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## UNDERSTANDING REVERSE MERGERS: A FIRST APPROACH

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### Abstract

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A *reverse merger* (RM) is a technique in which a private company is acquired by a shell or defunct public company via stock swap. As a result, the private company becomes public. The main difference between an IPO and a RM is that an IPO allows going public and also allows raising capital while the RM only allows going public. This paper addresses the following question: Why do some companies prefer a RM to an IPO? We construct a three-period model in which a company has uncertainty about the availability of a project and need to issue equity to finance it. The model predicts that under suitable conditions, a separating equilibrium exists in which a high-type firm will prefer IPO and a low-type firm will prefer RM. The empirical evidence supports these predictions. In addition, looking at the cost of RMs between 1990 and 2000 in the NYSE and NASDAQ and adding the cost of an additional SEO, we find evidence to support the idea that an IPO and a RM are equally costly.

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## Introduction

A growing number of non-US and US companies are seeking access to US capital markets because they provide a large source of financial resources. The most common way for a company to go public is through an Initial Public Offering (IPO). By this method, a company reaches at least two goals: a ticker and financial resources. Between 1990 and 1999 a total number of 4,129 companies have entered the US capital markets via IPO, and during the 1980s 2,348 companies entered the same markets<sup>1</sup>. However, IPO is not the only way to enter the market. During the last ten years some companies have sought access to US capital markets through a *reverse merger* (RM). In spite of the fact that IPOs have been largely studied in the corporate finance literature<sup>2</sup>, there are virtually no academic studies that deal with the RM. This paper is a first attempt to study reverse mergers, and it tries to answer the following questions: 1) What is a reverse merger? 2) How does it work? 3) Why do some companies prefer a RM to an IPO? and 4) What is more expensive, an IPO or a RM that includes a seasoned equity offering?

In Part I we tackle the first two questions. A reverse merger is a stock swap technique through which a privately held company is acquired by a public company. The main goal of a RM is to list a privately held company in the stock market. Usually, the public company involved in a RM is either a *defunct company*, which is a company that does not have real activities anymore and that only preserves its corporate structure, or a *SPAC* (Special Purpose Acquisition Corporation, also called *shell company*), that is a company founded with the only objective to serve as a going public vehicle. The final result is that the privately held company becomes a subsidiary of the shell company and therefore a public company. It is worth noting that the name “*reverse*” comes from the fact that although the shell company

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<sup>1</sup> Data from Jay R. Ritter (2001). IPOs excluding those with an offer price of less than \$5.00, ADRs, best effort offers, unit offers, REITs, partnerships and closed-end funds.

acquires the private company, it is the private company that survives. By this operation the private company can access the U.S. stock market in a shorter time than through an IPO, and can avoid bothersome initial listing requirements (although it is still obliged to comply with continued listing requirements). Nevertheless, shell companies may have some hidden liabilities and therefore getting involved with a shell company may be harmful.

This paper only explores the RM technique as a going public method that is an alternative method to the traditional IPO. Some analysts consider the RMs as an avenue of growth for a distressed public company. However, since the goal of such a deal is not to list a private company, we can consider this deal as a traditional merger.

Under this setting, a question that immediately arises is: Under which conditions a company may prefer going public via an IPO and under which conditions via a RM? A possible answer is that firms that prefer going public via RM would not fulfill the initial listing requirements to enter the market and use the RM to avoid it. However, those companies must meet the continued listing requirements<sup>3</sup>, which are checked at least once a year. Therefore, entering the market via RM would allow avoiding initial listing requirements but does not allow avoiding continued listing requirements. If companies did not fulfill continued requirements, they would be delisted and belonging to the market for a short period of time would be at best useless, if not harmful because of the reputation effect. Therefore, an answer to the question must look beyond the listing requirements.

Part II tries to answer this question. We construct a simple three-period model in which at time zero nature determines the “*type*” of the company. The type

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<sup>2</sup> We can find a long list of references as well as databases at [www.iporesources.org](http://www.iporesources.org).

<sup>3</sup> We discuss the initial and continued listing requirements in a subsequent section of the paper.

represents the probability of getting a positive net present value project at time two. This type is also interpreted as the “*quality*” of the firm, meaning that a high quality firm has a high probability to get the project at time two. The company needs to issue equity to finance the project, and taking into account its type has to decide at time one whether to do nothing, to issue equity via an IPO and get immediately the financial resources or to enter the market via a RM. The firm that decides to enter via a RM has the advantage of waiting to see if the project is available at time two and issue equity only when this uncertainty has been resolved. The cost is that getting resources at time two diminish the net present value of the project, for example because the project will have to be delayed while funds are collected.

The model predicts that under suitable conditions a separating equilibrium exists. More specifically, a company with a large enough probability to undertake the project prefers to issue equity via an IPO, signaling the quality of the project. By contrast, a company with positive, but relatively low probability to undertake the project, will prefer a RM. Therefore the model predicts that only high quality firms are going to issue equity via an IPO and that RM is a method followed, in general, by lower quality firms. Furthermore, since the firms choosing RM have a relatively low probability of having profitable investment projects in the future, the model predicts that only a relatively small fraction of firms choosing RM will try to raise capital in the future.

Part III analyzes the empirical evidence on RMs. In addition, this section tries to answer another natural question: What is more expensive, an IPO or a RM that includes a seasoned equity offering? Consulting firms that offer RM in the USA<sup>4</sup> argue that this technique allows going public in a cheaper way than the IPO. However, this argument is incomplete. While an IPO allows going public and at the

same time raising capital, a RM only allows listing. In order to know if a RM is cheaper than the IPO, we must add the cost of the seasoned equity offering. To know which companies have entered the market via RM is not an easy task since there is no database in which we can directly check which and how many companies went public through this method. However, when a public company takes part on financial transactions, like a merger, it is obligated to keep investors informed about its affairs. Therefore, in order to know which companies went public via RM and to know the cost of a seasoned equity offering for such companies, we check Bloomberg press releases related with stock swaps and the Securities Data Corporation (SDC) database. As a result, we construct a database from 1990 to July 2000 with the announcement date, the closing date, the companies involved in the stock swap and a summary of company activities.

According to our search, a total of 800 transactions were announced under the stock swap or RM technique and only 488 transactions were successfully closed. From our 488 transactions sample, only 238 transactions offered detailed information regarding the involved companies. After excluding stock swaps between public companies we get a sample of 80 companies. We made an additional refinement of our sample by excluding those transactions carried out with neither a defunct public company nor a SPAC company. We finally get 52 companies that went public through RM between 1990 and July 2000. We then investigate which companies successfully issue equity after doing the RM and the cost of the issue. We find that an extremely low proportion of companies that went public through a RM have later issued equity, a total of 8 companies representing 15.3% of the sample. In addition, we find that the cost of a RM that includes a subsequent equity offering is, on average, greater than 6.5% of the total amount raised. This cost is essentially the same as the cost of an IPO, which costs 7% of the total amount raised according to

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<sup>4</sup> There are a great variety of companies offering reverse mergers. For example, [www.coralcapital.com](http://www.coralcapital.com), [www.adargroup.com](http://www.adargroup.com), [www.reversemerger.com](http://www.reversemerger.com) and [www.gopublic.com](http://www.gopublic.com), <http://mergerstation.com/index.htm>,

Chi-Chen, Hsuan and Ritter (2000). Therefore, once we make comparable the RM cost and the IPO cost, we do not find evidence to support the claim that the RM is cheaper than the IPO.

In addition to the finding that only 15.3% of the companies that went public through RM subsequently issued equity, we find that an even greater proportion of companies were delisted from the market (32.6%), were acquired by another company (23.0%), made acquisitions (42.3%) or issued private equity or debt (15.3%)<sup>5</sup>. These empirical facts are in accordance with the theoretical prediction of the separating equilibrium that we describe in section II. In the last section we present our conclusions.

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<http://www.otctraders.com/>, <http://www.shellcorp.com/shells.html>.

<sup>5</sup> Percentages do not sum 100% because some companies made more than one of these activities.

## **Part I.**

### **1.1 What is a Reverse Merger?**

A reverse merger is an alternative method to go public<sup>6</sup>. According to the NYSE, a company to be listed is expected to meet certain qualifications and to be willing to keep the investing public informed on the progress of its affairs. The company must be an on going concern, or be the successor to a going concern<sup>7</sup>. The essence of the reverse merger is to make a privately held company (privco) the successor of a previously going concern public company (pubco). This goal is achieved through a stock swap in which privco is acquired by pubco, but privco's shareholders obtain control over pubco. In addition, privco's shareholders can change the name of pubco and remove its board of directors. In the next section we explain with a real example the typical reverse merger operation.

Public companies that get involved in a reverse merger can be of two types: *defunct* or *shell* companies. A *defunct* company is a company that went public via IPO but for some reason is already out of its market and therefore is an inactive company. Some of them are in fact in bankruptcy. These companies are not involved in real activities any more, although they used to have operations. They just preserve their corporate structure, are still listed and some times are trading companies. A *shell* company is a company registered at the Securities and Exchange Commission under the 1934 Exchange Act. The main characteristic that differentiates this kind of company from a defunct company is that a shell company has been founded with the main objective to serve as a going public vehicle, through a merger with a privately held corporation. These companies are commonly called SPAC, or Special Purpose

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<sup>6</sup> Although going public is the main goal of RMs, some analysts consider the RM as a mechanism through which a distressed public company may find a source of growth. However, since the goal of such a deal is not to list a private company, we can consider this deal as a traditional merger.

<sup>7</sup> NYSE, Listing Requirements and Historical Records.

Acquisition Corporation and usually are non-trading companies. In addition, because of its special purpose, this kind of company lacks a history of real operations, employees or assets. Therefore, in general, it is safer to do a reverse merger with a shell company than with a defunct company because of the potential liabilities that a company with previous operations may have.

## **1.2 How does a reverse merger work?**

In this section, we are going to illustrate with a real life example the typical reverse merger operation. The real names of the companies have been omitted. It is worth noting that the specific form that a reverse merger may adopt is varying. In fact, we can find the following three forms:

- a) A public company acquires a proportion of the assets of a privately held company, giving in exchange the majority (above 51%) of the shares of the public company.
- b) A public company may merge with a private company and, through a stock swap, the private company keeps control over the public company.
- c) A public company acquires a proportion of the shares (i.e. acquires rights over assets, liabilities and financial flows) of the private company, giving in exchange the majority (above 51%) of the shares of the public company. Then the private company becomes a subsidiary of the public company and therefore also public.

In all these cases, the privately held company obtains more than 51% of the shares of the public company, becoming a public company. Usually, the private company

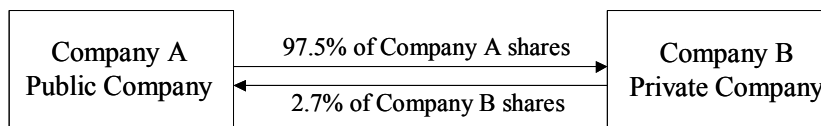


changes the name of the public company and removes its managers and board of directors. Legally, the activities of the public company (if any) continue until the new shareholders decide to cancel them.

### 1.2.1 An Example

Figure 1 shows a reverse merger operation closed in November 1996 at Nasdaq. First of all, the private company has to buy the shell (cost of reverse merger) and after that a stock swap takes place. In this operation, company A (public company) is the buyer and company B (private company) is the sold company. In short, company A bought company B through a stock swap and company A keeps the 2.7% of shares of the new public company, whereas company B keeps the 97.5% of shares of the new public company. The new public company changed its name and a new management and board of directors were appointed.

**Figure 1**



- Company A is a defunct furniture dealer.
- Once the merger is closed, company A is going to liquidate its assets and its shareholder will receive their payment.
- Company A becomes the holding company of company B.
- Company A changes its name and its ticker in NASDAQ.

- Company B is a financial group and is a privately held company.
- Company B appointed a new management and a new board of directors in company A.
- This company becomes a subsidiary of company A.

### 1.3 Some Advantages and Disadvantages of a Reverse Merger

Among the advantages of the reverse merger over an IPO we can enumerate the following:

- *Time.* According to some consulting firms that offer reverse mergers, this kind of operations can be closed in a period no greater than 3 months depending on the public company that is chosen to merge (a shell or defunct company). Typically, an IPO can take from 6 to 9 months.
- *Avoid initial listing requirements.* Perhaps the most important advantage of the reverse mergers over an IPO is that reverse mergers allow avoiding the bothersome initial listing requirements that the SEC establishes to any company. Because of this property, some analysts see the reverse mergers as a way to enter the market through the back door.

Regarding the disadvantages we can list the following:

- *Non-clean Shell.* One of the potential problems that a reverse merger can have is the risk that the public company is not completely clean of liabilities, such as financial statements seriously damaged or pending lawsuits.
- *Old Shareholders.* Another potential problem is that the private company left a proportion of its shares in hands of shell company's shareholders, therefore it is highly recommendable to audit the list of the shell company's shareholders.

- *No new capital.* This is the main difference with an IPO. By doing a reverse merger, the private company just obtains listing but it does not raise capital as in the IPO. If a private company that went public via a reverse merger needs to issue equity, it has to call for a public or private equity placement.
- *Reputation.* It may be possible that a company that chooses the reverse merger to go public can damage its reputation because, as we discussed above, the reverse merger can be seen as entering the market by the back door.

Under the setting just described in this section, a question that may arise is the following: under which conditions a company may prefer going public via an IPO and under which conditions via a RM? A possible answer is that firms that prefer going public via RM would not fulfill the initial listing requirements to enter the market and use the RM to avoid it. However, those companies sooner or later are going to face the continued listing requirements. If they do not fulfill continued requirements, they will be delisted from the market. Therefore, belonging to the market for a short period of time will be useless if not harmful because of the reputation effect. Part II tries to answer this question.

## **Part II.**

### **2. 1 A Simple Three-Period Model**

The following model explores the conditions under which a company may prefer to go public via an IPO and under which conditions via a reverse merger. In order to do this, the model exploits the main difference between the traditional IPO and the RM as going public methods: The IPO gives immediate access to new funds, while the RM only gives the possibility of raising capital in the future. The model is inspired on Myers and Majluf (1984). Figure 2 summarizes in a time line the relevant events.

There are three periods,  $t = 0, 1, 2$ , and two kinds of agents, companies and investors. All agents are risk neutral and the interest rate is zero,  $r = 0$ . Each company has assets worth  $R$  and it may or may not have an investment project requiring an investment of  $I$  available at time 2. If the investment project is available and the firm has immediately funds to finance it, the project yields assets with expected value  $A_1$ . If the investment project is available but the firm does not have funds then it will have to raise capital, thus delaying the implementation of the project. We assume that delays are costly, so in that case the expected value of the assets is  $A_2$ , where  $A_1 > A_2$ . The investment project always has a positive net present value,  $A_i - I > 0$  for  $i = 1, 2$ .

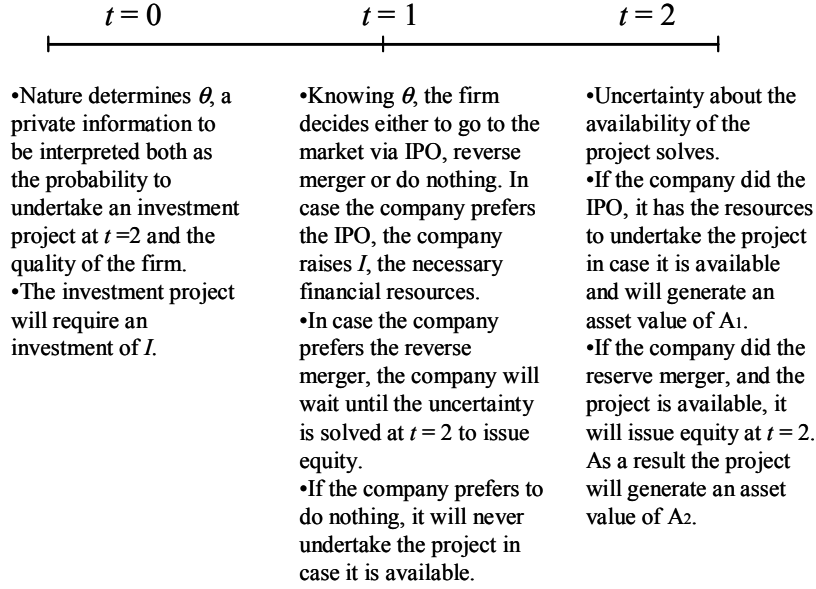
The probability that the company will have a profitable investment project at time 2 is determined by nature at time  $t = 0$  and it is private information of the company. Let  $\theta$  denote this probability. To simplify assume that  $\theta$  can take only two values  $\theta_L$  (low-type) or  $\theta_H$  (high-type), with  $\theta_L < \theta_H$ .

At time  $t = 1$ , having known  $\theta$ , the company has to decide whether to go to the market and get investment funds to develop the investment project in case it will be available at  $t = 2$ . The company has three options: (i) *Do nothing*. In this case, the company does not get any financial resources and, in case the project is available at  $t = 2$ , the company forfeits the investment project. (ii) *Do an IPO*. In this case, the company obtains at  $t = 1$  the financial resources needed to undertake the investment project in case it is available at time  $t = 2$ , thus generating an asset value of  $A_I$ . If the investment project is not available at time  $t = 2$ , the company keeps the money raised as cash. We assume that raising money through an IPO is costly, and denote by  $C_{IPO}$  the total cost. (iii) *Do a reverse merger*. In this case, the company only obtains listing and the option to wait-and-see. The cost of the reverse merger is  $C_{RM}$ , typically lower than  $C_{IPO}$ .

Finally, at  $t = 2$  the uncertainty about the availability of the project resolves. In case the project is available, the company either undertakes it in case it has the resources or forfeits it. In case the company did a reverse merger, it waits until  $t = 2$  to issue equity only in the case in which the project is available, generating an asset value of  $A_2$  and spending both  $C_{RM}$  (the cost of the RM) and  $C_{SEO}$  (the cost of the seasoned equity offering). If the investment project is not available, the firm will lose the reverse merger cost,  $C_{RM}$ . We assume that the NPV of the project ( $A_i - I$  where  $i = 1, 2$ ) is greater than  $C_{IPO}$  and  $C_{SEO} + C_{RM}$ .

Management acts in the interest of the “old” shareholders, those owning shares at  $t = 0$ . That is, they maximize  $V^{OLD} = V(A_i, I)$ , the intrinsic value of the old shares conditional on the issue-investment decision. Old shareholders are assumed to be *passive*, they sit tight if stock is issued and the issue goes to a different group of investors.

**Figure 2**



## 2.2 The Equilibrium

We want to see under what conditions a separating equilibrium, in which low-type firms choose RM while high-type firms choose IPO, exists.

In a separating equilibrium the share of equity  $\alpha$ , which has to go to the investors in order to raise an amount  $I$ , is given by:

$$\alpha_{IPO} = \frac{I}{R - C_{IPO} + \theta_H A_1 + (1 - \theta_H)I}$$

Therefore the expected value of firm of type  $\theta$  is:

$$V(\theta, IPO) = (1 - \alpha_{IPO})(R - C_{IPO} + \theta A_1 + (1 - \theta)I)$$

If a firm does a reverse merger and then issues equity at  $t = 2$ , then the share  $\alpha_{SEO}$  going to new investors at time 2 will be:

$$\alpha_{SEO}(R - C_{RM} - C_{SEO} + A_2) = I$$

so that the value to old shareholders is:

$$(1 - \alpha_{SEO})(R - C_{RM} - C_{SEO} + A_2) = R - C_{RM} - C_{SEO} + A_2 - I$$

Since this will happen with probability  $\theta$ , the value of the firm to old shareholders at time 1 when RM is chosen is:

$$\begin{aligned} V(\theta, RM) &= (1 - \theta)(R - C_{RM}) + \theta(R - C_{RM} - C_{SEO} + A_2 - I) \\ &= R - C_{RM} + \theta(A_2 - I - C_{SEO}) \end{aligned}$$

For this to be a separating equilibrium it must be the case that:

$$\begin{aligned} V(\theta_H, IPO) &\geq V(\theta_H, RM) \\ V(\theta_L, RM) &\geq V(\theta_L, IPO) \end{aligned}$$

The first condition is equivalent to:

$$R - C_{IPO} + \theta_H(A_1 - I) \geq R - C_{RM} + \theta_H(A_2 - I - C_{SEO})$$

or:

$$[1] \quad \theta_H(A_1 - (A_2 - C_{SEO})) \geq C_{IPO} - C_{RM}$$

The second condition is equivalent to:

$$R - C_{RM} + \theta_L(A_2 - I - C_{SEO}) \geq (1 - \alpha_{IPO})(R - C_{IPO} + \theta_L(A_1 - I) + I)$$

Define  $\hat{\alpha}_{IPO}$  the share of the firm that should be given to investors if they knew that the type is  $\theta_L$ , given by:

$$\hat{\alpha}_{IPO} = \frac{I}{R - C_{IPO} + \theta_L(A_1 - I) + I}$$

and write

$$V(\theta_L, IPO) = (1 - \hat{\alpha}_{IPO} + \hat{\alpha}_{IPO} - \alpha_{IPO})(R - C_{IPO} + \theta_L(A_1 - I) + I) = R - C_{IPO} + \theta_L(A_1 - I) + (\hat{\alpha}_{IPO} - \alpha_{IPO})(R - C_{IPO} + \theta_L(A_1 - I) + I)$$

Then the condition becomes:

$$C_{IPO} - C_{RM} \geq \theta_L(A_1 - (A_2 - C_{SEO})) + (\hat{\alpha}_{IPO} - \alpha_{IPO})(R - C_{IPO} + \theta_L(A_1 - I) + I)$$

Now notice that:

$$(\hat{\alpha}_{IPO} - \alpha_{IPO})(R - C_{IPO} + \theta_L(A_1 - I) + I) = \frac{\Delta\theta(A_1 - I)}{(R - C_{IPO} + \theta_H(A_1 - I) + I)} I$$

where  $\Delta\theta = \theta_H - \theta_L$ .

Then the condition becomes:

$$[2] \quad C_{IPO} - C_{RM} \geq \theta_L(A_1 - (A_2 - C_{SEO})) + \frac{\Delta\theta(A_1 - I)}{(R - C_{IPO} + \theta_H(A_1 - I) + I)} I$$

We now have the following:



**Proposition 1** *If the values of the parameters are such that conditions 1 and 2 are satisfied then a separating equilibrium exists.*

If the conditions are not satisfied then only pooling equilibria will exist, either with both types of firms choosing RM or both types choosing IPO. In the following we will assume that 1 and 2 are satisfied, and will focus on separating equilibria.

### 2.3 Discussion

The separating equilibrium just described has various interesting implications. To start with, we observe that only firms having a high enough probability to undertake the investment project (or “high quality” firms) will prefer to be listed via an IPO; in other words, choosing an IPO over an RM is a signal of quality. In practice, this signal is also reinforced by the fact that initial listing requirements are imposed to set a minimum quality standard of firms, and this strengthens the signal.

Looking at condition [1], we see that a high-type firm does not prefer the RM because the cost of getting the financial resources with delay, given by  $\theta_H(A_I - (A_2 - C_{SEO}))$ , is greater than the option value of waiting and raising capital only if the profitable investment project materializes, given by the difference  $C_{IPO} - C_{RM}$ . Keeping everything else equal, the condition is more likely to be satisfied the larger is  $\theta$ .

Another prediction of the model is that firms which have chosen a RM are not very likely to raise funds subsequently. Remember that in the separating equilibrium only firms with a low  $\theta$  select a RM. These firms are less likely to have profitable investment projects in the future, and are therefore less likely to turn again to capital markets in search of funds.

The next section of the paper explores some empirical facts. Before going to the empirical facts, we want to quote and discuss some opinions from analyst and consultants that are consistent with our theoretical predictions. According to *Computerworld*:

“Because of the many fraud cases, the Securities and Exchange Commission (SEC), which takes a dim view of reverse mergers as a backdoor route to going public, toughened its policies on them in the mid-1990s and again last year [2000]. Many financial experts also say they tend to suspect the motives of firms involved in reverse mergers”<sup>8</sup>.

The last quote is compatible with our view that lower quality firms are the ones that prefer entering the market via RM. Also, the going public method followed by firms’ works as signaling mechanism. Consistent with the signaling role of the going public method is the following quote from *Inter@ctive Week*:

“For investors, Mello says, the fact that a company has completed a reverse merger should immediately raise a red flag. The company can still be a solid investment, but extra research is necessary. Some of the forms filed with the Securities and Exchange Commission for standard IPOs, such as registration statements, are never completed for reverse mergers”<sup>9</sup>.

Finally, a *Weekly Corporate Growth Report* says about stock prices of RM companies:

“In a study by RCW Mirus from 1999-2001, out of 46 firms engaged in a RM, only four were able to increase their stock price over a period of two years after going public, and all four remained penny stocks”<sup>10</sup>.

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<sup>8</sup> Computerworld (2001).

<sup>9</sup> Inter@ctive Week (1999).

After discussing the interpretations that we can give to the predictions of the model, we want to discuss the initial listing and continued requirements that NYSE and Nasdaq impose to those companies that want to enter and stay in the market. According to the Nasdaq National Market, a company must meet all of the requirements under at least one of three listing standards for initial listing and must continue to meet at least one of the continued listing standards to maintain its listing. Table 1 shows that, in general, continued listing requirements are less restrictive than initial listing requirements. The same pattern can be found in the Smallcap market (see Table 2). As we can conclude from proposition 1, firms that have relatively “low” but still positive probability to undertake the investment project, will prefer RM than an IPO. Since RM allows listing without inspecting initial listing requirements, these companies just have to take care about fulfilling continued listing requirements in order to avoid delisting. Therefore, a firm that does not fulfill the initial listing requirements but either does fulfill or does hope to fulfill continued listing requirements may enter to the market through a RM.

NYSE’s Initial listing requirements are more demanding than those for Nasdaq. To be accepted at the NYSE a firm must have (among other requirements) either US\$2.5 million in earnings before federal income taxes for the most recent year and US\$2 million pre-tax for each of the preceding two years. The last three years of operation must be profitable. Also required are net tangible assets of \$40 million and market value of publicly held shares of \$9 million as minimum. A total of 1.1 million common shares publicly held and either 2,000 round lot holders (holders of 100 shares or more) or 2,200 total stockholders together with average monthly trading volume (for the most recent six months) of 100,000 shares, or 500 total shareholders together with average monthly trading volume of one million shares (for the most recent twelve months). For companies with not less than \$500 million in market capitalization and \$200 million in revenues in the most recent fiscal year,

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<sup>10</sup> Weekly Corporate Growth Report (2001).

there is an adjusted net income standard which removes the effects of all items whose cash effects are investing or financing for the last three fiscal years, with a minimum of \$25 million in aggregate.

However, the NYSE considers (in contrast to Nasdaq) that “the appropriateness of a continued listing of a security cannot be measured mathematically and that the NYSE may at any time suspend or delist a security where continued dealings in the security are not considered advisable, even though a security meets or fails to meet any specified criteria” (NYSE listing requirements and historical records). Among the suspending or removing reasons are: a) to have fewer than 400 total holders, b) the number of total holders is less than 1,200 and average monthly trading volume is less than 100,000 shares (for most recent 12 months), c) there are 600,000 shares or fewer in public hands, d) the average global capitalization over a consecutive 30 trading-day period is less than \$50 million and total stockholders’ equity is less than \$50 million; or average global capitalization over a consecutive 30 trading-day period is less than \$15 million, e) Average closing price of a security is less than \$1.00 over a consecutive 30 trading-day period.

As we can see continued listing requirements in the NYSE are more demanding than Nasdaq’s continued listing requirements. Therefore, it seems that it will be more likely to see RMs in Nasdaq than in the NYSE, since firms of lower “quality” can more easily hope to meet the continued listing requirements.

**Table 1**  
*Initial and Continued Listing Requirements*  
*NASDAQ National Market*

Requirements	Initial Listing			Continued Listing	
	Standard 1	Standard 2	Standard 3	Standard 1	Standard 2
Stockholders' Equity	US\$15 million	US\$30 million	N/A	US\$10 million	N/A
Market Capitalization/1,2	N/A	N/A	US\$75million or	N/A	US\$50 million or
Total Assets			US\$75million and		US\$50 million and
Total Revenue			US\$75million		US\$50 million
Pretax Income/3 (in latest fiscal year or 2 of last 3 fiscal years)	US\$1 million	N/A	N/A	N/A	N/A
Public Float (shares)/4	1.1 million	1.1 million	1.1 million	750,000	1.1 million
Operating History	N/A	2 years	N/A	N/A	N/A
Market Value of public float	US\$8 million	US\$18 million	US\$20 million	US\$5 million	US\$15 million
Minimum bid price/2	US\$5	US\$5	US\$5	US\$1	US\$3
Shareholders (round lot holders)/5	400	400	400	400	400
Market Makers/6	3	3	4	2	4
Corporate Governance	Yes	Yes	Yes	Yes	Yes

Source: The Nasdaq National Market, Listing Requirements and Fees

1/ For initial listing under standard 3 or continued listing under standard 2, a company must satisfy one of the following:

(a) the market capitalization requirement or (b) the total asset and the total revenue requirement.

2/ Seasoned issuers must meet the market capitalization requirement and the bid price requirement for 90 consecutive trading days prior to applying for listing.

3/ Excluding extraordinary and non-recurring items.

4/ Public float is defined as total shares outstanding less any shares held by officers, directors, or beneficial owners of 10 percent or more.

5/ Round lot holders are holders of 100 shares or more.

6/ An Electronic Communications Network ("ECN") is not considered an active Market Maker.

**Table 2**  
*Initial and Continued Listing Requirements*  
*NASDAQ SmallCap Market*

Requirements	Initial Listing	Continued Listing
Stockholders' Equity/1	US\$5 million or	US\$2.5 million or
Market Capitalization/2	US\$50 million or	US\$35 million or
Net Income/3 (in latest fiscal year or 2 of the last 3 fiscal years)	US\$750,000	US\$500,000
Public Float (shares)/4	1 million	500,000
Market Value of public float	US\$5 million	US\$1 million
Minimum bid price/2,5	US\$4	US\$1
Market Makers	3	2
Shareholders (round lot holders)/6	300	300
Operating History/7	1 year or	N/A
Market Capitalization/7	US\$50 million	N/A
Corporate Governance	Yes	Yes

Source: The Nasdaq National Market, Listing Requirements and Fees

1/ For initial or continued listing, a company must satisfy one of the following to be in compliance:

the stockholders' equity requirement, the market capitalization requirement or the net income requirement.

2/ Seasoned issuers must meet the market capitalization requirement and the bid price requirement for 90 consecutive trading days prior to applying for listing.

3/ Excluding extraordinary and non-recurring items.

4/ Public float is defined as total shares outstanding less any shares held by officers, directors, or beneficial owners of 10 percent or more of the total shares outstanding. In the case of ADRs, for initial inclusion only, at least 100,000 shall be issued.

5/ Does not apply to non-Canadian foreign securities and ADRs.

6/ Round lot holders are holders of 100 shares or more.

7/ If operating history is less than 1 year, initial listing requires market capitalization of at least US\$50 million. Does not apply to non-Canadian foreign securities and ADRs.

## **Part III**

### **3.1 Empirical Evidence**

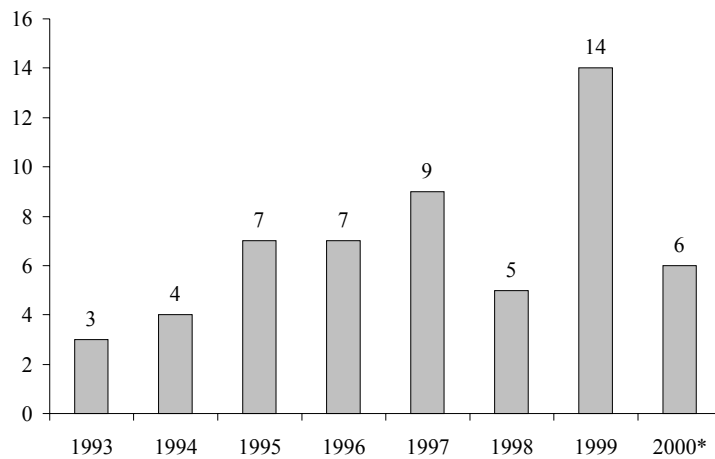
In this section we present some empirical evidence. There is no database in which we can distinguish which and how many companies went public via IPO or via RM. It seems that the immense majority of companies that are trading in the NYSE and Nasdaq, or any other market, are companies that entered the market via an IPO. However, there must be some companies that entered the market via RM, and the main goal of this section is to give some insight about the facts that characterized these companies. Therefore, in order to know which companies went public via RM, we construct a database from 1990 to July 2000. The source of the data is Securities Data Corporation (SDC) and Bloomberg.

We made an exhaustive search (using the SDC database and Bloomberg) of all “*stock swaps*” that were done at any U.S. stock market (OTC BB, NYSE, NASDAQ and AMEX) between January 1990 and July 2000. We find a total of 800 transactions that were announced under the stock swap or reverse merger technique and only 488 transactions were successfully closed. From our 488 transactions sample, only 238 transactions offered detailed information regarding the involved companies. After excluding stock swaps between public companies we get a sample of 80 companies. We made an additional refinement of our sample by excluding those transactions carried out with neither a defunct public company nor a SPAC company. We finally get 52 companies that went public through RM between 1990 and July 2000.

Using our data the first finding is that RMs, in spite that are apparently scant, has been growing since 1993 (see Figure 3). In fact, there is a pick in 1999 when *dotcom* companies were in fashion. We then investigate at which economic sector belongs

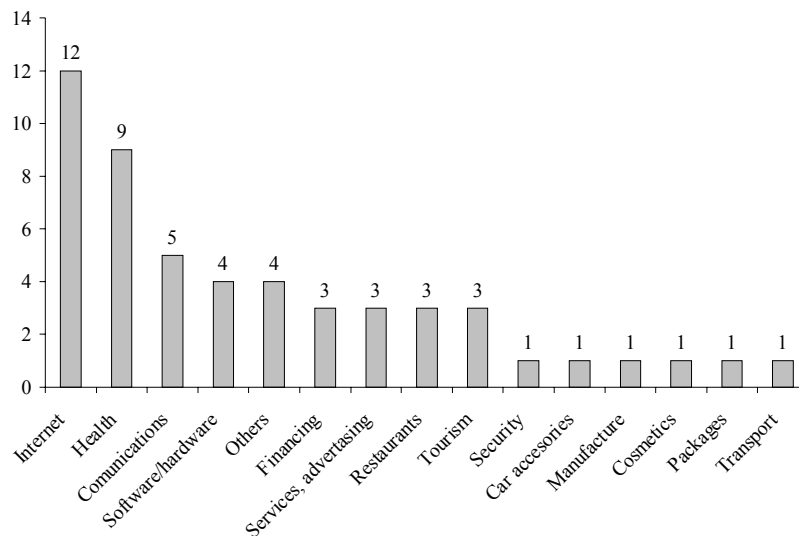
those companies. Figure 4 shows that the main sector that has been inserting companies via RM to the market is, in fact, Internet followed by health companies. The majority of these companies (80.8%) merged with defunct companies and only 19.2% merged with SPAC companies.

**Figure 3**  
*Reverse Mergers Operations*  
*(OTC, NYSE, NASDAQ and AMEX)*



\* / estimate  
 Source: SDC

**Figure 4**  
*Reverse Mergers by Sectors*



We then investigate which markets are prone to accept RM companies. We find that 29 (55.7%) companies made the RM at OTC BB (Over The Counter Bulletin Board), 21 (40.3%) companies at Nasdaq and only 1 company at NYSE and 1 at AMEX. This finding may support our previous discussion about the appropriateness of the Nasdaq's continued listing requirements. As discussed, we could expect that more companies wish to enter at Nasdaq via RM than NYSE because continued listing requirements are less restrictive in that market. However, it is still necessary to provide some evidence about the quality of the firms that made RMs. We tried to investigate the financial highlights of those companies. Surprisingly, we did not find as much information as we wanted. However, we find the following facts that may provide support to our theoretical predictions presented in the last section.

First, we did not find financial highlights for most of the companies because the main activity after the RM is to be delisted from the market (32.6%, 17 companies) or to be acquired (23.0%, 12 companies)<sup>11</sup>. We also find that some other companies made acquisitions, 42.3%.

Second, we then investigate which companies successfully issue equity after doing the RM. We find that an extremely low proportion of companies that went public through a RM issue equity, 8 companies that represents 15.3%. Another 8 companies issue private equity or debt. These figures may support the idea that companies that enter the market via RM are low quality firms, as our model predicts. Companies may enter with the hope of issuing equity and thereafter grow and fulfill continued listing requirement, but few of them reach that goal.

Third, those companies that were not delisted from the market had at the end of 1999, in average, net assets of US\$38.3 million and an average income of US\$27.5

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<sup>11</sup> Some companies made more than one of these activities.



million<sup>12</sup>. If we look at the median, the size of the companies is even lower: sales US\$12.1 million and assets US\$13.2 million. These figures may support the idea that the surviving companies only just fulfill continued listing requirements.

### 3.2 The IPO and RM cost

As we have mentioned before, in contrast with the IPO, the RM just allows listing. Therefore, a cost comparison between these two going public methods should incorporate the fact that the RM does not allow raising equity. In this section we compute the cost of a RM that includes a seasoned equity offering in order to properly compare with the cost of an IPO. Using our database, we just have 8 companies that successfully issued equity after the RM and we get information about the gross spread from SDC. Table 3 shows the details of those operations.

**Table 3**

*Seasoned Equity Offerings after the RM*

RM date	SEO date	Amount (US\$million)	Gross Spread * (US\$million)	Gross Spread (% of Amount)
10/04/96	10/24/96	93.8	5.6	6.0%
11/11/96	04/10/98	15.1	n.a.	n.a.
09/02/98	05/12/00	69.6	n.a.	n.a.
02/02/96	02/09/96	28.0	2.0	7.0%
06/01/94	08/30/95	18.4	n.a.	n.a.
12/15/93	03/29/94	20.7	1.4	6.8%
05/02/94	07/09/04	4.5	0.5	10.0%
06/26/95	12/07/95	24.7	1.8	7.1%
Average Gross Spread				7.4%
Weighted Average Gross Spread				6.5%

\*/ is defined as the sum of management fee, underwriting fee and selling concession fee

<sup>12</sup> We eliminate an outlier firm from our computations. Including the outlier the figures become: average sales of US\$111.6 million and average assets of US\$353.1 million.

As we can see, we find that the cost of a seasoned equity offering for companies that made a RM is, in weighted average, 6.5% of total amount raised. We then now should add the cost of the RM. We investigated the cost of a RM among some consulting firms that offer this kind of operations<sup>13</sup>. We find that the cost of the RM could be between US\$300,000 and US\$700,000 depending on the shell company. This cost represents between 0.2 percentage points and 0.4 percentage points that should be added to the seasoned equity offering cost. That is, the RM cost that is properly comparable with an IPO cost could be on average between 6.7% and 6.9% of total amount raised. This cost is essentially the same as the cost of an IPO, which cost 7.0% of total amount raised according to Chi-Chen, Hsuan and Ritter (2000). Therefore, once we make comparable the RM and the IPO cost, the claim that the RM is cheaper than the IPO is not supported by the data.

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<sup>13</sup> [www.coralcapital.com](http://www.coralcapital.com); [www.adargroup.com](http://www.adargroup.com); [www.reversemerger.com](http://www.reversemerger.com); [www.gopublic.com](http://www.gopublic.com)

## **Part IV**

### **Conclusions**

We have presented a simple three-date model about the going public decision when the firm's managers have essentially three options: going public via RM, going public via an IPO and do nothing. Our main theoretical finding is that, under some conditions on the parameters, there exists a separating equilibrium in which high quality firms choose IPOs and low quality firms choose RMs. Since the quality is given by the probability of having profitable investment projects in the future, the model also predicts that firms choosing RM are not very likely to raise capital subsequently. The empirical analysis provides some support for this predictions. By inspecting the RMs that were completed at U.S. stock markets between 1990 and 2000 we find that many firms after the RM are delisted from the market (32.6%). That is, RM companies are those that did fulfill neither initial listing requirement nor continued listing requirements, meaning that most of these companies are low quality firms. Some other companies are acquired or made some acquisitions. In addition, an extremely low proportion of companies successfully issued equity after the RM. These companies are the ones that fulfill continued listing requirements, although usually they only just fulfill them. At last, we have compared the cost of an IPO and the cost of an RM plus a seasoned equity offering. We find evidence supporting the idea that the cost of a RM that includes a seasoned equity offering is approximately equal to the cost of an IPO. Therefore, the argument that the RM is a cheaper way to go public than the IPO is not supported by the data.

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