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Factors effecting Corporate Cash Holdings: A Case of Fuel and Power Sector in Pakistan

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ABSTRACT

Purpose: The topic on cash holding has enticed strong debate in the field of finance. A number of researchers have studied the cash holding patterns and its determinants in developed economies while a little attention is given to the corporate cash holdings (CCH) in developing economies. Pakistan is developing country so the objective of this research study is to determine the impact of micro-economic and macro-economic determinants of CCH in the Fuel and Power sector in Pakistan.

Design/Methodology: To achieve the desired objective cash and cash equivalent is taken as dependent variable, whereas micro level variables leverage (LEV), dividend payout (DIV), growth opportunity (GO), firm size (FS) and macro variables inflation (CPI), gross domestic product (GDP), short term interest rate (IR) are used as independent variables. The study used annual data for fuel and power sector and is obtained from annual reports of firms and State Bank of Pakistan (SBP) for the period 2013- 2018. Feasible Generalized Leased Square (FGLS) technique has been used to investigate the said relationship.

Findings: The study reports some significant and insignificant impacts of micro and macro-economic factors on the corporate cash holdings.

Implications: The study contributes to the literature as well as the findings of this research are beneficial for policy and decision makers to make clear understanding and knowledge on corporate cash holding pattern.

Keywords: Corporate Cash Holding, Growth Opportunity, Gross Domestic Product, Feasible Generalized Leased Square.

1. Introduction

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

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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. Usually, the firms maintain an optimal positive cash reserve in a frictionless economy, there are no negative implications of holding positive cash reserves (Thakur & Kannadhasan, 2019). Cash is considered as an indispensable factor for any firm. Cash holding is well-defined by the author as, cash in hand or in a bank that, easily acquired to meet the day to day requirements of the businesses (Ali, Ullah & Ullah, 2016). Company's survival without cash is no possible, and every business must maintain a substantial level of current assets as their monetary reserve (Shabbier et al., 2016). In normal state of affairs non-financial companies maintain the level of cash as reserve according to the economic systems and company's rate of return. Whereas on the other side it is also observed, non-financial companies are operating in such an environment in which economy is fluctuating and there is political instability. Therefore, keeping in view all these factors organizations maintain large amount of cash as reserve, then they actually require (Rukh et al., 2019).

Cash funds and liquid assets have an important role in strategic decisions making of the firms on daily basis. The monetary reserves maintained by the firms work as a bridge financing, and accounted in the balance sheet to show the financial power of the firm (Subramaniam et al., 2011). Several clarifications have been proposed to explain this apparent change in business policies. Researchers suggest the hazardousness of increase cash flows over time and suggest the nature of firm's assets has changed. The money holding behavior by the firms can be discussed in depth and detail with the support of Keynes view that he mentioned in his book written in 1936. Keynes view and previous findings help to answer the question, 'why do, multinationals hold a currency as balance. It has been investigated, extensively in the literature (Gil & Shah, 2012). Cash signify the important part in the assets of the firm. Firms that have sufficient cash reserves may actively take part in the investment opportunities and in credit markets. However to accomplish the necessity of working capital, cash is used as the liquid investing instrument, that is closely related to the sales of the firm. Prior research studies explored different factors (cash flow volatility, effective tax rate, financing deficit, dividend payment, market-to-book ratio, capital expenditures ratio, net working capital ratio) that determine the CCH for the developed economies like UK, USA, Japan and Italy (Al-Najjar & Belghitar, 2011; Harford, Mansi, & Maxwell, 2008; Bigelli & Sánchez-Vidal, 2012; Ozkan & Ozkan, 2004). Other authors conducted studies on emerging equity markets (Jordan, Kenya, turkey) (Al-Amarneh, 2015; Kariuki, Namusonge, & Orwa, 2015; Shabbir, Hashmi, & Chaudhary, 2016; Uyar & Kuzey, 2014).

Pakistan is a developing country, a few researches have been made on the determinants of corporate cash holding factors. Khalil (2017) and Ali et al. (2016) conducted research on food, textile, manufacturing, oil and gas sector while using different factors e.g. profitability, net working capital, firm size, leverage, and market to book value, dividend policy, and growth of firm as well as cash flow. Although these researchers studied cash holding in different angles but they gave a little attention to a precise sector like Fuel and Power Sector. Thus, it is a very

imperative question which needs to be response with good reason from research sight, that's the major feature of this study. To fill the gap by identifying corporate cash holdings determinants along their effect on Fuel and Power sector in Pakistan. Therefore, this research study aims to determine the impact of micro and macro determinants of the CCHs behavior among non-financial sector in Pakistan. Therefore, the objective of this research study is to investigate the factors effecting fuel and power sector in Pakistan.

2. Literature Review

Cash is considered as the most important element for the firm to fulfill the need of daily operations (Kafayat et al., 2014; Uyar and Kuzey, 2014). It facilitates the firm with liquidity and it enables the payment of numerous types of obligations. If company doesn't have enough amount of cash so it will be stated as bankruptcy, sooner or later. Gill and Shah observe it as "Cash holding is defined as cash in hand or readily available for investment in physical assets and to distribute to investors". Cash reserves are the important part of the growth of the firm and subsistence as well as capture a substantial amount of interest by investors and researchers for the financial analysis (Ferreira & Vilela, 2004).

Company must make a corrective and smart decision about holding cash and make strategy to avoid odd effects of keeping large amount of cash as reserve (Elkinawy & Stater, 2007). Increase in firm's cash holding pattern earned huge attention in recent years both in academic literature and in the articles available for general public. In the prior literature there are different determinants of the Corporate Cash Holding. Thus in line with the previous literature we discuss various micro and macro determinants of corporate cash holding.

Leverage and debt ratio indicate the percentage of the business assets which are financed through the debt. In line with the transactional cost motive, there should be negative association between debt and the CCHs. Similarly, previous findings reveal that there is negative link between Leverage and CCHs (Guizani, 2017). In addition, LEVG negatively influences the CCHs. This association supports the pecking order theory which indicates higher profitable firms with sufficient liquid resources (CCHs) finance less debt compared to the firms which are profitable with insufficient liquid resources (Sheikh et al., 2018). In addition, findings reveal that there is positive association between LEVG and CCH decisions (Guney, Ozkan, & Ozkan, 2007). High LEVG ratio indicates that managers hold high level of cash to reduce the risk of debt repayments. Higher level of holding cash leads towards the higher level of risk, so managers in the firm hold high level of cash as a precautionary measure (Khalil, 2017).

H1: Leverage is negatively associated with the level of Corporate Cash Holdings

The concept given by the trade-off theory, the findings suggest that there is positive association between dividend payouts and CCHs. This indicates that firms which pay dividends

may cut or reduce the DIV when they have not sufficient cash. So, holding the excess cash enables the firms to avoid such situations to keep the reputation of DIV (Guizani, 2017). Moreover, findings revealed that there is 27 positive association between dividend payments and corporate cash that suggest dividend payers are mostly reluctant to pay dividend that's why they hold large amount of corporate cash (Drobetz & Grüninger, 2007). Findings indicate an inverse association between dividend payments and corporate cash suggesting that distribution of dividend to shareholders leads to reduction of liquid assets of the companies so firms' distributing dividends hold less cash (Sheikh et al., 2018).

H2: Dividend Payments are positively associated with the level of holding corporate cash

In general, growth refers to the percentage change in total assets. Growth has an insignificant link with the CCH in the three sub-periods, which indicates that leverage does not play a significant role in the determination of the CCH level in Pakistan (Jebran et al., 2019). In addition there is inverse association of growth on CCHs (Sheikh et al., 2018). Similarly, insignificant association found between growth opportunities and cash reserves suggest that insignificant results are based on the different institutional settings of the SWISS financial system (Drobetz & Grüninger, 2007).

H3: Growth opportunities are positively associated with the level of holding corporate cash

Firm Size is measured through the natural logarithm of natural assets which indicates the negative association between FS and CCHs. This negative link indicates that large banks have the ability to handle risky situations, they are more diversified and have the less chances of financial distress, and therefore the large banks hold less corporate cash (Masood, Gulzar, & Quddoos, 2018). Similarly, the findings indicate negative and significant, association FS with corporate CCH, pre and crisis period, however this linkage is insignificant in the post-crisis period, which indicates that financial crisis influences the relationship of FS and CCHs. Firms which have large size have more ability to generate high level of returns, because of the economies of scale which ultimately suggests that these firms are more capable to accumulate cash which can be used to finance the large and small investment projects (Khalil, 2017).

H4: Firm Size is negatively associated with the corporate cash holdings

GDP denotes the gross domestic products and it can be measured through the percentage change in the GDP growth. However, findings indicate that GDP growth has positive association with the corporate cash liquidity which suggests that firms can hold high level of corporate cash in response to the higher economic growth, which is consistent with the income effect prediction of

the money demand theory (Chen & Mahajan, 2010). However, insignificant association found between GDP and CCH suggests that macroeconomic factors have no significant effect on the cash reserves of the mining companies of Indonesia (Yudaruddin, 2019).

H5: GDP growth has a positive and insignificant association with corporate cash holdings

Inflation is referred to as the consumer price index of that particular country which is the based on the previous year (last year=100) of the firm. However, there is negative and insignificant association between CPI (consumer price index) and CCH found in evidences. This relationship indicates that firm in the high level of CPI might affect badly and may pay more expense, and to prevent this situation managers might set appropriate policies and procedures (Omid & Jamil, 2017). Moreover, there is negative association between CPI and CCH, but this relationship is reserved when CPI reached at the certain level. Consequently, when CPI level is high, the association between operating cycle and CCH is negative at a certain point, and when CPI level is low, it shows the positive association between operating cycle and cash reserves that indicates enterprises might face relax environment and less financial hurdles in low CPI to obtain low cost external funds (Dong et al., 2013). Furthermore, insignificant association found between CPI and CCH suggest that macroeconomic factors have no significant effect on the cash reserves of the mining companies of Indonesia (Yudaruddin, 2019).

H 6: Level of CPI has a negative and insignificant association with Corporate Cash Holdings

Interest Rate refers to the short-term rate, to maturity which includes money rate, call money rate, and T-bills etc. However, literature reveals that short term IR has negative association with corporate cash liquidity, that suggests firms reduce the level of cash reserves when opportunity cost is high, which is consistent with the prediction of the money demand theory (Chen & Mahajan, 2010). Similarly, literature found the negative association between IR and cash log to total assets ratio but they were unable to verify the statistically significant association between their second measures for cash reserves, cash and marketable securities to total assets and the T-Bill rate etc (Bates, Kahle, & Stulz, 2009). However, insignificant association found between IR and CCH suggests that macroeconomic factors have no significant effect on the cash reserves of the mining companies of Indonesia (Yudaruddin, 2019).

H7: Interest Rate has a negative and insignificant association with Corporate Cash Holdings

3. Methodology

For this research data is collected from published annual reports of the companies. To estimate the effect of firm-specific and country-specific determinants of CCH the quantitative secondary data used. The sample of the study include companies which have data available for all selected variables for the selected period of time in specific sector (fuel and power).

3.1 Population of the Study

The population for this research study is Fuel and Power sector firms operating in Pakistan. There are 12 Fuel and Power firms operating in Pakistan.

3.2 Dependent Variable (CCH)

Corporate Cash Holdings is used as the dependent variable in the study which is measured as the ratio of cash and cash equivalents to the total assets of the firm. More specifically cash holding is defined as the cash in hand or in a bank that can be easily to meet the day to day requirements of the business. Daher (2010) defines the cash holding as "the amount of cash and marketable securities that can be easily converted into the cash" (Ali et al., 2016). Therefore to measure the CCH data will be obtained from the PSX and is measured as the total cash and equivalents in the firm and we can obtained this by subtracting the cash and cash equivalents from the total assets of the firm (Guizani, 2017).

$$CCH_{it} = \beta 1 + \beta 2 LEV_{it} + \beta 3 DIV_{it} + \beta 4 GO_{it} + \beta 5 FS_{it} + \beta 6 GDP_{it} + \beta 7 CP_{it} + \beta 8 IR_{it} + \mu \quad (1)$$

Where, CCH is the dependent variable, LEV, DIV, GO, FS, GDP, CP, and IR are the independent and control variables.

3.3 Independent Variables

Leverage

Leverage and debt ratio indicate the percentage of the business assets which are financed through the debt. In line with the transaction cost motive, there should be negative association between debt and the CCH. (Raheman & Rizwan, 2018, Afza & Adnan, 2007).

LEV_{it} (LEV for firm i and time t- independent variable) = Total debt / (Total assets – cash and equivalents).

Dividend Payment

A dividend payment refers to the earning per share which is earned by the shareholder monthly in the form investment returns. Based on the trade-off theory, the association between dividends payments and CCH should be negative. (Guizani, 2017, Khalil, 2017)

DIV_{it} (Dividends paid by firm i and time t-independent variable) = Earnings per share which can be obtained by dividing dividend per share into the stock price at the end of the year (Guizani, 2017).

Growth Opportunity

In general, growth refers to the percentage change in total assets (Shabbir et al., 2016). GO_{it} (Growth opportunities for firm i and time t-independent variable) = $(Sales_{it} – Sales_{it-1})/Sales_{it-1}$

Firm Size

FS is measured through the natural logarithm of natural assets which indicated the negative association between FS and CCH. (Afza & Adnan, 2007; Bates et al., 2009). FS_{it} (FS for firm i and time t – independent variable) = Natural Log of total assets

Inflation

CPI referred to as the consumer price index of that particular country which is the based on the previous year (last year=100) the firm i. (Omid & Jamil, 2017, Dehghanfard & Moslemi, 2017). $(CPI_t – CPI_{t-1})/CPI_{t-1}$

Gross Domestic Products

GDP refers to the gross domestic products and it can be measured through the percentage change in the GDP growth (Chen & Mahajan, 2010). $(GDP_t – GDP_{t-1})/ GDP_{t-1}$

Short Term Interest Rate

IR refers to the rate with the short term to maturity which includes money rate, call money rate, and T-bills etc (Chen & Mahajan, 2010).

4. Data Analysis Procedure

Statistical analysis will be carried out using panel data techniques. This study used the quantitative method of the research by using the secondary data non-financial sector of Pakistan.

Panel Data

Panel data enables us to handle the factors which can't be seen or measure like social components and the variables which change overtime. Panel data also called time-series cross sectional data or the longitudinal data which is a dataset in which the conduct of elements are seen crosswise over time.

4.1 Estimation Techniques

Unit-Root Stationary Test

Within current study check the stationary of the data in the panel data analysis current study used different stationary tests i.e. fisher type test, Levin-Lin Chu test etc. The null hypothesis of the of LM test states that all the panels are stationary and the alternative hypothesis states that unit root exists in the panels.

Modified-Wald Test

This test is used to check the heteroskedasticity issues in the data either there is heteroskedasticity or not. If the variance among error term is constant that is said to be homoscedasticity or if the variance among error terms is not constant that is said to me heteroskedasticity. Null is homoscedasticity and alternative is heteroskedasticity.

Serial Correlation

Woldridge test is used to check the presence of serial correlation. Its null hypothesis indicates that there is no first order correlation while alternative indicates that there is first order correlation.

Feasible Generalized Least Squares (FGLS)

To check the potential impact of different micro and macro determinants of CCH in the non-financial sectors of Pakistan different diagnostic test are applied. Modifies-Wald test, Woldridge test identify the occurrence of the heterokedasticity issues and the presence serial correlation. Therefore, this study employ the feasible generalized least squares (FGLS) to overcome the issues of serial correlation and heterokedasticity to estimate the model of this study.

Table: 1 Unit Root Test (Fisher, Hadri and Levin-Lin Chu Test)

Variables	Levin-Lin Chu Test	Hadri LM Test	Fisher Type Test	
	At Level	At Level	At Level	1st Difference
Corporate Cash Holdings			-6.6453*** (0.0000)	
GDP				
Inflation (CPI)	-5.1679*** (0.0000)			
Interest Rate				
Leverage			-5.0556*** (0.0000)	
Firm Size				-25.4534*** (0.0000)
Growth Opportunity				
Dividend Payments		-4.7798* (0.0588)		

Standard Errors in parenthese
*** p<0.01, ** p<0.05, * p<0.1

The output of unit root/stationary tests which includes fisher, Levin-Lin Chu and Hadri LM test. We have applied the fisher type test on that data which is not strongly balanced. Results of above stated unit root/ stationary tests indicate that GDP, IR, CCH, LEV, CPI (CPI), growth opportunities and DIV are stationary at level while FS is stationary at first difference on the basis of P-value which is significant at the 0.01% level of significance by rejecting the null hypothesis except the Hadri LM test which contains the null hypothesis of stationary so we reject alternative hypothesis of unit root. Therefore, all the data/variables are stationary at 0.01% level of significance which suggests that P-value is less than 0.01%.

Table: 2 Diagnostic Tests of Fuel and Power Sector

Diagnostic	Prob > F
Woldridge Test	11.772***
	(0.0030)
Modified Wald Test	2.0e+35***
	(0.0000)

Standard Errors in parenthese. *** p<0.01, ** p<0.05, * p<0.1

Findings of recent work reports that there is first order serial correlation among series by accepting the alternative hypothesis. On the other hand, after running the modified Wald test fir checking the heteroscedasticity problems in the panel data results of this test suggests that there is group wise heteroscedasticity in this model by accepting the alternative hypothesis.

Table: 3 Estimation Model for Fuel and Power Sector

Variables	Corprate Cash Holding
Gross Domestic Products	0.882
Inflation (CPI)	0.734
Interest Rate	0.836
	(-4989197)
Growth opportunities	0.149
	(255.907)
Firm Size	0.000***
Leverage	0.083*
	(19030.15)
Dividend Payments	0.031**
Constant	0.989
	(-1422603)
Observations	95

CCH has been taken as the outcome/ dependent variable of the study. While recent work contains some macroeconomic factor, this is GDP showing the positive and insignificant association with CCH. Other macroeconomic variable is CPI which is measured through the consumer price index showing the insignificant and positive association with CCH and last

macroeconomic indicator of recent work IR is showing the insignificant and negative association with CCH. On the other hand, this table also contains the findings of the microeconomic variables of recent work that is growth opportunities showing the insignificant and positive association with the CCH at the 5% level of significance. However, LEVG also influence on the level of holding corporate cash which shows the significant and positive association. FS has also impact on cash holding which shows the significant and negative association in recent work with consistency of previous studies. Moreover, DIV show the significant and negative association with the CCH in Fuel and Power sector of Pakistan.

5. Conclusion

The objective of recent work to examined the combined effect of micro and macro-economic factors on the CCH for non-financial firm listed on PSX for the time period of 2013-2018. The study sample consists of fuel and power sectors of Pakistan. FGLS estimation technique has been taken into account because it overcomes the serial correlation and heteroscedasticity problems and makes causative understanding. We report a number of key micro and macro determinants of the cash level. It is reported that gross domestic product and interest has a positive effect on cash and remaining all determinants negatively associated with the CCH of the non-financial firms listed on PSX. Recent work focuses on the firm's specific which are firm financial characteristics and country specific factors which are macroeconomic conditions of the particular country.

5.1 Implications and Future Direction

Practically, the findings of recent work are useful for the firms which maintain their ideal level of holding corporate cash. Managers should take measures to boost's firm's worth through external debt; encourage manager through bonus shares and incentive, so that firm's performance can be increased. However, study further contributes in the way of overcoming the conflict of interest that should be consider as an essential factor of corporate cash level. As lowering the level of cash which may affect company's performance and allow managers to invest in profitable projects that will boost performance of the firm. As we know Pakistan is developing economy and its firms heavily depend on the corporate cash to make investments and to manage precautionary needs. Government should take into account to keep the economy stable so that firms will tend to invest in more profitable projects and hold less cash reserves that might decrease IRs to increase access to finance for all other types of firms. This will lower the cash dependency of all non-financial firms listed on PSX (PSE). Furthermore for obtaining better results, future research should be undertaken by considering other macro-economic variables such as budget deficit, environmental conditions etc which might have significant influence on cash. Current research will help researchers to explore the determinants of CCH in other sectors. It will enhance the

understanding and knowledge of policy makers and decision makers on corporate cash level. It will guide decision makers to overcome the conflict of interest by holding the less corporate cash.

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