS and ROA. Prior studies have also demonstrated negative results between inventory turnover ratio and ROA along with EPS (Kaddumi and Ramadan, 2018). All of these results are only relevant to sugar sector. Correlation table explains that 32.9% of EPS gets negatively affected if inventory turnover increases. ROA also gets affected by 35.4% negatively due to increase in inventory turnover ratio. Results showed that they are in consistent with previous studies.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

The study finds a positive relationship between current ratio and EPS and also between current ratio and ROA. This complies with the research findings on many other researcher and theories. It also recommends that firms should pay serious attention in planning their short term assets. It is very clear that efficient management of working capital is a key feature towards company's success. This research clearly asserts that inventory turnover has significant negative relationship with profitability. This is only relevant to sugar sector of Pakistan. If inventory turnover ratio is greater it would have negative impact on financial position of the company. Because, inventory if piled up only increases cost. Size of the firm also has insignificant impact on profitability of sugar firms.

Also, rather than keeping individual focus on inventory, receivable and payable management, a collective policy regarding working capital management to control financial expenses should be the prime focus. This insignificance of working capital management in terms of profitability calls for attention to be paid on management of working capital and especially on unexplained variables to ultimately boost shareholder's wealth.

Fixed model has revealed that certain measures of working capital management have negative impact on performance. Hence consistent policies over a period of time will help firms boost their financial performance. Thus, the study finds enough evidence that for a firm to enjoy better profitability it needs to efficiently manage its cash position.

5.1 Implications

Managers can get the idea from this research that by achieving optimal level of working capital, profitability can be achieved. Studies have shown that higher current ratio can prove to be beneficial for sugar firms while size of the firm and inventory conversion proved to be insignificant. This proved to be new evidence from Pakistan on determining impact of working capital measures on financial performance.

5.2 Contribution

Several worthy contributions to existing body of literature have been made by this research.

5.2.1 Contribution to literature

A series of research have been done so far in various parts of globe to determine the association between working capital and profitability. These findings blend an

innovation drive in growing body of working capital literature. Literature showed volatility in terms of pertinent decision making when it comes to working capital. This research is done on sectoral basis in developing country like Pakistan and can be used as a guide by management when making decisions about working capital. It also fills in the existing gap by keeping this research limited to sectoral basis.

5.2.2 Contribution to corporate management

The findings of the research reveals that policy makers should focus on devising comprehensive future policy in order to strengthen their position when world has already become a global village. This research has also shown which determinants of working capital, sugar firms should focus on by providing evidence to look into factors vital for financial management. Research has also highlighted by its results that decisions in terms of working capital management are influenced by distinctive behavior in which they operate. Sectoral basis research in Pakistan in many dimensions remains untapped due to data insufficiency. Sectors vary a lot in terms of their financial pattern, so this research is a contribution to management of the firms by adding share to sector wise analysis.

5.2.3 Contribution to researchers

Ample amount of research done on studying the impacts of working capital by researchers have shown contradictory, incoherent results leading to massive literature gap. Economies are different, working capital policies are also different also firms in various sectors vary in terms of customer base, products and their market orientation. Researchers can use methods applied in this study in order to understand association of various measures of working capital with financial profitability.

5.3 Limitations and scope for further research

The results of this study are purely on sectoral basis and are only indicative not conclusive. Furthermore, data representing the period of 16 years was used in this research. Sample size used in the research is small and besides research is only focused on sugar sector so results may differ for other sectors. The research only caters the companies listed on stock exchange. No mediator and moderator effect analyzed. The study has eliminated financial sector because of their distinct nature of characteristics from non-financial firms. Availability of data is another limitation because data base of firms is not well systemized in Pakistan. The research can be extended to other sectors of the market especially on those companies that are not

listed on stock exchange. Future search could analyze the impact of working capital in the presence of mediating and moderating variable.

A potential avenue for future research could be extended by taking primary data collected from financial managers. As requirements of working capital management differs from those of non-financial sectors so it opens new avenues of research to be done on working capital, both in financial and non-financial sectors. Research can be done to explore barriers to employ JIT in sugar sector and its relation with working capital. Future research can be extended to evaluate the influence of the exchange rate, political risk, business risk and competitor risk on working capital management.

5.4 Recommendations

Management of working capital has prodigious sway on profitability of the firms. Companies should consider investing in working capital management in terms of managing its current ratio. It can be improved by delaying any capital purchase requiring cash. Personal draws can prove to be harmful for the business. They can also be controlled to improve the current to total assets ratio. Delayed payments can cause serious implications for companies in terms of their reputation. So current ratio needs to be managed. In order to remain reasonably liquid, inventory carrying cost can be reduced. Piling of inventory adds to cost because of its security and storage expenses. JIT and agile methods can be used to minimize such costs. When time taken by inventory to convert into cash is higher the carrying, protection and storage costs are also higher. This slow turnover is a clear indication that firm is having problems. Management should revise their strategies to cope up with growing losses. Research has shown that higher the current ratio, higher the profitability. So, investment in current assets would have a positive impact on profitability of the firms in this sector. Sugar firms should reduce heavy investments in current assets so to avoid cash holdings. Firms should update and monitor their accounts receivables on regular basis to eliminate additional financing cost.

REFERENCES

- Nobanee, H., Abdullatif, M., & AlHajjar, M. (2011). Cash conversion cycle and firm's performance of Japanese firms. *Asian Review of Accounting*.
- Lancaster, C., & Stevens, J. L. (1999). Corporate liquidity and the significance of earnings versus cash flow: an examination of industry effects. *Journal of Applied Business Research (JABR)*, 15(3), 37-46.
- Jose, M. L., Lancaster, C., & Stevens, J. L. (1996). Corporate returns and cash conversion cycles. *Journal of Economics and finance*, 20(1), 33-46.
- Dixit, P. (2015). Working Capital Management in Selected IT Companies. Available at SSRN 2544860.
- Howorth, C., & Westhead, P. (2003). The focus of working capital management in UK small firms. *Management accounting research*, 14(2), 94-111.
- Deloof, M. (2003). Does working capital management affect profitability of Belgian firms?. *Journal of business finance & Accounting*, 30(3-4), 573-588.
- Chen, J. S. (2015). Tourism stakeholders attitudes toward sustainable development: A case in the Arctic. *Journal of Retailing and Consumer Services*, 22, 225-230.
- Filbeck, G., & Krueger, T. M. (2005). An analysis of working capital management results across industries. *American journal of business*.
- Ucbasaran, D., Alsos, G. A., Westhead, P., & Wright, M. (2008). *Habitual entrepreneurs*. Now Publishers Inc.
- Afza, T., & Nazir, M. S. (2007). Is it better to be aggressive or conservative in managing working capital. *Journal of quality and technology management*, 3(2), 11-21.
- García-Teruel, P. J., & Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance*.
- Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance*, 30, 98-113.
- Iqbal, J. (2015). *Impact of working capital management on profitability of the food and personal care products sector in Pakistan* (Doctoral dissertation, Doctoral dissertation, The Islamia University Of Bahawalpur).
- Nobanee, H. (2017). Efficiency of working capital management and profitability of UAE construction companies: size and crisis effects. Available at SSRN 2971477.

- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—case of Pakistani firms. *International review of business research papers*, 3(1), 279-300.
- Appuhami, B. R. (2008). The impact of firms' capital expenditure on working capital management: An empirical study across industries in Thailand. *International management review*, 4(1), 8.
- Korankye, T., & Adarquah, R. S. (2013). Empirical analysis of working capital management and its impact on the profitability of listed manufacturing firms in Ghana. *Research Journal of Finance and Accounting*, 4(1), 124-131.
- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—case of Pakistani firms. *International review of business research papers*, 3(1), 279-300.
- Ruichao, L. (2013). Impact of Working Capital Management on Profitability.
- Dunn, P., & Cheatham, L. (1993). Fundamentals of small business financial management for start up, survival, growth, and changing economic circumstances. *Managerial Finance*.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *International Review of business research papers*, 2(2), 45-58.
- Moss, J. D., & Stine, B. (1993). Cash conversion cycle and firm size: a study of retail firms. *Managerial Finance*.
- Bhattacharya, H. (2021). *Working capital management: Strategies and techniques*. PHI Learning Pvt. Ltd..
- Weinraub, H. J., & Visscher, S. (1998). Industry practice relating to aggressive conservative working capital policies. *Journal of Financial and Strategic Decision*, 11(2), 11-18.
- Malik, Z. U., & Iqbal, A. (2012). Affect of Working Capital Management on Firms Profitability in Sugar Industry of Pakistan.
- Sharma, A. K., & Kumar, S. (2011). Effect of working capital management on firm profitability: Empirical evidence from India. *Global business review*, 12(1), 159-173.
- Vohra, M., Raza, H., Aslam, M. F., & Mubeen, M. (2014). Impact of working capital management on financial charges: empirical evidence of manufacturing

- industry of Pakistan. *Research Journal of Finance and Accounting*, 9(20), 110-119.
- Anand, M., & Gupta, C. P. (2002). Working capital performance of corporate India: an empirical survey for the year 2000-2001. *Management and Accounting Research, January-June*.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *International Review of business research papers*, 2(2), 45-58.
- Ganesan, V. (2007). An analysis of working capital management efficiency in telecommunication equipment industry. *Rivier academic journal*, 3(2), 1-10.
- Wasiuzzaman, S. (2015). Working capital and firm value in an emerging market. *International Journal of Managerial Finance*.
- Mohamad, N. E. A. B., & Saad, N. B. M. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International journal of Business and Management*, 5(11), 140.
- Abuzayed, B. (2012). Working capital management and firms' performance in emerging markets: the case of Jordan. *International Journal of Managerial Finance*.
- Zawaira, T., & Mutenheri, E. (2014). The association between working capital management and profitability of non-financial companies listed on the Zimbabwe stock exchange. *International Journal of Research in Social Sciences*, 3(8), 114-120.
- Safdar, M. Z., Awan, M. Z., Ahmed, Z., Qureshi, M. I., & Hasnain, T. (2016). What does matter? Liquidity or profitability: A case of sugar industry in Pakistan. *International Journal of Economics and Financial Issues*, 6(3S).
- Younus, S., Ishfaq, K., Usman, M., & Azeem, M. (2014). Capital structure and financial performance: Evidence from Sugar industry in Karachi Stock Exchange Pakistan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(4), 272-279.
- Obeng, H., Enos, B. K., & Yensu, J. (2021). Working Capital Management, Working Capital Policy, and Firm Performance in Ghana: Empirical Evidence Using a Dynamic System GMM. *African Journal of Business & Economic Research*, 16(1).

- Supiyadi, D., Rohani, D. D., Dodi, D., & Kurniawati, R. (2021). Pengaruh Working Capital Management Terhadap Profitabilitas Perusahaan: Literatur Review. *Jurnal Digital Bisnis, Modal Manusia, Marketing, Entrepreneurship, Finance, & Strategi Bisnis (Dimensi)*, 1(1), 27-40.
- Moss, J. D., & Stine, B. (1993). Cash conversion cycle and firm size: a study of retail firms. *Managerial Finance*.
- Knauer, T., & Wöhrmann, A. (2013). Working capital management and firm profitability. *Journal of Management Control*, 24(1), 77-87.
- Ganesan, V. (2007). An analysis of working capital management efficiency in telecommunication equipment industry. *Rivier academic journal*, 3(2), 1-10.
- García-Teruel, P. J., & Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance*.
- Gul, S., Khan, M. B., Raheman, S. U., Khan, M. T., Khan, M., & Khan, W. (2013). Working capital management and performance of SME sector. *European Journal of Business and management*, 5(1), 60-68.
- Hernandez, S., Migliaro, D., Suarezm, P., & Arnaldi, A. (2021). Working Capital Determinants and Profitability: Empirical Evidence from an Emergent Economy. *IAR Journal of Business Management*, 2(2).
- Hernandez, S., Migliaro, D., Suarezm, P., & Arnaldi, A. (2021). Working Capital Determinants and Profitability: Empirical Evidence from an Emergent Economy. *IAR Journal of Business Management*, 2(2).
- Gill, A. (2011). Factors that influence working capital requirements in Canada. *Economics and Finance Review*, 1(3), 30-40.
- Marttonen, S., Monto, S., & Kärri, T. (2013). Profitable working capital management in industrial maintenance companies. *Journal of Quality in Maintenance Engineering*.
- Lu, R. (2013). Impact of working capital management on profitability: *the case of Canadian firms*.
- Enqvist, J., Graham, M., & Nikkinen, J. (2014). The impact of working capital management on firm profitability in different business cycles: *Evidence from Finland*. *Research in International Business and finance*, 32, 36-49.

- Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance*, 30, 98-113.
- Ali, J., Din, M. U., Waris, A., Tahir, M., & Khan, S. (2020). Working Capital Management and Firms' Profitability: *Dynamic Panel Data Analysis of Manufactured Firms. Journal of Financial Risk Management*, 9(04), 494.
- Nzioki, P. M., Kimeli, S. K., Riwo Abudho, M., & Nthiwa, J. M. (2013). *Management of working capital and its effect on profitability of manufacturing companies listed on Nairobi securities exchange (NSE), Kenya.*
- Onodje, M. A. (2014). Working capital management and performance of selected Nigerian manufacturing companies. *Global Journal of Management and Business Research*.
- Sharma, A. K., & Kumar, S. (2011). Effect of working capital management on firm profitability: *Empirical evidence from India. Global business review*, 12(1), 159-173.
- Ray, S. (2012). Evaluating the impact of working capital management components on corporate profitability: evidence from Indian manufacturing firms. *International Journal of Economic Practices and Theories*, 2(3), 127-136.
- Aregbeyen, O. (2013). The effects of working capital management on the profitability of Nigerian manufacturing firms. *Journal of Business Economics and Management*, 14(3), 520-534.
- Kusuma, H., & Dhiyaullatief Bachtiar, A. (2018). Working capital management and corporate performance: evidence from *Indonesia. Central European Management Journal*, 26(2), 76-88.
- Eda, O., & Mehmet, S. (2009). Relationship between efficiency level of working capital management and return on total assets in ISE. *International journal of Business and Management*, 4(10), 109-114.
- Al Shra'ah, A. E. M. (2019). Working capital management and profitability: Evidence from Jordanian mining and extraction industry sector. *ةيمالسإلا ةعمإلا ةلجم ةيرادلإاو ةيداصتقإلا تاساردلل*, 27(1).
- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—*case of Pakistani firms. International review of business research papers*, 3(1), 279-300.

- Yadav, T. K., Deshmukh, M., & Singh, M. P. *study of inventory management system at mahle engine components india private limited, pithampur.*
- Ngegedek, H. (2015). Pengaruh total asset turn over, inventory turn over, net working capital turn over dan inflasi terhadap profitabilitas (*studi pada perusahaan farmasi yang terdaftar di bursa efek indonesia periode 2009-2013*) (*doctoral dissertation, fakultas ekonomi unpas*).
- Lumapow, L. S., & Tumiwa, R. A. F. (2020). Working Capital and Debt Policy on Profitability of The Companies. *International Journal of Accounting & Finance in Asia Pasific (IJAFAP)*, 3(2), 26-36.
- Xia, F., Farmer, D. B., Lin, Y. M., & Avouris, P. (2010). Graphene field-effect transistors with high on/off current ratio and large transport band gap at room temperature. *Nano letters*, 10(2), 715-718.
- Nuryani, Y., & Sunarsi, D. (2020). The Effect of Current Ratio and Debt to Equity Ratio on Deviding Growth. *JASa (Jurnal Akuntansi, Audit dan Sistem Informasi Akuntansi)*, 4(2), 304-312.
- Gaur, V., Fisher, M. L., & Raman, A. (2005). An econometric analysis of inventory turnover performance in retail services. *Management science*, 51(2), 181-194.
- Gaur, V., Fisher, M. L., & Raman, A. (2005). *An econometric analysis of inventory turnover performance in retail services*. *Management science*, 51(2), 181-194.
- Gaur, V., & Kesavan, S. (2015). The effects of firm size and sales growth rate on inventory turnover performance in the US retail sector. *In Retail Supply Chain Management* (pp. 25-52). Springer, Boston, MA.
- Hançerlioğulları, G., Şen, A., & Aktunç, E. A. (2016). Demand uncertainty and inventory turnover performance: An empirical analysis of the US retail industry. *International Journal of Physical Distribution & Logistics Management*.
- Wan, X., Britto, R., & Zhou, Z. (2020). In search of the negative relationship between product variety and inventory turnover. *International Journal of Production Economics*, 222, 107503.
- Orlitzky, M. (2001). Does firm size comfound the relationship between corporate social performance and firm financial performance?. *Journal of Business Ethics*, 33(2), 167-180.
- Majumdar, S. K. (1997). The impact of size and age on firm-level performance: some evidence from India. *Review of industrial organization*, 12(2), 231-241.

- Schaefer, S. (1998). The Dependence of pay—Performance Sensitivity on the Size of the Firm. *Review of Economics and Statistics*, 80(3), 436-443.
- Lahiri, N., & Narayanan, S. (2013). Vertical integration, innovation, and alliance portfolio size: Implications for firm performance. *Strategic Management Journal*, 34(9), 1042-1064.
- Adeusi, S. O., Akeke, N. I., Aribaba, F. O., & Adebisi, O. S. (2013). Corporate Governance and Firm Financial Performance: Do Ownership and Board Size Matter?. *Academic Journal of Interdisciplinary Studies*, 2(3), 251-251.
- Falope, O. I., & Ajilore, O. T. (2009). Working capital management and corporate profitability: evidence from panel data analysis of selected quoted companies in Nigeria. *Research journal of business management*, 3(3), 73-84.
- Gul, S., Khan, M. B., Raheman, S. U., Khan, M. T., Khan, M., & Khan, W. (2013). Working capital management and performance of SME sector. *European Journal of Business and management*, 5(1), 60-68.
- Arunkumar, O. N., & Ramanan, T. R. (2013). Working capital management and profitability: A sensitivity analysis. *International Journal of Research and Development*, 2(1), 52-58.
- Makori, D. M., & Jagongo, A. (2013). Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange, Kenya. *International journal of accounting and taxation*, 1(1), 1-14.
- Tahir, M., & Anuar, M. B. A. (2016). The determinants of working capital management and firms performance of textile sector in pakistan. *Quality & Quantity*, 50(2), 605-618.
- Nejad, D. A., Bandarian, A., & Ghatebi, M. (2015). Effect of Working Capital Management on the Profitability of Listed Companies in Tehran Stock Exchange. *Journal of Life Science and Biomedicine*, 5(1), 21-25.
- Ainunnisa, R. (2021). The Influence of Intellectual Capital On the Firm's Value with Profitability as Intervening Variable (Empirical Study on Banking Subsector Companies Listed on the Indonesia Stock Exchange (IDX) of the year 2017-2019). *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(4), 713-722.

- Masri, H., & Abdulla, Y. (2018). A multiple objective stochastic programming model for working capital management. *Technological Forecasting and Social Change*, 131, 141-146.
- Gul, S., Khan, M. B., Raheman, S. U., Khan, M. T., Khan, M., & Khan, W. (2013). Working capital management and performance of SME sector. *European Journal of Business and management*, 5(1), 60-68.
- Charitou, M., Lois, P., & Santoso, H. B. (2012). The Relationship Between Working Capital Management and Firms Profitability: An Empirical Investigation for an Emerging Asian Country. *International Business & Economics Research Journal (IBER)*, 11(8), 839-848.
- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—case of Pakistani firms. *International review of business research papers*, 3(1), 279-300.
- Jakpar, S., Tinggi, M., Siang, T. K., Johari, A., Myint, K. T., & Sadique, M. (2017). Working capital management and profitability: Evidence from manufacturing sector in Malaysia. *Journal of Business & Financial Affairs*, 6(2), 1-9.
- Kasozi, J. (2017). The effect of working capital management on profitability: A case of listed manufacturing firms in South Africa. *Investment management and financial innovations*, 14(2), 336-346.
- Lyngstadaas, H., & Berg, T. (2016). Working capital management: Evidence from Norway. *International Journal of Managerial Finance*.
- Owolabi, S. A., & Alu, C. N. (2012). Effective working capital management and profitability: A study of selected quoted *manufacturing companies in Nigeria*. *Economics and Finance review*, 2(6), 55-67.
- Lazaridis, I., & Tryfonidis, D. (2006). Relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of financial management and analysis*, 19(1), 26-35.
- Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, 67(3), 332-338.
- Bui, N. D., & Nguyen, L. (2015). Working capital management and firm value: *Evidence from the Vietnamese Stock Market*. Available at SSRN 2648066.

- Pais, M. A., & Gama, P. M. (2015). Working capital management and SMEs profitability: Portuguese evidence. *International journal of managerial finance*.
- Lyngstadaas, H., & Berg, T. (2016). Working capital management: Evidence from Norway. *International Journal of Managerial Finance*.
- Charitou, M. S., Elfani, M., & Lois, P. (2010). The effect of working capital management on firms profitability: Empirical evidence from an emerging market. *Journal of Business & Economics Research (JBER)*, 8(12).
- Napompech, K. (2012). Effects of working capital management on the profitability of Thai listed firms. *International Journal of Trade, Economics and Finance*, 3(3), 227-232.
- Owolabi, S. A., & Alu, C. N. (2012). Effective working capital management and profitability: A study of selected quoted manufacturing companies in Nigeria. *Economics and Finance review*, 2(6), 55-67.
- Tauringana, V., & Afrifa, G. A. (2013). The relative importance of working capital management and its components to SMEs' profitability. *Journal of Small Business and Enterprise Development*.
- Tauringana, V., & Afrifa, G. A. (2013). The relative importance of working capital management and its components to SMEs' profitability. *Journal of Small Business and Enterprise Development*.
- Le, B. (2019). Working capital management and firm's valuation, profitability and risk: Evidence from a developing market. *International Journal of Managerial Finance*.
- Pais, M. A., & Gama, P. M. (2015). Working capital management and SMEs profitability: Portuguese evidence. *International journal of managerial finance*.
- Lyngstadaas, H., & Berg, T. (2016). Working capital management: Evidence from Norway. *International Journal of Managerial Finance*.
- Altaf, N., & Shah, F. A. (2018). How does working capital management affect the profitability of Indian companies?. *Journal of Advances in Management Research*.
- Gołaś, Z. (2020). Impact of working capital management on business profitability: Evidence from the Polish dairy industry. *Agricultural Economics*, 66(6), 278-285.

- Mohamad, N. E. A. B., & Saad, N. B. M. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International journal of Business and Management*, 5(11), 140.
- Danuletiu, A. E. (2010). Working capital management and profitability: a case of alba county companies. *Annales Universitatis Apulensis-Series Oeconomica*, 12(1).
- Vural, G., Sökmen, A. G., & Çetenak, E. H. (2012). Affects of working capital management on firm's performance: *evidence from Turkey*.
- Farris, M. T., & Hutchison, P. D. (2002). Cash-to-cash: the new supply chain management metric. *International journal of physical distribution & logistics management*.
- Uyar, A. (2009). The relationship of cash conversion cycle with firm size and profitability: an empirical investigation in Turkey. *International research journal of finance and economics*, 24(2), 186-193.
- Makori, D. M., & Jagongo, A. (2013). Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange, Kenya. *International journal of accounting and taxation*, 1(1), 1-14.
- Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2016). Financing of working capital requirement, financial flexibility and SME performance. *Journal of Business Economics and Management*, 17(6), 1189-1204.
- Akoto, R. K., Awunyo-Vitor, D., & Angmor, P. L. (2013). Working capital management and profitability: Evidence from Ghanaian listed manufacturing firms. *Journal of economics and international finance*, 5(9), 373-379.
- Afrifa, G. A., & Padachi, K. (2016). Working capital level influence on SME profitability. *Journal of Small Business and Enterprise Development*.
- Zariyawati, M. A., Annuar, M. N., Taufiq, H., & Rahim, A. A. (2009). Working capital management and corporate performance: Case of Malaysia. *Journal of Modern Accounting and Auditing*, 5(11), 47.
- Simon, S., Sawandi, N., & Abdul-Hamid, M. A. (2017). The quadratic relationship between working capital management and firm performance: Evidence from the Nigerian economy. *Journal of Business and Retail Management Research*, 12(1).

- Arshad, Z., & Gondal, M. Y. (2013). Impact of working capital management on profitability a case of the Pakistan cement industry. *Interdisciplinary Journal of Contemporary Research in Business*, 5(2), 384-390.
- Akoto, R. K., Awunyo-Vitor, D., & Angmor, P. L. (2013). Working capital management and profitability: *Evidence from Ghanaian listed manufacturing firms*. *Journal of economics and international finance*, 5(9), 373-379.
- Quayyum, S. T. (2012). Relationship between working capital management and profitability in context of manufacturing industries in Bangladesh. *International journal of Business and Management*, 7(1), 58.
- Shah, F. A., & Khan, W. (2012). Impact of working capital management on profitability: a case of Pakistan textile industry. *City University Research Journal*, 3(1), 1-4.
- Akoto, R. K., Awunyo-Vitor, D., & Angmor, P. L. (2013). Working capital management and profitability: *Evidence from Ghanaian listed manufacturing firms*. *Journal of economics and international finance*, 5(9), 373-379.
- Rey-Ares, L., Fernández-López, S., & Rodeiro-Pazos, D. (2021). Impact of working capital management on profitability for Spanish fish canning companies. *Marine Policy*, 130, 104583.
- sCanDinaVian COuntriEs, E. F. (2017). Impact of working capital management on firm profitability: *Evidence from Scandinavian countries*. *Journal of Business*, 11(1), 99-112.
- Pham, K. X., Nguyen, Q. N., & NGUYEN, C. V. (2020). Effect of Working Capital Management on the Profitability of Steel Companies on Vietnam Stock Exchanges. *The Journal of Asian Finance, Economics, and Business*, 7(10), 741-750.
- Gul, S., Khan, M. B., Raheman, S. U., Khan, M. T., Khan, M., & Khan, W. (2013). Working capital management and performance of SME sector. *European Journal of Business and management*, 5(1), 60-68.
- Bieniasz, A., & Gołaś, Z. (2011). The influence of working capital management on the food industry enterprises profitability. *Contemporary Economics*, 5(4), 68-81.
- Chowdhury, A. Y., Alam, M. Z., Sultana, S., & Hamid, M. K. (2018). Impact of working capital management on profitability: A case study on pharmaceutical

- companies of Bangladesh. *Journal of Economics, Business and Management*, 6(1), 27-35.
- Khalid, R., Saif, T., Gondal, A. R., & Sarfraz, H. (2018). Working capital management and profitability. *Mediterranean Journal of Basic and Applied Sciences* (MJBAS), 2(2), 117-125.
- García-Teruel, P. J., & Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance*.
- Nobanee, H., & Haddad, A. E. (2014). Working Capital Management and Corporate Profitability of Japanese Firms. *The Empirical Economics Letters*, 13(1).
- Anton, S. G., & Afloarei Nucu, A. E. (2021). The impact of working capital management on firm profitability: Empirical evidence from the Polish listed firms. *Journal of Risk and Financial Management*, 14(1), 9.
- Agyei, S. K., & Yeboah, B. (2011). Working capital management and profitability of banks in Ghana. *British Journal of Economics*, 2(2).
- Toy, A. M. (2016). EPS the holy grail or red herring of M&A analysis. Internet: www.amttraining.com/online/technical-updates/eps-the-holy-grail-or-red-herring-of-ma-analysis.
- Drozdova, O. Y., Pokrovsky, O. S., Lapitskiy, S. A., Shirokova, L. S., González, A. G., & Demin, V. V. (2014). Decrease in zinc adsorption onto soil in the presence of EPS-rich and EPS-poor *Pseudomonas aureofaciens*. *Journal of colloid and interface science*, 435, 59-66.
- Bickman, L., Rog, D. J., & Hedrick, T. E. (2009). Applied research design: A practical approach. *Handbook of applied social research methods*, 2, 3-43.
- Lazaridis, I., & Tryfonidis, D. (2006). Relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of financial management and analysis*, 19(1), 26-35.
- Callaghan, R. C., Cunningham, J. K., Sykes, J., & Kish, S. J. (2012). Increased risk of Parkinson's disease in individuals hospitalized with conditions related to the use of methamphetamine or other amphetamine-type drugs. *Drug and alcohol dependence*, 120(1-3), 35-40.