

CAPITAL UNIVERSITY OF SCIENCE AND
TECHNOLOGY, ISLAMABAD



Impact of Cash Holdings on Firm Performance: Empirical Evidence from Pakistan

by

Faraz Ahmad Khan

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the

Faculty of Management & Social Sciences

Department of Management Sciences

2021

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*I owe my success to Allah
and
my parents who have sacrificed so much to get me where I am.*



CERTIFICATE OF APPROVAL

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by

Faraz Ahmad Khan

MMS193005

THESIS EXAMINING COMMITTEE

S. No.	Examiner	Name	Organization
(a)	External Examiner	Dr. Hassan Raza	SZABIST, Islamabad
(b)	Internal Examiner	Dr. Arshad Hassan	CUST, Islamabad
(c)	Supervisor	Dr. Mazhar Iqbal	CUST, Islamabad

Dr. Mazhar Iqbal

Thesis Supervisor

October, 2021

Dr. Lakhi Muhammad

Head

Dept. of Management Sciences

October, 2021

Dr. Arshad Hassan

Dean

Faculty of Management & Social Sciences

October, 2021

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Acknowledgements

First praise is to Allah, on whom we ultimately depend for sustenance and guidance. My second is my supervisor **Dr. Mazhar Iqbal** she supported me on every step. Her timely response, guidance, assistance, careful reading and constructive comments motivated me. I would deeply thankful to my mentor **Dr. Lakhi Muhammad**, who helps me in learning research. I am thankful to other faculty member who helped me in thesis. I am thankful to my University to providing my academic base to study MS.

I would like to thank my father who forced me to MS and yes he stood by my side on every step where ever I needed him. It was his dream which is going to be complete in sha ALLAH. His constant support helped me in completing my degree. My mothers prayers reached me here.

I am indebted to my siblings for their stanch support and encouragement throughout my educational career. It was your believe in me that brought me here. Words cannot express my gratitude for everything you have done for me.

Abstract

Many researchers argue that cash holdings affect firm performance positively. Optimal level of cash holdings helps to meet the contingent needs to finance near future investments. However, cash holdings above the optimal level just add to the cost of capital and below the optimal level increase transaction costs of day-to-day business. Previous researches have tested only linear association between the cash holdings and firm performance and have used mainly firm specific variables as control variables. Therefore, this research seeks to find the optimal cash holding level where marginal cost of cash holding offsets its marginal benefits. The independent variables include cash holdings and cash holdings squared. This study uses both firm-specific and interest rate (macroeconomic factor) as control variables. The data used in this study is for 35 non-financial firms which are listed on the Pakistan Stock Exchange for a period of ten years from 2010 to 2019. The return on assets and market to book ratio are used as proxies of firm performance. The findings of this study indicates that below the optimal level, there is a positive association among cash holdings and firm performance (ROA, M/B), but after the optimal level, this relationship turns into negative. Policy implication of this study is that corporate managers should work out the optimal level of cash holdings of their respective firms and then stick to that amount of cash holding; neither less nor more.

Keywords: Firm Performance, Cash Holdings, Optimal Cash Level, Firm Specific Variables, Macroeconomic Variable, Panel Data, GMM.

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Chapter 1

Introduction

1.1 Background of the Study

Apparently cash holding seems least profitable for the firms. However actually it is an important assurance for organization for meeting business requirements, pay back debt, responsibility to pay tax and to carry out other financial activities. Firms tend to hold excess amount of cash to deal with unexpected contingencies and minimise transaction costs. Therefore to determine the optimal level of firms cash holdings coverage is one of the most difficult issues within the financial field (Myres & Majluf, Corporate financing and investment and decisions when firms have information that investor do not have., 1984). The sturdy liquidity of cash can assure to meet the demand of companies production and running activities and decrease economic danger. Contrary to this the low liquid cash and cash equivalents makes the organization to bear sure retaining cost. Too much of cash holdings possibly lessen the price of go back on investments as well as it evolves the self-hobby behaviour of control and controlling shareholders. Therefore to determine the optimal level of cash holdings and enhance the cost of the cash holdings. In current years, every corporations holds a huge amount of cash and cash equivalents to avoid uncertainty and in smooth functioning of operations (Rocca & Cambrea, 2019). Another research underline the motivating hobby underlying companies to have big proportion of cash reserves, effectively to be had to distribute to shareholders or for the investment, or cash equal which can

be effortlessly transform into cash (Harris & Raviv, 2017). Cash holdings have always been a vital issue for the corporations for selection making purpose.

Agency holds cash mainly because of 3 main motives, first one is the precautionary motive, second one is the transaction motive and the third one is speculative purpose (Keynes, 1936). The primary reason to analyse the determinants of accumulation of cash and cash equivalents holdings by using American corporations turned into executed via (Kim, Mauer, & Sherman, The Determinates of Corporate Liquidity: Theory and Evidence, 1998). They said that corporations going through better expenses of external financing and consuming greater unstable profits and those with quite decrease returns on the assets hold extensively larger liquid belongings. Moreover, (Opler, Pinkowitz, Stulz, & Williamson, 1999) furnished proof that small firms and people with robust growth possibilities and riskier cash flows hold exceptionally excessive ratios of cash to general non-cash property. Additionally, corporations that have better acceptance to the capital markets, which includes massive corporations and those with high credit ratings, incline to hold less ratio of cash to general non-cash assets.

Due to the lack of a premium of goods in such a country, the seizure of liquid goods does not cost the opportunity. That means, even if the investment rate is unexpectedly low, the company can still raise funds for investment activities and operations at no cost. Therefore, shareholders' profits will not change with the investment in the company's assets. However, due to transaction costs, agency costs and information asymmetry, in the real world, it is expensive for a firm to run out of liquid assets. As a result, management must determine the appropriate amount of financial management to maximize shareholder wealth. There are two areas of corporate governance theory: corporate theory and financial management theory.

In accordance Brealey & Myres (1996), figuring out worth of liquidity is the 1 of the top 10 undermined troubles in the international of finance. Lately, there is a lot of study concentrating on the causes of cash holdings or reserves. Kim, Mauer, & Sherman (1998) assess the 915 business corporations inside the America. They locate that the most fulfilling amount of money reserves is undoubtedly associated with the price of the instability of future cash flow and outside financing, and it's

far negatively associated to the go back on corporal belongings. Opler, Pinkowitz, Stulz, & Williamson (1999) Inspect the pattern of publicly traded USA companies inside the duration 1971 to 1994, and locate proof to provision the trade-off version of cash holding. They urge that companies with higher level of volatility of cash flows and the solidier opportunities of growth flip out to preserve greater amount of cash than their contrary ones, and the bigger companies with higher credit score scores, which suggest higher approach to capital markets, preserve less amount of cash.

Faulkender (2002) In his research uses the data of 2808 company in 1993 countrywide samples of small enterprise finance performed by means of the Standby of Federal as pattern database, and he discover out in his research that corporations with higher price of economic misery, extra leverage, extra information asymmetries or lengthier records tend to preserve more cash. At the opposite, firms with problem inside the beyond in funding have lower level of the cash and cash equivalents holdings. Moreover, as of the economies of scales, cash and cash equivalents holdings decrease with length. John (1993) Claims that corporations choose to preserve more amount of cash when they enjoy better financial misery charges. Via evaluation the 223 main us agencies with a median yearly liquidity ratio of the 6.3 percent in the duration 1979-1981, he unearths out that companies with excessive market to e book ratio and coffee liquidity ratio are willing to higher cash holdings.

The core motive of this workout is to minimize the percentage of liquid assets maintain by way of the organisation for motive to attain their continuing activities and alongside its to perform an adequate quantity of cash holdings to permit corporation to gain exchange rebates, to accomplish desirable credit score rating and to fulfil unsure cash necessities (Brigham, Gapenski, & Daves, 2003). But, the final item of this exercise is to enhance employer financial overall performance. The functionality to supply novel assets, from ordinary operations of an entity for precise term and typically measures from net earnings and cash generate by means of commercial enterprise operations is known as business enterprise financial performance (Abiola & Olausi, 2014).

The objective of this study is to examine or explore the influence of cash holdings on firm performance. Many previous studies have used only accounting measures to assess firm performance. Since accounting and market measures are not correlated strongly, therefore, it may be desirable to use both market and accounting measures to gauge firm performance. Also previous research have mostly investigated only linear association between cash holdings and company performance. That is why this study examines the impact of cash holdings on firm performance both linearly and non-linearly.

1.2 Problem Statement

The optimal amount of cash holdings is a major financial decision for a business. The structure of the liquid assets may vary from one company to another, depending upon the size and other conditions of the company. In short, companies with a high level of cash, which has an additional cost. There is a need to find out if this cash-holding on to influence the work for their company, or not. The interdependence of cash, availability of the company's performance has been studied. According to some researchers, there is a positive and important role in the improvement of the performance. Whereas, another group of researchers have found that companies who have less cash holdings over a certain level is, as a rule, the implementation of the activities, which in turn can lead to a decrease in the performance of the companies.

Significant Literature development has been done on firm performance to investigate the magnitude of impact caused by Cash holdings. Rocca & Cambrea (2019) in their established empirical argument to analyse the consequence of cash holdings on performance of the large Italian companies. And find out that there is a positive substantial association exist among cash holdings and the performance of companies. Similar research were by done by researcher in Srilanka, and similar outcomes demonstrate that there is a significant positive association exist between corporate cash holdings and performance of companies (Vijayakumaran & Atchyuthan, 2017).

Iftikhar (2017) In their study with reference to Pakistan contends that Cash holdings has a positive substantial impact on the firm performance. Another research with reference to Pakistan on KMI-30 Index was conducted by Aslam, Kalim, & Fizza (2019), it concluded that there is a notable or significant linear association exist between corporate cash holdings and performance of companies in Pakistan. Existing literature have a mixed results between the cash holdings and the firm performance due to inconclusive result these findings indicates the research gap. Alnori (2020) Conducted a research on influence of cash holding on the firm performance both non-linearly and linearly on the non-financial listed companies of Saudi Arabia and argue that cash holdings has a substantial positive influence on the firm performance, but after certain level advantages of cash holdings turns into disadvantage. Similar evidence was found by Dittmar & Mahrt-Smith (2007) who argues that there is both significant positive and negative impact cash holdings on firm performance. There is no conclusive result, existing literature signalling for future research in Pakistan. Few studies show cash holdings has substantial negative or insignificant impact on firm performance and some highlighted significant positive. The result of these arguments in Pakistan is pending to test.

1.3 Research Gap

In current literature, Iftikhar (2017) and Aslam, Kalim, & Fizza (2019) find that there is a linear association between the cash holdings and the firm performance. But as specified by Alnori (2020) the actual association amongst the cash holdings and firm performance is non-linear. But the consequences of such studies may not be helpful to apprehend the true role of cash holdings and determine the optimal amount, which create the specification error. As a consequence, estimation of the model may yield results that are incorrect or misleading.

Another shortcoming of previous studies like Aslam, Kalim, & Fizza (2019) and Iftikhar (2017) has been noted that they, in case of Pakistan, have used maximum five years data. It must have reduced statistical reliance of their estimated results. Therefore, this study expands time frame from five years to ten years.

Furthermore previous researches like Iftikhar (2017) and Aslam, Kalim, & Fizza (2019) control only firm specific factors variables which include leverage, size of firm, growth and turnover. But none of the study in Pakistan that control macroeconomic factors. Where the impact of macroeconomic variables on performance firms is significant Egbunike & Okerekeoti (2018), which cause the specification error. This study will also control some macroeconomic factors which include interest rate, gross domestic product and exchange rate.

Also previous researchers Iftikhar (2017) have conducted the research on the influence of cash holdings on firm performance in Pakistan using accounting measures only, while ignoring the influence of cash holdings on market measures of firm performance. So, this research measure firm performance using both market and accounting measures.

1.4 Research Questions

This study will answer the following questions.

Research Question 1:

Does cash holdings impact firm performance linearly or non-linearly?

Research Question 2:

Can the impact of cash holdings on firm performance be better captured by including macroeconomic variables as control variables?

1.5 Research Objectives

Objectives of the research are as follows:

- To investigate linear and non-linear relationship between cash holdings and firm performance in Pakistan.
- To investigate the impact of firm specific control variables on firm performance.

- To investigate the impact of interest rate control variable on firm performance.

1.6 Significance of the Study

There are very few researches that have been conducted on cash holdings impact on performance, but there is no such research in Pakistan that analyses the non-linear association among existing cash holdings and companies' performance. In this research, we will provide the chance/opportunity to better explore whether or not the theories on corporate cash holding abound in the Pakistani market and aid one to find the major factors or elements responsible or answerable for corporate cash holdings. This research will also provide the opportunities to investigate the effect of cash holdings on firm performance by controlling firm-specific variables or factors as well as macroeconomic variables. The cash management procedures and policies are still in the growing stage in the non-financial corporate industry of Pakistan. This study will have a great contribution to the non-financial corporate industry; it will give a productive consequence or result about the influence of cash holding on non-financial firm performance which aids the managers about the cash holding regardless of their business and its benefits. Therefore, the outcomes of the study will be used by the policy makers. The study suggested a few policy recommendations for keeping the adequate level of cash holdings to enhance firm performance.

1.7 Scheme of the Study

This Research thesis comprises five chapters. The first chapter discusses the background of the study, problem statement, gap analysis, significance, research questions and objectives of the study. The second chapter enlightens past studies by establishing a critical literature review and hypothesis development. The third chapter is based on methodology, data description and sample descriptions. The fourth chapter discusses the results of the study. Finally, the fifth chapter includes conclusion, recommendations and directions for future studies.

Chapter 2

Literature Review and Theoretical Background

2.1 Linear Relationship between Cash Holdings and Firm Performance

For the first time in the academic world, and is the subject of the research is the question of the holdings of cash Keynes, (1936), in his theory of liquidity preference to two of the most important factors that are associated with the loss of your money. Companies are saving money, in order to avoid the transaction fee at the time of a range of bases of external financing on the capital markets, as a outcome of the inefficiencies of information irregularity, often requires a long and costly issue. A research was conducted on US firm cash and profits and outcomes bare that there is a significant positive association exist between the cash holdings and ROE (Palazzo, 2012). Similar type of research was conducted in Italy and the results was consistent that there is a substantial positive association subsist among the cash holdings on performance of companies (Rocca & Cambrea, 2019). A study conducted on the outcome of the cash holdings on the firm performance on the listed corporations of Vietnam and conclude that there is a significant positive association exist among the cash holdings and the firm performance (Doana, 2020).

A research was conducted on large Italian firms over 36 year on the impact of the cash holding on performance of corporations and they discover out that the cash holdings have significant positive impact of firm performance under the presence of certain other variables, but it turn out to be negative effect on firm performance after certain level (Rocca & Cambrea, 2019). Another research was conducted on the firm performance and corporate cash holdings on Polish listed firms and concluded that cash holdings does effect firm performance, the results further shows that slighter financially constrained corporations go to hold fewer cash than higher financial constrained corporations (Anton & Nucu, 2019).

Le (2016) Conducted a study on the impact of the higher level of cash holdings companies in the restoration of the productivity of a company, and it has been observed that the companies who are rich in cash and cash equivalent holdings is of no value in cash to the poor, and after a productivity shock. The low-cash firms to reduce their property, and worse, the cost of the investment, while the high-cash firms do not comply with such regulations. The consequence is more distinct for companies with a high propensity for leadership, consolidation, and less of an impact for the businesses that are operating in a competitive product market, with a wide range of investment opportunities, or for large institutional investors. Take a closer look, the size has a substantial positive impact on business performance, leverage has a negative outcome on the performance of the business, and its growth has a profound impact on the productivity of a company.

Later on, Pinkowitz & Williamson (2001) executed a worldwide examine of corporations within the Germany, USA and Japan including to the results of (Opler, Pinkowitz, Stulz, & Williamson, 1999). They determined in there research that the cartel power of banks has a sizeable effect on cash holdings. Ozkan & Ozkan (2004) they tinted the causes of cash reserves for a section of the companies in the United Kingdom. The outcomes demonstrate that a companys ownership structure plays a vital part in figuring out cash reserves. Also, the studies found out that a corporations boom chances, liquid property, leverage, cashflows, and financial institution money owed are crucial in causal its cash reserves. Later on, Drobetz & Grninger (2007) explore the determinants of holdings of cash in companies of Switzerland with the quarrel that governance implications are rather

one-of-a-kind there than those within the America/United Kingdom. The consequences in their analysis aided the agency clarification. Those scholars proved that this phenomenon isn't limited just to UK or USA corporations but is existing in other nations as well. The evolving determinants vary from United State of America. To United States of America relying upon their settings of institutional. This circumstances similarly inspires the need for greater studies on this vicinity particularly in the framework of an emerging United States of America like Pakistan.

While stated through Afza & Adnan (2007) the cash ratio for a pattern of Pakistani companies is set 13.54% for the period eight years. These statistics are moderately near USA corporations cash ratio of 17% as mentioned by Opler, Pinkowitz, Stulz, & Williamson (1999) and EU companies imply cash ratio of the 14.84% as stated by means of (Ferreira & Vilela, 2004). Later on, Shah (2011) said the common cash ratio for a pattern three hundred and seventy firms indexed at the KSE over the period five years is 8.61%, which is close to the eight.1 percent. This proof indicates that the cash ratios in the Pakistan are pretty equal or alike to the ones in advanced countries. This difficulty serves as a crucial study questions which desires to be acknowledged; company insiders are alleged to take steps to maximise the prosperity of the outside stockholders, however piling up a companys asset right into a slightest-productive one is a tough method to account for.

The average cash-to-asset (C/A) ratio for American Industrial corporations appreciably improved from 10.6 percent in 1980s to 23.3 percent in 2006s (Bates, Kahle, & Stulz, 2009). A sizable number of empirical and theoretical paintings has been committed to analyzing the motivation and implication of this phenomenon. 1 Nevertheless, the empirical evidence as to whether cash hoarding is ultimately beneficial or detrimental to firm value remains inconclusive. The model of precautionary motives predicts that ex-ante firms hold large cash to better response to unexpected shock (Bates, Kahle, & Stulz, 2009) and (Morellec & Nikolov, 2008), (Denis & Sibilkov, 2010). However, the ex-post consequence of having large cash reserves, as implied by the agency theory or 'quiet-life' model (e.g., (Jensen M. C., 1986), (Betrand & Mullainathan, 2003), can turn out not benign as initially intended. Especially, when firms are facing problems of operating inefficiency,

sizable cash reserves insulate managers from pressures to conduct a drastic and timely restructuring response, and thus inhibit performance recovery. Managers with large cash buffering could simply follow a 'quiet-life' approach by using cash to cover the current operating losses, or excessively continuing inefficient investment projects instead of implementing forceful restructuring measures. Iftikhar (2017) research on the impact of cash equivalents, the availability and the performance of the companies for the period from 2010 to 2014 in the publicly listed companies in the financial and non-financial stock exchange market in Karachi, and it was found that companies with strong cash-in storage, because of the tendency to the increase of the uncertainty of the cash flows. It is also shown that, in the event of a major investment opportunities, there is a positive association among the condition of the assets, and return on the assets of the companies, even though the external investment of the highly rated companies in 2008. Furthermore, they concluded that, as a percentage of the size of the firm, it will reduce performance, though the hands-on experience even has a negligible effect on the productivity of the business, and leverage has a negative consequence on the performance of the company.

Frank & Goyal (2003) Propose that for the larger firms it is easier for them to take or increase finance from creditor, in other words there is a significant positive association among leverage and size of firm. A research was conducted for 10 years of US firms to track their growth and conclude that low growth rate tend towards the failure of the firms. Further they also show that it is not compulsory that new established firm shows growth, but also mature firms also shows high growth and lead toward better performance of firms (Headd & Kirchhoff, 2007).

Davidsson, Steffens, & Fitzsimmons (2009) conducted a research and results suggests that the firms that are growing at lower rate but they are profitable, they have better chance of high level of desired growth rate and lead towards high profitability. Another research was conducted on U.K firms for 3 year periods on the association among profitability and growth, and they found out that profit and growth move parallel, which mean there is a significant positive relationship exist between firm growth and the profitability (Cowling, 2004).

Das (2017) a 10-year study was carried out on the impact of cash on the firm's business and the value of the Indian firms listed in the BSE Stock Exchange, and the consequences showed that the use of a large amount of cash, the companies will have a significant positive impact on the operations of the firm. In addition, the outcomes also proves that the optimal level of cash, and cannot exist, each company has changed is the level of cash used in accordance with the needs of the business, and if they have to analyze that there was a lack of national funds, they will immediately switch to the external data sources. In a perfect capital market, the holding of money, it doesn't matter. If the cash flow is unexpectedly low, companies are forced to raise money in order to continue to develop and invest in it. Since there is no premium for the liquidity in the market, and the availability of cash and cash equivalents is not an alternative, it has a value. As a result, companies are able to borrow money in order to invest in liquid assets, without any change in the wealth of the shareholders.

Companies with large businesses as well as cash holdings and inventory, and the average efficiency is higher than the value of a company of similar size and industry, and is larger than or comparable to those of companies that have similar propensity to maintain a high rate. In addition, firms with high inventory, waist, faster, grow, and achieve higher levels of investment, and high rates of the market and the book value of the assets. (Mikkelson & Partch, 2003).

In Japan, the research has been carried out over the last few 30 years, the analysis of the factors that influence its corporate cash holdings, and the association amongst cash, inventory, and optimize the performance of the firm. The results of the study showed that the use of the company's cash holdings have been accumulative due to the trend towards the increasing uncertainty in the cash flows since the mid-1990s, and particularly in the 2000s, because of the constant accessibility of low-cost financing. The results also showed that there is a high investment, the positive association amid the stock status and the rate of return on capital and the value has gone down over the past few years, although the investor, the valuation of the companies are significantly since 2008. It is expected that, in the event of a abrupt worsening in the economy, traditional and cash reserves is a temporary increase in the fair market value of the enterprises, but, in the long term, this is a

very traditional liquidity management rule, it will reduce the profitability of the enterprises current assets (Naoki, 2012).

Harford (1999) A study of corporate cash reserves and acquisitions have been conceded out on the base of the outcomes of the research, it was found that in companies with a lot of money in reserves to be prepared in order to invest in mergers and acquisitions, resulting in corporate award. Also, Jensen (1986) explains that organizations with a high level of cash is not highly appreciated by external partners, who are able to employ cash on investment in fewer profitable, and agency, costs will increase, which will lead to a reduction in the efficiency of the business.

Saving cash is a vital factor in a company with a balance sheet and an effective means for CEO's, stockholders, and financial analysts. In America, studies have been carried out, and they found that higher levels of cash, be deemed to be accepted by the firm in the new lands, as their commissioners are empowered to defend the welfares of the owners. He was also of the opinion that the proportion of the CEO's, and of the liberation of board of directors, and is a negative, both of which are important for the old companies, and completely positive, and substantial to new corporations. (Chen, 2008).

Ashhari & Faizal (2018) Examines the impact of cash holdings on the performance of organizations of the small business in Malaysia. Their sample consists of 100 SMEs for the period of five years. Results indicates that size of the firms, leverage, growth opportunities, working capital, capital expenditure and the cash flow volatility are the tenacity of the cash holdings. Furthermore the findings also indicates that there is a significant positive association exist among cash holdings and SMEs corporations performance.

Researcher conducted a research to analyze the influence of liquidness profitability and management listed industrial firms of Sri Lanka for the period five year from 2008 to 2012. And the results of research exposed that there is a momentous positive connection exist among liquidity and profitability in the midst of the listed manufacturing firms in Sri Lanka. Furthermore, the research also indicates that

current ratio, inventory sales period and operating cash flow ratios are very significantly related with the returns on assets (ROA). And operating cash flow ratios are importantly related with returns on equity (ROE) (Priya & Nimalathasan, 2013). Amahalu & Bwatrice (2017) empirically investigates the degree at which cash holdings effects financial performance of elected cited insurance companies in Nigeria. Findings showed that corporate cash holdings has a momentous positive influence on returns on the assets ROA and returns on the equity ROE.

The availability of cash, companies are able to take advantage of this moment in time. Companies will be able to engage in lucrative investment transactions that have made a significant influence on their business steadiness, or the rearrangement or, if you want to take benefit of the new chances. On the other side, it is the choice, in order to save money, it should be reasonable, serious and logical, in order to prevent the adverse effects of the storage of a lot of cash and cash equivalents (Elkinawy & Stater, 2007). The presentation of any company not only plays the part to surge the market value of that exact company but also leads to the growing of the whole business which eventually leads in the direction of the general affluence of the economies (Ahmed, Zeng, Sinha, Flavell, & Massoumi, 2011).

Frsard (2010) The proof is found in the study proposes that corporations that have additional cash than their competitors, to achieve better results for the business, when the rate of return on the assets to be measured. The study also showed that the market share of the company compared to its competitors, as a result of the increase in the share of fund. Furthermore, the research has been carried out and similar results have been obtained, which makes the company make use of effective cash management is to exploit the competitive advantages of systems, regardless of the economic climate (Vuorikari, 2013).

Rendering to the irrelevant principle of (Modigliani & Miller, 1958), cash holdings are inappropriate in the perfect circumstances of the stock market for the estimate of a firm. Later advancements in corporate outlay ideas, however, regarding corporate expenses, information roughness and companies costs and numerous novel economic restraints designate that cash equivalents can influence organizations performance in the occurrence of market resistance. Empirically study the association between corporate cash holding and performance of corporation listed on

(MSE) Moroccan stock exchange in the 2007-2018. They found out through the results that there is a substantial positive impact of cash holdings on the firm performance and success of the companies in developing marketplace (Modigliani & Miller, 1958).

When we are talking about the benefits for businesses in need of cash or cash equivalents to carry out their regular activities, and to take advantage of the attractive potential investment chances, and to respond to unexpected events, training activities, and prevention topics. In addition, there is a reduction in the company's dependence on costly external financing, is the subject of the conservation of resources. Due to the information asymmetry between lenders and borrowers, it is even more difficult and additional luxurious for firms to find external financing due to the glitches related with adverse assortment. In this situation, companies have to establish a hierarchy for their funding, and the preferences and financial resources are made in-house to introduce, before they go on sale, in agreement with the hierarchical order of the theory (Myres & Majluf, Corporate financing and investment and decisions when firms have information that investor do not have., 1984).

In 2018, a study was carried out in the United States, when the money is good or bad for the business of the company. They walk up to 20 years of data on non-financial and financial firms. In their study, they came to the conclusion that the creation of shareholder value as the one you have to adapt to the rising uncertainty, but also the costs, if paid by the interested parties. We are able to arguments put forward by the company's behavioral theory, and economic opportunities, such as the agency theory and the literature on the costs of the group and the cost of the recognition, in order to prove that the influence of the funds on the performance of a company depends on the situation. With Cash, it is more profitable for the companies in the extremely competitive, project-oriented or development-oriented sectors, which are typical for areas that need to be changed to the high level of uncertainty. On the contrary, it is a much more detrimental impact on productivity in firms that are poorly managed, diverse, and or non-transparent, such as the typical contexts in which the conflicts of the stakeholders, information asymmetry, lack of balance, and promote value-making by different stakeholders.

Cash creation, which makes it easier for you to adapt to complex environments and unpredictable conditions that surge the company's introduction to a number of risks and uncertainties (Levinthal, 1997). Over the time, as newer technologies appear, new materials are able to be displayed in consumer tastes and preferences can change, allows the supplier to reduce the supply of products or the prices will have to increase the employees of the company and the government, the introduction of a new tax or a change in the rules. These types of scenarios may result in substantial uncertainty, and the money that can facilitate adaptation, for example through the provision of resources for the delay in the decision to make such uncertainties occur, and to invest in when it's needed (Kim & Bettis, *Cash Is Surprisingly Valuable as a Strategic Asset*, 2014). Behavioral theory proposes, in other ways, as the cash to be cast-off for the satisfaction and value creation. Money can also serve as a cushion to defend the technical core of the risks, and failures that are a result of exogenous shocks, (Thompson, 1967), and the promotion of research and development, through experimentation, innovation, and entry into new markets. (George, 2005); (Mishina & Pollock, 2004); (Nohira & Gulati, 1996).

Kobika (2018) Research is focused on determining the association among the liquidity and profitability of listed industrial corporations in Sri Lanka. The main objectives of the research is to discovery experiential sign of the extent to which the actual management of liquidity influence on profitability of listed companies, and the quality of the products, companies can increase their liquidity and profitability. For the study, 26 is a registered business in Sri Lanka in the last 5 years, from 2012 to 2016. Once you have gathered all the information from the secondary sources of the samples, the data were analyzed and presented with the help of correlation and regression tools. In this study, the investigator concludes that the distribution of a hypothesis, and then further refine the results of the study, which the researchers to make definitive conclusions. A number of important suggestions for future research were also presented. In addition, the liquidity has a negative influence on the profitability of Sri Lankan industrial companies.

Eljelly (2004) An evaluation of the association among liquidity and profitability, as unhurried by the current exchange rate of the cash gap (cash conversion cycle),

in an attempt by the Saudi joint-stock companies. The study also showed a substantial negative association among profitability of a company and its liquidity level, as restrained by the current liquidity ratio. This association is even more marked in companies with great current exchange rates, and the longer the cash conversion cycle. However, in industry, and investigation has initiated that the cash conversion cycle, or cash business is more and more important as a measure of liquidity than the current liquidity ratio, the impact on profitability.

Chakraborty (2008) To assess the association between cash holdings and effectiveness of Indian pharmaceutical corporations. In this case, there are 2 different schools: single school of believed, working capital is not a issue in the increase of profits, and there is a negative association amongst them, while other school of alleged, work, investment, and plays an important role in the improvement of the profitability of the business, and there is no minimum level cash holdings, capital expenditures, exports, and sales may be processed, in fact, a lack of cash holdings to keep the funds are to be at rest.

Singh (2008) it was found that the size of the stock is to have a straight influence on the working capital and its management. He stated that the list is the most important part of the capital, and it requires careful monitoring and control. Walt (2009) Is of the Opinion that the effectiveness is important, since the gain can be converted into tradable assets, and liquidity it is important, however, that does not callous that the firm is turning a profit. Don (2009), as a recognition of the relative importance of the two, makes the case that the issues are more important, because it is relevant for the existence of company.

Velnampy & Balasundaram (2010) Relationship among the cash of the company and the profitability of any business, Bank of Ceylon and Commercial Bank of Ceylon ltd., was evaluated over a 10-year period from 1997 to 2006. The results show that there is a positive association among the cash of the firm and of the payments made to the Commercial Bank of Ceylon ltd., however, there is no connection among the cash of the company and of the payments made to the Bank of Ceylon.

(Alagathurai, 2013) He has studied the association between the profitability and liquidity of commercial corporations, in United Arab Emirates. The research consisted of 08 is a registered swap companies in Sri Lanka over the past five years from 2008 to 2012. Regression and Correlation analysis and the descriptive statistics were cast-off in the analysis, and the results indicate that there is a clear positive association among profitability and liquidity among the registered and trading corporations in United Arab Emirates.

Priya & Nimalathasan (2013) They investigated the consequence of a change in the level of liquidity on the success of industrial firms in the Sri Lanka, for period from ,2008 to 2012.De the general conclusion is that of the correlation and the regression analysis is that there is a high correlation among profitability and liquidity of the registered production firms in the United Arab Emirates (UAE). The selected variables in a separate study, Inventory of the Feasibility study of the Ratio (ICO), the Current conversion rate (CR),and the Operating Cash Flow Ratio (OCFR) were suggestively correlated with the Return on Assets (ROA), while the Operating Cash Flow Ratio (OCFR) and the issuer of the loan Repayment Period (CPP) were significantly correlated with the rate of Return on the Equity (ROE).

On the basis of theoretical influences and contradictory empirical indication in the assessment of the association between the inventory status, and the performance is not that easy. On one hand there is the preponderance of advantages that are associated with the build-up of liquidity, which has a positive impact on its results of operations as reported in the studies (Frsard, 2010), and (Kalcheva & Lins, 2007). The company will have significant benefits are associated with greater financial flexibility and lower transaction costs, in order to increase the efficiency of your business. On other hand, the undesirable dependence has been proposed (Huang, Elkinawy, & Jain, 2013) and Oler & Waegelein (2011), it is apparent that the costs incurred in connection with the cash holdings to himself superior to his. A large amount of money increases, in general, causes inefficient resource management and, as a result, it will lead to a diminution in the efficiency of your business. The Cash holdings of a “dark side” to: “to a lot of reserves, it may encourage managers to take time off to raise their wages, or the building of an

empire, and with the money that must be returned to the company (Brealey, Myers, Allen, & Sandrif, 2003).

2.2 Non-Linear Relationship between Cash Holdings and Firm Performance

The literature designates a nonlinear association exist among corporate cash holdings and the performance of corporation Harford, Mansi, & Maxwell (2008), when the positive and negative-impact on the liquidness of the company, will be discussed. One cannot assume that firm performance continue increasing with the increase in corporate cash holdings of the companies or I say in other words there will be positive association exist among cash holdings and companies performance, with the increase in level of cash. Most of the past studies have applied only linear association among cash holdings and the company performance, which neglects the effects level of cash holdings on the company performance, because the linear relationship may sometimes not be able to imprisonment the impact of high or low level of corporate cash holdings on company performance. To capture the effect of high or low level of cash holdings the researcher have hypothesized that there is exist a nonlinear association among cash holdings and companies performance.

Anton & Nucu (2019) Examined that on the Polish firms for the periods of 1971-1994 to study linear as well as non-linear association exist between corporate cash holdings and the company performance. It turns out that the companies ' cash flow is to upsurge the performance of the company up to a certain point, after which the growth rate of its cash flow, which has an opposing effect on the value of Polish companies. The results also indicates that firm prefers to keep high cash holdings to reduce the degree of indebtedness. Further they indicate that the growth, has no significant or there is minor impact on firm performance.

Nhan & Ha (2016) Empirically examine the influence of cash holding on the performance of companies on 650 listed firms on the Vietnam stock exchange for

over 8 years and the results bring out the cash holding has an impact on performance in an inverted U-shaped form. And further they indicate that leverage has insignificant impact on firm performance.

In addition, it may be the result of problems with the lack of investment, because it creates the possibility that the company will decide not to produce it, and thus to refrain from investment with a positive NPV (Myres, *Determinants of Corporate Borrowing*, 1977). However, these costs can be avoided if the company is able to maintain sufficient in-house resources to cover its positive NPV opportunities (Myers, 1984). In other words, managers will be able to avoid this problem, due to the increase in the company's cash holdings. Because of this, the availability of funds may be of use (or to the financial weakness) as valuable to ensure that, in the limit of investment opportunities for businesses, particularly for companies that are having trouble gaining access to external finance. In addition, it has been in the business flow, and reduces the likelihood of financial problems, as the business of the company does not generate adequate cash flow to cover obligatory debt payments (Faulkender & Wang, *Corporate Financial Policy and the Value of Cash*, 2006).

However, in line with the previous literature, I can give you a lower rate of return on the enterprise, cash, opportunity costs, and the tax disadvantages, such as the cost of the cash equivalents. In addition, in a business, the revenue, may lead to agency glitches among the managers and the shareholders of the funds, can provide managers with the tools to be used to invest in projects that are in the range of intangible benefits, but in the destruction of shareholder value (Jensen & Meckling, 1976). Thus, in the presence of a big quantity of free cash flow, can lead to a degree of conduct for managers, which is detrimental to the best interests of the shareholders (Jensen M. C., 1986).

There are many researches on the nonlinearity of affiliation exist between corporate cash holdings and corporations performance. A research was conducted on firm performance, information difficulties and internal stock market and finds out that the ability of the benefits with increasing level of cash holdings turns into disadvantage (Lundstrum, 2003). Similar results was detected by other research in

other countries that both a negative and positive consequence on firm performance and cash holdings (Dittmar & Mahrt-Smith, 2007).

A researcher claims in the work, that is, when cash holdings are low, and the corporate cash holdings of increase of efficiency of the activities of a company, the, and, the encouragement of trade, to which the company is to create a cost-effective investment with a lower internal funding option, and it will lead to a positive impact of cash and inventory on the income statement of the company. However, if the corporate cash holdings were high enough (that is, the marginal benefit of them is equal to the marginal costs, do not bend points or maxima), which is an increase of supplies, money, and reduces the effectiveness of the company's business, because of the benefits of cash and stock, are unlikely to outweigh the disadvantages, including the carry-over costs, and higher fees (Alnori, 2020).

Thus, there are two opposing positions in the finance literature with respect to cash and cash equivalents. Myers & Majluf (1984) have argued that firms optimally carry large cash position in order to prevent the attraction of external financing, as the cash offer, and the benefits from the financial flexibility going forward, but not at the cost of the cost of the mediation. Meanwhile, Jensen (1986) argues that firms should optimal carry negligible cash and cash equivalents, as any excess cash equivalents in the balance of agency cost may cost more, but it did not offer any advantage in flexibility. Agency, costs, and the flexibility to provide benefits to, and that the collection is not uniformly positive as in Myers and Majluf, (1984), and the investors, and the press of the company is to reduce the cash balance of the ease with agency problem, as well as to promote responsible for the maintenance of a cash cushion in the need to finance the purchase of a moderate unanticipated capital needs that may arise. In this case, DeAngelo & DeAngelo (2007) are of the opinion that the cash balance to simultaneously bring, agency, costs, and the flexibility to provide benefits to, and thus, the collection was not uniformly positive. Thus, the optimal cash holdings on the availability of an enterprise can be considered as a tradeoff amongst the benefits and costs of cash and cash equivalents for the achievement of an ideal level of cash. In fact, in previous studies, the analysis of the characteristics of the economy, indirectly indicate the reality of an optimum of cash holdings in the economy (Opler, Pinkowitz, Stulz,

& Williamson, 1999) it appears that the companies can be considered as an end-correction model, in which firms cash holdings are subject to change at the target level (Ozkan & Ozkan, 2004).

The Taiwanese tourism industry, which is a nonlinear association amongst the stock status and the corporation's performance has been examined. And I came to the conclusion that the proportion of cash reserves and the threshold is reached, an increase in the profit after tax by 1 unit agrees to an increase in the price to book value is the ratio of the tourism business, with a 14.7 units. This shows that an rise in the profit after tax to increase the efficiency of the company and the percentage of the capacity of the cut-off point. This is in agreement with the static tradeoff theory, transaction costs theory, and the hierarchy of order theory. When the cash rate is the threshold has been reached, an increase in the profit after tax by one unit corresponds to a decrease in the price to book value ratio of 2.8 units. This shows that rise in the profit after tax is a negative influence on the outcome of the corporation's activities, the percentage of the power is the verge value. At this stage, the investors believe that the stock of financial assets is high managers will need to make the necessary investments to maximize the interests of shareholders, (Kao, 2012).

The transaction cost theory suggests the opposite is true. Meltzer (1963), Miller (1966) it is clear to see that the deal prices are the most important factor in determining the level of cash. It's a lack of money leads to higher costs, and it makes sense for companies to spend the money to keep up. In the meantime, in accordance with the pecking order theory, a series obtainable by the Myers and Majluf (1984), and in the case of information irregularity among investors and managers, the businesses have a tendency to give preference to the capital, and at the lowest cost. First of all, they make use of internal funds, and produce them for their debt, and, finally, they consider the possibility of a financial product. Thus, there is a positive association among the value of the company's cash and cash-in the case of information irregularity.

Hardin, Highfield, Hill, & Kelly (2009) It appears that corporations have to forego profitable investments when borrowing costs are high. In the presence of, cash equivalents, such as money, businesses are able to take benefit of profit occasions.

In accordance with the order of pecking order theory and the transaction cost theory, there is a positive association between the condition of the asset and the performance of the company. Baker, Powell, & Powell (2010) For A recent survey of 1000 CFOs of main AMERICAN corporations, and the outcomes do not support the optimum trade off theory, in part to the support of the financial hierarchy theory, and it does not funding the agency theory, with regard to the percentage of the corporate cash holdings.

Cash management is of serious importance to the travel and tourism business. Businesses need to have a certain quantity of cash and cash equivalents to fund their day to day operations. (Waqas, Khidmat, & Rehman, 2014) Show that there is linear association among the cash ratio of the volume of work and the performance of the corporation. The excess free cash flow to be reduced by the positive impact we have on the cash ratios of the earnings on the income statement of the company's activities. Kim & Bettis (2014) Show that, for the public catering companies, money is necessary in a extremely viable and saturated marketplace in which the operational and financial risks are more.

Martinez-sola, Garcia, & Martinez (2012) To investigate the influence of cash holdings, the availability is on a company account, and industrial samples, as in the United States, in the period between 2001 and 2007, and the analysis of the question of whether the deviations from the optimal cash level is decreasing the performance of the company. Based on the GMM estimates of the various proxy servers in the value of the company's Tobin's Q, Market To Book ratio), the writers consider the cavity, the ratio of the holding company, the cash and the performance, of the company, which says that there is an optimal level of monetary stability. The article noted a positive when the level of liquid assets is less than optimal), and a negative association when the level of liquid assets and is higher than the optimum, between the production of cash and cash equivalents and the performance, of the company.

Tong (2014) established the tradeoff theory of the cash holdings in facilities with the help of a random sample of US companies from 1985 to 2005. With the help of a 2 step method, the writer has found that the cash limit for the stockholders is advanced, if there is any change in the cash transfers from the company's cash

resources to an optimum level. Nguyen et al. (2016), which is based on both the static and the dynamic regression, note: a nonlinear association amongst money and value in a sample of nonfinancial Vietnamese companies for period 2008 to 2013. In addition, the authors tested for the presence of the hollow relationships to be more and have less financial and Major Corporations regression the company's management.

In contrast to the standard literary point of view, (Cao & Chen, 2014), with the help of a regression analysis on a example of Chinese industrial firms in the 2010 to 2013 period, it was found that the availability of the cash or cash equivalents is to have a negative and optimistic relationship with the performance of the corporation. In spite of the fact that in the United States and China are the major nations, the major reason for this difference may be the fact that, in comparison to the American firms, and Chinese companies with greater financial restraints. This argument is also supported by the (Lopez-Gracia & Mira, 2015), which will shed light on the conduct of monetary policy by the company in the background of financial restraints. Using a large panel data of Spanish businesses during the period 1996 to 2010, the writers shows that, as a limited, companies tend to make more cash is generated cash flows are infinite ones.

The scientific literature indicates that there will be more financially restricted companies tend to make large quantity of cash in comparison to the less financially restricted firms, regardless of the criteria used for the definition of limited and unlimited companies Ozkan & Ozkan (2004) and (Lopez-Gracia & Mira, 2015). The characteristics of the emerging markets and to provide a good environment for the evaluation of the financial problems in the assessment of the connection among the cash and the performance of the firm. A weak legal system, is less developed financial systems and weak institutions to solve their financial problems are becoming more and more pronounced in the transition economies (Bernini, 2017). In addition, it has been, Hashi & Krasnigi (2011) to emphasize that it is the limit of the external financing of the project is a key factor for the small and medium-sized businesses in advanced economies are in a state of transition.

Some studies have shown a nonlinear association among the stock status and the

company's value in both developed and emerging economies (Kao, 2012). Non-linear association, meaning that up to a convinced point, which is called best, which is an surge in cash and cash equivalents, has a positive consequence on the performance of the firm. More than that, the optimal level of a build-up of cash, leading to a decline in the performance of the company. This is a connection among cash holdings and the performance the company also has significant practical implications as well. First of all, there is an optimum level of cash that is invested, the performance of the publicly-traded companies. The optimal level of many of the circumstances of the case: with the potential for growth, entree to stock markets, and the size of the handle (Martinez-sola, Garcia, & Martinez, 2012). We show that the optimal level of cash flow is more for organizations with limited financial resources, compared to companies with limited financial resources. Second of all, it is very useful for directors to comprehend and assess this association, the performance of a corporation can be improved due to fall in cash equivalents to be an optimal level, as well as by taking into account the financial constraints.

In the nonappearance of a shared understanding of the impact of the funds in the account, as is evident from the literature, as well as the absence of evidence to the European markets, and is the motivation for the study. In comparison with previous studies, which have shown that there is a linear association among the cash equivalents status, and the performance of the company, they have a larger sample of 719 and the long-period (2007-2016), with the final set of data, counting 3043 data. Nguyen et al. (2016) conducted a research on a sample of 2,73 of the Vietnamese companies, and 1,638 company data in the course of a year, while in the study (Martinez-sola, Garcia, & Martinez, 2012) which is based on a sample size of 472 businesses. The study covers the period of the financial crisis, when there has been an increased dependence on the financial narrow, companies, cash and cash equivalents (Maheshwari & Rao, 2017).

Thanh (2019) To check whether there is an optimal cash availability is a ratio in which the company's performance can be increased. The marginal regression model is used to determine whether the verge for the effects of the intake of the availability of an influence on performance of the corporation 306 of the financial

and nonfinancial corporations listed on the Vietnam market, and the stock in the period of 2008 to 2017. The investigational outcomes have shown that there is a threshold effect between the relationship of the availability and the performance of the company. With the participation of the cash availability in the 9.93% threshold, which can contribute to the development of the efficiency of the operations of the company. The relationship is positive but tends to decrease when the money, the availability ratio is deployed at a checkpoint by 9.93%, that means that an increase in the level of cash availability, the ratio will be down to less efficiency. Thus, the relationship between the present availability of a ratio, and the performance of the company's non-linear.

Based on the benefits, and the opportunity cost of holding money, a lot of research has been done recently on the link among the quantity of cash & cash equivalents, and the performance of the corporation. The actual influence of the funds on a company's productivity, or the value is still being discussed, which is based on empirical theory, and to prove it, the creation of a variety of perspectives. The first of these systems, which have a higher cash holdings ratio, lowers the efficiency of the performance of the company. To support this point of view, Harford (1999) examined the relationship among a company's acquisition of the policy and the availability of funds. The results showed that in companies with a large amount of cash, and have more of a chance to make purchases, which can reduce the performance. The results of the empirical study can be elucidated on the foundation of the theory of free cash flow. This means that the CEO's of the companies a lot of money to expand the scope of their powers. In a different study, Harford, Mansi, & Maxwell (2008) it appears that corporations with poor management, you will have more cash to spend than the other similar companies, because of their own preference in order to re-invest in order to cash in the business. Thus, organizations with a higher level of cash, it will have a lesser performance. The second estimation confirms the being of a positive association between the performance of the corporation and the quantity of cash and cash equivalents held. Saddour (2006) Investigated the relationship between the performance of a business, as well as the amount of cash & cash equivalents at the French stocks exchange, in period from 1998 to 2002. The consequences show that the great

reserves of increase of operational efficiencies, or performance. Also, Bates, Kahle, & Stulz (2009) and the proof is that the companies make more money when the cash flow is becoming more and more risky. These data are strongly in favour of the boys, the motivation of cash and stock, and to propose that there is a positive association among the business and the cash and stock. The third view is of the view is in a non-linear relationship between the cash a company's productivity, or the performance of it. To support this point of view, Martinez-sola, Garcia, & Martinez (2013) uses data from the US industries between 2001 and 2007 and found a non-linear association among the cash performance ratio of a corporation's business. She explained to me that the concave relationship between the inventory status, and the values of the company, as businesses, to improve the cost-benefit analysis of cash and inventory, in order to regulate the optimal level of cash flow. Due to this, the optimum level for, companies are adjusting their cash holdings to maximize the performance of the company. Their consequences also reveal an inverse U-shape association among firm performance and cash holdings, which is in line with the tradeoff theory.

2.3 Theoretical Background

2.3.1 Free Cash Flow Theory

Jensens (1986) proposed in his research that top-level managers have a surplus of cash equivalents with the incentives is to grow the assets in order to gain control and power over the company's decision. If they have a big amount of cash, and they don't have the need to attract external funding. This will have a positive impact on the shareholders' investment. Cash is very important for a company to function normally, but it will also have a positive influence on the payment of the dividend policy, capital expenditures, capital structure, resource management, and cash flow management. This theory states that for a company to operate effectively, it is necessary to ensure that the appropriate levels of cash and cash equivalents in the company. The level of knowledge of a corporation's cash flow will determine the yield of the dividend policy, capital structures, as well as cash flow

management, investment decisions, and the company's need for working capital. The decision to take a certain amount of cash, it is a very important issue for the management of the company.

2.3.2 Pecking Order Theory

Myres (1984) argues that a company's financing of the investment, firstly by retain earning and second priority is debt (risky and safe debts) and the last phase of investment is equity, and in the last phase of the investment is in the nation's capital. Management will hold the additional cash in order to prevent the financing of new investments in debt and equity, and that their priority has been to make the investment to be financed by retained earnings. If the profit is not sufficient to make an investment, the companies will make use of the accumulated cash holdings, and then to blame when it is needed. This is the theory that informs the public about the effectiveness of it. If it is the management which makes use of the internal finance, and it shows that it is in a very strong position. When a company uses debt to finance its investments, it shows that the company is so confident that it can meet its obligations to pay down the debt. When a company makes use of the financing through the issuance of equity securities, it provides negative signals that the company has been in the over-estimate of the action and making money, the price will decrease.

2.3.3 Trade-off Theory

Trade-off theory propose that corporations determine their optimum level of cash and availability, is the measure of marginal benefits and costs of cash holdings. As a result of its low level of cash, cash equivalents, and the high costs of raising funds, the company will be forced to opt-out of investment opportunities, which are very important for the development of the corporation. The main advantage of the money that the company continues to be a protective buffer from which the flight is to be in the liquidation of the assets, as well as the cost of attracting external funding for the financing of its growth chances (Ferreira & Vilela, 2004). The key objective of the support to the monetary cost of maintenance and to reduce

the financial catastrophe is to identify the best investment in an environment of uncertainty. It has a resolution of its board of directors, or by the desire to improve the well-being of the shareholders through the payment of cash dividends, or to preserve the optimum level of cash and availability of additional funding for the development of the company.

2.3.4 Baumols Model

William J.. Baumol proposed a model which is typically used in inventory management but has its application in determining the optimal cash holdings also. Baumols found resemblances among cash management and inventory management.

As Economic Order Quantity (EOQ) in inventory management includes trade-off among carrying costs and ordering cost, the optimal cash holdings is the trade-off among opportunity cost or cost of holding cash and the transaction cost (i.e. the cost of transforming marketable securities into cash etc.) The optimal cash balance is stretched at a point where the total cost is the minimum.

The Baumols model is used to determine the suitable level of cash, which will minimize the total alternative costs and transaction costs as a result of maintaining a given level of cash.

2.3.5 Bernak Model

The Beranek model is in some sense a “reverse” of the BAT model. Both models (Beranek and BAT) assume that both inflows and outflows are foreseeable. The Beranek model, cash is cumulated gradually, thus it needs to be invested in (external) securities when its level reaches the upper limit.

Bernak Theorized that corporations where the cash inflows were stable, but the outflows were episodic. This is mirror image of the time pattern of cash flow within the Baumols model, where inflows were episodic and outflows were stable.

2.4 Proposed Hypotheses of the Study

Based on previous research, the following hypothesis is developed for this study.

- H₁:** *There is only a linear relationship between cash holdings and firm performance.*
- H₂:** *There is a non-linear, an inverse U-shaped, between cash holdings and firm performance.*
- H₃:** *The effect of cash holdings on firm performance is better captured by including both firm specific and country specific control variables.*
- H₄:** *The effect of cash holdings on firm performance remains unchanged whether an accounting or a market measure of firm performance is used.*

Chapter 3

Research Methodology

3.1 Population and Sample of the Study

This research has been conducted to explore the impact of cash holdings on the firm performance of non-financial manufacturing firms listed on Pakistan Stock Exchange. Total of 45 companies were selected for the study. This study selected 35 companies out of which 10 companies were not considered due to outliers in the data, and missing of some data. Due to time constraints and availability of data the study only investigated only manufacturing firms of 12 sectors. The research period is from 2011 to 2020. The data regarding the dependent, independent and control variables has been collected from annual financial statements of firms and from World Bank website.

The reason for selecting non-financial firms of Pakistan stock exchange in this research is that the capital structure of non-financial and financial sectors of Pakistan are different. The cash holding requirements of financial and non-financial firms are also different. The financial intermediaries must maintain a minimum level of cash reserves according to the requirement of the State Bank of Pakistan, that is why their level of cash holdings on the higher side. And the accounting period of financial sector closes at December while the accounting period of non-financial sector ends in June. So only non-financial firms are taken into consideration for analysis. Following industries are considered in this study.

TABLE 3.1: Selection of Industries and Firms

INDUSTRIES	No. of FIRMS
Fertilizers	05
Chemical	05
Cement	07
Textile Composite	06
Glass & Ceramics	01
Automobile Assembler	05
Automobile Parts & Accessories	02
Textile Spinning	01
Leather & Tanneries	01
Synthetic & Rayon	01
Cable & Electrical Goods	01
Paper and Board	01
Total	35

3.2 Research Model

Based on the previous researches, the following model has been selected to test the hypotheses of this study. The following equations here present the regression models.

$$FP_{it} = \beta_0 + \beta_1 Cash_{it} + \beta_2 Size_{it} + \beta_3 D/E_{it} + \beta_4 Turn_{it} + \beta_5 Div_{it} + \beta_6 Int_t + \varepsilon_{it} \quad (1)$$

$$FP_{it} = \beta_0 + \beta_1 Cash_{it} + \beta_2 Size_{it} + \beta_3 D/E_{it} + \beta_4 Turn_{it} + \beta_5 Div_{it} + \beta_6 Int_t + \varepsilon_{it} \quad (2)$$

$$FP_{it} = \beta_0 ROA_{it-1} + \beta_1 Cash_{it} + \beta_2 Cash^2_{it} + \beta_3 Size_{it} + \beta_4 D/E_{it} + \beta_5 Turn_{it} + \beta_6 Div_{it} + \beta_7 Int_t + \varepsilon_{it} \quad (3)$$

$$FP_{it} = \beta_0 B/M_{it-1} + \beta_1 Cash_{it} + \beta_2 Cash^2_{it} + \beta_3 Size_{it} + \beta_4 D/E_{it} + \beta_5 Turn_{it} + \beta_6 Div_{it} + \beta_7 Int_t + \varepsilon_{it} \quad (4)$$

Where;

FP = (ROA=Return on Assets) and (M/B = Market to Book Ratios)

CASH = Cash Holdings

CASH² = Cash Holdings Squared

SIZE = Firm Size

D/E = Debt to Equity Ratio

TURN = Turnover of Firm Assets

DIV = Dividend Yield

IR = Interest Rate

To explore whether a company's cash holdings impact firm performance, the research institutes a quadratic function for the variable cash holdings (Cash²).

3.3 Description of Variables

3.3.1 Dependent Variables

The dependent variable in this regression equation is the firm performance. This research uses two different measures for firm performance; Return on assets (ROA) and the Market to book value (M/B) proxy for accounting measure was used in Saudi Arabia (Alnori, 2020) and market measure in Jordon (Masadeh, Tayeh, & Jarrah, 2015).

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

$$\text{M/B} = \frac{\text{Market Value}}{\text{Book Value}}$$

3.3.2 Independent Variables

The independent variable in this regression equation is the cash holdings. Cash holdings are calculated as the ratio of cash and cash equivalents divided by total assets as computed in previous research done by (Ghaly, Dang, & Stathopoulos, 2015).

$$\text{Cash holdings} = \frac{\text{Cash and Cash Equivalents}}{\text{Total ASSETS}}$$

$$\text{Cash Holdings Squared} = \text{Squared of the Variable Cash holding}$$

3.3.3 Control Variables

This research controls for firm specific factors and some macroeconomic factors related to firm performance.

3.3.3.1 Firm Specific Factors

Firm Size

Size of a firm due to economies or diseconomies of scale is a key factor in determination of its performance. Therefore, ignoring or omitting this variable may

create biased results of the research. Probably due to uncaptured economies of scale, in most of the previous researches a positive link between firm size and firm performance has been concluded. That is, the larger is the firm size, the less is its average cost of production per unit of output because of economies of scale. Such a firm can reduce its cost of the production by utilizing its innovative and modern technology. It, in turn, enhances firm performance (Alnori, 2020). This study uses natural log of total assets as a proxy of size according to (Nicolae, Capraru, & Ihnatov, 2015).

$$\text{Size} = \text{Log of Total Assets}$$

Debt/Equity Ratio

Debt to Equity ratio affects firm performance as value of outstanding bonds and shares used to finance the assets of firms changes with time. Debt, on one hand, gives jump start to cash starving firms and, on the other hand, introduces financial risk in addition to the business risk of a firm. This may decrease or increase the weighted average cost of capital. Previous research has been carried out mostly in the developed markets and it finds a positive association between the debt equity ratio and firm performances (Margaritis & Psillaki, 2010). In distinction, researches in emerging markets detect a negative association among firm performance and leverage as the tax shield on debt financing may be less beneficial than the cost of the financial distress (Le & Phan, 2017).

As Myers & Majluf (1984) used debt to equity ratio to measure the leverage. This research also uses debt to equity ratio to evaluate firm performance. It is measured as follows.

$$\text{Debt/Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Turnover of firm assets (Turn)

Turnover of firm assets shows how resourcefully a firm practices its assets to produce commodities or goods. There are several substitutes or proxies that are

used to measure the turnover of assets. The association between performance and turnover hinge on on how efficiently the company uses its tangible and non tangible assets. If a company is effectual in managing its total assets, a positive association can be forecasted between turnover and the performance, (Hasan, Kobeissi, Liu, & Wang, 2018): or else, the association maybe negative.

As Omondi & Muturi (2013) used total assets turnover ratio to record or measure firm performance. Therefore, total assets turnover ratio, in this research, is obtained by dividing net revenue with average total assets.

$$\text{Turnover} = \frac{\text{Net Revenue}}{\text{Average Total Assets}}$$

Dividend Yield

High amount of dividend yield signals positive information about company's confidence and capability in the future. Moreover, Le & Phan (2017) in their research find out that dividend association have a positive association with firm performance as dividends can mitigate the information asymmetry and agency cost problem amongst company's shareholders and managers, and this will lead towards better firm performance.

This study calculate dividend yield as done by (Alnori, 2020). Dividend yield is obtained by dividing Dividend per share to share market price.

$$\text{Dividend Yield} = \frac{\text{Dividend Per Share}}{\text{Market Price of Share}}$$

3.3.3.2 Macroeconomic Factors

Interest Rate

Interest rate affects firm performance negatively as rise in interest rate increases the cost of capital for a firm. It effects capitalizing decisions as investors make the alterations in their investment structure, usually from the stock market to fixed income securities and vice versa. Mnang at et al. (2016) in his research found out a significant negative association among the interest rate and the financial

performance of the micro firms or companies in Kenya. Barnor (2014) found in his study a negative substantial impact of interest rate on returns capital market of the listed companies in the Ghana.

Interest rate (IR) is one of the macroeconomic variables. In this research, it is one-year interest rate in interbank market of the country.

$$\text{IR} = \text{One year KIBOR rate}$$

Table 3.1 given below shows all variables; independent, dependent and control variables, and their abbreviations castoff in this research. It also contains the expected sign for independent and each of the control variables in estimated regression equations of this study.

TABLE 3.2: Measurement of Variables

Variables	Acronym	Measure	Expected Sign
Dependent Variables			
Return on Assets	ROA	Net Income/Total Assets	
Market to Book Ratio	M/B	(Market Value/Book Value) x 100	
Independent Variables			
Cash Holdings	Cash	Cash and Cash Equivalents/Total Assets	+
Cash Holdings Squared	Cash ²	Square of Cash Holdings	-
Control Variable			
Size	Size	Log of Total Assets	+
Debt/Equity Ratio	D/E	Total Debt/Total Equity	-
Turnover	Turn	Net Revenue/Total Assets	+/-
Dividend Yield	DIV	Dividend Per Share/Market Share Price	+
Interest Rate	IR	One Year KIBOR	-

3.4 Estimation Technique

The linear relationship between the cash holdings and firm performance is analysed using panel data. And the nonlinear relationship between the cash holding and firm performance is analysed using generalized methods of moments. The panel data has both cross sectional and time series entries. Panel data analysis is applied as the data is two dimensional (longitudinal and cross sectional). Panel data is the most common and adopted technique for analysis in field of finance. The reason in that, it has more information, more flexibility, and more efficiency than pure time series and cross sectional data. It helps to reduce the problem that might occur due to merger of different groups into single time series. The data is collected over many years and for many companies so panel regression is used to examine the data. To test the association two step GMM estimator. The dynamic model of regression is applied by GMM according to the Arellano and Bond (1991) way which contains of captivating the first differences of the research model and then smearing the GMM using the lagged levels of the endogenous variables as instrumental variables. I report the AR (1) and AR (2) to emphasize the validity or soundness of two step GMM estimations. The statistically insignificant p- value of AR (2) test statistics will describe or reports that there is no serial correlation present in the error term. Taking the first variances controls for non-observable of fixed company effect. There are three approaches of panel data analysis.

The sign of the variable will shows the type of non-linear association: a positive sign demonstrate a U-shaped non-linear association or association, while the negative sign shows an inverse U-shaped association. The following equations or model presents the non-linear regression models.

3.4.1 Panel Regression

There are three approaches or model of panel data analysis:

- Common Coefficient Model or Pooled OLS Model
- Fixed Effect Model

- Random Effect Model

Common Coefficient Model is applied when intercept is same for all firms over the time period. There is no specific characteristics of the firms in the sample and no general effect over time under this model. A common coefficient model with one explanatory model may take this form.

$$Y_{it} = \alpha + \beta_1 X_{it} + \beta_2 X_{it} + \dots + \beta_k X_{kit} + \varepsilon_{it}$$

Fixed Effect model is used when intercept is different for every firm or company. The fixed effect model is differing from the common effect model, but still it uses the ordinary least square. Fixed effect model examines that each variable may have any effect on other variable or not, or is there any relation between endogenous and exogenous variables. Every entity has its own features and characteristics so it's not necessary that every independent variable can influence dependent variable. There are unique characteristics of the firms that remain same over time. These characteristics may be correlated to the dependent variables.

$$Y_{it} = \alpha_i + \beta_1 X_{it} + \beta_2 X_{it} + \dots + \beta_k X_{kit} + \varepsilon_{it}$$

Random Effect Model is used when intercept behave differently or randomly over the time period. The firms may have unique and time constant characteristics which are not linked to individual regressors.

$$Y_{it} = \alpha + \beta_1 X_{it} + \beta_2 X_{it} + \dots + \beta_k X_{kit} + (\varepsilon_i + \varepsilon_{it})$$

3.4.2 Diagnostic Tests

3.4.2.1 Redundant Variable Test

This test plays the role of decision maker between common effect model and fixed effect model. If the Chi-square and F- stat of cross-section is less than .05 than

fixed effect model is used if the P- value is insignificant than the common coefficient model will apply.

Here, Null hypothesis is that: Common effect is more appropriate.

Alternate hypothesis findings show that: Fixed effect is more suitable or appropriate.

3.4.2.2 Hausman Test

To choose among fixed effect and random effect model, the Hausman Test is used. If the probability of Chi-square and F statistics is less than 5% or 0.05, then fixed effect model must be used. Furthermore, if the P-value isn't significant then Random effect model is employed.

Here, Null hypothesis is that: The Random effect is more appropriate.

Alternate hypothesis findings show that: The Fixed effect is more appropriate.

3.4.3 Generalized Methods of Moments

The nonlinear relationship between the cash holding and firm performance is analysed using generalized methods of moments. Two step generalized methods of moments (GMM) estimation, which controls for unobservable heterogeneity and addresses the potential endogeneity worries among the variables. This research reports AR (1) and AR (2) to highlight the validity of two step GMM estimations. If the p-value of the AR (1) and AR (2) test is statistically insignificant, which mean that there is no first and second order serial correlation in error term.

Chapter 4

Data Analysis and Discussion

The results of research start with descriptive statistics which reveals mean, maximum, minimum and the standard deviation of the selected variables for the period from 2010 to 2019. The table 1 of this chapter 1 based on descriptive statistics which reveals general behaviour of the data, for all dependent variable, independent variable and control variables as well.

The summary of the table highlight mean (average value), minimum (the lowest value), maximum (the highest value) and standard deviation (measurement of dispersion). These are all for period of 2010 to 2019. Than the analysis continued and followed by correlation test which assure that there is no multi collinearity in the data. The third table is the regression equation of the study which highlights the significant level of variables. Final table represent the nonlinear relationship, in which two step GMM estimator table is used. To test the regression equation E-views Software used. In this chapter the gathered data from different firms through financial statements, World Bank and State Bank website has been used for analysis. Being the most crucial part of this research, it analyses everything very critically.

4.1 Descriptive Statistics

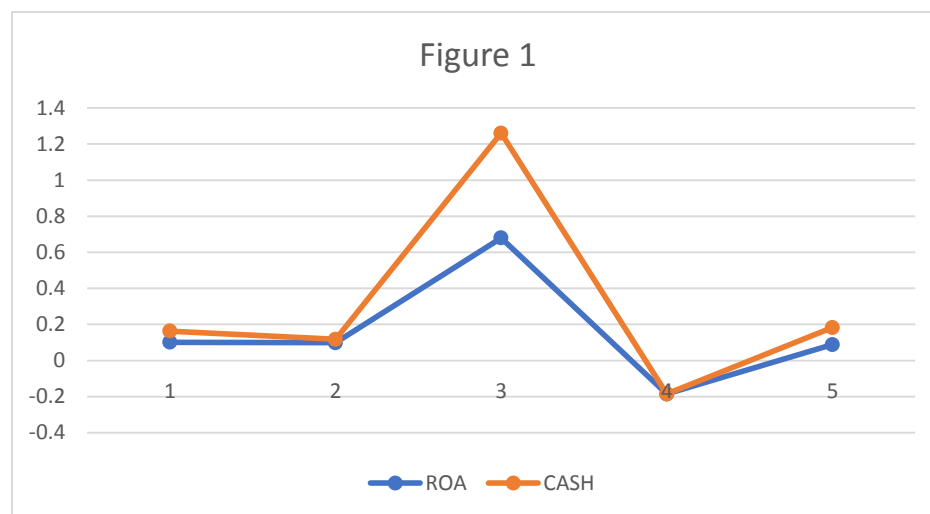
Descriptive analysis reveals the mean, maximum, minimum and the standard deviation figures of the all selected variables. Outcomes from the descriptive statistics

TABLE 4.1: Descriptive Statistics

	ROA	MB	CASH	DIV	D/E	SIZE	TURN	IR
Mean	0.101275	3.894261	0.062287	0.045655	2.128396	17.00853	1.155636	0.100920
Median	0.098580	1.690357	0.019291	0.040584	0.905500	17.04127	0.935000	0.099250
Maximum	0.679580	44.5343	0.580588	0.208551	81.11600	18.84849	3.523000	0.142400
Minimum	-0.184830	0.060669	0.000205	0.000000	0.064000	14.58073	0.000000	0.063800
Std. Dev.	0.088959	10.87971	0.094616	0.038222	6.051569	0.912823	0.706221	0.029347
Skewness	0.891427	8.275291	2.347200	0.858550	9.262039	-0.244463	1.032886	0.093732
Kurtosis	8.103993	78.61124	9.101499	3.832130	103.9479	2.525663	3.514909	1.433614
Obs.	350	350	350	350	350	350	350	350

(Table 4.1) disclosed the mean, median, maximum and minimum value of 350 observations.

The line graph shows the relationship of between return on assets and cash holdings which can be seen from the following figure1. These all line graphs will show the trend of variables for ten years.



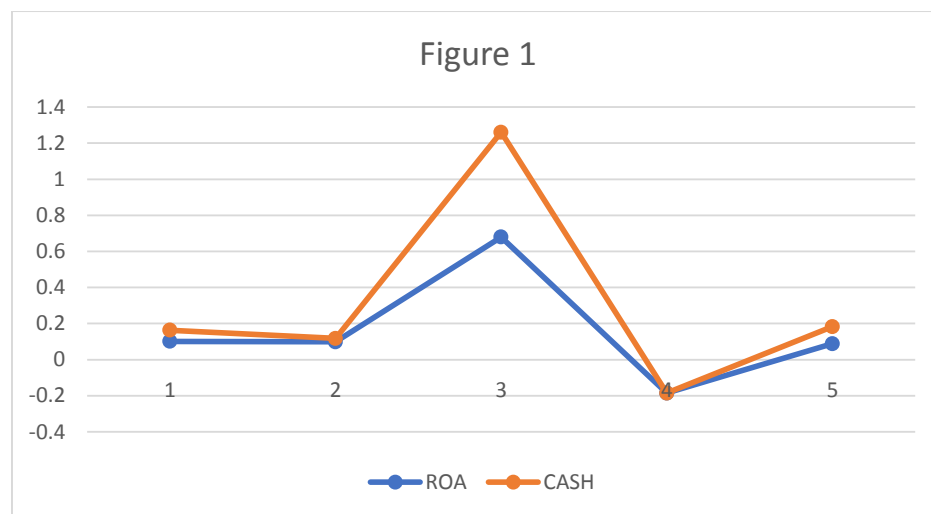
ROA	0.101275	0.09858	0.67958	-0.18483	0.088959
CASH	0.062287	0.019291	0.580588	0.000205	0.094616

FIGURE 4.1: Descriptive Statistics

The descriptive statistic summarizes the characteristics of the data. Here you can see in the Figure 1 dependent variables return on assets (ROA) movement for ten years. The blue line in the given line graph shows the average value of return on

assets is 0.101275 with its standard deviation of 0.088959. The descriptive statistic also tell the maximum value of return on assets is 0.67958. The red line in the graph which represent the summary about independent variable cash holdings, which has mean value of 0.062287 with standard deviation of 0.094616. The data of descriptive statistics highlight the maximum value of cash holdings if 0.580588. This line graph shows the movement of these variables yearly.

(Iftikhar, 2017) Study the impact of cash holdings on return on assets (ROA). The study directly support the hypothesis that increasing the level of cash holdings will lead towards increase in return on assets, and as the level of cash holdings decreasing the return on assets decreasing.



ROA	0.101275	0.09858	0.67958	-0.18483	0.088959
CASH	0.062287	0.019291	0.580588	0.000205	0.094616

FIGURE 4.2: Descriptive Statistics

Here you can see in the Figure 2 dependent variables market to book ratio (MB) movement for ten years. The blue line in the given line graph shows the average value of market to the book ratio is 0.3.894261 with its standard deviation of 10.87971. The descriptive statistic also tell the maximum value of the market to the book ratio is 44.5343. The red line in the graph which represent the summary about independent variable cash holdings, which has mean value of 0.062287 with standard deviation of 0.094616. The data of descriptive statistics highlight the maximum value of cash holdings if 0.580588. This line graph shows the movement of these variables yearly.

Nhan & Ha (2016) Study the influence of cash holdings on the firm performance using both accounting and market measures of firm performance. Results revealed that there is a significant relationship exist between the cash holdings and the firm performance. As the level of cash holdings increases the market to book ratio of company also increases.

4.2 Correlation Analysis

TABLE 4.2: Correlation

	ROA	MB	CASH	DIV	D/E	SIZE	TURN	IR
ROA	1.000000							
M/B	0.185789	1.000000						
CASH	0.227404	0.043061	1.000000					
DIV	0.423118	0.249985	0.104099	1.000000				
D/E	-0.220733	0.299245	-0.101393	-0.129169	1.000000			
SIZE	-0.123778	0.085137	-0.103085	-0.083659	0.037043	1.000000		
TURN	0.348472	0.221821	0.373427	0.228764	-0.045078	-0.420757	1.000000	
IR	-0.137934	-0.081524	-0.069495	-0.184380	-0.065531	-0.131571	0.052396	1.000000

The most useful tool and common type of analysis to test the relationship between two variables is correlation analysis. Correlation analysis explain the relationships of different variables at a time.

Which also helps, to remove the problems of the multi co-linearity if occur in the data. The correlation defines the linear association and level of correlation among the independent variables. The Pearson correlation shows the value range between the +1 or -1, where +1 shows high positive correlation and -1 shows a totally negative linear correlation, it also indicates below .80 proves the non-multi co linearity between them. In the perfect scenario or strong relationship and strong relationship the value will be 1.

If variables moving downward/upward with negative value, this situation shows the negative relationship exist between two variables. For all independent variables,

coefficient sign indicates the relationship among variables. Here is added Table 5.2 which showing, the correlation matrix result between independent variables. As per given figures, all variables are out of multi co linearity problem. The highest correlation among the return on assets and dividend yield that is .42, and lowest one between return on assets and debt to equity which is -.22.

4.3 Results of Diagnostic Test

4.3.1 Result of Redundant Variable Test

The result shows the F- stat and Chi-square of cross-section is less than .05 here fixed effect model will be used. The P-value is significant which also reject common coefficient model. In light of these result for this study the fixed effect model is appropriate.

TABLE 4.3: Likelihood Ratio Test

Summary	Statistic	d.f.	Prob.
Cross Section F	6.445419	-34,308	0.0000
Cross Section Chi -square	188.0.81	34	0.0000

As the result of likelihood ratio (Chi-square =0.0000) indicates that a Null hypothesis is accepted which means fixed effect model is appropriate over simple least square model.

TABLE 4.4: Likelihood Ratio Test

Summary	Statistic	d.f.	Prob.
Cross Section F	11.6025	-34,308	0.0000
Cross Section Chi -square	288.584	34	0.0000

As the result of likelihood ratio (Chi-square =0.0000) indicates that a Null hypothesis is accepted which means fixed effect model is appropriate over simple least square model.

4.3.2 Result of Hausman Test

The first equation on the (ROA) returns on assets has the proxy of performance of firms. To begin with, the Hausman test will run so one can selected among the fixed and random effect models. Test summary of the Hausman test is specified underneath:

TABLE 4.5: Hausman Test

Test Summary	Chi-sq. Statistics	Chi-sq. d.f	Prob.
Period Random	0.000000	7	1.00000

The above table demonstrate the P- value is 1.00 which is higher than the 0.05. The Hausman test recommends that the Null hypothesis is accepted and the Random Effect Model is appropriate.

The second equation Market to Book ratio (M/B) proxy of performance of firms. Firstly, the Hausman test will run so one can selected among the fixed and random effect models. Test summary of Hausman test is specified underneath:

TABLE 4.6: Hausman Test

Test Summary	Chi-sq. Statistics	Chi-sq. d.f	Prob.
Cross-section Random	0.000000	7	1.00000

The above table shows the P- value is 1.00 which is higher than the 0.05. The Hausman test recommends that the Null hypothesis is accepted and Random Effect Model is suitable.

4.4 Results of Estimated Linear Relationship

For Analysis between independent variable cash holdings and Dependent variables including (Return on the assets and Markets to book ratio) I have used the random effect model.

Where F-statistic predict the effect of whole model. R square shows that how much change in explained in dependent variable due to independent variables.

Modification or adjustment in other factors are shown by the adjusted R square statistic is all about the appropriateness of the hypothesis.

For authentication their confirmation of statistical results, I have applied panel data regression to regulate the standard errors of coefficients in contradiction of likely dependence in the residuals. Robust standard errors are extensively acknowledged and usually relied on in case of any defilement to get the valid statistical regression outcomes. Table 4 gives the outcomes of the random effect model.

The result shows in regression model proves to be highly important as the significance level is 0.0000. And R-square of the research is quite acceptable with 31.78% which is good enough and this study is the continuation of previous literature result as (Alnori, 2020) and (Iftikhar, 2017). And the value of Durbin Watson demonstrations that there is no issue of Heteroscedasticity.

TABLE 4.7: Random Effect Model

Dependent Variable	ROA	ROA	M/B	M/B
Variable	Coefficient	Prob.	Coefficient	Prob.
CASH	0.079650	0.0467	0.084096	0.0532
DIV	0.339854	0.0049	4.546418	0.0920
SIZE	0.007569	0.2396	2.596745	0.0048
D/E	-0.001356	0.0407	-0.528583	0.0000
TURN	0.055545	0.0000	3.472817	0.0079
IR	-0.377484	0.0016	-11.91036	0.0306
C	-0.070949	0.0430	-45.10010	0.0068
R - squared	0.317768			0.299328
Adjusted R - squared	0.241144			0.215122
S.E of regression	0.065959			6.643953
F - statistic	11.29460			9.259649
Prob. (F - statistic)	0.000000			0.000000
Durbin - Watson stat	2.063388			2.11924

Results of regression model shows that the cash holdings has significant positive impact on return on the assets. The results of study prove that increasing the level of cash will lead towards the increase the performance of the firms. This significant positive association is described through the results that the huge cash

holdings allow companies to evade the higher cost of external financing, and also make companies more elastic to exploit the available lucrative investments. This is reliable with the trade-off theory, transaction cost and the defensive causes for holding of cash. The results of this study demonstrate that cash holdings has a important impact of companies performance which are reliable with the results of previous researches (Alnori, 2020), (Iftikhar, 2017). In distinction, the result of a positive outcome of cash on company performance is varying with Jensen (1986) free cashflow theory, which forecasts that more liquid assets surge managerial left-over.

Dividend, debt to equity and turnover, which are firm specific factors control variables in this research, have a substantial influence on return on the assets. Dividend has a substantial positive impact on return on assets. Higher level of dividend payments indicate positive info about companies' confidence and capability in the future. The dividend payments have a positive association with companies' performance because the dividends can decrease the agency cost and information asymmetry issues among companies' shareholders and managers. Results are consistent with previous research of (Le & Phan, 2017).

Results shows that turnover has a significant positive impact on the return on assets. This study show that if the firm efficiently use its tangible assets, then this will leads towards the increases the performance of companies. The outcomes are consistent with the previous research of (Hasan, Kobeissi, Liu, & Wang, 2018). Results also shows that the debt to equity ratio has also a substantial but negative impact on the return on assets. This means increasing the use of debt will leads towards the decrease in the performance of firms, because the debt interest tax shield maybe fewer beneficial than the cost of the financial distress. These outcomes are consistent with the previous research of (Le & Phan, 2017).

Where this research also shows that firm size has insignificant influence on the return on return on assets. Which are inconsistent with the previous research of (Alnori, 2020) and (Le & Phan, 2017).

Interest rate which is the macro-economic variable. In this research this is used as control variable. Results reveals that interest rate has substantial negative impact

on the return on assets. Because increase in the interest rate will leads towards the shift of investment from stock markets to banks, leads towards the decrease in share price and ultimately leads towards the decrease in firm performance. These outcomes are consistent with the previous research of (Barnor, 2014).

The result shows in regression model proves to be highly substantial as the significance level is 0.0000. And R-square of the research is quite acceptable with 29.93% which is good enough and this study is the continuation of previous literature result as (Alnori, 2020). And the value of Durbin Watson displays that there is no problem of Heteroscedasticity.

Results of regression model shows that the cash holdings has substantial positive influence on the market to book ratio. The findings of study prove that increasing the level of cash will lead towards the increase the performance of firms. This positive association is explained through the results that more cash holdings permit companies to evade the high cost of external financing, and it also make companies more elastic to exploit obtainable profitable investments. These are consistent with trade-off theory, precautionary motives and transaction cost for cash holdings. The results of this study demonstrate that the cash holdings has a significant influence of company performance which are consistent with the results of previous research (Masadeh, Tayeh, & Jarrah, 2015). In distinction, the result of a positive outcome of cash on company performance is varying with (Jensen M. C., 1986) free cash flow theory, which forecasts that greater level of liquid assets rise the managerial waste.

Firm size, debt to equity ratio and turnover, which are firm specific factors control variables in this research, have a significant influence on the market to book ratio. Firm size has a significant positive influence on market to book ratio. Literature point out this positive link between firm size and firm performance, as the larger firms are more diversified and better able to use innovative technology. The results are consistent with the previous research of (Alnori, 2020).

Results shows that turnover has a significant positive impact on market to book ratio. This research show that if the firm efficiently use its tangible assets, then

this will leads towards the increases the performance of firms. The outcomes are reliable with the previous research of (Hasan, Kobeissi, Liu, & Wang, 2018).

Results shows that the debt to equity ratio has also a substantial but negative market to book ratio. This means increasing the use of debt will leads towards the decrease in the performance of firms, as the debt interest tax shield may be fewer beneficial than the cost of the financial distress. These results are consistent with the previous research of (Le & Phan, 2017).

Where this research also shows that dividend and has insignificant impact on the market to book ratio. Which are inconsistent with the previous research of (Masadeh, Tayeh, & Jarrah, 2015).

Interest rate which is the macro-economic variable. In this research this is used as control variable. Results reveals that interest rate has significant negative impact on the market to book ratio. Which are consistent with the previous research of (Masadeh, Tayeh, & Jarrah, 2015).

4.5 Results of Estimated Non-Linear Relationship

The research used dynamic generalized methods of moments for nonlinear association between cash holdings and the firm performance.

Table 3 represents the two step Generalized methods of moments (GMM) estimation, which controls for unobservable heterogeneity and addresses the potential endogeneity worries among the variables. This research reports AR (1) and AR (2) to highlight the validity of two step GMM estimations. The p-value of the AR (2) test is statistically insignificant, which mean that there is no second order serial correlation in error term.

In this dynamic regression model outcomes show that cash holdings has substantial positive while cash holdings squared has substantial negative impact on the return on assets. This mean that increasing the level of cash holdings will lead towards

TABLE 4.8: GMM

Dependent Variable	ROA	ROA	M/B	M/B
Variables	Coefficient	Prob.	Coefficient	Prob.
Lagged Dep Variable	0.139177	0.0000	0.636917	0.0000
CASH	0.426909	0.0301	3.05099	0.0000
CASHSQU	-0.449249	0.0448	-7.42116	0.0000
DIV	0.163938	0.0000	5.546874	0.0000
SIZE	0.020028	0.1426	6.059484	0.0000
D/E	-0.002543	0.0000	-0.805251	0.0000
TURN	0.172258	0.0000	5.070387	0.0000
IR	-0.401690	0.0000	-13.56007	0.0000
Observations	350	350	350	350
AB test AR (1)		0.03		0.01
AB test AR (2)		0.81		0.68

the increase the return on assets, but after certain point where optimum level of the cash holdings reach, this advantage turns into disadvantage.

After investigative the non-linear association between the cash holdings and the firm performance, this research computes the threshold point (i.e. is the point by which the marginal benefits of cash holdings are equal to the marginal costs, and henceforth, the association changes from positive to the negative). The research originates the threshold point from two coefficients expressing the cash holdings, drawn from the outcomes of third model. The threshold point is calculated as follows:

$$\text{Threshold Point} = \left(-\frac{\beta_1}{2 \times \beta_2}\right) = \left(-\frac{0.4269}{2 \times -0.8984}\right) = \mathbf{0.4752}$$

Created on this calculated threshold point, study designates that firm performance surges at cash holding ratios less than 0.4752. Beyond this ratio, the positive effect of the cash holdings on return on assets changes from positive to negative.

Dividend, debt to equity ratio and turnover, which are firm specific factors control variables in this research, have a substantial impact on the return on assets.

Dividend has a significant positive impact on return on assets. Higher level of dividend payments indicate positive info about companies' confidence and capability in the future. The dividend payments have a positive association with companies' performance because the dividends can decrease the agency cost and information asymmetry issues among companies' shareholders and managers. Results are consistent with previous research of (Le & Phan, 2017).

Results shows that turnover has a significant positive influence on the return on assets. This study show that if the firm efficiently use its tangible assets, then this will leads towards the increases the performance of companies. The outcomes are consistent with previous research of (Hasan, Kobeissi, Liu, & Wang, 2018).

Results proves that the debt to equity ratio has also a substantial but negative impact on the return on assets. This means increasing the use of debt will leads towards the decrease in the performance of firms, because the debt interest tax shield maybe fewer beneficial than the cost of the financial distress. These results are consistent with the previous research of (Le & Phan, 2017).

Where this research also shows that firm size and has insignificant influence on the return on assets. Which are inconsistent with the previous research of (Alnori, 2020), and (Le & Phan, 2017).

Interest rate which is the macro-economic variable. In this research this is used as control variable. Results reveals that interest rate has substantial negative impact on the return on assets. Because surge in the interest rate will leads towards the shift of investment from stock markets to banks, leads towards the decrease in share price and ultimately leads towards the decrease in the performance of firm. These outcomes are consistent with the previous research of (Barnor, 2014).

As anticipated cash holding is positive and substantial while cash holding squared term is negative and substantial. This specifies a concave link between the cash holding and return on assets for Pakistani non-financial firms. The negative coefficient with cash holding (square) variable proves the optimum level after which cash holding balances convert damaging for company performance. Another proxy of firm performance (B/M ratio) is also measured which more authorizes the same outcome. These outcomes authorize the results of previous researches on cash

holding, which have indirectly expected the presence of optimal level of cash holdings (Kim, Mauer, & Sherman, *The Determinates of Corporate Liquidity: Theory and Evidence*, 1998).

Table 3 represents the two step Generalized methods of moments (GMM) estimation, which controls for the unobservable heterogeneity and discourses potential endogeneity worries between the variables. This research reports AR (1) and AR (2) to underline the validity of two step GMM estimations. The p- value of AR (2) test is statistically insignificant, which mean that there is no second order serial correlation in the error term.

In this dynamic regression model outcomes proves that cash holdings has substantial positive while cash holding squared has significant negative impact on market to the book ratio. This mean that increasing the level of cash holdings will lead towards the increase the market to book ratio, but after certain point where optimum level of cash holding reach, this advantage turns into disadvantage.

After investigative the non-linear association between the cash holdings and the firm performance, this research computes the threshold point (i.e. is the point by which the marginal benefits of cash holdings are equal to the marginal costs, and henceforth, the association changes from positive to the negative). The research originates the threshold point from two coefficients expressing the cash holdings, drawn from the outcomes of third model. The Inflection point is calculated as follows:

$$\text{Threshold Point} = \left(-\frac{\beta_1}{2 \times \beta_2}\right) = \left(-\frac{3.05}{2 \times -07.42}\right) = \mathbf{0.2055}$$

Created on this calculated threshold point, study designates that firm performance upsurges at cash holding ratios less than 0.2055. Beyond this ratio, the positive effect of the cash holdings on return on assets changes from positive to negative. Two Threshold point has been calculated in the study. Companies should maintain cash holdings between 47.52% to 20.55% to increase the performance of firms.

Dividend yield, firm size, debt to equity ratio and turnover, which are firm specific factors control variables in this research, have a significant impact on market to book ratio. Dividend has a significant positive impact on return on assets. Higher

level of dividend payments indicate positive info about companies' confidence and capability in the future. The dividend payments have a positive association with companies' performance because the dividends can decrease the agency cost and information asymmetry issues among companies' shareholders and managers. Results are consistent with previous research of (Le & Phan, 2017).

Firm size has a substantial positive influence on market to book ratio. Literature point out this positive link between firm size & firm performance, as the larger or greater companies are more differentiated and well able to use the innovative technology. The results are consistent with the previous research of (Alnori, 2020).

Results shows that turnover has a substantial positive impact on market to book ratio. This research show that if the firm efficiently use its tangible assets, then this will leads towards the increases the performance of companies. The outcomes are reliable with the previous research of (Hasan, Kobeissi, Liu, & Wang, 2018).

Results shows that the debt to equity ratio has also a significant but negative market to book ratio. This means increasing the use of debt will leads towards the decrease in the performance of firms, because the debt interest tax shield may be fewer beneficial than the cost of the financial distress. These results are consistent with the previous research of (Le & Phan, 2017).

Chapter 5

Conclusion and Recommendations

5.1 Main Findings

The research explore the impact of cash holdings on firm performance of the non-financial companies listed on the Pakistan stock exchange for period of June 2010 to June 2019. The association between the cash holdings and firm performance both linearly and the non-linearly is analyzed along with the firm specific control variables including firm size, debt to equity ratio, turnover and dividend yield and macroeconomic control variables which include interest rates, gross domestic product and exchange rate. To discover the influence of cash holdings on firm performance linearly, panel data regression is tested, and for the non-linearly relationship two step generalized methods of moment is tested. Gross domestic product and exchange rate is dropped due to the presence of multicollinearity.

The linear regression results indicates that cash holdings has a substantial positive impact on return on the assets and market to book ratio. The findings of the study prove that increasing the level of the cash and cash equivalents will increase the firm performance. This positive association is clarified through the results that the huge cash holdings allow companies to evade the high cost of the external financing, besides also make companies more elastic to exploit existing lucrative investments.

Dividend, firm size, debt to equity, turnover and interest rate are control variables in this research. Dividend and turnover have significant positive impacts on return on the assets, while debt to equity ratio and interest rate has a significant negative influence on return on assets. Where firm size has an insignificant influence on return on assets. Results also revealed that firm size, debt to equity ratio, turnover and interest rate has significant impact on market to book ratio, while dividend has an insignificant influence on market to book ratio. Where firm size and turnover has a significant positive impact on market to book ratio, while debt to equity ratio and interest rate has a significant negative influence on market to book ratio.

The findings of generalized methods of moments estimator which is used to measure the non-linear association between the cash holdings and return on assets and market to book ratio. The findings of study prove that increasing the level of cash and cash equivalents will lead towards the increase the performance of the firms. But after reaching the optimal level of cash reserve, which was calculated through threshold point, the advantage of cash holdings will turn into disadvantage.

5.2 Recommendations

From the findings of study above, this research recommended a few suggestions for the non-financial companies that are listed on the Karachi stock exchange in determining the cash holding ratio is as follows: First, it has recommendation for firm financing and investment choices when deviations are below or lower than optimal cash holding level and there is not sufficient internal assets or funds are available. Also, the companies have restricted access to the external finance and they have the greater growth chances or opportunities. The costs of reserving not sufficient cash are consistent with the trade-off theory. Due to the information irregularity or asymmetry and the opposing assortment costs of external financing become more costly and companies may favour not to trade or sale the securities and they even to sacrifice the investments. Secondly, it has recommendations for the agency theory and the governance practices when the deviations are higher than the optimal level of holding of cash. Now the mangers have additional cash existing underneath their control and they can practice it to make the investments

that capital markets will not be ready to finance the investment. This condition can be evaded by practicing the strict governance like investor safety, the corporate transparency, etc. Third one, the research has recommendations for the managers who run companies in emerging or developing countries like Pakistan where certain matters are more obvious than in the developed or industrialized countries. When the cash holdings levels are above the optimum agency costs are predominant and they are further distinct due to the arrangement of companies in Pakistan.

5.3 Limitations and Future Directions

The limitations of this research which may cope in future research by other researchers. In this study, return on the assets has been used as accounting measure for firm performance and market to book ratio as market measure of firm performance. Where some other tools as a proxy of firm performance which could be better measure of firm performance which includes return on the equity, and Tobins Q.

Secondly, this studied as mainly gather the data of manufacturing companies in Pakistan from the different segments; sector-wise study can also be a fruitful for further research which will be addition in the area of firm performance. Furthermore, in this study only one independent variable other variables like corporate governance, ownership structure may be studied to extend the area of the study to explore better results.

As per study findings, the hypothesized variables only explain 31.78% in case of Return on Assets and 29.93% in case of market to book ratio of the variation in performance of the non-financial companies in Pakistan. This means that there are other company specific factors or variables, which may influence performance of companies hence a research, may be requisite on those other aspects apart from the one measured under this study.

Future study should contain variables associated to defensive and transaction cost motive in order to see how company performance is caused when the cash holdings are less than the optimal level. Also at levels above the optimum, the agency cost

related to the variables must be comprised in the equation to see their effect. The findings are inadequate or limited to the single market where this research is accompanied. Further researches on additional markets are fortified so as to be able to simplify these findings to a broader literature.

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