DETERMINANTS OF CORPORATE LIQUIDITY: A LITERATURE REVIEW

*Nguyen Thi Thu Huyen**

Abstract

The 2008-9 financial crisis has renewed interest in the way in which firms manage liquidity, because firms' access to external financing was a major determinant of firms' survival during this period. Yet, research on determinants of corporate liquidity is an old topic and has been discussed at least since Keynes' (1936) General Theory. This paper aims to provide the critical point of existing literature related to the determinants of cash holding in order to find directions for further research in this topic.

Key words: *Corporate liquidity, Cash holding, Corporate governance.*

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1. Introduction

The recent financial crisis is known as liquidity crisis which influence widely the financial market as well as each company. This crisis led to the world stock markets fallen, large financial institutions collapsed, the international financial markets became dysfunctional and credit conditions tightened significantly. This situation has renewed interest in corporate liquidity management, since firms' access to external financing was a major factor of firms' survival during this period.

Under the light of trade off theory, agency theory and pecking order theory, a wide range of firm-level determinants of corporate liquidity have been investigated both theoretically and empirically. This paper provides a review of existing literature related to the determinants of cash holding so as to find directions for further research in this topic in context of the global financial crisis. Literature summary will firstly cover the corporate liquidity original theory and then dig deeper into its determinants which influence corporate liquidity and finally shed light on the corporate liquidity behaviour.

2. Theory of corporate liquidity

In the world of perfect capital markets, the level of cash holdings is irrelevant. That means the level of cash held by a firm has no impact on the value of that firm. If cash flow is unexpectedly low, such that a firm has

* MSc., Foreign Trade University; Email: ngocdungftu@yahoo.com

to raise fund to maintain operating activities and to invest with zero cost. Since there is no liquidity premium in perfect capital markets, cash holdings have no opportunity cost. Therefore, shareholders wealth is unchanged if a firm borrows money and invests it in liquid assets. When we relax imperfections, there are three theories which can best explain corporate liquidity: the trade off theory, the agency theory and the perking order theory.

Trade off theory of corporate liquidity

The trade off theory focuses on the costs and benefits of holding cash. As for the costs of holding cash and cash equivalent, if we assume that maximising shareholders wealth is manager's target, then the cost of holding cash is the lower return earned on it, relative to other investment of the same risk. This cost is known as the cost of carry that reduces firm value. The cost of carry is determined by the difference between the return on cash and the interest that the firms would have to pay to raise an additional amount of cash. If we relax the assumption of shareholders wealth maximisation, the costs of holding cash increase because managers have opportunity to engage in wasteful capital spending (Keynes, 1936).

The benefits of holding cash balances derive from two motives: the transaction costs motive and the precautionary motive. According to the transaction costs motive, Keynes (1936) highlights that transaction motive for cash holding arises from the cost of converting cash substitutes into cash. Under imperfection capital markets, there are costs to buying or and selling financial and real assets. It is a fact that a firm short of liquid assets has to raise funds in capital market, liquidate existing assets, decrease dividends and investment or some combination of these actions. Unless the firm has assets that can be liquidated at low cost, it prefers to use the capital markets. However, it is costly to raise funds whether the firm does so by selling assets or using the capital markets. The fixed costs of accessing the external financing induce the firm to raise funds infrequently, and to use cash and liquid asset holdings as a buffer. As a result, for a given amount of debt financing, there is an optimal amount of cash, and cash is not simply negative debt.

Recently, a number of papers have studied the transactions motive for corporate liquidity. These include Kim et al. (1998), Opler et al. (1999), Almeida et al. (2004) and Boyle and Guthrie (2003). These papers show that financially constrained firms tend to hold liquidity determined by the relative values of current and prospective future investment opportunities. Firms with better investment opportunities are expected to hold more cash because the opportunity cost of lost investment is larger for these companies; similarly, we expect firms with more volatile cash flows to hold more cash to protect against the higher likelihood of cash shortfalls. The level of capital spending should also be positively related with levels of liquidity if it captures investment needs. When cash flows are higher, on the other hand, firms need to hold less cash to meet future investment needs. Finally, firms that pay dividends can always cut them to raise more funds, and they are therefore expected to hold fewer liquid assets. They also argue that optimal liquidity is decreasing in the rate of return on current investment opportunities.

The precautionary motive for holding cash is based on the impact of asymmetric information on the ability to raise funds and agency cost of debt. First, the existence of asymmetric information between firms and investors make external financing costly. In order to raise necessary funds, firms may

have access to the capital markets; however, at a particular point in time they might not choose this way because the securities they are planning to issue are undervalue whereas investors want to make sure that the securities they purchase are not overpriced and discount them. Myers and Majluf (1984) argue that firms can overcome this problem by building up financial slack, which they define as cash, cash equivalents, and unused risk-free borrowing capacity. Antunovich (1996) further argues that "firms with higher information asymmetries will have a greater dispersion of slack", because it is difficult for these firm to access capital markets. When information asymmetries are important, a cash flow shortfall forces firms to reduce investment, and hence involves greater costs. According to Opler and Titman (1994), the cost of financial distress is lager for firms with high research and development (R&D) expenses. Since firms with high R&D expenses are more unclear, the level of R&D to sales is a good proxy for asymmetric information. Consequently, firms with higher R&D expenses are expected to hold more liquid asset.

Myers and Majluf (1984) also argue that in the presence of asymmetric information firms tend to follow a pecking order in their financing policies in the sense that they prefer internal over sensitive external finance. The asymmetric information problem is more important for firms whose values are determined by growth options. If a firm has investment opportunities that would increase its value, however it finds itself being short of cash, it may have to give up some of these investments. Hence, it is less likely that firms will have to pass up valuable investment opportunities if firms hold greater amount of cash. Moreover, Williamson (1988) and Harris and Raviv (1990) notice that firms with greater growth opportunities are expected to incur higher bankruptcy costs since growth opportunities is intangible and their value falls rapidly in financial distress and bankruptcy. Therefore, firms with greater growth opportunities have more incentives to avoid financial distress and bankruptcy, in turn hold more cash and marketable securities.

To sum up, according to trade off theory firms set their optimal level of cash holding by weighting the marginal costs and marginal benefits of holding cash. The main benefits of holding cash are minimising the cost of raising external funds, pursuing the optimal investment policy even in the financial constraints situation. While marginal cost of holding cash is associated with the opportunity cost of the capital owing to the low return on liquid assets.

Agency theory of corporate liquidity

When it comes to agency costs of debt, these costs increase when there are conflicts of interest between shareholders and debtholders; and possibly between various classes of debtholders themselves. Because of these costs, highly leveraged firms find it difficult and expensive to raise additional funds in capital markets. Sometimes it is impossible for these firms to renegociate existing debt agreement to prevent default and bankruptcy. Jensen and Meckling (1976) highlight that high leverage companies have high incentives to engage in asset substitution, so that debt will be expensive both in term of the required promise yield and in term of the covenants attached to the debt. Such companies also possibly face the underinvestment problem. In particular, raising funds to invest may benefit debtholders but not shareholders, so that shareholders do not prefer to invest even though the firm has valuable projects.

As a result, when the agency costs of

debt are so high, firms cannot raise funds to finance their activities and invest in valuable projects. Obviously, firms want to avoid these situations and choosing a low level of leverage is considered as one option. However, firms have investment opportunities which the cost of raising funds is high should hold more liquid assets, because the cost of being short of funds is higher. In addition, Smith and Watts (1992) and Jung et al. (1996) argue that the market-to-book ratio is used as a proxy for investment opportunities. Given the constant degree of information asymmetry between managers and investors, firms with high market-to-book ratio are expected to hold more cash, since when the financial condition worsens the costs they incur are higher. Furthermore, if firms invest a lot and investment expenditures occur discretely, one would expect such firms to hold more cash so as to pay for investment expenditures. Therefore, liquid assets are expected to increase with the market-to-book ratio and control investment expenditures.

Pecking order theory of corporate liquidity

The pecking order theory developed by Myers (1984) is an alternative capital structure theory. According to the pecking order theory, a firm's capital structure is driven by the firm's preference to finance. Internal financing is preferred over external financing to fund new investments. Thus, firms finance investment firstly with retained earnings, then with safe debt and risky debt, and finally with equity.

According to the pecking order theory of corporate liquidity, Opler et al. (1999) suggest that there is no optimal level of corporate liquidity, since companies do not make liquidity decision. The level of cash is the outcome of investment and financing decision made by firm corresponding to pecking order theory of financing. Under this view, firms decide to build up or draw down cash balances depending on its level of profitability, its dividend policy and investment needs. Therefore, cash balances are a result of other decisions, not an independent decision and financing choices are a response to all of these factors.

If firms have high cash flow, one expects firms to pay dividends, repay debt and accumulate liquid assets. Otherwise, firms with low cash flow would issue debt to finance investment, they limit using equity financing under normal circumstance because equity is too costly. Therefore, raising and falling of liquid assets depend on the fortunes of the firms. Thus, if holding cash has no costs for the shareholders, there is clearly no reason for them to reject if the firm has the high level of cash holding at times.

The distinction between trade off theory and pecking order theory of corporate liquidity is not clear. In the financing perking order view, firms with high cash flow will have more cash. As argued by Shyam-Sunder and Myers (1999), it is often the case that firms with high cash flow also have a high market-to-book ratio because these firms can be expected to be profitable in the future. Hence, firms with a high market-to-book ratio have more cash; that is not inconsistent with the trade off theory.

The major difference between two theories is that the trade-off theory claims a positive relationship between investment (in capital expenditure and R&D) and level of cash holding, while the pecking order theory claims a negative sign. With the pecking order theory, a firm that invest more should have fewer internal resources, thus accumulate less cash. In contrast, with the trade off theory, firm with more capital expenditures and R&D investments have more liquid assets. Moreover, the pecking order view considers

debt and cash simply as opposite sides of the same coin.

3. Empirical studies of corporate liquidity

Contemporary corporate liquidity literature has long been interested in testing the accuracy of classic theory in the modern business, evaluating how much the determined factors influence corporate cash holding, and developing the corporate liquidity theory deeply in the specific financial situation. A partial list of papers includes Kim et al. (1998), Fazzari, Hubbard and Petersen (1996), Opler et al. (1999), Pinkowitz and Williamson (2001), Dittmar et al. (2003), Ozkan and Ozkan (2004), Almeida et al. (2004), Ferreira and Vilela (2004), Guney et al. (2006), Baum et al. (2008), Fresard (2010) provide an useful review of this branch of literature.

When it comes to the *determinants of corporate liquidity*, Kim et al. (1998) shed the light on determining the optimal amount of liquidity. They test on US industrial firms with a large panel. Their findings support trade off theory that the optimal cash holding is determined by a trade off between the low return earned on liquid assets and the benefit of reducing the external financing needs. The model shows that the optimal cash holding is increasing in the cost of external financing, the variance of future cash flows and the profit of future investment opportunities; while it is decreasing in the return differential between the firm's physical assets and liquid assets.

Opler et al. (1999) examine the determinants and implications of holding cash and cash equivalents by US firms in the 1971-1994 period. In time series and cross section models, the evidence provides support for a static trade off model of cash holding. Their results show that cash holding are negatively related to size, net working capital, leverage, dividend payment and government regulation while they are positively related to the cash flow-to-assets ratio, the capital expenditures-to-assets ratio, industry volatility and the R&D-to-sales ratio. They conclude that firms with better growth opportunities, firms with riskier activities, and small firms hold more cash than other firms whereas larger firms that have better access to capital market hold less cash.

For the sample of UK firms, Ozkan and Ozkan (2004) conduct the research related to the empirical determinants of corporate cash holding in the period from 1984 to 1999. They determine that firms' growth opportunities, cash flows, liquid assets, leverage and bank debt are important factors for determining cash holdings. Their result suggests that firms' ownership structure plays a vital role in determining cash holding of UK companies. Thus, their findings reveal the relationship between managerial ownership and cash holding. Moreover, by using dynamic panel data estimations, theyprovide evidence that cash flow and firm's growth opportunities have positive impacts on cash holding, while leverage and bank debt have negative impacts.

Ferreira and Vilela (2004) investigate the determinants of corporate cash holdings using a sample of 400 firms in 12 Economic and Money Union of the European Union (EMU) countries including Germany, Austria, France, Greece, Italy, Netherlands, Portugal, Spain, Belgium, Ireland, Finland and Luxemburg for the period 1987-2000. They find that cash holdings are positively influenced by investment opportunities and firm cash flows. Whereas, assets liquidity, leverage, firm size and bank debt negatively affect the cash holdings. In addition, firms in countries with higher investor protection and concentrated ownership hold the lower level of cash holdings.

Dittmar et al. (2003) examine the role of corporate governance in determining the corporate cash holdings. The data of more than 11,000 firms collected from 45 countries for the year 1998 are used to run the regression model. The evidence indicates that agency problems are the primary factor in determining cash holdings. This research supports agency cost hypothesis. Thus, in the countries where shareholders are well protected, firms tend to pay attention to the transaction cost motive whereas in the countries where they are not protected, firms tend to hold more cash reserve. In the case of low shareholder protection, the factors determining corporate cash holding, such as investment opportunities and asymmetric information, become less important.

In 2010, Fresard contributes to the contemporary empirical studies by the research related to the effects of cash holding on the product market outcomes. Based on firm-level data from a panel of 105 well-defined product markets, variables estimates provide strong evidence that a firms' cash reserve is associated with future market share expansion at the expense of industry rivals. The findings firstly show that a company with higher growth opportunities might hold much larger cash balances than competitors. Secondly, the current cash reserve appears to significantly limit the entry of potential competitors, and distort rivals' investment and acquisition decisions. The higher level of cash holding before the 2008 crisis might well benefit from the financial distress by gaining a leading position in their product market. Thirdly, the financial strength contributes positively to firm value and operating performance. Hence, the result supports the idea that the market prices and the expected market share gains associated with cash holding.

In terms of *firms' cash holding behaviour*, as initially proposed by Keynes (1936), the main advantage of a liquid assets is that it allows firms to undertake valuable investment opportunities. Keynes also argues that the importance of balance sheet liquidity is affected by the availability to access external capital markets. When firms have unrestricted or unconstraint access to capital markets, corporate liquidity become irrelevant since there is no need to protect against future investment needs. In contrast, when firms face financial constraints, liquidity management become a key issue for corporate liquidity. The study of Fazzari, Hubbard and Petersen (1996) shows that when firms have financially constraints in accessing to external capital markets, investment expenditure will vary with the availability of internal funds, rather than with the availability of positive net present value projects. That leads to easily ignore valuable investment opportunities.

In 2001, Pinkowitz and Williamson investigate the effect of bank power on cash holding. The test is set for the sample of different industrial firms from three countries: Japan for the period 1974-1995, Germany for 1984-1994 and the United States for 1971-1994. The cross-country analysis indicates that Japanese firms tend to hold more cash than their American or German counterparts do. While cash holding level was similar across German and US firms, the ordinary least square estimators analysis reveal that Japanese cash balances are significantly influenced by the monopoly power of the banks. This is not inconsistent with the fact that high cash holdings mean higher rents withdrawn by the banks during the periods when they have certain power in the corporate lending system.

Recently, Almeida et al. (2002) investigate the link between financial constraints and a

firm's demand for liquidity. They use cash-cash flow sensitivities test by using the sample of non-financial publicly listed firms in the period 1971-2000. Their findings indicate that "financially constraints firms should increase their propensity to retain cash following negative macroeconomic shocks, while unconstraint firms should not". They also highlight that the cash flow sensitivity of cash is a useful variable; it is correlated to the availability of external funds.

Guney et al. (2006) carry out an investigation into firms' cash holding behaviour of different countries. The data is collected for 4069 companies of five countries, namely, France, Germany, Japan, the United Kingdom and the United States during the period 1996-2006. They find out that the link between gearing and cash holdings is negative to the extent that firms' leverage acts as a proxy for their ability to issue debt. However, if firms increase their leverage, firms may accumulate larger cash reserves in order to minimise the risk of financial distress and bankruptcy cost. As a result, a positive relation between cash holding and leverage exists at high level of gearing. Their result shows a significant non-linear relationship between cash holding and level of gearing. Moreover, they suggest that the strength of the impact of leverage on cash holdings depends on some specific factors such as creditor protection, shareholder protection and ownership concentration.

Baum et al. (2008) investigate the relationship between the optimal level of non-financial firms' liquid assets and uncertainty determinant of corporate liquidity. They use a panel of non-financial US firms covering the period 1993 – 2002 to test their hypothesis. Their result provides evidence supporting for the precautionary motive of holding liquid assets. They find that there are positive effects of both macroeconomic and special uncertainty determinant on firms' cash holding behaviour. Thus, firms increase their liquidity ratio in more uncertain times. When the macroeconomic environment is less predictable, companies become more cautious and increase their liquidity ratio. They conclude that "during recessionary periods firms generally are more sensitive to asymmetric information problems; cash hoarding will exacerbate these problems and delay an economic recovery."

4. Conclusion

The literature reviews provide theoretical and empirical backgrounds of corporate liquidity. According to trade off theory firms set their optimal level of cash holding by weighting the marginal costs and marginal benefits of holding cash. The main benefits of holding cash are minimising the cost of raising external funds, pursuing the optimal investment policy even in the financial constraints situation. While marginal cost of holding cash is associated with the opportunity cost of the capital owing to the low return on liquid assets. While the agency theory shows that given the constant degree of information asymmetry between managers and investors, firms with high investment opportunities are expected to hold more cash, since when the financial condition worsens the costs they incur are higher. Whereas the pecking order theory of corporate liquidity indicates that there is no optimal level of corporate liquidity, since companies do not make liquidity decision. The level of cash is the outcome of investment and financing decision made by firm corresponding to pecking order theory of financing. Firms decide to build up or draw down cash balances depending on its level of profitability, its dividend policy and investment needs. Therefore, cash balances are a result of

other decisions, not an independent decision and financing choices are a response to all of these factors.

Developing from these three theories, such empirical studies focus on the determinant of corporate cash holding and the cash holding behaviour. As for the determinant of corporate liquidity, Kim et al. (1998), Opler et al. (1999), Ozkan and Ozkan (2004) and Ferreira and Vilela (2004) conclude that cash holding are negatively related to size, net working capital, leverage, dividend payment and government regulation while they are positively related to the cash flow and firm's growth opportunities. Dittmar et al. (2003) also shed the light on the role the role of corporate governance in determining the corporate cash holdings. The evidence indicates that agency problems are the primary factor in determining cash holdings. In addition, Fresard (2010) contributes to the contemporary empirical studies by the research related to the effects of cash holding on the product market outcomes. The results show that the market prices and the expected market share gains associated with cash holding.

With regard to corporate liquidity behaviour, such studies of Fazzari, Hubbard and Petersen (1996), Pinkowitz and Williamson (2001), Almeida et al. (2004), Guney et al. (2006), and Baum et al. (2008) investigate the Keynes theory. They conclude that financially constraints firms should increase their propensity to retain cash following negative macroeconomic shocks, while unconstraint firms should not. In addition, they suggest that the strength of the impact of leverage on cash holdings depends on some specific factors such as creditor protection, shareholder protection and ownership concentration (Guney et al, 2006).

Such financial economists have devoted considerable attention to the factors which influence corporate liquidity, to the relation between the financial choice and subsequent returns, and to determining the level of cash holding of each firm, not much is known about evaluating the effect of corporate liquidity on share performance. Hence, further research can be pursued in examining how corporate liquidity affects firm performance and the extent to which the change in liquidity policy influences stock return during the recent financial crisis.❑

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