

Research Report

Variance in Market Reaction to Stock Listing Method:

Direct vs. Indirect Listing

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Abstract

This paper presents additional insight into the effects of direct versus indirect listing methods to market entry on firm performance in the US stock markets (NYSE and NASDAQ) in the twenty-first century. With consideration of previous literature that found that while both methods are viable, the direct method appears to be slightly more attractive on a performance basis. Our findings support prior conclusions that IPO firms tend to outperform their RTO counterparts. However, our findings contradict the historical consensus that IPOs provide higher liquidity and lower risk. In addition, the difference between the US regulations for IPOs and mergers provides a balanced timing duration for both pools. Lastly, in terms of financial position, there is a major distinction between the two samples given their stage as the majority of the IPO sample are companies in a pre-revenue stage while the RTO sample is companies that were able to produce positive retained earnings. Furthermore, this study may serve as an introduction to an ever evolving and expanding field with the increased presence of international players (especially Chinese) in domestic American markets.

Introduction

For a company wishing to expand in both financial leverage and recognition, the stock market has been the vehicle used since inception to create the format of arranging an important connection between the entrepreneur with the network of investors looking to easily place their money. From the large established institution to small first time individual, new listings of securities have always presented a prime opportunity to hopefully buy shares on the nascent public issue, expecting higher returns. Our focus in the public entry into the marketplace is defined into two areas; the direct versus indirect listing. A discussion will pursue an

understanding of the two methods of how companies are brought to the market. The direct listing has historically been the more popular approach, although as of late, the indirect listing has also been increasing in viability. With the lack of data existing data for indirect or ‘backdoor’ listings in the Canadian markets (with a total for less than thirty in the past twenty-five years), our research will focus on the difference in market reaction focusing on the U.S securities market as it is deeper and significantly more active in comparison. Though, Canadian literature will be included in order to connect concepts and create a fuller coverage of the topic.

The two listing strategies depend on feasibility and market acceptance for the business. The direct listing approach is more common, defined by a variety of factors, including; incubator companies that have been developed using private funds purposely for a public listing, a spin-off from an existing publicly listed company to capture financial gain, or upon the merging of two public companies becoming a new singular public entity. The indirect, ‘back-door’ or reverse merger approach is less common, typically used by a private corporation taking over an already listed business, becoming part of the public market structure itself. Foreign companies also use the listed company to gain additional exposure in the U.S. to further improve their own branding for future growth.

The relevance and thereby motivation for researching this topic lies in the fact that corporate financial practices are ever evolving and expanding with the increased presence of international players (especially Chinese) in domestic American markets. In understanding both the motivation as well as benefits and differences between these methods of listings, a greater understanding will be gained in the listing processes used in today's marketplace. The ability to use and access the world’s most liquid financial market is attractive to many foreign corporations

wishing to participate, combined with a developed American financial services industry that has the expertise to accommodate these new market participants.

The regulatory demands of the major American exchanges influence a company's willingness to be publicly listed. The requirements and dissemination of information affect the quality and success in marketing the offering size of the new issue and initial trading performance. The indirect listings are less transparent in disclosure as compared to a more thoroughly vetted company taking the traditional public offering method. The differences of bringing them to market are a consideration for the viability of potential investment, before the trading value settles into a more routine pattern.

The event study examines the ability of firms to efficiently access public funds through different initial entries into the market. By accessing firm performance through the market reaction on shareholder returns the study will shed light on the different opportunities and threats that can come with each type of listing. While empirical evidence suggests that direct listings are a more optimal public market entry method, this study will further analyze and consider which methods provide firms with optimal market performance. With analysis of data through the set methodology, there will be evidence to determine if the hypothesis being examined is correct in today's public marketplace.

This paper provides a study on the effects of different entry methods, direct versus indirect methods, on firm performance. With consideration of previous literature as well as proposed research questions and hypothesis, theories will be developed to provide explanation towards the optimal method of entry into the public market. The study will be used to confirm and expand upon market theories on the listing process rather than oppose it. This study is made

to further expand on previous literature contributions and further explain the market reaction of firms entering the market through direct and indirect listing processes.

While much research has studied market reaction to IPOs, far less has probed the realm of alternative listing options. This paper presents the proposal of an event study centered around the variance in market reaction to stock listing as determined by the proposed method as well as cover the rationale behind the hypothesis, data and methodology. This will be applied to U.S. stock markets only due to the fact that Canadian markets do not offer a large enough data set to work with. All the while, there will be the expectation of large differences in the performance of firms using different listing methods. It can be expected that the study will confirm the theory of direct listing methods such as IPO's performing better than indirect listing methods such as backdoor listing.

To gain insight into the topic, this study will begin by analyzing the previous literature published on the topic followed by the development of research questions and hypotheses to be examined. Following the hypothesis, our paper examines the data and methodology of the tests conducted. Next by examining the results we attempt to gain our own insights on the topic of market listings. Following the results we explain possible limitations of our research and possible considerations for further research and ending with a conclusion of all discussed points in the paper.

Literature Review

The studies examined in this review compiled some quite meaningful results. It is clear that reverse mergers do offer some form of signal to the market that the firm is not strong enough to meet the requirements of a traditional IPO. This should be taken with a grain of salt, though, as Jog, Ochtere & Sun (2018) found that it reduces information asymmetry and subsequent

underpricing (though long-term relative performance remains unclear). Authors Arellano-Ostoa & Brusco (2002) contend that the choice between reverse merger and standard IPO is directly related to firm quality, which is in accordance with the Lam & Chan (2016) findings that the underperformance of a firm is tied to the pre-listing performance gap, not deteriorating performance of reverse merger firms. The authors contend that the separation of listing and offering gives these firms necessary flexibility to abandon the offering component in the case that it becomes unattractive. They predict that firms with a lower likelihood of undertaking this ‘project’ are more likely to use reverse mergers. This implies that high quality firms, those whose are more certain about the attractiveness of the offering component, will more often than not opt for traditional IPOs rather than reverse mergers. They also find that regulatory oversight was less related to underperformance of back-door listed firms, again showing that long-term underperformance of reverse mergers firms relates more to the initial performance gap. Finally, regarding direct listings, it is evident that they provide to a firm a public presence, strong access to financing and some promise of increasing liquidity. Taking such considerations into account is necessary in the selection of listing method by any firm.

Lin, Lee & Lee (2008) argue that there is a relationship between firm performance and the model (method) used in going public. Given that all of this evidence was gathered in an emerging market, the result suggests that indirect listing methods perform far better than direct methods. In addition, data suggest there is a correlation between the duration of going public and the post-listing performance. Suggesting that overall, managers in the emerging market are better off utilizing this model when going public. Therefore, Backdoor-listing provides an opportunity for these firms to access the public market without major disclosure of information. By controlling significant interest in shell/ inactive firm, the private firm will have a better time

controlling its resources. This idea can be profitable for firms seeking a short-term public listing. Instead of going through an IPO and trying to buy back all the shares, this approach allows the private to liquidate its public position without a high level of premium.

Looking the costs and benefits of indirect-listing, according to Humphrey and Kuo (2002), Gleason, Jain & Rosenthal (2006) & Brown, Ferguson & Lam (2010) backdoor-listing are often thought to be cheaper, easier and faster to list than IPOs. This mainly due to the fact that there no initial outlay that is mainly paid to the underwriters. In addition, restrictive compliance with law fees like audited financial statements and other ongoing costs are somewhat delayed. In reality, these advantages are unrealistic, and most empirical evidence indicates otherwise as these costs and laws are a protective aspect for the firm, reducing the risk endured in an IPO. As for the disadvantages, the literature indicates that there are hidden liabilities that may arise during a reverse-takeover, weak connection with institutional investors that is because the shell company is viewed as dormant, takeover premium and shareholders' approval.

Pollard (2016) goes into the findings of financial implications of companies using the traditional initial public offering market as compared to those taking the reverse-merger action. It is found that under standard conditions, institutional interest is higher when investing in a higher vetted new issue. As, the indirect issuance has less sound fundamental qualities and earnings potential with the input of foreign (mainly Chinese) involvement in the reverse-market has also impacted this portion of the offerings in accounting transparency.

Carpentier, Cumming & Suret (2012) examine the economic effects of IPOs versus reverse mergers in context of information asymmetry and regulation in the Canadian market. Finding that timeliness, certification and validation by a security commission and reputation of listing process all have significant economic impact on the firm. The main article findings

include; high initial listing requirements protect the investors long term wealth returns, earnings are much higher through IPO rather than RM, and that IPO firms performed better than Rm firms based on the large asymmetric issues (Carpentier et al 2012). It can be seen that IPOs outperform RM in an economic sense, this proved through the firm returns relative to the listing mode. Brau. Francis & Kohers (2003) share in this view surmising that the choice between pursuing an IPO or takeover can be crucial in maximizing the firm's success when private companies are looking to gain more access to capital, increase their liquidity, and change the control of the firm.

Gleason, Rosenthal & Wiggins (2006) found that since the 1990s there has been an increase in reverse takeovers due to the lack of financial and temporal costs associated with them compared to IPOs. Finding that overall reverse takeovers can be very effective to mitigate costs associated with IPOs, while giving firm shareholders the ability to enter into the public market. They however carry more risk and can fail in the long term. Vermeulen (2014) building on this idea concluding that although there is an increase in popularity of backdoor listing, they are not always the most effective growth mechanisms. As backdoor listings are good alternatives for small companies looking for access to capital markets that don't necessarily have the time and money for IPOs but IPOs in the long run have proven to be more effective due to their ability to gain access to capital and increase liquidity while reducing the systematic risk of going public to the firm.

To answer the question about which method of going public results in the most positive market reaction, based on the research conducted on previous literature IPOs perform far better public market entry method for businesses in the current market. It is mainly due to the fact that institutional investors are an extremely vital component in corporate governance and firm performance. A factor that is sorely missing when indirect means to market are taken. Needless

to say, IPOs are also a lot less risky in terms of not only future returns but also future legal problems due to the financial and legal regulatory system associated with IPOs. Looking at the performance of direct versus indirect listing methods, previous literature estimates a stronger positive relation between direct listing and firm performance for reasons such as a lower level of risk, yet can be harmful to firms due to the high costs associated with them. Through the previous research conducted on previous literature, it can be concluded that there are significant benefits to both methods, yet the direct method seems to be slightly more attractive.

Research Questions & Hypothesis Development

This paper attempts to measure the variance of performance between the two different methods of listing. As mentioned in the literature review, companies seek to be listed via IPOs or backdoor-listing. However, most empirical evidence suggests that IPO firms tend to outperform their backdoor-listed firms in every factor, yet these findings are geographically spread-out. Therefore, it is critical to measure this variance in terms of liquidity, return, and performance in every region. Ellis, K., Michaely, R. and O'Hara, M. (2000) argues that the lead underwriter provides IPO firms a chance to gain some liquidity through the inventory holdings and assist in stabilizing the stock price using the over allotment options. This behavior aids newly listed firms in gaining a demand for their traded shares. Therefore, in this study, we examine the difference between the IPO and reverse-merger among US companies. In order to narrow down the units of measures, the analysis is going to focus on the liquidity, the return, and the firm performance. These measures are going to be conducted on both a short-term and long-term basis. The intent here is to provide a further explanation of previous findings.

The main hypothesis for the study is that IPO firms return will outperform reverse-merger firms in both short-term and long-term cumulative return.

Hypothesis 1: The method that the firm uses to obtain its public status influences the market makers in terms of return.

H₀: Using an indirect listing method, such as reverse mergers, to gain entry into the public market will result in a more optimal cumulative return relative to an IPO comparable.

H_a: Using an indirect listing method, such as reverse mergers, to gain entry into the public market will result in a similar or less optimal cumulative return relative to an IPO comparable.

The reason behind this proposition is that firms that utilize direct-listing channels are more likely to attract higher-percentage of institutional investors compared to backdoor-listed firms. Due to the continuous relationship between the underwriter world and institutional holders, IPO firms are deemed less risky and more stable investment. While some can argue that the savings that backdoor-listed firms gain from avoiding direct-listing should yield a positive reaction in the market. Especially, when the average savings range between 5% - 7% of the total deal according to the PwC report about the cost of an IPO (2017). However, firms who use backdoor-listing are likely to engage in a merger where the bidder will offer a premium to convince the shareholders of the target shell firm. Therefore, this premium produces a negative market reaction which results in poorer return. By investigating the short-term returns, we will be able to understand whether this corporate event is perceived as a positive or negative announcement. As for the long-term return, it will provide some insights into how the marginal investor behave toward the two types of firms.

Additionally, the failure to meet the S-1 requirements is perceived as a weakness for backdoor-listed firms. It is mainly due to the fact that investors appreciate transparency while the firm tries its best to avoid any disclosure of financial information. Therefore, institutional investors are less attractive to these firms as shown in the literature review. While the due diligence conducted by the underwriters are shown to be insignificant in predicting winners from losers, the process itself is most likely to have a positive intangible impact on the investor universe.

The second goal of this paper is to measure the liquidity and risk exposures of the two pools of firms.

Hypothesis 2: The method that the firm uses to obtain its public status influences the market makers in terms of liquidity and risk exposure.

H₀: Using an indirect listing method, such as reverse mergers, to gain entry into the public market will result in a lower risk and higher liquidity relative to an IPO comparable.

H_a: Using an indirect listing method, such as reverse mergers, to gain entry into the public market will result in higher risk and lower liquidity relative to an IPO comparable.

The reason behind such a proposition is that reverse-merger firms are less attractive to institutional investors. Thus, the liquidity of these assets is going to be far less than the IPO pool. Also, the pre-merger shell firm is more likely to be an unattractive investment which forces investors to close their positions. The aggregate result of these activities damages the liquidity of the stock. On the other hand, backdoor-listed firms are piggy-bagging on publicly-traded shell

firms. So, the merged firm should have a tough time obtaining a liquid position compared to a newly listed IPO.

The same argument can be made for the risk exposure. In order, to maintain a natural position, the risk is going to be measured against the S&P United States BMI (Ticker: SBBCUSU) which offers a fairly comparable market segment. In addition, the index covers all publicly listed equities with float-adjusted market values of US\$ 100 million or more and that meet minimum liquidity criteria measured by median daily value traded figures with a quarterly balanced index to incorporate IPO firms with a minimum of three months of historical trading data. This index will be going to allow to produce better results in measuring the systematic exposure of the newly listed firms.

The third goal of this paper is to compare the firm-specific performance in terms of financial position, leverage, solvency, and profitability.

Hypothesis 3: The method that the firm uses to obtain its public status is closely related to its financial position in leverage, solvency, and profitability.

H₀: The performance of firms through direct-listing method is standard among firms with higher profitability, lower levels of solvency and leverage.

H_a: The performance of firms through indirect-listing method is standard among firms with higher profitability, lower levels of solvency and leverage.

Through the assumption of indirect-listing firms avoiding the filing of the S-1 document, the reverse-merger firms are more likely to show a poorer financial position compared to the IPO counterparts. In addition, Shell firms are more likely to accept the merge proposal due to

overexposure to solvency and higher levels of leverage. Therefore, indirect-listing is a method used by weak firms that want to restructure their capital.

Data & Methodology

Data Source & Selection

The selected data set for this study included all stocks listed on the NYSE and NASDAQ exchanges between 2000 and 2019. This time period was chosen because there were very few reverse takeover deals in the U.S. before 2000 as RTOs have become an increasingly prevalent phenomenon in the past two decades. The exchanges were restricted to the two major U.S. exchanges due to availability and completeness of data; there was little data on reverse mergers in Canada (i.e. from TSX listed firms) and the vast majority of U.S. RTOs were completed on these two major U.S. exchanges. The database used to assemble data for both the reverse merger and IPO sample firms was *Bloomberg*. This database was used due to its completeness of data as well as ease of use and integration into *Microsoft Excel*. First, the announcement date of the listing was found for each firm in the sample. This date is event date ($t = 0$) for each firm. Daily stock price data for each firm was then gathered, as well as corresponding stock index values, for the year following stock listing. Stock price data was used to calculate returns. The S&P United States BMI index (SBBCUSU) was used as the benchmark against which to measure returns. This is the U.S. sub-index of S&P Global BMI and includes all U.S. domiciled firms. This was used instead of the simple S&P 500 due to the small median size of the deals in the RTO sample, which is described below. This indicates that most firms completing RTOs are not nearly large enough to be included in the S&P 500, making it poor benchmark.

A search of reverse merger deals on the *Bloomberg* database between 3 January 2000 (the 1st trading day in 2000) and 3 March 2019 was conducted. Deals with no announced value and

those with announced value below \$50 million USD were removed from the sample as such firms were far less likely to have complete data. This left 39 firms in the sample of firms that completed reverse mergers. The average deal value for the sample was approximately \$5.05 billion USD, although the median was far lower at \$702 million USD. This is a sign that many of the deals in the sample were quite small but some very large deals pulled the mean much higher than the median. Looking at *Appendix D*, it can be seen that 22 out of the 39 total deals had an announced value less than \$1 billion USD, while only 7 deals had an announced value of \$10 billion or greater. After analyzing the acquirers in the sample, the most represented sector was the Healthcare sector at about 24% of the total sample. This is followed by Industrials at 18% and firms in the Real Estate/Consumer Cyclical at 15%. Technology, Energy and Basic Materials were tied with the lowest portion of the sample at 3%. The overall distribution by sector is given in *Appendix B*.

Moving on to the distribution of the RTO sample by exchange, the sample is relatively balanced between the two largest U.S. exchanges; the NYSE (52%) and NASDAQ (48%). Regarding the distribution of deals over the time period analyzed (2000 - 2019), it is clear that reverse mergers have been gaining popularity, especially in the latter half of the period. No deals in the sample were announced before 2005, and 28 out the 39 deals were in 2010 or later. Looking at *Appendix C* it can be seen that RTOs generally began to occur around or after the 2008 financial crisis. In fact, only 3 out of 39 deals in the sample were before 2009 (8/11 in the 05'-09' period were in announced 2009).

A sample of standard IPOs was also selected in order to compare to the RTO sample. This matched sample was created using firms distributed similarly by sector and of similar deal value. In the IPO sample, the Healthcare sector again had the largest proportion of firms at 29%,

followed by Financials at 20% and Industrials at 13%. The overall distribution by sector can be seen in *Appendix E*. This sample contained a total of 55 firms with each performing an IPO on either the NYSE or NASDAQ between 2000 and 2019. More firms in this sample traded on the NASDAQ (62%) exchange than the RTO sample (48%).

Methodology

A. Returns

To measure the return on each stock, the Single Factor Model of expectations was used to compute long-term returns for a window of (0, 365) days, equivalent to 1 year of buy-&-hold return. The equation used to measure returns is given below:

$$R_{it} = \alpha_i + \beta_i * R_{mt} + \varepsilon_{it}$$

The R_{it} represents the daily returns of the firm, where t represents the day and i represents the firm. R_{mt} is the input of market daily return on the given index or benchmark. The benchmark for this study is going to be the S&P United States BMI (Ticker: SBBCUSU). The β_i measures the firm's exposure to the systematic market risk. Whereas for α_i accounts for the variance of the expected return the firm should have. As for ε_{it} , it is the error term.

In addition to that, an absolute return is going to be computed in order to compare the sample portfolios of each pool.

$$CAR_i(t_1, t_n) = (\prod_{t=1}^n (1 + R_{it}))^{(1/n)}$$

The equation above measures the average weighted returns. The above equation is going to be used to assess the long-term return of IPO and reverse-merger firms.

B. Liquidity

Liquidity was measured using the equity turnover rate for each stock. This is calculated as annual trading volume divided by stock outstanding.

C. Risk

As mentioned in section [a.] Returns, the β_i allows us to measure the systematic risk exposure of the firm. Therefore, the results from part [a.] are going to be used to investigate the level of risks these firms have.

D. Financial Position

The data collected is based on the available reported financials each firm has published. To keep the data with a narrow focus on financial position, the data used is between the window of (-1,0) fiscal years. Especially for shell firms, it is important to measure the pre-merger performance relative to the sector average. The ratios used are Debt-to-Equity, Return-on-Assets and Market Value-to-Book Value.

$$\text{Regression Formula: } AR_i = \alpha_{int} + \beta_1 LIQ + \beta_2 ROA_i^{t-1} + \beta_3 D/E_i^{t-1} + \beta_4 MV/BV_i^{t-1} + IPO_i^{(0)} + IPO_i * \beta_5 + IPO_i * \beta_6 LIQ + IPO_i * \beta_7 ROA_i^{t-1} + IPO_i * \beta_8 D/E_i^{t-1} + IPO_i * \beta_9 MV/BV_i^{t-1} + \varepsilon_i$$

From the above regression formula, it can be seen that abnormal returns were explained using four factors, one dummy variable as well as interaction terms between each factor and the dummy variable. The dummy variable (IPO) took a value of 0 for firms in the RTO sample and a value of 1 for firms in the IPO sample. Returns were measured for one year after the listing of the stock (whether RTO or IPO).

The first explanatory variable used was liquidity (LIQ), which was proxied using the annual trading volume divided by stock outstanding for each firm, as described above. This factor was added to determine if liquidity is a consideration when making the decision to list using RTO or IPO, or whether RTO or IPO firms were more liquid. The next variable used was return on assets prior to the deal or IPO (ROA^{t-1}). This was added to see if firms choose RTO over IPO for reasons relating to profitability. The third explanatory variable used was each firm's debt-to-equity ratio prior to the RTO/IPO (D/E^{t-1}). This term was added to see if capital structure

plays a role in deciding between reverse merger or initial public offering. The final explanatory variable used was the firm's market value divided by its book value from before the RTO or IPO (MV/BV^{t-1}). This final variable was used to determine if firm value plays a role in determining the choice between RTO or IPO listing methods.

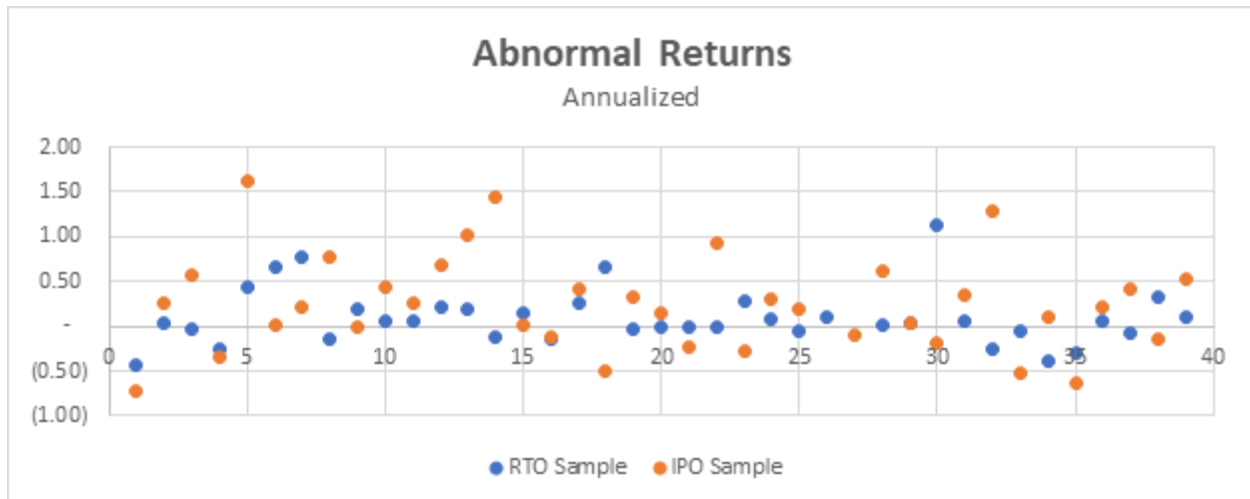
Interaction terms between each of these four variables and the IPO dummy variable were implemented to add explanatory power in the event that the effect of one causal variable on the outcome depends on the state of a second causal variable (that is, if two or more of the variables experience interaction). T-tests were then used to test the significance of the results. This will be done at one, five and ten percent significance levels. The null hypothesis will be rejected if the t-test indicates that the t-statistic is greater than the critical value for any of the three significance levels examined.

The ability of this study to provide valid results of market reaction to listing method, as proxied by stock returns, lies largely in the quality of the data gathered. For this reason, the team has diligently collected and cleaned the data in order to ensure accuracy and limit bias.

Results

Using Excel and Bloomberg extension to obtain the necessary data of stock closing prices, volume, and financial information, the regression was computed in order to explain the variance in the abnormal return. Using the S&P United States BMI (Ticker: SBBCUSU) to track any variance in stock returns, the unexplained return is shown in figure xx.xx below.

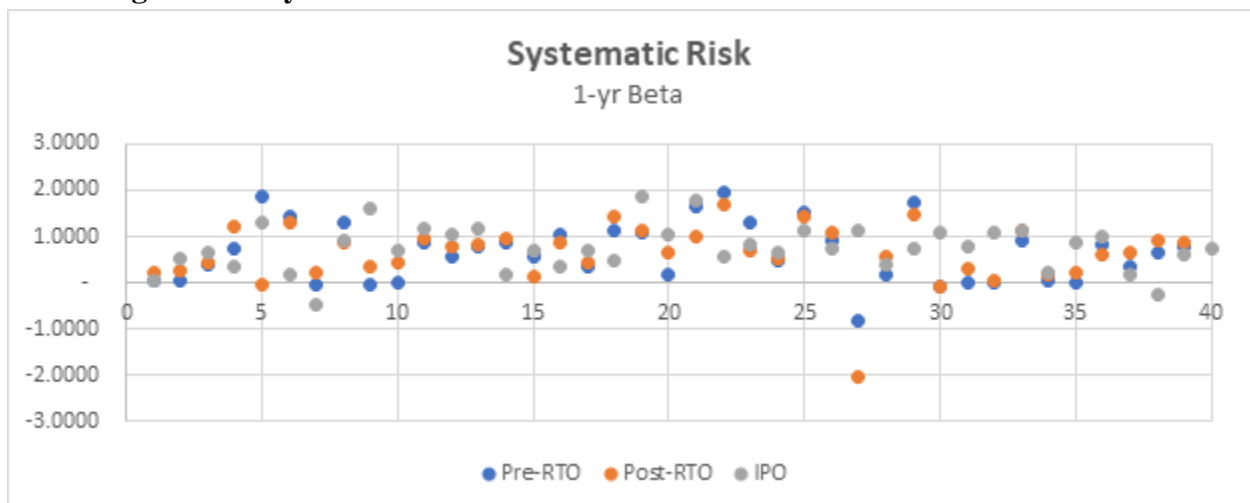
Figure XX: Annualized Abnormal Returns



Risk

Using the daily closing prices for the first year after the IPO/reverse-takeover, we computed the beta (β) to assess the systematic risk exposure of the two samples. In addition, we computed the beta (β) of the RTO's shelf firms in order to measure the change in the risk exposure after such merger. As shown in the figure XY below, both samples exhibit similar behavior in terms of risk exposure.

Figure XY: Systematic Risk



Using the F-Test and T-test for reverse-takeover samples of betas (β) before and after the merger to see whether the change in risk is significant with 95% confidence interval. The results of these tests indicate that there is no significant difference between the betas of the companies

before and after the merger. Therefore, the structure of the systematic risk the firm has remained the same regardless of the significant change in the capital structure. Which contradicts the view about reverse-mergers as restructuring mechanism. Conducting the same tests to measure the noise difference between the IPO sample and post-merger betas (β) have yielded similar results. With 0.05 as a critical value, the null hypothesis, of which the means of the two samples are the same, was failed to be rejected. Which could only mean that the IPO and RTO method produce no difference in risk management.

Liquidity

Figure YY: Liquidity

<i>Sample</i>	<i>RTO</i>	<i>IPO</i>
Mean	1.819151	0.02533273
Variance	7.511911	0.00996564
Observations	39	55
Hypothesized Mean Difference	0	
df	38	
t Stat	4.08537	
P(T<=t) one-tail	0.00011	
t Critical one-tail	1.685954	
P(T<=t) two-tail	0.000219	
t Critical two-tail	2.024394	
Null Hypothesis: Mean are the same @ 0.05 Critical Value		
Conclusion : Reject the null hypothesis.		

Looking at liquidity, the data shows that reverse-merger firms have a higher level of liquidity compared to the IPO sample. This result completely disagrees with the findings of Humphrey and Kuo (2002), Gleason, Jain & Rosenthal (2006) & Brown, Ferguson & Lam (2010) where the IPO sample have bested the reverse-merger sample in every factor tested. While a significant difference can be explained by the sectors. Compared to the RTO sample, the IPO sample lacks the presence of major financial services institutions. For example, the equity turnover for REITs and banking firms in the RTO sample are far higher than the rest of the sample. In addition, the financial sector accounted for 21.8% of the IPO counts while

contributing less 20% in terms of value. The opposite is present in the reverse-takeover sample. Which suggests that financial firms are strongly undervalued during an IPO but overvalued during a merger. This suggestion is limited by the collected data, further analysis is required to conclude that.

Deal Duration

Figure YZ: Duration

<i>Sample</i>	<i>RTO</i>	<i>IPO</i>
Mean	160.9231	153.9636
Variance	5064.547	31424.22
Observations	39	55
Hypothesized Mean Difference	0	
df	76	
t Stat	0.262815	
P(T<=t) one-tail	0.396702	
t Critical one-tail	1.665151	
P(T<=t) two-tail	0.793404	
t Critical two-tail	1.991673	
Conclusion : Failed to reject the null.		

Humphrey and Kuo (2002), Gleason, Jain & Rosenthal (2006) & Brown, Ferguson & Lam (2010) argued that the IPO method of listing is actually faster than reverse-mergers. While these researches were spread across regions and time which contribute significantly to their findings. Compared to China and Australia, the United States has a different legal structure which can explain why the results are different. Therefore, for US companies, the process itself does not yield any additional value in terms of efficiency.

Abnormal Return & Financial Position

Using the pre-assumed regression model in the methodology to explain the abnormal return, the regression model attempt to explain the abnormal return using the lagged financial leverage, profitability, size, and stock liquidity. The regression was able to explain a minor portion of the performance with R-square equals to 0.1925. The results indicate that there is a big portion of the IPO performance is generated with no connection to the controlled factors. As

shown in the coefficient table, the dummy IPO factor is shown a positive 0.22 with a p-value of 0.00458. In addition to the IPO factor, the size factor (MV/BV) have yielded a p-value of 0.01826. Therefore, the size and IPO factor are significant at 0.05. While the remaining factors have failed to produce an explanation.

There is one possible explanation for these results. IPO firms are primarily backed by a lead underwriter which according to Ellis, Michaely, and O'Hara (2000) the lead underwriter is a major player in the pre- and post-IPO event in terms of the market performance of the stock in the three-month period after the IPO. The lead underwriter was shown to be a major player by accounting for over 50% of the trading volume in the first three months which facilitates stability. These findings explain why IPO firms have a positive reaction while RTO sample does not. This behavior of the lead underwriter is closely related to the behavior of the IPO firm either by accumulating large inventory position or using the over allotment options. Thus, RTO firms lack the presence of a major marker maker which further might provide a negative signal to institutional investors and drive the performance of stock further into underperformance. Another explanation related to these findings is how the market views the IPO process. The IPO process is oversold in the capital market as a golden opportunity compared to any others. More importantly, the demand and willingness to engage in an IPO investment are far higher an RTO. In terms of corporate events, IPO is the first publicly accessible investment compared to mergers, acquisitions, and restructuring. In addition, IPOs are viewed as skewed to look positive compared to M&As and capital restructure. This behavior pushes the demand curve of these investment vehicles to favor IPOs over RTO.

Based on the results and the significance tests, it is safe to conclude that IPO firms tend to outperform their RTO counterparts. However, our findings contradict the historical consensus

that IPOs provide higher liquidity and lower risk. In addition, the difference between the US regulations for IPOs and mergers provides a balanced timing duration for both pools. Lastly, in terms of financial position, there is a major distinction between the two samples. The IPO sample was in a different stage compared to the RTO sample. This is observation was obvious when measuring the D/E and ROA. Where the IPO sample tends to have a negative D/E ratio. Which indicates that the majority of the IPO sample are companies in a pre-revenue stage while the RTO sample is companies that were able to produce positive retained earnings. Using interactive factors, the regression shows a weak significance when it comes to explaining the abnormal returns for all previous factors like liquidity, risk and financial position. This result indicates the unique effect of each tested factor has no significant effect on the post-merger/post-IPO performance. While liquidity and risk are suffering from look look ahead bias, the rest of the regression subscribes to the notion of the market efficient theory. Where historical information and news are already incorporated into the stock price. Therefore, using previous years financials as benchmark for future performance does not provide the investor with a positive alpha. This result is consistent with various literatures, where the due diligence stage contribute nothing in highlighting the winners from the losers.

Limitations & Considerations for Further Research

During the study, we encountered a few different obstacles that limited our ability to perform the tests we desired. The main limitation faced in the study was in regard to the amount of data available on reverse mergers. By using our methodology to retrieve data on the markets reverse mergers we were able to capture data on 56 different reverse mergers which then was reduced to 44 due to companies delisting post merger or merging again with another company immediately after. Although we were still able to perform our tests on the 44 different reverse

mergers, the sample size ended up being very small. This limited sample size makes it increasingly difficult to accurately statistically represent and predict data on reverse mergers as the smaller the sample size, the less significant a model is. As the market continues to develop and more companies use tools such as reverse mergers in order to enter the market, the amount of available data will increase. Looking at the North American market pre 2000 there has been no reverse merger entries into the market. Given the recency of this listing method, people are still learning about it, meaning that it is reasonable to assume that it will continue to increase in popularity and provide major opportunities for future research once more data becomes available.

Further Research could involve dividing the companies that utilized this means to market into subsections in order to see where the actual value is generated and what attracts investors and companies to pursue this little applied technique of listing a security on the public exchange. Also, identifying if the format is capital hindered as well as what the groups are that utilize the approach will help confirm the viability and intentions when compared to standard listing procedures. Once a legacy or trend can be established, the true viability for future companies wishing to apply this listing manner will determine the listing methods utilisation. As well as looking globally to assess if this phenomenon is more prevalent in developed/underdeveloped markets. Other possible extensions involve waiting at least ten years to update the data and aggregate more meaningful results or to conduct this study in the Canadian markets once there have been more occurrences of RTO's.

Conclusion

By examining the difference in market reaction between direct and indirect listing methods, our research came to the following conclusions that shed light on the optimal entry

method for firms. Based on the previous literature examined on this topic, it was clear that in taking a direct method, such as an IPO, it would ensure that firms achieve optimal post entry performance. With the expectation of seeing firms that utilize the direct method to perform significantly better than firms using different listing methods. In order to test this assumption, we analyzed the market data through a regression analysis. Overall the statistical regression tests came to the conclusion that value is the primary factor in explaining the over performance of IPOs. Although, when isolating for value as a conditional factor, the p-value becomes insignificant. Based on these results we can conclude through the use of both previous empirical findings and our regression analysis that direct listing methods do in fact lead to more optimal post entry performance for firms. Although this phenomenon may prove to be statistically insignificant in our tests, there were few limitations preventing us from having a significant data set.

The regulatory demands of the major American exchanges influence a company's willingness to be publicly listed. The requirements and dissemination of information affect the quality and success in marketing the offering size of the new issue and initial trading performance. The indirect listings are less transparent in disclosure as compared to a more thoroughly vetted company taking the traditional public offering method. The differences of bringing them to market are a consideration for the viability of potential investment, before the trading value settles into a more routine pattern.

In brief, as this is a method to market that appears to be increasing in popularity, further research is required in order to see the true viability of indirect methods to market such as RTO's and RM's, and if the method to market truly has a significant impact on firm performance.

References

Adjei, F., Cyree, K. B., & Walker, M. M. (2008). The determinants and survival of reverse mergers vs IPOs. *Journal of Economics and Finance*, 32(2), 176-194.

Arellano-Ostoa, A. & Brusco, S. (2019). UNDERSTANDING REVERSE MERGERS: A FIRST APPROACH. [online] E-archivo.uc3m.es. p1-27.

Brau, J., B. Francis, and N. Kohers, 2003, The choice of IPO versus takeover: empirical evidence, *Journal of Business*, 76: 583-612.

Brown, P. R., Ferguson, A., & Lam, P. (2010). Choice between alternative routes to go public: Backdoor listing versus IPO. *Available at SSRN 1897816*. 1-39.

Carpentier, C., Cumming, D., & Suret, J. (2012). The value of capital market regulation: IPOs versus reverse mergers. *Journal of Empirical Legal Studies*, 9(1), 56-91.
doi:10.1111/j.1740-1461.2011.01247.x

Carpentier, C., & Suret, J. (2006). Bypassing the financial growth cycle: Evidence from capital pool companies. *Journal of Business Venturing*, 21(1), 45-73.
doi:10.1016/j.jbusvent.2005.01.001

Crabb, J. (2018). Direct listings offer alternative to IPO route. *International Financial Law Review*, 4, 4.

Ellis, K., Michaely, R. and O'Hara, M. (2000). When the Underwriter Is the Market Maker: An Examination of Trading in the IPO Aftermarket. *The Journal of Finance*, 55(3), 1039-1074.

Ghosh, A., Peltier, E., & Xing, C. (2017). Audit Quality of Chinese ADR Engagements. *Accounting Horizons*, 31(2), 25-43.

Gleason, K. C., Jain, R., & Rosenthal, L. (2006). Alternatives for going public: Evidence from reverse takeovers, self-underwritten IPOs, and traditional IPOs. *Available at SSRN 890714*. 1-45.

Gleason, K., Rosenthal, L. and Wiggins, R. (2005). Backing into being public: an exploratory analysis of reverse takeovers. *Journal of Corporate Finance*, 12(1), pp.54-79.

Hongqi Liu Nan Xu Jianming Ye. (2015). Short sellers' accusations against chinese reverse mergers: Information analytics or guilt by association? *中国会计学刊：英文版*, 8(2), 111-131. doi:10.1016/j.cjar.2015.02.002

Humphrey, N., & Kuo, R. (2002). The growing acceptance of backdoor listings. *JASSA*, 40(4), 28-32.

Jog, V., Otchere, I., & Sun, C. (2018). Does the two-stage IPO process reduce underpricing and long run underperformance? evidence from Chinese firms listed in the U.S. *Journal of International Financial Markets, Institutions and Money*. In Press, Corrected Proof. 1-16. p1-16. doi:10.1016/j.intfin.2018.11.007

Lam, P., & Chan, K. (2016). Long-run performance of backdoor-listed firms. *JASSA The Finsia Journal of Applied Finance*. 2016 (2), 6-17.

Lin, C. Y., Lee, H. T., & Lee, C. L. (2008). One More Step, Some More Performance? An Empirical Study on Initial Public Offerings in the Taiwan Emerging Stock Market. *Emerging Markets Finance and Trade*, 44(4), 6-18.

Pollard, T. (2016). Sneaking in the back door? An evaluation of reverse mergers and IPOs. *Review of Quantitative Finance and Accounting*, 47(2), 305-341.

S&P Dow Jones Indices. (n.d.). Retrieved March 6, 2019, from <https://us.spindices.com/indices/equity/sp-united-states-bmi-us-dollar>.

Sharpe, I. G., & Woo, L. E. (2005). Corporate control, expected underpricing, and the choice of issuance mechanism in unseasoned equity markets. *Journal of Corporate Finance*, 11(4), 716-735.

Vermeulen, E. P. (2014). Rules on Backdoor Listings: a Global Survey. *Indonesia-OECD Corporate Governance Policy Dialogue*, 2015 (2), 1-38.

You, L., Lucey, B. M., & Shu, Y. (2013). An empirical study of multiple direct international listings. *Global Finance Journal*, 24(1), 69-84.

Appendices

Appendix A: Regression Results

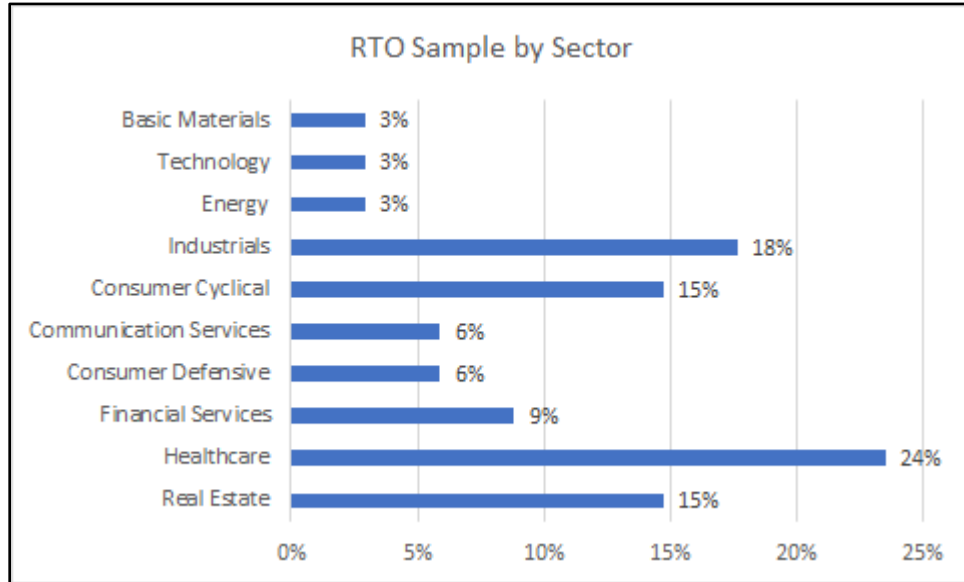
$$\text{Regression Formula : } AR_i = \alpha_{int} + \beta_1 LIQ + \beta_2 ROA_i^{t-1} + \beta_3 D/E_i^{t-1} + \beta_4 MV/BV_i^{t-1} + IPO_i^{(0)} + IPO * \beta_1 + IPO * \beta_2 LIQ + IPO * \beta_3 ROA_i^{t-1} + IPO * \beta_4 D/E_i^{t-1} + IPO * \beta_5 MV/BV_i^{t-1} + \varepsilon_i$$

Regression Statistics					
Multiple R	0.368520445				
R Square	0.135807318				
Adjusted R Square	0.043215245				
Standard Error	0.517375451				
Observations	94				
ANOVA					
	df	SS	MS	F	Significance F
Regression	9	3.533487107	0.392609679	1.466727	0.173775255
Residual	84	22.48489799	0.267677357		
Total	93	26.0183851			
	Coefficients	Standard Error	t Stat	P-value	
Intercept	-0.008857234	0.103905882	-0.085242852	0.932271	
LIQ	-0.00504622	0.030704724	-0.164346711	0.869853	
D/E (t-1)	-0.004394961	0.017122445	-0.256678342	0.798055	
ROA(t-1)	-0.102201831	0.384298083	-0.26594416	0.790934	
MV/BV	0.019863576	0.008135519	2.441586754	0.016722	
IPO	0.333448227	0.174819588	1.907384812	0.059888	
IPO_β	-0.143539428	0.151763494	-0.94580999	0.346958	
IPO_LIQ	-0.210044594	0.720576888	-0.291495047	0.771391	
IPO_D/E (t-1)	0.014546341	0.024580255	0.591789663	0.555581	
IPO_ROA(t-1)	0.102686927	0.384335944	0.267180128	0.789985	

IPO : Dummy variable.

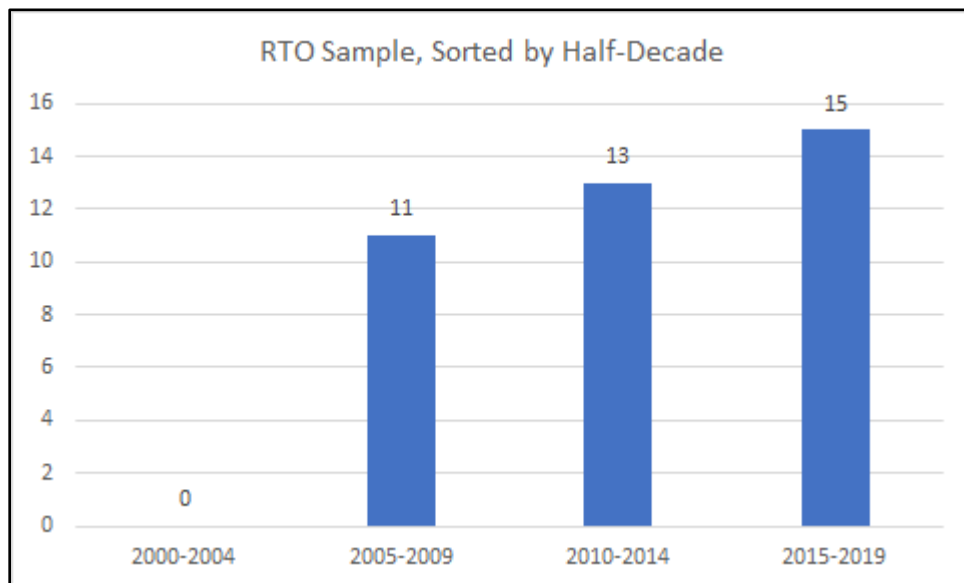
IPO X: Dummy variable multiplied by the factor

Appendix B: RTO Sample by Sector



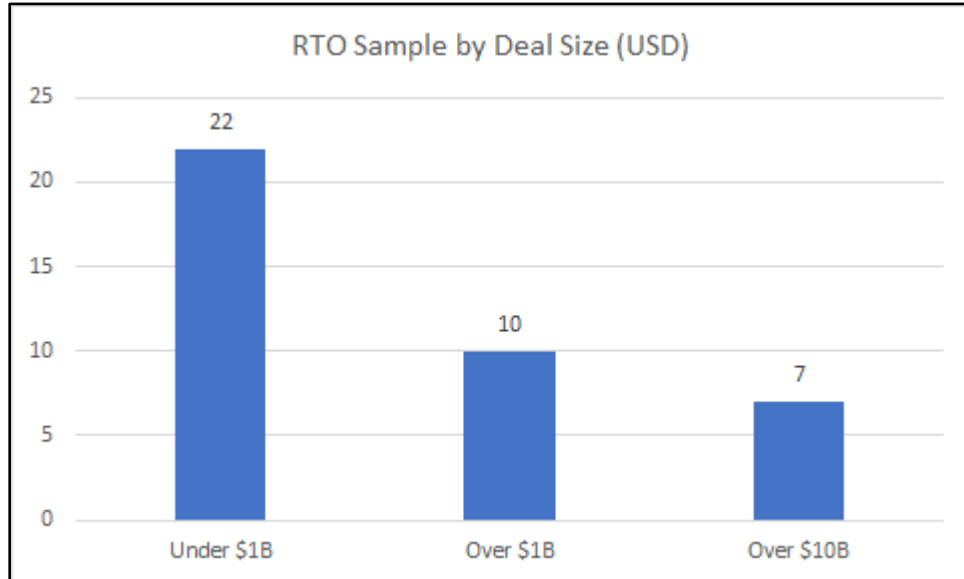
Source: Bloomberg.

Appendix C: RTO Sample, Sorted by Half-Decade



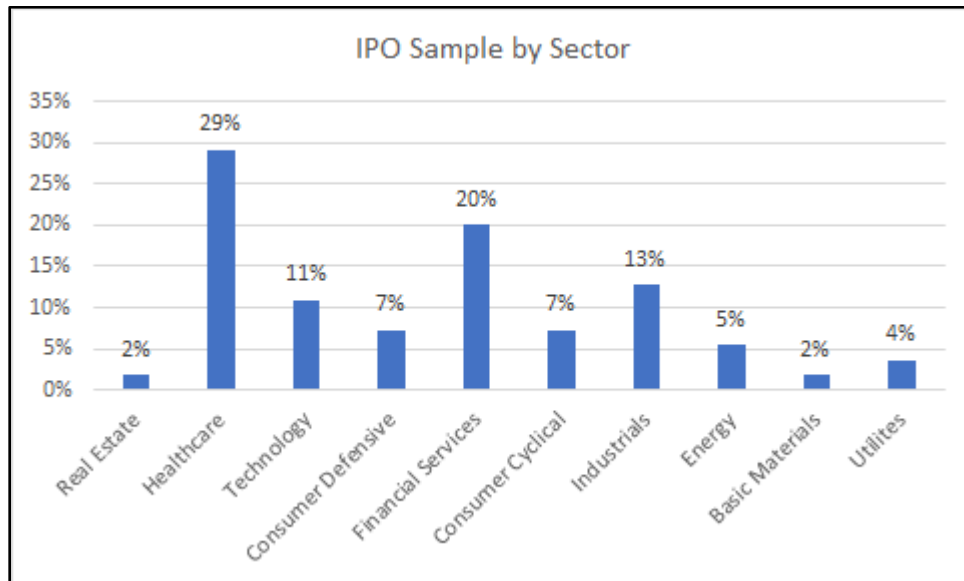
Source: Bloomberg.

Appendix D: RTO Sample by Deal Size (USD)



Source: Bloomberg.

Appendix E: IPO Sample by Sector



Source: Bloomberg.