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碩 士 論 文

多角化策略是否存在折價效果？
—流動性溢酬與交叉補貼之取捨

Does Diversification Destroy Firm Value?
- Trade-off between Liquidity Premium and Cross-subsidization

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中華民國一百零一年六月

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摘要

過去文獻普遍認為多角化策略對公司價值會產生折價效果，其中原因大多被歸因為部門之間的交叉補貼效果所導致。然而過去文獻都忽略資金流動性的溢酬效應對「多角化折價」的直接影響，因此本研究利用 2005 到 2010 年之美國三大交易所—NYSE、Amex 與 NASDAQ 的資料檢視此論點是否存在。結果顯示，公司的流動性溢酬越高的確可減輕多角化策略的折價效果。

關鍵字：多角化、流動性溢酬、交叉補貼效果

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Abstract

Value destruction by diversified firms relative to their focused competitors has been widely studied by prior literatures. This discount effect has been ascribed to many factors; among the most prominent of these explanations is the cross-subsidization effect between divisions resulted in diversified organizational form. However, the value-added effect of liquidity premium has been neglected by previous studies of corporate diversification. In our studies, we use data in the three main security exchanges in the United States, which are NYSE, Amex and NASDAQ in 2005 to 2010 for examining this contention. Our key finding is that higher level of liquidity premium mitigates diversification discount effect on firm value.

***Keywords*: Diversification; liquidity premium; Cross-subsidization effect**

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1. Introduction

Does corporate diversification really cause a discount effect? A stream of burgeoning literature suggests the association between corporate diversification and substantial reduction in firm value. Most of former researches attribute the causes of discount effect of corporate diversification to the inefficient cross-subsidization, which can be referred to the agency problems. However, with higher level of liquidity, would firms adopting diversification strategy still suffer from a low valuation of firm value? Or they would benefit from the value-added effect of corporate liquidity? Recent stream of literatures has a considerable discussion on corporate liquidity and gives rises to the theory of liquidity premium, which focuses on the benefits of holding cash (e.g., Lins at al., 2010; Palazzo, 2012). In former researches, discount effect of diversification hasn't be strictly examined with the benefits of corporate liquidity. Thus, we contribute to the literature by further considering an essential operating factor, the corporate liquidity, to examine whether liquidity premium would mitigate the diversification discount effect and shed new light on the debate about the value of diversification.

For well over 20 years, researches have wrestled with the effects of corporate diversification on the value of the firm. A large body of corporate finance studies show the low valuation of diversified companies relative to their apparent breakup values (e.g., Lang and Stulz, 1994; Berger and Ofek, 1995; Comment and Jarrell, 1995; Servaes, 1996; Lins and Servaes, 1999; Lins and Servaes, 2002; Denis et al., 2002; Ammann, Hoechle, and Schmid, 2012; Chou and Cheng, 2012)[1]. Value

[1] Among these literatures, Lang and Stulz (1994) and Berger and Ofek (1995) find a significant diversification discount and interpret the results as evidence of value destruction by diversified firms. Ammann, Hoechle, and Schmid (2012) report a robust and significant discount between 5% and 21% for US nonfinancial firms between 1998 and 2005.

destruction by diversified firms relative to their focused competitors has been ascribed to many factors; among the most prominent of these explanations is that agency problems exacerbated by the diversified organizational form resulted in inefficient internal capital markets. However, the creation of internal capital market should be one of the motives of diversification. Theoretical models imply that cross-subsidization can be efficient; if it helps the firm to eliminate some of the costs of financial constraints. Nevertheless, several articles question the efficiency of internal capital markets and provide evidence of inefficient investment patterns, under which conglomerate firms operate an internal capital market that transfers cash flows inefficiently between business lines (e.g., Lamont, 1997; Shin and Stulz, 1998; Lelyfeld and Knot, 2009; Ozbas and Scharfstein, 2010). For example, one possibility that has achieved considerable currency in the literature is the idea advanced by Berger and Ofek (1995); they suggest that headquarters may redistribute investment resources away from divisions with good investment opportunities, redirecting those resources to divisions with bad investment opportunities. Scharfstein and Stein (2000) demonstrate how the rent-seeking behavior of division managers can lead to inefficient cross-subsidization across divisions. Rajan et al. (2000) shows that a greater diversity of investment opportunities across segments leads to a greater misallocation of internal capital by diversified firms, due to power struggles between divisions. The negative impacts of corporate diversification are described in terms of other aspects of agency problems (e.g., Denis, Denis, and Sarin, 1997). Agency theory predicts that, regardless of actual investment efficiency from the shareholder perspective, diversification will typically be in the interests of management. At the firm level, empire-building preferences will cause managers to overinvestment and grow their firms beyond the optimal size. Specifically, managers have incentives to diversify their firms in order to increase their power, compensation and perquisites (e.g., Jensen, 1986;

Houston, James, and Ryngaert, 2001; Aggarwal and Samwick, 2003; Laeven and Levine, 2007). These motives can be associated with managerial hubris, managerial overconfidence, and executives' pursuit of insurance to protect the value of their human capital.

The benefits of corporate diversification could arise from many sources advocated in theoretical literatures. Weston (1970) and Chandler (1977) suggests that diversified firms have the ability to use managerial economies of scale because they provide more efficient operations and more profitable lines of business when compared to stand-alone firms. Benefits of diversification also arise from the ability of diversified firms to internalize market failures (e.g., Khanna and Palepu, 2000) and from increased debt capacity as argued by Lewellen (1971). The positive impact of diversification can also be explained by the argument of multi-segment firms can do efficient resource allocation through internal capital markets (e.g., Stulz, 1990; Stein, 1997). Moreover, the recent research of Villalonga (2004) employs a more comprehensive database – the Business Information Tracking Series – and reports the result of a significant premium of diversification, rather than a discount. Several recent studies examine the value impact of diversification across the business cycle and conclude that corporate diversification becomes more efficient when external capital markets are relatively inefficient and when the various segments of a diversified firm would be financially constrained as single-segment firms (e.g., Dimitrov and Tice, 2006; Yan et al., 2010; Hovakimian, 2011). Overall, diversification enhances firm value by considering the synergy premium of factors such as greater operating efficiency, the presence of an internal capital market, greater debt capacity, and lower taxes.[2]

[2]Influential papers are Porter (1987), Ravenscraft (1987), Kaplan and Weisbach (1992), Bradley et al. (1998), Fluck and Lynch (1999).

The main factor considering in our studies is the corporate liquidity. The benefits and costs associated with it are also extensively discussed in the prior literature. Much of the research on liquidity is framed around cash holdings, which means researchers use cash holdings for measurement of corporate liquidity (e.g., Kim et al., 1998; Duchin, 2010; Lins at al., 2010; Denis, 2011). Why firms hold a large percentage of cash holdings in their assets in spite of associated opportunity cost can be related to three benefits. One predominant approach is referred as the precautionary motive for liquidity first introduced by Keynes (1936). It asserts that firms hold cash to protect themselves against adverse cash flow shocks that might force them to forgo valuable investment opportunities, because raising external finance is more costly than using internally generated funds in the presence of information asymmetry (e.g.,; Han and Qiu, 2007; Acharya, Almeida, and Campello, 2007; Haushalter, Klasa, and Maxwell, 2007; Harford, Mansi, and Maxwell, 2008; Bates, Kahle, and Stulz, 2009; Duchin, 2010).[3] Another prominently cited benefit is the transaction cost motive, which suggests that firms hold cash because converting assets into cash entails transaction costs (e.g., Opler et al., 1999). They contend that in a world with significant transaction costs, the most obvious cost of holding liquid assets is the lower rate of return on these assets resulting from their "liquidity premium." In other words, firms would rather hold liquid assets and entail opportunity costs because they value liquidity premium more than the costs of holding cash.[4] Recent theoretical research further explores the value of corporate liquidity. Gamba and Triantis (2008) argue that liquidity provides a firm with valuable financial flexibility. We can conclude the

[3] The precautionary motive for cash savings is previously studied by Myers and Majluf (1984), Holmstrom and Tirole (1996, 1998), Opler et al. (1999), Mikkelson and Partch (2003), Almeida, Campello, and Weisbach (2004).

[4] For liquid assets held in the form of demand deposits, the opportunity cost increases with interest rates. To the extent that cash substitutes are deposited in short-maturity instruments, holding these cash substitutes becomes more expensive when the liquidity premium component of the term structure rises.

above three benefits as the liquidity premium hypothesis.

While cash can provide an operational flexibility to a manager, it can also make the firm vulnerable to managerial opportunism such as overinvestment (e.g., Myers and Rajan, 1998). As the costs of holding cash, free cash flow hypothesis is a long-cited theory that entrenched managers have a tendency to overspend their free cash flow on unprofitable projects for their own private benefits (e.g., Jensen, 1986; Stulz, 1990). Firms would take into account the discretion and managerial opportunism associated with cash when choosing how to compose their liquidity reserves. Therefore, the negative effect of corporate liquidity on firm value is associated with agency problems considering factors of corporate governance (e.g., Yun, 2009). In general, the agency costs of managerial discretion are less important, and may be trivial for firms with valuable investment opportunities, because the objectives of management and shareholders are more likely to coincide (e.g., Opler et al., 1999).

In our research, our main purpose is to examine whether corporate liquidity premium would moderate the discount effect of diversification. As our proxy for measurement of corporate liquidity, besides cash holdings, we use net cash-to-assets ratio, which is defined as the ratio of cash and equivalents and short-term investments minus interest-bearing liability to total assets (e.g., Passov, 2003; Flannery and Lockhart, 2009; Islam, 2012). It conveys that firms which hold more net cash have the ability to satisfy a great number of future interest payments from debt with sufficient liquid asset balance on hand, hence to buy more time to exercise control over the firm's policies without interference from creditors (e.g., DeAngelo et al., 2002). We consider net cash as a stricter proxy for the degree of liquidity than cash holdings which is traditionally used in literature because a high level of cash holdings is not equivalent to none debt holdings. There are at least two resources of cash holdings; one comes from operating activities which is considered as unconditional liquidity

available in both good and bad times. The other resource is lines of credit, where the option to obtain cash can be exercised only when a firm is doing well enough to satisfy covenant restrictions (e.g., Sufi, 2009). Hence, net cash eliminates the effect from debt financing, and account for the cash purely accumulated from operating activities. In this paper, we regard net cash-to-assets ratio as a relatively representative proxy for corporate liquidity, and use both cash holdings and net cash to examine how corporate liquidity make influence on the adoption of diversification strategy to firm value.

The remainder of the paper is organized as follows. Section 2 develops two hypotheses about impact of the relation between firm diversification and corporate liquidity on firm value. Section 3 discusses the sample and describes the construction of variables. Section 4 presents the empirical model and the main results. Section 5 gives concluding remarks.

2. Hypotheses

Our main purpose is to examine how corporate liquidity would make influence on the pervasive diversification discount phenomenon. We attempt to examine whether high level of corporate liquidity would eliminate the discount effect of diversification. Thus, we develop two hypotheses about the impact of the interaction effect between firm diversification and corporate liquidity on firm value.

2.1 Liquidity premium hypothesis

Firms with more net cash, which mean that they hold sufficient cash holdings to deal with interest-bearing debt, are at a high degree of absolute liquidity level. Holding large amount of cash provides firms with flexibility and freedom from capital

market discipline, and firms can use cash as a precautionary hedge against the possibility that capital market frictions will prevent firms from obtaining external finance to fund valuable projects. Moreover, holding more net cash would prevent firms from expending transaction costs on obtaining conditional liquidity from lines of credit (e.g., Lins et al., 2010). We suppose that the negative effect of diversification should depend on the position of corporate liquidity. High-liquidity firms with adequate liquid assets on hand may not suffer from the value-destroying effect of diversification. Instead, they liquid assets provide managerial flexibility for firms to expand business lines and create managerial synergy. We thus propose the hypothesis that **f**irms with high level of corporate liquidity would eliminate the discount effect of diversification through benefits of liquidity premium.

2.2 Cross-subsidization hypothesis

Holding too much cash can be associated with agency problems. Because managers can use cash in a discretionary way and thus derive private benefits more easily. It may exacerbate the discount effect of corporate diversification with inefficient cross-subsidization. The internal capital market in diversified firms engages in cross-subsidization by allocating too much (too little) to divisions with low (high) investment opportunities. We expect that the access of self-interested managers to free cash flow would deteriorate inefficiency resource allocation exiting in divisions and create agency conflicts over its deployment in diversified firms. We therefore propose the hypothesis that firms with high level of corporate liquidity would exacerbate the discount effect of diversification through cross-subsidization effect.

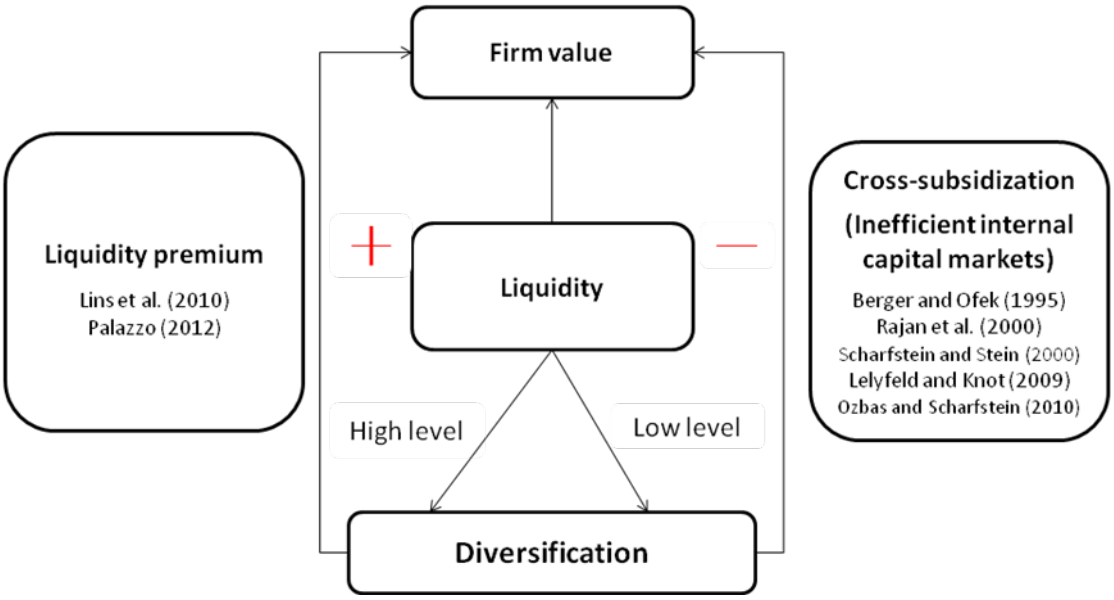

Figure 1. The main purpose and hypothesis of this paper.

Figure 1 presents the main hypothesis of our study. We contribute to the literatures by adopting an essential factor in operating aspects, corporate liquidity to the discussion of diversification. The benefit of liquidity has been neglected in prior researches of diversification. We attempt to examine whether the value-added impact of corporate liquidity would eliminate the discount effect of diversification. If so, liquidity hypothesis dominates the agency costs hypothesis and vise versa.

3. Sample and variable construction

In this section, we describe the data, the definition of variables, and the methodology.

3.1 Sample

For our empirical analysis, we take our baseline sample from segment- and

firm-level Compustat Industrial Annual files for the period 2005-2010.[5] Our sample is comprised of the data in three main security exchanges in the U.S., including NYSE, Amex, and NASDAQ. Following the literature on firm diversification (e.g., Berger and Ofek, 1995), we exclude financial service firms and firms with financial service segments (SIC codes between 6000 and 6999). We also exclude utilities firms (SIC codes between 4900 and 4999) for comparison. We require that total firm sales to be at least $20 million. After these screening procedures, we obtain a final sample of 13,844 firm-year observations.

3.2 Measures of diversification

We use one measures of diversification in our tests. Our measure of diversification is the entropy.[6] The entropy measure of diversification for firm i is determined at fiscal year end t-1 by

$$\mathrm{Ent}_{i,t-1} = \sum_{s=1}^{n} P_{s,i,t-1} \ln \frac{1}{P_{s,i,t-1}}, \quad (1)$$

where n is the number of four-digit SIC code segments and $P_{s,\,i,\,t-1}$ is the proportion of sales from segment s of firm i at t-1. Entropy equals zero for firms reporting a single business segment (focused firms), and it is greater than zero for firms reporting multiple business segments (diversified firms). Entropy not only offers an understanding of a firm's degree of diversification, but it also allows for decomposition into unrelated and related industry diversification measures (e.g.,

[5] Due to data limitations for earlier years, we obtain a recent download from Compustat/Segment database for the latest six years.

[6] We do not use the dummy variable (A dummy variable that equals 1 for multisegment firms and 0 for single-segment firms) applied in prior literature because we view this dummy variable as an inappropriate measurement for diversification. It cannot measure the specific level of corporate diversification. We use the entropy measure instead of the Herfindahl index because there is no axiomatic analysis or general model of diversification which suggests the advantage of any single index. However, the entropy measure is more sensitive than the Herfindahl index to very small firms. Also, the decomposition of the entropy measure can be analytically and very simply derived. That is why we choose entropy as the measurement of diversification.

Jacquemin and Berry, 1979; Hund et al., 2010). A change in diversification status is calculated as the first difference in *Ent* with subscripts indicating the time of measurement. Entropy continuously increases as the degree of diversification increases.

3.3 Variable definitions

Like most papers attempting to explain the diversification discount, we use the excess value which is the standard methodology developed by Berger and Ofek (1995).[7] The excess value of a company is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value being equal to the segment's sales (or assets) multiplied by its industry median ratio of total capital (market value of equity plus book value of debt or market value estimate of debt) to sales (or assets).

More precisely, excess value EV and imputed value I(V) are defined as

$$I(V) = \sum_{i=1}^{n} AI_i * \left(Ind_i \left(\frac{V}{AI}\right)_{mf}\right), \quad (2)$$

$$EV = \ln(V/I(V)), \quad (3)$$

V = firm total capital (market value of equity at the end of the calendar year t plus book value of debt at the end of the calendar year t)

AI = accounting item (sales or assets at the end of the firm fiscal year t)

$Ind_i\ (V/AI)_{mf}$ = ratio of total capital to an accounting item for the median focused firm in the same industry as segment i

7 Though Mansi and Reeb (2002) contend that diversification leads to lower firm risk, and find that book values of debt are a more downward biased proxy of the market value of debt for diversified firms, relative to undiversified firms. This finding suggests that measures of firm values based on book values of debt systematically undervalue diversified firms (e.g., Glaser and Muller, 2010). However, recent literatures still use excess value for diversification valuation (e.g., Lelyveld and Knot, 2009; Hund et al., 2010; Chou and Cheng, 2012; Hoechle et al., 2012).

n = number of segments in segment i's firm at the end of the firm fiscal year t

The industry median ratios are based on the narrowest SIC grouping (two-, three-, or four-digit) that includes at least five single-line businesses and sufficient data for computing the ratios. In our regressions, we use excess value as the dependent variable. Following Hoechle et al. (2012), we apply a third alternative excess value measure that is based on both sales and assets. The underlying presumption behind this hybrid measure is that in some industries asset multiples are more meaningful, while in other industries sales multiples could be more meaningful. A lower standard deviation of the multipliers of focused firms in an industry is assumed to imply a higher precision in measurement. Thus it implies a more meaningful imputed segment value. We use this approach to define hybrid excess value by calculating imputed values for each firm segment based on both sales and asset multiples, and choosing the one for which the industry standard deviation is lowest.[8]

We further follow Hund et al. (2010) in using the annual change in excess value (defined as $EV_t - EV_{t-1}$) to be the dependent variable in other regressions as well. Thus, we not only examine whether corporate liquidity eliminate the discount effect of diversification, but further focus on the change of status in each variable over time. Also, since the methodology of excess value uses book value of debt as a proxy for market value of debt, it captures changes in the market value of equity relative to the book value of the firm, but not changes in the market value of debt relative to the book value of the firm. Therefore, the excess value measure is really a measure of excess shareholder value.

For the measures of corporate liquidity, besides traditionally used cash holdings, we

[8] We use asset multiples and hybrid measure and disregard sales multiples. Since focusing on sales multiple can lull ones into assigning tremendous amounts of value to firms that are generating high revenue growth while actually losing significant amounts of money. In addition, revenue is an incomplete measure of performance given its lack of focus on profitability and cash flow.

apply net cash-to-assets ratio as a more representative proxy. It measures the unconditional liquidity which purely results from operating activities other than raising debts. We also use a dummy variable *Dummy_HL* equals 1 for net cash-to-assets ratio being positive, and 0 otherwise. This dummy proxy provides us with definition of high-liquidity firms and low-liquidity firms. We include other secondary variables consistent with the literature (e.g., Berger and Ofek, 1995), and further include the interaction terms between diversification and corporate liquidity to examine the crossing effect of diversification strategy and corporate liquidity. We provide more details on the definition of the variables in **Table 1**.

Table 1 Definitions of variables

This table displays the definition of variables. The full sample period is from 2005 to 2010. The sample consists of all firms with data reported on both the Compustat Industrial Annual and Compustat Segments data files.

Variables	Proxy for	Definition	Supporting literature
EV	Excess value	The log of the ratio of total market value to imputed value using median industry multipliers.	Hund et al (2010), Berger and Ofek (1995)
Hybrid EV	Hybrid excess value	The calculating imputed values for each firm segment based on both sales and asset multiples, and choosing the one for which the industry standard deviation is lowest.	Hoechle et al. (2012)
Entropy	Entropy	The sum of the proportion of sales from segments of firm multiplied by the natural log of reciprocal of proportion of sales from segments of firm.	Hund et al (2010)
Cash	Cash-to-assets ratios	Cash and marketable securities divided by total assets.	Bates, Kahle, and Stulz (2009), Duchin (2010), Lins et al. (2010)
Net Cash	Net cash-to-assets ratio	Cash holdings (including cash equivalents) and short-term investment minus total long-term debt (that is, interest-bearing debt) scaled by total assets.	Passov (2003), Flannery and Lockhart (2009), Islam (2012)
Dummy_HL	High liquidity	A dummy variable that equals 1 for net cash-to-assets ratio being positive and 0 otherwise.	Passov (2003), Flannery and Lockhart (2009), Islam (2012)
Size	Firm size	Natural log of total assets.	Hoechle et al (2012), Berger and Ofek (1995)

Profit	Profitability	The ratio of EBIT to sales.	Hund et al (2010), Berger and Ofek (1995)
Capex	Growth opportunities	The ratio of capital expenditures to sales.	Hoechle et al (2012), Berger and Ofek (1995)

3.4 Sample description

In **Table 2**, we report data description classified by three main security exchanges in the United States. Panel A in **Table 2** show the decomposition for the whole sample. We classified our sample by three sorts, which are security exchange, diversification strategy, and corporate liquidity respectively. It reports that most firm-year observations of our sample are from New York Stock Exchange and NASDAQ. The decomposition of our sample is equally distributed in corporate diversification and liquidity. Panel B, C, and D provides the distribution of sample among stock exchanges respectively. We can see that the dispersion of our sample in NYSE and Amex are equally distributed in diversification strategy, while those in NASDAQ are mostly focused. It can be explained that most companies in NASDAQ are high-technology firms and their business are inclined to focus on the core technique. From the aspects of corporate liquidity, we can see that the sample in NYSE is mostly consisted of low-liquidity observations, which means that these firm-year observations hold debts more than their cash holdings. The composition of observations in Amex and NASDAQ are in the reverse.

Table 2 Distribution of our sample firm-year observations.

This table presents the distribution of firm-year observations in our data. It shows the distribution of sample firm-year observations in three stock exchanges. Panel A uses the full sample. It classifies the whole sample in three sorts, which are security exchange, diversification strategy, and corporate liquidity respectively. It sorts the sample firm-year observations by security exchanges (NYSE, Amex, and NASDAQ) in column 2 to column 4 of Panel A. It sorts the sample firm-year observations by diversification strategy in column 5 to column 6. It is defined as diversified, if the number of segments of the firm-year observation is more than 1, vice versa. It sorts the sample firm-year observations by

corporate liquidity in column 7 to column 8. It is defined as high-liquidity, if the net cash-to-assets ratio of the firm-year observation is positive, vice versa. Panels B, C, and D present the distribution in three security exchanges respectively. N & % denote number and the percentage of firm-year observations.

Panel A: All Firm-year Observations *(13,844 firm-year observations)*

	Security exchange			**Diversification strategy**		**Corporate liquidity**		**Total**
	NYSE	**Amex**	**NASDAQ**	**Diversified**	**Focused**	**High-liquidity**	**Low-liquidity**	
N	6,008	720	7,116	6,006	7,838	6,783	7,061	13,844
(%)	(43.4%)	(5.2%)	(51.4%)	(43.4%)	(56.6%)	(49.0%)	(51.0%)	(100%)

Panel B: Firm-year Observations in NYSE *(6,008 firm-year observations)*

	Diversification strategy		**Corporate liquidity**	
	Diversified	**Focused**	**High-liquidity**	**Low-liquidity**
N	3,214	2,794	1,760	4,248
(%)	(53.5%)	(46.5%)	(29.3%)	(70.7%)

Panel C: Firm-year Observations in Amex *(720 firm-year observations)*

	Diversification strategy		**Corporate liquidity**	
	Diversified	**Focused**	**High-liquidity**	**Low-liquidity**
N	330	390	390	330
(%)	(45.9%)	(54.1%)	(54.2%)	(45.8%)

Panel D: Firm-year Observations in NASDAQ *(7,116 firm-year observations)*

	Diversification strategy		**Corporate liquidity**	
	Diversified	**Focused**	**High-liquidity**	**Low-liquidity**
N	2,462	4,654	4,633	2,483
(%)	(34.6%)	(65.4%)	(65.1%)	(34.9%)

Table 3 provides the firm characteristics of corporate liquidity of our sample classified by diversification strategy. In **Table 3**, we adopt three measurements of corporate liquidity in our data and provide comparisons among these three measures. We can see that the traditional measure of corporate liquidity, the cash holdings ratio is higher in focused firms than in diversified firms. It is consistent with the results in Duchin (2010), which finds that multidivision firms hold significantly less cash than their stand-alone counterparts. We also find that diversified firms hold more interest-bearing debt than focused firms in Column 5 to Column 7. The last three columns report the information that focused firms in our sample are inclined to hold more net cash, while diversified firms tend to hold more interest-bearing debt than

their cash holdings. This table also reveals that on average, firms in three main security exchanges hold more cash than their debt usages. Overall, this table provides the preliminary information for our analysis and reveals the fact that firms with more cash holding may not relatively be more leveraged.

Table 3 Firm characteristics by corporate liquidity measure.

This table provides the sample description of corporate liquidity classified by stock exchange. It is defined as diversified, if the number of segments of the firm-year observation is more than 1, vice versa. Column 2 to Column 4 shows the ratio of cash to total assets classified by diversification strategy. Column 5 to Column 7 shows the interest-bearing long-term debt ratio classified by diversification strategy. Column 8 to Column 10 shows the net cash-to-assets ratio (the ratio of cash holdings minus total long-term debt to total assets) classified by diversification strategy.

Exchange	Cash / Total assets			Interest-bearing long-term debt ratio			Net cash-to-assets ratio		
	Diversified	Focused	Whole sample	Diversified	Focused	Whole sample	Diversified	Focused	Whole sample
NYSE	0.103	0.136	0.114	0.234	0.225	0.231	-0.131	-0.089	0.117
Amex	0.132	0.154	0.145	0.154	0.122	0.136	-0.022	0.032	0.009
NASDAQ	0.167	0.285	0.244	0.159	0.132	0.142	0.008	0.152	0.102
Total	0.127	0.235	0.183	0.203	0.158	0.180	-0.076	0.077	0.002

3.5 Summary statistics

Table 4 describes the various variables employed in this study. Of particular interest in our analysis is the relative performance of multisegment and single-segment firms. The sample consists of 13,844 observations, of which, 7,838 are from single-segment firms and 6,006 from multisegment firms. Column 4 to Column 6 of **Table 4** provides the mean, median for the variable in our regressions for comparison of diversified and focused firms. It also reports the difference of the mean or median of our variables between focused firms and diversified firms. Inconsistent with Berger and Ofek (1995), we find that multisegment firms have a substantial

diversification premium relative to single-segment firms. However, it is a univariate analysis. We would use our results of regression models for explanation.

We also focus on the relative performance of high-liquidity and positive leveraged firms. Of all sample observations, 6,783 are high-liquidity firms and 7,061 are low-liquidity firms. Column 7 to Column 9 of **Table 4** provides the mean, median for the variable in our regressions for comparison of negative leveraged and positive leveraged firms. There are no consistent results in excess value of the comparison between corporate liquidity. We further considering the interaction effect of diversification strategy and corporate liquidity. Consistent with prior literatures, multi-segment firms are on average low-liquidity, which means they employ more leverage and hold less cash holdings than single-segment firms. It suggests that the diversification decision is related to both firm debt usage and cash holdings.

Table 4 Summary statistics and mean test

This table reports summary statistics for the data used in the analysis. Included are the mean and median (in parenthesis) for each variable. The data set is comprised of 13,844 firm-year observations from 2005 through 2010. It provides the descriptive statistics of the whole sample in Column 2 and 3. It reports the comparison of focused and diversification firms for each variable in Column 4 to Column 6. It is defined as diversified, if the number of segments of the firm-year observation is more than 1, vice versa. It reports the comparison of high-liquidity and low-liquidity firms for each variable in Column 7 to Column 9. It is defined as high-liquidity, if the net cash-to-assets ratio of the firm-year observation is positive, vice versa. Column 6 provides the differences and mean test of key variables between diversified firms and focused firms. Column 9 provides the differences and mean test of key variables between high-liquidity firms and low-liquidity firms.

	Whole sample		**Comparison of diversified and focused firms**			**Comparison of high-liquidity and low-liquidity firms**		
	Mean (Median)	Standard deviation	Diversified	Focused	Diff.	High-liquidity	Low-liquidity	Diff.
Excess value (assets)	0.221 (0.051)	0.812	0.401 (0.189)	0.033 (0.000)	0.368*** (0.189)	0.230 (0.092)	0.213 (0.021)	0.017* (0.071)
Hybrid EV	0.162 (0.024)	0.751	0.286 (0.119)	0.032 (0.000)	0.254*** (0.119)	0.161 (0.053)	0.163 (0.004)	-0.002 (0.049)
Cash-to-assets ratio	0.179 (108)	0.190	0.127 (0.083)	0.235 (0.163)	-0.108*** (-0.080)	0.297 (0.251)	0.068 (0.046)	0.229*** (0.205)

Net cash-to-assets ratio	-0.002 (-0.011)	0.328	-0.076 (-0.077)	0.076 (0.078)	-0.152*** (-0.155)	0.256 (0.204)	-0.245 (-0.201)	0.501*** (0.405)
Size	6.605 (6.487)	1.996	7.235 (7.203)	5.941 (5.759)	1.294*** (1.444)	5.849 (5.611)	7.317 (7.330)	-1.468*** (-1.719)
Profit	0.058 (0.081)	0.369	0.090 (0.089)	0.026 (0.072)	0.064*** (0.017)	0.035 (0.070)	0.080 (0.091)	-0.045*** (-0.021)
Capex	0.123 (0.036)	0.447	0.094 (0.038)	0.154 (0.035)	-0.060*** (0.003)	0.077 (0.030)	0.168 (0.043)	-0.091*** (-0.013)
N	13,844	13,844	6,006	7,838	-	6,783	7,061	-

Using a t-test for means, ***, **, and * indicate a significance from focused firms at the 1%, 5%, and 10% levels, respectively.

We take VIF test to illustrate the collinearity problem in **Table 5**. In statistics, the variance inflation factor (VIF) quantifies the severity of multi-collinearity in an ordinary least squares regression analysis. It provides an index that measures how much the variance (the square of the estimate's standard deviation) of an estimated regression coefficient is increased because of collinearity. In practice, if VIF is larger than 10, collinearity problem exists; less than 10, the problem doesn't exist.

In **Table 5**, we observe that the numbers of VIF are between 1 and 2 for each model. Thus, we can conclude that there is no collinearity problem in our research model.

Table 5 Variance inflation factor (VIF)

This table display the variance inflation factor (VIF) for each variable in each regression model. Panel A reports VIF for baseline empirical model. Panel B reports VIF for regression model - over-time changes in variables. Excess value (asset multiples and hybrid measure) and changes in excess value are the dependent variables in in our two regression models repectively. Major independent variables are Entropy, Cash, Cash*Entropy, NetCash, NetCash*Entropy, Dummy_HL, and Dummy_HL*Entropy. Minor independent variables are Size, Profit, and Capex. The number of sample is presented below, denoted as N.

Panel A. VIF for baseline empirical model

	EV (Asset multiples)			**Hybrid EV**		
Entropy	2.215	1.224	1.822	2.215	1.224	1.822
Cash	1.428			1.428		
Cash*Entropy	1.990			1.990		

NetCash		1.523			1.523	
NetCash*Entropy		1.465			1.465	
Dummy_HL			1.733			1.733
Dummy_HL*Entropy			1.938			1.938
Size	1.317	1.334	1.359	1.317	1.334	1.359
Profit	1.169	1.141	1.136	1.169	1.141	1.136
Capex	1.194	1.186	1.177	1.194	1.186	1.177
N	13,844	13,844	13,844	13,848	13,848	13,848

Panel B. VIF for regression model - over-time changes in variables

	EV_t-EV_{t-1} (Asset multiples)		**EV_t-EV_{t-1} (Hybrid)**	
ΔEntropy $_{t-1 \text{ to } t}$	1.477	1.477	1.477	1.478
ΔCash$_{t-1 \text{ to } t}$	1.281		1.281	
Dummy_HL$_{t-1}$ *ΔEntropy$_{t-1 \text{ to } t}$	1.476		1.476	
ΔNetCash$_{t-1 \text{ to } t}$		1.010		1.010
Dummy_HL$_{t-1}$*ΔEntropy$_{t-1 \text{ to } t}$		1.476		1.476
ΔSize$_{t-1 \text{ to } t}$	1.471	1.194	1.471	1.194
ΔProfit$_{t-1 \text{ to } t}$	1.820	1.821	1.820	1.821
ΔCapex$_{t-1 \text{ to } t}$	1.821	1.827	1.821	1.827
N	10,156	10,156	10,156	10,156

4. Empirical model and results

In this section, we describe the methodology and report the results.

4.1Baseline empirical model

First, we examine the effect of diversification on excess value following the methods of Berger and Ofek (1995). In our baseline specification we examine whether the relation between corporate liquidity and diversification status would make influences on firm value. We use excess value, defined as *EV*, as the dependent variable in our baseline regressions.[9] We further follow Hoechle et al. (2012) and

[9] For the excess value, we use the asset multipliers followed by Berger and Ofek (1995).

apply the hybrid excess value as an alternative dependent variable for better explanation of results. Specifically, for corporate liquidity, we use three proxies. The first proxy is cash-to-assets ratio, defined as cash and marketable securities divided by total assets. Cash-to-assets ratio is a pervasively used as a proxy for corporate liquidity in prior literatures, such as Bates, Kahle, and Stulz (2009), Duchin (2010), and Lins et al. (2010). The second proxy is net cash-to-assets ratio, defined as cash holdings (including cash equivalents) and short-term investment minus total long-term debt (that is, interest-bearing debt) scaled by total assets. We regard net cash-to-assets ratio as a stricter proxy for corporate liquidity because it considers both the cash holdings (unconditional liquidity) and debt usages (conditional liquidity). It is used in several studies (e.g., Passov, 2003; Flannery and Lockhart, 2009; Islam, 2012). The third one is a dummy variable, *Dummy_HL*, which equals 1 for net cash-to-assets ratio being positive and 0 otherwise. If *Dummy_HL* equals 1, it means the firm holds more cash holdings than their interest-bearing debt. We explain it as the firm has sufficient liquid assets for covering its debt financing costs.

For measurements of diversification, we use entropy, *Entropy* in our model. We also apply the interaction terms, such as $Cash_{i,t}$*$Entropy_{i,t}$, $NetCash_{i,t}$*$Entropy_{i,t}$, and $Dummy\_HL_{i,t}$*$Entropy_{i,t}$, to further examine the interactive effect between corporate liquidity and diversification on firm value. We develop the primary specification as follows.

$$EV_{i,t} = \beta_0 + \beta_1 Entropy_{i,t} + \beta_2 Cash_{i,t} + \beta_3 Cash_{i,t}*Entropy_{i,t} + \beta_4 Size_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Capex_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$EV_{i,t} = \beta_0 + \beta_1 Entropy_{i,t} + \beta_2 NetCash_{i,t} + \beta_3 Netash_{i,t}*Entropy_{i,t} + \beta_4 Size_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Capex_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$EV_{i,t} = \beta_0 + \beta_1 Entropy_{i,t} + \beta_2 Dummy\_HL_{i,t} + \beta_3 Dummy\_HL_{i,t} * Entropy_{i,t} + \beta_4 Size_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Capex_{i,t} + \varepsilon_{i,t} \quad (6)$$

The regression output is shown in **Model 1**, **Model 3**, and **Model 3** in **Table 6** use the excess value in assets multiplier approach as dependent variables. We further follow the approach of Hoechle et al. (2012) to apply the hybrid excess value as another dependent variable for robustness in **Model 4**, **Model 5**, and **Model 6** in **Table 6**. As expected based on prior research and our conjectures, β_1 is negative and significant in all models. The impact of corporate diversification on excess firm value is correlated with a discount in excess value. As reported in the results of β_2, all three proxies show that corporate liquidity is positively and significantly related to excess firm value. It implicates that firms with higher level of corporate liquidity are inclined to have higher firm value. In addition, the application of the proxy of net cash-to-assets ratio further indicates that firms with more cash holdings and less interest-bearing debt, which have high level of absolute liquidity have higher firm value. As our main attempt for examining the impact of corporate liquidity on diversification discount effect, we use the interaction terms between proxies of corporate liquidity and firm diversification for explanation. The coefficients of β_3 in all models report that the interaction between corporate liquidity and firm diversification leads to a positive relation to firm value. It reveals that corporate liquidity can confer strategic benefits to firms with higher level of diversification. With more unconditional liquid asset on hand, firms have more resources from inter capital markets and it is beneficial to adopt diversification strategy. This result supports the liquidity premium hypothesis and indicates that the corporate liquidity mitigates diversification discount effect through the benefits of liquidity premium.

Table 6 Regression of excess value on diversification, corporate liquidity and other variables

This table provides empirical results from regressing excess value (EV) on corporate diversification, corporate liquidity and other variables. The dependent variable, excess value (*EV*), where *EV* is measured using asset multiplier approach of Berger and Ofek (1995) and hybrid excess value is measured by the method of Hoechle et al. (2012). *Entropy* represents the entropy measure of diversification, which is the sum of the proportion of sales from segments of firm multiplied by the natural log of reciprocal of proportion of sales from segments of firm. *Cash* is the ratio of cash and marketable securities to total assets. *NetCash* is cash holdings (including cash equivalents) and short-term investment minus total long-term debt (that is, interest-bearing debt) scaled by total assets. *Dummy_HL* is a dummy variable that equals 1 for net cash-to-assets ratio being positive and 0 otherwise. *Size* is Natural log of total assets. *Profit* is the ratio of EBIT to sales. *Capex* is capital spending scaled by total sales. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The values of t statistics are in parentheses.

Variables	EV (Asset multiples)			Hybrid EV		
	(1)	(2)	(3)	(4)	(5)	(6)
Entropy	-0.204***	-0.062***	-0.131***	-0.211***	-0.143***	-0.162***
	(-8.91)	(-3.62)	(-6.27)	(-10.00)	(-9.01)	(-8.39)
Cash	0.351***			0.415***		
	(8.55)			(10.96)		
Cash*Entropy	1.173***			0.700***		
	(9.78)			(6.33)		
NetCash		0.113***			0.134***	
		(4.47)			(5.75)	
NetCash*Entropy		0.204***			0.032	
		(3.45)			(0.60)	
Dummy_HL			0.070***			0.072***
			(3.92)			(4.38)
Dummy_HL*Entropy			0.156***			0.046
			(4.74)			(1.52)
Size	0.080***	0.075***	0.077***	0.081***	0.076***	0.077***
	(21.18)	(19.42)	(19.79)	(23.34)	(21.46)	(21.32)
Profit	0.111***	0.088***	0.084***	0.114***	0.088***	0.083***
	(5.58)	(4.46)	(4.23)	(6.23)	(4.84)	(4.55)
Capex	-0.026	-0.035**	-0.039**	-0.001	-0.012	-0.017
	(-1.58)	(-2.14)	(-2.35)	(-0.09)	(-0.82)	(-1.11)
Intercept	-0.348***	-0.243***	-0.293***	-0.410***	-0.293***	-0.331***
	(-12.84)	(-9.76)	(-10.07)	(-16.41)	(-12.76)	(-12.33)
Adjusted R^2 [10]	0.046	0.032	0.033	0.050	0.037	0.036
N	13,844	13,844	13,844	13,844	13,844	13,844

[10] Regarding the lower adjusted R^2, it seems to be very common in the related literatures (e.g., Glaser and Muller, 2010; Hund et al., 2010; Hoechle et al., 2012).

4.2Regression model - Over-time changes in variables

Since the existing explanations in the previous section and most of the empirical research to date has focused on a static comparison of firm excess values at a particular point in time, we extend prior research with a comparison of the dynamic performance of diversified and single segment firms over time. An examination of the change in excess value of firms with different level of diversification in general, and the change in states of corporate liquidity, allows us to cleanly clarify the dynamic impacts of our main factors, corporate liquidity and firm diversification on excess value. We use the change in excess value, defined as $EV_t - EV_{t-1}$ (or $\Delta EV_{t-1\ to\ t}$), as the dependent variable in our robustness regression model. Each variable is measured in change over time. The specification is as follows

$$\begin{aligned}\triangle EV_{t\text{-}1\ to\ t} = {} & \beta_0 + \beta_1 \triangle Entropy_{t\text{-}1\ to\ t} + \beta_2 \triangle NetCash_{t\text{-}1\ to\ t} + \\ & \beta_3 Dummy\_HL_{t\text{-}1} * \triangle Entropy_{t\text{-}1\ to\ t} + \beta_4 \triangle Size_{t\text{-}1\ to\ t} + \beta_5 \triangle Profit_{t\text{-}1\ to\ t} + \\ & \beta_6 \triangle Capex_{t\text{-}1\ to\ t} + \varepsilon_{t\text{-}1\ to\ t} \qquad (7)\end{aligned}$$

$$\begin{aligned}\triangle EV_{t\text{-}1\ to\ t} = {} & \beta_0 + \beta_1 \triangle Entropy_{t\text{-}1\ to\ t} + \beta_2 \triangle Cash_{t\text{-}1\ to\ t} + \\ & \beta_3 Dummy\_HL_{t\text{-}1} * \triangle Entropy_{t\text{-}1\ to\ t} + \beta_4 \triangle Size_{t\text{-}1\ to\ t} + \beta_5 \triangle Profit_{t\text{-}1\ to\ t} + \\ & \beta_6 \triangle Capex_{t\text{-}1\ to\ t} + \varepsilon_{t\text{-}1\ to\ t} \qquad (8)\end{aligned}$$

where $\Delta Ent_{t-1\ to\ t}$ to be positive if the diversification level of firms rises; to be negative if the diversification level of firms falls. The estimates of Eq. (7) and (8) are shown in **Table 7**. As expected based on prior literatures (e.g., Hund et al., 2010), β_1 is negative and significant. A shift towards a diversified organizational form is correlated with a drop in excess value, while a shift towards a focused form is correlated with a rise in excess value. The results in **Table 7** shown that β_2 is

significantly positive, which means that firms hold more liquid assets on hand and achieve higher level of liquidity overtime is correlated with a rise in excess value. It shows the positive impact of benefits of corporate liquidity on firm value over period. As the main results of our research, β_3 in models in **Table 7** indicates the impact of change in diversification level on the change in excess firm value of high-liquidity firms in year t-1. That means this coefficient can measure that if firms are at the high level of corporate liquidity in the previous year, would they still suffer from the value-destroying effect of diversification? As reported in **Table 7**, β_3 is positive and significant, which can be explained that it is beneficial for firms with sufficient liquid assets to employ the diversification strategy. Absolute level of unconditional liquidity provides firms with ample resources of internal capital for business expansion, and prevents firms from the cost of external financing. This result supports the liquidity premium hypothesis, and shows that liquidity premium moderates the cross-subsidization effect of firm diversification.

Table 7 Robust regression on change in excess value towards diversification status and corporate liquidity.

The following table contains robust regression results showing the predictive power of various diversification measures in explaining the change in excess value over the period 2005-2010. The dependent variable, change in excess value, is $EV_t - EV_{t-1}$, where *EV* is measured using the asset multiplier approach of Berger and Ofek (1995) and hybrid measurement. *Entropy* represents the entropy measure of diversification. *Cash* is the ratio of cash and marketable securities to total assets. *NetCash* is cash holdings (including cash equivalents) and short-term investment minus total long-term debt (that is, interest-bearing debt) scaled by total assets. *Dummy_HL* is a dummy variable that equals 1 for net cash-to-assets ratio being positive and 0 otherwise. *Size* is Natural log of total assets. *Profit* is the ratio of EBIT to sales. *Capex* is capital spending scaled by total sales. Subscripts indicate the time of measurement.

Variables	EV_t-EV_{t-1} (Asset multiples)		EV_t-EV_{t-1} (Hybrid)	
	(1)	(2)	(3)	(4)
$\Delta Entropy_{t-1\ to\ t}$	-0.856***	-0.853***	-0.821***	-0.824***
	(-23.96)	(-23.85)	(-18.48)	(-18.52)
$\Delta Cash_{t-1\ to\ t}$	0.210***		0.164***	
	(8.94)		(5.81)	
$\Delta NetCash_{t-1\ to\ t}$		0.095***		0.080***

		(6.37)		(4.46)
$Dummy\_HL_{t-1}*\Delta Entropy_{t-1\ to\ t}$	0.116*	0.098	0.384***	0.372***
	(1.85)	(1.57)	(4.73)	(4.58)
$\Delta Size_{t-1\ to\ t}$	-0.217***	-0.159***	-0.152***	-0.105***
	(-14.89)	(-12.23)	(-8.63)	(-6.69)
$\Delta Profit_{t-1\ to\ t}$	0.015*	0.010	0.002	-0.001
	(1.68)	(1.12)	(0.28)	(-0.09)
$\Delta Capex_{t-1\ to\ t}$	0.018**	0.014*	0.010	0.008
	(2.51)	(1.92)	(1.16)	(0.88)
Intercept	0.004	0.004	-0.009**	-0.009**
	(1.37)	(1.42)	(-2.38)	(-2.40)
Adjusted R^2	0.094	0.091	0.046	0.045
N	10,045	10,048	9,815	9,813

4.3Robustness tests

We further use robust regression for robustness checks in our models. Robust regression is an alternative to least squares regression when data are contaminated with outliers or influential observations, and it can also be used for the purpose of detecting influential observations. The idea of robust regression is to weigh the observations differently based on how well behaved these observations are. Roughly speaking, it is a form of weighted and reweighted least squares regression. As giving less weight to outliers (close to zero), robustness regression provides an alternative regression model with more accurate results and higher degree for explanation.

As shown in **Table 8**, most the results are consistent with those in **Table 6**. However, the adjusted R-squares are significantly higher in robust regression model. The results support the liquidity premium hypothesis in the robustness tests.

Table 8 Robust regression of excess value on diversification, corporate liquidity and other variables

This table provides empirical results from regressing excess value (EV) on corporate diversification, corporate liquidity and other variables. The dependent variable, excess value (*EV*), where *EV* is measured using asset multiplier approach of Berger and Ofek (1995) and hybrid excess value is measured by the method of Hoechle et al. (2012). *Entropy* represents the entropy measure of diversification, which is the sum of the proportion of sales from

segments of firm multiplied by the natural log of reciprocal of proportion of sales from segments of firm. *Cash* is the ratio of cash and marketable securities to total assets. *NetCash* is cash holdings (including cash equivalents) and short-term investment minus total long-term debt (that is, interest-bearing debt) scaled by total assets. *Dummy_HL* is a dummy variable that equals 1 for net cash-to-assets ratio being positive and 0 otherwise. *Size* is Natural log of total assets. *Profit* is the ratio of EBIT to sales. *Capex* is capital spending scaled by total sales. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The values of t statistics are in parentheses.

Variables	EV (Asset multiples)			Hybrid EV		
	(1)	(2)	(3)	(4)	(5)	(6)
Entropy	-0.018	0.036***	0.025**	-0.047***	-0.054***	-0.023***
	(-1.33)	(3.49)	(2.00)	(-3.45)	(-5.22)	(-1.83)
Cash	0.525***			0.549***		
	(21.47)			(22.36)		
Cash*Entropy	0.613***			0.243***		
	(8.27)			(9.66)		
NetCash		0.205***			0.210***	
		(13.33)			(13.67)	
NetCash*Entropy		0.103***			-0.120***	
		(2.71)			(-3.30)	
Dummy_HL			0.128***			0.127***
			(11.86)			(11.78)
Dummy_HL*Entropy			0.017			-0.057***
			(0.86)			(-2.87)
Size	0.044***	0.043***	0.042***	0.050***	0.048***	0.048***
	(18.71)	(17.69)	(17.39)	(21.56)	(20.00)	(19.75)
Profit	0.114***	0.084***	0.078***	0.120***	0.091***	0.084***
	(9.22)	(6.82)	(6.37)	(9.66)	(7.34)	(6.79)
Capex	-0.003	-0.011	-0.016	0.009	-0.000	-0.005
	(-0.31)	(-1.15)	(-1.63)	(0.95)	(-0.05)	(-0.53)
Intercept	-0.317***	-0.206***	-0.266***	-0.376***	-0.252***	-0.313***
	(-19.26)	(-13.28)	(-14.85)	(-22.72)	(-16.26)	(-17.43)
Adjusted R^2	0.074	0.042	0.038	0.070	0.040	0.037
N	13,490	13,504	13,501	13,571	13,589	13,587

5. Conclusion

Two important sources of company value are corporate liquidity and diversification. As such, value-destroying effect of diversification has been the subject of a vast amount of research. However, prior literatures have not yet examined the direct effect of corporate liquidity on the execution of diversification strategy to firm value. In this research we contribute to the studies by examining the trade-off between these two attributes. We bring up the contention that diversification discount effect should be conditional on the liquidity position of firms.

We developed two hypotheses based on different theories of firm diversification and corporate liquidity. Besides using a static comparison of firm excess values followed by Berger and Ofek (1995) at a particular point in time, we further followed the methodology in Hund et al. (2010) and extend prior research with a comparison of the dynamic performance of diversified and single segment firms over time.

The findings imply that corporate liquidity is positively related to firm value. In addition, it eliminates the diversification discount effect through liquidity premium. Firms with higher level of liquidity do not suffer from the negative impact of inefficient cross-subsidization of diversified organization form. Instead, with abundant resources of internal capital markets, firms would make efficient use of both conditional and unconditional liquidity and expand their business lines through diversification strategy.

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