Journal of Positive School Psychology http://journalppw.com
2023, Vol. 7, No. 6, 1353-1368

Size Effect On Cash Holdings Of Non-Financial Firms Listed On Psx

[1]Dr. Lala Rukh, [2]Sangeen khan, [3] Muhammad Sohail, [4]Irfan Ud Din

[1, 3] Lecturer, Centre for management and commerce, University of swat.
[2]Assistant Treasurer, University of Swat .
[4] Elementary and Secondary Education Department KPK (Corresponding Author)

Abstract

Size of the firm plays a vital role in the management of cash and cash equivalents; it is the size of the firm that decides about the discretionary powers of the management. Firms with larger size have greater dispersion of the shareholders thus enabling the firms to have more controlling power. This paper aims to find out the size effect on the cash and cash equivalent of the firms of different sizes. In order to carry out the fixed effect regression 356 firms are selected from the non-financial sectors for the period of 2009 to 2019. The findings demonstrate that companies with larger size, low market to book ratio (MKTB), more cash flows (CF), networking capital, low dividends and minimum debt maturity structure holds more cash. Large sized firms' shows significantly positive association with cash holdings. Small sized firms has also a positive but insignificant relationship with cash holdings, as the operating procedures and requirement of firms, smaller in size, is less as compared to firms of larger size. While cash holdings significantly influence the firms' performance. Small sized companies have a negative and significant impact on the performance while larger firms in size show no significant impact. During the international financial crises the behavior of small and large firms is also studied. The results obtained shows that large sized firms show a highly significant and direct association with cash holdings while small sized companies do not have any significant impact on the cash holdings of the firm.

Keyword: small size, large size, dividends, Return on asset.

Introduction:

The magnitude of a corporation significantly influences its capacity to effectively handle cash and cash equivalents, hence exerting significant implications on the organization's financial stability and its ability to make well-informed strategic choices. Larger corporations tend to maintain higher levels of cash reserves due to their substantial resources and broader operational reach. The presence of this accessible surplus of liquidity is crucial for a multitude of reasons. Firstly, it serves as a monetary buffer to alleviate unanticipated financial disruptions or economic contractions and offers protection against liquidity emergencies. In this particular role, it serves as a means of providing financial protection or support. Furthermore, larger corporations usually engage in complex and diverse business endeavors, necessitating a significant amount of working capital to efficiently carry out their daily operations. Furthermore, it is possible that the organization possesses a considerable amount of subsidiary entities or business divisions, each of which may entail distinct financial necessities. Consequently, it is vital for them to possess substantial financial resources in order to efficiently oversee their cash flow. Moreover, larger corporations possess the autonomy to explore investment

opportunities, engage in strategic acquisitions, or allocate funds towards research and development initiatives, provided they have sufficient liquid assets. Moreover, this practice facilitates the timely settlement of debt and distribution of dividends to shareholders, all of which contribute to an enhanced credit rating and heightened shareholder satisfaction. The discretionary powers of cash management possessed by a firm are determined by its total size. This capability empowers the organization to effectively maneuver through the complex financial landscape with flexibility and assurance.

Small and large firms perform in very different environments and such differences require the firms to perform with different mechanisms. Thus, the manner in which these firms manages their assets differ **(**Raheman and Rizwan, 2018). The smaller the firms the easier is the management of the business which in turn improves the performance of the organization. Size can also be explained in the light of Financing hierarchy assumption as companies that are larger in size, hoard more cash thus preferring internal funds over external capital. Firms larger in size have more cash and they are more successful (Opler et al., 1999). For smaller firms fund raising is more expensive, so it leads the smaller firms to hold more cash as compared to larger firms. Larger firms have greater possibility to diversify because of diversification there is less chances of financial distress (See for example Rajan and Zingales, 1995). Hence large sized firms maintain less cash.

This research is carried out due to the importance of cash and other liquid assets in the financial management of firms, hence highlighting their significance. The success of liquidity management, an integral part of financial strategy, significantly impacts a company's ability to fulfill its short-term obligations, seize opportunities, and navigate the challenges posed by economic instability. Having a comprehensive comprehension of the factors that can impact available cash is of utmost importance for both corporations and investors. The recognition that the magnitude of a corporation plays a crucial role in shaping its cash management practices has prompted the initiation of this research endeavor. This particular element has garnered significant attention because to its wide-ranging implications, including its influence on the financial stability of the organization, investment strategies, and risk mitigation methods. Furthermore, anyone with a vested interest in assessing a company's financial well-being and investment viability, such as investors and financial analysts, can get valuable insights by scrutinizing the correlation between the company's scale and its available cash reserves. The objective of this study is to examine the correlation between the scale of non-financial firms listed on the Pakistan Stock Exchange (PSX) and their cash and cash equivalents management, and to analyze the consequential effect of this correlation on the companies' performance. The objective of this study is to enhance comprehension of corporate finance within the context of the PSX by examining the correlation between firm size and cash holding strategies and their impact on financial performance. This objective will be achieved by conducting an inquiry into the aforementioned correlation.

The objective of this study is to ascertain the potential impact of company size on the quantity of cash and cash equivalents kept by firms of different sizes. An empirical inquiry is undertaken to ascertain the existence of a correlation between the size of non-financial enterprises listed on the Pakistan Stock Exchange (PSX) and their approach to managing cash and cash equivalents. The objective of this study is

to examine the influence of firm size on cash management decisions by elucidating the variations in cash holding practices between larger and smaller firms. The primary aim of this study is to examine the impact of firm size-induced changes in cash holdings on the financial performance of these enterprises. Understanding the significance of this objective is crucial in attaining a thorough understanding of the ramifications of cash management on corporate success. Furthermore, the objective of this study is to examine the strategies implemented by both large and small enterprises during periods of global financial crises, with the aim of comprehending the influence of firm size on cash management practices amidst economic turbulence. The implications of this study can be interpreted from various perspectives. Firstly, it offers valuable information to non-financial companies listed on the PSX, aiding them in making informed decisions about their cash management strategies, taking into account the size of the organization. Furthermore, this aspect holds significance for investors and financial analysts since it provides a structured approach to evaluating a company's cash management practices in connection to its scale. This has significance as the magnitude of a corporation frequently serves as a pivotal factor in investment deliberations. Furthermore, this research study enhances the comprehension of corporate finance by examining the influence of cash reserves on the overall performance of firms. This comprehension empowers firms to enhance their cash management practices with the aim of enhancing their financial stability and profitability. To conclude, this research holds significant implications for policymakers and regulators due to its ability to offer valuable insights into the intricacies of cash management within non-financial firms. These observations possess the capacity to contribute to the development of regulations pertaining to liquidity and cash reserves. This study holds significance for multiple stakeholders within the business and investment domain, specifically in the context of the PSX. It encompasses practical and regulatory consequences, along with financial and financial regulatory ramifications.

Literature review

According to the findings of Song and Lee (2012) small firms are those firms which are having less than 30 percent of the total assets of the companies included at the end of year. While those having more than thirty percent of the total assets of the organizations of the sample are grouped as large organizations. Small and large companies respond differently towards holding of cash balances. There are different reasons to explain the different behavior of small and large size firms to holding cash. The very first reason is the variation in the specialization of the management function of both small and large sized firms. Firms larger in size enjoy specialized management functions as these large corporations provide different trainings to managers, for example better management of cash flows. However there are chances that the managers of small corporations may not be trained well in managing and carrying out the financial functions effectively and efficiently as are carried out by managers of larger corporations who are well trained. Moreover firms larger in size have easy access to both local as well as international markets. Firms, smaller in size face various restrictions for accessing both national and international markets. Smaller businesses also face the problem of credit rationing in case of banks restrictions on the magnitude and number of loans, while larger firms can easily seek other alternatives in case of credit rationing (Natke and Falls, 2010). According to Cavalluzzo and Cavalluzzo

(1998) and Cavalluzzo et al. (2002) there is also evidence that smaller firms confront discrimination in domestic debt markets. According to Natke and Fall (2010) firms facing greater difficulty in accessing external sources of capital retain less cash. Mulligan (1997) argues that larger industrial firms in US hoard less cash while smaller firms retain more cash balance. The same result is obtained by Opler et al. (1999), they analyzed the variables influencing cash holdings and implication of 1048 firms of United States which are publically traded for the time period of 1971 to 1994 and concluded that large sized firms easily access the capital market, therefore they hoard less cash as compared to smaller firms. Same results are suggested by Faulkender (2002) they selected US firms particularly smaller in size, Ozkan and Ozkan (2002) and Teruel and Solano (2008) for a sample UK and Spanish firms also concluded the same results.

Firms smaller in size and younger in age with risky cash flows and less or no financial flexibility hoard high cash balances than firms of larger size (Biggelli & Vidal, 2012). The findings are supporting both the pecking order model as well as the tradeoff model. Dittmar and Serveas (2003) collected data from Vantage Global Database for 1998 and selected a sample of 45 countries having about 11,591 companies and find out that if the firm size is increased from 25th percentile to 75th percentile cash holdings of the firms declines. Moreover, Anjum and Malik (2013) are also of the opinion that larger size of the firms lead to more cash holdings and vice versa.

Size can also be explained in the light of Financing hierarchy assumption as companies that are larger in size, hoard more cash thus preferring internal funds over external capital. Firms larger in size have more cash and they are more successful (Opler et al., 1999). This argument suggests a positive association of firms' size with cash holdings. However the financing hierarchy theory doesn't agree with an ideal amount of cash holdings and suggests that larger amount of cash in profitable firms lead to financial slack. (Faulkender & Wang, 2006).

When size is taken into consideration non unanimous results are obtained as Opler et al. (1999) came up with positive relationship of size with the dependent variable that is cash holdings while Al-Najjar and Belghitar (2011) suggested a negative relation between the cash holdings and firm size. Opler et al. (1999) worked on US. Public listed companies while Al Najjar and Belghitar (2011) researched on Firms of UK.

Explaining the effect of size in the light of trade-off theory, it is stated that for smaller firms fund raising is more expensive, so it leads the smaller firms to hold more cash as compared to larger firms. Larger firms have greater possibility to diversify, because of diversification there is less chances of financial distress (See for example Rajan and Zingales, 1995). Hence large sized firms maintain less cash.

Feriera and Vilela (2004) argue that firms of bigger size have larger dispersion of shareholders, this larger dispersion give the managers a superior managerial discretion. Larger companies have very low chances to be taken over by bidders as more resources are required for such takeovers. From this it is concluded that the management of large sized organizations enjoy more powers while making investment decision as well as making financial policies thus supporting the view of holding more cash. The arguments suggest a positive relation between size of the firm and the firm cash holdings.

The firm's size also plays a prominent role in financing and affecting the performance of the firm as Adjei (2013)

argue that firms having smaller size face higher cost of financing due to the financial constraints that the firms confront while accessing to capital markets and the performance of firms with low cash reserves decline significantly with the crisis. According to the findings of H-C.Yu et al. (2015) growth firms in emerging markets hold high cash amount to invest in the future growth projects. Dittmar, Smith and Serveas (2003) concluded that firms larger in size accumulate less cash while profitable firms hoard more of the cash reserves. Further they argue that firms with high MKTB and more R&D expenditure hold high cash reserves. This in turn is supporting the tradeoff theory. From the above literature inconclusive results are identified. Small and large firms show different behavior towards cash holdings. For addressing the highlighted problem, further research in the current area is needed to fill the gap.

Methodology and Sampling

A sample of 356 non-financial firms is used in this paper. The data is obtained from the website of PSX for a time period of 2009 to 2019. Later on the sample was split into small and large firms on the basis of the mean of total assets**.** The empirical analysis does not give any generally accepted definition of the small, medium and large enterprises, but quantitative definitions are found in the literature that defines firms as small and large on the basis of total asset, number of employees or annual turnover rate (Gracia-teruel & Mariten-Solano 2008; Psilaki and Daskallakis 2009; Ronday & Guel 2003; Sogorb-Miro 2oo5). In order to find out the effect of small and large sizes of firms on cash holdings, the sample is split into two sub samples on the basis of its mean of assets into small and large firms. This measure of classification is also adopted by (All Najar &Belghitar 2011; Duchin et al., 2010; Love et al., 2oo7). In order to find out the mean the summary statistics is performed.

Variables:

Cash

Cash holdings is defined as those assets that are readily available and easily convertible into cash. Such as financial securities and receivables (Gill and Shah 2012). Net asset in turn is equal to the value left after deducting cash and cash equivalents from the total assets **(**Dittmar and Servaes 2003**).** CASH is a dependent variable and is represented by the cash ratio

$$CASH = \frac{\text{Cash and Cash Equivalents}}{\text{Book value of assets - Cash and Cash Equivalents}}$$

Market to Book Ratio

MKTB serves as a substitution for the growth opportunity set of an organization

$$MKTB = \frac{\text{Book value of assets - book value of equity + market value of equity}}{\text{Book value of assets}}$$

opportunity set. (Opler *et al.*, 1999; Kim *et al.*, 1998 and Ozkan and Ozkan, 2004).

In this study MKTB is taken as a substitute for investment opportunity set. The empirical analysis suggests that most of the researchers have used it as a proxy (See for

example, Smith and Watts, 1992; Jung, K., Kim, Y., Stulz, R, 1996; Ali and Yousaf, 2013) for growth opportunities and investment opportunities.

Different authors have suggested a direct relationship among MKTB ratio and cash holdings. Ferriera and Velila (2004) studied 6387 publically traded companies from EMU member countries for the time period of 1987-2000 for their empirical investigation. The results obtained from empirical study are consistent with work done on US and UK firms indicating a positive relation of cash holding with investment

opportunity set. (Opler et al., 1999; Kim et al., 1998 and Ozkan and Ozkan, 20

The expense related with holding less cash is more for those firms which are having good investment opportunities, but due to the losses that may incur as a result of insufficient cash, will result in giving off valuable investment opportunity. From this it is concluded that a positive relationship of cash holdings and investment opportunity set exists. The same is suggested by the tradeoff theory that firms having good investment opportunities have the chances to face more costs associated financial slack costs because even the positive NPV of such projects vanishes in case of bankruptcy. In such cases firms with profitable growth investment opportunities will maintain more cash for the reason to reduce or avoid the financial distress cost.

The results obtained from regression analysis performed by Ozkan and Ozkan (2oo4) suggests a positive and statistical significant relation of cash holdings with investment opportunity set. Ali and Yousaf (2013) also argue that there is a positive relationship of holding cash and the investment opportunities with 1% of significance level. This positive relation is supporting the pecking order model which indicates that companies use internal generated funds for financing the positive NPV investments. This shows that firms with better opportunities of investments will hoard more cash to avail the opportunities for investment.

Foley, Titman, Twite and Hartzell, (2007) argued that the growth variable is having significantly positive coefficient. The same result is supported by Opler et al (1999), the authors researched on publically US traded firms for the time period from 1971-1994. They concluded that companies with good investment opportunities retain high cash reserves as compared to other firms. A positive relationship between MKTB and cash holdings is suggested.

Size

Size is calculated by taking the natural log of total resources i.e total assets. It is used as a substitute for the size (SZ) of organization (Kim et al., 2006). Dittmar and Serveas (2003) argue that agency costs associated with managerial powers shows an eminent role in examining the role of cash holdings of a firm. However, Opler et al. (1999) is of the opinion that larger firms having good credit ratings can easily raise the capital as their entry to capital markets is easier, hence such firms need not to hoard high cash reserves.

Miller and Orr (1966) taking into consideration the model of demand for money pointed out that in management of cash there is economies of scale. These economies of scale would alternatively lead the firms which are larger in size to hold less cash in comparison with smaller companies. Further it is mention that firms raising funds through borrowings are not related with the size of the company, as the amount of the fees incurred is constant (See Peterson and Rajan 2002). It clearly shows that generating funds are difficult for smaller firms which restrict them for

hoarding more cash than larger firms to avoid the cost associated with acquisition of capital from outside sources. Firms, smaller in size are vulnerable to serious problem of asymmetric information (Berger and Udell 1998). Such vulnerability of smaller firms makes the external financing costly for them and as a result borrowing for smaller firms becomes difficult. This issue is highlighted by Kim et al. (1998). In addition smaller firms are exposed to financial constrained (Titman & Wessels 1988) and retain more cash reserves to minimize distress costs. Therefore from the above literature a negative relation between cash holdings and size may be assumed. Such result is in line with tradeoff model.

The financing hierarchy assumption support a positive relationship among the size of the company and its cash reserves. Opler et al. (1999) argued that the most successful organizations are those which are larger in size and for the said mentioned reason hold more cash. From the arguments it is derived that according to the theory of hierarchy of financing (pecking 0rder theory) a positive relation is desired to be present between the size of the firm and the cash of the same organization between firms' size and cash holding is desired (Fereira and Vilela 2004).

Generally larger firms have low chances of financial distress because of diversification (See Rajan and Zingales, 1995). Therefore firms larger in size retain less cash reserves as compared to small sized companies. From the above arguments an inverse relationship of cash holdings and size is desired.

Cash flow

Cash flow (CF) is taken as a measure of cash flow to net assets (Opler et al., 1999; Ferreira and Vilela, 2oo4)

$$CF = \frac{\text{After tax profit} + \text{depreciation}}{\text{Total Assets - Cash and Cash Equivlent}}$$

Ferrira and Vilela (2004) selected non-manufacturing companies operating in EMU member countries. According to the authors if all other variables are controlled then organizations with high cash flows will have more cash holdings. cash flow is positively affecting the cash holdings with a significance level of 10 %. This argument is supportive of pecking order assumption. As the companies will follow the hierarchy of financing hence will be preferring internal resources for financing as compared to external resources.

Similarly Opler et al. (1999) figured out that those companies which are having greater volatility of cash flows might face situation in which the firms might face shortage of cash holding. Moreover if such situation leads the organizations to shun projects having a positive NPV, then it will cause substantial loss. Minton and Schrand (1999) say that in a situation of high financial restrictions the companies find it difficult, challenging and expensive to raise funds from external sources. In line with the tradeoff theory, firms having less cash flows will retain more cash for the reason to lower shortfalls costs of cash flows (Kim et al., 1998; Ozkan and Ozkan 2002 and Opler et al., 1999;). When raising external capital is costly and the cashflow shortfall is high, then firms opt to hoard more cash reserves or liquid assets for investments (Hardford, 1999. The very same results are obtained by Fulkender in 2002 from a sample based on small US firms.

Cash flow can serve as a quick substitute of liquidity (See for example Kim et al., 1998). It can be taken as a

substitute for cash. Thus a negative relation between cash flow and cash holding is expected (Ferreira &Vilela, 2004). Such relation is supporting the tradeoff theory that is in contrast with the Pecking Order model. From the above discussion it is concluded that the results regarding cash flow to the corporations are conflicting. Thus it needs further research.

Net Working Capital

Net working capital (NWC) is taken as a measure of liquidity of short-term of a business. The measurement helps the firms to gauge the ability of the firms to better utilize the assets of the company. The following formula is used by Islam (2012) and Afza and Adnan (2007) for calculation of NWC.

$$NWC = \frac{\text{Net current assets} - \text{Cash and cash equivalents}}{\text{Total assets} - \text{cash and equivalents}}$$

From the tradeoff theory we know that an inverse relationship exists between cash and NWC. From the literature review (Bates, Kahle, & Stulz, 2009; Fereira and Vilela, 2003; and Opler et al., 1999) the same result is obtained. According to the study of Bashir (2014) networking capital and cash is having an inverse and significant relationship with cash holdings. Opler et al. (1999) examined about 1048 US companies that are public listed firms, for the time period from 1971-1994. The results obtained from the study showed a positive relation between NWC and Cash. Afza and Adnan (2007) examined a sample of 205 Pakistani public listed companies on Karachi stock exchange (now known as Pakistan stock exchange) for eight years from 1998-2005.

Findings of the authors show a negative relationship between net working capital and cash reserves, which is in conformity with trade off theory. The negative relation of NWC with Cash suggests that liquid assets conversion into cash is easy, from this it can be concluded that firms which are liquid in nature need not to raise capital from outside sources (Ozkan & Ozkan, 2004).

Debt Maturity Structure

Debt maturity structure is denoted by DTMS. Debt maturity is taken as debt that is payable by a firm in time period more than one year to the sum of total debt (Ferreira and Vilela; 2004). In the same manner Opler et al. (1999) has defined the debt maturity structure as a measure of total debt(short and long term debt) minus amount repayable in less than a time period of one year divided by total debt.

$$DTMS = \frac{\text{Long term debt}}{\text{total debt}}$$

Keeping in mind the maturity matching principal, it is presumed that companies financing with short term debt will hoard high cash balances as compared to those firms which prefer to finance with long term debt. Stohs and Mauer (1996) argue that the mismatch between the asset and debt maturity may lead towards the risk of liquidation. Shah (2011) suggested a negatively significant relation between cash balance and debt maturity. Thus supporting the Stoh's view of matching maturities of debt and assets, otherwise the firm will find it difficult to meet the debt obligations with the cash flow obtained from assets. This negative relationship of

cash reserves and debt maturity structure is in line with the Financing hierarchy model, as the organizations that have greater ability to acquire funds through financing with the debt instruments will hoard less of the cash balances. Corina (2010) worked on small and medium enterprises (SME'S) of Portuguese firms and concluded that the relationship of the maturity structure and cash balance of the company is in accordance with the research of Fereira and Velila (2004) as well as with the tradeoff theory, which states that firms having debt of shorter maturities would keep high cash balances to hedge the risk of quick expiration of the debt maturities and also to avoid the cost of external financing.

According to the results obtained by Ferreira and Vilela (2004) debt maturity is of no importance to the firm in making policies concerned with cash holding. The reason for the result obtained by Ferreira and Vilela (2004) might be that the sample obtained for their study was from EMU countries.

Dividend

Dividend is taken as a dummy variable in the existing study. It is taken as one for the firms paying dividend and zero for those firms which reinvest instead of announcing dividend. From empirical studies it is proved that most of the researchers have taken dividend as a dummy variable such as (Opler et al., 1999, Fereira and Velila 2004; Harford et al., 1999; Harford et al.; 2008; L Rukh., 2019) and many more.

Firms that pay dividends have an additional source of flexibility, as such firms have the choice of cutting dividends to raise the cash level. Hence dividend paying companies hold minimum of their cash balances (Foley et al., 2007). According to the findings of Fereira and Velila (2004) the relation between cash holding of companies of EMU member countries and dividend payment is insignificant across all methodologies used by the authors.

Dittmar and Serveas (2003) worked on governance of corporations of different countries and corporate cash holdings and selected a sample from forty five different countries including Pakistan. The researchers came up with a conclusion that firms paying lower dividends, in countries having poor protection for shareholders, hold more cash.

The relationship of dividend and cash is inverse. It clearly shows that companies paying dividends hold less cash (Harford, J., S.A., Maxwell, Mansi, & W.F, 2008, Opler et al., 1999;). The results obtained by (Opler et al., 1999 and Harford et al.; 2008) are in support of the tradeoff theory. Tradeoff model states that, a company paying dividends can acquire capital at low cost as compared to those companies which are not paying dividends. The results obtained by Biggelli and Vidal (2012) suggests a significantly positive relationship of the dividend dummy variable and the cash holdings.

Leverage

Following existing literature (Opler et al., 1999; Afza and Adnan, 2007; Ozkan and Ozkan, 2004; Bigelli and Vidal, 2012; Mello et al., 2008) leverage is measured by the following formula.

$$LVRG = \frac{\text{Total Debt}}{\text{Total Assets - Cash and Cash Equivalent}}$$

Fereira and Vilela (2oo4) has explained the relationship of cash holdings and leverage in the light of pecking order assumption by arguing that whenever the investments are more than internal resources, that is retained earnings, then the debt rises and it

falls when the retained earnings are more than the investments. It shows that cash holdings show a negative relation with investments. From this relation it is concluded that debt and cash holdings show an inverse relation with one another. Similarly the authors in context of Free cashflow hypothesis explains the relation of debt and cash, by arguing that low level of debt allows the managers to be less monitored to motivate them for the accumulation of more cash . From this it is clear that according to financing hierarchy model and free cash hypothesis the relation of Debt and cash holding is negative. Similarly Kim et al. (1998) concluded that leverage and cash holdings are inversely related with one another.

However, Ozkan and Ozkan (2004) are of different opinion as the researchers argue that those firms which are highly levered are vulnerable to financial crises, in such circumstances firms would prefer to hold more cash to escape such costs. Thus, suggesting a direct association of leverage and cash reserves. Positive relation is also reported by Bashir (2014) .The author has selected a sample of 50 non-financial firms of Pakistan for ten years from 2003 to 2013.

From the empirical evidence a number of researchers obtained an inverse relationship of leverage(LVRG) and cash holdings(CH) (Al Najar & BIlghitar 2011; Opler et al., 1999 and Kim et al.,1998 ;) signifying that for cash holdings debt is serving as a replacement. After this consideration a negative relation among cash and debt is expected. This negative relation between the variables supports both the Pecking Order Theory as well as tradeoff hypothesis. According to pecking order assumption, firms having enough cash holdings would not opt for external debt. While the tradeoff theory states that firms with enough cash holdings will not go for external sourcing that are expensive, as the cost of holding liquidity is less as compared to acquiring external resources for financing. When firm's investments are in excess, high level of debt and little of cash holdings occur simultaneously.

Model:

The research conducted is to inspect the variables affecting cash holdings, therefore, the study modeled cash holding (Ch) as a function of size (SZ), growth opportunity set (MKTB), cash flow (CF), leverage (LVRG), debt maturity structure (DMSSEC) dividend (DIV), net working capital (NWC) and global financial crisis (GFC).

$$cash_{i,t} = \alpha + \beta 1 dtmssec_{i,t} + \beta 2\ mktb_{i,t} + \beta 3 sz_{i,t} + \beta 4 cf_{i,t} + \beta 5 nwc_{i,t} + \beta 6 lvrg_{i,t} + \beta 7 div_{i,t} + \epsilon \ldots\ldots (A)$$

$$cash_{i,t} = \alpha + \beta 1 dtmssec_{i,t} + \beta 2\ mktb_{i,t} + \beta 3 sz_{i,t} + \beta 4 cf_{i,t} + \beta 5 nwc_{i,t} + \beta 6 lvrg_{i,t} + \beta 7 div_{i,t} + \epsilon \ldots\ldots$$

Results and Conclusion

In order to find out the mean the summary statistics is performed. From the results obtained from the summary statistics, firms having a size greater than its mean (6.081288) are placed in the sample of large firms and those having a size less than the mean are the firms with small size.

Table 1 Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Sz	3161	6.081288	1.213876	0	8.31903

Number of obs = 1888
F (7, 1880) = 136.40
Prob > F = 0.0000

R-squared = 0.3368
Adj R-squared = 0.3344
Root MSE = .15766

Table 2 Effect of large sized firms on cash holdings of the listed firms

Cash	Coef	Std.Err	t	p>|t|	[95% Conf.	Interval]
dtmssec	-.1504387	.0293477	-5.13	0.000	-.2079961	-.0928812
Mktb	-.0173295	.0047007	-3.69	0.000	-.0265487	-.0081104
Sz	.0783269	.0092021	8.51	0.000	.0602794	.0963743
CF	.9710502	.0419132	23.17	0.000	.8888489	1.053252
Nwc	.1217001	.021724	5.60	0.000	.0790945	.1643057
Lvrg	.1738034	.0171398	10.14	0.000	.1401884	.2074184
Dividend	-.0305177	.0091928	-3.32	0.001	-.0485469	-.0124885
Cons	-.6300264	.0626674	-10.05	0.000	-.7529314	-.5071214

Number of Observation: 1273

$R^2 = 0.1409$

Adj. $R^2 = 0.1361$

F (7, 1265) = 29.63

Prob: 0.0000

From the regression results it is concluded that all the determinants of cash holdings under study are highly significant. The results obtained states that firms with larger size, low MKTB, more cash flows, networking capital and low dividends and minimum debt maturity structure holds more cash. The outcome of the results show that firms having larger size and more cash holdings pay less dividends, the reason might be the low shareholders protection in the developing countries like Pakistan. Another reason is that controlling families use their companies to hoard more cash rather than paying dividends, as dividends are more costly in terms of tax payments Shah (2011).

Table 2 Sub sample small sized firms

Cash	Coefficient	Std.Error	T	p> |t|	[95% Conff. Interval]	
dtmssec	-.035058	.0213064	-1.65	0.100	-.0768578	.0067418
Mktb	.0124489	.0042676	2.92	0.004	.0040767	.0208212
Sz	.0007762	.0026607	0.29	0.771	-.0044436	.005996
Cf	.2129194	.0294296	7.23	0.000	.1551832	.2706555
Nwc	.0836148	.0156696	5.34	0.000	.0528736	.114356
Lvrg	-.0125956	.0073312	-1.72	0.086	-.0269782	.0017871
Dividend	.0228196	.009506	2.40	0.017	.0041703	.0414689
Cons	-.0019679	.0126299	-1.65	0.876	-.0267456	.0228099

Number of Observation: 1272

$R^2 = 0.1410$

Adj. $R^2 = 0.1355$

F (7, 1265) = 25.91

Prob: 0.0000

From the table 4.2.3, it is clear that the small size of the firm does not significantly affect the cash reserves of the companies. From the sub sample of small sized firms it is evident that the operating procedures and requirement of smaller firms are less as compared to firms of larger size. Another reason is that companies' smaller in size hoard more cash as compared to larger sized companies, as firms smaller in size face various restrictions in accessing the capital market (Opler et al., 1999). From the above findings presented in the table it is concluded that firms having smaller size, more leverage, high dividend payout and low debt maturity structure has not significantly affected the cash holdings of the firms.

Large firms hoard more cash, therefore by paying dividend they make use of the cash holdings. While small firms do not hoard more cash so in order to make dividend payments they also increase cash holdings. As large firms retain more cash so they resort to debts when they have the capacity of generating even more cash hence showing a positive relation between cash and leverage. Small firms on the other hand do not hoard more cash and in need they go for debt financing thus establishing a negative relation between the two variables. Smaller firms have more growth opportunities therefore such firms need more cash while large firms have low growth opportunities, hence when growth opportunities appear it reduces their cash holdings. Large sized firms avoid external financing and opt for internal financing first.

Impact of global financial crises on firms of different sizes.

In order to observe the gfc effect on the firms of different sizes the following analysis is performed by introducing gfc as dummy variable in year 2007 2008 and 2009 by assigning a value of 0 and I in the rest of the years of analysis. First the impact of gfc on cash holdings of small firms is tested as under

Table 4. Effect of GFC on cash holdings of small sized firms

Cash	Coef	Std. Err.	T	P>|t|	[95% Conf.Interval]
Dtmssec	-.0353426	.0214781	-1.65	-.0774792	-.0353426 .006794
Mktb	.0124437	.004271	2.91	. 0.004	.0040647 .0208227
Sz	.0008163	.0026901	0.30	0.762	-.0044613 .0060938
Cf	.2126158	.0294629	7.22	0.000	.1548142 .2704174
Nwc	.0836004	.0156957	5.33	0.000	.052808 .114392
Lvrg	-.0125733	.0073456	-1.71	0.087	-.0269842 .0018376
Dividend	.0229685	.0095576	2.40	0.016	.0042179 .041719
Gfc	-.0006025	.0077458	-0.08	0.93	-.0157986 .0145935
Cons	-.0019715	.0126389	-0.16	0.876	-.0267672 .0228241

Number of Observation: 1887

$R^2 = 0.3393$

Adj. $R^2 = 0.3365$

F (7, 1265) = 120.57

Prob: 0.0000

By introducing the dummy variable GFC it is clearly seen that the GFC does not show any statistically significant impact on firms having smaller sizes. The dummy variable is assigned 1 in the year of financial crisis of 2007 to 2009 and 0 in the rest of the years. The gfc is having an inverse and insignificant relationship with the cash holdings of the firms of smaller size the reason for this result might be that small firms hoard more cash as fund raising is difficult for smaller firms thus in time of the crisis the firms were not affected, as such firms had enough cash reserves for their operating activities and hence avoided fund raising.

Table 5. Effect of GFC on cash holdings of large sized firms

Cash	Coef	Std. Err.	T	P>|t|	[95% Conf.Interval]
Dtmssec	-.1318208	.0300968	-4.38	0.000	-.1908475 -.0727942
Mktb	-.0175218	.004695	-3.73	0.000	-.0267297 -.008314
Sz	.0787471	.0091945	8.56	0.000	0607146 .0967795
Cf	.972788	.0418604	23.24	0.000	.8906901 1.054886
Nwc	.1203414	.0217053	5.5.4	0.000	.0777723 .1629105
Lvrg	.1724702	.0171348	10.07	0.000	.138865 .2060755
Dividend	-.0277687	.0092399	-3.01	0.003	-.045890 -.0096472
Gfc	0231455	.0085299	2.71	0.007	.0064163 .0398746
Cons	-.6400521	.0627341	10.20	0.000	-.763088 -.5170162

From the regression analysis it is quite obvious that firms having larger size shows a highly significant relationship with cash holdings of the firm during gfc. The gfc shows a significant impact on the cash holdings of firms of larger size. The reason for this significance might be that large firms are involved in more operating activities and thus need more cash from external market as such firms prefer not to maintain cash on hand. During the financial crisis overall financial markets were affected in the international community, so fund raising was a difficult task at that time even for firms of larger size.

Conclusion

After the analysis it is concluded that those firms which are larger in size has a highly significant impact on the cash holdings of the non-financial firms listed on Pakistan Stock exchange (PSX) , in both the cases that is before as well as during the crisis period. While firms having smaller size, have no significant impact on the cash holdings of the selected firms before and during the crisis time period. This study will not only benefit the audience in the academic sector but will also be beneficial for the corporate sector, and will find it more useful and applicable to address some of the problems faced by the non-financial sector of the PSX, which in turn will not only benefit the non-financial sector but the economy as a whole.

This research paper has given a very clear guideline to researchers, practitioners and corporate managers to better understand the behavior of the small and large sized firms in the light of the cash holdings, this in turn will help to better frame the policies regarding corporate cash holdings in normal time period as well as during the crisis period.

References

Adjei, F. (2013). The effects of cash holdings on corporate performance during a credit crunch: evidence from the sub-prime mortgage crisis. Journal of Economics and Finance, 37(2), 188-199.

Afza, T., & Adnan, S.M (2009). Determinants of corporate cash holdings: A case study of Pakistan, Proceedings of Singapore Economic Review Conference (SERC) Organized by Singapore Economics Review and the University of Manchester (Brooks World Poverty Institute), 164-165.

Al-Najjar, B., & Belghitar, Y. (2011). Corporate cash holdings and dividend payments: Evidence from simultaneous analysis. Managerial and decision Economics, 32(4), 231-241.

Anjum,S, & Malik, Q.A., (.2013).Determinants of Corporate Liquidity - An Analysis of Cash Holdings. IOSR-JBM.7 (2) 94-100.

Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why do US firms hold so much more cash than they used to?. The journal of finance, 64(5), 1985-2021.

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. Journal of banking & finance, 22(6-8), 613-673.

Bigelli, M., & Sánchez-Vidal, J. (2012). Cash holdings in private firms. Journal of Banking & Al-Najjar, B., & Belghitar, Y. (2011). Corporate cash holdings and dividend payments: Evidence from simultaneous analysis. Managerial and decision Economics, 32(4), 231-241.

Cavalluzzo, K. S., & Cavalluzzo, L. C. (1998). Market structure and discrimination: The case of small businesses. Journal of Money, Credit and Banking, 771-792.

Cavalluzzo, K. S., Cavalluzzo, L. C., & Wolken, J. D. (2002). Competition, small business

financing, and discrimination: Evidence from a new survey. The Journal of Business, 75(4), 641-679.

Corina Camelia Pastor (2010) Dissertation to be presented at Faculdade de Economia da Universidade de Coimbra, Portugal Available at university website.

Dittmar, A., Mahrt-Smith, J. & Servaes, H. (2003).International Corporate Governance and Corporate Cash Holdings. Journal of Finance and Quantitative Analysis, 28 (1), 111–133.

Duchin, F., & Steenge, A. E. (2007). Mathematical models in input-output economics. Rensselaer Polytechnic Institute, Troy, NY.

Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. The Journal of Finance, 61(4), 1957-1990.

Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. European Financial Management, 10(2), 295-319.

Finance, 36(1), 26-35

Foley, C. F., Hartzell, J. C., Titman, S., & Twite, G. (2007). Why do firms hold so much cash? A tax-based explanation. Journal of Financial Economics, 86(3), 579-607.

Foley, C. F., Hartzell, J. C., Titman, S., & Twite, G. (2007). Why do firms hold so much cash? A tax-based explanation. Journal of Financial Economics, 86(3), 579-607.

García-Teruel, P. J., & Martínez-Solano, P. (2008). On the determinants of SME cash holdings: Evidence from Spain. Journal of Business Finance & Accounting, 35(1-2), 127-149.

Gill, A., & Shah, C. (2012). Determinants of corporate cash holdings: Evidence from Canada. International Journal of Economics and Finance, 4(1), 70.

Harford, J. (1999). Corporate Cash Reserves and Acquisitions. Journal of Finance, 54(4), 1969-1997

Kim, C. S., Mauer, D. C., & Sherman, A. E. (1998). The determinants of corporate liquidity: Theory and evidence. Journal of financial and quantitative analysis, 33(3), 335-359

Miller, M. H., & Orr, D. (1966). A Model of the Demand for Money by Firms. The Quarterly Journal of Economics, 80, 413—435

Minton, B. A., & Schrand, C. (1999). The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing. Journal of Financial Economics, 54(3), 423-460.

Mirza Muhammad Sohaib Bashir (2014).Determinants of corporate cash holdings: Panel data analysis: Pakistan**.** International Journal of Current Research. 6, (02), 5316-5318. Available online at: http://www.journalcra.com

Natke, P. A., & Falls, G. A. (2010). Economies of scale and the demand for money. Small Business Economics, 35(3), 283-298.

Natke, P. A., & Falls, G. A. (2010). Economies of scale and the demand for money. Small Business Economics, 35(3), 283-298.

Opler, T., Pinkowitz, L., Stulz, R. and Williamson, R. (1999) .The Determinants and Implications of Corporate Cash Holdings. Journal of finance and economics, 52(1), 3–46.

Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: An empirical investigation of

UK companies. Journal of Banking & Finance, 28(9), 2103-2134.

Petersen, M. A., (2009). Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. The Review of Financial Studies, 22(1), 435-480

Psillaki, M., & Daskalakis, N. (2009). Are the determinants of capital structure country or firm specific?. Small Business Economics, 33(3), 319-333.

Raheman, A., & Rizwan, F. (2018). Working Capital Management and Corporate Cash Holdings: A Comparative Analysis of Large and Small Scale Non-Financial Pakistani Firms. Abasyn University Journal of Social Sciences.

Rajan, R . G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. Journal of Finance, 50, 421--1460.

Randøy, T., & Goel, S. (2003). Ownership structure, founder leadership, and performance in Norwegian SMEs: implications for financing entrepreneurial opportunities. Journal of business venturing, 18(5), 619-637.

Rukh, L., ur Rehman, S., & Khan, (2017). Empirical Analysis of Factors Affecting Cash Holdings in Non-Financial Firms: Evidence from Public Listed Firms of Pakistan.

Shah, A., Hijazi, T., & Javed, A. Y. (2004). The Determinants of Capital Structure of Stock Exchange-listed Non-financial Firms in Pakistan [with Comments]. The Pakistan Development Review, 605-618

Sogorb-Mira, F. (2005). How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel. Small business economics, 25(5), 447-457.

Song, K. R., & Lee, Y. (2012). Long-term effects of a financial crisis: Evidence from cash holdings of East Asian firms. Journal of Financial and Quantitative Analysis, 47(3), 617-641.

Stohs, M. H., & Mauer, D. C. (1996). The determinants of corporate debt maturity structure. Journal of Business, 279-312.

Yu, H. C., Sopranzetti, B. J., & Lee, C. F. (2015). The impact of banking relationships, managerial incentives, and board monitoring on corporate cash holdings: an emerging market perspective. Review of Quantitative Finance and Accounting, 44(2), 353-378.