Newly Listed Firms as Acquisition Targets: The *Débutante* Effect*

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Abstract

Both theory and economic intuition suggest that newly listed firms differ from seasoned ones as potential takeover targets. We identify significant differences between the two groups of firms in this regard: (i) IPOs are more likely to be acquired than are seasoned firms, (ii) IPO targets receive higher acquisition premiums, and (iii) IPO targets are associated with greater synergy. These observations do not support the "double exit" theory that going-public presents an optimal first step of the process of selling a company, nor the argument that IPOs are weaker firms thus more vulnerable to takeover attacks. In contrast, our findings are consistent with the notion that as fresh merger candidates, IPOs are more attractive to acquirers due to greater synergy potential.

JEL classification: G24, G34

Key words: Initial Public Offering, Takeovers, Synergy

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1. Introduction

Newly listed firms are expected to differ from seasoned firms in merger and acquisition (M&A) activities in significant ways. Recent studies have established that IPOs are more active acquirers than are seasoned firms in the first few years after the IPO (Celikyurt, Sevilir and Shivdasani, 2010; Hovakimian and Hotton, 2010).[1] This finding is consistent with the argument that firms go public in order to raise public equity capital to facilitate long-term growth internally or externally through acquisitions. Turning to the other side of the issue, in this study we ask: Do newly listed firms also differ from seasoned firms as potential acquisition targets, and if they do then how and why?

Theory suggests that they do. By allowing the initial owners to cash out, going public also serves as an important channel for the insiders to exit. In particular, the insiders can pursue a so-called "double exit" strategy: To sell the shares in a takeover after the company goes public. Zingales (1995) provides a justification for this strategy, arguing that selling off cash flow rights of a minority stake to dispersed shareholders helps bargaining, in a direct negotiation with future buyers of the majority stake, over private benefits of control. Hsieh, Lyandres, and Zhdanov (2011) further show that an IPO benefits the firm as a potential acquisition target by resolving its value uncertainty thus enabling it to credibly communicate its value with the bidders. Hence, going public can be an optimal first step of the process of selling a company, thus establishing a direct link between a firm's IPO and its subsequent sale through acquisition. Some empirical

[1]Many recent studies have investigated the role of IPOs in facilitating subsequent acquisition activities. From a chief financial officers survey, Brau and Fawcett (2006) report that the primary motivations for going public is to facilitate aftermarket acquisitions and establish a market price for the firm. Consistent with this finding, Celikyurt, Sevilir and Shivdasani (2010) document that, on average, firms conduct four acquisitions within five years after their IPO. Similarly, Hovakimian and Hotton (2010) find that over one third of newly listed firms enter the market for corporate control as an acquirer within three years after the IPO.

phenomena further imply that IPOs are likely to be weaker firms in the sense that they are more vulnerable to takeover attacks. Such observations include high uncertainty and low survival rate of IPOs (Fama and French, 2004), weak antitakeover provisions of IPOs (Field and Karpoff, 2002) and poor long-term performance of IPOs within the first three to five years of the listing (Ritter, 1991). For discussion convenience, we loosely call this implication the "vulnerable target" argument.

Despite the strong implications from these theories and empirical observations about the role of newly listed firms as acquisition targets, there is so far no study in the literature directly examining this role.[2] In this study, we address this issue by comparing IPOs with seasoned firms focusing on three dimensions of their potential differences. We first examine the firm's likelihood of becoming an acquisition target. Both the "double exist" strategy and "vulnerable target" arguments predict a higher likelihood for IPOs than for comparable seasoned firms, in particular, in the first few years after the IPO. We then compare acquisition premiums between IPO targets and seasoned-firm targets. This comparison further determines the effects of the two alternative mechanisms. The "double exit" strategy argument suggests that IPOs sell for lower or same prices as their seasoned counterparts, depending on the presence of selling pressures from the exiting insiders. But the "vulnerable target" argument has an unambiguous prediction for lower acquisition premiums of IPO targets. We finally examine the synergy in merger by comparing the combined firm's post-merger performance and value. While neither the motivation for selling the firm nor the firm's financial status has a prediction about synergy, this examination aims at evidence on another possible scenario: a "*débutante* " effect of IPOs. This scenario, unnoted in

[2]Although no previous study has directly explored the link between a firm's IPO and its subsequent sale, some studies report statistics of data that are related to this link. For a sample of mutual thrifts IPOs, Ciccotello, Field, and Bennett (2001) report that 36 percent of the IPOs were acquired within five years after being listed. On the other hand, Celikyurt, Sevilir and Shivdasani (2010) find that only 4.4 percent of the IPO firms in their sample become an acquisition target within five years after going public.

the literature, has a clear intuition: Since newly listed firms emerge as fresh public-firm merger candidates, they can be more attractive to bidders because of greater synergy potential than are seasoned firms that have been screened in the M&A market for years.

By examining a large sample of U.S. IPOs conducted during the period of 1980-2007, we obtain evidence on IPO-seasoned differences in all three dimensions. Our findings are summarized as follows. (i) Newly listed firms are more likely to be acquired than are seasoned firms. By comparing IPOs with seasoned firms that have been listed for five or more years, we estimate the likelihood of an IPO becoming an acquisition target at 27 percent, which is eight percentage points (or 30%) higher than the seasoned firm counterpart. This difference is statistically significant and economically strong, and remains robust after controlling for various firm characteristics. (ii) IPO targets receive significantly higher acquisition premiums. Based on alternative valuation multiples (the ratio of deal value over book value of assets, sales, EBITDA or pre-announcement market value), IPO targets are sold at a premium that is five to 28 percentage points higher than that received by seasoned-firm targets.[3] (iii) IPO targets are associated with greater synergy in merger. This observation is obtained from the combined firm's post-merger operating performance and combined market reactions to merger announcement. Moreover, together with IPO targets receiving higher premiums (finding (ii)), an acquiring firm's shareholder value increases more by taking over an IPO than taking over a seasoned firm.

These findings allow us to conclude that the evidence does not support the "double exit" theory nor the "vulnerable target" argument, which both are inconsistent with finding (ii) and

[3] Previous studies have compared acquisition premium between public targets and private targets. Brau, Francis, and Kohers (2003) find that selling the shares at the IPO offer price allows the firm's insiders to realize a premium relative to a direct sale through takeover. This finding, referred to as the IPO valuation premium puzzle, identifies a higher IPO offer price than the corresponding private sale price. Officer (2007) further documents a 15% to 30% acquisition discount for unlisted targets relative to comparable publicly traded targets.

irrelevant to finding (iii). On the other hand, our results are highly consistent with a *débutante* effect of IPOs. This effect enables a publicly listed firm to start with favorable merger opportunities. This is an important feature of IPOs' role in M&As unaddressed in previous studies. A further interesting implication here is the potential impact of this feature on IPO long-term valuation: When the efficient secondary market takes into account the *débutante* effect, newly listed firms are on average initially more valuable and this initial value premium declines as the *débutante* effect diminishes. This post-issue pattern of the value effect coincides with the extensively examined phenomenon of IPO long-term underperformance. We leave a further discussion of this long-term valuation effect to the conclusion section.

The remainder of the paper is organized as follows. Section 2 discusses the background and the literature. Section 3 describes the data and sample. Section 4 presents and discusses our empirical results on IPOs as acquisition targets. Section 5 provides concluding remarks.

2. Literature and Research Strategy

Decisions by newly listed firms are likely to be linked to their motive for going public, which can involve various post-IPO activities in long-term investment, refinancing, acquisitions and corporate restructuring. One seemingly apparent motive is to raise public capital. By selling primary shares and gaining access to the public debt market (Rajan, 1992), the firm can obtain public equity and debt capital to fund investment and facilitate long-term growth. Another going public motive is to provide an important exit strategy for firms' initial owners including private equity funds and venture capitalists. The ultimate goal of the investors is to realize desired returns on their investments by selling their shares. They can do this either privately through a takeover or publicly in an IPO. In particular, they can pursue a "double exit" strategy: To sell their shares in a takeover after the company goes public. Zingales (1995) provides a justification for this exit

strategy, arguing that selling off cash flow rights of a minority stake to dispersed shareholders helps bargaining, in a direct negotiation with future buyers of the majority stake, over private benefits of control. Hence, the initial owner can maximize the proceeds in the eventual sale of his company. Hsieh, Lyandres, and Zhdanov (2011) contend that an IPO benefits the firm as a potential acquisition target by resolving its value uncertainty thus enabling it to credibly communicate its value with bidders.[4]

A number of empirical studies have been conducted to examine various issues regarding firms' going public decisions. Depending on the major issues addressed, the empirical literature can be loosely divided into three strands. The first strand focuses on the role of IPOs in raising capital to fund investment and growth. By examining a sample of Italian firms, Pagano, Panetta and Zingales (1998) find that firms tend to time the market in their IPO and, importantly, that the new equity capital raised upon listing is not used to finance subsequent investment and growth, but to reduce leverage. Using a large sample from 38 countries, Kim and Weisbach (2008) examine the use of funds raised in IPOs and SEOs. They conclude that financing investments and exploiting market misvaluation are important motivations for firms to issue public equity. Chemmanur, He, and Nandy (2010) find that firms' product market characteristics such as concentration, risk, liquidity, and information asymmetry have significant impact on their going public decision.

The second strand of the empirical literature focuses on the role of going public in facilitating subsequent acquisitions. In addition to providing a fusion of cash as acquisition

[4] Other theories of going public are also proposed. For example, according to Holmström and Tirole (1993), managerial incentive considerations are important in driving the IPO decision, for publicly listed companies can use incentive schemes such as stock-value based incentive pay and stock options that are unavailable to private companies. Subrahmanyam and Titman (1996) argue that going public can improve investment decisions through information production by outside investors. Chemmanur and Fulghieri (1999) further argue that since a firm's market value reflects all available information, going public reduces the need for all investors to engage in costly duplicative information production.

funding and creating publicly traded stock as potential acquisition currency, IPOs give firms access to the public equity and debt markets and thus sources of external capital for acquisitions. From a survey on chief financial officers, Brau and Fawcett (2006) find that facilitating acquisitions and establishing the firm's market value are the top two considerations in firms' going public decision. This finding has stimulated recent studies to examine acquisition activities by newly listed companies. In a sample of IPOs with high proceeds, Celikyurt, Sevilir and Shivdasani (2010) document that, on average, firms conduct four acquisitions within five years after their IPO, and that acquisitions are as important as R&D and capital expenditures to firms' long-term growth. By examining a larger sample of IPOs over a longer period, Hovakimian and Hotton (2010) find that over one third of firms enter the market for corporate control as an acquirer within three years after their IPO. Similarly, Brau, Couch and Sutton (2012) report that about one third of IPOs in their sample conduct at least one acquisition before the first IPO anniversary.

The third strand of the empirical literature examines subsequent sales of IPO firms. A direct implication of the "double exit" argument is that IPOs are more likely to become an acquisition target than seasoned firms. Empirical findings regarding this implication are mixed. From their sample of Italian firms, Pagano, Panetta, and Zingales (1998) identify an increase in turnover of control after the IPO. Ciccotello, Field, and Bennett (2001) examine mutual thrifts IPOs and find that 36% of the sample firms were acquired within five years after being listed. On the other hand, Fama and French (2004) document that the 10-year delisting rate for merger and acquisition reasons is lower for their IPO sample than for their sample of seasoned firms that have been listed for more than five years. Celikyurt, Sevilir and Shivdasani (2010) report that only 4.4% of IPO firms in their sample become an acquisition target within five years after going public, which is

lower than typically above 10% for seasoned companies. The implications of these observations are apparently constrained by the specific data that are used to address the different issues of these studies. For example, both Pagano et al. (1998) and Ciccotello et al. (2001) use a small sample of fewer than 100 firms; Celikyurt et al. (2010) focus on large IPOs with total proceeds equal to or greater than $100 million; Fama and French's (2004) sample includes penny stocks that have a high delisting rate for non-M&A reasons while being more frequent with IPOs.

Apart from the studies in regard of the "double exit" strategy, there are notable empirical observations suggesting another possible reason why newly listed firms are more likely to become a takeover target. Fama and French (2004) report high uncertainty and low survival rate of IPOs and Field and Karpoff (2002) find that IPO firms generally have weak antitakeover provisions. Both studies tend to suggest that newly listed firms are vulnerable takeover attacks and hence more likely to be acquired.

In addition, the fact that IPOs emerge as fresh public companies means that they provide new merger opportunities in the M&A market. Hence, IPOs can be more attractive to potential acquirers that have been looking for suitable public targets and have closely examined existing seasoned companies in the market. We refer to this potentially favorable feature of newly listed firms as the *Débutante* effect of IPOs. Although this feature seems very intuitive, it has not been noted in the literature. Importantly, this feature has distinct predictions that are appealing to empirical examination.

In the table below, we summarize major predictions of the three competing mechanisms – "double exit", "vulnerable targets" and "*Débutante* effect" – in three testable dimensions.

Mechanism	Prediction (for IPOs relative to seasoned firms)		
	Likelihood of being acquired	Acquisition value	Synergy potential
Double exit	Higher	Lower or same	–
Vulnerable target	Higher	Lower	–
Débutante effect	Higher	Higher	Higher

Our examination will start with the test for IPOs' likelihood of being acquired. The empirical approach of this test will be standard, using a large sample of U.S. IPOs to estimate the probability function with a focus on the comparison between IPOs and seasoned firms for the total sample and a matched sample.

While all three mechanisms have the same prediction for the likelihood, they differ in the prediction for the target firm's acquisition value. In particular, this dimension distinguishes the *Débutante* effect from the other two mechanisms. Following several previous studies, in this test we will examine various valuation multiples based on the target firm's financial variables and stand-alone market value. Those studies have compared acquisition premiums between public offering and private takeover (Brau, Francis and Kohers, 2003) , and between private targets and public targets (Koeplin, Sarin and Shapiro, 2000; Officer, 2007). None of these studies has compared the valuation premiums of public targets between IPOs and seasoned firms.

The third dimension presents a unique prediction of the *Débutante* effect, which further distinguishes this mechanism from the other two. Following (Healy, Palepu and Ruback, 1992; Bradley, Desai and Kim, 1988), in this test we will examine the combined firm's post-merger operating performance and the combined market reaction to the merger announcement. In addition, as (Moeller, Schlingemann and Stulz, 2004; Fu, Lin and Officer, 2013), we will further

run factor model regressions to examine the acquirer's stock performance between acquiring an IPO and acquiring a seasoned target.

3. Sample and data

We obtain data on IPOs from the Securities Data Company (SDC) New Issues Database. To make sure that all M&A activities by IPO firms can be tracked for five years, we focus on IPOs conducted from 1980 to 2007. Following a standard process, we exclude from the initial sample real-estate investment trusts (REITs), limited partnerships, closed-end funds, penny stocks (with offer price less than $5), unit offers, financial firms (with SIC code from 6000 to 6999). We also require firms to have financial data in Standard and Poor's *Compustat* database for the IPO year and stock return data from the Center for Research in Security Prices (CRSP) database within 3 months after the IPO. The final sample consists of 4,490 IPOs.

We use *Compustat* and CRSP databases to construct the sample of seasoned firms. We merge the two databases on six-digit CUSIP and obtain from CRSP the information of first trading date on CRSP as proxy for IPO date and of share code. Based on all firms of *Compustat* from fiscal years 1980 to 2006, we remove financial firms (with SIC code from 6000 to 6999) and firms with share code other than 10 and 11 (thus certificates, ADRs, SBIs, and units are excluded). Seasoned firms of a fiscal year are defined as firms that have been listed on CRSP for at least five years relative to the fiscal year end of that year. We identify 73,751 seasoned firm-year observations.

We also construct matching samples to minimize potential effects of firm heterogeneity. Two matching samples are constructed. The first one is based on firm size and Tobin's Q. For each IPO firm, we identify all seasoned firms with market capitalization within the range [50%, 150%] and choose the one with the closest market to book ratio. This matching process results in

4,401 pairs of firms. The other matching sample is based on firm size and industry. In particular, for each IPO firm, we identify all seasoned firms with the same Fama-French 48 industry classification and choose the one with the closest market capitalization. We identify 4,342 pairs of IPO and seasoned firms. To save space, results obtained from the matching samples are not reported but are discussed in the context.

Firms' financial data are obtained from Standard and Poor's *Compustat*, and stock return data from CRSP. As in Fama and French (2004), we use the CRSP delisting code to determine firm delisting reasons, which are either due to takeover (as being acquired) or due to other reasons (mainly liquidation). Survived firms have a delisting code between 100-170, delisted firms due to takeover have a delisting code between 200-399, and firms delisted for other causes have a delisting code of 400 and above.

Summary statistics of selected firm financial variables are presented in Table 1. We mainly follow Karpoff and Field (2002) to defined the variables. Specifically, Firm size (total assets and market capitalization), Tobin' Q (the ratio of market value of assets to book value of assets), leverage (the ratio of total liability to total assets), and property (the ratio of gross property, plant and equity to total assets) are as of the first fiscal year following IPO; liquidity (the ratio of current assets minus current liabilities to total assets), sales growth, operating ROA (the ratio of operating income before depreciation to total assets) and R&D/sales are the respective average ratio over up to three years before acquisition for firms that are acquired, and over the third to fifth years relative to the IPO for the firms that are not acquired; stock return is the abnormal cumulative stock return over the three years after the IPO or up to six month before the delisting date for those firms that are acquired within three years, using the equally weighted CRSP index as the market portfolio. Three samples are considered, the total sample consisting of all firms,

total sample excluding firms delisted due to acquisition-unrelated reasons (which is the one used in the multivariate analysis of acquisition likelihood) and the sample consisting only of firms delisted for M&A. Because being delisted for M&A and survival are the statuses of our interest, variables including liquidity, sales growth, operating ROA, R&D/sales and stock return, of which definitions depend on unfixed time windows, are not calculated for firms that are delisted for other causes and thus not available for the full sample in panel A.

The statistics reveal that the IPO and seasoned sample differ significantly in firm characteristics. In particular, IPO firms are smaller and have lower leverage, property and worse performance represented by both operating ROA and stock return. In addition, they have higher Tobin's Q, liquidity, sales growth and R&D to sales ratio compared with seasoned firms. These results are consistent with those documented by Fama and French (2004) that IPO firms, in particular those went public after 1980, are associated with lower profitability and higher growth than seasoned firms. The significantly worse stock performance associated with IPO firms is consistent with the well-documented IPO firm long-term underperformance phenomenon. Statistics from the matching samples present similar pattern, except that difference in firm market capitalization removes for both samples, and differences in total assets, Tobin's Q, property and R&D to sales ratio also vanish for the matching sample of firm size and Tobin's Q.

4. Empirical results

4.1. IPO firms' likelihood of being acquired

Table 2 presents the statistics of firms' survival and delisting within five years after the corresponding event date, which is IPO issue date for IPO firms and fiscal year end date of a given fiscal year for seasoned firms. The number (and frequency in parentheses) of firms are

shown for the firms survived, delisted due to acquisition, and delisted for other reasons, separately, with a comparison between IPOs and seasoned firms. Statistics by subperiods and those by Fama-French 12 broad industry classifications are reported in panel A and B, respectively. The numbers show that, overall, the likelihood of becoming acquisition targets within five years after going public is 27% for IPO firms, a rate that is 8 percentage points (or 30%) higher than that for seasoned firms of 19%. The IPO-seasoned difference in the likelihood of being acquired is largest, of 15 percentage points (or 48%), during the internet-bubble period from 1999 to 2000, and is the most modest, of only 2 percentage points (or 10%), during the earliest decade from 1980 to 1989. This difference also exists in all industry groups, with utilities, business equipment and energy ranking top three at 22 percentage points (or 61%), 11 percentage points (or 37%) and 9 percentage points (or 33%), respectively. These results indicate that the difference in acquisition likelihood between the two samples is ubiquitous and not time period- or industry- specific.

It is also observed from Table 2 that IPO firms are also more likely to be delisted for other causes than the seasoned counterparts. However, as this difference is relatively modest, the difference in survival rate between the two samples is thus largely determined by takeover delisting. This pattern is different from that documented by Fama and French (2004), who find that the 10-year delisting rate for acquisitions is lower, and delisting rate for other causes (mainly liquidation) is significantly higher, for IPO firms that went public between 1973 and 1991 relative to seasoned firms. We provide two explanations for the discrepancy: First, we examine a more recent sample period that presents an generally increasing trend over time for IPO firms to be acquired. For the overlapping sample period 1980-1991, we also observe a relatively lower delisting rate for M&A for the IPO sample. Second, we notice that Fama and French (2004) do

not exclude, from the IPO sample, penny stocks that have very high rate of being delisted for liquidation, the delisting rate for liquidation of their overall sample is thus quite high and that for M&A is squeezed.

Table 3 presents further statistics for each post-IPO year for up to 10 years after the event date. The samples are thus restricted to IPOs conducted between 1980 and 2003 and seasoned firms from fiscal years 1980 and 2002. The numbers again reveal significantly stronger tendency for IPO firms to get acquired. Each year from year 3 to 6 relative to IPO issue date, more than 8% IPO firms become acquisition targets. This rate decreases by 1.2% to 6.9% in year 7, remains stable for the next two years, and further drops to 5.7% in year 10. The rate is more stable for the seasoned sample, which decreases rather steadily from 4.5% at year 2 to 3.8% at year 10. While the absolute IPO-seasoned differences in yearly delisting rate for M&A vary from 1.9 to 4.3 percentage points from years 2 to 10[5], the relative differences are more stable, which, except for year 2 and 10 at 33%, remain higher than 40% in other years and peak at 49% at year 4. Overall, the yearly rates of delisting for M&A are significantly higher for IPO firms within up to 10 years after going public. Even at the end of the time period assessed, the rates do not converge between the two samples.

To show that the IPO-seasoned difference in the frequency of being acquired is not driven by firm characteristics, we proceed with multivariate regression analysis focusing on the difference between the two groups of firms. To avoid delisting effects caused by non-acquisition related factors, we exclude from the sample delisted firms due to non-acquisition reasons. In addition, as the first year effect affects the two groups asymmetrically (see footnote 5), we

[5] The delisting rate for the IPO year should be interpreted with caution, especially for the IPO sample. For a firm to be included in the SDC database so that we can identify its status in a year, it has to have financial data by the end of that year. As a result, the statistics for delisted firms of the first year are only for those that are acquired or liquidated in the year but still remain non-delisted by the end of the fiscal year.

exclude from both groups firms that are delisted for M&A within the first year after the event date[6]. The final sample we use in the regression analysis consists of 3,785 IPO firms and 64,453 seasoned firm-years, which is further reduced by missing firm variables. As in previous studies (e.g., Palepu, 1986; Ambrose and Megginson, 1992; Song and Walking, 1993; and Field and Karpoff, 2002), we use a logit model in which the dependent variable is dichotomous, having a value of one if the firm is acquired within five years after the corresponding event date, and having a value of zero otherwise.

As in Field and Karpoff (2002), control variables are used to capture effects of firm size, leverage, growth, property, liquidity, operating performance and stock return, definitions of which have been specified in section 3. Furthermore, Phillips and Zhdanov (2012) argue that small firms optimally may decide to innovate more to attract large firms who obtain their innovation through acquisition. Bena and Li (2014) find that small firms with high R&D expenses and slow growth in patent portfolio are likely to become acquisition targets and large firms with low R&D expenses and large patent portfolios are likely to be acquirers. Therefore, we also include a R&D/sales ratio to capture the potential relationship between innovation and the likelihood of being acquired. To address the concern that the observed IPO-seasoned difference in acquisition likelihood might be driven by firm age effect, we also include firm age, measured as the number of years from firm founding year to the IPO issue year (or the starting fiscal year for the seasoned firms), as a control variable. The information of firm founding date is obtained from Jay Ritter's website[7]. Because Jay Ritter only collects founding date information for firms that conducted IPO after 1974, this information is available for 93% of IPO firms but only 28%

[6] Results remain qualitatively unchanged if firms delisted for M&A within the first year after the event date are not removed.

[7] http://bear.warrington.ufl.edu/ritter/ipodata.htm

of seasoned firms. As the result, controlling for firm age leads to a 67% loss of overall sample size in the regression. Industry and year fixed effects are controlled for in all regressions.

Table 4 presents logit regression for the likelihood of firms getting acquired, with columns (1)- (4) for the total sample and (5)- (7) for subperiods. In column (1), only year and industry fixed effects are controlled for. In column (2), all firm financial and stock return variables are included. An interaction term of IPO dummy and spinoff dummy, and an interaction term of IPO dummy and VC backed dummy are further included in column (3). And firm age is further controlled for in column (4). Columns (5)- (7) present regression results for three subperiods: 1980-1989, 1990-1996 and 1997-2007[8], respectively, with specification of the first subperiod controlling for all variables but firm age and specifications for the last two subpriods controlling for all variables[9]. To minimize potential outlier effects, in all regressions we winsorize the sample by removing 1% extreme observations.

The results in Table 4 reveal significantly higher tendency for IPO firms to get acquired within five years after their issue date. The coefficients on IPO dummy are all statistically significant and economically strong. Based on specification (2), keeping all control variables at their respective mean values, the IPO firms present a 24.4% likelihood of a five-year acquisition, which is 7.6 percentage points (or 31.1%) higher than the rate of 16.8% for seasoned firms. For column (4) in which all control variables are included, the five-year likelihood of being acquired is 25.5% for IPO firms and 20.4% for seasoned firms, reflecting an absolute difference of 5.1 percentage points and a relative difference of 20%. For the three subperiods regressions with all control variables at mean, the IPO-seasoned difference in the five-year acquisition likelihood is

[8] The division of subperiods is consistent with that for the matching sample, for which governance variables, including a staggered board dummy and stock ownership by firms largest blockholders, can be collected and controlled for.

[9] Firm age is not included in the first subperiod specification because it is available for only 10% of the sample of the first subperiod.

4.4 percentage points (or 22.7%), 5.2 percentage points (or 18.6%) and 4.3 percentage points (or 17.5%), respectively. These results suggest that even after the effects of spinoff and venture capitalists are removed, together with various firm characteristics variables and year and industry fixed effects being controlled for, IPO firms are still significantly more likely to be acquired compared with seasoned firms.

Most of the control variables have significant effects on acquisition likelihood. As in Field and Karpoff, coefficients on Tobin's Q are significantly negative and those on liquidity and sales growth are significant positive. As in Palepu (1986), coefficients on stock return are significantly negative. However, unlike Bena and Li (2014), we find a significantly negative effect of R&D to sales ratio on acquisition likelihood. A further analysis of the separate samples of IPO and seasoned groups reveal that the negative effect is attributed to the IPO group, for which the average R&D to sales ratio, 0.52, is much higher than that for Bena and Li (2014)'s target sample of 0.08. While for the seasoned group with the mean R&D/sales comparable to that of Bena and Li (2014)'s, the relationship between R&D/sales and acquisition likelihood is positive and insignificant.

In addition, we find a inverse-U-shaped relationship between firm size, measured by logarithm of total assets, and acquisition likelihood, suggesting that firms that are too small or too large are less likely to be targeted in takeovers. We also find a significantly positive effect of leverage, and a significantly negative effect of firm age, on the likelihood of being acquired. Overall, these findings suggest that firms that are young, with poor stock performance and severe financial conditions (as measured by high leverage) are vulnerable to takeover attacks, and those with excess liquidity, high growth in sales, and low market value are attractive to bidders in acquisitions.

As a robustness check we also run the same regressions for the matching samples. The results are quite consistent with those obtained from the total sample. Based on specification (4) with all control variables being included and set at their respective mean value, the IPO-seasoned difference in five-year acquisition likelihood is 7.0 percentage points (or 25.5%) for the matching sample of firm size and industry, and 7.8 percentage points or (28.3%) for the matching sample of firm size and Tobin's Q.

One advantage of using matching sample is that it allows us to also examine the effect of corporate governance variables. We consider two governance variables. The first variable is stock ownership held by the firm's largest institutional blockholder, which presents a proxy for internal corporate control. Shleifer and Vishny (1986) point out that large shareholders are effective monitors, so the value of effective monitoring should contribute to the gain realized in takeovers. Hence, this role of large shareholders makes the firm more attractive as a takeover target. The information of institutional ownership is obtained from firms' 13-f filings collected by Thomson Reuters. The second variable is a dummy variable for firms with staggered board. Field and Karpoff (2002) document that IPO firms are associated with weaker antitakeover provisions than seasoned firms, and that antitakeover provisions play a significant role in deterring takeovers. G-index that includes 24 antitakeover provisions or E-index that includes 6 provisions are often used to characterize the intensity of the firm's antitakeover defenses. Constrained by data availability,[10] we focus on one provision: staggered board, which has been demonstrated to be an

[10] The source of firm-specific antitakeover provisions based on which G-index and E-index are derived was formerly Investor Responsibility Research Center (IRRC) publications compiled by GIM, which, after being acquired by ISS Governance Services in 2005, is now belonged to RiskMetrics database. The database provides detailed information on firm's antitakeover provisions since 1990. For the first few years the database covers approximately 1500 firms including S&P 500 index and the annual lists of the largest corporations published by Fortune, Forbes and Business week. The sample is expanded in 1998 to include small firms and firms with high level of institutional ownership (see Masulis, Wang and Xie, 2007). As the result of its limited coverage on small firms, the database covers only around 10% of our IPO sample.

efficient takeover deterrence (see Gompers, Ishii and Metrick, 2003; Bebchuk and Cohen, 2005; and Masulis, Wang and Xie, 2007[11]). The information of staggered board is manually collected from firms proxy filings collected by EDGAR. Because EDGAR posts start from 1996 and became more complete since 1997, and, for this reason, the coverage of Thomason Reuters on firm's 13-f filings has greatly enhanced after 1997, our governance variables, stock ownership by firm's largest institutional blockholder and staggered board dummy, cover the subperiod of 1997-2007.

We collect data of the two governance variables for the matching sample of firm size and Tobin's Q. Statistics show that 65% IPO firms have staggered board as opposed to 44% of seasoned counterparts, a pattern different from that observed by Field and Karpoff (2002). Moreover, ownership by largest blockholder is lower of IPO firms, at 5.61%, than that of seasoned firms at 7.31%. Both variables suggest that, from corporate governance perspective, IPO firms may be unfavorable acquisition targets. For the regression of acquisition likelihood with all variables being controlled for, the coefficient on IPO dummy is significantly positive, suggesting a IPO-seasoned difference in 5-year acquisition likelihood of 6.0 percentage points (or 22.5%), with control variables at mean. On the other hand, the coefficient on the governance variables are insignificant.

Taken together, the results of the acquisition likelihood analysis suggest a significantly higher likelihood of a five-year acquisition for IPO firms relative to seasoned firms. The difference cannot be captured by firm characteristics, corporate governance, and industry and year effects. Nor can it be attributable to specific time periods. It is also robust to alternative

[11] According to Gompers, Ishii and Metrick (2003), A staggered board (or classified board) is one in which the directors are placed into different classes and serve overlapping terms. Since only part of the board can be replaced each year, an outsider who gains control of a corporation may have to wait a few years before being able to gain control of the board. This slow replacement is one of the few provisions that clearly retains some deterrent value in modern takeover battles.

samples of seasoned firms. This finding is consistent with the use of double-exit strategy and the general prediction of vulnerable IPO firm argument. Caution should be paid to the latter: suppose the control variables have reasonably captured all aspects of firm characteristics, the IPO-seasoned difference should have disappeared should it be utterly attributed to IPO firm vulnerability.

4.2. The acquisition value of IPO targets

Above results have shown that newly listed firms are more likely to be acquired than comparable seasoned firms. In this section we examine another related issue: do IPO firms, as acquisition targets, receive higher takeover premium compared with seasoned firms? While theories on double-exit strategy suggest that selling shareholders can realize a higher return through double-exit than through a private sale (which has been confirmed by the empirical work of Chemmanur et al., 2014), they do not provide implication on the relative returns earned by newly listed targets and seasoned targets in takeovers. In line with the 'fire sale' argument, if insiders of newly listed firms face a strong selling pressure, they would be willing to accept a discount. On the other hand, the vulnerable IPO firm argument unambiguously suggest that, because of their weakness and hence disadvantaged bargaining power, newly listed firms should be associated with lower takeover premium compared with seasoned counterparts.

Sample for the takeover premium analysis is drawn from SDC Mergers and Acquisitions Database. Following Netter, Stegemoller and Wintoki (2011) and others, we impose the following requirements to screen the original takeover sample from the SDC Mergers and Acquisitions Database: (i) Acquisitions made on U.S. public firms between January 1, 1980 and December 31, 2012; (ii) all acquisitions with or without disclosed deal value (with deal type of 1 or 2); (iii) completed deals; (iv) 50% or more of total shares acquired in transaction; and (v) 90% or more of

total shares owned by the acquirer after transaction. This screening results in total 11,265 deals. We further restrict the original sample by removing deals with financial targets (SIC code 6000-6999) and targets that are limited partnerships or leveraged buyouts. We then connected the dataset with CRSP database to identify the first CRSP date as proxy for IPO date. The information of share code is also obtained from CRSP, and deals of targets with share code other than 10 and 11 are further excluded. Consistent with our previous practice, we define firms that are taken over within 60 month after the IPO date as IPO targets, and seasoned targets otherwise. This process results in 1,038 deals with IPO targets and 4,399 deals with seasoned targets.

Extant literature use two measures of takeover premiums. The first measure is the target cumulative abnormal return over the bid period. A relatively long event window is used, typically from 42 trading days before the announcement day to the earlier of deal completion day or 126 trading days after the announcement. This measure was first proposed by Schwert (1996) and has been adopted by a number of following studies. However, as is criticized by Betton et al. (2008), because target abnormal stock return incorporates the probability of bid failure and competition at the initial offer date, it is a noisy measure of the actual offer premiums determined by the bidder. The second measure is the ratio of offer price (or deal value) to target's fundamental or market variables measured at a time point prior to the announcement date. It is a more direct measure of offer premium and is also widely used. In this paper, we follow Officer (2007) to use four fundamental based acquisition multiples, including offer price to book value of equity per share, offer price to earnings per share, deal value to sales and deal value to EBITDA, as measures of takeover premiums, with the fundamental variables being measured at the fiscal year end immediately prior to the announcement date. All these multiples are directly obtained from SDC Mergers and Acquisitions Database. In addition to the fundamental based takeover premiums, we

also follow Harford et al. (2012) to include two market-value based acquisition multiples, which are measured by deal value divided by target's market value at the 11 or 35 trading days prior to the announcement. One advantage of the market-value based multiples is that they directly reflect the premium or discount that the selling shareholders actually realize in an acquisition. Consistent with the practice of SDC, when deal value is the numerator, the ratio is further divided by the fraction of shares transferred in the deal so as to capture the premium as if the target's entire control right has been taken over by the acquirer, and thus comparable across deals.

Table 5 presents the result of the univariate analysis. For both samples the mean value of each acquisition multiple is greater than the median, indicating the multiples distributions are skewed to the right. As a result, we focus on median values when interpreting the results. The median IPO-seasoned differences in acquisition multiples are all significantly positive and economically meaningful. Based on the fundamental based acquisition multiples, the IPO targets are associated with relative premiums ranging from 18.1% to 51.2%[12] compared to the seasoned counterparts. The numbers for the market value based acquisition multiples suggest that while shareholders of IPO targets realize a median of 56% (63%) return relative to their market value at 11 (35) day prior to the announcement date, those of seasoned targets realize 49% (56%), which implies a premium of 7 percentage points (or relatively, 4.5% and 4.3%, respectively, for target market value measured at 11 or 35 days prior to announcement) associated with newly public targets.

We then conduct multivariate regressions to examine whether the observed IPO-seasoned difference in acquisition multiples are attributed to differences in deal, target and acquirer characteristics. Following previous literature, we control for deal characteristics including

[12] The numbers are calculated by '(median of multiple for IPO targets-median of multiple for seasoned targets)/median of multiple for IPO targets'.

fraction of cash paid for the deal, takeover attitude, whether or not the acquirer holds target's shares prior to the merger, whether or not the deal is cross-border (i.e. made by non-U.S. firms) and whether or not the acquirer and target are in the same industry classification (with the same two-digit SIC code). We also control for target financial variables, including logarithm of sales, Tobin's Q, book leverage, R&D/sales, and operating ROA, that are measured at the fiscal year end immediately prior to the announcement date, and stock return runup, measured as cumulative abnormal stock return over [-235, -36] days relative to the announcement, using equally weighted CRSP stock return as the market return. Because acquirers can be private firms, we rely on SDC database to obtain their financial data. We include logarithm of sales and ROS, the net profit margin, of acquirers, that are also measured at the fiscal year end immediately prior to announcement. In addition, in the light of Bargeron et al. (2008) who document that public acquirers pay more relative to private acquires in general, and private equity firms in particular, we include a dummy variable indicating private acquirer, a dummy variable indicating financial buyer and an interaction term of the two[13]. Year fixed effects and target and acquirer industry fixed effects are also controlled for.

The sample for the regressions is the pooled deals of IPO targets and seasoned targets. Each acquisition multiple is regressed on the control variables and an IPO target dummy, which is the key variable that captures the difference in acquisition multiples between the two groups of targets. Regression results are reported in table 6. Except for column (2), for which deal value to EPS is used as the dependent variable, coefficients on IPO target dummy are significantly positive. Coefficients on the control variables suggest that deals that are paid less in cash, that are hostile, with smaller targets, with targets doing more R&D, with larger and public acquirers are

[13] Information on financial or strategic buyers is obtained from SDC Mergers and Acquisitions Database.

associated with higher takeover premium. These results are consistent with those documented by Moeller et al. (2004), Moeller (2005), Bargeron et al. (2008), Fu et al. (2013) among others.

For a robustness check, we also construct a matching sample consisting of IPO and seasoned targets that have similar characteristics. Specifically, for each IPO target, we identify all seasoned targets that have the same acquisition announcement year, Fama-French 48 industry classification and choose the one with the closest sales at the fiscal year end immediately prior to the announcement date. Based on the resulting 721 pairs of targets, the median IPO-seasoned difference in the acquisition multiples are all significantly positive with relative premiums ranging from 3.2% to 41.0%. Multivariate analysis on the matching sample gives similar results as do the total sample, indicating that the IPO-seasoned difference in takeover premiums are not captured by deal, target and acquirer characteristics and year and industry effects.

4.3 The effect of synergy

We have shown that newly listed firms are more likely to be acquired shortly after IPO compared with seasoned firms. And as acquisition targets, IPO firms receive significantly higher takeover premium than do seasoned firm counterparts. These observations are not highly consistent with the prediction of 'double-exit' strategy as suggested by theory, nor are they supportive of the vulnerable IPO firm argument. Therefore, in this section, we explore a third potential explanation: the IPO "*Débutante*" effect. We conjecture that IPO firms create a great many new selections for potential bidders. Compared with seasoned firms that have been screened on market for years, IPO firms may be more attractive acquisition targets in the sense that they can generate more synergies in takeovers. Therefore, on the one hand, they are more likely to become acquisition targets, and on the other, their better target effects are compensated by higher takeover premiums. If this is indeed the case, we expect to observe that newly listed

firms generate higher synergies than do seasoned counterparts.

We follow extant literature to employ three measure of synergies. The first measure is the abnormal change in industry-adjusted operating ROA (IAROA) after merger. This measure was first proposed by Healy et al. (1992) and has been widely adopted. As in Healy et al. (1992), operating ROA is measured as operating income before depreciation over the market value of asset (market value of equity plus book value of net debt) at the beginning of the fiscal year. The operating ROA is then adjusted by industry median at the same fiscal year, which is treated as the proxy for counterfactual (performance of the bidder had it not did the merger). We focus on six fiscal years (years -1 to +5) surrounding the merger effective year (year t=0)[14]. Pre-merger IAROA of the merging firm is calculated as the weighted average IAROA of acquirer and target, with market value of assets of the two firms at the beginning of the fiscal year being the weights.

Summary statistics of IAROA are reported in Panel A of table 7. Based on the sample used in the takeover premium analysis, we further require acquirers to be U.S. public firms to remove cross-border mergers and ensure the availability of operating ROA data. As in Healy et al. (1992), we ignore the numbers in years 0, which are likely to be affected by accounting treatment and thus not comparable among deals and across industries. Furthermore, keeping in mind that synergies effects typically reveal in the long run, we focus on post-merger years 2 to 5. At t=-1, the mean combined IAROA of the merging firms with IPO targets is 1.74%, which is 1.07 percentage point smaller than the number for merging firms with seasoned targets of 2.81%. The difference is statistically significant at 5% level. In the post-merger years from t=2 to 4, the mean IAROAs of merging firms with IPO targets are slightly greater. And in t=5, the number is 1.03 percentage points greater for firms merging IPO targets than the counterpart sample merging

[14] Extant studies typically examine longer period (3-5 years) prior to the merger. To avoid large loss in sample size, especially for the sample of merging firms with IPO targets, we only focus on one year prior to the merger.

seasoned firms. Similar pattern is observed from the median IPO-seasoned difference in IAROA, which is significantly negative at 5% level prior to merger and become positive with 10% level of significance at year 5 after merger.

We then regress post-merger IAROAs from years 2 to 5 on pre-merger IAROA and an IPO target dummy, using individual and mean IAROAs as dependent variables, respectively (column 1 and 3, respectively, of table 8). The IPO target dummy captures the difference in abnormal changes in IAROA caused by the merger between merging firms acquiring IPO and seasoned targets[15]. In addition to the baseline model, we also follow Harford et al. (2012) to control for acquirer characteristics variables, including ln(sales) and Tobin's Q, that are measured at the fiscal year immediately prior to the announcement date and the previously defined deal characteristics variables. Consistent with the pattern presented by statistics, coefficients on IPO target dummy are all significantly positive, indicating that IPO targets bring about higher increase in operating returns to acquirers in the long run relative to do seasoned counterparts. Coefficients on control variables suggest that acquirers that are larger, with higher Tobin's Q, and deals paid by higher faction of cash and those without toehold are associated with stronger increase in post-merger operating performance.

The second measure of synergies is the combined acquirer and target cumulative abnormal return (CAR) over a short event window surrounding the merger announcement date. This measure was developed by Bradley et al. (1988). As in Bradley et al. (1988), Lang et al. (1989) and Wang and Xie (2008), we examine a 11-day event window around the announcement date[16]. Abnormal return is the realized stock return net of that predicted from market model, parameters

[15] Same regressions are run for IAROA of post-merger years 1 to 5, and on a sample of pooled merging firms with a five-year post-merger survival requirement. The results are insensitive to these treatments.
[16] A 5-day event window around announcement date is also examined and results remain qualitatively unchanged.

of which are estimated over [-36, -235] trading days relative to the announcement date (day 0) with equally weighted CRSP stock return being the market return. The combined CAR is calculated as the weighted average CAR of acquirer and target, with toehold-adjusted market value at day -6 being the weights[17].

Panel B of table 7 reports the summary statistics of acquirer, target and the combined 11-day CAR around announcement date for the two samples of merging firms with IPO targets and seasoned targets. Consistent with our previous results that IPO targets receive higher takeover premiums than seasoned counterparts, the 11-day target CAR around announcement date is significantly higher for IPO targets. On the other hand, acquirer and combined CAR are not significantly different between the two samples.

Keeping in mind that acquirer, target and deal characteristics can be systematically different between the two samples, we then conduct a multivariate regression, using combined CAR as dependent variable and controlling for various acquirer, target and deal characteristics variables. An IPO target dummy is also included as the variable of interest to capture the difference in combined CAR between the two samples. The regression results are presented in column (5) of table 8. The coefficient on IPO target dummy is positive and significant at 5% level. It indicates that, *ceteris paribus*, merging an IPO targets generates an average 11-day CAR around the announcement date of 1.3% higher than merging a seasoned target. This is again consistent with our conjecture that IPO targets generate higher synergies in takeovers.

As in Wang and Xie (2008) and Cai and Sevilir (2012), smaller acquirers, acquirers with better operating performance and those with lower pre-merger stock price runup, and deals paid with higher fraction of cash are associated with higher combined CAR. In addition, our results

[17] When calculating the weight, the value of shares held by acquirer prior to merger is subtracted from target market value.

also show that acquirers with higher Tobin's Q, higher ratio of R&D expenditures to sales, and targets that are smaller and with better operating performance are associated with lower combined CAR.

We also use a third measure, the acquirer post-merger abnormal returns obtained from calendar-time portfolio approach recommended by Fama (1998), as proxy for synergies. This measure is also used by Moeller et al. (2004) and Fu et al. (2013) to examine the acquirer long-run benefit from the merger. For each calendar month from January 1985 to December 2012, we form an equally-weighted portfolio consisting of firms that have completed an acquisition over [-12, -36] (and [-12, -60]) months relative to that month. The portfolios are rebalanced monthly and formed separately for acquirers of IPO targets and those of seasoned targets. To avoid results being affected by extreme values, we require portfolio of each calendar month to comprise at least ten firms. The calendar time series of portfolio returns net of risk-free rate are then regressed on Fama and French (1992, 1993) three factors and Carhart (1997) momentum factor. Intercepts of the regressions represent monthly abnormal returns. We also form a zero-cost portfolio by longing acquirers of IPO targets and shorting acquirers of seasoned targets and regress the monthly return of this portfolio on the four factors. Intercept of this regression reflects monthly abnormal return earned by the specific strategy.

Table 9 reports the results from calendar-time regressions. The annualized abnormal return of the portfolio of acquirers merging IPO targets is 3.6% and is statistically significant when the [-12, -60] months window is used. On the other hand, for the portfolio of acquirers merging seasoned targets, the annualized abnormal return is close to zero and insignificant. The zero-cost portfolio of longing acquirers of IPO targets and shorting acquirers of seasoned targets also earn an annualized abnormal return of 3.6% and are statistically significant for both windows.

Taken together, our results show that acquirers of IPO targets present higher abnormal increase in industry-adjusted operating ROA, announcement CAR combined with targets and long-run abnormal stock returns. These results are consistent with our conjecture of the IPO "*Débutante*" effect: IPO firms create higher synergies in takeovers than do seasoned counterparts.

5. Conclusion

Using a large sample of U.S. IPOs, we have examined the role of newly listed firms in M&A as potential takeover targets. We find that compared to similar seasoned firms, IPOs are more likely to be acquired within the first few years after the listing, and IPO targets receive higher acquisition premiums and are associated with great synergy in merger. On the one hand, our findings do not support the "double exit" strategy that going-public presents an optimal first step of the process of selling a company, nor the "vulnerable target" mechanism that IPOs present firms in weak financial and antitakeover positions that are likely to suffer from takeover attacks. On the other hand, our findings are highly consistent with the notion that as fresh public-firm candidates for merger, IPOs are more attractive to acquirers because of their greater synergy potential. We interpret this result as a *débutante* effect of IPOs.

A closely related issue that we do not address in this study is whether a similar *débutante* effect also applies to IPOs acquirers. The existent literature of IPO acquirers focus on the firm's acquisition activity intensity and post-issue investment decisions (e.g., Celikyurt, Sevilir and Shivdasani, 2010; Hovakimian and Hotton, 2010). To address this issue, one needs to compare IPO acquirers with seasoned ones for their cost of acquisition and post-acquisition performance. The issues involved in such a comparison (e.g., firms' and managers' motivations to take over another company) are beyond the scope of the current study.

As mentioned earlier, the *débutante* effect directly impacts the valuation of IPOs. Since this

effect is strongest in the early years after the IPO (except the first year because it takes time for any post-issue takeover initiative to complete a deal) and it diminishes over time, we expect it to contribute to IPO post-issue valuation in a way highly consistent with the long-run underperformance pattern documented by Ritter (1991). Related to this issue, it is interesting to note the recent study by Brau et al. (2012), who examine the effect of acquisition activity on IPO long-run underperformance. They find that IPOs that acquire within a year of going public significantly underperform during the one to four years following the first year, whereas nonacquiring IPOs do not underperform over the same time frame. It, however, remains to be seen to what extent the combined effect of both IPO acquirers and targets can account for new issue long-run underperformance.

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Table 1. Summary Statistics of Selected Variables

The total sample consists of 4,401 U.S. IPOs that are conducted during the period of 1980 to 2007, and 73,751 firm-year observations from *Compustat* database that are identified as seasoned firms between fiscal years 1980 and 2006. Seasoned firm-year at a specific fiscal year refers to a firm that, by the fiscal year end of that fiscal year, have been listed on CRSP for at least five years. Market capitalization and assets are in the IPO year. Market-to-book ratio is the ratio of market value of the firm's stock plus book value of debt over the book value of assets in the IPO year. Leverage is the ratio of total liabilities to total assets in the IPO year. Property is the ratio of property, plant, and equipment to total assets in the IPO year. Liquidity is the average ratio of net liquid assets (current assets minus current liabilities) to total assets over up to three years before acquisition for acquired firms, or over the third to fifth years for survived firms. Sales growth is the average sales growth of acquired firms over up to three years before acquisition, or of survived firms over the third to fifth years after the IPO. Operating ROA is the average ratio of operating income before depreciation to total assets over up to three years before acquisition, or of survived firms over the third to fifth years after the IPO. Stock return is the abnormal cumulative return of an acquired firm over the period from the IPO date to six months before the delisting date, or of a survived firm over the first three years after the IPO, where the equally weighted CRSP index is used as the market portfolio.Two-sided t test for the mean and Wilcoxon test for the median of the IPO-seasoned difference are conducted. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	IPO firms			Seasoned firms			IPO-seasoned difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Panel A: All firms								
Assets ($million)	157.24	56.64	4,357	1,323.46	152.46	73,015	-1166.22***	-95.82***
Market capitalization ($million)	316.35	117.10	4,357	1,278.45	121.42	73,015	-962.10***	-4.32*
Market-to-book ratio	3.15	2.37	4,357	1.68	1.29	73,015	1.47***	1.08***
Leverage	0.36	0.31	4,350	0.49	0.51	72,879	-0.13***	-0.20***
Property	0.30	0.20	4,340	0.59	0.51	72,610	-0.29***	-0.31***
Panel B: After excluding firms delisted due to acquisition-unrelated reasons								
Assets ($million)	168.24	59.44	3,747	1,495.53	185.91	63,266	-1,327.29***	-126.47***
Market capitalization ($million)	334.74	126.05	3,747	1,473.27	155.40	63,266	-1,138.53***	-29.35***
Market-to-book ratio	3.15	2.37	3,747	1.70	1.31	63,266	1.45***	0.67***
Leverage	0.35	0.31	3,739	0.49	0.50	63,157	-0.13***	-0.19***
Property	0.31	0.20	3,736	0.59	0.52	62,932	-0.28***	-0.32***
Liquidity	0.35	0.35	3,664	0.26	0.25	61,568	0.09***	0.10***
Sales growth	0.46	0.21	3,707	0.11	0.07	63,111	0.35***	0.14***
R&D/Sales	0.52	0.01	3,752	0.07	0.00	63,429	0.45***	0.01***
Operating ROA	0.03	0.10	3,745	0.10	0.12	63,183	-0.07***	-0.02***
Stock return	-0.12	-0.47	3,747	0.04	-0.15	62,887	-0.17***	-0.32***

Panel C: Firms delisted due to M&A								
Assets ($million)	169.83	64.46	1,182	795.70	142.73	13,797	-625.87***	-78.27***
Market capitalization ($million)	340.27	137.11	1,182	687.93	112.33	13,797	-347.66***	24.78***
Market-to-book ratio	3.28	2.37	1,182	1.54	1.24	13,797	1.74***	1.13***
Leverage	0.36	0.31	1,180	0.49	0.50	13,769	-0.13***	-0.19***
Property	0.29	0.18	1,176	0.59	0.52	13,716	-0.30***	-0.34***
Liquidity	0.35	0.35	1,154	0.26	0.26	13,535	0.09***	0.09***
Sales growth	1.02	0.35	1,150	0.11	0.07	13,784	0.91***	0.28***
R&D/Sales	0.52	0.01	1,126	0.05	0.00	11,194	0.47***	0.01***
Operating ROA	0.01	0.10	1,181	0.11	0.12	13,784	-0.10***	-0.02***
Stock return	-0.24	-0.41	1,177	-0.01	-0.09	12,566	-0.24***	-0.32***

Table 2. Firm Delisting due to Takeover: IPOs vs. Seasoned Firms

This table shows the number (frequency in parentheses) of IPO firms that survive for five years, or are delisted due to acquisition or for other reasons within five years after the IPO, which are reported side by side with those of seasoned firms. Panel A reports the statistics for sub-periods and Panel B for the Fama-French 12 broad industries. We identify delisted firms using the CRSP code: 200 to 399 for acquired firms, and 400 or above for delisted firms for other causes.

	IPO firms				Seasoned firms			
	Total	Survived	Delisted due to acquisition	Delisted for other causes	Total	Survived	Delisted due to acquisition	Delisted for other causes
Panel A. By-period distribution								
1980-1989	1,266	837 (66%)	260 (21%)	169 (13%)	24,366	17,709 (73%)	4,577 (19%)	2,080 (9%)
1990-1998	2,054	1,174 (57%)	626 (30%)	254 (12%)	24,369	17,124 (70%)	4,821 (20%)	2,424 (10%)
1999-2000	531	267 (50%)	165 (31%)	99 (19%)	5,627	3,940 (70%)	910 (16%)	777 (14%)
2001-2007	550	368 (67%)	141 (26%)	41 (8%)	19,389	13,876 (72%)	3,627 (19%)	1,886 (10%)
Whole period	4,401	2,646 (60%)	1,192 (27%)	563 (13%)	73,751	52,649 (71%)	13,935 (19%)	7,167 (10%)
Panel B. By-industry distribution								
Consumer nondurables	192	123 (64%)	45 (23%)	24 (13%)	5,862	4,131 (70%)	1,140 (19%)	591 (10%)
Consumer durables	107	69 (64%)	22 (21%)	16 (15%)	2,691	1,931 (72%)	426 (16%)	334 (12%)
Manufacturing	371	252 (68%)	82 (22%)	37 (10%)	12,452	9,083(73%)	2,310 (19%)	1,059 (9%)
Energy	126	81 (64%)	34 (27%)	11 (9%)	3,811	2,679 (70%)	703 (18%)	429 (11%)
Chemicals	63	42 (67%)	13 (21%)	8 (13%)	2,530	2,016 (80%)	380 (15%)	134 (5%)
Business equipment	1,433	852 (59%)	434 (30%)	147 (10%)	14,086	9,956 (71%)	2,731 (19%)	1,399 (10%)
Telephone and television transmission	177	75 (42%)	50 (28%)	52 (29%)	1,548	1,037 (67%)	384 (25%)	127 (8%)
Utilities	33	19 (58%)	12 (36%)	2 (6%)	4,125	3,528 (86%)	582 (14%)	15 (0%)
Wholesale, retail and some services	572	341 (60%)	128 (22%)	103 (18%)	9,354	6,381 (68%)	1,856 (20%)	1,117 (12%)
Healthcare, medical equipment and drugs	656	407(62%)	176 (27%)	73 (11%)	6,933	4,920 (71%)	1,403 (20%)	610 (9%)
Finance	0	0 (0%)	0 (0%)	0 (0%)	0	0 (0%)	0 (0%)	0 (0%)
Other	671	385 (57%)	196 (29%)	90 (13%)	10,359	6,987 (67%)	2,020 (20%)	1,352 (13%)
Total	4,401	2,646 (60%)	1,192 (27%)	563 (13%)	73,751	52,649 (71%)	13,935 (19%)	7,167 (10%)

Table 3. By-year Firm Delisting due to Takeover: IPOs vs. Seasoned Firms

This table presents by-year delisting of newly listed firms, in comparison with seasoned firms, within ten years after the IPO. Delisting percentages are reported in parentheses. The first year numbers for newly listed firms are partial because firms that are delisted before the first fiscal-year end do not have financial data in the IPO year, so are not included in our sample.

	Year after IPO									
	1	2	3	4	5	6	7	8	9	10
IPO firms										
Firms at year beginning	3,979	3,914	3,534	3,091	2,695	2,353	2,050	1,814	1,639	1,469
Firms delisted for takeover	53 (1.3%)	262 (6.7%)	282 (8.0%)	270 (8.7%)	222 (8.2%)	190 (8.1%)	141 (6.9%)	121 (6.7%)	112 (6.8%)	83 (5.7%)
Firms delisted for other causes	12 (0.3%)	118 (3.0%)	161 (4.6%)	126 (4.1%)	120 (4.5%)	113 (4.8%)	95 (4.6%)	54 (3.0%)	58 (3.5%)	40 (2.7%)
All matching seasoned firms										
Firms at year beginning	59,962	56,790	52,858	49,223	45,901	42,855	40,076	37,565	35,290	33,239
Firms delisted for takeover	2,131 (3.6%)	2,535 (4.5%)	2,360 (4.5%)	2,185 (4.4%)	2,032 (4.4%)	1,864 (4.4%)	1,658 (4.1%)	1,513 (4.0%)	1,365 (3.9%)	1,255 (3.8%)
Firms delisted for other causes	1,041 (1.7%)	1,397 (2.5%)	1,275 (2.4%)	1,137 (2.3%)	1,014 (2.2%)	915 (2.1%)	853 (2.1%)	762 (2.0%)	686 (1.9%)	621 (1.9%)

Table 4. Determinants of the Likelihood of Being Acquired

This table presents logistic regressions, where the dependent variable equals one if the firm is acquired within five years after the IPO issue date (or the starting fiscal year end for seasoned firms), and equals zero otherwise. The whole sample is the pooled newly listed firms, conducted between 1980 and 2007, and all Compustat seasoned firms-year during the same time period, excluding firms that are delisted for reasons other than M&A. Total sample regressions are reported in columns (1) to (4) and sub-period regressions are report in columns(5) to (7). Assets are in the IPO year. Market-to-book ratio is the ratio of market value of the firm's stock plus book value of debt over the book value of assets in the IPO year. Leverage is the ratio of total liabilities to total assets in the IPO year. Property is the ratio of property, plant, and equipment to total assets in the IPO year. Liquidity is the average ratio of net liquid assets (current assets minus current liabilities) to total assets over up to three years before acquisition for acquired firms, or over the third to fifth years for survived firms. Sales growth is the average sales growth of acquired firms over up to three years before acquisition, or of survived firms over the third to fifth years after the IPO. Operating ROA is the average ratio of operating income before depreciation to total assets over up to three years before acquisition, or of survived firms over the third to fifth years after the IPO. Stock return is the abnormal cumulative return of an acquired firm over the period from the IPO date to six months before the delisting date, or of a survived firm over the first three years after the IPO, where the equally weighted CRSP index is used as the market portfolio. *p*-values are reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Whole period				1980-1989	1990-1996	1997-2007
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	-1.073***	-2.312***	-2.300***	-3.783***	-2.476***	-2.547***	-2.541***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
IPO dummy	0.535***	0.468***	0.348***	0.289***	0.306***	0.275***	0.248**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.008)	(0.032)
IPO dummy × Spin-off dummy			0.630***	0.641***	0.939***	0.557**	0.773**
			(0.000)	(0.000)	(0.000)	(0.014)	(0.035)
IPO dummy × VC dummy			0.167**	0.056	-0.012	0.199	0.194
			(0.041)	(0.512)	(0.949)	(0.128)	(0.203)
Ln(assets)		0.454***	0.450***	0.682***	0.299***	0.572***	0.596***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$[\text{Ln(assets)}]^2$		-0.050***	-0.050***	-0.071***	-0.040***	-0.055***	-0.065***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tobin' Q		-0.147***	-0.148***	-0.124***	-0.372***	-0.143***	-0.122***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage		0.709***	0.712***	0.754***	0.921***	0.353*	0.887***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.072)	(0.000)
Property		0.124***	0.123***	0.044	0.441***	-0.121	0.071
		(0.003)	(0.003)	(0.540)	(0.000)	(0.371)	(0.438)
Liquidity		0.574***	0.570***	0.365***	1.054***	0.269	0.279**

		(0.000)	(0.000)	(0.001)	(0.000)	(0.203)	(0.046)
Sales growth		0.433***	0.433***	0.576***	0.220***	0.302***	0.766***
		(0.000)	(0.000)	(0.000)	(0.006)	(0.000)	(0.000)
R&D/Sales		-0.090***	-0.092***	-0.158***	0.073	-0.042	-0.179***
		(0.000)	(0.000)	(0.000)	(0.543)	(0.269)	(0.000)
Operating ROA		0.045	0.059	-0.114	1.860***	0.844***	-0.424**
		(0.676)	(0.584)	(0.423)	(0.000)	(0.002)	(0.020)
Stock return		-0.132***	-0.133***	-0.158***	-0.246***	-0.156***	-0.148***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm age				-0.003***		-0.001	-0.004***
				(0.001)		(0.667)	(0.001)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	67,687	60,818	60,817	20,273	20,598	5,748	12,420
Pseudo R^2	0.032	0.052	0.052	0.062	0.072	0.086	0.061

Table 5. The Acquisition Value: IPO Targets vs. Seasoned Targets

This table reports acquisition value multiples (purchase price over a financial variable or market value) for IPO or seasoned target firms. The sample consists of 1,038 IPO targets and 4,399 seasoned targets that were acquired during the years 1980-2012. The four financial variables based valuation multiples are directly obtained from the SDC Mergers and Acquisitions Database, for which the most current financial information prior to the acquisition announcement is used. The deal value is adjusted for the proportion of shares being acquired in the transaction. All multiples are winsorized at the 1% level. Two-sided t test for the mean and Wilcoxon test for the median of the IPO-seasoned difference are conducted. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	IPO targets			All seasoned targets			IPO-seasoned difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Offer price to book equity	4.66	3.12	964	3.40	2.41	3,569	1.26***	0.71***
Offer price to EPS	50.68	28.80	533	44.40	23.60	2,601	6.29*	5.20***
Deal value to sales	6.56	2.15	928	1.88	1.05	3,346	4.67***	1.10***
Deal value to EBITDA	29.65	13.22	582	15.18	9.46	2,648	14.47***	3.76***
Deal value to target market cap 11 days before announcement	1.71	1.56	962	1.70	1.49	3,190	0.02	0.07***
Deal value to target market cap 35 days before announcement	1.80	1.63	961	1.76	1.56	3,168	0.04	0.07***

Table 6. Determinants of the Acquisition Value

This table reports the results of the regression analysis for the acquisition value multiples of IPO and seasoned targets. Fraction of pay in cash is the proportion of cash in total payment for the deal. Hostile takeover dummy equals one if the attitude of the transaction is indicated as hostile, and equals zero otherwise. Toehold dummy equals one if the acquirer holds the target's shares prior to merger, and zero otherwise. Cross-border dummy equals one if the acquirer is a non-U.S. firm, and zero otherwise. Within-industry acquisition dummy equals one if the acquirer and the target firm have the same two-digit SIC code, and zero otherwise. High-tech target dummy equals one if the target is a high-tech firm, and zero otherwise. Target sales are as of the most current financial information prior to the acquisition announcement. Target leverage is the ratio of total liabilities to total assets as of the most current financial information prior to the acquisition announcement. Target operating ROA is the ratio of operating income before depreciation to total assets as of the most current financial information prior to the acquisition announcement. Target stock return is its excess stock return over the 200 days, 11 or 35 days prior to the announcement date, using the equally weighted CRSP index as the market portfolio. Acquirer ROS is the ratio of net income over sales as of the most current financial information prior to the acquisition announcement. *p*-values are reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln(Offer price to book value)	Ln(Offer price to EPS)	Ln(Deal value to sales)	Ln(Deal value to EBITDA)	Ln(Deal value to market cap 11 days before announc.)	Ln(Deal value to market cap 35 days before announc.)
Constant	-0.668	3.970***	0.931	3.135***	1.378***	1.214***
	(0.224)	(0.000)	(0.226)	(0.000)	(0.000)	(0.001)
IPO target dummy	0.086***	-0.001	0.223***	0.097***	0.036**	0.054***
	(0.001)	(0.992)	(0.000)	(0.009)	(0.033)	(0.003)
Fraction of pay in cash	0.000	-0.000	-0.002***	-0.000	-0.000*	-0.000
	(0.997)	(0.377)	(0.000)	(0.790)	(0.078)	(0.186)
Hostile takeover dummy	-0.009	0.138	0.050	0.144*	0.128***	0.110**
	(0.887)	(0.196)	(0.600)	(0.080)	(0.003)	(0.018)
Toehold dummy	0.031	0.047	0.156***	-0.038	0.032	0.021
	(0.430)	(0.525)	(0.005)	(0.491)	(0.216)	(0.448)
Cross border takeover	-0.045	-0.072	0.038	-0.024	0.017	0.038*
	(0.128)	(0.195)	(0.399)	(0.584)	(0.402)	(0.081)
Within-industry dummy	0.015	-0.061	0.076**	-0.000	0.016	0.029*
	(0.523)	(0.169)	(0.027)	(0.991)	(0.323)	(0.083)
High-tech target dummy	0.077*	-0.116	0.003	0.023	0.021	0.013
	(0.081)	(0.215)	(0.964)	(0.737)	(0.484)	(0.693)
Ln(sales) (Target)	-0.033***	-0.012	-0.100***	-0.035**	-0.013*	-0.017**
	(0.001)	(0.528)	(0.000)	(0.021)	(0.058)	(0.021)
Tobin's Q (Target)	0.308***	0.171***	0.277***	0.293***	-0.016**	-0.025***

	(0.000)	(0.000)	(0.000)	(0.000)	(0.011)	(0.000)
Leverage (Target)	1.108***	-0.199*	-1.027***	-0.744***	0.468***	0.491***
	(0.000)	(0.088)	(0.000)	(0.000)	(0.000)	(0.000)
R&D/Sales (Target)	0.110***	1.486***	0.363***	1.777***	0.030	0.015
	(0.000)	(0.001)	(0.000)	(0.000)	(0.102)	(0.438)
Operating ROA (Target)	0.451***	-4.192***	0.092	-5.070***	-0.041	0.043
	(0.000)	(0.000)	(0.411)	(0.000)	(0.447)	(0.454)
Stock return (Target)	0.312***	0.099*	0.378***	0.150***	-0.072***	-0.077***
	(0.000)	(0.061)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Sales) (Acquirer)	0.036***	0.009	0.084***	0.041***	0.016***	0.019***
	(0.000)	(0.511)	(0.000)	(0.000)	(0.000)	(0.000)
ROS (Acquirer)	0.027	-0.270	-0.065*	-0.079	-0.013	-0.017
	(0.308)	(0.115)	(0.054)	(0.405)	(0.401)	(0.275)
Acquirer is a private firm	-0.231***	-0.174	-0.337***	-0.210*	-0.167***	-0.136**
	(0.007)	(0.301)	(0.009)	(0.095)	(0.004)	(0.028)
Acquirer is a financial buyer	-0.027	0.235*	-0.029	0.069	-0.002	-0.023
	(0.683)	(0.089)	(0.776)	(0.503)	(0.964)	(0.648)
Acquirer is a private financial buyer	0.233	-0.283	0.781**	0.014	0.228	0.191
	(0.318)	(0.488)	(0.023)	(0.963)	(0.136)	(0.246)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,268	1,512	2,161	1,572	2,107	2,102
Adjusted R^2	0.541	0.260	0.614	0.569	0.162	0.158

Table 7. Statistics for Measures of Synergy

Panel A of this table reports summary statistics for the combined firm's industry-adjusted operating return on assets (IAROA), where operating ROA is calculated as the firm's operating income before depreciation over its market value of assets at the beginning of the fiscal year. For the pre-merger year, t =-1, the weighted average of the acquirer and target's IAROA is used, with the weights being determined by the firms' market value of assets at the beginning of the year. Panel B reports summary statistics for the 11-day cumulative abnormal return (CAR) around the announcement date for the acquirer, target and the combined firm, respectively. Abnormal return is the market model adjusted stock return. The market model is estimated over the trading days [-36, -235] relative to the announcement date, and the equally-weighted average of CRSP stock returns is used as the market return. The combined firm's CAR is calculated as the weighted average acquirer and target CAR, with the toehold-adjusted market value at day -6 being the weights. Two-sided t test for the mean and Wilcoxon test for the median of the IPO-seasoned difference are conducted. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

updated: Dec1

	IPO targets			All seasoned targets			IPO-seasoned difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Panel A. Industry-adjusted operating ROA (IOROA)								
T=-1	1.74%	1.60%	253	2.81%	2.45%	949	-1.08%**	-0.85%**
0 (effective year)	2.72%	3.39%	234	3.99%	3.40%	914	-1.27%**	-0.01%
1	2.49%	2.37%	215	2.69%	2.31%	883	-0.20%	0.06%
2	2.83%	2.73%	198	2.67%	2.30%	794	0.16%	0.43%
3	2.90%	2.66%	183	2.57%	2.14%	733	0.33%	0.52%
4	3.22%	2.14%	173	2.53%	2.18%	658	0.69%	-0.04%
5	3.71%	2.77%	157	2.69%	2.16%	612	1.03%	**0.61%***
Panel B. [-5, 5] day CAR								
Acquirer	-2.23%	-1.32%	499	-0.94%	-0.75%	1,564	-1.29%	-0.57%
Target	29.61%	24.21%	709	24.59%	21.18%	1,961	5.02%***	3.03%***
Combined	1.10%	1.79%	496	2.13%	1.63%	1,390	-1.03%	0.16%

Table 8. Regressions for the Effect of Synergy

This table presents the regression results for the effect of synergy in merger. The dependent variable in the first two regressions is the combined firm's industry-adjusted return on assets (IAROA) for the post-merger years from the second (**t=2**) to the fifth (t=5) year, calculated as in Table 7. The dependent variable in columns 3 and 4 is the combined firm's average IAROA over the four post-merger years. The dependent variable in column 5 is the acquirer-target combined 11-day cumulative abnormal return (CAR) surrounding the announcement date, calculated as in Table 7. Fraction of pay in cash is the proportion of cash in total payment for the deal. Hostile takeover dummy equals one if the attitude of the transaction is indicated as hostile, and equals zero otherwise. Toehold dummy equals one if the acquirer holds the target firm's shares prior to merger, and zero otherwise. Within-industry acquisition dummy equals one if the acquirer and target have the same two-digit SIC code, and zero otherwise. *p*-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variables				
	IAROA(t)		Mean IAROA		Combined CAR
	(1)	(2)	(3)	(4)	(5)
Constant	0.010***	0.035***	0.008***	0.026	-0.111
	(0.000)	(0.009)	(0.000)	(0.243)	(0.299)
IPO target dummy	0.006***	0.005**	0.007**	0.007*	0.013**
	(0.004)	(0.024)	(0.049)	(0.067)	(0.029)
IAROA(t=-1)	0.593***	0.585***	0.613***	0.595***	
	(0.000)	(0.000)	(0.000)	(0.000)	
Fraction of pay in cash		0.000**		0.000*	0.000***
		(0.033)		(0.095)	(0.000)
Hostile dummy		0.009		0.007	0.034**
		(0.133)		(0.452)	(0.045)
Toehold dummy		-0.017***		-0.017**	0.016
		(0.000)		(0.016)	(0.145)
Within industry acquisition		0.002		0.001	0.004
		(0.280)		(0.758)	(0.485)
Acquirer Ln(sales)		0.000		0.001**	-0.013***
		(0.514)		(0.045)	(0.000)
Acquirer Tobin's Q		0.002***		0.001***	-0.005**
		(0.000)		(0.005)	(0.032)
Leverage (Acquirer)					0.023
					(0.143)
R&D/sales (Acquirer)					-0.066**
					(0.036)
Operating ROA (Acquirer)					0.074**
					(0.026)
Stock return (Acquirer)					-0.026***
					(0.000)
Acquirer financial buyer dummy					0.017
					(0.360)
Ln(sales) (Target)					0.009***
					(0.000)
Tobin's Q (Target)					-0.001
					(0.820)
Leverage (Target)					-0.005
					(0.693)
R&D/sales (Target)					0.010
					(0.373)
Operating ROA (Target)					-0.040**
					(0.031)
Stock return (Target)					0.001
					(0.852)
Industry dummies					Yes
Year dummy		Yes		Yes	Yes

Observations	3,482	3,477	1,002	1,001	1,326
Adjusted R^2	0.323	0.356	0.396	0.431	0.128

Table 9. Factor Model Regressions for Stock Performance

This table presents the factor model regressions for monthly portfolios composed of stocks of acquirers of IPO targets (the first column), acquirers of seasoned targets (the second column), and the arbitrage strategy of longing acquirers of IPO targets and shorting acquirers of seasoned targets (the third column), respectively. For each regression, a portfolio is formed for each calendar month from January 1985 to December 2012, and the dependent variable is the portfolio mean return over that month. Panel A presents the regressions for the monthly portfolios consisting of all acquisitions made during the 24 months one year prior to the calendar month, and Panel B presents the regressions for the monthly portfolios consisting of all acquisitions made during the 48 months one year prior to the calendar month. *p*-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Acquirers of IPO targets	Acquirers of seasoned targets	Zero-cost portfolio of longing acquirers of IPO targets and shorting acquirers of seasoned targets
	(1)	(2)	(3)
Panel A: [-36, -12] (portfolio window of 24-month acquisitions)			
α	0.003	-0.000	0.003*
	(0.120)	(0.718)	(0.056)
β_{mkt}	1.135***	1.043***	0.136***
	(0.000)	(0.000)	(0.002)
β_{SmB}	0.612***	0.484***	0.144**
	(0.000)	(0.000)	(0.023)
β_{HmL}	-0.300***	0.129***	-0.370***
	(0.000)	(0.002)	(0.000)
β_{UmD}	-0.412***	-0.264***	-0.149***
	(0.000)	(0.000)	(0.000)
Observations	298	329	297
Adjusted R^2	0.783	0.874	0.232
Panel B: [-60, -12] (portfolio window of 48-month acquisitions)			
α	0.003*	0.000	0.003**
	(0.058)	(0.670)	(0.043)
β_{mkt}	1.093***	1.042***	0.077**
	(0.000)	(0.000)	(0.020)
β_{SmB}	0.619***	0.496***	0.096*
	(0.000)	(0.000)	(0.050)
β_{HmL}	-0.139**	0.169***	-0.292***
	(0.017)	(0.000)	(0.000)
β_{UmD}	-0.322***	-0.209***	-0.108***
	(0.000)	(0.000)	(0.001)
Observations	316	330	315
Adjusted R^2	0.821	0.890	0.190