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Crude Oil Price Uncertainty and Corporate Net Working Capital

by

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Dedicated to the people I love and admire...My Parents.



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Then which of the Blessings of your Lord will you deny.

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Abstract

The research on crude oil price uncertainty has appealing strong contest in the area of finance for the last few decades. A numerous researches have been done on the topic of crude oil price uncertainty in past few decades in developed economies, however a little consciousness is given to crude oil price uncertainty of emerging economies. The purpose of the study is to distinguish or identify the relationship of net working capital, corporate cash holdings, size, market to book value, dividend payout, leverage, return on asset and tobin's q on crude oil price uncertainty. A sample of 285 firms that are listed on Pakistan stock exchange are selected for the study. The source of data collection is data stream. The data is collected from the period 2004 to 2018. First study applies Hausman test that suggests fixed effect model is more suitable for further analysis. Fixed effect model also shows significant effect which means study used fixed effect model. The study also checks the stationarity, multicollinearity. Panel regression model is used in study to conduct the results. Results shows in equation 1 that oil price uncertainty, tobin's q and market to book have an insignificant impact on net working capital. Dividend payout shows significant impact on net working capital. Leverage, return on asset and size also shows a significant impact on net working capital. In equation 2 oil price uncertainty shows significant impact on corporate cash holdings. Return on asset and size also shows significant impact on corporate cash holdings. Market to book, leverage, dividend payout and tobin's q shows insignificant impact on corporate cash holdings. The findings of the study will be helpful for financial practitioners, financial managers, investors and consultants.

Keywords: Oil Price Uncertainty, Net Working Capital, Corporate Cash Holdings and Pakistan Stock Exchange

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Abbreviations

CH	Corporate Cash Holding
DIV	Dividend Payout
LEV	Leverage
MBV	Market to Book Value
NWC	Net Working Capital
OPU	Oil Price Uncertainty
ROA	Return on Assets
SI	Size
TQ	Tobin's Q
WC	Working Capital

Chapter 1

Introduction

1.1 Theoretical Background

Oil is one of the most important energy sources in the world for both developed and emerging economies. As it meets the industrial and national energy demands of any nation, it serves as a foundation for economic growth. The most basic and important decision regarding value of the firm and investor's wealth is investment decision. Firm's value and investor wealth always depends upon the right decision of investment. Investment decision can bring up the firms 'value and investor wealth on peak and vice versa. Many of the previous studies show that uncertainty has adverse impact on investment. Input cost and output price uncertainties are the various sources that cause uncertainty (Pindyck, 1990; Dixit, Dixit, & Pindyck, 1994; Bloom, 2009). There are also many other sources that cause uncertainty such as macro uncertainty (Bloom, 2009), policy uncertainty (Lon and Gulen, 2015) and political uncertainty (Julio & Yook, 2012; Yoon & Ratti, 2011).

Provided that most commonly input cost afford by the firm directly or indirectly is crude oil, investment decision of the firms become more difficult due to uncertainty in crude oil prices (Henriques & Sadorsky, 2011). The association between corporate investment and crude oil is simple. Pindyck (1990) assert that when uncertainty arise in the energy price it results future energy prices uncertainty, which

ultimately postpone investments of the firms. Crude prices can influence firm's investment through two channels (Kilian, 2008; Hamilton, 2009). First, through "supply channel" in which marginal cost of production increases due to raise in crude oil prices as the most important input cost in entire production cost is the crude oil. Second, via "demand channel" in which consumer expenditure diminish as a result of higher oil prices, which ultimately decline the demand of the firm's product.

Since the foremost oil crisis in the 1970's, shocks of oil prices and their impacts on macroeconomic have pinched global attention. (Hamilton, 1983) was the first who proposed the link among economic growth and oil shocks for the market of US, and later extended to other countries (Zhang, 2008). For two commonly acknowledged reasons, oil prices are causing higher concern. First, oil is a main contributor to contemporary manufacturing, so rising and falling oil prices are directly important to the manufacturing cost of the businesses (Broadstock, Wang, & Zhang, 2014). Second and more importantly, modifications in the second-moment oil price measure influence the expectations of a company, thereby helping to form the present manufacturing and investment choices of a company (Ferderer, 1996) . A recent study has been conducted in Mexico; the research examines the vibrant connection between global oil prices, global gold prices, exchange rates and Mexico's stock market index. Study findings indicate that global prices of gold have a positive effect on Mexico's stock price while oil prices have a adverse impact on them. Prices of gold and exchange rate do not significantly affected by prices of crude oil in the long-run (Singhal, Choudhary, & Biswal, 2019). In the last two decades, oil prices on the global crude oil market have been quite volatile. This has a huge impact on the macroeconomic basis of oil exports and oil importing countries.

Cash holding, a major asset on the accounting reports of businesses, gets a lot of consideration from organizations, speculators, and analysts. In recession, cash becomes particularly essential for the firms. Money that an individual or business maintains at its hands to spend rather than invest: low / high cash holdings low cash holdings remove managers ' liberty to respond to the market. Company keeps

cash holdings because cash balance is needed to fulfill everyday company operations. Companies keep cash to pay for the products and services they purchase. Firm's keeps cash holdings to meet emergencies, uncertainty and running out of cash and fluctuations in cash balances. Company holds elevated cash balances to take benefit of the precautionary money balance like improve credit rating, investment opportunities and to exploit discounts for prompt payments. Company also keeps cash holdings to meet future payments obligations like purchase of fixed asset, redemption of debentures, and payment of tax, payment of dividend and buy-back of shares. Cash holdings function as an effective tool that can influence the entrance or limit extension choices of competitor (Benoit, 1984). Producers with more cash resources are growing their market shares comparatively more than their rivals, showing that massive cash stocks results in lower future market share profits at the cost of competitors of industry (Fresard, 2010).

Another study is conducted on corporate cash holdings and crude oil factor price uncertainty. Utilizing the recursive model, the article conducts an empirical research on the influence of the price fluctuations of particular crude oil factor on the amount of money holdings of the listed firms in China. The findings of this study report that the price uncertainty of the crude oil factor has a significant influence on the quantity of money retained by the listed firms (Q.-Z. Wang & Zhu, 2015).

The initial work of Modigliani and Miller (1958) and since the contribution of (Miller & Orr, 1966) company's cash holding actions has acquired significant importance in financial literature. Commercial and chain of command perspective of corporate money holdings on the compustat database for all companies over the period 1952-1994. The tradeoff theory is substantially supported by them. Smaller companies hold more money, greater investment and R & D spending, better investment possibilities, greater and more volatile cash flows, and reduced net working capital (Opler, Pinkowitz, Stulz, & Williamson, 1999).

Recent studies show three theoretical models that can help to determine the organizational cash retention choices are determined by the firm's characteristics: pecking order theory, trade-off theory and theory of free cash flow. This study

is based on precautionary motive for holding cash. The precautionary motive relates to a company's tendency to keep cash to face the contingencies or unusual circumstances of the market. As the future is uncertain, a company may have to deal with contingencies including such rise in raw material price, demand changes, labor strikes, lockouts etc. Therefore, the cash is kept by the companies to have smooth business activities in order to meet the fluctuations in crude oil prices.

Keynes (1936) has the concept of exploring the precautionary reasons behind holding a cash reserve. In his theory, precautionary reserves can be held in the form of cash or demand deposits and used to protect against high expenses that may arise in the future. In crude oil price uncertainty companies hold cash with them rather than invest and use that cash at the time of unforeseen circumstances in future. Companies retain a certain part of liquid balance for different reasons, including competitive, transactional and precautionary (Isshaq, Bokpin, & Onumah, 2009). Precautionary motive works for reasons of security; that is, balance of cash is kept in reserve for unpredictable uncertainties. From the point of view of speculation firms hold cash balances to get advantage of any transactions which may occur (Besley & Brigham, 2005).

1.2 Gap Analysis

The prior studies that have been conducted to compare the effect of crude oil price uncertainty on corporate investment for globally (Huynh, Le, & Phan, 2018). One of the important and less explored domains of uncertainty in the crude oil price is its impact with the corporate cash holdings and net working capital. The focus of the research is to compare the impact of uncertainty in the prices of crude oil on corporate cash holdings and net working capital for emerging economy i.e., Pakistan. Furthermore, the previous study investigated the relationship till 1984-2015. Hence this current study will investigate the latest trend by analyzing the data from 2004-2018.

1.3 Problem Statement

Over the past decade, crude oil price instability has become a buzz word in the business world. The fundamental reason for and significance of this new terminology has made it essential for all listed firms to adopt the defined standards. There is increasing interest in the idea of crude oil price volatility worldwide, especially as crude oil price and corporate investment are essential to maintaining the economy of market and civil society in emerging economies. However, there is a need to explore effect of crude oil price uncertainty on corporate cash holdings and net working capital which this study is proposing.

1.4 Research Questions

The research questions of the study are:

Research Question: 1

What is the impact of oil price uncertainty on net working capital?

Research Question: 2

What is the impact of oil price uncertainty on corporate cash holdings?

1.5 Objective of the Study

Following are the major objectives of the study:

Research Objective: 1

To examine the impact of oil price uncertainty on net working capital.

Research Objective: 2

To examine the impact of oil price uncertainty on corporate cash holdings.

1.6 Significance of Study

This study is about the effect of crude oil price uncertainty on corporate cash holding and net working capital. When considering the role of cash holdings in hedging, dividend policy of the companies and incremental capital structure decisions, the value of optimal holdings of cash becomes astonishing. Dividend policy is affected by the firm's cash accounts because due to lack of additional cash, the company might not be capable of paying its owners dividends. The present study addresses the effects of crude oil price uncertainty on corporate cash holding and net working capital.

Chapter 2

Literature Review

2.1 Net Working Capital

Net working capital (NWC) reflects the amount of capital needed to sustain a firm's normal operations, operating expenses, ability to utilize resources into cash, and timely access to cash. In other words, it is the turnaround capacity of a corporation with respect to the company's short-term debt. Thus NWC management has therefore been a major financial practice for businesses and has gained considerable managerial and analytical exposure. Many earlier studies, such as (Y.-J. Wang, 2002; Blinder & Maccini, 1991), shows that effective liquidity management may improve the efficiency and profitability of a company by establishing a relation among the performance of the NWC business and management. Recently many authors including (Martínez-Sola, García-Teruel, & Martínez-Solano, 2014; Aktas, Croci, & Petmezas, 2015) and Baños-Caballero propose that higher NWC investments have their advantages and disadvantages, and there is an optimum level of working capital spending that can offset profits and costs to optimize firm value.

Few studies report the management of working capital from an internationalization perspective. Ben-Nasr (2016) is an exception which tends to focus on the affect of foreign ownership on the relationship among NWC investments and US firm values and consider that foreign-owned companies have a greater value on

NWC investments.

A company's management of NWC is an important short-term financial policy. While larger NWC holdings protect businesses from the effects of price fluctuations, NWC's excess could increase risks and costs. Studies reported an acceptable NWC rate. For instance, (Blinder & Maccini, 1991) argue that large inventories can reduce the cost of supply, helping to prevent price fluctuations and losses resulting from production interruptions and inadequate inventory. Excess working capital investments results in negative influence on the operation of the business due to increased production costs, additional demand for funding and credit risks. Another study of (Y.-J. Wang, 2002) suggests that effective liquidity management can increase the quality and value of a business. Recently (Aktas et al., 2015; Baños-Caballero, García-Teruel, & Martínez-Solano, 2012, 2014) the working capital / company performance relationship represents an inverted U-shaped curve, reflecting the optimum level of working capital investment.

Ben-Nasr (2016) shows a steeper value NWC curve for foreign-owned US firms, which is greater when net working capital is lower. NWC levels significantly reduce a company's profit between all listed firms, while excess NWC has no such impact. Therefore, when NWC investments are small, foreign ownership positively impacts the competitiveness of a business. In other words, a performance increase (a decrease) is experienced by foreign-controlled companies with a minimum NWC level; however, higher NWC levels do not find such influence. Foreign-controlled companies should therefore give more attention to insufficient NWC investments. The study also shows that, if the company tackles its inadequate NWC investments by raising them, lower-foreign-controlled companies have a stronger impact on enhancing a firm's productivity than higher-foreign-controlled companies. This indicates that a high ratio of foreign ownership does not have a significant influence on the profitability of NWC management.

Net working capital, at least in theory, can be negative, positive or neutral (i.e. assuming zero value). Positive NWC happens when the long-term investment funds part of the current assets. Positive net working capital shows that the companies have an operating backup in the context of sufficient cash reserves to enable it to

operate safely among servicing the obligations and receiving the receivables. The higher the NWC, the healthier the requirements of the organization to fund its service. Nevertheless, the increase in positive NWC requires the growth in the weighted average cost of capital (WACC). This may be due to the higher cost of maintaining long-term capital requiring high costs of interest than the cost of short-term capital. Negative NWC arises when partially short-term capital funds fixed assets. This method is even less costly than positive NWC because the total cost of capital is considerably lower, but this alternative is also more costly the firm has not recognized a fund as an appropriate asset supply that could support its activity over the time among paying off obligations and charging of accounts receivable. Neutral NWC takes place when current assets are equivalent to obligations in the short term. There is no constant capital in such a situation that would fund the assets.

In particular, working capital (WC) refers to investment in current assets including bonds, cash, commercial accounts receivable and inventory levels. But at the other side, WC may be used as net working capital measured by eliminating short-term obligations from existing assets as a more concise definition for purpose of working capital management. NWC investment decisions can also be described as the capital acquired at a shorter than one year with the enterprise's operating cycle. Therefore, NWC represents the company's liquidity ability to provide cash requirements that will take place in connection with operating activities ([Akbulut, 2011](#)). The company's fundamental financial purpose is to maximize its value ([Michalski, 2008](#)). This simple goal should also be achieved by inventory management.

If the organization has excess cash than negative debts otherwise, NWC is going to be positive. Positive NWC means that the corporations are steadily capable to keep going their business and expansion operations. On the other side, the company will be capable to speed up production with the residual current assets after spending the short term liability. NWC that is unfavorable means that the firm is not able to fulfill its commitments in the short term ([Kılıç, 2014](#)). In the declining trend, higher net working capital can be an indication that somehow the

organization is running at lower production level so that higher levels of unfavorable net working capital result to the business's bankruptcy.

The impact of various variables of working capital management have studied by (Vahid, Elham, khosroshahi Mohsen, & Mohammadreza, 2012) which includes Iranian firms' net operating profit margins and current ratio, debt financing, net trade and cash conversion cycle, average payment period, average collection period, size of the firm, gross working capital turnover ratio, current liabilities to total assets ratio, sales growth, current assets to total assets ratio and inventory turnover in days has been used as a control variable. Operating performance has found to be negatively linked to working capital management and inventory turnover in days, average collection period, net trading cycle and as the average payment period raise, the company's productivity will decline. The research carried out by (Öztürk & Demirgüneş, 2008), the annual financial data of 111 production companies operating in the machine, metal material and manufacturing of tools produced in the stock exchange market of Istanbul for the period 2002-2006 were analyzed to assess the variables influencing the requirement of working capital in the framework of the integrated regression model. In another research, the variable impact of the working capital requirement has been assessed by taking into account the size of the company, cash flow operation, asset return, financial leverage, and variables with respect to growth. The study reports that the leverage ratio has a positive effect on asset returns and working capital growth requirement. Moreover, it has been suggested that the cash flows of the companies and growth have no significant impact on the working capital requirements (Öztürk & Demirgüneş, 2008).

It may not be sufficient to measure only cash to understand future payment circumstances (Al-Attar & Hussain, 2004). Nonetheless, net working capital and short-term obligations such as net working capital to total asset ratio (NWC / TA) are one of the liquidity measures that are applicable in all sectors (Drever & Hutchinson, 2007).

The best observed predictors of business liquidity over short term obligations are

net working capital and cash and cash equivalents. Therefore, in respect of short-term liability ratios they are more important. Sufficient cash and liquidity rates, quick access to funding and accessible working capital assist companies to fulfill their planned commitments and ensure profitability (Coyle, 2000a, 2000b).

Working capital is sometimes used to express only current assets, while (NWC) is known to difference from current assets to current liabilities. The adjustments in working capital have been expressed in a statement of cash flow of the companies. Moreover, the operating cash flow portion of the cash flow statement addresses adjustments in short-term requirements for working capital. For the actual recorded duration a favorable balance of working capital is a cash inflow. While a negative working capital statistic on the other hand identifies that the company lost more money during the year than it should maintain its working capital. For firms with systemic or unsystematic cash flow needs, it is important to evaluate changes in working capital. Rising working capital implies spending more money on working capital, resulting in a decline in overall cash flows. The impacts of shifts in working capital are measured in a company's cash flow statement. Through this working capital / cash flow relationship. Companies which are more effective in handling working capital will have a greater value than similar companies with high requirements for working capital (warred, 2015).

Researchers focused on the working capital management in many aspects to connect it to and risk management and liquidity. Whereas some studied optimal inventory management, others analyzed accounts receivables management in an attempt to postulate an optimal policy leading to maximizing profit (Lazaridis & Tryfonidis, 2006). According to (Deloof, 2003), working capital management has a positive influence on the competitiveness of companies. Such findings suggest a certain amount of net working capital that could optimize returns. It is generally concluded in order to generate profits for shareholders, working capital and therefore NWC management are important (Shin & Soenen, 1998).

Businesses can have an ideal amount of net working capital that increases their value as the liquidity management risk influences capital costs. Large stock and favorable trade credit policies will result in high sales. In addition, large inventory

reduces a stock-out risk. Trade credit can boost sales (Long, Malitz, & Ravid, 1993), particularly in small and medium-sized enterprises with a new product entering the market.

Accounts payable are another part of working capital. Raheman and Nasr (2007) say that delaying the payment of supplier's accounts can be an inexpensive and versatile source of funding. On the other side, it can be costly to postpone these payables if a company is given an early payment discount. The plan depends on the development phase of the business. Small and medium-sized businesses develop their reputation as corporations use their negotiating power to negotiate longer payment periods, particularly when the subcontractors in the supply chain are smaller enterprises.

In addition, Michalski et al. (2016) focused on financially efficient working capital decision model components and their risk sensitivity frameworks which affect the firm's decisions on net working capital investments. Too small a level of net working capital leads certain firms to negative sales-level changes and thus to lower profits. Liquidity funds are a hedging device against the vulnerability of individual risks that is higher in times of crisis.

Kozáková and Pevná (2015) concluded that the short-term receivables are the most involved in net working capital structure; the least involved are inventories. They stated that short-term payables have a reduced effect on net working capital levels.

In addition, Cho (2015) empirically studied the determinants of net working capital. He found that in manufacturing firms, NWC is positively associated with market volatility. It means that manufacturing companies are marked by greater market volatility using more restrictive working capital policies. There is also a positive relation among NWC and size of the firm. It suggests that businesses with immediate access to the financial market have more restrictive working capital strategies. The study of Cho finds that net working capital has negatively linked to financial leverage. Net working capital determinants in firm size are also slightly different. Net working capital has to do with several factors that affect its level. Investors may assess any type of risk arising from different areas of the

business, or rather focus on NWC's level and relate it to a company's risk.

Net working capital influences the adjustments made by a firm to specific operating and financing variables. Cash and cash equivalents, operating cash flow and market power encourage firms to use more aggressive strategies for working capital. Firms with higher profit volatility and external financing costs employ more restrictive working capital policies (Bolek, 2019).

2.2 Corporate Cash Holdings

For many companies, cash is an important asset. Cash is one of the major important figures found in each firm's balance sheet portion of assets. Cash holding is described as cash in hand or easily accessible for physical asset investment and distribution to investors. Consequently, cash holding is perceived to be converted to cash. Cash in bank, cash in hand, money market, market investment and treasury bills are also known to be cash holding. The cost of capital invested in liquid assets is also a component of cash holding. An opportunity cost to the company is the effective profit forgotten in holding large cash balance. According to Adetifa (2005) cash holding is classified into two modes, first is unavoidable interest opportunity cost and second is the company's purchasing power cost. Cash is the less profitable as well as the most volatile asset. This plays a main part in the operations of a business and firm's finances. A main aspect for financial management is the formulation of the cash holding approaches; this is not only about company's operations and improvement of businesses and also about corporate governance and the operational environment. The trade of goods or services in money is another mode of cash holding. According to Keynes (1936), for three purposes, financial players may keep cash. First, the transaction purpose that determines why short-range inflows and outflows are bridged. Second, is precautionary purpose reflecting the concept that households and private companies that keep cash in the expectation that they can cover future obligations that are totally unpredictable to those companies at the moment. Thirdly, there is a speculative intention to ensuring that financial companies now retain cash in order to allow

potential interest rates to rise.

For companies or corporations, it is very essential to have an appropriate level of cash holding as cash holding allows businesses to pay their liabilities at specific times, even in difficult times. According to [Keynes \(1936\)](#) cash holdings and focused on money demands due to preventive motives, speculative motives and business motives which partially explain the value of corporate or corporate cash holdings.

According to [Opler et al. \(1999\)](#) cash holding costs are simply the cash opportunity costs that result from not investing cash holdings in high-return illiquid assets. A study conducted by [\(Sun, Yung, & Rahman, 2012\)](#)Y, on corporate cash holding report. Resultantly, low-quality revenues and cash reserves have a significant impact on each other and the value of corporate or corporate cash holdings has insignificant impact on each other.

According to [Islam \(2012\)](#) by analyzing non-financial firms in Bangladesh, several variables which have a strong influence on decision making of cash holding are , cash liquidity, net working capital and tobin's q, that has a positive relationship with companies cash holdings. According to [\(Rizwan & Javed, 2011\)](#), they found that with the increase in market-to-book ratio and cash flow, cash holding is increasing.

2.3 Oil Price Uncertainty

Recent literature supports the claim that the uptrend prices of oil shift has a insignificant effect on the development of economy of developed and emerging economies ([Kilian, 2008](#); [Kilian & Vigfusson, 2011](#); [Narayan, Sharma, Poon, & Westerlund, 2014](#)). According to [Lescaroux and Mignon \(2008\)](#) as consumers and producers of goods and services faces, higher oil prices have a insignificant influence on net oil consuming countries economic growth. Production companies have to compromise because rise in the average production cost contributes to a decrease in efficiency and profitability; meanwhile, when disposal income tends to lag after inflation, customers have to limit their consumption of goods other than

essential. All this has a negative impact on economic production, resulting in negative effects on employment, real wages, expenditure, productivity and price level. Developed economies were generally perceived to be the only ones to be seriously affected by the rise in oil prices. But, in fact, due to inefficient energy use and waste, developing economies are much more influenced by all these oil price disruptions. The price rise in the 2000s was of major concern for developing-country analysts because the rise in oil prices had disrupted growth in economy by causing pressure of inflation in the economy, massive deficits in the budget of government and balance of trade problems. In addition, the significant association between oil price variations and equity markets has also shown a downturn in worldwide economic growth, as cumulative demand relief has reduced the productivity of companies and the total demand for oil ([Bernanke, 2016](#)).

[Elder and Serletis \(2011\)](#) is investigating the relation among prices of oil volatility and manufacturing output for the G-7 economies. The results of their study show that instability in price of oil has adverse impact in four of the G7 nations, France, Canada, UK, and the US. The analysis also suggests that in the short term, both positively and negatively oil crisis might be deflationary.

[Bashar, Wadud, and Ahmed \(2013\)](#) analyzes the significant influence of disruptions in oil price volatility on a net oil manufacturing economy such as Canada. The findings suggest that while the normal production level may not be influenced by the prices of oil rate ups and downs, the prices of oil uncertainty has a positive impact on Canada's economy. The findings also show similarities to a negative spike in demand due to increased fluctuations in the crude prices that are likely to drop productivity and price rates.

([Henriques & Sadorsky, 2011](#); [Ratti, Seol, & Yoon, 2011](#); [Yoon & Ratti, 2011](#)) give empirical evidence that the uncertainty of global oil prices has adverse impact on corporate investment expenditure.

Population growth and expansion of the industrial sector have increased energy usage in countries in Asia, particularly in Pakistan ([Zaman, Khan, Ahmad, & Rustam, 2012](#)) and the country is part of the low-middle-income group. Pakistan has experienced severe energy shortages in the last two decades ([Zameer & Wang,](#)

2018). The country has a growth rate of 6.5 percent in long-term, although it has been limited by energy crises to 2 percent (Komal & Abbas, 2015). This demonstrates that the country's economic growth is significantly affected by the energy disruptions. Electrical power shortages in the country have a negligible impact on Pakistan's exports, regional productivity, poverty reduction, and employment (Kessides, 2013). As Pakistan is an emerging nation, oil is perceived to be an important source of energy supply and growth of economy is stimulated in the same way. Moreover, thermal power is the bulk of the nation's energy production environment (Zameer & Wang, 2018; MEILINGER, 2019).

According to Wakeel, Chen, and Jahangir (2016) through imported furnace oil, the nation meets much of its energy demands. The undiversified mix of energy production and heavy dependence on imported oil has rendered Pakistan additional prone to price of oil. Much of the oil expanding demands are based on Gulf countries imported furnace oil. As in other emerging countries across the world, however, an upward increase in price of oil is predicted to have a insignificant influence on the economic growth of Pakistan. The rise in oil would result in higher production costs, balance of payments issues, weakening of exchange rates, budgetary deficits, decreasing aggregate demand, declining real wages, unemployment, unnecessarily expansionary or contractionary monetary policy, and sometimes even economic downturn. (Malik, 2008). Pakistan's energy mix relies on heavily imported furnace oil. The increase in oil cost may impact oil-dependent nations like Pakistan, whereas world demand may decline as oil crisis influence trade partners as well. It is therefore also important to point out that not only do prices of oil impact internally, but the consequences become more severe as exports decline.

2.4 Dividend Payout

According to Miller and Modigliani (1961) theorize that, under some conditions, the dividend payout policy is irrelevant. Furthermore, in a world of corporate that suffers from asymmetric information, these assumptions do not hold, which

propose that the dividend payout policy under information asymmetry is an admissible financial decision for the company.

According to [DeAngelo, DeAngelo, Skinner, et al. \(2009\)](#); [Allen and Michaely \(2003\)](#) survey document that the financial studies selects information asymmetry as an important indicator in deciding dividend policy behavior.

East India Company launched the dividend in 1700 and it became famous because of its impact on stock market prices ([Frankfurter, Wood, & Wansley, 2003](#)). [Nwidobie et al. \(2016\)](#) claimed that investors considered dividend as a sign of strong corporate performance, thereby encouraging future investors to invest in highly dividend-paid companies. According to the signaling model of ([Lintner, 1956](#)), declining returns are an indication of the company's unproductivity against investors; thus, managers tend to maintain payment of the dividend once it is initiated.

On the opposite, [Miller and Modigliani \(1961\)](#) argued that investors should be oblivious to dividend policies because individual and corporate taxes are the same in a perfect capital market where sensible investors operate.

[Ozoani \(1998\)](#) suggested that dividend payments should be less considered in the appropriation of earnings; that companies should concentrate on financing sustainable growth and investment opportunities and allocate the residuals as returns to investors, if any. Investors perceive dividend as a gateway to missing information about the future profit and sustainability of the business. The policy cannot claim to be based on dividend theories but on the overall system behavior of the company due to many disputes on dividend between various theorists on the reaction of investors to dividend policy.

[Lintner \(1956\)](#) supported a signaling theory that executives are often unable to slash dividends when it is implemented with the idea that it is a way of communicating the company's hidden information to the shareholders. Investors are also believed to perceive dividend payment as proof of strong firm performance. [Fama and French \(1992\)](#) felt that managers appear to be efficient in distributing extra

cash flow as profits to stockholders instead of putting money in unprofitable opportunities for investment. The agency cost hypothesis suggested that investors generally seek additional returns when they consider an organization to have surplus cash flow, thus reducing unnecessary funds under managers' care to avoid misappropriations. On the other hand, Donaldson's pecking order hypothesis (1961) suggested that companies demand mainly on internal funds to finance growth potential instead of dividends; and could opt for borrowing only when investment opportunities surpassed their inner financial capacity. Marris (1964) claimed that firms with higher growth projects probably have a higher retention ratio and pay minimum dividends in the short run to shareholders, however because of returns on these investments, turning high-dividend paying firms into long-run. Definitively, the concept of normative shareholders supported by (Freeman & Evan, 1990) indicated that investors must recognize many factors that might hinder or impair the decision of managers to estimate gains on their investment in a business.

As argued by Jensen (1986), business managers with lesser disclosure quality are often more willing to pay shareholders less dividend, spend the free cash flow on empire building and adverse net present value projects. Managers, on the other hand, find it harder to deceive shareholders when reporting is explicit because shareholders are more able to pinpoint the amount of excess cash flow in a consistent transparency environment and require higher dividend payouts.

Past studies has identified a direct positive correlation among disclosure value and dividend payouts in developed nations such as the United Kingdom, the United States and Canada, where shareholder security is high (Adjaoud & Ben-Amar, 2010; DeAngelo, DeAngelo, & Stulz, 2006). Research of Kowalewski, Stetsyuk, and Talavera (2008), have also indicated that even a higher degree of corporate governance policies will result in higher dividend payouts in a more open environment.

The issue of voluntary exposure and dividend payout in Saudi Arabia is a unique situation to reconsider, as it differentiates in many ways from developed countries' issues as an emerging market. (Al-Habshan, 2015) emphasize that Saudi Arabia is indeed an emerging economy with higher potential of growth, a comparatively

weak regulatory framework, weaker corporate governance (Institute of International Finance, 2006) and a lower level of disclosure of information, resulting in a higher information difference among investors and companies. (Al-Janadi, Rahman, & Omar, 2013) demonstrate as evidence that many other Saudi companies comply with mandatory reporting standards but only willingly disclose information. Rather than paying corporate income tax, Saudi companies pay "zakat" (an Islamic tax), that accounts for 2.5 percent of the remaining capital in hand of a company. Saudi firms are therefore encouraged to allocate roughly 100% of their dividend earnings (Al-Ajmi & Hussain, 2011).

In particular, the dividend policy literature is split into three sections. First research that aim to establish concepts of dividend policy such as Miller and Modigliani's irrelevance theory (1961). Second, research seeking to classify the corporate dividend policy determinants (Baker, Kilincarslan, & Arsal, 2018; Fama & French, 2001). Third, research conducted to improve predictive accuracy and modeling of dividend payouts (Luebke & Rojahn, 2016).

Dividend strategy is indeed a major matter in corporate finance as it applies to various financial and growth decisions like structure of capital (Al-Najjar, 2011), avoidance of tax (McClure, Lanis, Wells, & Govendir, 2018). In comparison to the irrelevance theory of Modigliani and Miller (1961), dividend policy, together with capital policy, is among a company's key major sources of creating value because dividends provide a strategic role in minimizing the free cash flow under administrative control (DeAngelo et al., 2006).

According to Longinidis and Symeonidis (2013), dividend forecasting is essential for several groups particularly financial advisors or managers, consultancies, institutional and individual investors, governments, supervisory agencies, and company lenders, as they can control, spend, and track the business more efficiently, respectively.

Booth and Zhou (2017) review the worldwide dividend policy and conclude that the financial markets of the United States have even less asymmetry information than emerging nations. Joliet and Muller (2015) found that companies in emerging-market nations seem to be more prone to still use boost in dividend as

an indication of earnings growth than those in developed economies.

Imran, Usman, and Nishat (n.d.); Lam, Sami, and Zhou (2012); Al-Najjar and Kilincarslan (2016), respectively, were studying dividend policies in Pakistan, China and Turkey also. Through 19 emerging markets, (Mitton, 2004) analyses 365 firms. He argues that better corporate governance leads to greater payouts for dividends. Patra, Poshakwale, and Ow-Yong (2012) have used the Generalized Moments Method (GMM) to explore 63 Greek companies throughout the period 1993–2007. They conclude the three factors, that includes company size, liquidity and profitability, boost the possibility of dividend payouts, and several other aspects, particularly opportunities of investment, business risk, financial leverage, reduces the likelihood.

Arko, Abor, Adjasi, and Amidu (2014) researched organizations in Sub-Saharan Africa during the period 1993–2007, covering Ghana, Kenya, South Africa, and Nigeria. They found that these companies' dividend tendency depends on profitability, business opportunities, payment of taxes, institutional shareholders, leverage and risk.

2.5 Leverage

It is widely believed that the effect of leverage on company output is uncertain, with a few research showing a negative relationship (Salawu & Ile-Ife, 2007; Chen, 2004) and many others suggesting a positive or insignificant relationship (Azeez, 2015).

The connection among leverage and firm efficiency or performance has been explored by several prior empirical studies. At all, the outcomes of these studies are mixed. On the one side, research such as (Robb & Robinson, 2014) has found positive ties among leverage and firm efficiency. In addition, (Robb & Robinson, 2014) conclude that leverage gains are major, and debt use boosts the performance of firm as obtained returns are higher than the average interest costs paid on leverage. Their result can be described in the light of earlier famous and successful research such as (Jensen, 1986; Modigliani & Miller, 1958) who claim that

competitive companies signal value by boost of leveraging, likely to result in a positive relationship among leverage and profit margins. Some others like [Fama and French \(1998\)](#) and [\(Phillips & Sipahioglu, 2004\)](#) detected a negative leverage impact on performance of companies. However, others do not find a positive relationship with leverage and performance of companies. [Fama and French \(1998\)](#) claim that the extent of leverage creates agency issues for organizations that forecast a negative association among leverage and profitability performance.

[Cheng, Liu, and Chien \(2010\)](#) used leverage as a threshold parameter, one of the few who used the idea of thresholds, recommend that increase in leverage improves firm efficiency to a certain level and then begins to lessen firm performance. Also using leverage as a threshold [Lin and Chang \(2011\)](#) consider that there are two threshold impacts among leverage and firm performance for listed companies in Taiwan. Whenever the debt level is minimal, firm output, backed by Tobin's Q, improves as a response of a rise in leverage. There is no indication of a relation among firm performance and leverage when the level of leverage is high.

[Pratheepkanth \(2011\)](#) researches the financial performance and capital structure of in Sri Lankan listed companies, promoting debt-based capital structure and performance of the firms with return on capital employed and return on assets. The findings show that the relation among leverage and performance is insignificant if an increase in debt destabilizes corporate performance.

2.6 Size

[\(Azeez, 2015\)](#) demonstrate on the size and efficiency nexus that size of firm is significantly linked to performance of firm as larger companies are better equipped to use economies of scale optimally.

Prior research shows that internal factors (like corporate size) often seem to be more effective than the company's actual performance in assessing executive compensation ([Gomez-Mejia, Tosi, & Hinkin, 1987](#)).

Several facets of group life and corporate performance impact firm size and group. As a group or enterprise gets bigger, several problems are going to appear: leaders

of bigger groups seem to become less delighted of membership, are often more absent, participate less frequently in group activities, are less willing to collaborate each other and more prone to be opportunistic behavior (Ostrom, 2000; Forsyth, 2006).

Larger companies, beyond just the crucial group size, will enjoy the competitive capacity provided by larger groups: For instance, a company may rebound from a growth problem while organizational transformation allows for the further company growth by holding its single divisions just under the crucial size (Witt, 2000, 2007). Certain driving forces behind larger firms' resulting faster growth rates include economies of scale (Jovanovic & MacDonald, 1994), achieving a vital technical minimum size (Pratten, 1971), Success creates dynamics of success (Klepper, 1996) or lack of financial constraints for larger corporations (Cabral & Mata, 2003). These larger corporations could highlight corporate cultures that rely more on formal ship leader, hierarchy structure and screening (Caliendo, Monte, & Rossi-Hansberg, 2015).

One of the measurements of the organizational resource base or slack of a company is firm size. Firm size refers to management-controlled resources, including financial as well as physical resources (Ito & Rose, 1999). It also shows the company's financial and managerial resources, and to the degree that surplus assets are accessible, a company may explore incentives and opportunities for growth, such as an overseas market (Dhanaraj & Beamish, 2003).

Larger companies can more easily achieve economies of scope and economies of scale by spreading to overseas markets that could have a positive effect on firms' performance (Gabbitas & Gretton, 2003). Higher corporate performance is anticipated from firms that are larger in size (Yeoh, 2004; Zahra, Ireland, & Hitt, 2000). The business size is an important measure of slack resource availability (Mudambi & Zahra, 2007). Larger companies have spare managerial resources and are often less affected by small-scale liabilities (Mudambi & Zahra, 2007). In SMEs, several research examining the impact of internationalization on firm performance by using firm size as a control variable. They delivered mixed results in the indication of the variable size of the company (Cantele & Campedelli, 2016).

Exporting can usually be seen as the initial step towards business internationalization. Specifically, since they first seek to expand towards foreign markets, businesses of small and medium sized with scarce resources, experience and knowledge in internationalization generally rely on exports. Businesses achieve opportunities to grow their range of activities by internationalization (Rugman, 1981), trying to take benefits of economies of scope and scale (Caves & Caves, 1996).

A review of the literature reveals that the relationship among internationalization and firm performance for SMEs is accepted by scholars. For instance, whereby the export to total sales ratio is being used as an internationalization measure, there is a positive relationship (Cantele & Campedelli, 2016). An M-shaped relationship (Almodóvar & Rugman, 2014), a U-shaped relation (Benito-Osorio, Colino, Guerras-Martín, & Zúñiga-Vicente, 2016) was found. Depending on size of the firm, the sign or shape of the impact of internationalization on company performance may also vary.

Internationalization and Performance of SMEs in Masan Free Trade Zone (Korea): The Direct and Moderating Effects of Firm Size and (Chiao, Yang, & Yu, 2006) has expressed a significant effect of firm size, Whereas the negative effect was noticed by (Lu & Beamish, 2001), and no relationship has been found by (Pangarkar, 2008). In a model that did not include variables of internationalization, (Nakatani, 2019) finds that size of firm has a positive influence on the profit margins of the New Zealand companies.

Large enterprises could be better equipped than their small counterparts to adapt to EU standards. Large firms tend to have deeper pockets of capital and more advanced resources. They enjoy the benefits of scale and have a broader portfolio of activities (Nooteboom, Vanhaverbeke, Duysters, Gilsing, & van den Oord, 2006). During 1995 and 2007, an empirical analysis using a data set of 200,000 French businesses reported that business size compliance seems to result in loss of productivity because many successful firms want to stay under the business size limit to prevent legislation. These competitive enterprises are given insufficient employment and will have to pay implied payroll tax; inducing wages for balance makes people more likely who serve as small business owners instead of going for even

more efficient firms as workforce (Garicano, Lelarge, & Van Reenen, 2016).

Earlier work on corporate finance has generally used company size as a basic and major feature of the firm in terms of the company's size. This aspect is worthwhile to consider as taxes and regulations of businesses frequently vary between small and medium sized companies that ultimately will impact the future performance of the firms (Garicano et al., 2016).

Empirically, the size of the company is observed to be strongly linked with the financial structure, so that larger companies can still have maximum flexibility in external funding (Kurshev & Strebulaev, 2015). (Wolff & Pett, 2000) noted that the larger ones reported competitive behaviours coherent with their resource base related to size compared with weaker companies when it comes to the integration of smaller American companies. In the meantime, the strong link among corporate social success and financial performance in major companies has been verified by researchers (Schreck & Raithel, 2018).

2.7 Tobin's Q

Corporate value (Tobin's Q) is very important because of the company's high value that will be followed by rise in wealth of stakeholder. The valuation of the business will be expressed in its stock price according to some theoretical concepts proposed by French and Fama (1992). Use Tobin's q (Q ratio) to evaluate the businesses value (Chung & Pruitt, 1994), measuring the value of the companies using Tobin's q is formulated as follows: $Q = \frac{EMV + D}{EBV + D}$ where EMV (Market Value of Equity) = $P \times Q_{\text{shares}}$ (Number of Outstanding Shares), D (Debt) = Total Debt Value; EBV = Total Assets Book Value. In addition, Brigham (1997) indicate that the rise in the value of the stock the greater the value of the firms. According to Ross et al (2003), Tobin's q is explained as "the market value of assets divided by replacement value of assets.

Researchers should conclude and synthesize on the basis of theoretical and empirical studies of previous studies as follows: (a) Rupiah Exchange (Kurs) have

a negative effect on stock return. In Indonesia, property and real estate companies are public. That means the higher the rupiah's value against the dollar, the lower returns on stock. (b) Rupiah Exchange (Kurs) has a negative impact on Indonesia's corporate price (Tobin's Q) property and public real estate. It means the lower the corporate value (Tobin's Q) the higher the rupiah's value against the dollar. In addition, the interrelationship between the value of the firm's stock returns (Tobin's Q) and assets in Indonesia Go Public, researchers can use the concept of (Fama & French, 1992; Brigham, 1997), to infer and synthesize the following: Return of Corporate Value (Tobin's Q) Property and Real Estate Go Public in Indonesia with a significant impact. This suggests that raise in the return of the stock, maximum the value of the firm (Tobin's Q).

In many financial interactions, tobin's q plays a vital role and also demonstrates as the ratio of companies' market value to its asset replacement costs, tobin's q has been used to describe a range of different corporate occurrences including decisions on diversification and investments in cross-sections (Jose, Nichols, & Stevens, 1986).

Although it is clearly possible for financial analysts who want q data to "build their own" q values by carrying out the required calculations for companies not included in the Manufacturing Sector Master File, the methods usually used in the estimation of q values by (Lindenberg & Ross, 1981) and (Lang, Walkling, & Stulz, 1989) are so complex and complicated that it is highly unlikely that even the most committed analysts would ever attempt to do so. This computational complexity, especially in combination with the above-mentioned ability of q to assist in the analysis of a number of important corporate financial decisions, raises an intriguing question: can an accurate approximation of q be generated using basic financial information?

Tobin (1967) developed this ratio. This measure is an important value as it indicates the current figures of the value of the potential return on investment per dollar for the financial markets. If the ratio q above one indicates that investing in resources produces revenues which provide a greater value than expenditures of investment, new investment will be stimulated. The q-ratio is therefore authentic

way of how efficient utilization of economic power management resources is. If the ratio is less than one-q, it is not appealing to invest in assets. Copeland (2002), research indicates how the q-ratio can be applied to their respective companies. The study shows that certain firms could manage more than one q ratio. Economic theory reports that the high level-q ratio higher than one attracts current resources and new competition until the nearest q-ratio. It also defines whenever an increase q ratio expresses dominance in management, the additional benefit of their patent holders sometimes becomes difficult.

In Stock Return is better than the EVA as a measure of corporate efficiency. (Uchida, 2006) shows in his study that the ROA have a positive and significant influence on tobin's q. But on other hand (Imran et al., n.d.) shows in their study that the ROA had insignificant impact on the return on stock.

2.8 Return on Asset

"Return on Assets (ROA) is the ratio of net income to total assets measuring after interest and tax returns on total assets," (Brigham & Houston, 2012). Kasmir (2012) says : "Return on Assets is a ratio that specify the results of the amount of assets that is used in the business or a measure of management activities. Return on Assets shows the ability of the firm to make profits from used assets, (Sartono, 2001). "Return on Assets (ROA) is the ability of capital invested in total assets to generate profits," (Hani, 2015). Raharjo (2010) argues, "Return on assets is used to demonstrate a firm's ability to generate profits with all the capital in it". According to Harmono and Si (2009), return on assets is a ratio of net income to total assets. Return on Asset shows the ability of the firm to generate profits from past assets and then analyzed the ability of the business to make gains in the future to project. The higher the profit the firm receives, the greater the availability of funds for the dividends allocated to the firm. This will affect the size of the DPR for the company. (Wahyuni & Hafiz, 2018) says that, return on assets indicates the ability of a firm to make profits from assets used".

Return on asset can be used as signaling data regarding future cash flows in

keeping with the principle of signaling theory. The ROA will therefore have a positive effect on stock returns or company value. According to (Uchida, 2006), the study shows that a period ahead returns significant effect of ROA on the stock. ROA is therefore one of the determinant affecting firm value. Makaryawati (2002) also shows in his study that ROA have a significant influence on business value. However, the various results obtained in his research by (Suranta & Merdistuti, 2004) shows that ROA has a negative influence on the company's value.

2.9 Market to Book Value

The use of MTB is inspired by the results of (Fama & French, 1992) showing that the MTB ratio of individual stocks is capable of explaining cross-sectional variation in stock returns. Pontiff and Schall (1998) suggest that the book-to-market ratio has certain statistical strength arising from the book-to-market relationship with potential earnings. Kothari and Shanken (1997) find solid confirmation of the time-series variability in predicted real stock returns for the stock market of U.S, Dividend yield and book-to-market.

According to Bae and Kim (1998), using such a study of Japanese companies reveals that the earnings or book value-based trading approach alone yields significantly high returns for all situations relative to the trading strategy based on a variety of earnings and book value. This means that some components of stock assets not identified by earnings (book value) are represented through book value (or earnings). The regression results further indicate that the book value outperforms the earnings predictive ability.

According to Lewellen (2004) reports, even though financial ratios can estimate cumulative stock returns and suggests that even if dividend yield is usually important in predicting stock returns, proof of book-to-market and earnings-price ratios is quite poorer and generally tends to have minimal predictive power.

According to Jiang and Lee (2007), describe potential productivity and surplus returns in contexts of a linear combined effect of log book-to market and log dividend yields and consider that in contexts of surplus return prediction performance,

this linear combined effect works well than both the log book-to-market model and the dividend yield structure.

According to [Akdeniz, Altay-Salih, and Aydogan \(2000\)](#), addressing company-specific factors explaining stock returns from 1992 to 1998 at the Istanbul Stock Exchange (ISE), specify that the book-to-market ratio and company value clarify stock market returns and there is no significant effect on the earnings-to-price ratio. In an extended analysis examining 19 emerging stock markets, ([Aydoğan & Gürsoy, 2000](#)) shows that both book-to-market ratios and price-earnings have the predictive ability of potential returns, specifically during extended period of times, which may be used as instruments in designing a timing strategy for the market and asset distribution in emerging economies.

2.10 Hypothesis of the Study

Hypothesis of the study are:

H₁= There is a relationship between oil price uncertainty and net working capital.

H₂= There is a relationship between oil price uncertainty and corporate cash holdings.

Chapter 3

Research Methodology

3.1 Population and Sample of Study

285 companies listed on the Pakistan Stock Exchange are the population of this research work. Data stream is the source of data collection in this research work. Dependent variables of this study are net working capital and corporate cash holdings. Crude oil price uncertainty is independent variable and control variables of this study are leverage, return on asset, size, market to book value, dividend payout, tobin's q.

3.2 Sample Classification

The study shows that 285 firms are used which are registered in Pakistan stock exchange. The source of data collection is data stream from the period of 2004 to 2018.

3.3 Data Description

This section highlights the research methodology finalized for the study and identified the data collection sources. The objective of this research is to determine the impact of crude oil price uncertainty on net working capital. The sample size

of study is 285 firms for the period of 2004-2018. Data were collected and gathered from the data stream firms for the period of 2004-2018. Descriptive analysis, correlation analysis with multicollinearity check and regression models are used in research work to examine empirical analysis. A descriptive research table shows a feature of the sample. The panel data regression is conducted on dependent variables net working capital and corporate cash holdings for the improvement of connection among the independent variables crude oil price uncertainty and control variables like leverage, return on asset, size, market to book value, dividend payout and tobin's q.

TABLE 3.1: Variables Descriptions

Variable Name	Abbreviations	Measurements
Net Working Capital	NWC	The ratio of net working capital without cash to the book value of assets
Corporate cash holding	CH	Cash and short term investments
Oil Price Uncertainty	OPU	Oil uncertainty measured by the standard deviation of daily returns of oil prices
Market to Book value	MBV	The market value of assets divided by the book value of assets
Leverage	LEV	The ratio of the book value of debts, which includes short-term and long-term debt, to the book value of assets
Size	SI	The natural logarithm of the book value of assets
Tobin's Q	TQ	The ratio of the market value of assets to the book value of assets
Dividend payout	DIV	Cash dividend over total assets
Return on Assets	ROA	The ratio of net income in a given period to the total value of assets

3.4 Descriptions of Variables

Dependent variables of the study are net working capital and corporate cash holding, independent variables is oil price uncertainty and control variables are market

to book value, leverage, size, tobin's q, return on asset, dividend payout. The variables are discussed below;

3.4.1 Net Working Capital

Net working capital represents the difference among a business's current assets and current liabilities. A net positive working capital implies an organization has adequate resources to meet its existing financial liabilities and expand in other operations. Working capital is also regarded as net working capital, and is also the difference among a business's current assets, including receivable accounts (consumers unpaid debts), cash, inventory levels of manufactured products, raw materials and the current obligations, including accounts payable. Net working capital is an indicator of a business cash flow and applies to the difference among existing operating resources and current operating obligations. In these cases, these estimations are the same and are obtain from corporate cash, receivable balances and as well as inventories, less accounts payable, and lesser accrued liabilities. NWC is a reflection of operating effectiveness, financial viability and cash flow of the companies in the short-run. If a company has better net working capital, it ought to be capable to invest and grow. When business current assets do not surpass its current liabilities, it could fail to expand, compensate creditors and maybe go default.

3.4.2 Corporate Cash Holding

Cash holdings play an integral role at the heart of company's strategies. In spite of alternative instruments such as credit lines, debt and derivatives, several reports have admiring significant attention to the obvious increase in cash reserves. The financial literature explores the predecessors and considerations of cash holdings as well as the various reasons for holding cash for companies. Cash holdings are vital for corporations as well as an increasing research have risen to investigate their factors that contribute and their implications for company behavior. Different facets of corporate practices linked to cash holdings have been examined,

enabling a review of literature to make clear what is comprehended, and the remaining issues and identifies potential dimensions for future studies.

Cash holding is determined as cash in hand, or is readily available to shareholders in tangible assets for financing and production. Companies retain an adequate amount of liquid assets for different purposes, including precautionary, transactional and speculative, on the basis of Keynesian postulations of cash demand (Isshaq et al., 2009). Motive for the transaction leads to cash retained to pay for services or commodities for everyday transactions; and it is, funds has been carried to end up making day-to-day transaction payments.

Precautionary motives relate to funds maintained for safety purposes; that is, cash holdings are kept in reserve for unexpected fluctuations. In view of speculation, companies retained cash balances to enjoy the benefits of every possible purchase by bargain (Besley & Brigham, 2005).

3.5 Oil Price Uncertainty

Oil price shocks are unexpected part of a major oil price change, identified as the gap among the estimated oil price and the actual price of oil (Baumeister & Kilian, 2016). A general rule seems to be that price instability induces oil producers to postpone investment and reduce capital expenditure, since upstream ventures are particularly capital-related and significant capital outlays are dedicated before uncertainty about the probability of production and price is resolved. Today's major oil companies may not invest in new investments because they anticipate the cost of investing tomorrow to be lower. However, in order to maintain and increase production, they must dig new wells or look for new opportunities, subject to the projected growth in global demand.

3.5.1 Dividend Payout

The dividend payout ratio is the component of the net income that a firm pays to its shareholders in dividends: For the investment purpose some proportion of

income is not paid to investors to ensure future growth in earnings. The dividend payout ratio also gives an indicator of how much money a business returns to investors versus how much reinvesting in production, paying off debt, or adding to cash reserves remains on hand. Some companies pay shareholders all of their earnings, while others pay only a portion of their earnings. If a business pays out some of its earnings as dividends, the business retains the remaining portion. The dividend payout ratio is important because it indicates investors how much of the firm's profits are returned to shareholders. An equitable high dividend payout ratio suggests a mature business. An equitable high dividend payout ratio tells a management interest in returning value to shareholders. A very high payout ratio of dividends can actually indicate a troubled business.

3.5.2 Leverage

Leverage is a tactic that increases gain or loss from shareholders. It is used to describe the use of borrowed money to increase the potential for profit, but it can also define the usage of fixed assets to achieve the same objective. Leverage is a business term referring to how an organization obtain new assets for start-up or increase in size. When a business is "leveraged," it shows the company has borrowed money to finance the purchase of assets. Through raising money from investors, companies can also use leverage by equity. Leverage is an investment strategy to directly use borrowed money, the use of different financial instruments or borrowed assets to maximize an investment's potential return. Leverage also means to the loan amount that a business utilizes to fund assets.

3.6 Size

Asset size is the overall stock market value of a fund. It may also be related to assets under management. Funds on a regular basis report total asset which can be influenced by demand, supply and market return. Fund size is often stated by share class for mutual funds. When it comes to the size of an investment mutual

fund, it's not necessarily better to get larger. Usually, the investment style of the fund and its ability to meet or surpass the returns of market indices through its investment allocations are key aspects of investment fund management and investment consideration. However, it may be necessary for investors to understand the asset size of a fund for a few reasons. When asset size does not greatly affect the performance of a fund, higher fund inflows are likely to be seen by top investment managers and top-performing funds. As the expense ratio is measured as a percent of total assets, investors in funds with a greater asset size can also benefit from larger economies of scale that translate into lower fund expense ratios. Larger funds also appear to be traded more frequently on the exchange, with higher average daily volume of trading providing greater liquidity on the market. Supply demand, and market return can affect the asset size. The increase in market return is a positive factor that increases portfolio value as a result of market gains. Capital appreciation for investment managers is a top priority and a measure that investors can easily follow. Nevertheless, as assets rise rapidly from so-called "asset bloat" inflows, this can raise challenges to portfolio managers. Inflows and outflows of capital can have a significant impact on operational and transaction costs. Most funds have short-term redemption fees that assist in facilitating trading practices while redeeming investors.

Significant inflows to a fund cause the bloat of funds. This is primarily an active fund issue. Active investment managers are expected to allocate funds into existing portfolios or can choose to invest in new securities. Many funds may also restrict their fund's asset size potential. Fund managers may choose to close funds to new investors, often a factor in the closing of funds for various reasons with asset capacity.

3.7 Tobin's Q

The ratio of Tobin's q means firm's market value divided by the replacement cost of its properties. Hence, equilibrium is when the market value is equal to the cost of replacement. The Tobin's q ratio is a computation made popular by James

Tobin of Yale University, Nobel laureate in economics, who proposed that the total market value of all stock market firms should be about equal to their cost of replacement. Although Tobin is often credited as its founder, in 1966, economist Nicholas Kaldor first suggested this ratio in an academic journal. A ratio of the market value of the business to its total value of assets. The rule of Tobin's q is based on James Tobin's research, who suggest that a fairly priced business should have a price equal to its total value of assets. Consequently, when the ratio of Tobin's q is lower than one, it shows the market value of the company is less than the value of total assets of the company, implying that it is undervalued. Similarly, if it is more than one, it means that the market value is greater than the total value of the asset and that the business could be overvalued. The Tobin's q ratio is also known as a Q ratio.

3.7.1 Return on Asset

Return on assets (ROA) is a measure of how profitable a firm is in relation to its total assets. Return on asset gives a suggestion to a investor, shareholder, or analyst as to how efficiently the management of a company is to use its assets to make financial gain. An asset return is shown as a percentage. It is relevant because it measures income against the assets used to generate revenue by a firm. It is a significant indicator of a company's asset intensity. Return on asset ratio is helpful for shareholders to evaluate the financial strength and asset utilization effectively of a firm. Return on Assets is an important determinant to measure banks performance. ROA also offers an indication of how effective management is to use its assets to make profit. ROA is the ratio of a business annual net income to its average total assets over a fiscal year.

3.8 Market to Book Value

The market-to-book ratio is a determine of financial valuation used to stimulate the current market value of a business differentiate to its book value. In other

terms, the ratio is used to compare the net assets available to a firm in relation to its stock's selling price. The debt-to-book ratio allows a business to determine if its asset value is equal to its stock market price or not. Comparing market to book ratios within the same industry is best. In terms of valuation, book value is considered important because it provides a fair and accurate representation of the value of a company. Using accurate company data, the number is measured and is not typically a theoretical estimate. This means investors and market analysts have a fair idea of the actual value of the business.

3.9 Estimation Method

The study uses panel regression model for exploring the influence of crude oil price uncertainty and net working capital. This study is consisted of two econometrically written equations for panel data regression models for dependent variables.

$$NWP_{it} = \alpha_{it} + \beta_1 OPU_{it} + \beta_2 MBV_{it} + \beta_3 LEV_{it} + \beta_4 SI_{it} + \beta_5 TQ_{it} + \beta_6 ROA_{it} + \beta_7 DIV_{it} + \epsilon_{it} \dots \dots \dots (3.1)$$

$$CH_{it} = \alpha_{it} + \beta_1 OPU_{it} + \beta_2 MBV_{it} + \beta_3 LEV_{it} + \beta_4 SI_{it} + \beta_5 TQ_{it} + \beta_6 ROA_{it} + \beta_7 DIV_{it} + \epsilon_{it} \dots \dots \dots (3.2)$$

Where NWC, net working capital, CH, corporate cash holdings, OPU, oil price uncertainty, MBV, market to book value, LEV, leverage, SI, size, TQ, Tobin's Q, ROA, return on asset, DIV, dividend payout and, error term.

The study also uses ordinary least square method to check the influence of crude oil price uncertainty on net working capital of firm's registered on Pakistan Stock

Exchange. In this study multiple regression approaches will be used. Multicollinearity tests is also used in this study.

3.9.1 Model Selection Test

Model selection test for equations 1 and 2 is as follow:

3.9.1.1 Hausman Test

The objective of testing the Hausman test is to clarify the possibility of a fixed effect or random effect model with the condition that if the p value was significant (<5% confidence interval) then the fixed effect model could be applied but if the p value is (>5%) then the study applied the random effect model and vice versa if the p value is insignificant. In the study Hausman test propose that study accept research alternate hypothesis in which fixed eect model is more appropriate for regression analysis.

Model 1: Net Working Capital as Dependent Variable

Here,

Null hypothesis: Random eect is more suitable

Alternate hypothesis: Fixed eect is more suitable

TABLE 3.2: Hausman Test

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	74.0776	7	0

Hausman test suggested that fixed eect model is more suitable for nal interpretations. According to Park HM (2011) and Greene (2010) 0.05 is the standard value for Hausman test.

Model 2: Corporate Cash Holding as Dependent Variable

Here,

Null hypothesis: Random eect is more suitable

Alternate hypothesis: Fixed effect is more suitable

TABLE 3.3: Hausman Test

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.851	7	0.0087

As above Hausman test shows that fixed effect model can be used in the study because the p value was significant means $< 5\%$. Here Hausman test also shows that p value is significant and $< 5\%$ so alternate hypothesis fixed effect model is suitable for analysis.

3.9.1.2 Likelihood Test

Results of the Likelihood Test for model 1 is as follows:

Here,

Null hypothesis: Common effect is more suitable

Alternate hypothesis: Fixed effect is more suitable

TABLE 3.4: Likelihood Test

Redundant Fixed Effects Tests			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.442	-2,722,294	0
Cross-section Chi-square	2332.98	272	0

The objective of the study is to conduct likelihood test that gives the clear view that either fixed effect or random effect model is applied. If the p value is significant ($< 0.05\%$ confidence level) then the study apply fixed effect model and if the p value is (> 0.05) then common effect model is apply. The above table shows that the cross-section Chi-square with p-value 0.000 shows its significance so fixed effect model is applied. The significant level of chi-squared likelihood is at 5%

(Fisher and Chi square statistics).

Likelihood Test Results of the Likelihood Test for model 2 is as follows:

Here,

Null hypothesis: Common effect is more suitable

Alternate hypothesis: Fixed effect is more suitable In above Table 3.5, shows

TABLE 3.5: Likelihood Test

Redundant Fixed Effects Tests			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.973	-2,722,294	0
Cross-section Chi-square	993.516	272	0

As above mentioned in likelihood test that cross-section Chi-square with p-value 0.000 shows its significance so fixed effect model is applied. Here the results also shows that Chi-square with p-value 0.000 is significant so alternate hypothesis fixed effect model is applied.

Chapter 4

Results

4.1 Stationarity

In research the first basic step of any analysis is the visualization of the behavior of the data. Data visualization means checking the stationarity that data must be stationary for further analysis. In short, the series mean has to be constant. All Stationarity graphs are shown below:

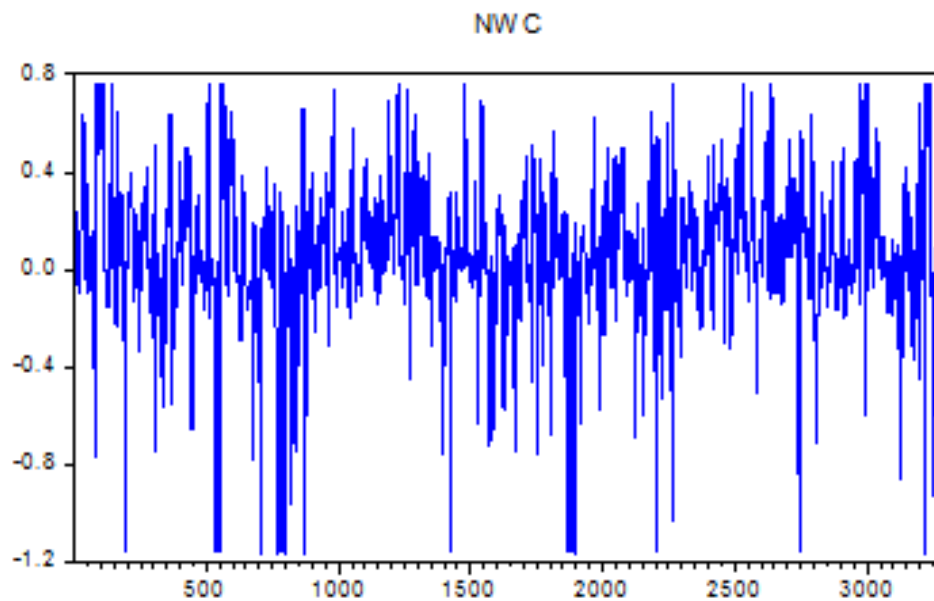


FIGURE 4.1: Figure. 1

The figure 1 shows that series is constant. It means there is no stationarity problem.

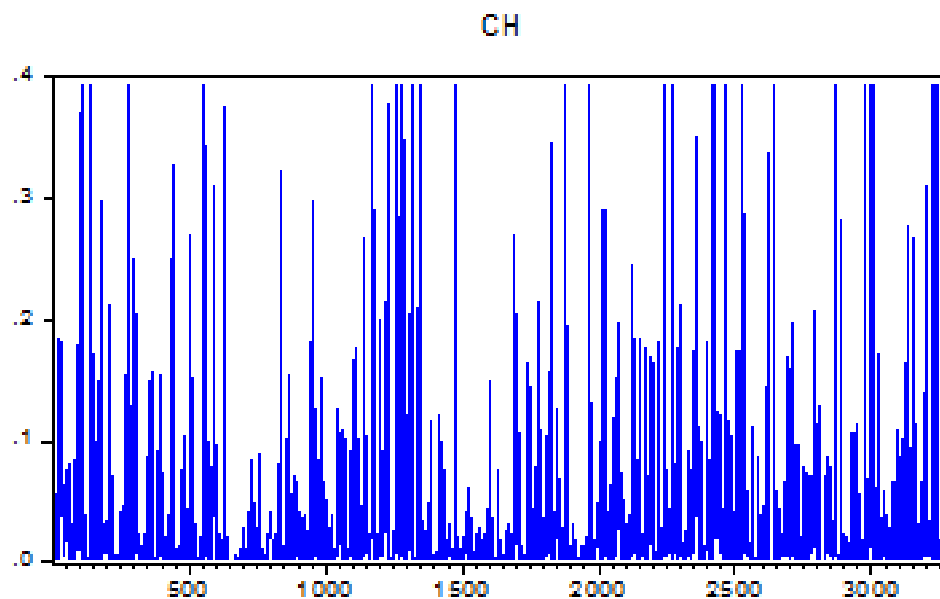


FIGURE 4.2: Figure. 2

The figure 2 shows that series is constant. It means there is no stationarity problem.

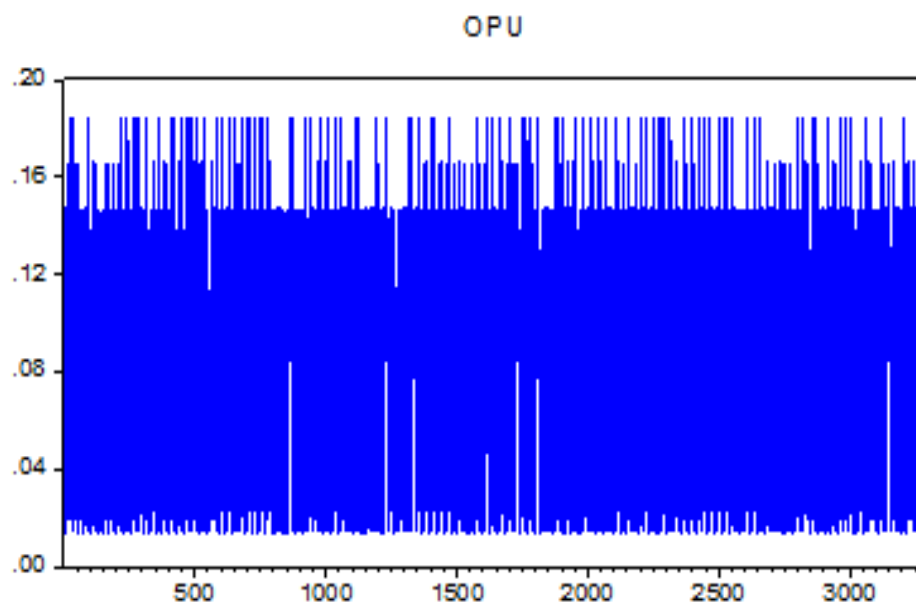


FIGURE 4.3: Figure. 3

The figure 3 shows that series is constant. It means there is no stationarity problem.

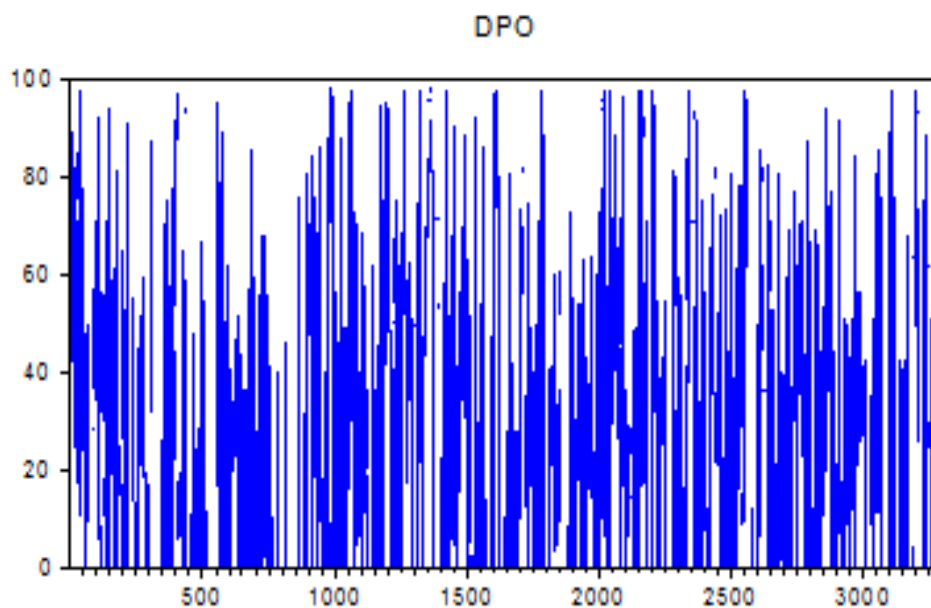


FIGURE 4.4: Figure. 4

The figure 4 shows that series is constant. It means there is no stationarity problem.

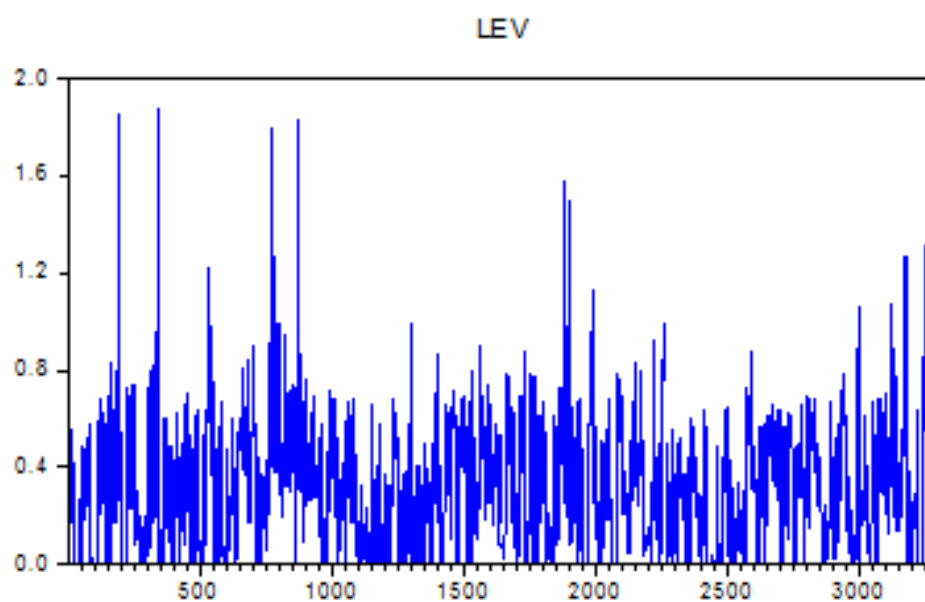


FIGURE 4.5: Figure. 5

The figure 5 shows that series is constant. It means there is no stationarity problem.

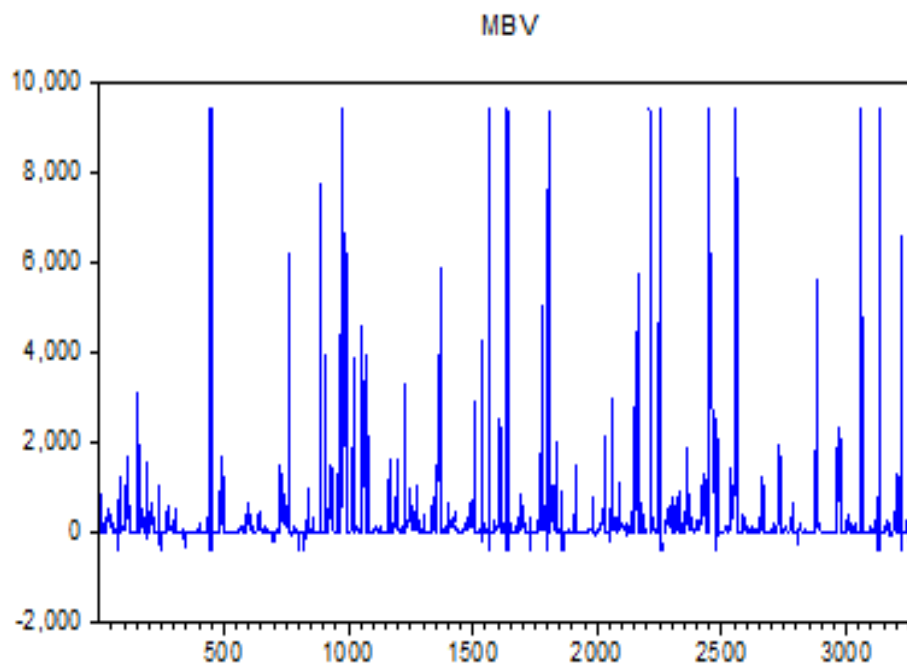


FIGURE 4.6: Figure. 6

The figure 6 shows that series is constant. It means there is no stationarity problem.

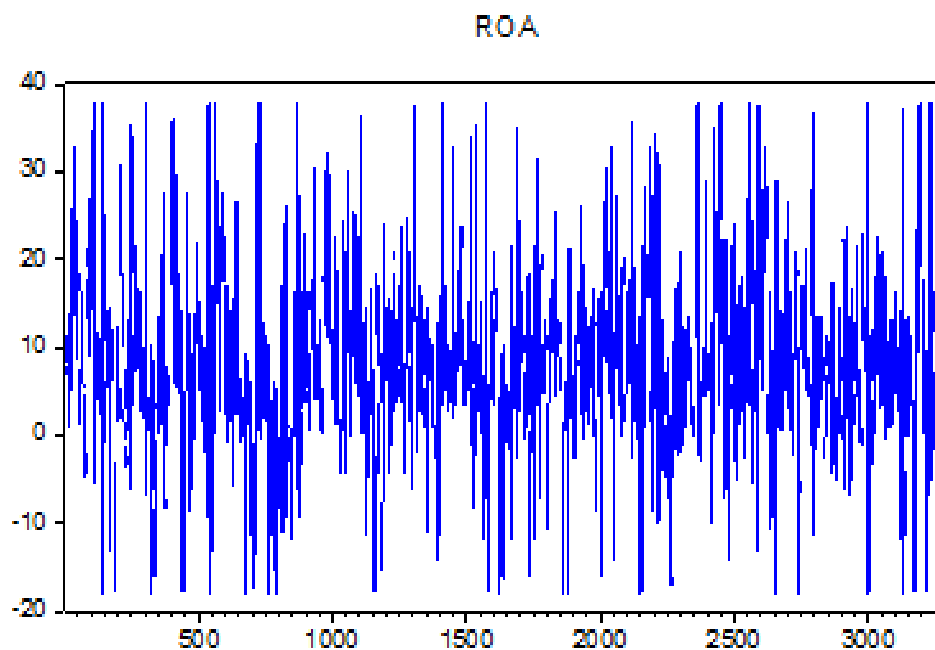


FIGURE 4.7: Figure. 7

The figure 7 shows that series is constant. It means there is no stationarity problem.

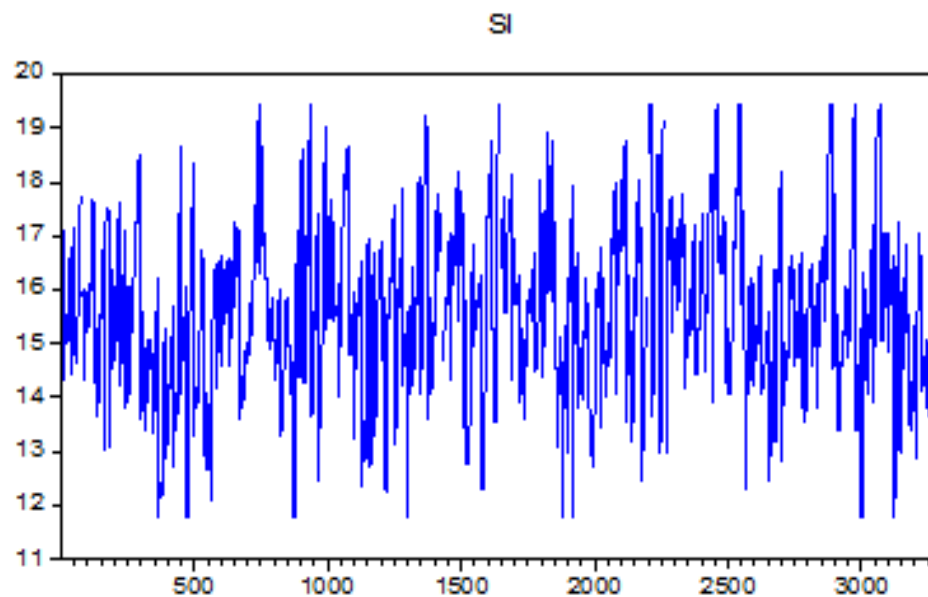


FIGURE 4.8: Figure. 8

The figure 8 shows that series is constant. It means there is no stationarity problem.

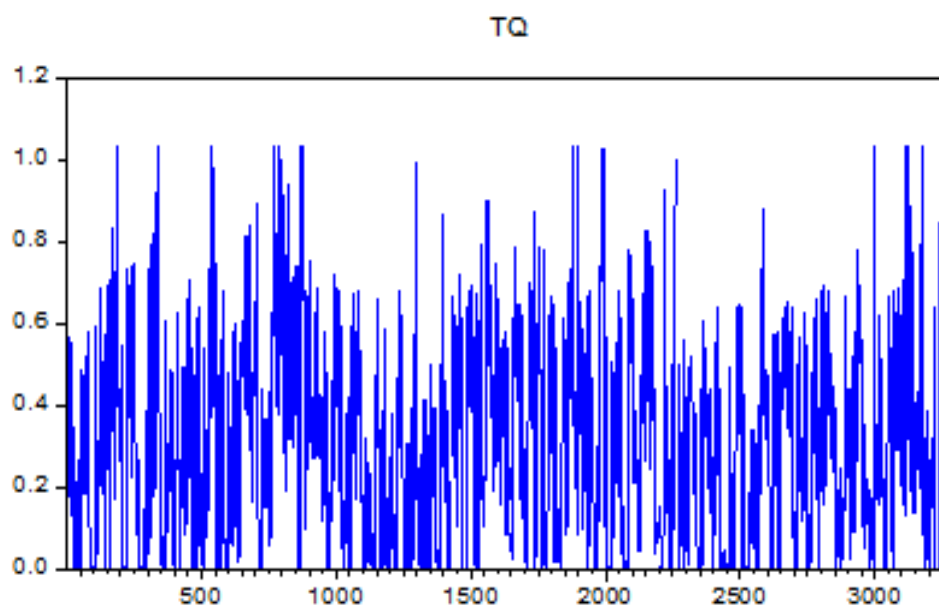


FIGURE 4.9: Figure. 9

The figure 9 shows that series is constant. It means there is no stationarity problem.

All graphs shows constant behavior it means that data is stationary so the study is conducting next step of analysis.

4.2 Descriptive Statistics

The second step is to analyze the characteristics of each series using descriptive statistics. The table 4.1 reveals the descriptive statistics of all variables i.e., net working capital, corporate cash holding, crude oil price uncertainty, return on assets, leverage, market to book value, tobin's q, dividend payout and size.

Descriptive statistics shows that general behavior of the data, including the dependent, independent and control variable. Table 4.1 includes mean (average value), minimum (lower value in the data set), maximum (higher value in data set) and standard deviation (measurement of dispersion) of the variables.

The mean value determine average of data, standard deviation determines spread and measure of dispersion in the value of the data from the mean. Minimum and maximum determines current series of data. In descriptive statistics table also show net working capital and corporate cash holdings of 285 rms during 2004 to 2018. In this table independent variable (crude oil price uncertainty) have been discussed regarding their mean, minimum and maximum strength of data and also explained that higher difference with standard deviation relying in 2004 to 2018. This table also shows control variable existence in data with mean, minimum, maximum and standard deviation.

TABLE 4.1: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
CH	0.034	0.009	0.394	0.000	0.063
DPO	26.000	18.480	97.750	0.000	28.058
LEV	0.313	0.297	1.875	0.000	0.256
MBV	489.995	52.509	9411.054	-404.249	1386.962
NWC	0.070	0.062	0.762	-1.161	0.293
OPU	0.086	0.085	0.185	0.014	0.053
ROA	8.328	7.880	37.730	-18.020	9.523
SI	15.729	15.672	19.450	11.786	1.550
TQ	0.311	0.297	1.033	0.000	0.245

In **Table: 4.1**, description about study variables has been explained. The mean value of CH (corporate cash holdings) is (0.0338) it describes the average of rms having 3.38% cash holding with 6.32% of standard deviation. The minimum value is (0.0000) and maximum value (0.3939). The mean value of DPO (dividend payout) is (26.0003) it describes the average of rms having 26% dividend payout with 28.05% of standard deviation. The minimum value is (0.0000) and maximum value (97.7500). The mean value of LEV (leverage) is (0.3131) it describes the average of rms having 31.31% leverage with 25.60% of standard deviation. The minimum value is (0.0000) and maximum value (1.8750). The mean value of MBV (market to book value) is (489.9945) it describes the average of rms having 489.99% market book value with 1386.96% of standard deviation.

The minimum value is (-404.2493) and maximum value (9411.0540). The mean value of NWC is (0.0695) it describes the average of rms having 69.5% net working capital with 29.29% of standard deviation. The minimum value is (-1.1610) and maximum value (0.7620). The mean value of OPU (oil price uncertainty) is (0.0856) it describes the average of rms having 8.56% oil price uncertainty with 5.30% of standard deviation. The minimum value is (0.0141) and maximum value (0.1845). The mean value of ROA (return on asset) is (8.3275) it describes the average of rms having 8.32% return on asset with 9.5230% of standard deviation. The minimum value is (-18.0200) and maximum value (37.7300). The mean value of Si(size) is (15.7288) it describes the average of rms having 15.72% size with 1.5496% of standard deviation. The minimum value is (11.7855) and maximum value (19.4503). The mean value of tobin's q is (0.3111) it describes the average of rms having 31.11% Tobin's q with 24.50% of standard deviation. The minimum value is (0.0000) and maximum value (1.0329).

4.3 Multicollinearity

Multicollinearity and correlation analysis for model 1 are shown below:

TABLE 4.2: Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.000109	4.659090	NA
DPO	3.80E-08	2.378193	1.279261
MBV	1.28E-11	1.183569	1.052193
OPU	0.008479	3.678759	1.019516
ROA	3.29E-07	2.251584	1.275696

Multicollinearity between two or more than two independent variables is a high amount of relationship. This problem frequently occurs when a large number of independent variables are included in a regression. It is actually an issue that may occur in panel data. Variance inflation factor is a test used to check out the multicollinearity issue in the results. When the value of Variance inflation factor is higher than 10 then it shows there is a issue of multicollinearity. The variables are good for study if the value is less than 10 (Ali et al. 2016). The table 4.2 indicates that there is no issue of multicollinearity in dividend payout, market to book value, oil price uncertainty and return on asset and remaining variables have multicollinearity problem so they are skipped.

TABLE 4.3: Correlation Matrix

	DPO	MBV	OPU	ROA
DPO	1			
MBV	0.182	1		
OPU	0.090	0.058	1	
ROA	0.444	0.185	-0.04	1

According to [Franzese and Iuliano \(2019\)](#) analysis of correlation is a statistical method used for assessing the impact of the relationship between two quantitative variables. A strong correlation means that there is a positive influence among two or more variables whereas a weak correlation indicates that the variables are hardly related.

The result of the table 4.4 shows that correlation between net working capital and dividend payout is significant. Correlation analysis indicates that dividend payout is positively linked with market to book value. The value of market to value 0.182 shows positive correlation with net working capital. The market to book value

0.182 is significantly correlated with dividend payout. The oil price uncertainty value 0.090 is positively correlation with net working capital. The value of the oil price uncertainty 0.058 is positively correlated with market to book value. The return on asset value 0.444 is positively correlated with net working capital the return on asset value 0.185 shows positive correlation with market to book value. The return on asset value -0.040 is negatively correlated with oil price uncertainty.

TABLE 4.4: Correlation Analysis

	MBV	ROA	DPO	OPU
MBV	1			
ROA	0.185	1		
DPO	0.182	0.444	1	
OPU	0.058	-0.04	0.09	1

The results of the **Table: 4.5**, shows correlation between corporate cash holdings and market to book value is positive. Correlation analysis shows market to book value is significantly correlated with return on asset. The return on asset value 0.185 shows positive correlation with market to book value. The dividend payout value 0.182 is significantly correlated with market to book value. The dividend payout value 0.444 shows significantly correlation with return on asset. The oil price uncertainty value 0.058 is positively correlated with market to book value. The oil price uncertainty value -0.040 is negatively correlated with return on asset. The oil price uncertainty value 0.090 is positively correlated with dividend payout.

4.4 Panel Regression Analysis

In Table 4.4, panel regression analysis has been described the impact of crude oil price uncertainty on net working capital and also on corporate cash holding. However, this study has that direct significant/insignificant role of crude oil price uncertainty, return on asset, dividend payout, leverage, size, tobin's q, market to book for adjusting the net working capital and corporate cash holdings. The

study also shows that significant/insignificant role of crude oil price uncertainty. This study also shows that significant/insignificant role of return on asset. The study also shows that significant /insignificant role of size. The study also shows that significant /insignificant role of dividend payout. The study also shows that significant/insignificant role of market to book value. The study also shows that significant/insignificant role of tobin'q. The study also shows that significant/in-significant role of leverage. According to Hausman test and redundant test suggested the fixed effect model for interpretation. The p values of Hausman test and redundant test are significant which shows that fixed effect model is applied.

Fixed Effect Model For Model 1 is as Follow:

TABLE 4.5: Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.096	0.090	-1.068	0.286
ROA	0.004	0.001	9.021	0.000
OPU	-0.045	0.055	-0.813	0.417
MBV	0.000	0.000	-1.674	0.094
DPO	0.001	0.000	3.208	0.001
LEV	-0.449	0.085	-5.316	0.000
SI	0.018	0.006	3.245	0.001
TQ	-0.073	0.091	-0.803	0.422
R-squared	0.802	Akaike info crite- rion		-1.018
Adjusted R-squared	0.777	Schwarz criterion		-0.381
F-statistic	33.212			
Prob(F-statistic)	0.000			

Note: The above table depicts the results for linear panel data regression model with using the 285 firms and 2004 to 2018 time period fixed effects. The dependent variable is the NWC (Net Working Capital) and the independent variables were oil price uncertainty with control effect of

market to book value, leverage, size, dividend payout, Tobin Q and return on assets. In further statistically significant level of $\text{prob}(F.\text{statistic})$ 1%, 5% and 10 percent respectively.

The **Table: 4.3**, determines the impact of net working capital on crude oil price uncertainty and other control variables. The above regression model shows that value of R^2 (0.8016) in the model.

The results show that the coefficient value of return on asset is 0.0041 significant at the level of (p which is less than 0.05). The coefficient value of oil price uncertainty is -0.0450 insignificant at the level of ($p > 0.05$). The coefficient value of market to book value is 0.000 significant at the level of ($p < 0.05$). The coefficient value of dividend payout is 0.0005 significant at the level of ($p < 0.05$). The coefficient value of leverage is -0.4490 insignificant at the level of ($p > 0.05$). The coefficient value size is 0.0183 significant at the level of ($p < 0.05$). The coefficient value tobin's q is -0.0730 insignificant at the level of ($p > 0.05$).

Fixed Effect Model For Model 2 is as Follow:

TABLE 4.6: Fixed Eect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.068	0.033	-2.028	0.043
ROA	0.001	0.000	5.763	0.000
OPU	0.125	0.021	6.087	0.000
MBV	0.000	0.000	-2.125	0.034
DPO	0.000	0.000	1.079	0.281
LEV	0.029	0.031	0.923	0.356
SI	0.006	0.002	2.935	0.003
TQ	-0.076	0.034	-2.245	0.025
R-squared	0.409	Akaike info crite- rion		-2.994
Adjusted squared	R- 0.337	Schwarz criterion		-2.358
F-statistic	5.689			
Prob(F-statistic)	0.000			

Note: The above table depicts the results for linear panel data regression model with using the 285 firms and 2004 to 2018 time period fixed effects. The dependent variable is the CH (Corporate cash holding) and the independent variables were market to book value, leverage, size, dividend payout, Tobin Q and return on assets. In further statistically significant level of $\text{prob}(F.\text{statistic})$ 1%, 5% and 10 percent respectively.

The **Table: 4.3**, determines the impact of corporate cash holding on crude oil price uncertainty and other control variables. The above regression model shows that value of R2 (0.4089) in the model.

The results show that the coefficient value of return on asset is 0.0010 significant at the level of (p which is less than 0.05). The coefficient value of oil price uncertainty is 0.1254 significant at the level of (p<0.05). The coefficient value of market to book value is 0.000 significant at the level of (p<0.05). The coefficient value of dividend payout is 0.0001 significant at the level of (p<0.05). The coefficient value of leverage is 0.0290 significant at the level of (p<0.05). The coefficient value size is 0.0062 significant at the level of (p<0.05). The coefficient value tobin's q is -0.0759 insignificant at the level of (p>0.05).

Chapter 5

Discussion and Conclusion

5.1 Conclusion

The impact of crude oil price uncertainty on corporate investment is a research area that is relatively unexplored. Crude oil price uncertainty has been a new phenomenon on financial markets globally for about few decades. Only a few studies on the crude oil price uncertainty have been published. The present study aims to address this gap in knowledge by exploring one of the important and less explored domains of crude oil price uncertainty is with the net working capital and corporate cash holdings. The dependent variable of study are net working capital and corporate cash holdings, independent variable is oil price uncertainty and the control variables are leverage, return on asset, dividend payout, size, tobin's q and market to book value. In general, the study investigate two hypothesis related to above mentioned Crude oil price uncertainty. The findings related to price uncertainty and net working capital indicates an insignificant relationship which are against our assumption made in Hypothesis. Hypothesis 2 shows that there is a significant relationship among oil price uncertainty and corporate cash holdings. First of all, stationarity of each series is tested. All the graphical representation of each variable showed non stationary behavior for model selection. The methodology of this study is divided in two parts. In first part, net working capital is the dependent variable with oil price uncertainty as independent variable and control

variables of the study are leverage, return on asset, dividend payout, size, tobin's q and market to book value. In the second part the dependent variable of study is corporate cash holding and independent variable is oil price uncertainty and control variables of the study are leverage, return on asset, dividend payout, size, tobin's q and market to book value.

In the first part, Hausman test and redundant fixed model has been applied. The Hausman test shows significant results at 0.05 significance level therefore this study implies fixed effect model. The results show that there is a positive impact of return on asset, dividend payout, leverage and size on net working capital. Whereas oil price uncertainty, market to value and tobin's q shows insignificant relationship with net working capital that shows uncertainty in the oil prices will not impact the net working capital. The study further check multicollinearity for both equations. In multicollinearity three variables were dropped due to higher VIF (higher than 10) in both equations. In the second part, Hausman test and redundant fixed model has been applied. The Hausman test shows significant results at 0.05 significance level therefore this study implies fixed effect model. The results show that return on asset, oil price uncertainty, market to book value, size and tobin's q has a positive relationship with corporate cash holdings that shows whenever uncertainty occurs in the prices of oil it will impact the corporate cash holdings. Whereas dividend payout and leverage show insignificant relationship with corporate cash holdings.

5.2 Practical Implications

As the results shows there is an impact of oil price uncertainty on corporate cash holdings. It means whenever, fluctuation arises in the prices of crude oil it will impact the cash holdings of the firms. So, companies should hold excess cash to meet the uncertainty and to have smooth business operations to face the fluctuations in crude oil prices.

5.3 Recommendation

This research will help to investigate the determinants of net working capital and corporate cash holding in other sectors. For better results, future research could be carried out by considering certain variables that could have a positive effect on the net working capital and corporate cash holdings. It will improve the experience, knowledge and understanding of decision makers about net working capital and corporate cash holdings. This research will also be useful for them in their decision making process about net working capital and corporate cash holding. In corporate cash holding prospect that if firm is large size and profitable then they have to hold high level of cash.

5.4 Limitations of the Study

This research is limited to the selected emerging economy (Pakistan). The study recommended that many other developed or emerging economies should be selected for the impact of crude oil price uncertainty on net working capital and corporate cash holdings. The study may also use quarterly, semi or annually data for financial and as well as non-financial data. This study used data of 285 non-financial firms but this can be extended to different sectors or industries with many other variables, and the time period of the data may increase. It can also be done by comparing two different sectors, industries or two or more economies in future.

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