

# **Going Public to Acquire?**

## **The Acquisition Motive in IPOs\***

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### **ABSTRACT**

Using a sample of IPOs from 1994 to 2004, we show that newly public firms make acquisitions at a torrid pace. This acquisition activity is fueled not only through the initial IPO proceeds, but also through the creation of an acquisition currency that is used to raise capital for both cash and stock financed acquisitions and through debt issuance subsequent to the IPO. The IPO allows companies to use potentially overvalued stock to pay for acquisitions, but also facilitates M&A by resolving uncertainty about the true value of the acquiror. We show that acquisitions play as significant a role in the growth of newly public firms as do R&D and CAPEX outlays. The patterns of acquisition activity following an IPO are important in explaining the evolution of ownership structure of newly public firms.

JEL Codes: G32, G34

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### **ABSTRACT**

Using a sample of IPOs from 1994 to 2004, we show that newly public firms make acquisitions at a torrid pace. This acquisition activity is fueled not only through the initial IPO proceeds, but also through the creation of an acquisition currency that is used to raise capital for both cash and stock financed acquisitions and through debt issuance subsequent to the IPO. The IPO allows companies to use potentially overvalued stock to pay for acquisitions, but also facilitates M&A by resolving uncertainty about the true value of the acquiror. We show that acquisitions play as significant a role in the growth of newly public firms as do R&D and CAPEX outlays. The patterns of acquisition activity following an IPO are important in explaining the evolution of ownership structure of newly public firms.

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## 1. Introduction

Why do firms choose to go public? An IPO is one of the most consequential events in the life of a company, but our understanding of this decision remains incomplete. Existing theories offer several insights for why firms decide to go public. In theory, an IPO creates liquidity for the firm's shares, provides an infusion of capital to fund growth, allows insiders to cash out, provides cheaper and ongoing access to capital, facilitates the sale of the company, gives founders the ability to diversify their risk, allows venture capitalists and other early stage investors to exit their investment, and increases the transparency of the firm by subjecting it to capital market discipline.

Despite the abundance of theoretical considerations, empirical evidence on why firms go public and the consequences for their investment decisions remains limited. Pagano, Panetta and Zingales (1998) show that Italian firms went public not to finance future investments and growth, but rather, to rebalance their capital structure and to exploit sectoral misvaluation. Lowry (2003) studies aggregate IPO data and finds that firms' demands for capital and investor sentiment are the most significant determinants of IPO volume. Boehmer and Ljungqvist (2004) show that German firms go public when their investment opportunities and valuations become attractive. Rosen, Smart and Zutter (2005) find that banks which go public are more likely to become targets as well as acquirers than banks which stay private. More recently, Kim and Weisbach (2007) show that financing of investment expenditures and the desire to benefit from potential overvaluation are important motives for seasoned equity offerings (SEOs) and IPOs.

We provide new evidence on the IPO decision by studying a relatively unexplored motive for IPOs – the desire to make acquisitions. Surveys of corporate executives suggest that acquisitions are a very important motive for an IPO. Brau and Fawcett (2006) survey CFOs of companies that went public and find that the desire to create an acquisition currency ranked as the most important reason for an IPO. In fact, survey participants ranked the importance of an acquisition currency ahead of other commonly considered motives such as cost of capital considerations and need for VCs and founders to exit or diversify their holdings. However, Brau and Fawcett (2006) are limited to a three year period between 2000 and 2002 in their survey. Since this period coincides with the technology bubble, with many internet firms going public during this period, whether this motive holds importance over a longer time period is unknown. In particular, the overvaluation during the internet boom could have increased managers' appetite

to acquire, thereby fueling many IPOs during this period. In fact, Schultz and Zaman (2001) document that many internet firms that went public during this period engaged in a significant amount of post-IPO acquisition activity.<sup>1</sup>

We analyze the post-IPO acquisition activity of IPO firms and find that there is a high incidence of newly public firms participating in mergers and acquisitions (M&A). IPO firms start engaging in M&A as early as the IPO year. 38% of IPO firms conduct at least one acquisition within their IPO year, with the typical IPO firm making 1 acquisition in that year. Within the first five years of the IPO, 84% of firms conduct at least one acquisition, and the typical IPO firm makes 6 acquisitions in this five-year period. On average, IPO firms conduct acquisitions worth 43% of their market value at the time of the IPO during their first five years. For the typical IPO firm, the average expenditure on acquisitions is substantially greater than that either investment (CAPEX) or research and development (R&D). In fact, the average acquisition volume is at least as large as R&D and CAPEX combined, indicating that acquisitions play a significant role in the growth of newly public companies.

The appetite for acquisitions appears to increase following the IPO. Comparing the post-IPO acquisition activity to their pre-IPO acquisition activity, only 23% of the firms make an acquisition as a private firm in the five years before they go public, but this rises to 73% in the five years after going public. The typical IPO firm completes only 0.68 acquisitions in the five years prior to IPO, compared to 4 acquisitions in the five years after its IPO, highlighting the importance of acquisitions for newly public companies.

We study three hypotheses for post-IPO M&A activity, which we term the cash infusion hypothesis, the acquisition currency hypothesis, and the uncertainty resolution hypothesis. Under the cash infusion hypothesis, firms go public to raise funds to establish a war chest for future acquisitions. Under the acquisition currency hypothesis, the ability to issue stock in a public company to shareholders of a target company allows new public companies to finance acquisition activity. Under the uncertainty resolution hypothesis, an IPO resolves the uncertainty about the true value of the firm and allows the firm to engage in acquisitions more efficiently as a public

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<sup>1</sup> In other work, Brown, Dittmar and Servaes (2005) study post-IPO performance of 47 roll-up IPOs which involve the creation of a publicly listed entity by the consolidation of several small businesses at the time of the IPO. While roll-up IPOs also engage in acquisitions soon after their listing, both these IPOs and their M&A activity are fundamentally different than the broader set of IPO firms and their M&A activity, which we consider in this paper.

firm than as a private firm. We test these hypotheses by examining the volume of post-IPO acquisition activity and consider cash and stock financed acquisitions separately to distinguish between the various predictions we test.

Our results provide some support for all three hypotheses. Consistent with the cash infusion hypothesis, we find that the IPO proceeds are positively correlated with the volume of cash financed M&A in the IPO year. For later years, we find that capital raised from SEOs is positively correlated with cash financed acquisition activity. These results suggest that an IPO facilitates acquisitions both because of the initial capital raise, but also by allowing the firm access to public equity markets for subsequent capital raising.

Firms with greater IPO underpricing conduct more stock financed acquisitions in the years following the IPO. Interestingly, IPO underpricing is negatively related to R&D and CAPEX. Since IPO underpricing is closely linked to equity overvaluation for IPO firms, these results suggest that IPO firms with an overvalued currency find it easier to grow by acquiring other firms than by investing in internal projects. Consistent with the overvaluation argument, event-study analysis of acquisition announcements shows that stock financed acquisitions by IPO firms have more negative announcement returns than similar acquisitions by mature firms. We also study a special group of IPOs – carve-out IPOs to test the acquisition currency hypothesis. The acquisition currency hypothesis predicts lower acquisition activity for carve-out IPOs because the parents of these companies have access to an acquisition currency through their own publicly traded stock. Consistent with this prediction, we find that carve-out firms engage in fewer acquisitions than new company IPOs.

Under the uncertainty resolution hypothesis, proposed by Hsieh, Lyandres and Zhdanov (2007), an IPO reduces the uncertainty about firm value, allowing the firm to exercise its option to make acquisitions more efficiently. Consistent with the predictions of this hypothesis, we find that the reduction in valuation uncertainty is positively related to the total amount of cash and stock financed acquisitions after the IPO. Further support for this hypothesis comes from our finding that IPO firms with a higher cost of going public conduct more acquisitions earlier on after becoming a public firm.

Overall, our results suggest that IPOs significantly change the ability of firms to conduct acquisitions and suggest that this ability to pursue acquisitions might be an important motive for the IPO. Yet we acknowledge that it is difficult to disentangle whether firms went public to

pursue acquisitions or whether the valuation uncertainty after the IPO presented these firms with windows of opportunities to conduct M&A using overvalued stock. In addition, going public might have improved these firms' ability to pursue acquisitions by providing access to a broader source of funding options, even if the acquisitions themselves were not the primary motive for the IPO. Irrespective of the interpretation, we show that acquisition activity by IPO firms is at least as large as its R&D and CAPEX outlays combined. This finding complements Kim and Weisbach (2007)'s results that equity capital raised from IPOs and SEOs is an important determinant of R&D and CAPEX in the post-IPO period. Together, these studies illuminate the mechanisms by which going public allows companies to exploit their growth options to become mature public companies.

Our findings on the importance of M&A for IPO firms have broader implications for the evolution of ownership structure of firms. In recent work, Helwege, Pirinsky and Stulz (2007) document that U.S. firms become widely held after they go public and show that stock market performance and liquidity explain why firms experience a reduction in insider ownership after the IPO. We show that the acquisition appetite of IPO firms is a critical determinant of their ownership dynamics as well. Both cash and stock financed acquisitions can increase the dilution in insider ownership by increasing the number of shares outstanding. Consistent with this view, we find that both cash and stock financed acquisitions are positively related to the dilution in insider ownership. Thus, acquisitions play an important role in explaining why U.S. firms become widely held after they go public.

The organization of the paper is as follows. In Section 2, we review existing theories on the motivations for firms to go public and explain our hypotheses and empirical predictions. In Section 3, we introduce our sample and present our univariate results on the acquisition activity of the IPO firms. Section 4 tests the implications of the hypotheses in a multivariate setting. Section 5 analyzes the relationship between post-IPO acquisitions and post-IPO ownership dilution. Section 6 concludes.

## 2. Motivations for IPOs and Empirical Design

### 2.1. *Motivations for IPOs*

The theoretical literature offers several reasons why companies choose to go public. Subrahmanyam and Titman (1996) propose that information production by outside investors improves investment decisions and drives the decision to go public. Chemmanur and Fulghieri (1999) also argue that information production costs explain IPO decisions. In their model, an IPO provides cheaper capital by creating a liquid security in the company, whose value reflects all available information and, thereby reduces the need for all investors to engage in costly and duplicative information production. Mello and Parsons (1998) postulate that liquidity considerations are important in driving the IPO decision and note that the increased liquidity of the stock lowers the cost of capital. Enhancing the liquidity of the stock can facilitate acquisitions by making it less costly to raise acquisition financing through SEOs and make the equity more appealing as an acquisition currency in stock financed acquisitions.

Other papers emphasize the benefits that an IPO provides by creating an observable market price for the stock. Zingales (1995) argues that by establishing a market price for the shares, an IPO allows the owners to increase the value that they can extract from selling their company. Hsieh, Lyandres and Zhdanov (2007) suggest that going public reduces the uncertainty about the value of the firm and allows the firm to conduct acquisitions more efficiently as a public firm than as a private firm.

### 2.2. *Hypotheses and Empirical Predictions*

We discuss three hypotheses regarding the acquisition motive for IPOs and describe their empirical predictions.

#### *The Capital Infusion Hypothesis*

The most obvious channel through which an IPO allows companies to pursue acquisitions is by providing an infusion of capital, which we term the *capital infusion hypothesis*. If firms go public to establish a war chest to pursue subsequent acquisitions, we expect this motivation to be the most important when firms expect to pursue high volumes of cash funded acquisitions. Thus, under this hypothesis, the primary proceeds from an IPO should be positively related to the amount of cash financed acquisitions conducted after the IPO.

More broadly, if financing events are driven mainly by funding needs for investment and acquisitions, we expect two additional predictions from this hypothesis. First, capital infusion needs should also motivate firms to go public to fund R&D and CAPEX needs. Second, subsequent financing events such as SEOs and debt offerings should also be linked to future M&A activity. In other words, the capital infusion hypothesis predicts that cash financed M&A activity will also be higher after SEOs and debt offerings. It is important to note, however, that the capital infusion hypothesis offers no direct prediction regarding the amount of equity financed M&A activity.

#### *The Acquisition Currency Hypothesis*

An IPO creates an acquisition currency, i.e. a publicly traded stock that can be used to pay for acquisitions. According to the *acquisition currency hypothesis*, IPOs allow firms to pursue M&A by using stock as a form of payment for acquisitions. In the absence of market imperfections and equally informed bidders and targets, the ability to issue stock is publicly traded should not be a relevant consideration in an acquisition. However, with information asymmetry between managers, public markets, and potential targets, the ability to issue overvalued stock to pay for an acquisition may provide a motive to conduct an IPO. Shleifer and Vishny (2003) argue that overvalued equity drives many firms to conduct acquisitions, providing a motivation for why managers may desire stock as an acquisition currency. Hence, according to the acquisition currency hypothesis, we expect to see a higher amount of stock financed acquisitions for IPO firms with an overvalued stock. We use IPO underpricing as a measure of overvaluation as suggested by Purnanandam and Swaminathan (2004) who show that the most overvalued IPO firms have the greatest IPO underpricing. Thus, the acquisition currency hypothesis offers the prediction that IPO firms with greater underpricing are more likely to undertake stock financed acquisitions to take advantage of their overvalued currency.

We advance another prediction of the acquisition currency hypothesis applicable for a special group of IPOs, - carve-out IPOs. In a carve-out IPO, a public parent issues shares in a subsidiary firm. We expect that the acquisition motive is weaker for carve-out IPOs than for new company IPOs since the parent company of the carved-out subsidiary already has an acquisition currency. Therefore, the acquisition currency hypothesis predicts a lower amount of acquisition activity for carve-out IPOs than new company IPOs.

### *The Uncertainty Resolution Hypothesis*

The third hypothesis we explore is based on recent theory proposed by Hsieh, Lyandres and Zhdanov (2007). They provide a real options based model that illustrates a link between the going public decision and the firm's subsequent ability to engage in acquisitions. In their model, private firms face uncertainty regarding their true valuation. In addition, the value of the private firm is related to the potential gain from a takeover. By going public, managers learn the true value of their firm and the value of the takeover gain. Thus, by resolving the uncertainty about the true value of the bidder, an IPO allows a bidder to exercise its acquisition option optimally. A key prediction of this model is that firms experiencing a greater reduction in their valuation uncertainty through an IPO will find it more desirable to engage in post-IPO acquisitions. Thus, our third hypothesis, the *uncertainty resolution hypothesis*, posits that firms obtaining a greater reduction in their valuation uncertainty through an IPO will undertake more cash and stock financed acquisitions after their IPO.

Another prediction in Hsieh, Lyandres and Zhdanov (2007) derives from the costs and the benefits of conducting an IPO. In their framework, going public is costly due to underwriting fees and dilution of the original owner's equity ownership. The benefit of an IPO is that it allows the firm to optimally exercise its option to acquire other firms. Trading-off these costs and benefits generates the prediction that firms with a higher cost of going public will engage in more acquisitions early on in order to maximize the benefits of an IPO.

A related argument is that by reducing information asymmetry, an IPO may increase a firm's ability to borrow. This idea is related to Rajan's (1992) work which suggests that a reduction in asymmetric information can weaken the hold-up problem between the firm and its lenders. In other words, going public may weaken the monopoly power of relationship banks over the IPO firm and may improve the firm's ability to pursue debt financed acquisitions. Consistent with this view, Schenone (2007) finds that firms experience a drop in the interest rates after their IPO. Therefore, our third prediction related to the uncertainty resolution hypothesis is that the amount of debt capital raised subsequent to the IPO should be positively correlated with the amount of cash financed acquisitions.

### 3. Univariate Analysis of post-IPO Acquisition Activity

#### 3.1. Data

Our IPO data comes from Securities Data Company (SDC) and covers all U.S. IPOs from January 1994 to December 2004 with total proceeds equal to or greater than \$100 million. We impose this size cutoff to ensure that we have IPOs of a certain minimum size so that reliable data on their M&A activity is available.<sup>2</sup> This probably biases us *against* finding a significant role for acquisitions since Brau and Fawcett (2006) report that the desire to create an acquisition currency in IPOs is greater for smaller firms. Nonetheless, it is important to note that the amount of IPO proceeds raised by our sample of IPO firms accounts for 75% of all IPO proceeds reported in SDC over this period. We also restrict our sample to those firms for which Compustat data is available for the IPO year. Firms are retained in the sample until the first year in which they exit Compustat. Data on subsequent capital raising and acquisition transactions come from the SDC New Issues and Mergers and Acquisitions databases. In tabulating acquisitions, we do not include buybacks, recapitalizations, or exchange offers.

Table I reports descriptive statistics for the sample. We have 793 IPOs that meet the sample selection criteria. The number of IPOs in our sample varies over time, with a sharp rise in 1999 and 2000, coincident with the internet boom. The average amount of the total proceeds (primary and secondary capital) raised in the IPO is \$388 million. On average, 16% of the total proceeds in IPOs come from the sale of existing secondary shares and 31% of the sample firms have sold secondary shares. We calculate the level of underpricing for each IPO by dividing the difference between the first day closing price and the offer price by the offer price. In our sample, the average level of underpricing is 34%, but this average is influenced heavily by the 1999-2000 period, where underpricing averaged 84%. Excluding these two years, the average underpricing in the sample drops to 12%. Our sample contains both initial listings of companies as well as equity carve-outs that represent listings of subsidiaries of public companies. Overall, carve-outs represent 19% of the IPOs in the sample.

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<sup>2</sup> Inspection of SDC's M&A data provides support for this concern. For IPOs where proceeds are less than \$100 million, deal values for subsequent M&A transactions are missing for 47% of all recorded acquisitions. This compares to 40% of missing deal values for transactions involving bidders with IPO proceeds greater than \$100 million. In addition, our spot-checking suggests that some small deals may go unrecorded in SDC.

### 3.2. *Post-IPO M&A Activity*

We track all M&A activity for our sample firms for up to five years including the IPO year. We include mergers and acquisitions of public and private companies, and acquisitions of assets. Table II summarizes the acquisition activity undertaken by the IPO firms. Year 0 denotes the year of the IPO and we report the cumulative volume of M&A activity for windows extending out to five years after the IPO date. As a result of acquisitions and delistings of IPO firms, our sample size drops to 379 by the end of year five.<sup>3</sup>

It is important to note that SDC does not report transaction values for 40% of M&A deals in our sample, especially for those transactions where the target firm is a private firm or a subsidiary of a public firm. We consider these transaction values to be zero. This causes us to underestimate, potentially very substantially, the actual acquisition volumes for IPO firms.

Panel A of Table II shows that 38% of the IPO firms make at least one acquisition in their IPO year. This frequency rises each year so that over the five-years of the IPO, 84% of firms make at least one acquisition. The average number of acquisitions by an IPO firm in the IPO year is just under 1 and increases to almost 6 by the end of the fifth year. There is clearly dispersion in the number of acquisitions across firms, with IPO firms completing a median of 3 transactions in the first five years. In aggregate, 2,247 acquisitions are completed in the 2,864 firm-years in the sample, indicating that newly public firms tend to be active acquirers.

Panel B of Table II compares an average IPO firm's total volume of acquisitions to its total R&D and CAPEX. The typical IPO firm spends \$362 million more (\$1,174 million versus \$812 million) on acquisitions than on R&D and CAPEX combined in the first five years after the IPO. Although the median acquisition volume is lower (though not significantly so) than the median R&D and CAPEX combined, it should be noted that assuming that the transaction value is zero when it is unreported underestimates the true median. Panel C shows that IPO firms spend on average, 328% of the initial IPO proceeds for acquisitions and 216% for R&D and CAPEX combined over the first five years. Panel D reports that acquisition spending as a percentage of market value at the time of the IPO is 43%, while it is 28% for R&D and CAPEX combined.<sup>4</sup>

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<sup>3</sup> Another reason why our sample size drops over time is that we restrict both our IPO and M&A data for the period from 1994 to 2004. Hence, we do not use the complete five-year data for those firms which went public after 2000. For example, for firms which went public in 2004, we report the acquisition activity only for 2004.

<sup>4</sup> The median market value is \$1,158 million and the mean market value is \$4,810 million for our sample of IPO firms.

Overall, Table II shows that IPO firms engage in significant M&A activity starting as early as their IPO year, and external growth through acquisitions is at least as important as, and possibly more important than, organic growth through R&D and CAPEX.

Perhaps IPO firms are naturally acquisitive and their focus on M&A actions in the post-IPO period is unrelated to the IPO. The data do not appear to favor this interpretation. Panel A of Table III shows that only 23% of the firms make an acquisition as a private firm in five years before they go public, whereas this percentage rises sharply to 73% if the five years after the IPO. The number of acquisitions made also shows a striking increase after the IPO. IPO firms make 0.68 acquisitions, on average, in their last five years as a private firm, but make 4.1 acquisitions, on average, in five years after the IPO. The median number of acquisitions over the five-year period rises from zero to 2 after the IPO. Panel B of Table III reports the mean and the median acquisition volume over the pre- and post-IPO five-year periods. This comparison also shows a sharp rise in acquisition activity. The pre-IPO acquisition volume averages 5.6% of equity market value as of the IPO date, whereas the post-IPO acquisition volume averages 33.6%.

The comparison between pre-IPO and post-IPO M&A volumes should be interpreted with some caution because of the possibility that acquisition activity is under-reported for private firms in SDC. The SDC database compiles its list of M&A transactions based on SEC filings and company press releases. This creates the likelihood that some acquisitions by private acquirers will not be recorded if SEC filings or press releases are missing. However, acquisitions where the target is a public company should be immune to this potential recording bias because SEC filings are mandatory in these cases. Thus, we compare the acquisition activity involving publicly listed targets as well. Table III shows a sharp difference in the acquisition of public companies pre and post-IPO. In the five years before an IPO, 16.5% of sample firms acquired a public target, but 56% of firms acquired a public target in the five years following an IPO. The total number of acquisitions of public companies rises five-fold in the post-IPO period from 303 to 1,535 and the average volume of public company acquisitions as a percentage of the market value of the firm jumps sharply from 6.7% in the pre-IPO period to about 27.8% post-IPO.

### *3.3. M&A Activity of IPO Firms versus Mature Firms*

As an additional benchmark, we compare the acquisition activity of IPO firms to those of mature public firms. A priori, we do not have a clear prediction regarding this comparison. Several factors suggest that IPO firms should be less active acquirors than mature companies. If

IPO firms face more information asymmetry or greater valuation uncertainty, access to both equity and debt capital may be less available to them relative to mature firms. If IPO firms go public mainly to capitalize on attractive investment opportunities in their industries, one might expect a greater focus on internal investment by IPO firms, whereas mature firms might be more inclined to pursue acquisitions if their industries offer limited growth prospects. In addition, the typically smaller size of newly public firms may simply limit the number of feasible acquisitions these firms can pursue after the IPO. At the same time, IPO firms might be expected to be more active acquirors if the desire to make acquisitions prompted the IPO or if they are more likely to be overvalued, prompting them to use their stock to finance acquisitions.

To provide perspective on these issues, we construct measures of acquisition activity for IPO firms and for mature firms. Mature firms are defined as those which went public at least five years ago and which have a market capitalization greater than \$100 million at the beginning of the five-year period in which the two samples of firms are analyzed. We impose a \$100 million size cutoff for mature firms so that they are comparable to the IPO firms in terms of their size.<sup>5</sup>

Our methodology for calculating the acquisition intensity of IPO and mature firms controls for industry and time-trends in M&A activity. First, we classify IPO firms across the 48 Fama-French industries. Second, for each industry and for each year from 1994 to 2004, we calculate the total amount of acquisitions for each IPO firm in that industry over the next five years, normalized by the market value of the firm at the time of the IPO. Then, we calculate the mean normalized acquisition amounts for all firms in the industry to obtain a measure of the acquisition activity of an average IPO firm in that industry. Finally, we calculate the value-weighted average of the means across 48 Fama-French industries where each industry is weighed by its market capitalization at the beginning of the corresponding five-year period. We repeat the same procedure for mature firms. For example, for the year 1994, we take the sum of the acquisition amounts from 1994 to 1998 for each mature firm, and normalize this amount by the market value of the firm in 1994. Then, we calculate the mean of these normalized acquisition amounts of all the mature firms in each Fama-French industry to obtain a measure of the acquisition activity of an average mature firm in that industry for 1994. Finally, we calculate the value-weighted averages of this measure across 48 Fama-French industries for 1994, where the weights are taken to be each industry's market capitalization in 1994.

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<sup>5</sup> The median market value is \$1,450 million for the sample of mature firms, compared to \$1,158 million for the sample of IPO firms.

Table IV compares the acquisition intensity of our sample of IPO firms and that of mature firms. Panel A shows that, on average, newly public firms are as active acquirers as mature public firms in terms of the overall amount of acquisitions they undertake. When we condition on the method of payment however, we see that IPO firms conduct more cash financed acquisitions than mature firms, as shown in Panel B of Table IV. Panel C of Table IV shows that IPO firms engage in a lower amount of stock financed acquisitions than mature firms. A possible explanation for this pattern is that IPO firms might have less desire to use stock as an acquisition currency than mature firms due to greater asymmetric information about its value, or that targets may be less willing to accept stock as payment due to concerns about overvaluation. When IPO firms use stock, they appear to use it to fund larger transactions. As shown in Panel D, the average relative deal size for a stock financed transaction is 29.6% for IPO firms, but only 20.6% for mature firms. The difference in relative deal size could reflect the limited alternative funding options for large acquisitions by IPO firms, but could equally reflect their desire to capitalize on overvalued stock by pursuing large deals.

#### *3.4. Univariate Tests*

To evaluate the importance of cash infusion, we examine how the new capital raised in an IPO explains the volume of subsequent cash financed acquisition activity. A typical IPO entails an offering of two types of shares: primary shares and secondary shares. Primary shares are sold to raise new capital for the firm whereas secondary shares are sold by the existing owners to monetize their holdings. Under the capital infusion hypothesis, the proceeds from the sale of primary shares should be positively related to the amount of cash financed acquisitions after the IPO. Cash infusions can be used for either organic or external growth, and hence we also expect a positive correlation between primary IPO proceeds and R&D and CAPEX under this hypothesis.

The first five columns in Panels A and B of Table V show the average volume of cash financed acquisitions and of R&D and CAPEX depending on whether the firms raise more or less primary capital than the median firm. Firms with higher primary IPO proceeds spend 41% of their market value for acquisitions in the first five years after going public whereas firms with lower primary IPO proceeds spend only 14% for acquisitions. Panel C shows that the difference in acquisition volumes between these two subsamples is statistically significant at the 1% level. This result is supportive of the capital infusion hypothesis since the sale of primary shares raises investment capital for the firm, while the sale of secondary shares allows the insiders to monetize their holdings without providing a cash infusion to the firm. Kim and Weisbach (2006) document

a similar result for IPO and SEO firms where R&D, CAPEX and acquisition amounts are greater for firms raising more primary capital than secondary capital.

Under the acquisition currency hypothesis, carve-out firms should engage in less acquisition activity than new company IPOs since the acquisition motive for carve-outs is weaker because the parent company already has an acquisition currency. The middle five columns of Table V examine the acquisition activity as well as R&D and CAPEX of carve-outs and new company IPOs for the first five years after they go public. Panel A reports the mean acquisition amount and the mean R&D and CAPEX for carve-outs, whereas Panel B reports the same statistics for the new company IPOs. Consistent with the acquisition currency hypothesis, Panel C shows that carve-outs exhibit a lower amount of acquisition activity than newly listed IPOs. In addition, carve-outs spend significantly more on R&D and CAPEX after their IPO.

To test the importance of creating an acquisition currency, we also examine the effect of IPO underpricing in explaining subsequent stock financed acquisition activity of the IPO firms. Under the acquisition currency hypothesis, IPO firms with greater underpricing should be more likely to undertake stock financed acquisitions after their IPO to take advantage of their overvalued currency. The last five columns in Panel A of Table V show the volume of stock financed acquisitions along with R&D and CAPEX for firms with greater than median level of underpricing, and Panel B shows firms with below median levels of underpricing. Consistent with the acquisition currency hypothesis, the univariate statistics in Panel C show that firms with greater underpricing conduct significantly more stock financed acquisitions, especially in the first three years after the IPO. Moreover, these firms spend less on R&D and CAPEX.

We further explore the acquisition currency hypothesis regarding the use of overvalued stock by conducting an event study. If IPO firms pursue stock financed acquisitions to exploit overvaluation, we expect the market reaction to these acquisition announcements to be negative. Thus, we explore whether stock financed acquisitions are met with particularly negative announcement returns in the case of IPO firms. We follow the standard event study methodology of Brown and Warner (1985) and calculate the cumulative abnormal returns (CARs) of the IPO firms for the three-day event window  $[-1,+1]$  around the acquisition announcement date. Market model parameters are estimated from day -140 to day -20 relative to the announcement using CRSP value-weighted market returns.

Table VI shows that for the entire sample of both cash and stock financed acquisitions, the announcement returns are virtually identical for IPO and mature firms, with an average of 0.35% for IPO firms and 0.31% for mature firms. However, announcement returns are much more negative for stock financed acquisitions by IPO firms, which average -1.25%. In contrast, announcement returns for stock-financed acquisitions by mature firms are higher, averaging -0.20% (these are also significantly negative). The sharper negative market response for IPO firms is consistent with the view that stock-financed acquisitions by these firms are interpreted as a stronger signal of overvaluation. Interestingly, the negative announcement return differential between IPO and mature firms is not observed for cash financed acquisitions. In fact, announcement returns for cash financed acquisitions are more positive for IPO firms (and significantly different from mature firms at the 10% level), though none of our hypotheses yield this prediction directly.

We conduct a regression analysis to see if the differences in CARs for acquisition announcements persist after controlling for other variables and report this in Panel D of Table VI. These regressions pool all the 25,062 individual acquisitions by IPO and mature firms in our sample.<sup>6</sup> We test for differential market responses for IPO firms and stock financed acquisitions by including the indicator variables *IPO\_Firm* and *Stock\_Financed*. Model 1 shows that on average, bidder announcement returns for IPO firms are indistinguishable from those of mature firms – the *IPO\_Firm* dummy is insignificant and the *Stock\_Financed* dummy is negative and significant. Model 2 adds an interaction term between the *IPO\_Firm* dummy and the *Stock\_Financed* dummy. The estimated coefficient on this interaction is negative and significant, implying that stock financed acquisitions have a much more negative announcement return for IPO firms than for mature firms.

The results are robust to the addition of a number of control variables. Following Moeller, Schlingemann and Stulz (2004), we include the acquirer's Tobin's q ratio, debt and the operating cash flow normalized by the market value of the acquirer, and the acquisition intensity of the target firm's industry. Also included are dummy variables denoting privately-held targets and small acquirers (defined as those with market value in the lowest quartile of all Compustat firms), and variables representing transaction attributes. The addition of these variables does not change the basic results. However, we find that inclusion of relative deal size in the regression diminishes the importance of the *IPO\_Firm* and *Stock\_Financed* interaction variable. However,

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<sup>6</sup> Note that our sample size for this regression is substantially larger than that reported in Panel D of Table IV because we do not require data on deal values in this specification.

as discussed earlier, this result is potentially consistent with an overvaluation explanation if IPO firms exploit an overvalued acquisition currency by making larger acquisitions.

#### **4. Multivariate Analysis of post-IPO Acquisition Activity**

We estimate three sets of regressions. We estimate regressions using the volume of cash financed acquisitions as the dependent variable to test the capital infusion hypothesis, the volume of stock financed acquisitions as the dependent variable to test the acquisition currency hypothesis, and the total acquisition volume (both cash and stock financed) as the dependent variable to test the uncertainty resolution hypothesis. Acquisition volumes are normalized by the market value of the firm at the time of the IPO. We estimate cross-sectional regressions for five different time periods, each denoted by  $0t$ , where year  $0$  corresponds to the IPO year and  $t$  ranges from  $0$  to  $4$  years after the IPO.

##### *4.1. Primary and Control Variables*

Our primary variables of interest are as follows. *Prim\_IPO\_Proceeds* is the capital raised at the IPO from the sale of primary shares. According to the capital infusion hypothesis, we expect primary IPO proceeds to be positively related to cash financed acquisitions since going public provides a war chest of cash to pursue subsequent cash financed acquisitions. *Prim\_SEO\_Capital<sub>0t</sub>* is the total primary equity capital raised in SEOs from year  $0$  to year  $t$ . According to the capital infusion hypothesis, we expect primary SEO capital to be positively related to cash financed acquisitions since an IPO creates access to public equity markets to raise funds for subsequent cash financed acquisitions. *Debt\_Capital<sub>0t</sub>* is the amount of total debt capital raised from year  $0$  to year  $t$ . We expect debt capital to be positively related to the cash financed acquisitions since an IPO may improve a firm's ability to borrow and conduct debt financed acquisitions by reducing the uncertainty about the firm's true value, consistent with the uncertainty resolution hypothesis. These variables are normalized by firm value at the time of the IPO.

*IPO\_Underpricing* is the price run-up in the first trading day after the IPO, defined as the difference between the first day closing price and the offer price divided by the offer price. According to the acquisition currency hypothesis, we expect underpricing to be positively related to stock financed acquisitions since IPO underpricing is positively correlated with overvaluation of the stock, as shown by Purnanandam and Swaminathan (2004).

*Carveout* is a dummy variable which takes the value of 1 if the IPO is a carve-out and 0 if the IPO is a new company IPO. Under the acquisition currency hypothesis, we expect this variable to be negatively related to the amount of cash and stock financed acquisitions since we expect the acquisition motive to be weaker for carve-outs than for new company IPOs.

The control variables that we include in our regressions are as follows: *Ind\_Acq\_Intensity<sub>0t</sub>* is the total amount of industry acquisition activity from year 0 to year *t* normalized by the total market value of all the firms in a given industry. We use the industry groups defined as in Fama and French (1997) to assign our sample of IPO firms to 48 industries. The industry acquisition intensity variable is constructed similarly to the acquisition activity for a single IPO firm. First, the total amount of the acquisitions of all the firms in an industry is calculated from year 0 to year *t*. *Ind\_Acq\_Intensity<sub>0t</sub>* is then defined as the ratio of the total acquisitions in an industry from year 0 to year *t* to the total market value of all the firms in that industry in year 0. *FF\_Alpha<sub>0t</sub>* is the intercept estimated from the Fama-French three-factor model which measures the firm's abnormal return from year 0 to year *t*. This variable is expected to be positively correlated with stock financed acquisitions. It is important to note that the abnormal stock price performance could be positively related to cash financed acquisitions as well. An IPO firm with a well-performing stock may engage in cash financed acquisitions by raising capital in an SEO and using the proceeds for cash financed acquisitions. However, stock financed acquisitions may have the advantage of removing the risk associated with SEO transactions and may take less time to complete than cash financed acquisitions. *Avg\_BTM<sub>0t</sub>* is the average book-to-market value of the firm, calculated as the average ratio of book value of equity to market value of equity from year 0 to year *t*. *VC\_Backed* is a dummy variable which takes the value of 1 if the IPO firm is VC-backed and 0 if the IPO firm is non VC-backed. Finally, our cross-sectional regression models also include year dummies.

#### 4.2. *Determinants of Cash Financed Acquisition Activity*

The first five columns in Table VII present the results for cash financed M&A activity. The estimates show that the volume of cash financed acquisitions made in the IPO year is positively correlated with the primary proceeds raised at the IPO at the 5% significance level, consistent with the prediction of the capital infusion hypothesis. The finding that primary capital raised at the IPO is significant in explaining cash acquisitions only in the IPO year and loses its significance in later years provides some further support for the acquisition motive of IPOs. If the desire to make acquisitions is an important motive for IPOs, we would expect IPO firms to start

making acquisitions immediately after the IPO. The amount of primary equity capital raised subsequent to the IPO is positively correlated with the amount of cash financed acquisitions over horizons ranging from one year to five years after the IPO at the 1% significance level. This result is again consistent with the prediction of the capital infusion hypothesis and suggests that the ability to raise acquisition capital in SEOs subsequent to the IPO is an important element of the going public decision.

Table VII also shows that the volume of cash financed acquisitions is positively correlated with debt capital raised after the IPO within three, four and five years after the IPO at the 1% significance level. This result suggests that going public may enhance a firm's ability to undertake debt financed acquisitions by improving the firm's ability to borrow. This finding is consistent with the evidence in Pagano, Panetta and Zingales (1998) who document that firms going public experience an improvement in their ability to borrow through a reduction in the cost of bank credit after the IPO. An IPO may increase debt capacity by lowering valuation uncertainty, thereby strengthening the firm's bargaining position vis-à-vis its lenders. Hence, this finding is also supportive of the uncertainty resolution hypothesis.

#### *4.3. Determinants of Stock Financed Acquisition Activity*

The middle five columns of Table VII present the results for stock financed M&A activity. We find that firms with a higher degree of underpricing conduct more stock financed acquisitions after the IPO. Specifically, the level of underpricing is a positive determinant of stock financed acquisitions at the 1% level in the IPO year and within two years after the IPO, and at the 5% level within three and four years after the IPO. This effect of IPO underpricing in stock financed acquisitions is in sharp contrast to the results for cash financed acquisitions where IPO underpricing is essentially insignificant. This finding is consistent with the acquisition currency hypothesis which suggests that firms with a more overvalued stock undertake more stock financed acquisitions.

Models of IPOs, such as that in Rock (1986), predict that underpricing is positively related to uncertainty, and this prediction has received very strong empirical support (see, for example, Ritter 1984). Hence, the importance of underpricing in stock financed acquisitions can also be viewed as being consistent with the uncertainty resolution hypothesis. However, under uncertainty resolution hypothesis, underpricing should also be positively related to cash financed acquisitions because the benefit of an IPO emanates from establishing a public market valuation,

irrespective of how the acquisition is financed. However, we find that underpricing is insignificant in explaining cash financed acquisitions. Thus, the significance of underpricing in stock financed acquisitions appears to be more supportive of the acquisition currency hypothesis than the uncertainty resolution hypothesis.

#### *4.4. Determinants of the Total Acquisition Activity*

To examine the uncertainty resolution hypothesis further, we estimate the total volume of acquisitions, adding two new independent variables to the model. The first variable is the IPO offer price revision, an alternative measure of valuation uncertainty, proposed by Lowry, Officer and Schwert (2007) and Hsieh, Lyandres and Zhdanov (2007). We calculate the offer price revision as the absolute value of the difference between the offer price and the midpoint of the initial filing range normalized by the midpoint of the initial filing range. The second variable represents a measure of the IPO cost. As suggested by Chen and Ritter (2000), we calculate the cost of going public by dividing the IPO spread by the share overhang, which is defined as the ratio of shares retained by non-selling shareholders to shares sold in an IPO.

The last five columns in Table VII present the results for total acquisition activity. We find that the measure of valuation uncertainty is positively correlated with the total amount of cash and stock financed acquisitions in the IPO year. This result provides support for the uncertainty resolution hypothesis that firms with a greater valuation uncertainty engage in more acquisitions since they benefit the most from going public in terms of their improved ability to optimally exercise their option to acquire. A second finding worth noting is that firms with a higher cost of going public pursue more acquisitions in their IPO year. This is consistent with the prediction in Hsieh, Lyandres and Zhdanov (2007) that firms bearing a higher cost of going public engage in more acquisitions immediately after the IPO to outweigh their larger cost of going public.

#### *4.5. Determinants of post-IPO R&D and CAPEX*

To obtain a complete picture of the growth pattern of IPO firms, we also estimate the determinants of R&D and CAPEX for IPO firms in Table VIII. The amount of primary capital raised at the IPO and debt capital raised after the IPO are both positively related to R&D and CAPEX of IPO firms, suggesting that in addition to the desire to grow externally through acquisitions, the desire for organic growth is another motivating factor for firms to go public.

This result is consistent with the capital infusion hypothesis which predicts that the ability to raise capital at the IPO and in subsequent years is a key driver of the going public decision.

Interestingly, underpricing is negatively correlated with R&D and CAPEX. This result suggests that IPO firms experiencing a large run-up in their first day price prefer growing through acquisitions by using their valuable acquisition currency rather than growing through R&D and CAPEX. This could be due to the fact that firms with an overvalued currency may find it easier and quicker to increase firm size by acquiring other firms than by investing in internal projects. Firms can make acquisitions using their stock but cannot use it directly for R&D and CAPEX.

We obtain another interesting result on R&D and CAPEX of carve-outs, consistent with the univariate findings. The regression coefficient of the dummy variable for carve-outs in Table VIII is positive at the 1% level for all the time periods except for the five-year period after the IPO, suggesting that IPOs of carve-outs are motivated by the desire to allow the carve-out units to exploit their organic growth opportunities more efficiently as smaller, more transparent and independent firms. This finding is consistent with the results in Vijh (2002) who shows that carve-out firms have higher capital expenditures than similar firms in their industry since investment opportunities for the carve-out firm increase as a result of improved focus, reduced complexity, and improved managerial incentives.

Finally, an IPO firm's R&D and CAPEX is negatively correlated with the amount of the acquisition activity in its industry for all the time periods after the IPO at the 1% level. Given that this variable is positively correlated with the total acquisition volume, a firm's acquisition activity and its R&D and CAPEX may be substitute paths for growing a company.

## **5. Acquisitions and Insider Ownership Dilution**

There has been a recent interest in understanding how the ownership structure of firms evolves over time. Helwege, Pirinsky and Stulz (2007) show that insider ownership of U.S. firms drops steadily after they go public. They find that firms with better stock market performance and a more liquid stock experience larger decreases in insider ownership and become more widely held. They argue that there are two channels through which insider ownership can fall - sales of shares by insiders, and through issuance of new shares. Helwege et. al. (2007) argue that insider ownership in the US drops for IPO firms mainly because of insider selling, whereas the increase in the number of shares outstanding is a less important effect. When shares outstanding increase, they do so primarily because of the exercise of options and warrants, private equity placements,

and conversion of equity securities. Their findings for US firms are in sharp contrast to results in Franks, Mayer and Rossi (2005) who show that shares issued to pay for mergers and acquisitions play an important role in explaining the ownership dilution of U.K. firms.

Given the importance of M&A activity by IPO firms, we examine whether acquisitions play a role in explaining ownership dynamics of IPO firms in the US. Our procedure for calculating insider ownership closely follows Helwege et. al. (2007). Like them, we obtain data on insider ownership from the October volumes of Compact Disclosure and use CRSP for data on returns, share volume and the number of shares outstanding for our sample of IPO firms. Using Compact Disclosure data from 1994 to 2001, we are able to obtain ownership data for 349 of 625 firms in our sample that went public between 1994 and 2001.

Table IX reports the evolution of insider ownership of IPO firms over time. Panel A shows the mean and the median percentage of shares owned by insiders for the sample. As a result of acquisitions and delistings, the sample size drops from 349 to 90 by the end of year 4. The mean (median) level of insider ownership drops from 24.81% (16.70%) to 18.76% (6.31%) in the first five years after the IPO.

Panels B and C divide the sample firms according to their acquisition intensity. High acquisition activity firms (those whose acquisition volumes exceed the sample median) see a drop in mean (median) insider ownership from 26.39% (22.40%) to 14.05% (4.57%) in the first five years after the IPO. The reductions in both the mean and median insider ownership levels are statistically significant at the 1% level. However, for low acquisition activity firms, we actually observe a slight increase from 22.89% to 24.64% in the mean, though neither the mean nor median change is significant. Thus, IPO firms that are more voracious acquirers experience a greater reduction in insider ownership. Note that both cash and stock financed can lead to a drop in insider ownership because the number of outstanding shares will increase if SEOs are used to raise capital for cash acquisitions or if shares are issued for stock acquisitions.

We examine these results in more detail in a multivariate framework. We closely follow the regression specifications in Helwege et. al. (2007), and supplement them to include cash and stock financed acquisition activity as additional explanatory variables. Table X shows probit model estimates of the probability of a 5% or more drop in the percentage of shares owned by insiders. The first three columns show the change in insider ownership over the first three years after the IPO. The fourth column shows results for all available firm-years till the end of the five-

year horizon. These regressions display results confirming those in Helwege et. al. (2007). Like them, we find that firms with greater returns, higher CAPEX and R&D are more likely to experience a drop in insider ownership of 5% or more. Moreover, liquidity is positively related to drop in insider ownership from year 1 to year 2 after the IPO.

More importantly, we find that both stock and cash financed acquisition volumes are positively related to the dilution in insider ownership. The coefficient of stock financed acquisition volume is positive and statistically significant for all time periods, except for the first year after the IPO. The coefficient on cash financed acquisitions is positively related to the drop in insider ownership in the regression which pools all firm-years. This result is similar to that in Franks, Mayer and Rossi (2005) that the number of shares issued for acquisition financing is positively related to the ownership dilution of U.K. firms. Thus, adding the acquisition activity to the Helwege et. al. (2007) framework illustrates that the M&A activity of IPO firms is an important determinant of ownership structure evolution in the US as well.

## **6. Conclusions**

In this paper, we examine the acquisition activity of newly public firms. We evaluate three hypotheses about this activity to understand the motives underlying these transactions. IPOs appear to facilitate M&A both by providing an infusion of capital as well as providing ongoing access to capital markets. We find that IPO firms acquire other firms early on after the IPO by using the primary capital raised at the IPO. In addition, they use their access to public equity markets to finance their acquisition activity. Thus, the initial capital raised as well as the ongoing access to public equity and debt markets are important factors underlying M&A activity of these firms.

Our findings also lend support to the view that an IPO creates an acquisition currency which facilitates the subsequent M&A activity. Specifically, IPO firms with overvalued stock conduct more stock financed acquisitions, and the market reacts negatively to the announcement of these transactions. We also find that carve-out IPOs have a lower amount of acquisition activity compared to new company IPOs. This is due to the fact that the parent firms of carve-outs already have an acquisition currency and the acquisition currency motive is not expected to be as strong for carve-outs as it is for new company IPOs.

Overall, our results suggest that the desire to make acquisitions is an important factor behind the IPO decision and acquisitions play a substantial role in the growth of newly public

firms. We also find that subsequent equity and debt issuance is closely linked to post-IPO acquisition activity. Therefore, our findings illustrate that the IPO decision, subsequent equity and debt offerings, and acquisition activity are all closely linked. An interesting avenue for future research would be to consider the impact of the M&A activity for the operating and stock market performance of IPO firms.

Our findings on the importance of M&A for IPO firms have broader implications for the evolution of ownership structure of IPO firms as well. We find that the acquisition activity of IPO firms plays an important role in explaining the reduction in insider ownership, in addition to stock market performance and liquidity as documented by Helwege, Pirinsky and Stulz (2007). Our analysis shows that IPO firms with a higher amount of acquisition activity are more likely to experience a sizeable drop in insider ownership than IPO firms with a lower amount of acquisition activity.

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**Table I**  
**Descriptive Statistics**

This table presents the descriptive statistics of IPO firms that went public between 1994 and 2004. The sample includes all IPO firms with IPO proceeds greater than \$100 million for which Compustat data is available. Underpricing is the difference between the first day closing price and the offer price given as a percentage of the offer price. Secondary shares correspond to the secondary shares offered at the IPO. The last row shows the summary statistics for the overall sample of IPO firms.

IPO Year	Number of IPOs	Average IPO Proceeds (\$mil)	Average Percentage Underpricing	Average Percentage of Secondary Shares	Percentage of IPOs Issuing Any Secondary Shares	Percentage of Carve-outs
1994	60	243.30	2.21	13.92	21.67	31.67
1995	56	341.20	9.11	30.95	46.43	28.57
1996	78	304.99	18.86	21.05	43.59	17.95
1997	83	294.07	13.26	19.77	38.55	13.25
1998	56	476.45	9.96	16.53	32.14	19.64
1999	118	400.71	92.66	8.67	20.34	16.95
2000	130	411.53	75.10	4.37	11.54	14.62
2001	44	787.22	13.78	7.73	15.91	29.55
2002	38	485.51	10.56	23.05	47.37	31.58
2003	37	290.82	10.10	28.31	54.05	13.51
2004	93	367.62	13.87	20.15	41.94	10.75
1994-2004	793	387.64	34.25	15.77	31.02	18.92

**Table II**  
**Post-IPO Acquisition Activity and R&D and CAPEX**

Panel A presents summary statistics about the post-IPO acquisition activity of our sample of IPO firms. Missing acquisition deal values, whose percentage is reported here, are replaced by zero. Panel B reports the mean and the median of the total acquisition volume and the total R&D and CAPEX of these IPO firms in million dollars over the period from year  $0$  (the IPO year) to year  $t$  with  $t = 0,1,2,3,4$  denoting the number of years after the IPO. The t-statistics for comparison of means between the acquisition amount and R&D and CAPEX and the p-values for Wilcoxon signed-rank tests are provided. Panels C and D report the total acquisitions and R&D and CAPEX normalized by IPO proceeds and by the market value of the firm as of the IPO date, respectively. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

Panel A: Acquisition Activity of IPO Firms Over Time					
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Total number of IPO firms	793	663	563	466	379
Number of IPO firms making at least one acquisition	303	416	405	372	317
Percentage of IPO firms making at least one acquisition	38.2	62.7	71.9	79.8	83.6
Total number of acquisitions by IPO firms	743	1626	2034	2267	2247
Mean number of acquisitions per IPO firm	0.94	2.45	3.61	4.86	5.93
Median number of acquisitions per IPO firm	0	1	2	3	3
Percentage of acquisitions with missing deal value	40.9	37.8	42.0	40.8	39.4

  

Panel B: Acquisition Amounts and R&D and CAPEX in Million Dollars					
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Acquisition amount (mean)	90.77	279.65	610.21	780.46	1174.43
R&D and CAPEX (mean)	111.43	268.80	473.68	678.97	812.25
t-statistics	-1.00	0.28	0.84	0.65	1.62
Acquisition amount (median)	0.00	7.13	41.59	76.51	144.06
R&D and CAPEX (median)	23.30	65.25	112.32	151.25	192.45
p-value for signed rank test	0.0001	0.0001	0.0010	0.0771	0.5935

  

Panel C: Acquisition Amounts and R&D and CAPEX as a Percentage of IPO Proceeds					
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Acquisition amount (mean)	26.94	84.68	181.09	225.91	327.88
R&D and CAPEX (mean)	27.50	67.55	118.42	168.00	216.35
t-statistics	-0.13	1.79*	1.46	1.32	1.97**
Acquisition amount (median)	0.00	3.66	17.16	37.07	57.36
R&D and CAPEX (median)	12.51	33.27	57.03	76.63	99.22
p-value for signed rank test	0.0001	0.0002	0.0037	0.1264	0.7276

  

Panel D: Acquisition Amounts and R&D and CAPEX as a Percentage of Market Value of Assets as of IPO Date					
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Acquisition amount (mean)	3.55	11.62	18.61	28.82	42.45
R&D and CAPEX (mean)	4.51	9.81	15.94	21.82	27.80
t-statistics	-1.89*	1.45	1.16	1.89*	2.72***
Acquisition amount (median)	0.00	0.33	2.72	6.12	9.22
R&D and CAPEX (median)	1.85	4.96	8.13	11.63	15.56
p-value for signed rank test	0.0001	0.0001	0.0027	0.1301	0.9466

**Table III**  
**Comparison of pre- and post-IPO Acquisition Activity**

This table compares the acquisition activity of the IPO firms within five years before and within five years after they go public, for all targets (public and private) and for public targets only. Panel A presents summary statistics about the pre- and post-IPO acquisition activity of the sample firms. Missing acquisition deal values, whose percentage is reported here, are replaced by zero. Panel B reports the mean and the median of the total acquisition volume of these IPO firms over the two five-year periods as a percentage of their market value as of the IPO date.

Panel A: Summary Statistics				
	All Targets		Public Targets	
	5-yr period before IPO	5-yr period after IPO	5-yr period before IPO	5-yr period after IPO
Total number of firms	793	793	793	793
Number of firms making at least one acquisition	183	575	131	443
Percentage of firms making at least one acquisition	23.1	72.5	16.5	55.9
Total number of acquisitions	538	3232	303	1535
Mean number of acquisitions per firm	0.68	4.08	0.38	1.94
Median number of acquisitions per firm	0	2	0	1
Percentage of acquisitions with missing deal value	62.1	41.1	49.2	33.5

  

Panel B: Acquisition Amounts as Percentage of Market Value of Firm as of IPO Date				
	All Targets		Public Targets	
	5-yr period before IPO	5-yr period after IPO	5-yr period before IPO	5-yr period after IPO
Mean of the total acquisition amount	5.64	33.58	6.72	27.74
Median of the total acquisition amount	0.42	10.38	0.84	8.35

**Table IV**  
**Comparison of the Acquisition Activity of our Sample of IPO Firms with that of Mature Firms**

This table compares the acquisition activity over a five-year period for our sample of IPO firms to that of mature firms, which are firms that have gone public at least five years ago and which have a market capitalization greater than \$100 million at the beginning of the five-year period. For each year from 1994 to 2004, an IPO firm's (or a mature firm's) total acquisition activity over the five-year period starting from the given year is normalized by the market value of that firm at the beginning of the five-year period. Then, the mean of these normalized acquisition amounts of all the IPO firms (or mature firms) in each Fama-French industry is calculated. The numbers given for each year from 1994 to 2004 in this table are the percentage acquisition amounts, which are calculated as the value-weighted averages of the industry means across 48 Fama-French industries, where the weights are taken to be each industry's market capitalization value at the beginning of that five-year period. Panel A reports the results for all acquisitions made without distinguishing between consideration types (cash or stock). Panel B and Panel C report the results for cash financed and stock financed acquisitions, respectively. Panel D shows the mean and the median of the relative deal values of cash and stock financed acquisitions as a percentage of the size of the acquiring firm for the IPO firms and the mature firms. For each panel, the t-statistics and the p-values from the t-test and the Wilcoxon signed-rank test are reported for the difference between the IPO firms and the mature firms. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

Panel A: Cash and Stock Financed Acquisitions											
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
IPO firms	18.49	19.92	18.78	17.58	23.89	10.31	10.61	7.43	3.76	7.71	0.55
Mature firms	17.97	22.08	22.75	17.56	15.27	10.61	10.46	7.96	6.31	3.51	1.72
t-statistics for test of mean	0.25										
p-value for test of mean	0.81										
p-value for signed rank test	0.70										
Panel B: Cash Financed Acquisitions											
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
IPO firms	14.08	14.45	12.28	10.22	17.83	2.40	2.51	5.51	3.24	6.99	0.53
Mature firms	8.84	11.67	9.01	7.24	7.00	5.26	5.59	4.57	3.71	2.02	0.96
t-statistics for test of mean	1.81*										
p-value for test of mean	0.10										
p-value for signed rank test	0.12										
Panel C: Stock Financed Acquisitions											
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
IPO firms	4.41	5.47	6.51	7.35	6.06	7.91	8.10	1.92	0.51	0.72	0.02
Mature firms	8.47	9.73	12.90	9.85	7.87	5.12	4.72	3.25	2.48	1.40	0.70
t-statistics for test of mean	-1.83*										
p-value for test of mean	0.10										
p-value for signed rank test	0.12										
Panel D: Relative Deal Values as a Percentage of the Size of the Acquiring Firm											
	Cash Financed Acquisitions			Stock Financed Acquisitions							
	Number of Observations	Mean	Median	Number of Observations	Mean	Median					
IPO firms	1383	15.89	3.27	403	29.56	8.09					
Mature firms	9203	11.12	2.77	3596	20.64	6.98					
t-statistics for test of mean	1.01			2.62***							
p-value for test of mean	0.31			0.01							
p-value for signed rank test	0.01			0.02							

**Table V**  
**The Comparison of post-IPO Acquisition Activity and R&D and CAPEX between IPO Sub-Samples**

This table compares the post-IPO acquisition activity and R&D and CAPEX for different IPO sub-samples. The first five columns present post-IPO cash financed acquisition activity and R&D and CAPEX for two IPO sub-samples, which are constructed based on whether the firms' primary IPO proceeds is above or below the sample median. The middle five columns present post-IPO cash and stock financed acquisition activity and R&D and CAPEX for carve-outs and new company IPOs. The last five columns present post-IPO stock financed acquisition activity and R&D and CAPEX for two IPO sub-samples, which are constructed based on whether the firms' IPO underpricing is above or below the sample median. The total amounts of post-IPO acquisitions and of R&D and CAPEX by each IPO firm are calculated over time and then normalized by the market value of the firm at the time of the IPO. The rows ACQ and R&D+CAPEX report the means of the calculated percentages for acquisitions and R&D and CAPEX, respectively. Panel A reports the means for IPO firms having primary IPO proceeds (or IPO underpricing) above the sample median, and Panel B reports the means for IPO firms having primary IPO proceeds (or IPO underpricing) below the sample median. Panel A also reports the means for the carve-out sub-sample, and Panel B reports the means for the new company sub-sample. Panel C reports the t-statistics for comparison of means between the above-median group and the below-median group (or between carve-outs and new company IPOs) and the z-statistics of Wilcoxon signed-rank tests for both the acquisition amounts and R&D and CAPEX over the period from year  $0$  (the IPO year) to year  $t$  with  $t = 0, 1, 2, 3, 4$  denoting the number of years after the IPO. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

Panel A															
	Primary IPO Proceeds $\geq$ Median of Primary IPO Proceeds					Carve-outs					IPO Underpricing $\geq$ Median IPO Underpricing				
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Number of Firms	397	332	282	233	190	150	132	117	96	77	397	332	282	233	190
ACQ	3.39	10.99	15.58	27.56	41.3	1.44	6.35	12.03	21.9	31.35	2.04	5.26	10.82	11.36	17.31
R&D+CAPEX	6.2	11.76	18.04	24.26	29.03	6.64	14.23	21.19	31.42	37.43	4.49	9.12	14.69	20.09	23.51
Panel B															
	Primary IPO Proceeds < Median of Primary IPO Proceeds					New Company IPOs					IPO Underpricing < Median IPO Underpricing				
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Number of Firms	396	331	281	233	189	643	531	446	370	302	396	331	281	233	189
ACQ	1.49	4.87	7.1	10.19	14.29	4.49	13.91	21.58	32.45	47.87	0.92	3.67	5.68	11.44	16.05
R&D+CAPEX	3.55	8.9	15.35	21.84	29.56	4.46	9.36	15.52	20.88	27.22	5.26	11.55	18.71	26.01	35.11
Panel C															
	Firms with High Primary IPO Proceeds versus Firms with Low Primary IPO Proceeds					Carve-outs versus New Company IPOs					Firms with High IPO Underpricing versus Firms with Low IPO Underpricing				
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
t-statistic for ACQ	3.61***	3.53***	2.97***	3.52***	3.76***	-4.52***	-3.50***	-2.33**	-1.55	-1.73*	1.71*	1.30	1.91*	-0.03	0.23
z-statistic for ACQ	1.11	1.78*	0.78	2.22**	2.98***	-2.76***	-3.93***	-4.01***	-2.26**	-1.67*	3.14***	2.77***	3.68***	2.13**	1.81*
t-statistic for R&D+CAPEX	3.72***	2.19**	1.19	0.66	-0.1	1.81*	2.02**	1.48	1.61	1.33	-1.06	-1.85*	-1.79*	-1.61	-2.30**
z-statistic for R&D+CAPEX	2.03**	1.49	0.75	0.23	-0.96	3.20***	2.99***	2.88***	3.56***	3.76***	1.31	0.9	0.55	0.26	-0.05

**Table VI**  
**Acquisition Announcement Period Abnormal Returns**

This table presents the cumulative abnormal returns (CARs) around the acquisition announcement dates. Panel A reports the CARs for our sample of IPO firms and Panel B reports the CARs for mature firms defined as firms that went public at least five years ago, with a market capitalization greater than \$100 million. Panel C presents the p-values for comparison of the CARs between the IPO sample and the mature firms. Panel D shows the results of the regressions of CARs around the acquisition announcement dates on the following explanatory variables: *Relative Deal Size* is the transaction value of the acquisition normalized by the market capitalization of the acquirer in the year of the acquisition, *IPO\_Firm* is a dummy variable which takes the value of 1 if the acquirer is an IPO firm and 0 if it is a mature firm, *Stock\_Financed* is a dummy variable which takes the value of 1 if the acquisition is financed by stock and 0 if it is financed by cash, *IPO\_Firm \* Stock\_Financed* is the interaction dummy between the *IPO\_Firm* dummy and *Stock\_Financed* dummy, *Private Target* is a dummy variable which takes the value of 1 if the target firm is private and 0 if it is public, *Small Acquirer* is a dummy variable which takes the value of 1 if the acquiring firm's market capitalization is below the 25<sup>th</sup> percentile of all the Compustat firms that year and 0 otherwise, *Diversifying Acquisition* is a dummy variable which takes the value of 1 if the acquirer and the target are in different Fama-French 48 industries and 0 otherwise, *Tender Offer (Hostile Offer)* is a dummy variable which takes the value of 1 if the acquisition is a tender offer (hostile offer) and 0 otherwise, *Acquirer Tobin's q* is the acquirer's market value of assets (MVA) divided by the book value of assets, *Acquirer Debt/Assets* is total assets minus the book value of equity normalized by MVA, *Acquirer OCF/Assets* is sales minus the cost of goods sold and the selling, general and administrative expenses normalized by MVA, and *Acquisition Intensity in Target Industry* is the total value of all corporate transactions for each year and each Fama-French 48 industry divided by the total book value of assets of all Compustat firms in the same year and same industry given for the target firm. For each independent variable in Panel D, the first row reports its estimated coefficient and the second row the corresponding t-statistic. CARs for the acquisition announcement period are calculated using the standard event study methodology of Brown and Warner (1985). We calculate the cumulative abnormal returns (CARs) of the firms for the three-day event window [-1,+1] around the acquisition announcement date where day 0 corresponds to the announcement day. The parameters of the market model, which uses the CRSP value-weighted market return, are estimated over the period from day -140 to day -20 relative to the announcement day. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

Panel A: IPO Firms			
	CAR [-1,+1]	Patell Z Statistics	Number of Observations
Full Sample	0.35%	2.812***	2323
Cash Financed Acquisitions	0.64%	4.469***	1987
Stock Financed Acquisitions	-1.25%	-3.034***	346
Panel B: Mature Firms			
	CAR [-1,+1]	Patell Z Statistics	Number of Observations
Full Sample	0.31%	8.771***	22739
Cash Financed Acquisitions	0.42%	12.853***	18945
Stock Financed Acquisitions	-0.20%	-6.836***	3922
Panel C: p-values for Test of Differences in CARs between IPO and Mature Firms			
Full Sample	0.8239		
Cash Financed Acquisitions	0.0840		
Stock Financed Acquisitions	0.0253		

Panel D: Regressions of Announcement Abnormal Returns				
	(1)	(2)	(3)	(4)
IPO_Firm dummy	0.0002 0.12	0.002 1.30	0.006 2.64***	0.005 1.21
Stock_Financed dummy	-0.007 -6.15***	-0.006 -5.00***	-0.007 -4.47***	-0.010 -4.92***
IPO_Firm * Stock_Financed dummy		-0.013 -3.09***	-0.012 -2.12**	-0.002 -0.29
Private Target dummy			0.002 1.74*	0.005 2.60***
Small Acquirer dummy			0.119 11.68***	0.189 12.27***
Diversifying Acquisition dummy			-0.001 -1.26	-0.003 -1.44
Tender Offer dummy			-0.001 -0.41	-0.002 -0.41
Hostile Offer dummy			-0.014 -1.38	-0.009 -0.76
Acquirer Tobin's q			0.0003 1.01	0.0008 1.56
Acquirer Debt/Assets			-0.003 -1.02	0.003 0.68
Acquirer OCF/Assets			0.024 2.58***	0.051 3.69***
Acquisition Intensity in Target Industry			-0.014 -2.05**	-0.013 -1.17
Relative Deal Size				-0.011 -4.75***
Adjusted R <sup>2</sup>	0.001	0.002	0.009	0.019
Sample Size	25062	25062	19655	10417

**Table VII**  
**Regressions of Acquisition Volumes by IPO Firms**

This table shows the results of the following regression model

$$Y_{0t} = \beta_0 + \beta_1 \text{Valuation\_Uncertainty} + \beta_2 \text{IPO\_Cost} + \beta_3 \text{Prim\_IPO\_Proceeds} + \beta_4 \text{Prim\_SEO\_Capital}_{0t} + \beta_5 \text{Debt\_Capital}_{0t} \\ + \beta_6 \text{IPO\_Underpricing} + \beta_7 \text{Ind\_Acq\_Intensity}_{0t} + \beta_8 \text{Carveout} + \beta_9 \text{VC\_Backed} + \beta_{10} \text{FF\_Alpha} + \beta_{11} \text{Avg\_BTM} + \varepsilon$$

where the dependent variable  $Y_{0t}$  is the total volume of cash financed or stock financed or cash and stock financed acquisitions over the period from year  $0$  (the IPO year) to year  $t$ , with  $t = 0, 1, 2, 3, 4$  denoting the number of years after the IPO, normalized by the market value of the firm at the time of the IPO ( $MVA_{\text{IPO}}$ ). *Valuation\_Uncertainty* is the absolute value of the difference between the offer price and the midpoint of the initial filing range normalized by the midpoint of the initial filing range, *IPO\_Cost* is the ratio of the IPO spread to the share overhang, defined as the ratio of shares retained by non-selling shareholders to shares sold in an IPO, *Prim\_IPO\_Proceeds* is the capital raised at the IPO from the sale of primary shares normalized by  $MVA_{\text{IPO}}$ , *Prim\_SEO\_Capital<sub>0t</sub>* is the amount of total primary equity capital raised in seasoned equity offerings from year  $0$  to year  $t$  normalized by  $MVA_{\text{IPO}}$ , *Debt\_Capital<sub>0t</sub>* is the amount of total debt capital raised from year  $0$  to year  $t$  normalized by  $MVA_{\text{IPO}}$ , *IPO\_Underpricing* is the price run-up in the first trading day after the IPO defined as the difference between the first day closing price and the offer price given as a percentage of the offer price, *Ind\_Acq\_Intensity<sub>0t</sub>* is the total amount of industry acquisition activity from year  $0$  to year  $t$  normalized by the total market value of the firms' assets in the industry, *Carveout* is a dummy variable which takes the value of  $1$  if the IPO is a carve-out, *VC\_Backed* is a dummy variable which takes the value of  $1$  if the IPO firm is VC-backed, *FF\_Alpha* is the intercept estimated from the Fama and French three factor model which measures the firm's abnormal return from year  $0$  to year  $t$ , and *Avg\_BTM* is the average book-to-market value of the firm after its IPO calculated as the average of the ratio of book value of equity to market value of equity. The regression also includes a constant term and year dummies which are not reported. For each independent variable, the first row reports its estimated coefficient and the second row the corresponding t-statistic. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

	Cash Financed Acquisitions					Stock Financed Acquisitions					Cash and Stock Financed Acquisitions				
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Valuation Uncertainty											0.049	0.051	-0.034	0.012	-0.023
											1.755*	0.882	-0.286	0.088	-0.120
IPO Cost											0.021	0.016	-0.011	-0.014	0.053
											1.941**	0.780	-0.292	-0.308	0.918
Primary IPO Proceeds	0.023	0.034	0.074	-0.085	-0.136	-0.001	0.005	-0.005	-0.032	-0.021	0.027	0.061	0.119	-0.191	-0.232
	2.023**	0.991	1.387	-1.394	-1.263	-0.058	0.197	-0.091	-0.517	-0.196	1.174	1.045	1.059	-1.558	-1.348
Primary SEO Capital	0.358	0.867	0.594	1.108	1.063	-0.025	0.064	-0.01	0.207	0.133	0.300	0.911	0.516	1.325	1.195
	2.690***	10.971***	8.629***	19.253***	14.921***	-0.150	1.059	-0.132	3.553***	1.839*	1.345	8.391***	4.403***	14.541***	11.083***
Debt Capital	-0.004	0.022	0.522	0.557	0.676	-0.014	0.029	0.024	0.146	0.406	-0.012	0.051	0.558	0.733	1.167
	-0.100	0.359	5.923***	6.160***	6.269***	-0.278	0.606	0.248	1.593	3.723***	-0.18	0.605	3.820***	5.152***	6.834***
IPO Underpricing	-0.008	-0.014	-0.007	0.006	0.004	0.027	0.033	0.039	0.042	0.037	0.010	0.012	0.042	0.049	0.053
	-1.717*	-1.195	-0.355	0.284	0.144	4.590***	3.615***	1.968**	1.984**	1.249	0.942	0.549	0.995	1.054	0.831
Industry Acq Intensity	0.125	0.210	0.342	0.016	0.191	0.195	0.254	0.287	0.160	0.217	0.330	0.520	0.785	0.277	0.416
	1.621	1.767*	2.509***	0.136	1.462	1.998**	2.794***	1.956**	1.328	1.637*	2.393**	3.023***	3.235***	1.397	1.990**
Carve-out dummy	-0.016	-0.032	-0.039	-0.010	-0.012	-0.007	-0.008	0.011	0.005	0.001	-0.03	-0.047	-0.029	-0.016	-0.009
	-2.091**	-1.492	-1.136	-0.241	-0.200	-0.745	-0.464	0.298	0.117	0.020	-2.103**	-1.518	-0.48	-0.223	-0.091
VC-Backed dummy	-0.016	-0.046	-0.056	-0.067	-0.089	0.000	0.008	0.068	0.026	0.088	-0.021	-0.059	-0.003	-0.071	-0.045
	-2.305**	-2.416**	-1.746*	-1.646*	-1.429	0.033	0.550	1.976**	0.634	1.389	-1.708*	-2.171**	-0.045	-1.051	-0.462
FF Alpha	-0.002	-0.087	0.107	-0.649	-0.855	-0.010	-0.032	0.673	0.548	0.444	-0.010	-0.015	0.866	-0.314	-0.240
	-0.371	-0.558	0.270	-1.089	-0.836	-1.686*	-0.265	1.575	0.908	0.429	-1.337	-0.067	1.243	-0.316	-0.146
Average B/M	0.000	-0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000	0.000	-0.002
	-0.394	-1.23	-0.118	0.172	0.372	-0.023	-0.22	-0.423	-0.058	-0.042	-0.317	-1.210	-0.412	-0.109	-0.282
Adjusted R <sup>2</sup>	0.059	0.232	0.251	0.587	0.610	0.048	0.056	0.016	0.054	0.086	0.058	0.206	0.145	0.500	0.550
Sample Size	717	647	544	443	354	717	647	544	443	354	633	565	472	382	306

**Table VIII**  
**Regressions of R&D and CAPEX**

This table shows the results of the following regression model

$$Y_{0t} = \beta_0 + \beta_1 \text{Prim\_IPO\_Proceeds} + \beta_2 \text{Prim\_SEO\_Capital}_{0t} + \beta_3 \text{Debt\_Capital}_{0t} + \beta_4 \text{IPO\_Underpricing} \\ + \beta_5 \text{Ind\_Acq\_Intensity}_{0t} + \beta_6 \text{Carveout} + \beta_7 \text{VC\_Backed} + \beta_8 \text{FF\_Alpha} + \beta_9 \text{Avg\_BTM} + \varepsilon$$

where the dependent variable  $Y_{0t}$  is R&D and CAPEX over the period from year 0 (the IPO year) to year  $t$ , with  $t = 0, 1, 2, 3, 4$  denoting the number of years after the IPO, normalized by the market value of the firm at the time of the IPO ( $MVA_{\text{IPO}}$ ). *Prim\_IPO\_Proceeds* is the capital raised at the IPO from the sale of primary shares normalized by  $MVA_{\text{IPO}}$ , *Prim\_SEO\_Capital<sub>0t</sub>* is the amount of total primary equity capital raised in seasoned equity offerings from year 0 to year  $t$  normalized by  $MVA_{\text{IPO}}$ , *Debt\_Capital<sub>0t</sub>* is the amount of total debt capital raised from year 0 to year  $t$  normalized by  $MVA_{\text{IPO}}$ , *IPO\_Underpricing* is the price run-up in the first trading day after the IPO defined as the difference between the first day closing price and the offer price given as a percentage of the offer price, *Ind\_Acq\_Intensity<sub>0t</sub>* is a measure of the total amount of industry acquisition activity from year 0 to year  $t$  normalized by the total market value of the firms' assets in the industry, *Carveout* is a dummy variable which takes the value of 1 if the IPO is a carve-out, *VC\_Backed* is a dummy variable which takes the value of 1 if the IPO firm is VC-backed, *FF\_Alpha* is the intercept estimated from the Fama and French three factor model which measures the firm's abnormal return from year 0 to year  $t$ , and *Avg\_BTM* is the average book-to-market value of the firm after its IPO calculated as the average of the ratio of book value of equity to market value of equity. The regression also includes a constant term and year dummies which are not reported. For each independent variable, the first row reports its estimated coefficient and the second row the corresponding t-statistic. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

	R&D and CAPEX				
	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Primary IPO Proceeds	0.152	0.110	0.149	0.197	0.187
	11.973***	3.998***	3.296***	2.795***	1.627
Primary SEO Capital	-0.004	0.150	0.103	0.078	0.002
	-0.029	2.369**	1.758*	1.164	0.027
Debt Capital	0.037	0.121	0.266	0.334	0.536
	0.870	2.414**	3.546***	3.185***	4.657***
IPO Underpricing	-0.009	-0.021	-0.030	-0.036	-0.053
	-1.659*	-2.211**	-1.903*	-1.480	-1.721*
Industry Acquisition Intensity	-0.292	-0.313	-0.490	-0.731	-0.758
	-3.427***	-3.285***	-4.225***	-5.291***	-5.420***
Carve-out dummy	0.032	0.066	0.078	0.125	0.093
	3.639***	3.830***	2.636***	2.564***	1.400
VC-Backed dummy	0.019	0.042	0.079	0.086	0.104
	2.565***	2.757***	2.896***	1.830*	1.561
FF Alpha	-0.004	-0.067	0.480	1.300	3.143
	-0.879	-0.533	1.421	1.884*	2.878***
Average Book to Market	0.000	0.001	0.000	-0.001	-0.002
	0.502	0.779	-0.353	-0.854	-1.025
Adjusted R <sup>2</sup>	0.236	0.098	0.094	0.108	0.144
Sample Size	717	647	544	443	354

**Table IX**  
**Evolution of Insider Ownership of IPO Firms over Time**

This table reports the mean and median of the percentage of shares owned by insiders of our sample of IPO firms, who are defined as officers and directors of the firm. Year  $t$  with  $t=1,2,3,4$  corresponds to the number of years after the IPO. Panel A gives the statistics for all IPO firms whereas Panel B and Panel C give them for IPO firms which have their total acquisition volume above and below the sample median of IPO firms, respectively. The t-statistics for comparison of means of the percentage of shares owned by insiders one year after the IPO and four years after the IPO and the corresponding z-statistics of Wilcoxon signed-rank tests are reported for IPO firms with high acquisition activity (Panel B) and for IPO firms with low acquisition activity (Panel C). \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

Panel A: All IPO Firms			
Year	Number of Firms	Mean	Median
1	349	24.81	16.70
2	222	21.92	11.11
3	131	18.59	7.34
4	90	18.76	6.31
Panel B: IPO Firms with High Acquisition Activity			
Year	Number of Firms	Mean	Median
1	191	26.39	22.40
2	118	22.15	13.39
3	72	16.82	9.29
4	50	14.05	4.57
t-statistic	-3.30***		
z-statistic	-3.24***		
Panel C: IPO Firms with Low Acquisition Activity			
Year	Number of Firms	Mean	Median
1	158	22.89	13.55
2	104	21.65	6.13
3	59	20.74	3.95
4	40	24.64	10.22
t-statistic	0.38		
z-statistic	0.97		

**Table X**  
**Factors Affecting the Change in Ownership of IPO Firms**

The following probit model is estimated for the probability of a sizeable drop in insider ownership

$$\begin{aligned} \Pr(\Delta Ownership = 1) = & \Phi(\beta_0 + \beta_1 Ownership + \beta_2 Cash\_Acquisition + \beta_3 Stock\_Acquisition \\ & + \beta_4 CAPEX + \beta_5 RandD + \beta_6 BVA + \beta_7 Turnover \\ & + \beta_8 Lagged\_Firm\_Ret + \beta_9 Lagged\_Ind\_Ret + \beta_{10} Lagged\_Mkt\_Ret \\ & + \beta_{11} Firm\_Ret + \beta_{12} Ind\_Ret + \beta_{13} Mkt\_Ret + \beta_{14} BTM + \beta_{15} Carveout + \beta_{16} VC\_Backed \\ & + \beta_{17} PPE + \beta_{18} FCF + \beta_{19} Leverage + \beta_{20} Dividend) \end{aligned}$$

where the dependent variable  $\Delta Ownership$  takes a value of 1 if there is a drop in the percentage of shares owned by insiders of 5% or more, and  $\Phi$  denotes the standard normal distribution. *Ownership* is the percentage of shares owned by insiders, *Cash\_Acquisition* (*Stock\_Acquisition*) is the total volume of cash financed (stock financed) acquisitions, *CAPEX* is capital expenditures, *RandD* is research and development expenditures, *BVA* is the logarithm of the book value of assets, *Turnover* is the average turnover of the firm's stocks computed by dividing the average monthly volume by the float (number of shares outstanding minus number of shares held by insiders), *Lagged\_Firm\_Ret/Firm\_Ret* is the annual stock return of the firm, *Lagged\_Ind\_Ret/Ind\_Ret* is the annual value-weighted industry return, *Lagged\_Mkt\_Ret/Mkt\_Ret* is the annual value-weighted market return, *BTM* is the book to market equity ratio of the firm, *Carveout* is a dummy variable which takes the value of 1 if the IPO is a carve-out, *VC\_Backed* is a dummy variable which takes the value of 1 if the IPO firm is VC-backed, *PPE* is property, plant and equipment, *FCF* is free cash flow defined as EBITDA, *Leverage* is total liabilities, and *Dividend* is a dummy variable which takes the value of 1 if the firm has paid a dividend. All explanatory variables refer to the previous year, except for *Firm\_Ret*, *Ind\_Ret* and *Mkt\_Ret* which are contemporaneous returns. The variables with dollar values (except for *BVA*) are normalized by the book value of assets. The first three columns give the probit results for the change in insider ownership from a given year to the next year, and the Pooled column shows the probit results for all available firm-years from the IPO on until the end of the five-year horizon. The regressions include a constant term which is not reported. For each independent variable, the first row reports its estimated coefficient and the second row the corresponding p-value. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

	Change from Year 0 to Year 1	Change from Year 1 to Year 2	Change from Year 2 to Year 3	Pooled
Ownership	5.582***	2.688***	2.605***	2.718***
	0.001	0.001	0.003	0.001
Cash Acquisition	-2.703	1.281	2.755	1.290**
	0.543	0.210	0.181	0.043
Stock Acquisition	-0.123	2.780**	0.848*	0.328*
	0.410	0.017	0.104	0.093
CAPEX	3.043	2.130	5.340*	1.942**
	0.495	0.143	0.084	0.039
R&D	7.306*	1.651	0.830	2.618**
	0.101	0.475	0.763	0.028
Book Value of Assets	0.002	0.039	0.057	0.124
	0.996	0.798	0.800	0.153
Turnover	-0.599	1.579***	0.609	0.092
	0.192	0.012	0.493	0.699
Lagged Firm Return	0.290**	1.033***	0.001	0.181***
	0.015	0.001	0.998	0.007
Lagged Industry Return	1.456*	0.189	0.279	0.287
	0.088	0.726	0.771	0.281
Lagged Market Return	-3.856	-1.079	-1.782	-1.192*
	0.110	0.433	0.312	0.075
Firm Return	0.529*	-0.091	-0.221	0.059
	0.094	0.691	0.357	0.500
Industry Return	-1.269	0.389	1.107	-0.006
	0.226	0.568	0.106	0.982
Market Return	4.868**	-0.703	-1.021	0.448
	0.054	0.607	0.467	0.482
BTM	-0.800	0.173	-0.211	-0.085
	0.305	0.468	0.305	0.359
Carve-out dummy	-0.106	0.334	-0.593	0.073
	0.904	0.425	0.365	0.762
VC-Backed dummy	0.937	0.693**	0.323	0.627***
	0.140	0.044	0.512	0.001
PPE	-2.581	-0.422	-0.779	-0.922***
	0.214	0.479	0.360	0.008
Free Cash Flow	2.896	0.259	-0.509	0.477
	0.144	0.789	0.693	0.214
Leverage	-1.905	-0.185	-0.370	-0.341
	0.193	0.768	0.676	0.286
Dividend dummy	-2.173*	-0.092	0.608	-0.089
	0.072	0.853	0.349	0.725
Number of Observations with Drop >= 5%	41	51	20	121
Number of Observations with Drop < 5%	68	125	87	345