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Cash Richness and Propensity to Acquire —An Empirical Examination Based on Largest Deals

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ABSTRACT

The study aims to examine if cash rich firms become acquirers. The study was based on the largest 100 deals completed in the year 2017. The sample deal was selected among the 9000 deals in the year 2017. The source of data was Thomson Reuters. Firms were classified into cash rich and cash poor based on a baseline model. Six binary logistic regression models were used to examine the likelihood of a firm becoming an acquirer. The results suggest that higher the cash intensity, greater is the probability of firms becoming acquirer firms. In other words, cash rich firms tend to become acquirers. Higher the leverage, greater the propensity of firms to become acquirer. Lower earnings per share for firms have higher acquisition likelihood.

Keywords: Debt Repayment, Mergers and Acquisitions, Capital Investments, Cash reserves, Corporate Restructuring **JEL Classifications:** G30, G34

1. INTRODUCTION

Cash has a strategic role to play in an organization. The various strategic uses of cash involve financial options such as share buybacks, debt repayment, dividend increases along with operational alternatives like capital investments, product development or corporate restructuring activities like mergers and acquisitions. Treasury department's strategic role emphasis the significance on cash and liquidity management. Cash accessibility is an important performance metric which can be used to evaluate business performance. Liquidity can take a strategic role for firms in the context of investment decisions. The underinvestment problem faced by firms due to external financing constraint can be solved if firms are able to maintain adequate internal financial flexibility. In this context, cash reserves act as a value creating mechanism for firms with underinvestment problems. On the negative side, huge buffer of cash tends to increase agency conflicts among owners and managers. Agency conflicts are most severe in the presence of large free cash flows wherein managers tend to invest in projects with negative NPV (Jensen and Meckling, 1976, Jensen, 1986). Shareholders expect excess cash to be paid off as dividends to them. On account of capital market imperfections, managers of firms prefer to maintain excess cash to fund for investment activities like mergers and acquisitions.

According to S&P Global, the total liquid assets of US non-financial companies amounted to \$2.1 trillion by the end of the year 2017. According to Moody's the corporate cash reserves of non-financial firms in Europe, the Middle East and Africa recorded \$1 trillion in 2017. The net M&A spending of these firms reached a seven year high of \$96 billion in the year 2017. In 2017, the top US big tech companies had cash holdings of \$446.7 billion. Microsoft and Google's Alphabet had the highest cash reserves of \$133 billion and \$101.9 billion respectively details are given in Table 1. Apple and China Mobile had cash holdings of \$74 and \$71 respectively.

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Maria Obiols, The World's Richest Companies 2018: Global Finance Cash 25.

Table 1: Top 25 global cash rich public companies in year 2017

Rank	Company	Country	Industry	Cash reserves in million dollars
1	Microsoft	US	Technology	132901
2	Alphabet	US	Technology	101871
3	Apple	US	Technology	74181
4	China Mobile	Hong Kong	Telecoms	71615
5	Cisco Systems	US	Technology	70492
6	Oracle	US	Technology	67261
7	Toyota Motors	Japan	Automotive	53883
8	AT&T	UŜ	Telecoms	50498
9	General Electrics	US	Industrial	43967
10	China State Engg Corp	China	Civil Engineering	42663
11	Facebook	US	Technology	41711
12	Amgen	US	Pharmaceuticals	41678
13	Ford Motor	US	Automotive	38927
14	Qualcomm	US	Telecoms	37308
15	Total Fina	France	Oil & Gas	36155
16	Central Japan Rail Corporation	Japan	Transport	34083
17	China Petroleum and Chemical Corp	China	Oil & Gas	33202
18	Samsung Electronics	South Korea	Consumer Electronics	31515
19	Amazon	US	Retail	28052
20	Softbank Corp Group	Japan	Technology	26019
21	Sony	Japan	Consumer Electronics	25711
22	BP	UK	Oil & Gas	25711
23	Gilead Science	US	Pharmaceuticals	25510
24	Dailmer	Germany	Automotive	25359
25	Petrobas	Brazil	Oil & Gas	24409

Source:/https://www.gfmag.com/magazine/september-2018/global-finance-cash-25-2018

The major objective of the study is to determine if cash rich firms become acquirers. The study examines if firms with excess cash have the propensity to involve in corporate restructuring activities like mergers and acquisitions. The study was based on the largest deals in terms of value in the year 2017.

2. LITERATURE REVIEW

Firms become cash rich when managers stockpile free cash flows instead of using it for investment purposes (Jensen, 1986). The basic aim of this strategy is to create a buffer stock against any downturn adverse events. In the process, managers accumulate huge cash reserves and tend to use it for investment decisions according to their own discretion. Managers spend these free cash flows on wasteful projects. On account of hubris, managers create agency conflict in firms. Jensen's free cash flow hypothesis predicts that investments made by firms with accumulated stockpiled cash are on average value decreasing.

Cash rich firms are more likely than other firms to attempt acquisitions. Acquisitions by cash rich firms are value decreasing (Harford, 1999). Lang et al. (1999) develop a measure of free cash flow using Tobin's q to distinguish between firms which have good investment opportunities and those which don't have. Using a sample of successful tender offers, the study find that bidder returns are significantly negatively related to cash flow for low q bidders but not for high q bidders. This study shows that firms with good investment opportunities (high q firms) and high current period cash flow do not suffer from free cash flow problems.

On the other hand, the capital market imperfection hypothesis suggest that managers are reluctant to distribute funds since it

would be expensive to replace the funds later when the firms need them (Myers and Majluf, 1984). Value is created for firms in terms of stock market gains when slack poor firms combine with slack rich firms (Hanson, 1992, Smith and Kim, 1994).

The value of cash reserves primarily as buffer stocks can be identified using firm characteristics. The three critical factors which drive the value of cash reserves are the degree of information asymmetry faced by managers, the volatility and level of cash flows. Market to book ratio of equity is used as an empirical proxy for degree of information asymmetry between external capital providers and managers (Harford, 1999). The cash reserves of a firm are positively related to its market to book ratio (Opler et al., 1999). Firms with strong growth opportunities and riskier cash flows hold relatively high ratios of cash to total non-cash assets (Opler et al., 1999). Large firms and firms with higher abnormal returns or higher sales growth are more likely to become bidders (Asquith et al, 1983, Roll, 1986). Using sample of stock financed acquisitions, the study by Gao (2011) find that the announcement returns are lower for a bidder with a higher excess cash reserve. Ghosh et al. (2012) find that cash rich REITs are not more likely to become acquirers and acquisitions by cash rich REITs are not value decreasing.

3. DATA AND METHODOLOGY

The study was based on the largest 100 completed deals in terms of value in the year 2017. The data source was Thomson Reuters Eikon database. The sample data was based on 23 industries. The list of sample firms and control firms involved in the study is given in Appendix 1. The sample of 100 deals in terms of largest deal value was selected from the initial data of over 9000 deals

across the globe. A baseline model was developed to classify firms involving in acquisition activity as cash rich and cash poor firms. Many of the deals were done by the creation of special purpose vehicle. As a result, the final sample was truncated to 30 acquirers and target firms. The median of the variable cash to total assets and cash to total equity was estimated and firms with the variable value above median was classified as cash rich and others as cash poor. I use logit regression to predict if cash rich firms become bidders. For the logit regression an equal number of control firms was selected matched by acquirer's size in terms of total asset and total revenues in the year 2017.

In the first step, the financial characteristics of acquirer, target and control firms were analyzed with special reference to its cash reserve characteristics. The distinctive characteristics of acquirer versus target, and acquirer versus control firms were analyzed using univariate analysis and statistically tested using t-test. Logit regression analysis was done to predict whether cash rich firms go in for acquisitions. Logit regression was used to identify those cash flow related characteristics which will have a significant impact on the probability that the firm will become an acquirer. Statistical techniques like linear probability functions, logit analysis, probit analysis, and discriminant analysis are useful for the analysis of the acquisition likelihood estimation process. For the logit analysis, firstly, the sample of acquirer firms and random sample of nonacquired firms of similar size that did not become involved in mergers within the sample period was used for the estimation of the acquisition model. Size is measured by the total revenue. The logistic probability model is employed to examine the likelihood that a given cash rich firm will become an acquirer.

The regression model specified is: p(i, t) = 1/(1 + e - bx(i, t))

Where p(i, t) is the probability that firm i is the target of an acquisition attempt during the sample period t. x(i, t) = a vector of measured attributes for firm i at time t. b is the unknown parameter vector.

Study of binary events with regression analysis is inappropriate since the discrete (outcome) variable follows the binomial distribution instead of the normal distribution. Logit analysis and discriminant analysis are both methodologies that may be employed within a binary prediction framework. Logit analysis is often preferable because it offers the advantage of not requiring

the strict assumption of multivariate normality and equal variances. It is more similar to regression analysis with its straightforward statistical tests along with the ability to incorporate non-linear effects and a wide range of diagnostics (Hair et al., 1995). Wansley (1984) concludes that discriminant analysis results should be viewed cautiously when the sample size is small. His results provide a sound basis for using a large sample and logit analysis when the dependent variable is binary.

4. DEAL CHARACTERISTICS

The top 100 M&A deals in year 2017 was valued at \$483.510 billion dollars. The acquisition of CR Bard Inc. by Becton Dickinson & Co during April 2017 was the largest deal with value of \$24.227 billion. The median value of the largest 100 deals was \$3.272 billion. The standard deviation of the deal value amounted to \$42.1158 billion. The minimum deal value amounted to \$1.765 billion dollars (Table 2).

The variables CATA and CATE represent Cash and Cash Equivalents to Total Assets and Cash and Cash Equivalents to Total Equity as mentioned in Table 3. The variables are based on the year 2017. The mean of cash holdings to the total assets was 6.6 percent and cash flow to total equity for acquirer firms was 6.6% and 54% respectively. At the same time, the mean of cash holding to total assets and total equity firms was 16.4% and 24.4% respectively. There exists statistically significant difference among cash holding to total assets between acquirer and target samples. The mean cash holding intensity of target firms was higher than acquirer firms. The higher value can be attributed to the low level of total assets of the target firms compared to the acquirer firms. The median cash flow intensity in terms of total assets and total equity for acquirer firms was 5.03% and 15.6% respectively. The median cash flow intensity in terms of total assets and total equity for target firms was 8.2% and 26% respectively. The standard deviation of Cash flow to Total Equity was much higher compared to the Cash flow to Total Assets of both acquirer and target firms.

Table 4 describes the distinctive mean characteristics of acquirer and control firms. The ratios used are reflective of the cash holdings and related ratios. CATA and CATE are cash and cash equivalents to total assets and cash and total equity. CADEV represent deviations of each individual cash assets to total assets

Table 2: Provides details of top five deals in year 2017

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SI	Deal size in million dollars	Target	Acquirer	Merger Type	Country
1	2427	CB Bard Inc.	Becton Dickinson & Co	Horizontal	USA
2	20957	Valepar SA	Vale SA	Horizontal	Brazil
3	17828	Mead Johnson	Reckitt Benckiser	Conglomerate	US/UK
4	17118	ONEOK Partners LP	ONEOK Inc	Horizontal	US
5	16421	Global Logistic Properties Ltd	Nesta Investment Holdings Ltd	Vertical	Singapore/China

Table 3: Characteristics of acquirer and target firm's cash flow characteristics

	Acq	uirer			Target		Diff of Mean
Variable	Mean	Median	Stdev	Mean	Median	Stdev	t/P value
CATA	0.066	0.0503	0.0657	0.164	0.082	0.213	-2.37*
CATE	0.54	0.156	1.398	0.244	0.260	0.821	-0.64

^{*}Significant at 10%

from the median of the total cash to total assets. P/E and P/B are price to earnings and price to book ratio. The leverage ratios are represented by Total Debt to Total Assets, total debt to total capital (TDTC) and Total Debt to Total Equity (TDTE). Earnings per share (EPS). Statistically significant differences exist between acquirer and control firms with respect to leverage. The acquirer firms are much more leveraged than control firms. Cash holding intensity with respect to total assets is higher for control firms compared to acquirer firms. The earning potential of acquirer firms as reflected by P/E ratio is higher for acquirer firms compared to control firms. But the results are statistically not significant.

5. LOGIT REGRESSION RESULTS

Six models were altogether used in the logit regression models. The first three models were based on the cash holding variable of total cash to total assets and the next three models were based on the cash holding variable of total cash to total equity. The variables in all model were moderately correlated as the VIF values were <2.5. In general, if VIF value is placed between 1<VIF<5, then regression coefficient is moderately estimated. If VIF value is greater than five, then the regression coefficient is poorly estimated as shown in Table 5.

The model I, II and III results suggest that cash intensity variable of CATA is negatively related to the probability of acquisition. It has to be noted that the mean and median characteristics of variable CATA is low for the sample acquirer firms since the asset size was large compared to the total cash holdings for the firm. The dummy variable of CATA represent cash reserves intensity of the sample firms. Firms with above median cash holding intensity were classified as cash rich and the other firms as cash poor. The model I, II and III results suggest that higher the cash intensity, greater is the probability of firms becoming acquirer firms. In other words, cash rich firms tend to become acquirers. In model I, the dummy variable CATA has statistically significant coefficient of 1.745 with statistical significance at 5% and 10% respectively. In model II, the coefficient value for dummy CATA was 1.505 with statistical significance at 10%. In model III, the coefficient value for dummy CATA was 1.513 with statistical significance at 10%. Higher the leverage, greater the propensity of firms to become acquirer. Model I and III results provides some evidence in this direction. In model I, the leverage variable of TDTC had a coefficient value of 5.58 with statistical significance at all levels. In Model III, leverage

Table 4: Distinctive mean characteristics of acquirer and control firms

Variable	Acquirer	Control	Diff of mean t-test
CATA	0.07	0.11	-1.83*
CATE	0.54	0.41	0.46
CADEV	0.01	0.05	-0.183*
P/E	75.79	23.92	1.13
P/B	-21.31	2.48	-0.92
TDTA	0.37	0.26	0.96
TDTC	0.34	0.21	2.62***
TDTE	2.94	0.53	1.45*
EPS	1.59	7.04	1.28

TDTA: Total debt to total assets, TDTC: Total debt to total capital, TDTE: Total debt to total equity, EPS: Earnings per share. *Significant at 10%

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Variables		Model I	I			Model II	I			Model III	I	
	Coeff	Chi-square	P value	VIF	Coeff	Chi-square	P value	VIF	Coeff	Chi-square	P value	VIF
Constant	-0.967	19.53	0.007		-0.015	10.95	0.052		-0.614	16.45	900.0	
CATA	-10.89	3.61	0.0058	2.05	-10.47	4.97	0.026	2.02	-10.77	3.79	0.052	7
CATE												
DUMMYCATA	1.745	4.33	0.037	2.06	1.505	3.72	0.054	2.04	1.513	3.45	0.063	1.98
DUMMYCATE												
PE	0.0057	1.63	0.201	1.07	0.01	1.8	0.179	1.06				
PB	-0.005	1.34	0.248	1.01					-0.0055	1.57	0.21	1.01
TDTA	-1.072	1.53	0.215	1.71	0.242	0.13	0.722	1.04				
TDTC	5.58	7.14	0.008	1.83					3.94	5.82	0.016	1.09
EPS	-0.17	3.35	0.067	1.3	-0.076	1.14	0.287	1.05	-0.145	2.94	0.087	1.15
Goodness of Fit						Goodness of Fit	f Fit			Goodness of Fit	f Fit	
Test	DF	Chi-square	P value	ne	DF	Chi-square	P value	ıe	DF	Chi-square	P value	•
Deviance	51	62.24	0.13	5	52	61.34	0.123	~	53	65.32	0.119	
Pearson	51	57.54	0.246	9	52	58.2	0.222	61	53	58.64	0.276	
Hosmer-Lemeshow	∞	16.09	0.041	1	∞	17.09	0.032	61	∞	13.36	0.1	
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Table 6: Model IV, V, VI results

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Variables		Model IV	>			Model V	Λ			Model VI	I	
	Coeff	Chi-square	P Value	VIF	Coeff	Chi-square	P Value	VIF	Coeff	Chi-square	P Value	VIF
Constant CATA	-0.921	15.38	0.031		-0.709	12.45	0.029		-0.356	8.75	0.188	
CATE	-0.59	0.73	0.393	2.08	-0.412	0.39	0.534	1.94	0.27	0.85	0.357	1.19
DUMMYCATE	0.189	0.07	962.0	1.55	0.133	0.04	0.849	1.47	0.408	0.35	0.557	1.56
CDEV									-6.35	2.61	0.106	1.42
PE	0.0056	1.33	0.248	1.06					0.0076	1.52	0.218	1.04
PB	-0.01	1.56	0.212	1.57	-0.008	1.16	0.282	1.51				
TDTA	-1.089	1.51	0.219	1.89					0.56	0.7	0.401	1.07
TDTC	6.01	8.71	0.003	1.97	4.32	7.83	0.005	1.1				
EPS	-0.17	4.18	0.041	1.23	-0.156	3.89	0.049	1.15	-0.0815	1.37	0.243	1.06
Goodness of Fit						Goodness of Fit	of Fit			Goodness of Fit	f Fit	
Test	DF	Chi-square	P value	ne	DF	Chi-square	P value	ıe	DF	Chi-square	P value	ıe
Deviance	51	66.4	0.072	2	53	69.33	90.0	10	52	73.02	0.02	•
Pearson	51	53.41	0.382	2	53	56.23	0.355	10	52	55.98	0.328	~
Hosmer-Lemeshow	∞	23.76	0.003	3	∞	20.39	0.009	(∞	11.48	0.17	,
TDTA: Total debt to total assets, TDTC: Total debt to total capital, TDTE: Total debt to total equity, EPS: Earnings per share	ets, TDTC: Total	debt to total capital, TE	TE: Total debt to	total equity, El	S: Earnings per s	share						

variable TDTC had a coefficient value of 3.94 with statistical significance at 5% and 10%. EPS was negatively related in Model I and Model III. In model I, the EPS coefficient value was -0.17 with statistical significance at 10%. Model III results find that EPS coefficient value was -0.145 with statistical significance at 10%. On the basis of Model I and Model III results, it can be suggested that lower the EPS of firms, higher the probability of a firm becoming an acquirer as given below in Table 6.

In model IV, V and VI, the cash holding intensity was represented by the dummy variable CATE (Total cash to total equity). In Model IV and V, the leverage variable of TDTC was positively related to the likelihood of becoming an acquirer. In model IV, the coefficient of TDTC was 6.01 with statistically significance at all levels. In model V, the variable of TDTC had coefficient of 4.32 with statistical significance at all levels. EPS had negative coefficient values on likelihood of acquisition with statistical significance at 5%. Lower EPS for firms have higher acquisition likelihood.

6. CONCLUDING REMARKS

The study aims to examine if cash rich firms become acquirers. The study was based on the largest 100 deals completed in the year 2017. The sample deal was selected among the 9000 deals in the year 2017. The source of data was Thomson Reuters. Firms were classified into cash rich and cash poor based on a baseline model. Six binary logistic regression models were used to examine the likelihood of a firm becoming acquirer. The study finds that there exists statistically significant difference among cash holding to total assets between acquirer and target samples. Cash holding intensity with respect to total assets is higher for control firms compared to acquirer firms. The earning potential of acquirer firms as reflected by P/E ratio is higher for acquirer firms compared to control firms.

The results suggest that higher the cash intensity, greater is the probability of firms becoming acquirer firms. In other words, cash rich firms tend to become acquirers. Higher the leverage, greater the propensity of firms to become acquirer. Lower EPS for firms have higher acquisition likelihood.

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APPENDIX

SL	Acquirer firms	Control Firms
1	Optum Inc.	NexgenRx Inc.
2	Vale SA	China Shenhua Energy Co Ltd H
3	ONEOK Inc.	MPLX LP Partnership Units
4	EQT Corp	MPLX LP Partnership Units
5	LVMH Moet Hennessy Louis Vuitton SA	Cie Financiere Richemont SA
6	Cineworld Group PLC	Merlin Entertainments PLC
7	DCP Midstream Partners LP	MPLX LP Partnership Units
8	John Wood Group PLC	MPLX LP Partnership Units
9	Express Scripts Holding Co	Cie Financiere Richemont SA
10	Gartner Inc.	TCS
11	Yancoal Australia Ltd.	China Shenhua Energy Co Ltd. H
12	Noble Energy Inc.	MPLX LP Partnership Units
13	SemGroup Corp	MPLX LP Partnership Units
14	Aker BP ASA	MPLX LP Partnership Units
15	Ternium SA	China Shenhua Energy Co Ltd. H
16	Pembina Pipeline Corp	Keyera Corp
17	INC Research Holdings Inc. (parent company SYNH)	Amerco Inc.
18	Meredith Corp	Time Warner Inc.
19	Digital Realty Trust Inc.	Time Warner Inc.
20	Standard Life PLC	Lincoln National Corp (LNC)
21	Brookfield Asset Management In	Lincoln National Corp (LNC)
22	Sprott Asset Management LP	Lincoln National Corp (LNC)
23	Sterling Bancorp	Bank of Ozarks
24	First Horizon National Corp	Bank of Ozarks
25	Gilead Sciences Inc.	Novo Nordisk A/S
26	Lennar Corp	Persimmon PLC
27	Jacobs Engineering Group Inc.	Persimmon PLC
28	Beacon Roofing Supply Inc.	Cemex SAB de CV
29	Tesco PLC	Dairy Farm International
		Holdings Ltd.
30	Restaurant Brands International Inc.	Dairy Farm International
		Holdings Ltd.