City University Research Journal
Volume 07 Number 02 July 2017 PP 167-177

DETERMINANTS OF CASH HOLDING IN PAKISTAN: A CASE OF OIL AND GAS SECTOR OF PAKISTAN STOCK EXCHANGE

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ABSTRACT

This study investigates the identification of the determinants of Cash holding in Pakistan of the Oil and Gas sector of Karachi Stock Exchange. Initially Multi Regression Model is used to calculate determinants of Cash Holding. Afterwards Hausman test and Breusch-Pagan test were carried out for Regression analysis and pool effect model was selected for regression analysis. Regression analysis results were that variables like Cash flow, Net Working Capital were insignificant in relation to cash holding decision by firms, and other variables like Market to Book value; Leverage shows a positive result which is significant in relationship to cash holding.

Keywords: Cashholding, cashflow leverage,

INTRODUCTION

Cash and cash equivalents is considered an important component in corporate financial management. So considering the importance of companies that holds cash certain amount of their assets in liquid form for further investment in physical assets, or to pay dividends or interest and also to meet uncertain situations (Almedia, 2002).Following are the three theories which describe the structure of cash holding by firms, trade-off model, free cash flow model, and pecking order theory.

Companies usually hold cash for monetary benefits and the minimum cost for holding that cash. Firms always keep extra amount of cash, whenever there will be financial crises in the economy or when there is an opportunity for investment because it cost less for the company than to borrow from outside for investment or selling company assets or cash. Ferreira (2004) says that there is always a minimum cost for cash holding because of the lower return on liquid assets. Myers (1984) says that the first choice of the firms for the investment is retained earnings, then safe debt, riskier debt and equity at the end. Companies repay their debts and hold cash when the financial condition is optimum for them and they have enough cash for new investment.

Companies issue debts when their retained earnings is less for investment and their accumulated cash holding is not enough to finance new investment. Jensen M (1986) states that manager's uses free cash flow theory to obtain the decision power in the company, so they keep cash which helps them to maximize assets value in the coming period. So managers do not take debts from external creditors due to the above reason,

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and use their internal funds, which causes negative impact on shareholder wealth.

Opler (1999) said that it is always necessary for firms to have certain amount of liquid assets to operate smoothly and also to maintained the actual dominant form of its procedures, similar to doing the working capital investment, prerequisites, investment capital structure, controlling earnings, dividend obligations, and expense along with asset operations. Many researches has been conducted to find out the determinants of holding cash in the developed countries, but a very small area has been touch on this in developing countries.

To examine the factors that can give us a perception concerning about cash holding determinants of oil and gas industry listed in the Karachi Stock Exchange of Pakistan.

Objectives of the study

- To investigate the different factors which in turn affects the cash holdings of oil and gas sector of Pakistan?
- To investigate determinants associated with cash possessing outcomes from the corporations within Pakistan.

REVIEW OF LITERATURE

According to Opler, T Pinkowitz, Stulz & R. Williamson (1999) said that the basic factors of keeping cash are dealing expenses, irregular statements, and the agency cost for having assets and debts. Firms usually hold cash after analyzing the cost and benefit analysis. Companies hold excess amount of cash, whenever they have to pay in interest and debt. These types of strategy are used to support the theory of Keynesian. The study conducted by Harford, Mansi, & Maxwell (2012) said that the companies should set the predetermine rate of interest for further helps in decreasing the cash or the chance of reinvesting the cash.

Meckling (1976) investigated that small firms had a difficulty in generating funds in order to support their business, they cannot generate funds for cash flow in the business, and that's the reason they usually issues riskier debts. According to Harford, Mansi, & Maxwell (2012) that such firms had more importance on debt and its issuance. They also didn't have cash for further investments, and the cost of capital for their firm is usually higher than the larger firms because of higher risk. These studies are supported by Opler, T Pinkowitz, stuzl & R. Williamson (1999), but they usually do not have sufficient cash, that's why they don't have optimal capital structure.

Capital structure is considered as an important indicator for the companies having cash. The objective of this study has been showed by different theories. Following theories are discussed in detailed with the selected variables in this study.

Trade off theory said that the firms which have more debts in their capital has a maximum tax advantage, because of the interest rate on debt, when the company pay it back then they get a tax shield. Debt holding can cause the bankruptcy and financial distress of the firm. The company should have an optimal capital structure in order to have balance among Marginal taxes defend benefit and expense associated with the default of the company. Cash and loans can create benefit and cost. Trade-off theory suggested that firm can get leverage from three factors that are agency cost, bankruptcy

cost and taxes. Two of the above factors, tax base model and agency cost belong to stable framework and it is backed by many researchers like Haris (1990), Jensen M (1986), Myers & Majluf (1984) but agency problem and financial distress are the problems with this model.

According to Jensen M (1986), that problem of free cash flow is associated with agency cost, so the firm should increase the debt ratio in their capital in order to reduce this problem and it will also lead to the managing of fund efficiently by the managers because of less amount of free cash flow, and so it can be solve the problem. Myers & Majluf (1984) investigated in there research that firms increase the debt ratio, which is also optimal level, as the financial distress increases. The costs associated with financial distress are very large, which can lead to the inaccessibility of providers in such a difficulty. Opler, T Pinkowitz, Stulz & R. Williamson (1999) examined the data collected from (1971- 1994) from listed firms of USA they found out that cash holding determinants through regression analysis for independent variable, and those firms which holds more cash in order to access the capital market as suggested by trade-off theory, and pay interest and dividend on time.

The firms should not follow the trade-off theory, as it conclude that the use of more debt can put the firm into danger, and also the reason for many firms to lose its probability for the cost of capital. But using debt can hide other beneficial source of financing, and that's why holding cash is important for both small and large firms. And consequently having cash is not just taken care of through more compact businesses however it was taken care of through much larger businesses as well; size doesn't matter for bankruptcy as it may have an effect on the two small as well as big companies. Shyam-Sunder (1999) investigated and statistically shows us that the trade-off theory should not be pushed aside, but study have shown that cash holding is more prominent for large firms, and hence pecking order theory for large firms matter more than prominent theory.

(Myer & Majluf, 1984) According to these researchers they introduced the pecking order theory said that manager's first choice is to finance capital is using internal funds. This theory also said that whenever the company is short of cash, then the managers prefer to issue debt than equity, and issue equity in case if they are issuing junk bonds, which is also suggested in financial distress.

Opler, T Pinkowitz, Stulz & R.Williasome (1999) these researchers also have following findings in their studies (1) Company prefers to finance the company by the internal source of fund. (2) Dividend payout ratio has separate determinants. (3) Company prefers to issue debt rather than equity. (4) Firms can identify the need for external source of financing by the firm's debt ratio.

Past studies always supported pecking order theory as a deciding factor for cash and said that it is influential over trade-off theory. Gryglewicz (2011) investigated for the Dutch firms that the solvency and liquidity of firms and hence its final impact on financial decision. This study suggested that the default and fluidity occur through hedging, data as well as the various channels associated with leveraging at the corporate level. Firms increase its value by two variables, which are hedging and information. It also helps company in reducing volatility and Help Company in paying dividends.

According to Hofmann (2006) researcher done its research on the New Zealand firm

which are registered on stock exchange have tested multi firms, who keeps cash as a effecting factor. Additionally his conclusions ended up that will, solvency in addition to liquidity at company stage communicate together as a result of hedging, information, and finally the particular channels connected with leverage. The importance of equity in the corporations is enhanced because of the two factors that may be hedging routes in additional to information, which often can very best help out with decreasing the particular volatility and to distribute normal returns. Study of New Zealand stock exchange which was carried out by Hofmann (2006) to find different determinants of cash holding, growth holding by firm, its finding suggested that the factor which effect the cash holding, growth prospect, cash flow volatility, paying returns, leverage and alternative liquid assets. This specific outcomes signified that cash flow variability and growth prospects are generally positively relevant to keeping cash, and also other varying such as dividend repayments and alternatives involving liquid resources was generally showed less important indicators, involving cash keeping selection by means of corporation. This result showed that cash flow variability and growth opportunities are positively related to cash holding and other variables like dividend payments and substitutes of liquid assets are less important indicators of cash holding decision by firm.

Similar another author GAO (2013) has worked on the cash policies associated with both private and also open public US businesses, and its finding suggested that public businesses will often have a larger income sources as compared to individual businesses, plus it claims that individual businesses will often have far more volatility inside income compared to public businesses. Studies carried out by Frank (2003) on American companies showed that big corporations follow pecking order theory and its decisions is based on it, while smaller firms follow trade-off theory.

According to Byoun (2011) investigated on American companies for the year (1971-2006) it tested safety measures concern design and they find out that larger companies usually used company internal resources and loans, they do not go for equity option for finances. On the other financial flexibility hypothesis says that expected future cash flow is the reason for firm cash holding. They use it to invest it in future investment opportunities and to keep their self away from financial constraints. This idea is also supported by scholars like (Koshio & Cia, J. N, 2003),(Tsuji,C, 2011).

Further this study was conducted by Lee (2012) which is tested on Asian firms from (1997-1998) and it showed that company keeps the extra cash for sudden events, and it also suggested that long term macroeconomics and shock can also change firms cash holding policies. They also found a negative relationship between cash holding and investment policy. Firms usually hold cash to meet future uncertainty in crisis and after crisis time and it is a conservative approach from them.

According to Subramaniam (2011) found that organizational structure can also affect the cash holding decision of a firm. They had taken US dependent corporations in addition to identified that there is not any certain factors between that may mention the income having connected with corporations, however they identified that diversified corporations carry minimal funds as compared to fewer diversified corporations. The study of Daher, M (2010) said that the effect of keeping cash and agency problem, they took around 60,000 UK corporations, and they found out that the greater the involvement of shareholders, the lesser will be the agency conflicts in the firm, because

in this case the firm holds the lesser cash.

Investment capital in addition to trade-off theory and pecking order theory were studied in Bangladesh by Sayeed (2011) and his result showed that tax have a significant effect on capital structure, while bankruptcy and growth are irrelevant to determine profitability ratio. The research of Lima (2010) was based on chemical companies and they find the elements which have impact on investment capital structure are: agency cost, tangibility, operating leverage as well as debt potential. But in manufacturing firms it is difficult to find which variables affect cash holding decision and more research to find variables for this sector.

Further the study was conducted by Alvarez, Roberto, Sagner, Andres, & Valdivia, Carla (2010) on chili firms to search the crisis of liquidity, and its impact on cash holding firms. They found that leverage; bank debt, size and liquidity assets are the major causes of reduction of cash holding by firms. They says that as cash holding is a precautionary measure by firms also some firms have a volatility in sales due to which they keep extra cash.

Nguyen (2005) conducted further studies to find out why cash holding are used as a precautionary measure to avoid volatility of revenues. So they conduct a research on Tokyo Stock Exchange from (1992-2003) for 9168 firms. They find a positive relation between firm cash holding and risk level of a firm, and a negative relation with risk of the industry. They also found that cash holding decreases profitability, growth opportunities and dividend payouts.

Different scholars have conducted a study to find those variables that can affect cash holding decision is not the case, while in other countries the result is same. And so these types of results of diverse places had been merged because the scenarios were different in both the countries. The actual factors thought to be within books ended up being modifying routine in the occasion along with firm dimension in various places, therefore a single variable can't make use of a certain factors intended for keeping cash. This study can provide us a denture type concerning diverse determination simply by corporations within Pakistan.

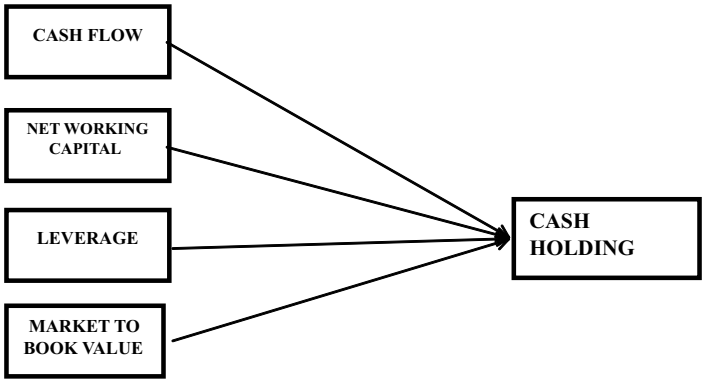

Figure 1: Hypothesized Research Model

METHODOLOGY

Variables studied

The study is based on the relationship between cash holding and Cash Flow, Net Working Capital, Leverage, Market to Book value. As the variables are quantitative in nature the effects of all other corresponding variables are ignored.

Independent Variable;

The independent variable for this study is the cash holding. CASH which corresponds cash holding can be found through cash ratio.

CASH = Cash and cash equivalent ÷ (book value of asset - cash and cash equivalent).

Dependent Variable;

There are four dependent variables for this study which are as follows

a. Market to Book Value.
b. Cash Flow.
c. Net Working capital (NWC)
d. Leverage.

a. Market to book value

Market to book value (MTB) is obtained as a proxy for company investment opportunity and is assessed by

Market To Book value = Book value of assets – (book value of equity + Market value of equity) ÷ Book value of assets.

b. Cash Flow

The cash flow is measured by cash flow to net asset ratio.

Cash Flow = Operating income ÷ (Total assets – Cash and cash equivalent).

c. Net working capital

Net working capital (NWC) is another dependent variable which is obtained as a proxy for liquid assets as it is for the replacement for cash holdings.

NWC = (Net current assets – cash and cash equivalents) ÷ (Total assets – cash and cash Equivalents)

d. Leverage

Another dependent variable the Leverage (LVRG) is determined by dividing total debts on total assets and subtracted cash and cash equivalents.

Leverage = Total debt ÷ (Total assets – Cash and cash equivalents)

Population:

There are 21 companies in the oil and gas sector of Pakistan. So the population for the study comprises of 21 companies of oil and Gas sector.

Sample:

A total of 13 companies are selected for the study on the basis of simple random sampling

Data set:

This study is investigating the different financial sectors listed in Karachi Stock Exchange to check the particular characteristics that affect the cash holdings. Data is collected from the company is offered website for this study, and from annual reports for eight years ranges from 2008-2015 were obtained from the company's site.

Proposed Hypothesis:

The following hypotheses are developed on the basis of above discussion and are tested in this study:

- ***H1:*** There is significant negative relation between cash flow and cash holding.
- ***H2:*** There is significant negative relation between net working capital (NWC) with cash holding.
- ***H3:*** There is significant positive relation between leverage and cash holding.
- ***H4:*** There is significant positive relation between market-to-book value and cash holding.

Data collection method and procedure:

Secondary data is required for the research and is taken from the official website of Pakistan stock exchange (PSX) data storage sites including opendoors.pk and business recorder.

Statistical Test

This study is using multiple regression models to investigate the determinants or the different factors which have the effect upon the cash holdings. As different variables are studied by different researchers of different countries, so to confirm those researchers that study has brought some factors such as Market to book value, Cash flow, Net working capital, and Leverage ratio to check the determinants regarding cash holdings within Pakistan. The frame work chosen for this study is as below:

$$Cash_{it} = \alpha + \beta_1 MTB_{it} + \beta_2 CF_{it} + \beta_3 NWC_{it} + \beta_4 LEV_{it} + \varepsilon_t.$$

Whereas:

$Cash_{it}$: it represents the cash holding and also a dependent variable.

$\beta_1 MTB_{it}$: is the coefficient of Market to book value.

$\beta_2 CF_{it}$: it represent the coefficient of Cash flow.

$\beta_3 NWC_{it}$: it represent the coefficient of Net working capital.

$\beta_4 LEV_{it}$: it represent the coefficient of Leverage ratio.

ε_t : it represents the Error term.

i: correspond cross sectional units.

t: correspond time frame.

Analysis and findings

The statistical summary of different variables such as: Cash, Market to book value, Cash flow, Net Working Capital, and Leverage are given in the table 4.1 after getting the result from the regression test. Each variable mean and median, standard deviation, covariance, skewness and ex kurtosis has been given in the table.

Table:1 Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum
Cash	-0.210280	0.0203109	-6.87137	3.61814
MTB	-1.18643	0.637987	-20.5319	1.44576
CF	0.111268	0.110635	-2.41129	0.470067
NWC	0.469543	0.453208	-2.01978	0.948631
LVG	0.259507	0.221662	-0.966236	1.23567
Variable	**Std.Dev.**	**C.V**	**Skewness**	**Ex. Kurtosis**
Cash	1.48495	7.06179	-1.66249	5.68663
MTB	3.81166	3.21270	-2.56442	7.43201
CF	0.301856	2.71287	-6.10024	49.0876
NWC	0.353939	0.753794	-3.46793	23.5041
LVG	0.234962	0.905415	-0.469178	8.79345

In the given table the results obtained by the researcher from Pool-effect Model using the weighted least square (WLS) regression method.

Table: 2 Results of Pool-effect Model (WLS)

	Coefficient	Std. Error	t- ratio	p-value	
Const	-0.22335	0.225435	-0.9908	0.32443	
MTB	0.172887	0.023314	7.4156	<0.00001	***
Cash Flow	0.40782	0.441836	0.9230	0.35844	
NWC	-0.426326	0.326556	-1.3055	0.19501	
Leverage	0.10169	0.33969	3.2994	0.00035	***

R-squared value	0.667128

$Cash_{it} = \alpha + 0.172887\ MTB_{it} + 0.40782 CF_{it} + (-0.426326)\ NWC_{it} + 0.10169 LEV_{it} + \varepsilon_t$

The value of cash holding will increase by 0.172887 percent points by one unit increase in MTB that represent a little impact on market to book value on cash holdings, as shown by the value of t is less than 0.05. This indicates that the result is significant. So the alternative hypothesis is accepted and the null hypothesis is rejected that states that MTB is a significant determinant of cash holding.

Another independent variable for this study is cash flow. Positive relation was found between cash holding and cash flow when applied to the model. By 1 percent increase in cash flow, the cash holding was increased by 0.40782, which is a less effect. P-value of the result shows that the relationship is not a significant, because the value is greater than 0.05, so the null hypothesis is accepted which means that it cannot effect the cash holding.

Net working capital and cash holding are negatively related according to this study. Cash holding was decreased by -0.4263226 percent by 1 percent increase in net working capital. This result is also significant as represented by the p-value, which is more than 0.05. So the null hypothesis is accepted and the alternative hypothesis is rejected.

From the given table it shows that results of another variable which the leverage which tells us that when it increases by 1 percent the leverage ratio increases the cash holding by slightly 0.10169 percent points. So the p-value 0.00035 shows that it is less than 0.05. The change in leverage ratio is linked with change in cash holding as the null hypothesis is rejected and alternative is accepted in this case.

The results give us that the R – Square value is 66 percent, and that's the reason that independent variable causes this much of variation in dependent variable. The error term of the regression model is 34 percent, which is unsolved variation.

CONCLUSIONS

Many studies have been done in the past on this topic, various determinants on cash holding decision. But very less work has been done in developing countries as compared to developed countries to find the cash holding determinants of companies. This current study also shows to find the factors of cash holding by modern era companies chosen arbitrarily from oil and gas sector of Karachi Stock Exchange for a time frame of eight years 2008-2015. Independent variable for this study are market to book value, cash flow, net working capital and leverage ratio, whereas cash holding, which is dependent variable in this study the determinants were examined in the study.

This study shows that there is positive relation between leverage ratio and cash holding decision by the firms in this specific sector. High leverage ratio creates more risk for the firm and that's the reason that this result is highly significant. So managers hold more cash to reduce the risk of repayment of debts. The risk level of the firm's increases with the increase in the level of debts by the firm, so manager holds more cash as a precautionary measure. In the past negative relation was found between these two variables, but this research shows that there is a positive relation in this specific industry.

The result also suggests significant positive relationship between market to book value and cash holdings. The reason behind this is that high market to book value show that companies market value is higher than its book value which usually occurs as a result of good company's image or high profits. If company is making high profits than

automatically need more cash to meet the increasing demands of customers?

The result of this research shows the effect of numerous factors on cash holding. Cash flow and cash holding of the firms are positively related to each other in the selected companies of this study, but it is insignificant and it doesn't mean that greater cash flow in companies supplies more cash to agents to keep it for liquid assets. Firms keep extra money for future investments and to avoid outside loans and to invest in more profitable business in future, which is also confirmed in Pecking order theory. In past previous researches shows that the relationship between cash flow and cash holding are significant but in this research the result show insignificant because the data analyzed for this research is taken from Pakistani market. It has different characteristic as compared to other market that's why relationship between them is insignificant.

Net working capital (NWC) was found insignificant in this study and shows negative relation with cash holding decision of firms. It includes receivables, liquid assets and inventory.

The overall results of this study concludes that among the different variables cash flow and net working capital, they are insignificant while the other two, market to value and leverage ratio is highly significant determinants of cash holding by firms. Positive relations were found to cash holding by cash flow, market to book value and leverage, whereas there was a negative relation to cash holding by net working capital. Cash flow and leverage ratio are positively related to cash holding. At the end scholar conclude that in the above variables market to book value and leverage have great influences on cash holding firms while the other two have no influence on cash holding decision by the firms of oil and gas sector.

FUTURE DIRECTIONS

The current study is aimed at oil and gas sector of Pakistan. Further studies can be carried out on Manufacturing Sector other industries like cement sector or textile sector where regular investments on long term assets are necessary on routine basis.

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