

**LIQUIDITY EFFECTS ON REIT MARKET VALUE: EVIDENCE FROM 2007-
2015 U.S. REIT MARKET**

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Abstract

This study examines the effects of liquidity factors of equity Real Estate Investment Trusts (REITs) on their market values over 2007-2015 period. Theoretically, liquidity factors, such as cash holdings, operating cash flows, cash dividends, and interest payments should not affect firm's market value. However, many former studies find that liquidity is actually influential to firm's value. In our research, the results suggest that cash holdings, cash dividends, and funds from operations (FFO) are positively related to REIT market value, which is consistent with previous empirical studies. Although some studies argue that interest expense contributes positively to the market value, we find that excessive interest and related expense could harm the firm's value by constraining its liquidity. In addition, we also perform the Chow test and discover that there is significant structural break in the value of liquidity after the financial crisis. Then we split the panel into crisis period (2007-2010) and post-crisis period (2011-2015). The sub-panel regression results enable us to thoroughly analyze the structural break in liquidity effects.

Keywords: REITs; Liquidity; Market Value; Financial Crisis

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1: Introduction

Modigliani and Miller (1958) establish the classical corporate finance theorem stating that capital structure and its specific components should not affect firm's value given the assumptions of perfect market. Real Estate Investment Trusts (REITs) are the companies that own and operate-profit generating real estate properties. In order to qualify as tax preferred, REITs have to pay out at least 90% of their taxable income as dividends to shareholders. It complies the important assumption of no taxes in MM theorem. So, theoretically, REIT value is not affected by capital structure and its components holding other things equal. This means that cash holdings and other liquidity measures should not affect REIT's value either. However, this does not appear to be the case in real world where the assumptions of perfect market do not hold. In real world practices, capital structure and financing decisions do affect not only the value of regular firms but also the value of REITs to a certain extent. In fact, whether a company can live and profit continuously depends on its ability to fulfil financial obligations and finance its operations. Therefore, liquidity has been one of the major metrics in financial research and analysis.

Different from non-REITs, REITs have more constraints that limit their ability to keep themselves at an optimal liquidity level. They are required to hold 75% of their assets in real properties (Lu-Andrews, 2015), which makes it difficult liquidate the assets to face the cash needs since real estates are generally less liquid than other types of assets. So, liquidity is even more important for REITs since they have to make investments in real estate properties that generate profits, most of which are later distributed to shareholders. This motivates us to examine what price the market pays to REITs for their liquidity.

In this paper, we examine the liquidity effects on the market value of 87 unique equity REITs in the U.S. during the period from 2007 to 2015. We build our study on the framework of Hill, Kelly, and Hardin (2012). We update data from 1999-2009 to 2007-

2015 in order to catch up with the new relationship between liquidity measures and REIT market value. With the updated data, we confirm that cash holding is positively related to REIT market value. We also confirm that FFO contributes significantly to market value. In our study, the relation between cash dividends and REIT value is positive. However, interest expense, as the indicator of use of leverage, is negatively related the market value of REIT.

After examining the liquidity effects over the entire period, we extend our methodology to see whether or not the effects of liquidity vary after the financial crisis. To be more specific, our work includes sufficient data and after the financial crisis. The updated data allows us to make a meaningful comparison of the findings during and after the crisis. In order to do so, we set a breakpoint at the very end of the crisis, which is the year end of 2010. Then we perform the Chow test in order to test for the structural change in the model at the breakpoint. The significant test statistic suggests that the structural break does exist. Then we split the whole sample into financial crisis period (2007-2010) and post-financial crisis period (2011-2015) and run separate regressions. The results allow us to analyze the essential variations in the relationship between REIT market value and liquidity.

Our results show that market value is directly affected by several liquidity factors. Cash is positively related to REIT market value. An additional dollar of cash holdings is valued between \$0.86 and \$0.98. This value is slightly lower than that found by our precedent. We also conclude that FFO has a very significant positive relation with firm value over the whole period, while its value becomes much higher after the financial crisis. We attribute the lower value during the crisis to the collapse in credibility of earnings disclosure. A completely different result regards interest expense as a value extinguisher. We believe that excessive interest payments constrain the net cash flow and REIT's overall liquidity. Although it is distinct from our template paper, it coincides with the result that interest expense is negatively related to non-REIT firm value (Pinkowitz, Stulz, & Williamson, 2006).

This paper structures as follows: "Literature Review" reviews related literatures that study the value of REIT and non-REIT liquidity; "Methodology" introduces our research model; "Data and Summary Statistics" presents source and descriptions of data;

“Results and Analysis” discusses our empirical results and analysis; “Conclusion” concludes our study.

2: Literature Review

The Modigliani and Miller (1958) work precedes studies in corporate finance field. They argue that a firm's value is irrelevant to its financial decisions in a perfect market, where there is no tax, no transaction costs, no institutional frictions and no costs of bankruptcy. Leveraged and unleveraged firms should have the same value if they hold the same assets that generate the same expected return. Expected return that equity investors demand will increase with the firm's leverage level. Therefore, the weighted average cost of capital for the firm is not influenced by its capital structure. Modigliani and Miller (1961) also argue that dividend policy has no effects on firm's stock price in a perfect market. A firm's value is directly related with its investment decisions, instead of how it distributes the dividends. In other words, cash holdings and other liquidity measures, as indicators of capital structures, should not affect the value of company either.

As a matter of fact, many empirical literatures find that liquidity measures are actually related to firm's value. Cash is the most liquid asset on the balance sheet. Non-REIT studies have shown that firm value is directly related to cash holdings. Pinkowitz & Williamson (2007) investigate 13,000 U.S. companies over the period from 1965 to 2004. They find that cash is valued more in the companies with riskier operating cash flow and promising growth opportunities, and valued less in the companies with stable cash flow and few growth opportunities. By studying French firms, Saddour (2006) argues that cash holdings have both positive and negative effects on firms. Chen and Chuang (2009) study firms in emerging markets and also find that limited cash holdings would reduce the firms' investments activities when they face investment opportunities.

Even if the REIT managers have the opportunities to accumulate cash, they tend to hold little cash to reduce agency costs and the future cost of external financing. (Hardin, Highfield, Hill & Kelly, 2009). Giambona, Harding and Sirmans (2008) suggest that investors would allow REITs with great growing opportunities to hold additional

cash. In other words, when REITs have positive NPV project, investors are more glad firms to hold more cash.

Firm value is directly related with its future cash flow. The more expected free cash flow in the future, the more valuable a firm is. A widely used method to value company is the discounted free cash flow valuation. It discounts future free cash flow at an appropriate discount rate to the present value. Steiger (2010) finds that discounted cash flow valuation is an effective method to value a firm even in a complex situation. However, a slight change in the assumption that discounted cash flow model is based on would change the valuation results dramatically.

Funds from operation (FFO) is used to measure operating cash flow in REITs. As REITs is more cash flow oriented, FFO could be a main driver for REITs stock price. Ralston and Hornbeck (1998) argue that the increase in the FFO could increase net asset value of REITs and therefore increase REITs firm value. In the term of information content, Graham and Knight (2000) find that FFO is a more effective way to measure market price of REITs than net income because REITs have significant level of depreciation and large amount of asset acquisitions and dispositions. Gyamfi-Yeboah, Ziobrowski and Lambert (2012) examine the REITs reactions to unexpected FFO announcements and conclude that FFO contains more useful information to investors than net income.

Dividend policy tells how a company distribute its earnings. By surveying managers of Nasdaq companies that continuously pay cash dividends, Baker (2002) finds that managers believe dividends affect firms' market value and stable dividends would be beneficial for market value. Kaestner and Liu (1998) test the information content of dividend announcements and find that stock prices are positively related with the size of dividend payment. Porta, Lopez-de-Silanes and Shleifer (2000) investigate 4103 companies from 33 countries and find that dividend is an effective way to reduce the agency cost between managers and shareholders.

REITs have to pay 90% of their taxable income as dividend to maintain tax-exempt. Therefore, for REITs, dividend payment is an effective way to mitigate information asymmetry and to enhance the growth of REITs (Ghosh & Sun, 2014). Hardin and Hill (2008) also argue that high excessive dividend of REITs could reduce

agency cost and facilitate the operational efficiency and access to external financing. Chou, Hardin, Hill, and Kelly (2013) prove that excess dividend increase REITs' value when agency cost is high in the firms.

Debt is a main source of external financing for firms. How much debt a firm need raise is still concern for managers. By studying 645 companies listed in Taiwan Securities Exchange, Cheng and Tzeng (2014) find that leveraged firms have greater value than unleveraged firms when do not considering bankruptcy probability. They also find when firms have better financial quality, the positive effect of leverage on firm value would be stronger. As different firms have different net present value projects, McConnell and Servaes (1995) empirically investigate firm value and leverage and argue that leverage destroys value for "high-growth" firms and enhances value for "low-growth" firms.

Because of unique nature of REITs, some capital structure decisions could be different from traditional non-REITs capital structure decisions. Feng, Ghosh and Sirmans (2007) find that REITs with high growth opportunities and high market value tend to raise debt. During the financial crisis period, Sun, Titman and Twite (2015) find that REITs with higher debt to asset ratio undertake more loss in the stock prices.

3: Methodology

Our study follows closely the inspiring template article of Hill *et al.* (2012), which is built on the framework of Pinkowitz *et al.* (2006). Due to the limit of data access, we are unable to acquire information about credit lines of the companies. So, we drop the variable of unused line of credit. In order to examine the relation between firm's market value and liquidity, we set market value as the dependent variable while attribute the liquidity effects on market value to a series of internal liquidity variables. The model is as follows.

$$\begin{aligned} MktVal_{i,t} = & \beta_0 + \beta_1 Cash_{i,t} + \beta_2 FFO_{i,t} + \beta_3 dFFO_{i,t} + \beta_4 dFFO_{i,t+2} + \beta_5 CashDiv_{i,t} \\ & + \beta_6 dCashDiv_{i,t} + \beta_7 dCashDiv_{i,t+2} + \beta_8 IntExp_{i,t} + \beta_9 dIntExp_{i,t} \\ & + \beta_{10} dIntExp_{i,t+2} + \beta_{11} dNetAssets_{i,t} + \beta_{12} dNetAssets_{i,t+2} \\ & + \beta_{13} dMktVal_{i,t+2} + YearDummies + \varepsilon_{i,t} \end{aligned}$$

$X_{i,t}$ represents the variable X at time t . $dX_{i,t}$ represents the change from time $t-2$ to t , while $dX_{i,t+2}$ represents the change from time t to $t+2$. *Cash* measures the cash holdings and short-term investments that can be liquidated quickly when facing liquidity challenges. *CashDiv* represents the cash dividends paid by REITs. *FFO* is the most suitable cash flow metric specifically for REITs. *IntExp* stands for the interest and related expense. *NetAssets* is total assets minus cash. All the variables are scaled by *NetAssets* expect itself. We also drop the property type dummy variable in order to capture the individual firm level fixed effects.

As mentioned previously, financial crisis gives a huge hit to most companies' liquidity characteristics. Hence, we also want to extend the study by looking at the relationship between REITs' market value and liquidity measures changes from crisis period to post crisis period. As a result, we develop our hypothesis as follows:

Hypothesis: The linear relations between market value and liquidity factors remain the same during the whole period.

In order to test the hypothesis of structural changes in variables, we split the sample into two sub-periods, financial crisis (2007-2010) period and post crisis (2011-2015) period. We perform chow test on the breakpoint and the statistic is calculated by $\frac{[RSS-(RSS_1+RSS_2)](T-2k)}{(RSS_1+RSS_2)k}$, where RSS is residual sum of squares for the whole sample, RSS_1 is the residual sum of squares for sub-sample 1, RSS_2 is the residual sum of squares for sub-sample 2, T is the number of observations, k is the number of unrestricted explanatory variables. The chow test statistic is 32.431, which is much greater than the according F-statistic. This suggests that there are structural changes in the variables from financial crisis period to post-crisis period. Therefore, we run two separate regressions within the two different sub-panels and compare the coefficients.

4: Data and Summary Statistics

As mentioned before, we develop our study on the template of Hill *et al.* (2012). We download the primary sample including all REITs recorded in the Compustat Capital IQ database over the 2007-2015 period as an update to the template. Firstly, we drop all non-equity REITs because our purpose is to focus our study on liquidity factors of the REITs that literally invest in and own properties. Secondly, we delete the observations missing appropriate accounting entries. Finally, we choose the companies with lifespans covering the whole period. These manipulations leave us a reduced strongly balanced panel containing 87 companies which have usable data over the selected time period. Although the sample still inevitably has a minimal amount of missing values which make the number of observations of the variables look slightly different, we do believe that the results are not affected.

Descriptive statistics for the sample are summarized in Table 1. The data characteristics are similar to those in Hill *et al.* (2012). The most obvious characteristic is that cash and short term investments are positively skewed with a higher mean and a lower median. Net assets are also skewed positively meaning that a certain group of companies generally have more assets than others.

The correlations among the variables are displayed in Table 2. *Cash*, *FFO*, and *CashDiv* are positively correlated to the dependent variable, *MktVal*. This is consistent with most findings about the relationship between market value and liquidity management. However, *IntExp* appears to heading to the opposite direction to *MktVal*. *IntExp* is also negatively related to *FFO* and *CashDiv*. Because, as a form of operating outflow, interest payment weakens the ability to create excess liquidity to generate profit and distribute earnings to shareholders.

5: Results and Analysis

5.1 Effects of REIT Liquidity

Table 3 presents the regression results for the model estimating the relation between market value and REITs liquidity. Results in column (1) are estimated using pooled OLS regression model. We perform the Hausman test on the panel data to decide whether to use fixed-effects model or random-effects model. The Chi-squared value is -1045.87, which suggests that the data violates asymptotic assumptions of the Hausman test. We then use ‘*sigmamore*’ and ‘*sigmaless*’ options in Stata to make the data comply with the asymptotic assumptions. Consequently, the Hausman test result then suggests that fixed-effects model should be used in this case. Hence, two-way fixed-effects (individual and time fixed effects) results are presented in column (2).

Results suggest that a statistically significant positive relation exists between *MktVal* and *Cash*. The incremental market value brought by an additional dollar of cash ranges from \$0.858 to \$0.981. This confirms the finding in Hill *et al.* (2012) that a direct relation exists between REIT market value and cash holdings. However, the value of cash appears to be lower in our study. Since we are using more recent data after the financial crisis, there might be some changes in cash holdings valuation. The cause of this deviation will be discussed in next section. The result also echoes what Pinkowitz and Williamson (2002) find. Their findings suggest that the market value of a dollar held in cash is \$0.97, which is close enough to one dollar. According to Pinkowitz and Williamson (2007), the value of cash differentiates from one industry to another. Their research suggests that only 2 industries, computer software and pharmaceutical, out of a pool of 43 different industries have a significantly higher than \$1.00 cash value, while 15 have cash valued at a deep discount. REIT lies somewhere between traditional industries and growth industries. On one hand, REITs do need steady cash to pay off their shareholders and cash could work as a buffer for future liquidity problems. On the other

hand, they do not require large investments in research and development. Therefore, the value of cash holdings stays around the market average.

FFO measures the liquidity value of the REITs' operational cash inflows. For non-REIT companies, operational cash flow is essentially one of the most important metrics for company valuation. It measures both profitability and liquidity conditions of a company. Discounted cash flow, as one of the seminal valuation techniques, regards cash flow as a cornerstone of a company's value. Due to the operational mechanisms, operational cash flow appears to be even more important to REITs than to non-REIT companies because REITs need to provide steady streams of dividends to shareholders. In our case, although coefficient ranging greatly from 10.305 to 25.171 depending on economic conditions, the additive effect from *FFO* to market value is much higher than those from other variables.

As an indicator of equity financing, *CashDiv* is also positively associated with the dependent variable. Every extra dollar of cash dividend distributed to shareholders increases market value by from \$3.12 to \$7.56. Agency cost is a key factor while discussing about dividends. Fenn and Liang (2001) find out that companies with low management ownership and high free cash flow generally tend to reduce agency costs by increasing payouts in order to avoid bad investment decisions. In addition, investors prefer present dividend payments because they involve less uncertainty comparing to future payout provisions. Lintner (1956) treats present dividend payment as a stabilizer of some long-term parameters that are influenced by external fluctuations.

What draws our attention is that the coefficient of *IntExp* appears to be completely opposite to what Hill *et al.* (2012) estimate. One of the possible reasons is that the before the financial crisis, housing and retail markets are prosperous. Use of debt financing could generate great profit in the pre-crisis period. The return on assets is way greater than the related risks. However, in our model which focuses primarily on mid-crisis and post-crisis periods, cash flow is more valuable than other liquidity factors. Interest expense, as a regular cash outflow, will definitely put pressures on net cash flow. What's more, higher interest expense means higher leverage, which magnifies risks REIT undertakes. Harrison, Panasian and Seiler (2011) examine the determinants of REITs

capital structure decisions and find that REIT leverage is negatively related to market-to-book ratio and profitability.

5.2 Changes in REIT Liquidity Value

Hill *et al.* (2012) particularly look at the market value of liquidity in over the period of 1999-2009. Their findings suggest that the general time trend of liquidity is upward by studying the changes in coefficients of cash holdings and external credit lines. We extend their work by considering a more recent period in our analysis. Specifically, our work includes data from 2007Q1 to 2015Q4 to make a meaningful comparison of the findings during and after the financial crisis. As brought up in previous section, we divide the whole panel into two sub-periods, financial crisis (2007-2010) and post financial crisis (2011-2015). The significant chow test statistic suggests that the structural change does exist at the breakpoint we set. We find that the importance of cash and other liquidity measures actually have significant changes after the crisis, which is quite exciting because the various changes in the liquidity values simply suggest that the impacts on the market value of liquidity caused by the crisis are complicated and multidirectional. The results of sub-panel regressions are displayed in Table 4.

First of all, during the financial crisis, *Cash* is valued at a significant premium. An additional dollar of cash holding adds \$1.44 to REIT market value. But after the financial crisis, the value of an extra dollar held in cash decreases to \$0.85. Some REITs that hold little cash have to sell more properties and issue more equity at a lower price to finance their operations in the downturn (Sun *et al.*, 2015). Therefore, during the stressed period, corporates that hold extra liquid assets are more likely to survive the crisis without issuing cheap equity to finance their operations. As a result, they prefer hold more liquid assets in their balance sheets. This is called the “flight to liquidity” effect. In the context of financial market, the most liquid asset is cash. The pursuit of cash drives up its market value. Secondly, the marginal market value of *FFO* increases from \$16.22 to \$35.04, which is more than double. Choi, Kim, and Lee (2011) discovers that during the Asian financial crisis of 1997-1998, the value of earnings drops because of the collapse in credibility of information. Similar analysis applies to the value of cash flow in the global financial crisis of 2007-2010. Since the shrunk credit market leaves a question mark on

many companies' liquidity, investors choose to remain skeptical about the numbers in income and cash flow statements. Thirdly, *CashDiv* carries less value in post-crisis period. As mentioned before, cash dividend payment is regarded as a capital gain without uncertainty. Therefore, similar to the cash, cash dividends are also preferred in downturn since the dividend payouts reduce agency costs and uncertainty. Lastly, *IntExp*, as an effective indicator of leverage, is even more negatively related to REIT market value after the financial crisis. It indicates that the market becomes even more averse to accumulation of interest expense. Because the massive use of leverage magnifies losses during the crisis. Sun *et al.* (2015) find that REITs with higher debt to asset ratio undertake more loss in the stock prices. Therefore, after the financial crisis, especially the housing market crash, market participants tend to hold more conservative attitudes toward REIT leverage ratio.

6: Conclusion

In this study, we examine the effects of liquidity factors on REIT market value. Results show that a marginal dollar of cash is approximately valued slightly less than \$1 over the whole period. Cash dividends and FFO contribute significantly to market value. However, interest expense, over the entire time span, has a significant negative relation with firm value. On the other hand, when we split up the sample and watch closely the structural break between the crisis period and the post-crisis period, we have some new findings. At first, cash holdings are rewarded by the market due to excessive liquidity needs during financial crisis. But as the market revives, the value of cash decreases. On contrary, recovering market more than doubles the value of FFO because information about earnings is much more meaningful in peace than in chaos. Interest expense is even more negatively related to market value after the financial crisis because the market becomes more alert of and averse to the harms on liquidity carried by high leverage.

Appendix

Table 1 Descriptive Statistics

Variables	N	Mean	Median	Standard deviation	Minimum	Maximum
<i>Cash_t</i>	3,106	0.034	0.015	0.072	0.000	1.353
<i>FFO_t</i>	3,049	0.013	0.013	0.010	-0.120	0.084
<i>CashDiv_t</i>	3,080	0.025	0.020	0.034	0.000	1.124
<i>IntExp_t</i>	3,098	0.008	0.007	0.025	-0.001	1.098
<i>MktVal_t</i>	3,103	0.778	0.732	0.477	0.001	6.518
<i>NetAssets_t</i>	3,106	5,174.681	3,025.241	5,884.985	1.647	31,742.23

Table 1 shows the summary of descriptive statistics of the sample of 87 unique equity REITs over 2007-2015 period. As mentioned before, minimal missing values exist in the sample causing the differences in numbers of observations. All variables are divided by net assets, total assets minus cash, except net assets itself.

Table 2 Correlation Matrix

Variables	$MktVal_t$	$Cash_t$	FFO_t	$CashDiv_t$	$IntExp_t$
$MktVal_t$	1.000				
$Cash_t$	0.140	1.000			
FFO_t	0.548	0.056	1.000		
$CashDiv_t$	0.415	-0.002	0.307	1.000	
$IntExp_t$	-0.379	0.200	-0.256	-0.235	1.000

Table 2 presents the correlations among the variables in the model. All variables are divided by net assets.

Table 3 Regression Coefficients

Independent Variables	(1)	(2)
<i>Cash_t</i>	0.981*** (5.79)	0.858*** (3.37)
<i>FFO_t</i>	25.171*** (12.39)	10.305*** (4.10)
<i>dFFO_t</i>	-8.085*** (5.49)	-2.898*** (2.85)
<i>dFFO_{t+2}</i>	8.830*** (5.68)	3.985*** (4.17)
<i>CashDiv_t</i>	7.555*** (6.12)	3.123* (1.82)
<i>dCashDiv_t</i>	-1.149 (1.27)	-0.238 (1.01)
<i>dCashDiv_{t+2}</i>	3.133** (2.13)	1.507* (1.74)
<i>IntExp_t</i>	-23.059*** (6.53)	-33.915*** (3.48)
<i>dIntExp_t</i>	4.380 (0.54)	4.085 (0.67)
<i>dIntExp_{t+2}</i>	-12.375* (1.94)	-18.074** (2.37)
<i>dNetAssets_t</i>	2.14E-05*** (2.7)	-7.01E-06 (0.96)
<i>dNetAssets_{t+2}</i>	3.81E-05*** (5.57)	1.11E-05* (1.95)
<i>dMktVal_{t+2}</i>	-0.259*** (5.11)	-0.397*** (12.92)
<i>R – Squared</i>	0.639	0.544
<i>Observations</i>	2,651	2,651

Table 3 presents the regressions estimating the relationship between market value and liquidity. Column (1) presents pooled OLS regression coefficients and column (2) presents the coefficients from the fixed-effects model. Both models include annual dummy variables. Standard errors are robust to heteroskedasticity. T-statistics are in parentheses. Statistical significance is represented by * (p<10%), ** (p<5%), and *** (p<1%).

Table 4 Sub-panel regression coefficients

Independent Variables	(1)	(2)
$Cash_t$	1.437*** (6.85)	0.849*** (4.21)
FFO_t	16.218*** (8.21)	35.044*** (13.17)
$dFFO_t$	-5.814*** (3.95)	-8.363*** (4.07)
$dFFO_{t+2}$	5.396*** (4.09)	13.805*** (4.75)
$CashDiv_t$	9.953*** (12.45)	6.387*** (4.42)
$dCashDiv_t$	1.182 (1.18)	-1.500 (-1.3)
$dCashDiv_{t+2}$	6.104*** (5.63)	2.802* (1.76)
$IntExp_t$	-15.470*** (4.04)	-30.202*** (6.14)
$dIntExp_t$	0.007 (0)	9.951 (0.6)
$dIntExp_{t+2}$	-4.141 (0.6)	-21.180* (1.84)
$dNetAssets_t$	4.49E-05** (2.46)	2E-05* (1.88)
$dNetAssets_{t+2}$	3.35E-05*** (3.21)	4.39E-05*** (4.67)
$dMktVal_{t+2}$	-0.411*** (7.16)	-0.064 (0.84)
$R - Squared$	0.675	0.636
$Observations$	1,159	1,492

Table 4 shows two sub-panel pooled OLS regressions estimating the market value of liquidity during financial crisis and after financial crisis. Column (1) presents the coefficients during the financial crisis and column (2) presents the coefficients after the financial crisis. Both models include annual dummy variables. Standard errors are robust to heteroskedasticity. T-statistics are in parentheses. Statistical significance is represented by * (p<10%), ** (p<5%), and *** (p<1%).

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