

To be or not to be (public)

Using going private transactions to examine why firms go public.

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Abstract

Why do firms go public? Despite the existence of many theories addressing this question, lack of data on private firms before they are public hampers our ability to test these theories. We circumvent this challenge by testing reverse predictions of going public theories using firms' decisions to go private. We employ a comprehensive sample of going private transactions from 1980-2004 in the U.S and examine how these firms differ at the initial public offering and over their public life relative to a sample of firms that went and remained public. We find that many of the factors that drive the firms to go private are evident at the initial public offering. Our results provide strong support for the importance of information and liquidity considerations. We also find some support for the importance of capital accessibility and control factors.

Keywords: Going Public, Going Private.

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1. Introduction

Going public is one of the most important events in a private company's development; thus, the initial public offering (IPO) is often seen as a rite of passage in the life-cycle of a young, growing, successful firm. A large theoretical literature has developed in the last decade weighing the costs and benefits of being public versus private to explain why firms go public.¹ Empirical analysis investigating the relative importance of these costs and benefits remains scarce because we ideally need data on private firms that choose to go public and on firms that continue to remain private in order to provide a direct comparison of the choice between being public or private. Data on private firms is not readily available. In this paper, we circumvent this data challenge by investigating the reverse predictions of the going public theories. Specifically, we track firms from their IPO and examine how the costs and benefits of being a public firm lead a firm to choose to go private rather than remain public.

The theories of going public emphasize the tradeoff between different economic forces that confer costs and benefits of being public. For example, the tradeoff between economic force X (say, liquidity benefits of being a public firm) and economic force Y (say, the costs of losing control in decision making) could be the tension in a model that generates predictions on the going public decision. In this example, when the benefits of liquidity exceed the cost of having lesser control in decision making, firms go public. We argue that since the nature of the theories of going public are tradeoff type theories, the reverse is also true. When the costs of having lesser control exceed the benefits of liquidity, firms will reverse their decision, i.e. firms will exit the public markets and go private. Thus, by systematically reversing the predictions of the going public theories and examining firms' decisions to go private, we can test the validity of these theories and determine which factors drive the choice between being a private or a public firm. This is the key idea behind our research design.

In this paper, we examine firms that go private, using data from the IPO to the going private decision. We compare these firms to a set that went public over a similar time period but *did not* go private. Thus, both our sample and comparison firms are listed in the publicly traded equity markets. This research design confers two crucial advantages: a) By virtue of being in the public markets, which have elaborate disclosure requirements, ex-ante data on

¹We summarize these theories in Section 2.

the going private firms and data on the comparison sample are readily available; and, b) It is easy to measure ex-ante, the impact of market forces such as liquidity and information production on the public-private decision. These market forces are central to many theories but cannot be tested using data on private firms that are considering going public because market forces do not visibly impact a firm until after it is public.

To examine the choice between being a private versus public firm, we assemble a comprehensive sample of U.S. firms that go private (called the "private sample," hereafter) between 1980 and 2004. Our initial sample contains 1,368 events and is the most extensive of going private samples studied to date in the literature. We then track these firms to determine when they went public (with IPO dates ranging from 1902 to 2001). We obtain 24 different firm characteristics from five different databases using data beginning at the firms initial public offering (as available) through their going private decision to measure the costs and benefits of being public. We also collect the same data for a sample of 6,670 IPO firms that remain public (called the "comparison sample," hereafter) during a similar time period. We then compare characteristics of these two groups at the time they went public and in the years immediately following the IPO. We further examine the trends in the private sample firms' characteristics during their public life and compare these trends to those of firms that remain public. In doing so, we not only determine which factors influence the choice between being public and private, but also establish if the differences in these samples was evident at the IPO or if it evolved over time.

Our first set of tests compare the private sample firms with the comparison sample firms at the time of the IPO. The differences between these two groups are striking. On average, the private sample firms remain in the public market for over thirteen years. Despite this long period of exposure in the public markets, firms that ultimately go private are very different and discernable even at the time of the IPO, compared to firms that remain public. We find that firms that are more likely to ultimately go private have less analyst coverage, less institutional holdings, more concentrated ownership, and more informed trading at the time of the IPO compared to firms remain public. These results support the importance of information considerations in the choice between being public or private. We also find firms that are more likely to go private are more illiquid and have less share turnover, supporting the importance of liquidity issues in the choice between being a public or private firm.

Evidence related to the importance of access to capital is mixed. We also find some evidence that firms that are more likely to go private engage in fewer acquisitions (compared to firms that remain public) and have more free cash flow, suggesting modest support for the role of control considerations and agency conflict in the choice between being a public and private firm.

These results not only provide evidence of the relevance of costs and benefits in the decision to be private versus public, but also indicate that it is possible to determine the relative costs and benefits of being public even at the time of the IPO. Stated another way, it seems that at least in part there is something inherent to the firm at the time of the IPO that determines if it will ultimately go private. Using a logistic regression model of the ultimate going private decision and variables at the time of going public, we are able to accurately predict the going private decision for 72 percent of the going private and 59 percent of full sample. This is remarkable, given the thirteen year lag between the IPO and going private decisions for the average firm. To further explore this issue, we repeat the logistic analysis in the five years subsequent to the year following the IPO to determine if our ability to predict the going private outcome improves as firms near this decision. We find that our prediction accuracy increases only slightly in these later years. Using data in each of the five years following the IPO, we increase our prediction accuracy to 81 percent for the going private and 61 percent for the full sample. Assuming the firms IPO decision was optimal, these results suggest that firms that ultimately go private may be just above the threshold where benefits exceed the costs at the time of the IPO, but reverse the going public decision once they fall below the threshold, relative to the comparison sample where the benefits appear to far outweigh the costs. Alternatively, the results may indicate that these are firms that should not have gone public and thus in time reverse this decision. Regardless, the variables examined here and informed by theory are therefore able to successfully capture the relative costs and benefits long before the actual decision is made.

We next explore the importance of changes in firms' characteristics over its public life in predicting the going private decision. First, we compare the private sample firms at the time of the IPO and the time they went private. We find that some of the firms characteristics evolve in ways that should increase the benefits of being public but others change in ways that make it more likely that the firm will go private. For instance, we find that at the

time firms go private they have grown larger, have more analyst coverage, more institutional holdings, and less free cash flow. These changes suggest that the benefits of being public have increased since the IPO. However, we also find capital expenditures, share turnover, liquidity, and market to book ratio have decreased by the time firms go private. These changes suggest that cost of being a public firm have increased as well. These conflicting trends illustrate the importance of relative comparisons: We need to explicitly incorporate the evolution of these firm characteristics for the comparison sample as well to assess the motives for going private. Specifically, we use a Cox proportional hazard model, which determines the hazard (probability) a firm will go private given its firm characteristics, and its evolution over time, relative to other firms. The results of this analysis reveal that even though the going private firms improve in some of the measures in an absolute sense (larger size, more analyst coverage, more institutional holdings, and less free cash flow), relative to the firms that continue to remain public, they are still worse off. Firms are more likely to go private when they have less information being produced by the public market, are less liquid, and engage in fewer acquisitions relative to the comparison sample. Thus, utilizing the information after the IPO does not materially change our conclusions but addresses the inconsistencies in the earlier analysis and confirms the results using a more econometric rigorous procedure. Again, this finding suggests that it is something intrinsic to the firm at the time of the IPO, rather than something that changes over time, that leads it to subsequently go private.

Our paper is related to a voluminous literature on IPOs which primarily examines underpricing, long run under performance, and mechanisms for design for IPO sales (see Jenkinson and Ljungqvist (2001) and Ritter (2003) surveys of the IPO literature). As noted earlier, data limitations on private firms severely hamper investigations into the motivations for going public. However, a few important exceptions exist. Pagano, Panetta and Zingales (1998) provide this comparison for Italian firms but their sample size is limited (69 firms) and it is not clear if their results are generalizable to the U.S. market. Some of our results confirm their findings for the U.S., for instance we show that firms prefer to remain public if they have higher market-to-book ratios. Other results expand on the factors examined in their paper, in particular our market based factors. Boehmer and Ljungqvist (2004) examine the timing of the going public decision using a sample of 330 German firms.

A couple of recent studies attempt a different stab at the data availability issue. Helwege and Parker (2004) examine why private firms stay private using a sample of private firms that issued public debt and thus must publicly disclose financial data and document the importance of the IPO as an exit strategy for the entrepreneur. Chemmanur, He and Nandy (2006) use plant-level data, which is available for both private and public firms, to examine ex-ante characteristics of firms that choose to go public and show the importance of product market characteristics and information considerations. Both of these papers and ours share similar motivation in that they each examine some facets of why firms go public; however, the particular implications of the theories we are able to test and the results differ due to dissimilarity in research design. In particular, because we analyze firms' choice to reverse the going-public decision, we are able to examine data only available once a firm goes public. A few of the factors that we consider that would not be available in these other samples include prices, illiquidity of shares, concentration of ownership, institutional holdings, concentration of institutional ownership and share turnover. Many of the theories of why firms go public provide predictions related to these firm characteristics, as we describe in section 2. Other related papers are Kim and Weisbach (2005) who examine the choice between issuing primary and secondary shares for a set of large firms in 38 countries and Rosen, Smart and Zutter (2005) use ex-ante bank call report data to examine why banks go public. Kim and Weisbach show the importance of capital accessibility in many countries. We build on this finding, showing the role of capital accessibility in the U.S and examining many other factors that impact the decision to be public or private. Differences in our findings and theirs are likely due to the need for external capital in different countries.

In addition to contributing to the understanding of why firms go public, we also contribute to the literature on why firms go private. Lehn and Poulsen (1989) show that much of the shareholder gain in going private transactions stems from mitigating agency conflicts associated with free cash flow. Kaplan (1989a, 1989b, and 1991) examine the benefits of going private using a leverage buyout, highlighting the tax and incentive improvements due to the high leverage in these transactions. At the time that these going private studies were written, the theories of why firms go public did not exist. Thus, one contribution of this paper is to bridge these two literatures. We further contribute to the going private literature

by examining the entire duration of public life for firms that choose to go private, which has not been previously examined.

The remainder of the paper is organized as follows. We describe our main hypotheses in Section 2. Section 3 describes the data and sample selection process. In Section 4, we compare firms at the IPO and, in Section 5, we examine how firm characteristics evolve after the IPO, with both sections presenting results regarding the factors that lead a firm to choose to go private. We conclude in Section 6.

2. Theoretical predictions and hypotheses

The decision to go public is complex, with many factors to be considered. No single model in the literature captures all facets of this decision. However, in totality, the literature addresses most conceivable influences. These influences can be categorized into the costs and benefits of *being* a public firm. Costs of going public are also important in the decision, but given the nature of our reverse research design we cannot include these non redeemable costs in our tests. Thus, in this section, we summarize the theories of why firms go public, focusing on the costs and benefits of being a public firm and specifying the testable implications as they relate to the decision to go private.

It is important to note that many of the empirical predictions are not mutually exclusive among the various theories. We categorize the various theories of going public based on the driving force behind the models into four groups: (i) Information Considerations (ii) Access to Capital (iii) Liquidity and (iv) Control and other considerations. In addition to the theory, we also discuss the empirical implications from these categories of models in turn, below. As we do so, we refer to several empirical proxies used in this study. The source for this data and a detailed description of each variable will be discussed in section 3 and the appendix.

2.1. Information Considerations

2.1.1. Adverse Selection

Investors are less informed than the issuers about the true value of the companies going public. Investors' concern that they might be purchasing a 'lemon' adversely affects the

average quality of the companies seeking a new listing and the price at which their shares can be sold initially and during the public life of the firm. Leland and Pyle (1977) show that entrepreneurs can signal the quality of their projects by investing more of their wealth into these projects but at the cost of imperfect diversification. This adverse selection cost is a more serious obstacle to young, small companies that have lower visibility than for large, highly visible companies; therefore, small, young firms are less likely to go public. By the same token, this theory implies that if visibility decreases and information asymmetry increases for public firms, they will tend to go private to avoid the adverse selection costs.

2.1.2. Duplicative Monitoring

Chemmanur and Fulghieri (1999) highlight the costs of duplication of information production by a large number of investors wishing to invest in a public firm.² Ultimately, these costs have to be borne by the firm. The costs can be mitigated by the availability of a public price that conveys information to all investors so that only a fraction of the investors will incur the information production cost. Thus, there is a benefit to avoiding these costs by selling shares to a large investor (VC, the venture capitalist) but surrender a greater share of the return to the VC. Their model suggests that once a firm is public, if information production costs of outsiders increase (or that the stock price is not able to aggregate information effectively due to lack of liquidity) more firms would choose to go private as the value of the firm does not accurately reflect available information about the firm.

2.1.3. Serendipitous Information Production

Subrahmanyam and Titman (1999) highlight the subtle differences in information production and the its impact on the going public decision. If all investors have access to the

²Ritter (1987) estimates that variable costs which are yearly layouts on auditing, certification, dissemination of accounting information, stock exchange fees, etc. are about 7% of the gross proceeds of the IPO. Disclosure rules in public markets that force companies to part with private information necessary for their competitive advantage might be an important consideration in the going public decision, as pointed out by Campbell (1979) and Yosha (1995). Maksimovic and Pichler (2001) develop a model of the going public decision driven by product market competition between innovative private firms in an industry. Raising capital in the equity market by going public allows a firm which is an industry leader to raise external capital at a cheaper rate than private financing, thus allowing it to implement its project at its optimal scale. However, going public has the disadvantage of releasing confidential information to competing firms, which can then compete more effectively with the firm going public. This theory and the importance of variable costs implies that the advent of SOX and the associated disclosure requirements, might prompt firms to go private as confidentiality is a deterrent for obtaining funding in public markets.

same costly information, duplication of efforts suggest that public markets are at a disadvantage compared to private markets. On the other hand, serendipitous information (defined in their model as the information that stock market investors by chance come across in their day to day activities) though noisy, is likely to be diverse across market participants. This information aggregated across many stock market investors can provide a useful signal that could not have been obtained if the firm were privately financed. The benefit from this signal has to be weighed against the cost of duplication of information among market participants. Firms prefer to be public when the benefit of this signal outweighs the cost of duplication. This logic suggests that as the costs of generating serendipitous information increase, firms would choose to go private.

2.1.4. Investor Recognition

Merton (1987) provides an extension to CAPM that relaxes the assumption of efficient information for all investors. In this model, expected returns to a firm decrease with the size of investor base, which he characterizes as the 'degree of investor recognition.' Thus, the benefit of being public is diminished for firms with lower diffuse ownership (i.e. increased ownership concentration among investors) or lower investor recognition; thus, these firms are more likely to opt to be private.

2.1.5. Summary and Empirical Proxies for Information Considerations

In summary, each of these theories suggest that firms are more likely to reverse the going public decision if information is costly or difficult to obtain. Many of the theories discussed above examine related but subtly different aspects of information considerations. In the theories, these differences are important. Unfortunately it is difficult to proxy for these important but subtle differences. In our empirical analysis, we group this set of theories as those that highlight the importance of information considerations in the decision to go private. The empirical proxies that we use in our analysis are outlined in the table below:

Driving Force	Models	Effect on the going private decision	Empirical Proxy(ies) and predictions
a. Adverse Selection	Leland and Pyle (1977)	As information asymmetry increases, more firms go private	- Smaller, younger firms with greater probability of informed trading (PIN) go private.
b. Duplicative Monitoring	Chemmanur and Fulghieri (1999)	If information gathering costs increase, more firms go private	- Firm with lower Institutional holdings and Analyst Coverage go private. - Firms with higher
c. Serendipitous Information Production	Titman Subramanyam and Titman (1999)	If serendipitous information gathering costs increase, more firms go private	Durnev et. al. (2003) ψ Measure, and higher R&D intensity, and higher R&D intensity, - Firm with high,
d. Investor Recognition	Merton (1987)	Low diffuse ownership or less recognition suggests more firms opt to be private	Herfindahl Index of Ownership Concn and not trading on NYSE are more likely to go private.

2.2. Access to Capital

2.2.1. Cost of Capital

One important motivation for going public is to minimize the cost of capital for the firm and thus maximize the value of the company. The lower the cost of capital in the public versus the private market, the greater the incentive to be a public firm. This argument has been advanced by Modigliani and Miller (1963) and Scott (1976). This argument suggests that as the cost of capital for firms increase in public markets, firms are more likely to go private.

2.2.2. Overcoming Financial Constraints

The opportunity to tap public markets for equity capital is appealing for high growth firms with large current and future investments that may have limited access to other financing alternatives due to high leverage or other reasons. This source of funding is attractive because it relieves financial constraints by enabling firms to raise funds in the public equity

markets and enhancing visibility, which also allows the firms to tap the public bond markets. Public bonds are an alternative source of financing to bank loans, the latter being the dominant source of debt financing for firms before going public. Thus, firms more concerned about being financially constrained will prefer to be public. Firms that do not have large investments and future growth opportunities may private. Since asymmetric information is one of the key drivers of financial constraints, firms that do not have sufficient information production in markets and hence are financially constrained would be more likely to go private. Private financiers can then produce information through costly investigation (which the markets cannot produce) and alleviate the financial constraints of firms. Thus, support for the information consideration hypotheses provides indirect support for the importance of financial constraints.

2.2.3. Summary and Empirical Proxies for Access to Capital Considerations

We summarize the empirical implications of the above theories and the empirical proxies that we use in our analysis in the table below:

Driving Force	Models	Effect on the going private decision	Empirical Proxy(ies) and predictions
a. Cost of Capital	Modigliani & Miller (1963) Scott (1976)	As cost of capital increases in public markets, firms go private.	- Dividend payers are less likely to go private.
b. Overcoming financial constraints		Lack of large investments, financial constraints in public markets lead more firms to go private	- Firm with low Capex, financially constrained (KZ index, probability of rating) likely to go private

2.3. Control Considerations

Zingales (1995) argues that an IPO can serve as the first step toward selling a company at an attractive price through a takeover. In going public, the initial owner sells a portion of his cash flow and control rights. According to Zingales, the market for these two components are very different. The market for cash flow rights (individual shares) is competitive but the market for corporate control is not; thus, the incumbent extracts some of the eventual

buyer's private benefits in a direct negotiation for transfer of control. This theory suggests a high incidence of control transfers after an IPO. On the flip side, it also suggests if the firm is not very active in the market for corporate control, it will more likely go private. Further the value of the cash flow rights are more sensitive to change in market conditions than the control rights. The value of the control rights relative to the cash flow rights will therefore be greater following declines in the aggregate market. Many of the important aspects of this theory are difficult to capture in our cross-sectional analysis. However, the spirit of the theory - i.e. the importance of value and control issues - are also highlighted in Brau, Francis and Kohers (2003) and Brau and Fawcett (2006), who suggest that an IPO creates public shares for a firm that may be used as currency in acquiring other companies or in being acquired in a stock deal. This reasoning again suggests that if the firm is not active in the market for corporate control using stock deals, it is likely to go private.

2.3.1. Summary and Empirical Proxies for Control Considerations

We summarize the empirical implications of the above theories as they relate to the cross-sectional predictions of why firms go public and the empirical proxies that we use in our analysis in the table below:

Driving Force	Models	Effect on the going private decision	Empirical Proxy(ies) and predictions
Benefit of Corporate control	Zingales(1995)	Facilitate control transfers	- Firms that engage in fewer mergers and have lower market to book are likely to go private
	Mello and Parsons (1998)	increase in public markets,	
	Brau et.al. (2003)	Stock as a currency for future, acquisitions.	
	Boot et.al. (2006)	Managerial autonomy.	

2.4. Liquidity

Amihud and Mendelson (1988) was the first paper in the literature to emphasize the importance of liquidity considerations for a public firm. Zingales (1995) and Mello and Parsons (2000) also posit the role of an IPO to establish the market price/value for a firm. Share trading on an exchange is cheaper compared to bilateral trades and this liquidity

benefit (which is an increasing function of the trading volume) leads companies to go public. As the liquidity benefit in the market deteriorates, firms go private.

Bolton and Von Thadden (1998) emphasize the tradeoff between liquidity and control in determining corporate ownership structure. Dispersed ownership (as in going public) is beneficial to the extent that it increases secondary market liquidity. Concentration, on the other hand is valuable because large share holders have a greater incentive to monitor management control. Boot, et.al. (2006) also study a liquidity-control trade off, but identify a managers control benefit as the ability to make investment decisions despite the disagreement of outside shareholders. If managers go public, they give up such control in exchange for stock liquidity. Therefore, managers have an incentive to take firms private when they expect the value of control to exceed the value from stock liquidity. These arguments suggests that lower the level of liquidity benefits, firms would go private.

2.4.1. Summary and Empirical Proxies for Liquidity considerations

We summarize the empirical implications of the above theories and the empirical proxies that we use in our analysis in the table below:

Driving Force	Models	Effect on the going private decision	Empirical Proxy(ies) and predictions
Benefit of liquidity	Zingales(1995)	Establish market price of the firm.	- Firms that have high illiquidity (illiq) and low share turnover are likely to go private
	Mello and Parsons (1998)	liquidity benefit.	
	Bolton and von Thadden (1998)	Managerial autonomy.	
	Boot et.al. (2006)		

2.5. Other Considerations

Each of the subsections above discuss implications from theories of going public on the decision to go private. Prior to much of this literature, researchers directly examined the decision to go private. Given the sequential nature of these research streams, the literature on going private does not address the theories of going public. In this paper, our goal is to test the above mentioned theories using a sample of firms that went private. For completeness, we will also consider specific reasons a firm may go private.

The literature on going private suggests that LBOs lead to efficiency gains because of higher debt payments and alignment of the managements incentives by increased equity positions (Jensen (1986)). Thus, the motive for going private may be to reduce free cash flow with a highly levered capital structure since shareholders have a preference for the disbursement of this free cash flow, while managers may prefer to make empire building investments with returns below the cost of capital.

We proxy for these considerations empirically by using free cash flow to assets, firm leverage, cash to assets, return on assets and tangibility of assets of the firm.

3. Data and sample selection

3.1. Sample

To construct our sample of going private firms, we search SEC filings for all 13E3, including 13E3, DEF13E3, and PRE13E3 submissions from 1980 - 2003. A 13E3 is filed if the firm engages in a transaction by which the issuer itself acquires its securities or an affiliate itself acquires its securities or an affiliate engages in a transaction with an issuer; transactions between a third party (i.e. not an affiliate) and an issuer are not within the rule. Using the 13E3 filing to designate going private transactions have also been used by other going private papers such as Engle, Hayes, and Wang (2004). Examining the filing of the DEF13E3 and PRE13E3 is less common but important during the early part of our sample. These are form types that are no longer filed, which may be why they have not been included in other studies. The DEF13E3 and PRE13E3 forms are filed as part of proxy statements but contain 13E3 materials. After collecting all SEC filings, we screen all sample firms to verify that they are no longer trading and available on CRSP within 24 months of initial 13E3 submission. In doing so, we exclude any firm from the private sample that was dropped from CRSP because it was moved to trading on an exchange not covered by CRSP. This includes those trading over the counter or on pink-sheets. Thus, our sample does not include those firms that have "gone dark" as described in Leuz, Triantis and Wang (2005). If a firm meets these criteria, we designate the firm as going private. Next, we supplement our sample with that used in Lehn and Poulsen (1989). This results in 1,368 going private transactions.³

³Note that this sample size is comparable to recent studies by Engle, Hayes and Wang (2004), who has 343 firms that went private between 1998 and 2003, and the going private comparison group used in Leuz,

We gather an IPO date for all firms in our sample from three sources to ensure we do not lose sample observations. First, we use SDC. If the date is missing from this source, we use Jay Ritter's database provided on his webpage (<http://bear.cba.ufl.edu/ritter/ipodata.htm>). If the date is not available from either of these sources, we use the first date the firm was listed on CRSP, checking this with the Jovanovic and Rousseau (2001) data for the pre-CRSP period. Of the 1,368 firms in the original sample, IPO dates are from SDC for 466 firms, from Ritter database for 86 firms, and from Jovanovic and Rousseau (2001) and CRSP for 813 firms. Three firms IPO dates remain unknown and thus fall out of all tests marking time relative to the IPO date.

In 17 cases, the IPO date we obtain is after the going private date and we delete these firms from our sample. We also exclude 152 cases where Compustat data is not available and 176 firms that have either a one-digit SIC code of 6 (financial institutions) or a two digit SIC code of 49 (utilities). This results in a sample of 1,023 going private transactions. This sample construction process is described in Table 1 Panel A.

Panel B of Table 1 describes the industries in which the sample firms operate, using the 12 industry classifications from Ken French's web page (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). The most prominent industries are Retail and Manufacturing, though no one industry dominates.

Panel C describes the year in which the sample firms went private (column 1) and public (column 2).⁴ Except for a slight increase in firms going private during the mid-to-late 1980s, there is little variation over time.

The third column in Panel C of Table 1 describes the year in which a set of comparison firms went public. The comparison sample includes all IPOs listed on SDC with an offer date between 1980 and 2001, except those with offer prices under five dollars, unit offers, ADRs, REITs, or that are in the private sample. It is augmented with IPOs from the 1970s from Jay Ritter's website and with the Jovanovic and Rousseau (2001) data because data is not available on SDC before 1980. Our private sample all went public during or before 2001, so we mirror this end date for the comparison sample. Similar to our private sample we also

Triantis and Wang (2005), which has 406 firms that went private between 1998 and 2003. Of the 1,368 firms in our initial sample, 375 occur between 1998 and 2003. We further detail our sample by year in Table 1 Panel C but this Table contains only firms that pass various screens and are therefore not comparable to the sample descriptions provided in these papers.

⁴Those transactions that occur in 2004 were filed in 2003.

exclude those with financial institutions (one digit SIC code of 6) or utilities (two digit SIC code of 49). This results in 6,670 comparison IPOs. Unlike the going private sample, our comparison sample begins with IPO dates in 1970. This is because we use CRSP start dates for the private sample but not the comparison sample, in order to maximize the number of going private observations in our sample. All analysis presented in this paper is qualitatively unchanged whether we exclude all firms that went public before 1970 or we expand our comparison sample with the sample of firms for which Jay Ritter's database provides CRSP start dates as IPO dates.

3.2. Data and construction of measures

As we describe in Section 2, we divide our empirical proxies for testing theories of going public into four groups (i) Information Variables (ii) Access to Capital Variables (iii) Liquidity variables and (iv) Control and other considerations variables. Appendix A details the construction of each of these sets of variables and the data source we use for that purpose.⁵

One of the important considerations in our study is data availability. We undertake a comprehensive review of the going public theories and attempt to capture each aspect of the theory with a corresponding empirical proxy. However, differences in coverage both in scope and time period among the various databases imply that all our variables are not available for the entire sample period of study. To overcome this limitation, we test the different theories independently by using variables pertaining to that theory in order to maximize sample size and statistical power. Additionally, we identify a core set of variables corresponding to the different theories for which data is available over the entire sample period while ensuring a reasonable number of observations to conduct tests. We also report results based on this sample and ensure our inferences are broadly consistent with the sub sample tests.

⁵In untabulated results, we repeat all analysis winsorizing the data at the 1% level on the upper and lower tails. The results are qualitatively unchanged.

4. Comparing firm characteristics at the IPO

4.1. Summary statistics

In Table 2, we examine the age of the firm when they go public and the number of years the firms are public before going private. The first column shows the number of years the sample firms were public (i.e. number of years from IPO to going private). On average, the firms in our sample were public 13 years. The median number of years the firms are public is 10 years. The second column shows the age of the sample firms at the time of the IPO for those firms for which this data was available. The average (median) sample firms was 21.8 (12) years old at the time of the IPO. We contrast this with other firms that went public. Column three shows that these comparison firms were much younger when they went public, with an average (median) age of 13.7 (7) years. The last two rows indicate that the age of our sample firms is statistically greater than that of the comparison firms, which contradicts the predictions of the information considerations.

In Table 3, we compare other firm characteristics between our sample of going private firms and the comparison sample in the year following the IPO. We divide this table by the hypotheses being tested and described in Section 2. The results are striking. The first section provides support for the information consideration hypotheses: the going private firms have significantly less analyst following, and higher PIN (more informed trading), more concentrated ownership, less institutional ownership and fewer funds holding the stock. These results indicate the importance of information asymmetry, information gathering costs, and investor recognition to a firm's choice between being private or public. However, the sample firms are also larger, more traded on the NYSE, and have lower R&D expense, which does not support the predictions of these theories.

The second section of Table 3 examines characteristics related to the predictions of the access to capital hypothesis. The statistics show that the private sample firms have lower capital expenditures, indicating that the sample firms have fewer growth prospects and less need for capital. Thus, it may not be surprising that they ultimately abandoned public life and went private. Additionally, a greater percentage of the going private firms paid a dividend or were in the highest tercile of the probability of having a bond rating relative

to the comparison sample, which may indicate that they were less constrained for funding. However, the constraint dummy variable based on the KZ Index is not significant.⁶

The third section of Table 3 shows that the sample firms are significantly more illiquid with less turnover at the time of the IPO, indicating the importance of liquidity to the value of being public. The last section presents a number of interesting statistics. The sample firms engage in no fewer mergers and acquisitions than the comparable firms. Consistent with Lehn and Poulsen (1989), the going private firms have higher free cash flow than the comparable firms; thus, they may benefit from going private to reduce potential agency problems. This section also presents statistics indicating that the sample firms have significantly lower market to book ratios, higher return on assets, higher leverage, less cash and more tangible assets in contrast to the comparison sample of firms.

4.2. Methods

To investigate the difference in the going private and comparable firms at the time of the IPO, we estimate logistic regression models of the going private decisions of firms. The dependent variable is a dummy variable that equals one if the firm ultimately goes private and zero otherwise. All data is examined on an annual basis, beginning with the first year following the IPO. Given that the median firm remains for 10 years in the public markets, these tests will help us assess the importance of intrinsic characteristics of the firms (measured at the time of the IPO) that can be used to successfully predict the going private decision. In later tests, we change the time point at which firm characteristics are measured (IPO+1 year to IPO+5 years) and repeat the logistic regression analysis to gauge the importance of time varying characteristics and its incremental influence (over and above the intrinsic factors) to predict the going private decision. We discuss the results of this latter analysis in Section 5.

4.3. Results

In Table 4, we present the result of the logit analysis comparing firms at the year following the IPO. Due to data limitations and the restrictions imposed by including multiple variables

⁶In untabulated results, we replace the KZ Index dummy variable with a constraint dummy based on the Whited and Wu financial constraint variable. The results are similar to those presented here with the KZ index, the constraint dummy using the Whited and Wu measure is not significant.

in the analysis as explained earlier, we first test each hypothesis separately. Thus, Panels A - D correspond to each of the four sets of theories of going public and other considerations as divided in the sections of earlier tables. Panel E will test the hypotheses by pooling a core set of variables from each set of theories.

Panel A of Table 4 considers the predictions of the information consideration theories and, overall, the results support these hypotheses. The results show that firms are more likely to go private if they are not listed on the NYSE and have less analyst following, more concentrated ownership, more informed trading, and fewer funds and institutional holdings the stock. These results concur with the implications of the summary statistics. Firms are more likely to go private when they will gain less from the information environment in public markets. However, firms are also more likely to go private if they are older and larger. Further, Psi and R&D expense have no impact on the probability of going private. These results are not consistent with the predictions of the information consideration theories.

In Panel B of Table 4, we examine the importance of access to capital in predicting if a firm will go private. We show that firms that are less constrained, as indicated by paying a dividend or having a high probability of a bond rating are more likely to go private. However, the coefficient on the KZ financial constraint dummy is not significant. Further, firms are more likely to go private if they have low capital expenditures, indicating less need for capital, though the coefficient on this variable is significant in only two of three specifications. These results are consistent with the access to capital hypothesis, however, the lack of significance of other related variables leads to only weak support for this theory.

Panel C of Table 4 considers the importance of liquidity and shows that firms are more likely to go private when they are more illiquid or have less turnover. Both of these results are consistent with the prediction that firms will go private when they do not reap the benefit of a liquid, public stock.

Panel D of Table 4 examines the importance of control considerations, valuation and other firm characteristics. Columns 1 and 3 show that firms are more likely to go private if they have more free cash flow, which is consistent with earlier summary statistics and the results of Lehn and Poulsen (1989). Column 2 investigates if the impact of free cash flow has changed over the sample period. The results show that the impact of agency costs associated with free cash flow had a significant influence on the decision to go private only in

the pre-1990s period. Columns 3 and 4 include merger count and show that firms are more likely to go private if they engage in fewer mergers and acquisitions. This result highlights the importance of being public to be active in the market for corporate control. The results also show that firms are more likely to go private if they have low market to book ratios, low cash, or more tangible assets at the time of the IPO.

Panel E uses several variables from each of the previous panels. Firms are more likely to go private if they incur less benefits from the information environment in the public markets. This is reflected by the sign and significance of the coefficients on NYSE (in some specifications), analyst coverage, herfindahl index (HHI), and institutional ownership. The coefficient on R&D expense is not significant and the sign of the coefficient on size is not consistent with the information considerations hypothesis. For sake of brevity, we do not present results using Psi or age.

Unlike the results in Panel B, the coefficients on the access to capital variables are not significant. Firms are more likely to go private if they have low turnover, indicating the importance of liquidity. However, unlike the results in Panel C, the coefficient on Illiq is not significant. Also, unlike the results in Panel D, firms are not more likely to go private when they engage in fewer mergers and acquisitions. The coefficient on free cashflow is not significant, but that appears to relate to the dominance in this analysis of the later time period (since several variables are not as available in the early sample period). Column 5 of Panel E shows that the coefficient on free cashflow remains significant in the pre-1990s period. Taken together, these results indicate the importance of several of the theories of why firms go public in the going private decision.

Table 4 shows the statistical importance of the information consideration and liquidity theories. In Column 1 of Table 5, we present the economic impact of a one-half standard deviation change in each variable using the coefficients from column 7 of Table 4, Panel E on the probability of going private. If the variable is not included in the column 7 specification, we use the available coefficient in Panel E. We bold all coefficients that are statistically significant in Table 4 Panel E. For comparison, note that, as presented in the last row of Table 5, the predicted probability of going private is 6.04 percent. A one-half standard deviation increase (decrease) in the Herfindahl index (or analyst coverage) increases the probability of going private between almost one percent, approximately one eighth the predicted proba-

bility. Further, a one-half standard deviation decrease in turnover increases the probability of going private by three percent, approximately one half the predicted probability. Other economically meaningful variables include size, cash, and listed on the NYSE. It is important to note that these calculations use the coefficients from Panel E. For several variables, the coefficient in Panel E is smaller and insignificant relative to the results presented in Panels A-D. This may be because we control for other effects or it may be related to the reduced sample size. Thus, in column 2 of Table 5, we recalculate the economic impact for each variable using the coefficient from the first specification in which it was significant in Panels A-D, for those variables that are statistically significant in at least one specification. These results show that a one-half standard deviation change (in the predicted direction) in analyst coverage, Herfindahl index, or institutional ownership results in an approximately two percent increase in the probability of going private. Given the predicted probability for the specifications in Panels A-D range from seven to eleven percent, an increase of two percent is substantial. Other variables have an even greater impact. A one-half standard deviation change (in the predicted direction) in capital expenditures, dividend dummy, turnover or illiq result in an 8.3, 4.1, 6.7, or 2.7 percent increase in the probability of going private, respectively. A one-half standard deviation change (in the predicted direction) in free cashflow, market to book or merger count result in a 2.65, 3.34, 1.07 percent increase in the probability of going private, respectively. Thus, almost all of the statistically significant variables have economically meaningful effects.

Table 5 also details the percentage of the sample that the model correctly predicts. Overall, specification seven of Table 4, Panel E predicts 58.8 percent of the full and 72 percent of the going private sample correctly. These predictions result from using the unconditional probability of going private as the value for determining whether an observation is predicted to go private or remain public. The accuracy of these predictions is impressive, especially given that this analysis is at the time of the IPO and therefore on average 13 years before the going private decision.

5. Examining how changes in firm characteristics impact the probability of going private

The previous analysis shows that we are able to predict which firms will go private on average thirteen years before they make this decision, i.e. at the time of the IPO. This indicates that much of what determines the choice between being private and public is inherent to the firm, at least at the time of the IPO. In this section, we will examine how firm characteristics evolve over the public life of the firm and how these changes impact the probability the firm goes private.

5.1. Summary statistics

In Table 6, we examine several firm characteristics in the first year following the IPO and the first year prior to going private for the private sample. In doing so, we hope to add insight as to how the costs and benefits of being public changed over the firms public life. As before, we divide Table 6 into sections by the theories of why firms go public.

The first section of Table 6, shows that firms are larger, more followed by analysts, have greater institutional holdings and number of funds holding the stock when they go private relative to when they went public. These results indicate that firms are becoming less, rather than more likely to go private based on the predictions of the information consideration hypotheses. Taken in conjunction with the results discussed in Section 3, this indicates that though firms that go private reap fewer benefits from the information environment of being public than comparable firms at the time of the IPO; they change such that relative to themselves they will gain more from being public. However, the firms do have less information asymmetry, as indicated by the significantly higher psi, when they go private; thus increasing the likelihood that they will go private for information considerations.

The second section of Table 6 presents summary statistics related to the firms' need and access to capital. The results show that at the time firms went public, they have lower capital expenditures and were less constrained, as indicated by the lower percentage of firms with high (low) probability of rating (KZ index) and the higher percentage of firms that pay a dividend. Taken together, these results indicate that these firms had less need for the access to capital being a public firm provides when they decide to go private.

The third section of Table 6 presents two measures of liquidity. The statistics show that firms have lower turnover at the time that they go private . These results are consistent with the hypothesis that firms go private when the relative value of being public and having a liquid stock price declines. However, the illiquidity measure does not differ across the two time periods.

The last section of Table 6 presents statistics related to control, valuation, and other factors previously shown to influence the decision to go private. The results show that the private sample firms are involved in a similar number of mergers at the time they go private and at the time they go public. However, the market to book ratio of the firms is significantly and substantially lower at the time they go private. This may indicate fewer growth opportunities or it may indicate a lower relative valuation. Firms also have less free cash flow at the time they go private. This evidence is inconsistent with the agency story supported by Lehn and Poulsen (1989) that firms benefit from going private to reduce potential wasting of free cash flow. However, as seen before, these firms have considerably more free cash flow than comparable firms, so the decrease may not be material. Additionally, the results show that firms are more levered, with less cash and more tangible assets when they go private.

In Table 6, we compare the year following the IPO and the year preceding going private. In Table 7, we show how these characteristics change by presenting mean firm characteristics for the five years following the IPO and five years preceding going private. Because some firms were not public for more than a few years, we only include sample firms in Table 7 that were public at least seven years.⁷ The differences noted in our discussion of Table 6 are apparent here as well. For sake of brevity, we will not discuss each of these but rather present Table 7 as additional information. We also use this table to develop figures for the trends in five firm characteristics: analyst coverage, turnover, merger count, market to book, and free cash flow. Figures 1 A-E present these items respectively for both the going private and the comparable samples. Thus, these figures allow a joint comparison of the time-series and cross-sectional differences in firms as they consider the choice between being private or public. Figure 1A presents analyst coverage and shows that the going private firms have

⁷This analysis is somewhat similar to that in Mikkelsen, Partch and Shah (1997), who examine the operating performance and ownership of IPO firms for 10 years post IPO.

substantially less coverage at the time of the IPO. Analyst coverage increases but remains below the level of comparable firms; thus, the private sample is more likely to go private based on differences at the IPO and despite change in the firm. Figure 1B presents turnover and shows that going private firms have dramatically less turnover at the IPO and though both groups turnover declines, the going private firms' turnover remain much lower than that of the comparable firms. This result highlights the importance of turnover in the going private sample. Figure 1C presents merger count and shows that going private firms engage in fewer mergers and acquisitions initially and throughout the public life of the firm, relative to comparable firms again indicating that the private sample is more likely to go private. Figure 1D presents market to book and indicates that going private firms have a lower market to book ratio at the IPO and the years following the IPO. Figure 1E presents free cash flow and shows that though free cash flow declines for the going private firms, these firms have substantially more cash flow than comparable firms and this free cash flow remains higher throughout their public life.

5.2. *Methods*

To examine the impact of how changes in firm characteristics impact the probability of going public, we conduct two tests. First, we repeat the logit analysis presented in Table 4 for each of the five years following the IPO. This analysis estimates the overall likelihood that a firm goes private. However, we would also like to use the information about the actual timing of the going private decision. Specifically, we are interested in the length of time it takes to go private and the influence of various variables informed by theory on that duration. In our second type of analysis, we therefore investigate the duration data by estimating a hazard model. While there are parametric models of duration that are simple, by imposing structure as much as they do, the models might distort the estimated hazard rate. Since fewer restrictions can result in a better representation, we use the Cox proportional hazard model which is commonly employed by researchers (see for example, Shumway (2001)) to model bankruptcy prediction.

The model to be estimated is

$$h(t, X(t)) = h(t, 0) \exp(\beta' X(t))$$

where $h(t, X(t))$ is the hazard rate at time t for a firm with covariates $X(t)$. It is important to note that the variables that proxy for the theoretical constructs we test, such as information or liquidity vary with time. Second, some of our observations are right censored. That is, at the end of the sample period there are some firms that continue to remain in the public markets, even though there is a positive probability that they may go private. The hazard model is flexible enough to handle both of these complications. The Cox regression estimates the coefficient vector β . The Cox proportional hazard model does not impose any restriction on $h(t, 0)$ the base line hazard. Cox's partial likelihood estimator provides a way of estimating β without estimating $h(t, 0)$. A positive coefficient on variable x in the hazard model implies that a higher x is linked to higher hazard rate and thus a lower expected duration. The hazard ratio which is simply $\exp(\beta)$ tells us how much the hazard (i.e. instantaneous risk) the going private event increases for a unit change in the independent variable.

As described in Section 3.1 and Table 1, Panel C, our comparison sample does not begin until 1970, where as our private sample begins before 1970. In the previous analysis, we used all of the data to maximize our private sample size. However, in the estimating the Hazard model, we limit our private sample to those with an IPO date on or after 1970. We do this to make the number of years a firm may be public comparable across the two samples since the hazard model predicts the time to going private.

5.3. Results

In Table 8, we present results from rolling forward five years and repeating the logit analysis in Panel E of Table 4. The motivation for doing this is to see if the ability to predict going private increases as we get closer to the going private decision. Obviously, as we roll forward, we lose those firms that were only public for a few years, since many of these firms would not have data 5 years after the IPO.

Many of the results are quite similar to those at the time of the IPO from Table 4. In all 5 subsequent years, firms are more likely to go private if they have less turnover and are not listed on the NYSE. These results are consistent with previous findings. Some of the earlier results that were consistent with the hypotheses presented are not as significant in the subsequent years. For instance, analyst following becomes unimportant three years

post-IPO. However, the importance of free cash flow and the dividend dummy strengthens as we get closer to the going private decision.

Possibly more important than the significance of the individual variables in Table 8 is the ability of the model to predict if a firm will go private. The percentage of correct predictions modestly increases as we get closer to the going private decision. In Table 4, we were able to correctly predict 58.8 percent of the total and 72 percent of the private sample accurately. Five years later, we are able to accurately predict 62.5 percent of the total and 81 percent of the private sample accurately. Thus, it appears that the many of the factors that determine if a firm will go private: information considerations, liquidity, free cash flow, and merger activity, are seen at the time of the IPO. Thus, it is more the inherent characteristics of the firm at the IPO than the changes that happen to it when it is public that determine if it will go private.

The previous analysis examines the motives for being public in snapshots of individual years, from the year following the IPO to five years later. This analysis shows that much of what drives a firm to go private is determined at the time of the IPO. However, as we saw in Table 7 and Figure 1A-E, many firm characteristics change considerably over the public life of the firm. The logit analysis does not incorporate the relevance of the path the firm takes and how its firm characteristics change. To investigate how incorporating this information impacts the determinants of the probability to go private and to understand the factors that determine how long a firm remains public before going private, we use a Hazard Model as discussed in the previous methods subsection. In implementing this model, we replicate the analysis presented in Table 4, in that we examine the hypotheses individually and then all together. However, we exclude the age of the firm at the IPO and the indicator for if the firm is listed on the NYSE, since these variables do not change over time. We present these results in Table 9, Panels A through E. The results are quite similar to previous findings and support the importance of information, access to capital, liquidity and control in the likelihood that the firm goes private. There is also mixed evidence for the importance of free cash flow.

Panel A of Table 9 presents the results for the information consideration hypotheses and shows that firms are more likely to go private if they are have lower analyst following, institutional holdings, and number of funds and have higher Psi and PIN. All of these results

support the predictions of the information considerations hypothesis. Given the changes in these variables over time, as presented in Table 6 and Figure 1, their continued significance highlights the importance of the differences in the private and comparison samples at the IPO and indicates that any changes occur similarly in both samples. Additionally, the significance of Psi provides stronger support than that in the logit analysis since Psi is insignificant in Table 4. The fact that this variable is significant in the Hazard model but not in the logit analysis suggests that it is the path of change over the public life of the firm that is important.

Panel B of Table 9 examines variables related to a firms access to capital. Similar to the logit results, firms that pay a dividend or are less likely to have a bond rating are more likely to go private. Further, in two of the three specifications, the coefficient on capital expenditures is marginally significant. Panel C of Table 9 examines the role of liquidity and strongly supports its importance in the decision to go private, given the negative and significant coefficient on turnover. Panel D of Table 9 examines the importance of control and other variables. As before, firms are more likely to go private if they engage in fewer mergers and acquisitions. Further, firms are more likely to go private when they have a lower market to book, more fixed assets or higher, free cash flow in the pre-1990s period.

Panel E of Table 9 examines the relative importance of each hypothesis. The results continue to support the importance of information considerations, access to capital, liquidity and corporate control in the choice between being public or private. As in the previous panels, support for the role of free cash flow is limited to the pre-1990s period.

Figures 2 and 3 illustrate the economic significance of several variables in the Hazard Model analysis. Specifically, in Figure 2, we estimate the hazard function using column 7 of Panel E of Table 9. All covariates are held at their sample mean except those indicated. In Panels A, B, D and E of Figure 2, we illustrate the difference in the hazard function for firms with analyst coverage, turnover, market to book and free cash flow, respectively, at the tenth and ninetieth percentile. The differences in the hazard functions for firms with high and low analyst coverage, turnover, and market to book are substantial and reflect the economic importance of these variables in determining the choice go private versus remaining public. The differences in the hazard function of the high and low free cash flow and merger count are less dramatic and therefore indicates that this variable has little impact on the decision

to go private. These figures can be compared to Figure 3, which illustrates the estimated Hazard function holding all variables at their sample mean.

In summary, the hazard model confirms the relative importance of the firm characteristics found to significantly impact the probability of going private in the logit analysis. This confirmation not only lends additional support to the role of these factors in the choice between being private versus public but further indicates the importance of the starting point for these firm characteristics at the IPO. In other words, for most firm characteristics, it is their relative level at the time of the IPO not the change over the firm's public life that determines if a firm will go private.

6. Conclusion

Why do firms go public? Despite a voluminous literature on IPOs, little empirical attention has been given to this very important research question. The theoretical literature addressing this question is much more extensive and provides many rich predictions as to the costs and benefits of being a public firm. The lack of attention by empirical researchers is likely not a lack of interest but rather a lack of data. Data on firms is not available until a firm goes public and thus we cannot view the sample of firms that chose not to go public nor ex-ante data on those that do. Thus, it is difficult to test the predictions of the theoretical models.

In this paper, we provide tests of the theories of why firms go public, examining the relative importance of the costs and benefits of being a public firm. We do this not by examining the choice to go public (since data is limited), but by examining the firms choice to reverse this decision and go private. Specifically, we examine the public-life-cycle of firms from IPO to going private decision and compare these firms to a set of firms that had IPOs during a similar period but did not go private.

Our findings are two-fold. First, we find support for many of the theories of why firms go public. Particularly, we find strong support for the importance of information and liquidity. We find mixed support for the importance of access to capital and control considerations. We only find support for the role of free cash flow in the pre-1990s period. Second, we find that despite the fact that our sample firms remain public for over thirteen years on average, you can predict that they will go private at the time of the IPO about as well as utilizing

data in the years that follow. This result indicates that it is not as much the path that the firm takes but something inherent to the firm at the time of going public that determines if it will eventually go private.

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Appendix : Description of Variables Used

This appendix describes the list of variables constructed from various databases and used as proxies for testing the various theories of going public in the paper. It also lists the time period of their availability. COMPUSTAT variables are available from 1950-2004.

Variable name	Description	Source
Sales	Real Net Sales in year 2000 million dollars (Data12)	COMPUSTAT
Assets	Real Assets in year 2000 million dollars (Data6)	COMPUSTAT
Market Value	Market Capitalization of equity in year 2000 million dollars (Data24*Data25)	COMPUSTAT
NYSE	one if the firm is listed on the NYSE and zero otherwise (zlist)	COMPUSTAT
PIN	Probability of informed trading (percentage, expressed in decimals)	Easley et.al. (2004) 1983-2001.
Age	Age of firm at the IPO	Loughran and Ritter (2004) Jovanovic and Rousseau (2001)
Analyst Coverage	Number of Analysts following the firm in any fiscal year (set equal to zero if missing)	IBES 1974-2004
ψ	Relative firm specific stock return variation (percentage, expressed in decimals)	Durnev, et al (2003) 1974-2004
HHI	Concentration of Institutional holdings - Herfindahl Hirschman index scaled by 100	CDA SPECTRUM 1983-2004.
Institutional Holdings	Expressed as percentage of total shares outstanding for each firm	CDA SPECTRUM 1983-2004.
Number of Funds	Number of institutions with share holdings for each firm	CDA SPECTRUM 1983-2004.
Capex/Sales	Ratio of capital expenditure to sales (Data128/Data12)	COMPUSTAT
R&D/Sales	Ratio of Research and development expenditure to sales (Data46/Data12) (set to zero if missing)	COMPUSTAT

Appendix: Description of Variables Used (continued)

Variable name	Description	Source
KZ Index Dummy	$-1.001909CFit + 3.139193TLTDit - 39.36780TDIVit - 1.314759CASHit + 0.2826389Qit,$ <p>CF - cash flow to total assets; TLTD - long term debt to total assets. CASH - liquid assets to total assets; TDIV - total dividends to assets Q - market to book ratio. As in Lamont, Polk, and Saa Requejo (2001), firms in the highest KZ index tercile (constrained most) are coded 1 for this variable and the rest as zero.</p> <p>Computed as the fitted value of a logit model of probability of rating as in Lemmon and Zender (2004)</p> <p>Firms in the lowest rating tercile (constrained most) are coded 1 for this variable and the rest as zero.</p> <p>Equals one if a firm paid out dividends during the fiscal year and zero otherwise</p>	COMPUSTAT
Prob of rating Dummy	<p>Computed as the fitted value of a logit model of probability of rating as in Lemmon and Zender (2004)</p> <p>Firms in the lowest rating tercile (constrained most) are coded 1 for this variable and the rest as zero.</p> <p>Equals one if a firm paid out dividends during the fiscal year and zero otherwise</p>	COMPUSTAT
Dividend Dummy	<p>Equals one if a firm paid out dividends during the fiscal year and zero otherwise</p>	COMPUSTAT
Illiq	<p>Illiquidity measure computed as in Amihud(2002) Scaled by 100,000</p>	CRSP 1963-2004.
Turnover	<p>Ratio of daily turnover volume over the past 12 month period divided by number of shares outstanding. Scaled by 1000.</p>	CRSP 1963-2004.
Merger Count	<p>Number of acquisitions in which the company is an acquiror during the year</p>	SDC 1980-2004.
Market to Book	$(Data6-Data60+Data24*Data25)/Data6$	CRSP
Free cash flow/Assets	$(Data13-Data16-Data15-Data21-Data19)/Data6$	COMPUSTAT
Leverage	$Data9/Data6$	COMPUSTAT
Cash to Assets	$Data1/Data6$	COMPUSTAT
Return on Assets	$Data13/Data6$	COMPUSTAT
Net Fixed Assets/Assets	$Data8/Data6$	COMPUSTAT

Table 1, Panel A : Sample Selection

This table presents data on the derivation of the going private sample for the period 1980-2004 from various data sources and used in the paper.

Sample Source / Screen	Number of Firms
Edgar only	1,112
Lehn & Poulsen (LP) only	92
Edgar / LP Common	164
Total Base Sample	1,368
Less: firms not on Compustat in years between IPO & going private	-152
Less: firms with 6 or 49 SIC code	-176
Less: firms where IPO date is after going private date	-17
Total Sample	1,023

Table 1, Panel B : Industry Distribution

This table reports the industry distribution of the going private sample of firms. We use the 12 industry classification of Fama and French (available at Ken French's website <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french>) to classify the firms.

S.No.	Description	Number of Firms
1	Consumer Nondurables	151
2	Consumer Durables	41
3	Manufacturing	185
4	Energy	53
5	Chemicals	20
6	Business Equipment	113
7	Telecom	32
8	Utilities	0
9	Shops	195
10	Healthcare	46
11	Money	0
12	Other	187
	Total	1023

Table 1, Panel C : Time Series Distribution

This table presents the number of firms in the sample that went private in each year in the first column. The second column reports the time series distribution of the same firms based on their IPO year. The third column reports the time series distribution by IPO year of all other firms that did not go private until the end of our sample period and labeled the comparison sample.

Year	Going private sample	IPO year- going private sample	IPO year - comparison sample
Before 1970		217	
1970		17	70
1971		35	86
1972		196	199
1973		12	26
1974		3	3
1975		17	6
1976		13	31
1977		7	19
1978		12	25
1979		9	54
1980	21	24	77
1981	41	28	216
1982	53	15	79
1983	49	52	401
1984	78	29	188
1985	69	21	189
1986	72	43	328
1987	58	26	261
1988	80	9	111
1989	53	11	136
1990	42	11	119
1991	16	21	263
1992	14	13	376
1993	11	27	488
1994	20	24	422
1995	26	23	440
1996	15	30	633
1997	30	39	399
1998	35	13	240
1999	54	19	377
2000	54	6	339
2001	48	1	69
2002	36		
2003	37		
2004	11		
Total	1023	1023	6670

Table 2: Age distribution and comparison of firm age at IPO of going private sample and comparable IPO firms

This table presents the distribution of firm age. The first column presents the age of the firm in public markets (number of years the firm stayed public before becoming private) for the going private sample. Column A presents the distribution of firm age at the time of the IPO for the going private sample. Column B presents the same information for the comparison sample. t-stat (z-stat) reports the results of a test of difference in means (medians) between the (B) and (A) columns is equal to zero. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

Age No. of Years	No.of firms Going Private sample	Age at IPO	
		Going Private sample (A)	Comparison sample (B)
1	19	40	362
2	68	28	371
3	71	24	527
4	70	39	459
5	74	18	395
6	43	22	334
7	42	29	318
8	41	14	264
9	45	21	219
10	45	22	176
11-19	315	106	992
20-29	122	61	362
30-39	25	50	145
40-49	12	31	107
50-59	20	18	83
60-69	8	22	63
70-79	2	15	54
80-89	1	7	51
90-99		5	36
100>=		6	35
Mean	13.0	21.8	13.7
Median	10	12	7

t-stat for difference in means (B)-(A): -9.5***

z-stat for difference in medians (B)-(A) : -5.5***

Table 3: Comparison of firm characteristics at IPO - Going private sample vs. Comparison IPO sample

This table presents firm characteristics for the going private sample (column A) and the comparison sample (column B) at the same point in time (i.e) at the time of the IPO. t-stat (z-stat) reports the results of a test of difference in means (medians) between the two columns is greater than zero. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

Measure	Private Firms <i>t= IPO year</i> (A)	Comparison Sample <i>t= IPO year</i> (B)	Difference T stat (Z-Stat) (B)-(A)
Information Variables			
Sales	246.72	246.82	0.0
	91.41	40.64	-13.9***
Assets	227.85	297.79	0.9
	72.79	51.54	-7.9***
Market Value	303.30	494.29	2.1**
	85.16	99.75	2.4**
NYSE	0.19	0.13	-4.8***
	0.00	0.00	-4.8***
PIN	0.25	0.23	-2.1**
	0.23	0.22	-1.5
Analyst Coverage	0.78	1.10	3.9***
	0.00	0.00	4.4***
ψ	0.75	0.75	0.3
	0.81	0.81	0.2
HHI	2.94	2.48	-3.2***
	1.97	1.58	-4.3***
Institutional Holdings	11.87	13.94	2.4**
	4.26	7.32	1.7*
Number of Funds	10.76	14.64	3.5***
	5.00	7.00	2.1**
R&D/Sales	0.12	1.30	1.7*
	0.00	0.00	15.4***
Access to Capital			
Capex/Sales	0.21	0.80	1.8*
	0.04	0.06	8.0***
KZ Index Dummy	0.45	0.41	-1.4
	0.00	0.00	-1.4
Prob of rating Dummy	0.49	0.66	3.2***
	0.00	1.00	3.2***
Dividend Dummy	0.35	0.15	-14.5***
	0.00	0.00	-14.3***

Table 3 (continued): Comparison of firm characteristics at IPO - Going private sample vs. Comparison IPO sample

Measure	Private Firms <i>t= IPO year +1</i> (A)	Comparison Sample <i>t= IPO year + 1</i> (B)	Difference T stat (Z-Stat) (B)-(A)
Liquidity Variables			
Illiq	0.03	0.01	-8.0***
	0.01	0.00	-12.9***
Turnover	0.05	0.08	4.0***
	0.03	0.05	11.9***
Control and Other			
Merger Count	0.25	0.31	1.3
	0.00	0.00	0.1
Market to Book	2.11	3.25	6.9***
	1.55	2.20	14.1***
Free cash flow/Assets	0.05	-0.03	-8.8***
	0.07	0.05	-9.6***
Leverage	0.16	0.11	-7.7***
	0.12	0.03	-11.4***
Cash to Assets	0.18	0.35	16.9***
	0.10	0.29	15.7***
Return on Assets	0.14	0.03	-10.8***
	0.15	0.10	-12.3***
Net Fixed Assets/Assets	0.31	0.22	-12.2***
	0.26	0.13	-13.5***

Table 4 - Panel A: Logistic regression models explaining the decision to go private using information variables at the time of IPO

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on information variables measured at the time of the IPO year. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. * * *, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Const.	-2.99*** (.12)	-3.53*** (.14)	-3.79*** (.22)	-3.11*** (.13)	-3.19*** (.13)	-2.46*** (.64)	-3.06*** (.23)
Log(Sales)	.21*** (.03)	.28*** (.03)	.24*** (.04)	.22*** (.03)	.26*** (.03)	.05 (.08)	.18*** (.03)
R&D/Sales	-.02 (.03)	-.008 (.02)	-.004 (.02)	-.01 (.02)	-.006 (.02)	-.15 (.33)	-.02 (.03)
NYSE	-.43*** (.15)	-.09 (.13)	-.42** (.19)	-.49*** (.16)	-.37** (.16)	-.66** (.26)	-.49*** (.16)
Analyst Coverage	-.16*** (.03)						
Age		.005** (.002)					
HHI			.12*** (.02)				
Inst. Ownership				-.01*** (.003)			
No. funds					-.02*** (.003)		
PIN						2.85* (1.64)	
ψ							.08 (.23)
Obs.	6383	5581	3917	6215	6215	687	5274
Pseudo R.Sq.	.02	.04	.02	.02	.03	.02	.01

Table 4 - Panel B: Logistic regression models explaining the decision to go private using access to capital variables at the time of IPO

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on access to capital variables measured at the time of the IPO year. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. * * *, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)
Const.	-2.20*** (.05)	-2.19*** (.06)	-2.17*** (.17)
Capital Expenditure/Sales	-.10** (.04)	-.07* (.04)	-.08 (.10)
Dividend Dummy	1.08*** (.08)		
KZ Index Dummy		.13 (.09)	
Prob of Rating Dummy			-.72*** (.23)
Obs.	7054	5239	1205
Pseudo R.Sq.	.04	.003	.02

Table 4 - Panel C: Logistic regression models explaining the decision to go private using liquidity variables at the time of IPO

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on liquidity variables measured at the time of the IPO year. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. * * *, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)
Const.	-2.09*** (.08)	-2.30*** (.05)	-2.34*** (.10)
Turnover	-6.54*** (1.10)		-4.21*** (1.11)
Illiq		6.36*** (1.08)	3.60** (1.77)
Obs.	4991	5849	4366
Pseudo R.Sq.	.02	.01	.01

Table 4 - Panel D: Logistic regression models explaining the decision to go private using control and other variables at the time of IPO

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on control and other variables measured at the time of the IPO year. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. * * *, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)
Const.	-1.43*** (.10)	-1.50*** (.10)	-2.25*** (.13)	-2.34*** (.14)
Market to Book	-.08*** (.02)	-.08*** (.02)	-.04 (.02)	-.05* (.02)
Free Cash Flow/Assets	1.12*** (.26)		.70** (.28)	
Free Cash Flow post-1990s		.18 (.25)		
Free Cash Flow pre-1990s		3.49*** (.47)		
Leverage	-.19 (.23)	-.06 (.23)	.25 (.28)	.21 (.27)
Cash/Assets	-1.93*** (.22)	-1.94*** (.22)	-1.10*** (.25)	-1.05*** (.25)
Net Fixed Assets/Assets	.62*** (.18)	.54*** (.18)	.67*** (.24)	.71*** (.23)
Merger Count			-.16** (.07)	-.12* (.06)
Return on Assets				.78*** (.26)
Obs.	6504	6504	5914	6377
Pseudo R.Sq.	.07	.08	.04	.04

Table 4 - Panel E: Logistic regression models explaining the decision to go private using all variables at the time of IPO

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on all variables for which data is available measured at the time of the IPO year. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Const.	-2.34*** (.24)	-2.50*** (.25)	-2.61*** (.41)	-2.45*** (.25)	-2.50*** (.25)	-2.89*** (.25)	-2.46*** (.26)
Log(Sales)	.11** (.04)	.12** (.05)	.09 (.07)	.11** (.05)	.12** (.05)	.13*** (.05)	.12** (.05)
NYSE	-.67*** (.19)	-.57*** (.19)	-.52** (.23)	-.59*** (.20)	-.54*** (.20)	-.55*** (.18)	-.56*** (.20)
Analyst Coverage		-.09** (.04)			-.09** (.04)	-.09*** (.04)	-.07* (.04)
HHI			.06* (.03)				
Inst. Ownership				-.008** (.004)			
R&D/Sales	.0001 (.009)	.0001 (.008)	.006 (.01)	-.0002 (.009)	-.0003 (.009)	.005 (.008)	-.0003 (.009)
Capital Expenditure/Sales	-.01 (.03)	-.007 (.03)	-.09 (.12)	-.005 (.02)	-.007 (.03)	-.07 (.08)	-.005 (.02)
Dividend Dummy	.12 (.14)	.06 (.15)	.05 (.19)	.06 (.16)	.05 (.15)	.15 (.14)	.08 (.16)
Illiq						1.32 (.84)	
Turnover	-5.24*** (1.20)	-3.78*** (1.15)	-2.76** (1.28)	-3.37*** (1.15)	-3.66*** (1.14)		-3.50*** (1.14)
Market to Book	-.03 (.03)	-.01 (.02)	-.03 (.03)	-.01 (.02)	-.01 (.02)	-.02 (.02)	-.01 (.02)
Free Cash Flow/Assets	.54 (.34)	.53 (.35)	.71 (.48)	.56 (.35)		.43 (.32)	.49 (.35)
Free Cash Flow * post-1990s					.28 (.36)		
Free Cash Flow * pre-1990s					1.42** (.69)		
Leverage	-.10 (.32)	-.03 (.33)	.04 (.40)	-.05 (.34)	-.03 (.33)	.13 (.31)	-.03 (.34)
Cash/Assets	-1.01*** (.33)	-.94*** (.33)	-.82* (.42)	-1.02*** (.33)	-.96*** (.33)	-.71** (.31)	-1.03*** (.34)
Net Fixed Assets/Assets	.78*** (.27)	.85*** (.28)	.55 (.37)	.81*** (.28)	.84*** (.28)	.98*** (.28)	.78*** (.29)
Merger Count							-.10 (.07)
Obs.	4419	4350	2811	4314	4350	5061	4314
Pseudo R.Sq.	.06	.04	.04	.05	.06	.04	.05

Table 5 - Economic Significance of forces that explaining the decision to go private using variables at the time of IPO

This table reports the increase in probability of going private for a 1/2 standard deviation around the mean for each explanatory variable, holding all other variables at their mean. For dummy variables, the change is from 0 to 1. All the results in the first column are based on specification 7 of table 4, panel E. The table also reports prediction accuracy statistics for this specification in the first column. Statistically significant effects at 10% level or higher are in bold. Economic significance of variables that are not included in specification 7 are based on the specification in table 4 panel E in which they appear. For example the HHI effect is computed using specification 3. Since the number of firms for which all variables are available is limited in specification 7 of table 4, Panel E, the second column reports the statistical and economic significance of the same variables using specifications in panel 4A through 4D in which each group of variables (information, access to capital, liquidity and control) are examined separately. Since the second column numbers are based on multiple specifications, we do not report prediction accuracy information.

Variable	Change in Probability (%)	Change in Probability (%)
Log(Sales)	1.38	2.95
NYSE	-1.05	-1.02
Analyst Coverage	-0.81	-2.15
HHI	0.83	1.92
Inst. Ownership	-0.84	-1.61
Capital Expenditure/Sales	-0.25	-8.29
R&D/Sales	-0.04	
Dividend Dummy	0.16	4.06
Turnover	-3.04	-3.04
Illiq	0.33	2.70
Market to Book	-0.28	-3.34
Free Cash Flow/Assets	0.77	2.65
Free Cash Flow/Assets Pre 1990s	0.93	4.16
Leverage	-0.03	
Cash/Assets	-1.71	-5.03
Net Fixed Assets/Assets	0.95	1.22
Merger Count	-0.68	-1.07
% Correct	58.83	
Pr (Predict Private Private)	71.96	
Pr (Predict Not Private Not Private)	57.78	
E (Private X)%	6.04	

Table 6: Going Private Sample - comparison of firm characteristics at IPO and going private years

This table presents firm characteristics for the going private sample at two points in time: At the time of the IPO (column A) and at the time of going private (column B). t-stat (z-stat) reports the results of a test of difference in means (medians) between the two columns is equal to zero. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

Measure	Private Firms <i>t= IPO year</i> (A)	Private Firms <i>t= Private year</i> (B)	Difference T stat (Z-Stat) (B)-(A)
Information Variables			
Sales	246.72	588.20	9.96***
	91.41	149.79	15.06***
Assets	227.85	554.00	8.57***
	72.79	114.92	14.65***
Market Value	303.30	395.37	0.42
	85.16	60.85	-0.30
PIN	0.25	0.24	-0.35
	0.23	0.23	-0.90
Analyst Coverage	0.78	2.24	9.96***
	0.00	1.00	9.88***
ψ	0.75	0.84	8.34***
	0.81	0.88	8.12***
HHI	2.94	3.47	-0.34
	1.97	2.53	-0.05
Institutional Holdings	11.87	18.01	8.88***
	4.26	11.09	8.72***
Number of Funds	10.76	19.53	7.65***
	5.00	9.00	9.01***
R&D/Sales	0.12	0.11	-0.23
	0.00	0.00	2.09**
Access to Capital			
Capex/Sales	0.21	0.08	-3.39***
	0.04	0.03	-7.28***
KZ Index Dummy	0.45	0.31	-4.58***
	0.00	0.00	-4.49***
Prob of Rating Dummy	0.49	0.20	-2.41**
	0.00	0.00	-2.33**
Dividend Dummy	0.35	0.38	-2.93***
	0.00	0.00	-2.18**

Table 6 (continued): Going Private Sample - comparison of firm characteristics at IPO and going private years

Measure	Private Firms <i>t= IPO year</i> (A)	Private Firms <i>t= Private year</i> (B)	Difference T stat (Z-Stat) (B)-(A)
Liquidity Variables			
Illiq	0.03	0.04	0.85
	0.01	0.01	0.70
Turnover	0.05	0.03	-3.03***
	0.03	0.01	-5.94***
Control and Other			
Merger Count	0.25	0.23	0.90
	0.00	0.00	0.86
Market to Book	2.11	1.28	-11.36***
	1.55	1.08	-14.34***
Free cash flow/Assets	0.05	0.04	-2.22***
	0.07	0.06	-4.84***
Leverage	0.16	0.20	5.86***
	0.12	0.17	4.96***
Cash to Assets	0.18	0.13	-7.42***
	0.10	0.07	-8.03***
Return on Assets	0.14	0.10	-5.59***
	0.15	0.12	-7.81***
Net Fixed Assets/Assets	0.31	0.33	3.07***
	0.26	0.27	3.26***

Table 7: Summary Statistics in event time - going private sample

This table presents the evolution of firm characteristics in event time for the going private sample. We present the cross sectional means of all variables in event time for firms for which data is available for 5 years starting from the IPO year. These are denoted as columns labeled IPO to IPO+4. We also present the information for 5 years leading up to the going private year. These are denoted in columns labeled Private-4 to Private.

	IPO	IPO + 1	IPO + 2	IPO + 3	IPO + 4	Private-4	Private-3	Private-2	Private-1	Private
Information										
Sales	264.72	280.59	287.05	301.05	328.87	703.23	706.53	716.83	728.53	732.73
Assets	191.80	209.97	219.64	234.40	249.37	557.45	565.58	582.17	620.93	627.32
Market Value	188.45	182.34	174.44	191.25	199.77	345.60	394.52	377.75	384.33	450.14
NYSE	0.23	0.21	0.20	0.20	0.20	0.22	0.22	0.22	0.22	0.22
PIN	0.26	0.25	0.25	0.22	0.23	0.24	0.25	0.24	0.24	0.24
Analyst Coverage	0.43	0.84	0.82	0.93	1.05	1.90	2.12	2.27	2.34	2.33
ψ	0.75	0.82	0.82	0.81	0.81	0.80	0.81	0.82	0.82	0.85
HHI	3.41	3.65	3.70	3.50	3.70	3.85	3.68	3.70	3.52	3.63
Institutional Holdings	6.99	9.12	10.71	12.39	13.29	13.65	14.40	15.00	15.90	16.78
Number of Funds	6.77	7.87	9.22	11.23	13.52	17.00	18.68	18.81	20.26	20.71
R&D/Sales	0.14	0.14	0.11	0.09	0.11	0.10	0.09	0.09	0.08	0.07
Access to Capital										
Capex/Sales	0.11	0.34	0.16	0.31	0.21	0.22	0.21	0.21	0.19	0.18
KZ Index Dummy	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Prob of rating Dummy	0.51	0.49	0.41	0.39	0.37	0.32	0.32	0.30	0.31	0.29
Dividend Dummy	0.33	0.52	0.46	0.41	0.38	0.25	0.22	0.21	0.19	0.16
Liquidity										
Illiq	0.45	0.46	0.45	0.47	0.50	0.54	0.53	0.53	0.52	0.49
Turnover	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.07	0.04
Control and Others										
Merger Count	0.03	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Market to Book	1.91	1.56	1.39	1.38	1.27	1.18	1.15	1.12	1.11	1.15
Free cash flow/Assets	0.07	0.07	0.06	0.06	0.07	0.06	0.07	0.06	0.06	0.05
Leverage	0.16	0.18	0.19	0.20	0.20	0.21	0.21	0.21	0.21	0.20
Cash to Assets	0.14	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.11
Return on Assets	0.16	0.15	0.13	0.14	0.14	0.13	0.13	0.13	0.12	0.12
Net Fixed Assets/Assets	0.32	0.34	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.35

Table 8 - Logistic regression models explaining the decision to go private using all variables at the time of IPO+1 to IPO+5 years

This table reports the results of logistic regressions that predict the propensity of a firm to go private based on all variables for which data is available measured at the time IPO+1 to IPO+5 years. The dependent variable is one if a firm goes private and zero otherwise. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5
Const.	-1.88*** (.25)	-2.16*** (.26)	-2.10*** (.28)	-1.55*** (.32)	-1.64*** (.35)
Log(Sales)	.09* (.05)	.06 (.05)	.08 (.05)	-.0004 (.06)	-.02 (.06)
R&D/Sales	.004 (.007)	.001 (.004)	-.002 (.02)	-.01 (.06)	-4.03** (1.79)
NYSE	-.44** (.19)	-.40** (.20)	-.68*** (.22)	-.65*** (.24)	-.79*** (.26)
Analyst Coverage	-.05* (.03)	-.05* (.02)	-.02 (.02)	.001 (.03)	-.002 (.03)
Capital Expenditure/Sales	-.03 (.06)	-.006 (.02)	-.007 (.04)	.0006 (.04)	.35** (.15)
Dividend Dummy	.35** (.17)	.37** (.18)	.42** (.19)	.72*** (.19)	.72*** (.20)
Turnover	-10.50*** (1.70)	-6.67*** (1.60)	-16.75*** (2.49)	-19.44*** (3.01)	-14.71*** (3.03)
Market to Book	-.18*** (.05)	-.10** (.05)	-.15** (.07)	-.39*** (.10)	-.30*** (.11)
Free Cash Flow/Assets	1.25*** (.34)	1.61*** (.37)	1.93*** (.46)	2.74*** (.58)	1.93*** (.63)
Leverage	.13 (.31)	.06 (.31)	.14 (.33)	.32 (.37)	-.19 (.42)
Cash/Assets	-.02 (.33)	-.22 (.37)	.68 (.43)	1.01** (.51)	.83 (.63)
Net Fixed Assets/Assets	.25 (.27)	.50* (.27)	.69** (.29)	.44 (.32)	.70** (.34)
Merger Count	-.03 (.04)	-.07 (.06)	-.08 (.08)	-.15 (.12)	-.16 (.13)
Obs.	4691	4240	3626	3153	2746
Pseudo R.Sq.	.07	.06	.1	.13	.13
% Correct	57.66%	56.72%	59.60%	63.15%	62.49%
Pr (Predict Private Private)	75.21%	75.90%	78.25%	78.57%	81.19%
Pr (Predict Not Private Not Private)	56.19%	55.09%	58.01%	61.89%	61.01%

Table 9 - Panel A: Cox Proportional hazard models for time to go private using information variables

This table reports the results of Cox proportional hazard models with time varying covariates based on information variables. The dependent variable is time to private which measures the time between IPO of the firm and the time they go private. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Log(Sales)	.17*** (.02)	.16*** (.03)	.09*** (.02)	.14*** (.02)	.02 (.05)	.06*** (.02)
R&D/Sales	-.01 (.02)	-.007 (.02)	-.04 (.03)	-.02 (.03)	-5.44** (2.30)	-.02 (.03)
Analyst Coverage	-.12*** (.01)					
HHI		.14*** (.01)				
Inst. Ownership			-.01*** (.002)			
No. funds				-.01*** (.001)		
PIN					3.48*** (.97)	
ψ						.89*** (.27)
Obs.	53398	36934	49850	49850	8755	43294

Table 9 - Panel B: Cox Proportional hazard models for time to go private using access to capital variables

This table reports the results of Cox proportional hazard models with time varying covariates based on access to capital variables. The dependent variable is time to private which measures the time between IPO of the firm and the time they go private. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)
Capital Expenditure/Sales	-.21* (.13)	-.20 (.13)	-.25* (.15)
Dividend Dummy	.46*** (.08)		
KZ Index Dummy		.07 (.08)	
Prob of Rating Dummy			-.55*** (.09)
Obs.	56671	53768	37524

Table 9 - Panel C: Cox Proportional hazard models for time to go private using liquidity variables

This table reports the results of Cox proportional hazard models with time varying covariates based on liquidity variables. The dependent variable is time to private which measures the time between IPO of the firm and the time they go private. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)
Turnover	-13.67*** (1.21)		-19.55*** (1.54)
Illiq		.07* (.04)	.02 (.06)
Obs.	40984	46133	35775

Table 9 - Panel D: Cox Proportional hazard models for time to go private using control and other variables

This table reports the results of Cox proportional hazard models with time varying covariates based on control and other variables. The dependent variable is time to private which measures the time between IPO of the firm and the time they go private. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)
Market to Book	-.57*** (.06)	-.63*** (.06)	-.63*** (.06)	-.59*** (.06)
Free Cash Flow/Assets	.43* (.24)	.63** (.25)		
Free Cash Flow post-1990s			.14 (.23)	
Free Cash Flow pre-1990s			3.29*** (.53)	
Leverage	.21 (.20)	.19 (.20)	.23 (.20)	.14 (.19)
Cash/Assets	.08 (.24)	-.06 (.24)	-.12 (.24)	-.06 (.24)
Net Fixed Assets/Assets	.63*** (.17)	.59*** (.17)	.54*** (.17)	.54*** (.17)
Merger Count		-.15*** (.06)	-.13** (.06)	-.17*** (.06)
Return on Assets				1.19*** (.24)
Obs.	50256	46203	46203	50117

Table 9 - Panel E: Cox Proportional hazard models for time to go private using all variables

This table reports the results of Cox proportional hazard models with time varying covariates based on all variables. The dependent variable is time to private which measures the time between IPO of the firm and the time they go private. The tables report the coefficients and in parentheses, the standard errors. Variables are defined in appendix A. ***, **, * indicates significance at 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(Sales)	.04 (.03)	.10*** (.03)	.09*** (.03)	.10*** (.03)	-.03 (.04)	.08** (.03)	.10*** (.03)
R&D/Sales	.006 (.008)	.005 (.006)	.006 (.006)	.006 (.006)	.002 (.01)	.004 (.006)	.005 (.006)
Analyst Coverage		-.05*** (.01)			-.05*** (.02)	-.09*** (.01)	-.06*** (.01)
HHI			.08*** (.02)				
Inst. Ownership				-.01*** (.002)			
Capital Expenditure/Sales	-.19 (.14)	-.14 (.13)	-.16 (.15)	-.14 (.14)	-.19 (.16)	-.19 (.17)	-.14 (.13)
Dividend Dummy	.21** (.09)	.22** (.09)	.32*** (.10)	.32*** (.09)	.24** (.09)	.34*** (.10)	.35*** (.09)
p-ratingconst					-.73*** (.12)		
Illiq						.05 (.05)	
Turnover	-10.43*** (1.38)	-9.25*** (1.40)	-10.19*** (1.49)	-10.27*** (1.44)	-9.37*** (1.49)		-10.79*** (1.48)
Market to Book	-.46*** (.06)	-.41*** (.06)	-.41*** (.06)	-.47*** (.06)	-.42*** (.06)	-.57*** (.07)	-.45*** (.06)
Free Cash Flow/Assets	.46* (.27)	.47* (.26)	.47* (.29)	.74*** (.27)		.48* (.28)	.64** (.27)
Free Cash Flow post-1990s					-.03 (.27)		
Free Cash Flow pre-1990s					2.73*** (.66)		
Leverage	.26 (.21)	.21 (.21)	.20 (.22)	.19 (.21)	-.16 (.22)	.16 (.22)	.17 (.21)
Cash/Assets	.78*** (.26)	.86*** (.26)	.67** (.29)	.83*** (.26)	.71** (.28)	.27 (.28)	.81*** (.27)
Net Fixed Assets/Assets	.54*** (.18)	.60*** (.18)	.36* (.20)	.47** (.18)	.49** (.19)	.73*** (.20)	.53*** (.19)
Merger Count							-.12** (.06)
Obs.	37271	37056	28990	35141	34081	41175	35088

Figure 1: Trends in key variables in event time

This figure displays the evolution of firm characteristics in event time for the going private sample and the comparison sample. We present the cross-sectional means of several variables for firms for 5 years from the IPO year (for both samples) and 5 years prior to going private (for the going private sample). The data correspond to that presented in Table 7.

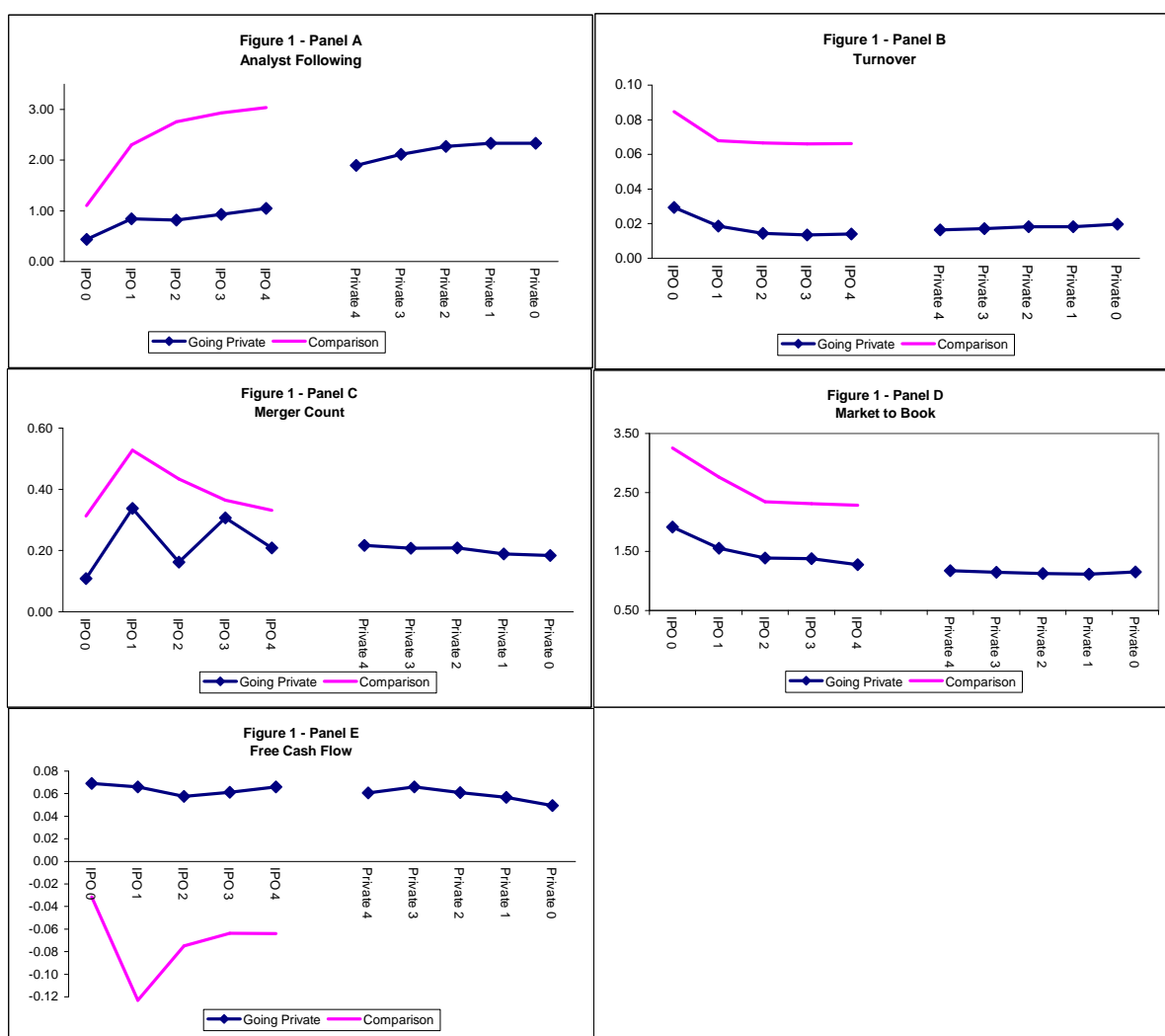


Figure 2: Economic significance of covariates

This figure displays the effect of five covariates from figure 1 on the hazard of going private based on the hazard function estimated using the Cox model for table 9, specification 7. The hazard is evaluated at the 25th and 75th percentile for each specified variable in Panels A, B, D and E and at the 1st and 99th percentile of the specified variable in Panel C. In each Panel the hazard is evaluated at the mean values of the other explanatory variables. The analysis time is in years from the IPO date.

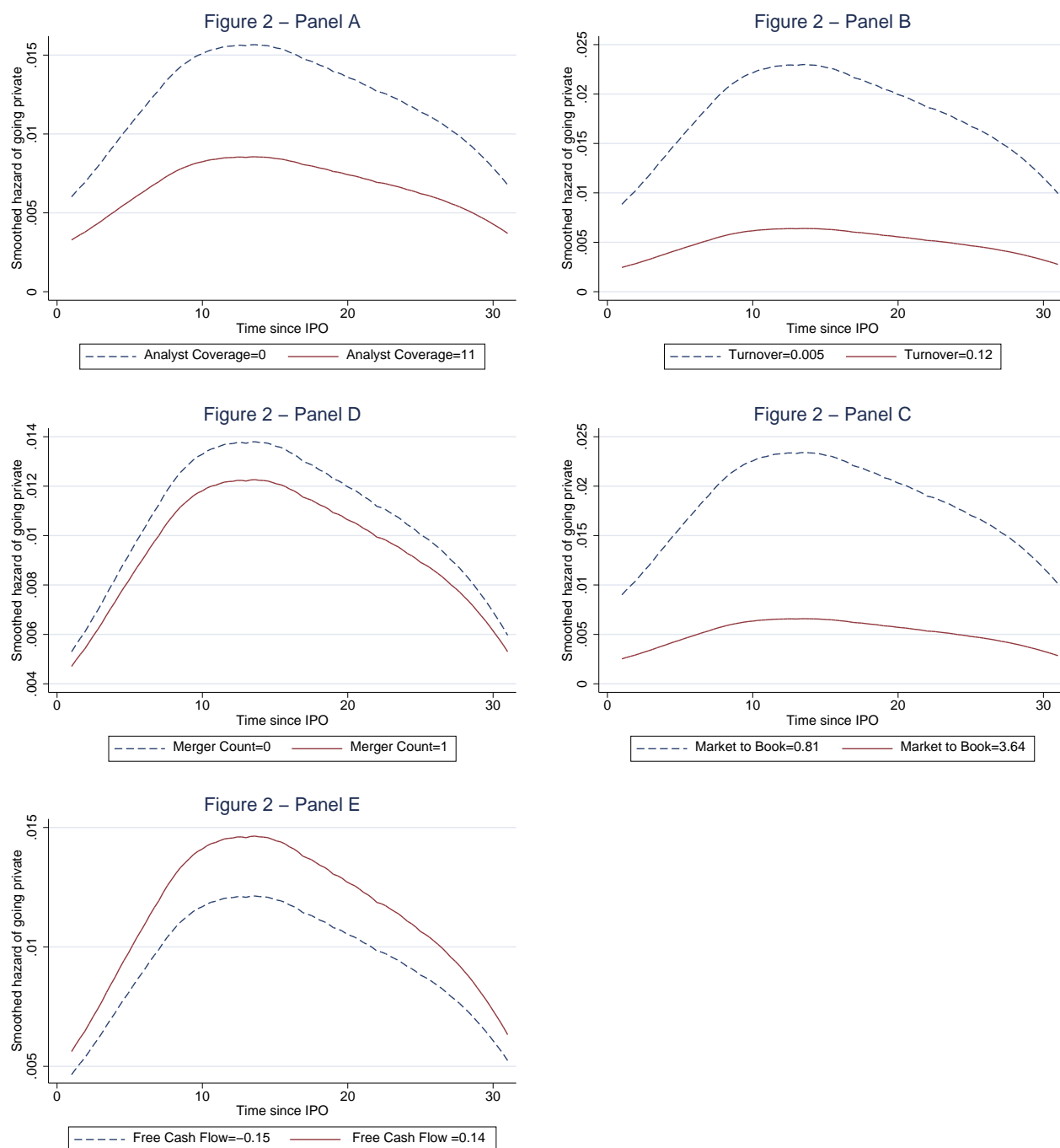


Figure 3: Estimated Hazard Function

This figure displays the Cox model hazard function for the table 9, specification 7. The hazard is evaluated at the mean values of the explanatory variables. The analysis time is in years from the IPO date.

