

# A Study of Chinese Reverse Mergers in United States Capital Markets

Charles W. DuVal and Will Quilliam

**Abstract**—This article examines Chinese reverse mergers (RMs), historically a popular method for Chinese companies to enter the United States capital markets. The authors develop a regression model to identify the characteristics associated with successful Chinese RM companies and compare their long term performance to other benchmarks, to include U.S. reverse mergers, Chinese cross-listed firms and the Russell 2000.

**Keywords**—Chinese; reverse mergers; capital markets

## I. INTRODUCTION

A “reverse merger”, often termed a “reverse takeover”, allows a private firm to acquire a publicly traded firm to obtain their exchange listing. For all practical purposes, the process is an acquisition where the target firm's management seeks a public entity with which to merge and arranges for the public acquirer to make a bid in exchange of some combination of cash and/or stock. The United States experienced more reverse mergers (RMs) than initial public offerings (IPOs) from 2002 through 2010 [1]. RMs have been a common way for a foreign firms to go public. In fact, over 40 percent of RMs in the U.S. from 2008 to 2010 were conducted by foreign companies as a means of entering the U.S. capital market, as compared to approximately 9 percent of all cross listings and 6 percent of all IPOs during the same period. Most of these RMs involved Chinese companies [2]. There has been relatively little academic research on these Chinese RM companies. This study is motivated by the need to gain more insight into this topic.

In an RM, a company will buy a publicly-listed company to gain access to a capital market, most often motivated to gain credibility and quick infusions of capital [3]. The literature identifies many other RM advantages, to include: 1) the speed to complete, which is normally under six months compared to IPOs which can years [4], 2) significantly less cost, avoiding most underwriter and investment bank fees [4], [5], and 3) the RM process avoids much of the SEC scrutiny compared to alternatives [6].

RMs have experienced popularity but have also faced criticism over the last 20 years. Many mergers have been consummated successfully, legitimately, and with maximum transparency. From 2010 to 2012, dozens of RMs faced fraud accusations (many of these were ultimately dismissed). As a result of these problems, in 2011 the SEC issued an Investor Bulletin highlighting the risks of investing in reverse merger companies and passed “seasoning” rules making it harder for

reverse mergers to migrate to more prominent national exchanges [7].

Academic literature and media coverage highlight the fraudulent accounting practices that led to approximately 47 Chinese reverse merger firms to be delisted from 2010 through 2012 (e.g. Lee, Li, and Zhang, 2015; Jindra, Voetmann and Torben, 2014) [8], [9]. The result was the loss of approximately 72% market capitalization of U.S. listed Chinese companies between 2011 and 2012 [10].

These investigations bring investors to question the adjusted risk return related to investing in these Chinese firms and motivate this study. Specifically, we attempt to determine the financial characteristics of successful Chinese RMs and evaluate their long term financial performance compared to other benchmarks through 2014. Understanding these characteristics is helpful both to investors and to other companies which are considering RMs. Examining this topic is important, as RMs have resurfaced once again as an appropriate alternative for companies which do not qualify for a traditional IPOs or which prefer to avoid the additional expense, risk and extended timeframes associated with IPOs [11].

## II. METHOD

### A. Data sources

Many reverse mergers trade on pink sheets or the Over the Counter Bulletin Board (OTCBB) and are not identified or tracked by popular data sites such as CRSP and COMPUSTAT. As such, we obtain most detailed RM data from DealFlow Media and their subsidiary, PrivateRaise's (DFPR) subscription database. This firm has tracked RM participant's characteristics, private investment in public equity (PIPE) related data (if applicable) and basic transaction information since January 2004. The total Chinese RM sample represents 468 transactions that took place from January 1, 2004, through December 31, 2011. DFPR has tracked RMs in significantly more detail since 2008, resulting in a 238 Chinese RM subsample and a 462 U.S. RM sample which represent all the Chinese and U.S. RM transactions in the three year period January 1, 2008 through December 31, 2011 [2].

DFPR does not track daily stock transactions or ongoing financial statement data. We obtain daily stock transaction data from Bloomberg and Yahoo Finance through 2014. Financial statement information is hand collected from SEC filed 8-K/As, 8-Ks, 10Ks, SC-14F1s, Bloomberg and Yahoo Finance. From

DOI: 10.5176/2010-4804\_4.1.361

these filings we collect key accounting variables for these Chinese RM firms for two years before they consummate their RM, and for every year thereafter through 2011 or their delisting, whichever occurs first. The accounting variables include total assets, revenue, net income, cash and equivalents, debt, operating cash flow, beta, numbers of outstanding shares, shareholder stock options and percentage of stock held by insiders and institutions [2].

Sjostrom (2008), Floros and Shastri (2009) and Floros and Sapp (2011) note that RMs should not be compared to traditional IPOs for reasons that include their smaller size and information asymmetry [12], [13], [6]. We compare these Chinese RM companies' characteristics and performances to three benchmarks. First, the Halter USX CHINA Index comprised of 198 Chinese firms that include 75 Chinese RMs. We use the financial data for the remaining 123 cross-listed Chinese firms to create one benchmark for financial characteristics and performance comparisons. Second, to analyze any unique Chinese motivations for RMs, we also compare their characteristics and performance to the 440 RMs consummated between two U.S. firms that took place during the same time period. Third, we compare Chinese RM performance to the Russell 2000.

**B. Regression analysis**

To determine the Chinese RM firm characteristics that drive performance, Table 1 reports regression results for the impact of firm specific variables on the returns ( $R_{it}$ ) of Chinese RMs that have not been delisted and survive one year during the sample period of January 1, 2004, through December 31, 2011. Specifically, the following model is estimated:

$$R_{it} = a + \beta_1 SIZE_{it} + \beta_2 CASH_{it} + \beta_3 ROA_{it} + \beta_4 ROE_{it} + \beta_5 IND_{it} + \beta_6 EQUITY_{it} + \beta_6 PIPE_{it} + \varepsilon_{it}$$

We use the log of total assets (*SIZE*) as a proxy for firm size, cash and equivalents (*CASH*) to total assets to control for liquidity constraints, and both return on assets (*ROA*) and return on equity (*ROE*) for profitability. Previous studies have found conflicting results with regard to whether returns are influenced by the RM participants being from different industries (*IND*) and the use of PIPE (*PIPE*) financing. Therefore, we use dummy variables for these as well as for equity-based compensation (*EQUITY*) to investigate whether

these variables influence Chinese RM firms' performance over time. Interviews with RM industry experts report the ability to offer equity-based compensation, once illegal in China, has influenced Chinese firms' motivations to expand to the U.S. market through an RM. Industry experts include (1) the principle partner in each of the top three law practices (as rated by numbers of RM transactions representing Chinese RMs entering the U.S. [2]) that cater to Chinese RM participants and (2) key personnel at PrivateRaise who assist Chinese firms to find U.S. merger participants.

**III. RESULTS**

Table 1 presents three models, one for each dummy interaction variable. Overall, results indicate larger, more liquid firms experience higher returns, as the coefficients for log of total assets (*SIZE*) and *CASH* are positive and significant at the 1% level. Interestingly, proxies for profitability (*ROA* and *ROE*) do not have a statistically significant impact on returns the first year. Like Gleason, Rosenthal and Wiggins (2005) [5], this study finds participants from the same industry are not significantly different with respect to long-run returns.

Table 1 further reports firms that offer equity-based compensation experience significantly higher first year returns at the 1% level. This result appears to support the industry professional reports that equity-based compensation plays a role in Chinese RMs. In addition, those firms using PIPES realize a positive and significant increase in returns. Sjostrom (2008) argues access to PIPE financing (typically supplied by hedge funds) is the primary reason firms choose RMs as the vehicle by which to go public, as they have no other alternatives for funding [12]. Overall, the three models have adjusted R-squares that range from 14.55% to 23.17% and F-statistics show all the models are significant at the 1% level.

Table 2 compares the entire sample of Chinese RMs (that were not delisted) long term financial performance to other benchmarks, specifically the cross-listed Chinese firms that comprise the Halter USX CHINA index and the Russell 2000 from 2008 through 2014. After the extensive negative publicity and in light of the perceived risk versus return, Chinese RMs yield a higher average return than all the other benchmarks over this seven year period. A calculation of cumulative returns over this period yields the same result, with Chinese RMs returns (82.52%) far exceeding this sample of Chinese cross-listed firms (-49.06).

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
<b>Intercept</b>	0.0043 (2.39)***	0.0046 (2.48)***	0.0042 (2.75)***
<b>SIZE</b>	0.0054 (2.88)***	0.0061 (2.63)***	0.0064 (2.78)***
<b>CASH</b>	0.0071 (2.91)***	0.0068 (2.89)***	0.0065 (2.89)***
<b>ROA</b>	0.0008 (0.87)	0.0007 (0.86)	0.0005 (0.85)
<b>ROE</b>	0.0006 (0.95)	0.0007 (0.99)	0.0006 (0.97)
<b>IND</b>	0.0003 (0.10)		
<b>EQUITY</b>		0.0041 (2.73)***	
<b>PIPE</b>			0.0074 (3.21)***
<b>R2</b>	0.1455	0.1592	0.2317
<b>F-statistic</b>	2.59***	2.71***	2.82***
<b># observations</b>	238	238	238

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Russell 2000</b>	-34.8	25.2	25.3	-5.45	14.63	37.00	3.53
<b>Chinese cross-listed firms</b>	-69.36	33.46	9.56	21.74	-19.77	-20.49	46.42
<b>U.S. reverse mergers</b>	3.13	4.57	4.62	11.23	12.22	16.34	4.52
<b>Chinese reverse mergers</b>	8.54	35.43	21.54	18.43	-23.56	-21.74	45.22

## IV. CONCLUSIONS

There has been limited study focused on the foreign companies that come to the U.S. through a RM. Since 2011, academics and the media have highlighted fraudulent accounting practices that led to substantial loss of market capitalization in Chinese firms [14]. However, as of May 2015, almost the entire 2011 – 2012 loss of capitalization has been recaptured [12]. Like all cycles in financial markets, RMs are once again becoming more popular alternatives for companies which are not a good match for an IPO or want to avoid the related additional time, investment and risk. As investors seek higher yields, this study attempts to fill a research gap as it examines the motivations and financial characteristics that drive performance of Chinese RMs, which have accounted for over 63% of RMs into the U.S. since 2008.

Results show Chinese firms that engage in RMs are motivated by the ability to offer equity-based compensation and overall, those that do are more successful. The data shows 88% of Chinese RMs have a form of equity-based compensation versus 67% of U.S. RMs. Overall, the evidence also supports the argument that Chinese RMs seek quick infusions of capital through PIPES. Contrary to many other findings in the literature, the evidence shows Chinese RMs that use PIPES experience higher returns.

In addition, from 2008 to 2014, Chinese RMs experienced significantly higher long-term average and cumulative returns when compared to benchmarks that include cross-listed Chinese firms that comprise the Halter USX CHINA Index, the Russell 2000 and U.S. RMs. These results appear to support Lee, Li, and Zhang's (2013) argument that Chinese RMs (including those accused of accounting fraud) are more profitable with better cash flows and higher longevity over their first three years than matched RMs [8]. In summary, although RMs seem to involve considerable risk, both Chinese and U.S. RMs generate positive long-term performance for shareholders of the new entity as compared to the Chinese cross-listed sample.

## REFERENCES

- [1] Alpert, Bill, and Leslie P. Norton. "Beware this Chinese export." (2010): 21-24.
- [2] PrivateRaise and DealFlow Media., 2011.
- [3] Pagano, Marco, Fabio Panetta, and Luigi Zingales. "Why do companies go public? An empirical analysis." *Journal of Finance* 53, no. 1 (1998): 27-64.
- [4] Feldmen, David, and Steven Dresner. "Reverse mergers and other alternatives to traditional IPOs., Bloomberg Press, (2010).
- [5] Gleason, Kimberly C., Leonard Rosenthal, and Roy A. Wiggins. "Backing into being public: an exploratory analysis of reverse takeovers." *Journal of Corporate Finance* 12, no. 1 (2005): 54-79.
- [6] Floros, Ioannis V., and Travis RA Sapp. "Shell games: On the value of shell companies." *Journal of Corporate Finance* 17, no. 4 (2011): 850-867.
- [7] Securities and Exchange Commission June 1, 2011.
- [8] Lee, Charles MC, Kevin K. Li, and Ran Zhang. "Shell Games: Are Chinese reverse merger firms inherently toxic?." Available at SSRN 2155425 (2012).
- [9] Jindra, Jan, Torben Voetmann, and Ralph Walking. "Private Class Action Litigation and Cross Listing: The Chinese Reverse Mergers and IPOs." Available at SSRN 2105814 (2014).
- [10] McKinsey and Co. "What Is Insights China?" McKinsey Solutions. April 1, 2015.
- [11] Feldman, David. "5 Reasons Reverse Mergers Are Still Attractive." David Feldman Blog. March 16, 2015.
- [12] Sjostrom, William K. "The truth about reverse mergers." *Entrepreneurial Business Law Journal* 2 (2008).
- [13] Floros, Ioannis V., and Kuldeep Shastri. "A comparison of penny stock initial public offerings and reverse mergers as alternative mechanisms to going public." Available at SSRN 1460979 (2009).
- [14] Chen, Yimiao, Gang Hu, Ling Lin, and Min Xiao. "GAAP Difference or Accounting Fraud? Evidence from Chinese Reverse Mergers Delisted from US Markets." *Journal of Forensic and Investigative Accounting* 7 (2015): 122-145.

## AUTHOR'S PROFILE

**Charles W. DuVal** is an Assistant Professor of Finance in the Barnett School of Business at Florida Southern College, Lakeland, FL 33801. He earned his Ph.D. in business administration with a concentration in finance from Old Dominion University in 2012.

**Will Quilliam** is an Associate Professor of Accounting in the Barnett School of Business at Florida Southern College, Lakeland, FL 33801 USA. He earned his Ph.D. in accounting from the University of Florida in 1991.