



Contents lists available at ScienceDirect

J. Finan. Intermediation

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## Private matters

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### ARTICLE INFO

#### Article history:

Received 26 August 2005

Available online 16 December 2008

#### JEL classification:

G24

G32

G34

#### Keywords:

Private firms

Initial public offering

Private benefits of control

Family firms

Inside ownership

Board composition

Private equity

Venture capital

### ABSTRACT

Why do private firms stay private? Empirical evidence on this issue is sparse, as most private firms in the U.S. do not report their financial results. We investigate why private status matters by taking advantage of a unique dataset of large, leveraged private firms with SEC filings. Unlike a number of other studies, we find that neither the existence of growth opportunities, nor the desire of firm founders to diversify, is a principal determinant of the decision whether or not to retain private status. Rather, the existence of private benefits of control appears to serve as the most significant incentive to stay private. Family-controlled firms have significantly lower probabilities of filing for an IPO, while a board structure that grants management relatively more autonomy lowers the probability of an IPO filing as well. Cross-sectional analysis of profitability and ex post performance suggests that while private benefits of control may encourage firms to stay private, they do not have detrimental effects on firm efficiency. In contrast, firms controlled by private equity specialists appear to place a low value on control benefits and are likely to go public as a means of cashing out.

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Researchers such as Loughran et al. (1994) and LaPorta et al. (1997) point out that private firms in the U.S. are far more likely to go public than their counterparts in other countries. Along with much lower inside ownership stakes, this may be a by-product of superior legal protections afforded to minority investors in U.S. capital markets (LaPorta et al., 1999; Bebchuk, 1999; Lerner and Schoar,

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2005). Given such a favorable legal backdrop and the obvious liquidity and diversification benefits for the owners, a common perception is that successful private firms in the U.S. inevitably go public.<sup>1</sup>

Ironically, the boom in the private equity market in recent years has done little to dispel the perception of a firm life-cycle that culminates in public ownership. While many public firms are taken private by private equity firms in leveraged transactions, many more are provided early-stage financing with the eventual objective of taking those firms public. Funds raised by private equity firms in Europe and United States alone exceeded \$250 billion in 2005 compared to less than \$50 billion 10 years earlier (Bank for International Settlements, 2007), and by some estimates new transactions had reached \$500 billion by 2006 (Acharya et al., 2007).

Despite the increased availability of financing to facilitate changes in ownership structure, some private firms, however, may wish to remain private. Owners may choose to maintain a highly leveraged corporation to provide the right incentives for management (Stulz, 1988; Jensen, 1986).<sup>2</sup> Beyond the advantages of leverage, the private benefits of control may cause management- or family-owned firms to avoid the public markets. These private benefits of control can either be exogenous (e.g., Pagano and Roell, 1998) or they can be endogenous and take the form of greater managerial autonomy (as in Boot et al., 2006, 2008). Indeed, one piece of evidence against the so-called normal progression of ownership in the U.S. is found in the Directory of Corporate Affiliates (1997), which states that more than half of the ultimate parent firms in its census of large firms in the U.S. are private. Further, these private firms include a large number of extremely large household names, many of which are analyzed below, which clearly have long had the opportunity to go public if they wish, such as Cargill, Mars, and Muzak.

In this paper, we explore the reasons why large firms might stay private, even in a financial system that is as supportive of public equity issuance as the U.S. To do so, we take advantage of the fact that a large number of private firms are required to file reports with the Securities and Exchange Commission (SEC), mainly because they have issued public bonds or because they have a large number of shareholders. We compare the financial conditions, ownership structures and other characteristics of these companies to those of firms with publicly traded equity to determine the major distinguishing features of private firms: Is control of the firm the main consideration? Do owners appear to be extremely undiversified? In addition, we split the sample of private firms into those that attempt an IPO and those that choose to remain private, so that we can further examine the role of private benefits of control (including founder–family relationships and board structure) and as well as the value of diversification and other factors.

Except for studies of leveraged buyouts of formerly public firms (e.g., Kaplan, 1989), we are the first to analyze large private firms in the U.S. Recently, using data from the Census of Manufacturers, Chemmanur et al. (2005) analyze the impact of product market considerations on the decision to go public for a large sample of private American firms, but their data limit the investigation of control rights and diversification. Bharath and Dittmar (forthcoming) have tested reverse predictions of the determinants of going public by examining the decisions of public firms to revert to private status.

We do not find the relative scarcity or abundance of growth opportunities is a major determinant for firms remaining private or going public in the U.S. In contrast to some other studies (Poulsen and Stegemoller, 2008; Kim and Weisbach, 2008), the existence of growth opportunities as proxied by sales and capital expenditures growth, and R&D, do not relate in a consistent fashion with the decision to go public; neither do we find evidence among the subsample of our firms that do go public that the IPO triggered a significant change in these variables. Contrary to the findings of Bodnaruk et al. (2008), we find scant evidence that management's desire for diversification is important for our sample of firms in the decision to stay private or go public, as many of the firms already have very large numbers of shareholders.

<sup>1</sup> Benninga et al. (2005) argue that some firms may wait for the optimal time to sell their stakes. See also Pastor and Veronesi (2005) and Lerner (1994). For a review of the literature on IPOs see Ritter and Welch (2002).

<sup>2</sup> This assumes that the optimal capital structure for a private firm has more leverage than that for a public firm, which is an observed empirical regularity. The theoretical justification may either be that a private firm needs stronger oversight of managers, so the disciplining role of debt as a hard claim is more valuable (e.g., Hart and Moore, 1995) or that private firms face greater costs or raising equity due to higher liquidity costs than public firms.

Rather, maintaining benefits of private control is the most significant factor behind the surprising number of large private firms in the U.S. Proxies for control rights, such as family management and board structure, are significant variables in our logit estimations. Family firms are more likely to stay private, as are firms whose boards grant management more autonomy. A related finding is that firms controlled by venture capitalists (VCs) and non-venture/buyout forms of private equity (PE) are less likely to stay private. Not only do these firms value the IPO as an important exit strategy for outside equity, but they tend to have board structures whereby management is less autonomous, consistent with the view that going public is less costly for these firms in terms of organizational restructuring.

While control rights affect the decision to stay private, we find little evidence that these firms' governance mechanisms are associated with greater inefficiency. Rather, family-run firms show no less profitability, and tend to be less likely to fail than other firms, which is consistent with the recent empirical literature emphasizing the positive performance of family firms (Anderson and Reeb, 2003a). Neither are board structures that grant management more authority associated with poor performance, which is consistent with the view that companies can frequently benefit from managerial autonomy when management's views differ from those of other shareholders (Boot et al., 2006).

Because our sample consists of companies that have made SEC filings for one reason or another, the private firms we examine in this paper are larger and more transparent than is standard in much of the going public literature. Our sample only includes a handful of startups; annual sales figures for our firms average nearly \$250 million. To be sure, the unusual selection procedure implies that the results we report do not necessarily generalize to the many smaller, younger, and more informationally opaque firms that may wish to go public. On the other hand, the selection procedure ensures that the firms in our sample that stayed private did so as an act of volition, and not because of a simple inability to overcome the scale and information requirements for listing.

The organization of the paper is as follows: in Section 2 we review the literature and present a number of explanations for why our sample firms may prefer to stay private; Section 3 describes the data and presents the results of our empirical investigation. Section 4 concludes.

## 2. The pros and cons of being private

In this section we consider a number of explanations for why our sample firms may prefer to remain private. The theoretical literature on the decision to go public addresses a wide variety of possible explanations for remaining private, but these include a number of theories that are more relevant for small, start-up firms, of the sort that do not dominate our sample.<sup>3</sup> While we do control for size and age, two variables commonly used in this literature, for the most part we do not address the theories and factors that are likely to relate to the information problems of small, less-established firms.<sup>4</sup> In this study we focus on four factors identified in the literature that are likely to explain our sample's choice to be private: (1) the benefits of diversification; (2) the private benefits of control, (3) growth opportunities; and (4) the value of a public stock price. Next we discuss the theories related to these four factors and relevant previous empirical research.

<sup>3</sup> In particular, arguments put forth by Maksimovic and Pichler (2001), Benveniste et al. (2002) and Stoughton et al. (2001) consider the role of the IPO process from the perspective of a start-up firm. Likewise, a number of empirical papers focus on issues, which if sufficiently extreme, might motivate a small firm to remain private but are less likely to apply to the firms we study (e.g., Beatty and Ritter (1986) show underpricing is higher for small firms; Megginson and Weiss (1991) and Hamao et al. (2000) show that third-party verification lowers underpricing; Ritter (1987) shows that the fixed costs of an IPO might be too high for smaller firms; and Helwege and Liang (2004) consider whether hot and cold IPO markets are related to technological innovation).

<sup>4</sup> Some theories, such as those of Yosha (1995) and Maksimovic and Pichler (2001), emphasize the fact that private firms are not required to provide information that might help their competitors. But as our sample firms were all required to file with the SEC despite their private status, one could scarcely argue that they remained private for the sake of secrecy. Another advantage of being private mentioned by DeAngelo et al. (1984) is that one can avoid the direct recurring costs of being a public firm, such as filing 10-Ks (estimated at \$30,000–\$100,000 annually for firms with market capitalizations below \$3 million). Our sample mostly consists of firms large enough that these direct costs are inconsequential.

### 2.1. Diversification and expanding the shareholder base

Many researchers have focused on the fact that an IPO provides the benefit of diversification to owners (e.g., Pagano, 1993; Chemmanur and Fulghieri, 1999). Rock (1984) views diversification as sufficiently important that entrepreneurs would willingly allow IPO underpricing as a cost to obtaining it. In a recent study of IPOs in Sweden in which shareholder portfolio composition was observable, Bodnaruk et al. (2008) find that the existing degree of diversification on the part of shareholders is negatively related to underpricing and the likelihood of going public. Other papers focus on the benefit that a dispersed shareholder base has for later stage fund-raising.<sup>5</sup>

### 2.2. Private benefits of control

A number of studies of the decision to be a private or public company focus on the benefits of control that accrue to owner-managers, with the view that firms characterized by high private benefits of control should less often choose to be public (e.g., Pagano et al., 1998; Fischer, 2000; Bharath and Dittmar, forthcoming; Gopalan and Gormley, 2008). Of course, an entrepreneur can still enjoy substantial control rights despite having sold a substantial portion of the shares.<sup>6</sup> Many of the empirical studies examining the importance of control rights use databases comprised solely of publicly traded firms (see Barclay and Holderness, 1989; Anderson and Reeb, 2003a, 2003b; Anderson et al., 2003; Smart and Zutter, 2003; Zingales, 1994).

The literature often distinguishes firms in which the controlling managerial stake is family-related from other firms. Because firms owned by the founder and/or family members are viewed as likely to value control more than others, a number of papers use family ownership variables to test the importance of control rights (e.g., Klasa, 2007; Boehmer and Ljungqvist, 2004). The characteristics of the board of directors, including board size and the existence of audit and compensation committees, are also likely to be important. A board structure that grants management relatively more autonomy to run the company as it sees fit in the face of differences of opinion with other stakeholders is a control benefit that may be optimal to establish ex ante (Boot et al., 2006). Board structure has been cited in a wide variety of empirical studies as an indication of the power of the CEO (e.g., Hermalin and Weisbach, 1991; Lerner, 1995; Gertner and Kaplan, 1996; Yermack, 1996; Klein, 1998, 2002).

Even when they do not specify the precise nature of private benefits of control, many researchers implicitly assume that these benefits come at the cost of efficiency (e.g., Burkhart et al., 2003; Nagar et al., 2008; Ang et al., 2000; Moskowitz and Vissing-Jorgensen, 2002; Zingales, 1994; Doidge et al., 2004). Demsetz and Lehn (1985) argue that firms in media and sports businesses are particularly suited to indulging a manager's personal preferences.

However, the consumption of private benefits of control need not necessarily be inefficient. Indeed, the fact that family-run firms in some settings seem to operate more efficiently than other firms (Anderson and Reeb, 2003a), particularly when the founders are chairmen or CEOs of the family firms (Villalonga and Amit, 2006), suggests that private benefits of control can often be efficient. And according to the heterogeneous beliefs model of Boot et al. (2006), managers need a degree of autonomy to optimally manage the firm and trade this off against the disadvantages of illiquid stock when deciding whether or not to go public. The alternative theories emphasizing the importance of control are distinguished in the empirical analysis to follow.

### 2.3. Growth opportunities

Decisions on whether to stay private or not will likely also reflect the growth opportunities faced by the firms. As described in Myers (1977), if firms are concerned about missed opportunities for

<sup>5</sup> (See Zingales, 1995; Mello and Parsons, 1998; for empirical papers testing these theories, see Rydqvist and Hogholm, 1995; Brau et al., 2003; Field and Mulherin, 1999; and Field and Karpoff, 2002.)

<sup>6</sup> Burkhart et al. (1997) argue that an entrepreneur might actually obtain more utility if he takes his firm public rather than remaining private and raising equity via the sale of a large stake (e.g., VC/PE firms), while Bebchuk (1999) focuses on the ease with which a rival might wrest control from the entrepreneur once the firm is public (if it is easy, he will not go public).

undertaking positive NPV projects due to debt overhang, they may be more likely to raise new equity (which is easily done in an IPO). Thus, we would expect growth opportunities to be positively related to the likelihood of going public. Fischer (2000), in his examination of the IPO activity of German firms in the latter half of the 1990s (a hot period with high valuations) and Gopalan and Gormley (2008) in their study of Indian IPOs, find that growth opportunities are important determinants of the likelihood of doing an IPO, while Pagano et al. (1998) find similar results in their study of Italian firms. In contrast, Bharath and Dittmar (forthcoming) find (mixed) evidence that U.S. firms are taken private more often when they have low market-to-book ratios – another common proxy for growth opportunities. Doidge et al. (forthcoming) also find that growth opportunities for foreign firms tend to spur exchange listing in the United States; and in a study of IPOs from 38 countries, Kim and Weisbach (2008) show that the sale of new shares to the public is associated with increases in capital investment.

The evidence for a role for debt overhang in the going public decision is more mixed. In a study of banks going public, Rosen et al. (2005) find the leverage of banks prior to the IPO to be above matched counterparts, consistent with debt overhang encouraging firms to go public. On the other hand, Fischer (2000) found leverage was not a significant determinant of the likelihood of going public. Indeed, to the extent there are lemons premia associated with equity offerings (Myers and Majluf, 1984), highly levered firms may actually be less likely to undertake IPOs.

#### 2.4. *The value of a public stock price*

A number of papers have shown that market prices can reveal valuable, decision-relevant information to firms and their managers (Boot and Thakor, 1997; Allen and Gale, 1999). In one variation, Subrahmanyam and Titman (1999) argue that when many potential investors receive serendipitous information about a public firm, the cost of capital will be lowered, and the incentive to go public increased. This type of information should vary with the extent to which firms in the industry are in the public eye.

Public share prices can also mitigate the costs of duplicative monitoring on the part of investors (Chemmanur and Fulghieri, 1999). Relatedly, Sunder (2004) shows that the costs of bank borrowing may decline as information production in equity markets increases. Consistent with the significance of these factors on the going-public decision, Bharath and Dittmar (forthcoming) show that public firms with less analyst coverage and lower institutional holdings – and thus less likely to benefit from the information aggregation offered by share prices – more often return to private status.

To be sure, as most firms in our sample have issued public debt securities, which already provide signals about firm value, the desire to go public to capitalize on this sort of information may not be as pronounced. But given the formal arguments that equity is more information-sensitive than debt (Boot and Thakor, 1993), it would appear that the value of a public stock price remains an open empirical question for our sample of firms as well.

An alternative role played by a public stock price is as an objective valuation of the firm which is helpful in fulfilling contracts, such as those in stock-based mergers or venture capital investments. For example, United Parcel Service stated in 1999 that it was planning to do an IPO because it wished to undertake mergers paid for with equity.<sup>7</sup> For a large fraction of our sample, the valuation provided by the IPO also enhances the exit strategies of VCs and PE investors (see Black and Gilson, 1998; Myers, 2000).

### 3. Empirical investigation of the choice to be private

#### 3.1. *Data*

Our analysis requires that the firms in the sample provide detailed financial and ownership data to the public, which is generally not the case for private firms in the U.S. We obtain our data on private

<sup>7</sup> The *Financial Times* (July 23, 1999) reported “James Kelly, chairman of UPS, said the public stock generated from the offering would give his company “flexibility” in negotiating future acquisitions since both shares and cash can be included in a deal.”

firms from their filings with the SEC. Private firms may be required to file this information with the SEC because of two laws: the Securities Act of 1933, which requires a firm to file a registration statement and then ongoing statements if it has 300 or more investors in the security being offered; and the Exchange Act of 1934, which requires firms to file regular reports (e.g., 10-Ks) with the SEC if they have 500 or more investors in a security class and at least \$10 million in assets. These filings are the same whether the security causing a filing is debt, common stock or preferred stock.<sup>8</sup> In order to reduce the scope of the data collection effort, we choose to examine firms that were private as of December 1996. The financial data and ownership data are from December 1996, or when the fiscal year ends (i.e., from a date within six months of December 1996). Many of the firms in our sample do not file with the SEC on a regular basis, but to the extent they do we also create a panel dataset starting in 1993 and ending in 1999 for firms in our 1996 cross-section dataset.

We identify these firms from four electronic data sources: CRSP, Compustat, Compact Disclosure (Compact D) and the Fixed Income Database (FID). Essentially, we compare the latter three to CRSP and then investigate the firms that are not on CRSP to determine whether they should be included in our sample. A valid observation is a nonfinancial firm that was a stand-alone private U.S. company and not in default at year-end 1996. In addition, the firm must never have been previously publicly traded before 1996, even if the trading was only in the pink sheets.<sup>9</sup> We eliminate firms owned 51% or more by a public firm in 1996 as well as firms with a majority owner that also owned a public firm in an empire that was not clearly delineated.<sup>10</sup> We retain firms owned by a group of public firms as long as there was no majority owner, and we retain firms that previously had been part of a public firm as long as they were never public as independent firms.<sup>11</sup> We eliminate any firms that were cooperatives, as taxes and legal issues might prevent them from readily accessing the IPO market. To determine the status of the firms we used several sources: SEC filings posted on Edgar, electronic news sources (Lexis/Nexus, Bloomberg, Business and Industry) and the Directory of Corporate Affiliations (1997). In addition, we eliminate firms if they are missing most of the relevant variables for the study.

We examine all firms with 1996 data on Compustat that do not have a stock price in December 1996. Compustat often includes data on public firms in the year or two before they became public, meaning many private firms would be included in our sample only because they did an IPO shortly after December 1996. These firms do not constitute a random sample of private firms, and their inclusion in our database would induce biases related to choice-based sampling. Therefore, we also eliminate any firm that did not file with the SEC for a reason besides recently having an IPO. Our sample includes 59 firms from Compustat. We also compare Compact Disclosure (the CD dated April 1997) to CRSP. This database includes a much larger group of firms that file with the SEC than Com-

<sup>8</sup> Doidge (2004) enumerates the sections of these laws that restrain the ability of a controlling shareholder to take advantage of other investors in the firm. We should note that the only difference in legal liabilities under these laws that might vary across our sample is that the board of directors has a fiduciary duty to shareholders, not to bondholders or preferred stockholders. Thus, it is possible that a controlling shareholder might be less constrained by securities laws if the other investors in the firm are not shareholders. Nonetheless, as Doidge (2004) points out, the limitations under fraud-related laws are substantial for all firms filing with the SEC.

<sup>9</sup> If a company said it did an IPO but was not aware of any recent trades on its stock, we still removed the firm on the basis that its filings with the SEC existed only because it had made its stock available to the public at one time. Nonetheless, for some of our firms some of the stock changes hands occasionally. When this occurs the company will report the price if it is aware of it, but often it does not know the price, as there is no system for reporting such private trades. In a few cases the trade is with the firm itself, at a formula-based price devised by the firm, or with a new shareholder at a price determined by the firm. We do not consider such trades to be evidence of an IPO.

<sup>10</sup> For example, we include a firm partly owned by Craig McGraw, as it seems to have no relation to other firms he has ownership stakes in. But we delete firms that are subsidiaries of holding companies when the holding company also owns several other firms, of which one is public.

<sup>11</sup> An example of this first type of firm in our sample is Sprint Spectrum, a PCS telecommunications provider owned by four public companies, of which none had more than 40% ownership. An example of the second type of firm is Clark Materials Handling Corp., which had been owned by Terex, a public company, but was never an independent firm with its own stock price. Most other firms in the sample, however, were more standard private firms – starting as an independent entity and continuing in existence without an equity IPO and remaining private as of December 1996. Allbritton Communications, which owns radio stations, and Cinemark, a movie theater chain, are examples of such firms.

**Table 1**

Reasons for filing with the SEC.

| Reason                                 | Number of firms | Percentage of sample |
|----------------------------------------|-----------------|----------------------|
| Firm has public (or widely held) debt  | 148 firms       | 82%                  |
| and files 10-K reports                 | 101 firms       | 56%                  |
| that was issued close to December 1996 | 47 firms        | 26%                  |
| Firm has many shareholders             | 29 firms        | 16%                  |
| Firm has widely held preferred stock   | 4 firms         | 2%                   |

Note. Reasons for filing with the SEC are determined by reading SEC filings that include data near year-end 1996 for the sample of 181 private firms.

putat, including many pink sheet firms that are not on CRSP. As before, if the reason for filing with the SEC was simply because of an IPO we do not include it in the sample. In some cases the firm observation is valid but the financial data on the April 1997 CD is not close enough to December 1996. If so, we check for data from the January 1998 Compact D disk or from Edgar. Our sample includes 99 firms that do not have 1996 data on Compustat but which appear on Compact Disclosure. Lastly, we examine the FID, which is a bond pricing database created by Lehman Brothers and meant to contain a comprehensive list of outstanding bonds (including those issued by private firms).<sup>12</sup> Some of these firms only file a registration statement for the bonds and have no further filings with the SEC; others file regularly. The sample contains 23 private firms with bonds listed in FID that are neither on Compact D nor on Compustat and for which data are available from Edgar.

For the private firms that comprise our sample, the most common reason for filing a report with the SEC is that the firm has many creditors (Table 1). These are mainly firms with public bonds outstanding, but some of the debt is privately placed and one firm even sold “thrift certificates,” largely in denominations under \$50,000, to more than 2000 investors. The next most common reason is that the firm has more than 500 shareholders and files regular reports under the Exchange Act. These firms’ shareholders are not necessarily random investors: In many cases they are employees, people with a common occupation (e.g., doctors), or residents of a particular geographic locale. However, the majority are firms with private equity investors.

We obtain data concerning ownership, board structure, founders and family members mainly from SEC filings, but in rare instances where the SEC filings provide insufficient data, news stories indicate the number and type of investors. Firms for which ownership data are missing are not included in the sample. However, we retain two firms for which information about the board of directors is incomplete. We classify owners according to whether they are managers (officers and directors), family members of the CEO or founder, VC or PE investors, other outside blockholders, other firms or ESOPs. Typically, these investors identify themselves in the SEC filings, but on occasions when they do not we use Lexis–Nexus and the Internet to determine whether an investor is a VC/PE specialist, a relative, or an outside blockholder. Founders are typically self-reported as such in SEC filings, as are family relationships among top management and directors.

For each private firm in our sample, we assign a matching public firm found on Compustat. We assign matches by choosing among firms in the same 4-digit SIC code industry with similar sales. If a match is not available within the 4-digit SIC code, we look for one in the same 3-digit industry and so on.<sup>13</sup> We also collect data on firm age for our sample of private firms and matching firms. The age information is largely available in the SEC filings, but when it is not, it is either on company websites or in news stories or elsewhere on the Internet.

We determine whether the private firms in our sample subsequently go public or attempt to go public by searching Edgar and Lexis–Nexus. We define an attempt at an IPO as a filing with the SEC. We limit our definition of attempted IPOs to firms that filed an IPO registration statement with the SEC, even if news stories indicate the firm was considering an IPO. However, we do include firms as attempting an IPO even if the SEC filing occurred prior to December 1996. Among our sample of 181 private firms, 41 went public or announced an intention to go public. Of these, 23 firms completed

<sup>12</sup> See Warga (1995).

<sup>13</sup> For twelve firms, matching firm equity prices are not available.

IPOs between January 1997 and December 1999 (of which 12 were in 1997). The 18 attempted IPOs include 7 firms that filed with the SEC after December 1996, but did not complete the IPO by December 1999 (most announced that the IPO was withdrawn or indefinitely postponed), and 11 firms that attempted IPOs prior to December 1996, most of which were in 1995 and 1996 (one occurred as early as 1992). The remaining 140 firms indicated no desire to become a public firm.

Data availability severely limits our ability to track these firms over time. Of the 181 firms in our sample, financial data are available for 141 in at least one of the three years prior to or following 1996, but only 36 have data in all of the six years surrounding 1996. Moreover, this group, constituting about 20% of the sample, is not a random subsample: Firms that file with the SEC because they have many shareholders are far more likely to file in each of the seven years (48% of this group) as are firms that completed IPOs after 1996 (30% of this group). Consequently, we emphasize the results in the cross-section analysis to a larger extent than those based on the panel dataset.

We provide limited comparisons to firms that completed IPOs in the years 1997–1999. The IPOs are identified using the Securities Data Corporation (SDC) dataset (excluding financial firms, spin-offs, and reverse LBOs) and their financial data are from Compustat.

### 3.2. Explanatory variables

#### 3.2.1. The size of the shareholder base

We measure the need for a more dispersed shareholder base by the number of shareholders at year-end 1996. In some cases we know only a minimum bound on the number of shareholders,<sup>14</sup> but in most instances the company actually states the number of shareholders, so this problem is relatively minor. We define a shareholder as an entity that has the ability to vote independently. Thus, an ESOP with shares held by many employees counts only as one shareholder. Likewise, a family trust that benefits a couple counts as one shareholder, not two.

Since the benefit to managers of diversification should also be a function of the risk of the firm's value as well as the existing number of shareholders, we also include a proxy variable for the risk of the owner's equity stake, which is the idiosyncratic annualized daily equity price volatility for the three years of the matching firms centered around 1996.<sup>15</sup> If diversification considerations are important, management is more likely to go public to reduce its shareholdings when its equity stake is variable.<sup>16</sup>

#### 3.2.2. Private benefits of control

We identify four different cases of majority or plurality ownership by investor grouping, distinguishing between firms where the control rests with (a) family members of the CEO or founders, (b) management (officers and directors), (c) venture capital or private equity investors, and (d) others. Private benefits of control are anticipated to be the most important for the first two sets of firms, whereas VC/PE owned firms might be likely to structure managerial incentives differently (see Gertner and Kaplan, 1996; Baker and Gompers, 2003). To check whether firms in which the founders maintain involvement are different from other family-controlled firms, we also identify firms in which the founder is the CEO and members of his family are employees of the firm or board members.

We examine characteristics of the board of directors that may affect managerial control benefits. For instance, we include control variables for board size, which some have suggested might be related to the consumption of private benefits of control (e.g., Yermack, 1996). We also use an indicator variable for whether or not the CEO also plays the role of the Chairman of the Board, which has

<sup>14</sup> For example, we might see from a 10-K that a firm has 10 investors who own 97% of the equity. Because the remaining fraction is less than 5%, we assume there are 11 shareholders (there could be more but we estimate it at 11). If instead, the investors mentioned in the filing only own 90% of the firm, we assume there are three more investors, because if there were only two more investors they would be included as five percent investors in the statement of beneficial ownership.

<sup>15</sup> See Klasa (2007) for the use of a similar variable in the context of the going public decision.

<sup>16</sup> To be sure, there may be competing considerations: Boot et al. (2008) find that since greater share price volatility exposes management to uncertainty of intervention in the event of going public, under certain conditions, it can dilute the incentive for an entrepreneur to take his firm public.

been related to firm performance by [Palmon and Wald \(2002\)](#). For some board characteristics, certain regulatory thresholds are required to be met by firms going public. Such board characteristics include the existence of compensation committees, audit committees, or both, as well as the fraction of outsiders (or equivalently, insiders) on the board. These variables can all constrain managerial autonomy, and to varying degrees are intimately related to listing requirements.<sup>17</sup> If private firms have already met threshold levels for these variables, it may be the case that their optimal level of managerial autonomy is lower, and thus they would more likely go public than other firms ([Boot et al., 2006](#)).

Outside blockholders can serve to monitor and discipline the inordinate consumption of private benefits of control. Along the lines of [Anderson and Reeb \(2003a\)](#), in our regressions we include a control variable for the existence of an outside blockholder who owns more than 5% of the shares. For purposes of categorization, we include blockholders who are also directors as long as they have no other connection to the firm, i.e., they have no other business ties to or job at the firm, and they are not related to family. We do not include in this category blockholders associated with venture capital/private equity, both in the interest of maintaining mutually exclusive ownership categories and because these investors are best considered as “insiders” due to their business models.

We also look at whether firms have more than one class of stock, with different voting rights. Measures based on dual class shares are often used as a proxy for the importance of control rights: studies of foreign firms listing on U.S. exchanges find that the price differential between high and low-voting right shares is a significant predictor of the decision to acquire a U.S. listing, as is the percentage difference between control and cash flow rights held by controlling shareholders ([Doidge, 2004](#); [Doidge et al., forthcoming](#)).

Certain industries may be particularly subject to the consumption of private benefits of control by management. Following [Demsetz and Lehn \(1985\)](#), we also include an indicator variable for firms in media and sports businesses (although none of our private firms is in sports).<sup>18</sup>

### 3.2.3. Growth opportunities

Our growth opportunity proxies include size, capital expenditures (scaled by assets), the rate of growth in sales over the previous year, an indicator for positive R&D expenditures and age. If a firm had zero sales in 1995, we capped the growth variable at 1000% (slightly above the highest finite sales growth number in the sample). We measure age as the number of years the product has been sold under its brand name.

As measures of the potential for debt overhang, and thus missed growth opportunities, we take the ratio of long-term debt to assets, as well as interest coverage, or EBITDA divided by interest expense. If the firm has no interest expense, we set coverage to 1000. A proxy for the effects of the debt overhang due to financial distress is an indicator variable that is one for any firm that has either negative operating earnings in 1996 or negative sales growth between 1995 and 1996 and leverage of at least 50%.

### 3.2.4. Serendipitous information

The view that serendipitous information drives the going public decision can be tested by examining the behavior of firms in industries with extensive public contact. To capture this effect, we include an indicator variable that equals one if the firm is in retail trade.<sup>19</sup>

<sup>17</sup> The NYSE required each domestic company listed on the exchange to establish an audit committee of outside directors in 1977, and the NASD followed suit for NASDAQ/NMS issuers in 1987. In both cases the audit committee must consist of at least three members, and these members must be independent directors. According to NASD regulation, executive compensation must be determined either by a majority of all independent directors, or a compensation committee comprised solely of independent directors.

<sup>18</sup> As an additional measure for the private benefits of control, we tried a measure of excess compensation estimated along the line of [Long and Walking \(1984\)](#), but it was not significant.

<sup>19</sup> In estimates not reported, we also tried a broader definition that includes firms in the retail, telecom and utility sectors, but the results were not qualitatively different.

**Table 2**

Selected firm characteristics: Private firms, IPO firms, public firms on compustat and a size/industry matched set of public firms.

|                                                  | Private firms    | Firms that completed IPOs during 1997–1999 | Nonfinancial firms on compustat | Industry and size matched firms |
|--------------------------------------------------|------------------|--------------------------------------------|---------------------------------|---------------------------------|
| No. of firms                                     | 181              | 901                                        | 5717                            | 181                             |
| Total assets (mm \$)                             | 193<br>(527)     | 72**<br>(290)                              | 83**<br>(1091)                  | 171<br>(338)                    |
| Total sales (mm \$)                              | 197<br>(786)     | 38**<br>(198)                              | 90**<br>(978)                   | 172<br>(407)                    |
| Employees                                        | 1325<br>(5080)   | 285**<br>(1029)                            | 559**<br>(5426)                 | 1089<br>(2669)                  |
| Age                                              | 31<br>(46.2)     | 5**<br>(9)                                 | n.a.                            | 33<br>(43.8)                    |
| Number of shareholders                           | 12<br>(279)      | 239**<br>(2606)                            | 1293**<br>(8638)                | 1000**<br>(2343)                |
| Profitability (over assets)                      | 12.4%<br>(9.1%)  | 2.6%**<br>(−5.2%)                          | 11.0%**<br>(−2.3%)              | 12.5%<br>(8.7%)                 |
| Leverage (long and short-term debt over assets)  | 66.6%<br>(73.0%) | 4.0%**<br>(15.2%)                          | 20.5%**<br>(53.9%)              | 28.1%**<br>(29.4%)              |
| Interest coverage (EBITDA over interest expense) | 1.8<br>(9.5)     | 2.98<br>(68.2)                             | 5.4**<br>(99.8)                 | 5.1**<br>(250.6)                |
| Industry market-to-book                          | 1.5<br>(1.6)     | 2.2**<br>(2.3)                             | 1.6**<br>(1.8)                  | 1.5<br>(1.6)                    |
| Capital expenditures/assets                      | 5.4%<br>(7.7%)   | 4.5%<br>(7.6%)                             | 4.9%<br>(7.3%)                  | 5.9%<br>(7.9%)                  |
| R&D (% with R&D > 0)                             | 23.8%            | 51.4%**                                    | 44.3%**                         | 30.4%                           |
| Pays dividends (% of firms)                      | 23.2%            | 13.5%**                                    | 31.5%**                         | 38.1%**                         |
| Sales growth (over past year)                    | 9.2%<br>(103.9%) | 79.6%**<br>(398.9%)                        | 11.6%<br>(93.9%)                | 10.1%<br>(48.9%)                |

Notes. Medians, except where noted; means are in parentheses. Industry and size matched firms are firms in the same four digit industry (when available, otherwise three digit industry) that are closest in sales

\* Medians of private firms are significantly different from the comparison sample (Compustat, IPOs, or matches) at the 10% or lower level of significance or in the case of R&D or dividends, that a binomial test of differences in proportions is significantly different at the 10% or lower level of significance.

\*\* Medians are significantly different from the comparison sample at the 5% or lower level. IPOs from 1997–1999 are identified in SDC and data are taken from Compustat for the year of the IPO.

### 3.3. Characteristics of the private firm sample

Summary statistics for the sample of 181 private firms are reported in Table 2, alongside those of three other comparison samples: (1) firms that completed IPOs in the period 1997–1999; (2) the universe of nonfinancial public firms on Compustat; and (3) the set of firms in the same industry that are closest in sales. For each category, medians are reported on the top line, and means are reported in parentheses below.

Our sample of 181 private firms consists of relatively large firms. The median firm in our sample is more than double the size of the median Compustat firm, measured by assets, sales or employees. The difference in size is magnified still further when compared to recent IPOs, whose sales are typically quite small. Our private firms are somewhat more profitable than the typical Compustat firm, but this likely is accounted for by industry, as they do not differ significantly from the matched sample. Considering their size and profitability, there is little to suggest that these firms could not go public if they so desired: in fact, most Compustat firms that do IPOs in the time period under analysis are both smaller and have sharply lower operating profits than the private firm median (Table 2).

The most striking feature of our sample of private firms is their high leverage. Even compared to similar-sized firms in the same industry, the use of debt is particularly high. One explanation is that these private firms are owned by people who do not want to give up control of the firm, and have relied on debt to grow rather than issue equity. Indeed, in contrast to the view that the leveraging of private firms primarily represents the influence of private equity, we find that leverage tends to

**Table 3**

Industry distribution of the private firms compared to small firms, IPOs and firms on Compustat.

| Industry                            | SIC code range | Sample of private firms<br>N = 181 | Firms that completed IPOs during 1997–1999<br>N = 901 | Public firms on Compustat<br>N = 5717 |
|-------------------------------------|----------------|------------------------------------|-------------------------------------------------------|---------------------------------------|
| Agriculture, forestry, and fishing  | 0100–0971      | 0%                                 | 0.7%                                                  | 0.4%                                  |
| Mining                              | 1000–1499      | 0.6%                               | 1.0%                                                  | 5.0%**                                |
| Construction                        | 1520–1799      | 1.7%                               | 0.8%                                                  | 1.5%                                  |
| Manufacturing                       | 2000–3999      | 43.7%                              | 29.0%**                                               | 50.6%**                               |
| Transportation and public utilities | 4011–4999      | 16.0%                              | 10.4%**                                               | 10.1%**                               |
| Wholesale trade                     | 5012–5199      | 5.0%                               | 3.7%                                                  | 5.2%                                  |
| Retail trade                        | 5200–5999      | 9.4%                               | 6.8%                                                  | 7.9%                                  |
| Services                            | 7011–8999      | 23.8%                              | 47.7%**                                               | 19.4%*                                |

\* Binomial test of differences in proportions indicates significantly different proportions in industries of private firms compared to firms on Compustat or IPOs at the 10% or lower level of significance.

\*\* Significant difference in proportions at the 5% or lower level. IPOs from 1997–1999 are identified in SDC and data are taken from Compustat for the year of the IPO.

be higher for family-controlled firms.<sup>20</sup> Another possibility is that despite their relatively high profit levels, the excessive amount of debt creates an overhang that prevents these firms from raising public equity.

A number of indicators suggest that most of our private firms have fewer growth opportunities than the universe of public firms. The significantly larger size of our firms suggests they are established, mature firms whose future earnings are unlikely to grow much beyond the average in the economy. The private firms have lower industry market-to-book values, and are less likely to have positive R&D expenditures than the public firms on Compustat or the IPOs. They also have lower sales growth figures than the IPOs, though this latter measure likely reflects industry patterns since the median is not significantly different from that of the matching sample. Moreover, private firm capital expenditures are not significantly different from those found in the comparison samples.

Our sample firms are less likely to pay out their profits to shareholders in the form of dividends. We should note that some of the private firms are limited partnerships, and make distributions to partners as required by law. We count these as dividends, so the fraction of private firms paying the normal type of dividends is even less than the 23.2% figure implies. The low dividends are likely related to the high leverage, as many speculative-grade bonds have covenants that would effectively prevent the payment of dividends.

Table 3 compares the breakdown by industry of the private firm sample to that of the public firms. Relative to the firms in Compustat, our private firms are more oriented toward the transportation and public utilities sector (the latter reflecting the dominance of cable and telecom firms in the private firm sample), but otherwise are not dramatically different. Relative to Compustat firms that completed IPOs in 1997–1999, many fewer of our sample of private firms are in the service sector; in particular the 737 sector (i.e., software).

Table 4 reveals the ownership structure of our sample, dividing the owners into insiders, outsiders and ESOPs (which might be controlled by management or might be independent). Inside ownership is further divided into ownership by family members (where the members may or may not be part of management); founders who do not own the shares in conjunction with family members; and management that is neither a founder nor a family member. Management-owned shares are not considered part of inside ownership when the shareholding management's only position is director.

Both insider- and outsider-controlled firms are quite common in the sample (Table 4). Fully 68 of the firms, or more than one-third of the sample, have majority voting power in the hands of family (35 firms), founders (15), or management (18). If one counts control of the firm as having the most shares of any shareholding group, the number of firms controlled by an insider class rises to 93, or to

<sup>20</sup> The average leverage for the 58 family controlled firms is 83%, significantly higher than the rest of the sample (70%), which includes the subset of those controlled by private equity investors (78%).

**Table 4**

The ownership structure of the private firms.

| Percentage holdings                     | Inside ownership |          |            | Outside ownership                 |             |                             | ESOP |
|-----------------------------------------|------------------|----------|------------|-----------------------------------|-------------|-----------------------------|------|
|                                         | Family           | Founders | Management | Venture capital or private equity | Other firms | Other outside block-holders |      |
| None                                    | 131 firms        | 149      | 90         | 86                                | 160         | 162                         | 169  |
| $0 \leq P \leq 50$                      | 15               | 17       | 73         | 27                                | 18          | 18                          | 7    |
| $P > 50$                                | 35               | 15       | 18         | 68                                | 3           | 1                           | 5    |
| No. of firms where group has most votes | 36               | 22       | 35         | 73                                | 4           | 2                           | 5    |

Notes. Percent of shares outstanding is based on filings of beneficial ownership in SEC filings or, rarely, in the news. Percentages are calculated as a fraction of the voting power of the shares outstanding, excluding shares that might arise in the future as a result of options. Management shares, founder shares, family shares, venture capital/private equity shares, other firms' shares, other outside blockholders' shares, and ESOP shares are mutually exclusive categories. ESOPS are employee share ownership programs where the shares are voted by one entity. Venture capital, private equity, and other companies are mostly described as such in the SEC filings, but in some cases are identified from websites or news. Management shares exclude stakes of founders, family members and blocks held by private equity specialist or independent directors (outside blockholders).

more than one-half. However, outside ownership and control, especially by VC/PE firms, is prevalent as well. 72 firms (nearly 40%) are majority controlled by outsiders, while 79 firms (44%) have their largest stakes held by outsiders.

With outside ownership so prevalent, it is not surprising that our sample of private firms often have many shareholders, usually more than 10 (Table 2). In contrast, only 15 firms in our sample are owned by a single shareholder. And only 30% of the firms have a half dozen or fewer shareholders. This suggests that shareholders are sufficiently numerous for most of our sample's entrepreneurs to diversify their wealth if they should so desire. Thus, an IPO may not be a necessary step if the only goal is diversification. As further evidence for this point, consider that 47 private firms in our sample have more than 50 shareholders. One firm has more than 13,000 shareholders, while 11 others have over 1000 shareholders each. Thus, our evidence indicates that going public is one, but not the only, way to obtain a dispersed shareholder base.

Who are these multitudes of investors in private firms? Among the 47 firms with shareholder counts of 50 or more, 15 are firms whose shareholders are mainly employees (sometimes only at the upper levels or in combination with family); 6 are owned by professionals or companies whose line of business is related to that of the firm in our sample (e.g., a veterinary products firm owned by veterinarians); and the remainder have attracted some form of private equity investment, ranging from the very sophisticated to the individual. While some might argue that our private firm sample is skewed towards odd examples of widely dispersed firms, Sobel (1970, 1972) and Chernow (1998) suggest such firms have a long history in the U.S.<sup>21</sup>

An obvious drawback to such financing is the lack of liquidity afforded to shareholders compared to the public market. Relatively few of the 47 firms with 50 or more shareholders in our sample attempt to offset the lack of liquidity by offering to buy back shares from existing shareholders. Only 16 of these firms provide a way for their shareholders to exit the firm at all, and only 3 of these report procedures for determining some sort of market value of the shares they buy back. Moreover, 12 of them reduce liquidity overall by restricting the sale of the shares to third parties.

The lack of a public stock price is also an impediment to our firms when it comes to compensation. While the use of equity compensation in our sample is quite high (over 70% of the firms have positive CEO equity holding and the average stake is about 25%), compensation based on a precise equity valuation is much less common. Only 24% of our private firms include stock options in the CEO's

<sup>21</sup> Sobel (1972) notes that for decades before the AMEX's building was constructed in 1921, the "curbstone brokers" traded less desirable stocks outside, including shares of large firms whose management refused to list the stock on the NYSE. Chernow (1998) notes that Standard Oil in the late 1800s had over 700 shareholders, largely as a result of acquisitions financed with stock. According to Sobel (1970), by the early 1900s its shareholder base had expanded greatly, to about 6000 shareholders. A more recent example is found in Walton and Huey (1992), who describes how new Walmart stores were financed partly through equity capital contributed by the soon-to-be store managers.

**Table 5**

Governance characteristics and control of the private firms.

|                                                 | VC/PE firms | Family      | Management | Other    |
|-------------------------------------------------|-------------|-------------|------------|----------|
| <b>Characteristics of the board:</b>            |             |             |            |          |
| Average/median board size                       | 6.4/6       | 5.3/5**     | 7.6/6      | 7.4/7    |
| Average/median percent insiders                 | 31/29       | 63/56***    | 53/50***   | 58/61*** |
| CEO is Chairman of the Board (CBD)              | 36 (49%)    | 30 (53%)    | 21 (60%)   | 8 (53%)  |
| Has an audit committee                          | 21 (29%)    | 16 (28%)    | 15 (44%)   | 8 (53%)* |
| Has a compensation committee                    | 40 (55%)    | 22 (39%)*   | 16 (47%)   | 7 (47%)  |
| Has both audit and compensation committees      | 19 (26%)    | 14 (24%)    | 13 (37%)   | 6 (40%)  |
| <b>The role of family members and founders:</b> |             |             |            |          |
| The founder or his relative is CEO or CBD       | 13 (18%)    | 43 (74%)*** | 0 (0%)***  | 5 (33%)  |
| Family members work for the company             | 9 (12%)     | 32 (55%)*** | 5 (14%)    | 3 (20%)  |
| Family members are on the board                 | 1 (1%)      | 11 (19%)*** | 1 (3%)     | 0 (0%)   |
| Percentage of firms with dual class shares      | 13 (18%)    | 7 (12%)     | 4 (11%)    | 3 (20%)  |
| Average/median CEO compensation (1000s)         | 739/513     | 479/349     | 473/300    | 503/498  |

Notes. Founder of the company is self-proclaimed as such in SEC documents or described as such in financial news sources in Lexis-Nexus. Family members are related to the founder, CEO and/or chairman of the board and are so described in SEC filings. Official compensation and audit committees are those where SEC filings state such committees exist. Board size and fraction of insiders on board are from SEC filings. Dual-class shares are those where one class has greater voting power than another and the lesser class is not convertible into shares of the higher class.

\* Significance at the 10% level.

\*\* Idem, 5% level.

\*\*\* Idem, 1% level.

compensation. In contrast, CEOs who head firms in the S&P 1500 (whose comparable figures are available in Execucomp) receive stock options as part of their compensation 70% of the time. While one might suspect this owes to the type of industry, restricting the S&P 1500 sample to firms in the same two digit SIC codes as our firms reveals that all but one of the two digit industries has at least 50 percent of its firms granting stock options to their CEOs.

Moreover, the lack of a public stock price largely prevents our private firms from using their stock as consideration in an acquisition. We investigate this issue by first identifying the firms in the matched sample that report sales being affected by acquisitions in Compustat (data item 249) during the years 1994–1996. Then we look for these firms and our private firms in SDC's mergers and acquisitions database. Among our private firms, 37 have deals in the SDC database compared to 39 of the public firms. But the public firms do many more deals, much more often involving stock swaps: our private firms only complete 78 deals, of which 2 are stock swaps, compared to 100 by the matches, of which 13 are stock swaps.

Based on Table 4, we divide the ownership structure of the sample firms into four groups: (a) firms controlled by families or founders (50 firms with majority control and 8 more where no one has the majority and they have the largest block), (b) firms controlled by other management<sup>22</sup> (18 firms with majority control and 17 more where their block is largest), (c) firms controlled by VC/PE specialists (68 firms with majority control and 5 more where this group has the largest block), and (d) other firms that either represent firms with shared control or those controlled by an ESOP.

We investigate the governance characteristics of the four groups in Table 5, testing for significant differences between each of the three groups and the VC/PE-controlled firms. To the extent that private benefits of control are a major factor in the sample, we should expect to see family firms and management-controlled firms choose weaker boards than those of firms controlled by VC/PE specialists. This appears to be the case, particularly for family firms. Family firms have a much greater fraction of insiders on the board and they are far less likely to have a compensation committee, despite the fact that the CEO often also plays the role of Chairman of the Board. The one exception to the tendency of weaker boards for family firms is in the dimension of board size. While for the

<sup>22</sup> This group excludes management-controlled firms where the CEO's family members are also shareholders.

**Table 6**

Logit estimates of the probability of being public vs. being private firms compared to compustat firms and to a matched sample.

|                                      | Private vs.<br>Compustat | Private vs.<br>Compustat panel | Private vs.<br>matched sample |
|--------------------------------------|--------------------------|--------------------------------|-------------------------------|
| Log of assets                        | −0.08***<br>(0.03)       | −0.07***<br>(0.02)             | −0.29*<br>(0.018)             |
| Profitability                        | 0.0001<br>(0.0003)       | 0.0001<br>(0.057)              | 0.001<br>(0.001)              |
| Debt overhang indicator              | −1.87***<br>(0.30)       | −1.96***<br>(0.17)             | −2.92***<br>(1.01)            |
| Interest coverage                    | 0.0001<br>(0.0001)       | 0.0000001<br>(0.0000001)       | 0.0002**<br>(0.0001)          |
| R&D indicator                        | 0.68***<br>(0.24)        | 1.23***<br>(0.24)              | 0.68**<br>(0.33)              |
| Capital expenditure/assets           | −0.22<br>(0.67)          | −0.33<br>(0.51)                | 1.13<br>(1.80)                |
| Sales growth                         | −0.001<br>(0.001)        | –                              | −0.05<br>(0.06)               |
| Retail industry dummy                | 0.16<br>(0.27)           | 0.13<br>(0.30)                 | –                             |
| Media industry indicator             | −1.38***<br>(0.29)       | −1.26***<br>(0.35)             | –                             |
| Industry market-to-book              | 0.11<br>(0.24)           | 0.21<br>(0.16)                 | –                             |
| Firm age                             | –                        | –                              | −0.001<br>(0.004)             |
| Constant                             | 3.49***<br>(0.46)        | 3.66***<br>(0.27)              | –                             |
| Log-likelihood/pseudo-log-likelihood | −752                     |                                | −110                          |
| P-value for model                    | 0.000                    | 0.000                          | 0.003                         |
| Pseudo-R-squared                     | 5.2%                     | 0.1034                         | 11.5%                         |

Notes. Compustat sample includes all public nonfinancial firms; matched sample includes one firm in the same industry closest in size for each private firm. Dependent variable is 1 if the firm is public at year-end 1996, zero otherwise. The matched sample logit is a conditional logit. Profitability is EBITDA/sales; leverage is long-term debt to assets; interest coverage is EBITDA/interest expense; R&D indicator is one for firms with positive R&D, zero otherwise; sales growth is the percent change in sales from 1995 to 1996; debt overhang indicator is one for firms that had negative profitability or negative growth and high debt. Firm age is the log of the number of years since operations began.

\* Significance at the 10% level.

\*\* Idem, 5% level.

\*\*\* Idem, 1% level.

sample as a whole, the average board size is 6.4 directors, slightly larger than that found by the IPO company study of Boone et al. (2007), family firms have significantly smaller boards than VC/PE controlled firms. Unsurprisingly, family firms have a far greater fraction of family members working for the firm and holding seats on the board. While VC/PE controlled firms occasionally have such family relationships (such as might happen when they have bought out part of a family stake), no founder in our sample sold a majority stake to other management. Although we see rather limited use of dual-class shares in our sample regardless of group, firms are less likely to issue dual class shares if they are family or management-controlled.

### 3.4. Multivariate logit estimations of the probability of being private

Next, we estimate the likelihood of being a private firm versus a public firm using three types of multivariate logistic regressions (logits). The results are reported in Tables 6 and 7. The dependent variable in these sets of estimations equals one if the firm is a public firm (or, in some estimations, if the firm shows a desire to be a public firm), and zero if it is a private firm.

In Table 6, the logits are first estimated with a sample that pools our private sample with all nonfinancial firms on Compustat that were public in December 1996. The logits are then estimated with a sample that includes only our private firms and a set of matched firms that are similar in

**Table 7**

Logit estimation of the likelihood of going public vs. remaining private.

| N                                     | Attempt/do an IPO near 1996 |                     |                     |                      | Attempt/do an IPO after 96 |                      |                      |
|---------------------------------------|-----------------------------|---------------------|---------------------|----------------------|----------------------------|----------------------|----------------------|
|                                       | 181                         | 181                 | 169                 | 180                  | 165                        | 165                  | 164                  |
| Log of assets                         | 0.35***<br>(0.13)           | 0.40***<br>(0.15)   | 0.29**<br>(0.14)    | 0.45***<br>(0.14)    | 0.36**<br>(0.15)           | 0.31**<br>(0.14)     | 0.33**<br>(0.15)     |
| Profitability                         | −0.003**<br>(0.001)         | −0.004**<br>(0.001) | −0.004**<br>(0.001) | −0.004***<br>(0.001) | −0.006***<br>(0.001)       | −0.005***<br>(0.001) | −0.007***<br>(0.002) |
| Log of age                            | −0.27**<br>(0.14)           | −0.30*<br>(0.15)    | −0.22*<br>(0.12)    | −0.39**<br>(0.18)    | −0.01<br>(0.14)            | −0.02<br>(0.14)      | 0.01<br>(0.14)       |
| Interest coverage                     | 0.006<br>(0.005)            | 0.007<br>(0.005)    | 0.006<br>(0.005)    | 0.003<br>(0.004)     | 0.006<br>(0.005)           | 0.005<br>(0.005)     | 0.001<br>(0.004)     |
| R&D indicator                         | 0.30<br>(0.42)              | 0.29<br>(0.42)      | 0.35<br>(0.43)      | 0.28<br>(0.44)       | −0.18<br>(0.50)            | −0.16<br>(0.50)      | −0.07<br>(0.51)      |
| Debt overhang indicator               | −1.35<br>(1.11)             | −1.39<br>(1.11)     | −1.39<br>(1.11)     | −1.62<br>(1.10)      | –                          | –                    | –                    |
| PE/VC-controlled firm                 | 0.96**<br>(0.38)            | –                   | 0.93**<br>(0.40)    | 0.78*<br>(0.45)      | –                          | 0.85**<br>(0.43)     | 0.91*<br>(0.45)      |
| Family-controlled firm                | –                           | −1.19**<br>(0.52)   | –                   | –                    | −1.16**<br>(0.58)          | –                    | –                    |
| Management-controlled firm            | –                           | −0.53<br>(0.52)     | –                   | –                    | −0.30<br>(0.59)            | –                    | –                    |
| Controlled by others                  | –                           | −1.24<br>(0.77)     | –                   | –                    | −1.15<br>(0.79)            | –                    | –                    |
| Volatility of stock returns           | –                           | –                   | −0.87<br>(0.09)     | –                    | –                          | –                    | –                    |
| Compensation & audit committees exist | –                           | –                   | –                   | 1.24***<br>(0.43)    | –                          | –                    | 1.34***<br>(0.48)    |
| Percentage insiders on board          | –                           | –                   | –                   | −0.02*<br>(0.01)     | –                          | –                    | −0.005<br>(0.009)    |
| Constant                              | −2.73***<br>(0.78)          | −1.89**<br>(0.81)   | −2.46<br>(1.16)**   | −2.46***<br>(0.90)   | −3.02***<br>(0.92)         | −3.69***<br>(0.89)   | −4.07***<br>(0.96)   |
| Pseudo- $R^2$                         | 10.7%                       | 11.3%               | 10.0%               | 18.5%                | 8.6%                       | 7.6%                 | 13.6%                |

Notes. Dependent variable in columns 1–4 is 1 if the firm completed/attempted an IPO near Dec. 1996, zero otherwise, while in columns 5–7 it is 1 if the firm completed/attempted an IPO after 1996, zero otherwise (drop firms that attempted IPOs before 1996).

\* Significance at the 10% level.

\*\* Idem, 5% level.

\*\*\* Idem, 1% level.

industry and size. If we were to estimate a logit as we do for the comparison with the Compustat sample, we would clearly be overstating the probability of being private – the matched sample implies there is a 50–50 chance of being private when in fact it is less than 2 in 50. To correct for this and still determine which factors are significant, we estimate a conditional logit (see [Hosmer and Lemeshow, 2000](#)). [Table 6](#) also reports the results of a logit using a panel dataset of Compustat firms and our private firms over the years 1993–1999. As stated earlier, the panel is not balanced. In that logit, the dependent variable for our 181 private firms is zero in all the years that the firms are private, but it is one for the 23 firms in our sample that complete IPOs after 1996 in the years that they are public firms. The estimates using the panel dataset are obtained from bootstrapped logits (1000 repetitions) with robust, clustered errors (see [Petersen, 2009](#)).

The results of the logit estimations shown in [Table 6](#) are largely consistent with the univariate analysis in [Table 2](#). Larger firms are less likely to go public, as are firms that are in danger of financial distress. While we find that R&D is significantly positive, suggesting that firms go public to fund growth opportunities, none of the other measures of growth opportunities have an impact on private/public status. Firms in the retail sector have no obvious propensity to go public or stay private according to the estimates in [Table 6](#), which provide little explicit support for the serendipitous infor-

mation rationale for being public.<sup>23</sup> However, the firms that are most well-known and in the public's eye are also likely to be the firms that Demsetz and Lehn (1985) suggest are appealing to owners who enjoy the "amenities" of corporate control. In line with their argument, we find that firms in the media sector are significantly less likely to be public. The estimates from the panel dataset are largely in line with those of the cross-section logits.

The estimates in Table 7 report the results of logits based on our 181 firms. In the first four columns of the table, we define going public as being one of the 41 firms that went public in 1997–1999 or planned to go public near December 1996 and compare these firms to the 140 companies that did not reveal any desire to go public. The last two columns report estimations based on fewer observations, where 11 firms that filed for IPOs prior to year-end 1996 are dropped. To preserve degrees of freedom, we drop several of the explanatory variables used in Table 6 that are not significant in these logit estimations.

The first column shows a similar logit estimation to that used in Table 6, except that we also include indicators related to ownership. The only variable that is significant in Table 6 that is also significant in this set of estimations is size, but now it comes in with the opposite sign. However, we also find that, among our private firms, age and profitability are now significant. Overall, the results on the control variables still suggest that more established firms are less likely to go public. As in Table 6, the estimations indicate that growth opportunities are not a major factor in deciding whether to remain private or not. The last two reported specifications do not include the debt overhang variable because for the smaller sample used in those models the debt overhang variable perfectly predicts the outcome – no firm with an overhang problem attempts to go public after 1996. Nonetheless, this variable is not significant in the first four specifications.

Compared to the other firms in the sample, those controlled by private equity/venture capital specialists are significantly more likely to go public. This is consistent with the view that VC/PE investors rely on the stock market as an exit strategy (Black and Gilson, 1998; Cao et al., 2004) and that they do not place a high value on control rights. The significance of the VC/PE coefficient largely reflects differences between VC/PE-controlled and family firms. This can be seen in the second and fifth models presented in Table 7, where the VC/PE controlled group is the left-out category. In these cases, the family firm coefficients are significantly negative, indicating that family firms are much less likely to go public than firms backed by VC/PE investors. The coefficients for the other two groups are negative, but not significantly so, suggesting they are closer to family firms in valuing control but not quite as extreme. We conclude that family firms are very focused on control rights, private equity firms care little about control and much about cashing out, while management-controlled firms and firms controlled by other groups lie in the middle of the control rights spectrum.

Contrary to the assumption in such models as Rock (1984), Shah and Thakor (1988), Pagano (1993), and Chemmanur and Fulghieri (1999), we do not find evidence that diversification is a motive for going public. Diversification should be especially valuable for owners of very risky firms, which we measure by the idiosyncratic volatility of equity returns of matching firms. However, the coefficient on this variable, included in model (3), is never significantly different from zero.

The results in Table 7 suggest that the private benefits of control are a major factor in the decision to remain private. Not only are family firms less likely to go public, but firms that do not constrain the activities of their CEOs through audit and compensation committees are significantly less likely to go public, which is consistent with the view that the regulations associated with being a public firm would prevent certain firms from having an optimal level of managerial autonomy. In other words, this empirical finding strongly supports the main prediction in Boot et al. (2006). Likewise, firms with a high percentage of insiders on the board in our sample are more likely to remain private rather than reconstitute the board with outsiders, as required by the exchanges. We should note that the fraction of insiders on the board (sometimes including family members) is related to who controls the firm, which reduces the precision of the estimates of the PE/VC indicator variable to some extent.

<sup>23</sup> As mentioned earlier, it is possible that in our sample, the value of serendipitous information has already been incorporated by having publicly issued debt securities, and that going public to realize those benefits would be redundant.

**Table 8**

Pre- and post-IPO characteristics among 23 private firms that later went public.

|                                                | N  | Pre-IPO | Post-IPO |
|------------------------------------------------|----|---------|----------|
| <i>Growth opportunities:</i>                   |    |         |          |
| Capital expenditures                           | 20 | 9.09    | 9.33     |
| R&D expenditures                               | 20 | 4.47    | 5.24     |
| 1-year asset growth                            | 12 | 65.88   | 30.49    |
| <i>Control measures:</i>                       |    |         |          |
| Inside ownership                               | 23 | 34.9    | 21.9***  |
| Outside ownership                              | 23 | 52.1    | 31.6***  |
| Board size                                     | 23 | 6.4     | 8.1**    |
| Insiders on board                              | 23 | 41.2    | 28.6***  |
| Existence of audit and compensation committees | 23 | 43.5    | 91.3***  |

Notes. Sample includes 23 firms that went public after 1996, including one firm whose subsidiary went public (a spin-off). Pre-IPO data are from year-end 1996, while post-IPO data are from the first 10-K or proxy after the IPO. Two firms do not have post-IPO 10-Ks and the spin-off firm is excluded from the growth opportunities calculations.

\*\* The average change is significant at the 5% level.

\*\*\* Idem, 1% level.

### 3.5. Corporate activity after 1996

Reasons for going public can also be inferred from observed corporate activity from 1997–1999 for those firms of our sample that go public after 1996 (Table 8). Earlier, we saw little evidence that greater growth opportunities – as proxied by capex, R&D, and asset growth – spurs firms in our sample to relinquish private status. Post-IPO data also support the implication that growth opportunities are not vital at the margin: capital expenditures, R&D, and asset growth show insignificant change for the sample for either the first, second, or third year after the IPO (only the first year results reported). Thus, our results continue to indicate that, at least for our sample of firms, firms do not go public principally to raise capital to exploit growth opportunities.

Likewise, the post-IPO data are consistent with our earlier findings that suggest that control considerations play a major role in determining which firms go public. Firms tend to be less influenced by family and management subsequent to the IPO, and they change their boards to meet the requirements of public firms. For example, we see that inside ownership declines from 35% to 22% on average in the years subsequent to the IPO.<sup>24</sup> In addition, board size increases as more outsiders are added, and nearly all the firms have audit and compensation committees once they are public. Thus, firms that go public appear to have in mind even further relinquishing of control and autonomy subsequent to the IPO.<sup>25</sup>

### 3.6. Are family-controlled firms inefficiently run?

While the above results establish that control is a key motivation for firms to forgo going public, it remains an open question whether or not such control is inefficient. Although family-controlled firms are associated with weaker governance, they need not be inefficiently run (see Anderson and Reeb, 2003a; James, 1999; Villalonga and Amit, 2006). Further, among the family-controlled firms that are run by the founder, inefficiency may be even less likely if more managerial autonomy is the result of (constrained) firm value optimization, as hypothesized in the model of Boot et al. (2006). We investigate efficiency by examining differences in operating performance between the four groups (Table 9).

<sup>24</sup> The change in inside ownership subsequent to the IPO offering is similar in scale to what is documented in Helwege et al. (2007).

<sup>25</sup> In unreported results, we also observe that the fraction of private firms in our sample that are subsequently taken over by merger after 1996 is greater than the fraction that try or succeed in going public, and that the frequency of IPOs followed by mergers is low. This suggests that firms tend not to use the IPO as the first step in the stage of selling the firm, as would be expected by the theories of Zingales (1995) and Mello and Parsons (1998).

**Table 9**

Governance characteristics and performance.

|                                      | Return on assets (ROA)        |                               | ROA-matched sample firm ROA   |                               |                               |
|--------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                      | (1)                           | (2)                           | (3)                           | (4)                           | (5)                           |
| Intercept                            | 0.04<br>(0.15)                | 0.07<br>(0.18)                | 0.17<br>(0.18)                | 0.24<br>(0.22)                | 0.19<br>(0.18)                |
| Founding family involved             | 0.09 <sup>*</sup><br>(0.05)   | 0.07<br>(0.07)                | 0.11 <sup>*</sup><br>(0.07)   | 0.08<br>(0.08)                | 0.11 <sup>*</sup><br>(0.07)   |
| Outside blockholder exists           | −0.17 <sup>**</sup><br>(0.07) | −0.17 <sup>**</sup><br>(0.07) | −0.25 <sup>**</sup><br>(0.09) | −0.26 <sup>**</sup><br>(0.09) | −0.24 <sup>**</sup><br>(0.09) |
| Fraction of insiders on board        | 0.0005<br>(0.0008)            | 0.0004<br>(0.0009)            | 0.001<br>(0.001)              | 0.0008<br>(0.0011)            | 0.001<br>(0.001)              |
| Standard deviation of equity returns | −0.51<br>(0.42)               | −0.44<br>(0.43)               | 0.32<br>(0.50)                | 0.42<br>(0.51)                | 0.28<br>(0.50)                |
| Leverage                             | 0.04<br>(0.04)                | 0.04<br>(0.04)                | −0.07<br>(0.05)               | −0.06<br>(0.05)               | −0.06<br>(0.05)               |
| R&D/sales                            | 0.002<br>(0.015)              | 0.004<br>(0.016)              | −0.003<br>(0.019)             | −0.0009<br>(0.0196)           | −0.002<br>(0.019)             |
| Size                                 | −0.01<br>(0.02)               | −0.01<br>(0.02)               | −0.07 <sup>**</sup><br>(0.02) | −0.07 <sup>**</sup><br>(0.02) | −0.07 <sup>**</sup><br>(0.02) |
| Age of firm                          | 0.04 <sup>**</sup><br>(0.02)  | 0.05 <sup>**</sup><br>(0.02)  | 0.04 <sup>*</sup><br>(0.02)   | 0.04 <sup>*</sup><br>(0.02)   | 0.04 <sup>*</sup><br>(0.02)   |
| Controlled by private equity         | –                             | −0.04<br>(0.09)               |                               | −0.10<br>(0.11)               | –                             |
| Controlled by CEO's family           | –                             | 0.008<br>(0.097)              |                               | −0.02<br>(0.12)               | –                             |
| Controlled by non-family management  | –                             | −0.05<br>(0.10)               |                               | −0.08<br>(0.12)               | –                             |
| Has audit and compensation committee | –                             | –                             | –                             | –                             | 0.02<br>(0.06)                |
| CEO is also CBD (duality)            | –                             | –                             | –                             | –                             | −0.05<br>(0.06)               |
| One-digit SIC variables included?    | Yes                           | Yes                           | No                            | No                            | No                            |
| Adjusted R <sup>2</sup>              | 0.10                          | 0.09                          | 0.10                          | 0.09                          | 0.10                          |

Notes. The dependent variable is return on assets (EBITDA over assets) in models (1) and (2). In models (3)–(5), the dependent variable is the firm's ROA less the ROA of a similar sized firm in the same industry. The founder of the company is self-proclaimed as such in SEC documents or described as such in financial news sources. "Founding family involved" means family members of the founder are employees of the firm or are board members, according to SEC filings. CEO duality, outside blockholders, the fraction of outsiders on the board, and whether firms have compensation and audit committees are determined from information in SEC filings. Standard deviation of equity returns is calculated using the five-year monthly returns (when available) for a matching firm in the same industry that is similar in size. Size (log assets), R&D, and sales are from Compustat, Compact D or SEC filings. Age of the firm is the log of years since operations began. "Controlled by private equity, family, and non-family management" are indicator variables for firms with more than 50% voting power in the hands of private equity, family or non-family management, respectively, or firms where no one has a majority of the votes but one of these groups has the largest block. Leverage is long-term debt over assets.

<sup>\*</sup> Significance at the 10% level.

<sup>\*\*</sup> Idem, 5% level.

<sup>\*\*\*</sup> Idem, 1% level.

In the first two models presented in the table, we regress return-on-assets (ROA) on firm characteristics and control for industry effects using indicator variables as in [Anderson and Reeb \(2003a\)](#). However, as the number of observations in each industry is small, the indicator variables are created for one-digit SIC codes. An alternative method of controlling for industry effects is to compare the private firm's ROA with that of a similar size firm in the same four-digit industry. Besides controlling more precisely for industry effects, the latter method also uses fewer degrees of freedom. The dependent variable in the last three models of [Table 9](#) is this match-adjusted ROA. Following [Anderson and Reeb \(2003a\)](#), our control variables include outside blockholders, the fraction of outsiders on the board of directors, the standard deviation of equity returns, leverage, R&D, size and firm age. Consistent with their study, we find that ROA is higher in family-run firms and in founder-run firms (not reported). The family-run firm indicator (based on management positions) is significant, albeit at the

10% level, whenever the family-control indicator (based on shareholdings) is not included at the same time. Except for this variable indicating the degree of family involvement, which has a positive effect, we find no relationship between the private benefits of control and firm performance. ROA is neither affected by who owns most of the firm's shares nor by (non-family) aspects of the structure of the firm's board.

A further test of the effect of control on performance is to examine the likelihood of bankruptcy after 1996. Our sample is relatively small and only 13 of the firms file for bankruptcy or default on debt in the three calendar years after 1997, so we are not able to estimate a multivariate logit of the probability of financial distress. Nonetheless, we can investigate whether any of the four groups is disproportionately likely to see its firms fail. On the whole, the bankruptcy rate of 7.8% for our sample of private firms over a three-year period is relatively high – among the matching firms, the rate is only 1.9%. By group, we find that 9 of the 13 cases of financial distress occur in firms that are controlled by VC/PE firms while the remaining 4 cases are split between family firms (1 case), management (2 cases), and other (1 case). The only group with significantly less financial distress than the VC/PE-controlled group is the family-controlled group of firms ( $p$ -value = 0.014). While one might conjecture that lower leverage for family-controlled firms accounts for these results, both the VC/PE-controlled firms and family-controlled firms have significantly higher leverage than the other groups. At least based on the *ex post* outcomes for this small sample, it appears that family-controlled firms make exceptional efforts to avoid bankruptcy. Certainly, we find no evidence that the private benefits of control in family-run firms reduce efficiency.

Lastly, we consider the impact of control on efficiency through investment policy. Previous researchers have debated the investment objectives of family firms (e.g., Anderson et al., 2008). Using our panel dataset, we compare the ratios of capital expenditures to assets for our private firms and the public firms on Compustat (counting the firms in our sample that go public after 1996 in the latter group once they are public). While the number of private firms in years other than 1996 is somewhat limited, the ratios of private and public firms are not significantly different from each other in any year except 1998.<sup>26</sup> For a panel of both private and matching public firms, we also regress the capital expenditure ratio on the industry ratio of market to book, a private firm dummy, and an interactive term, but the interactive variable is never significant, which suggests that private firms are neither more nor less sensitive in their capex policy to market valuations than public firms. Neither does the family firm subset of private firms show more or less sensitivity of investment to market-to-book ratios.

#### 4. Conclusion

The propensity to go public is quite high in the U.S., but many firms remain private, even those that are quite large. Little is known about the many private firms in the U.S., or indeed in virtually any country, but in this study we are able to investigate one group of private firms because they are required to file with the SEC. We consider firms that are private as of December 1996 to determine why they choose to be private. As a reference point, we compare summary statistics on these private firms with firms on Compustat and firms that did IPOs during 1997–1999. We also examine which of the private firms in our sample appear to prefer public status, either by completing an IPO during 1997–1999 or by filing for an IPO near that time period.

Compared to the typical IPO or public firm, the private firms in our sample are quite large and leveraged. We find only slight evidence that a debt overhang problem prevents them from raising capital in the public equity market. Given their large size and concentrated ownership, one would expect that the desire for diversification would eventually push them to public ownership, yet we find no evidence to support this idea. This result is in sharp contrast to Bodnaruk et al. (2008), who study private firms in Sweden. Perhaps this reflects the ease with which American firms can expand their

<sup>26</sup> In 1998, the private firms have capex to assets ratios of 9.6%, compared to 7.2% for public firms. However, in that year, the private sample includes only 95 firms, so the inference might be limited. The results are qualitatively similar when the comparisons are done with the matched sample.

shareholder base through the issuance of private equity. In our sample, more than a third of the firms have raised so much equity from private equity specialists that the latter group controls the majority of the voting shares. And only a dozen firms in the sample are owned by a single shareholder.

The desire to go public appears to be fairly limited in our sample as only 41 of our 181 firms file or complete an IPO in our period of study. However, the inclination to go public varies sharply in our sample, depending on who owns the firm. Of the 41 firms in our sample that file for or complete an IPO, 23 (56%) are controlled by VC/PE investors. In comparison, VC/PE firms only control 50 of the remaining 140 firms (36%). At the other end of the spectrum are the family-controlled firms, which we find to have significantly lower probabilities of filing for an IPO, even holding constant growth opportunities, size, age, and financial distress.

Governance characteristics of family-run firms may explain why they are less likely to go public. As noted by Boot et al. (2006), listing regulations limit the autonomy of management. If requirements such as outsider-dominated boards and independent audit committees result in a suboptimal governance structure for the firm, the firm may prefer to stay private. While the family-controlled firms in our sample are significantly less likely to have a governance structure that conforms to listed firm norms, we find no evidence that these firms are less efficient than the other private firms in our sample. Although control rights are a major determinant of whether firms go public or remain private, they do not appear to have detrimental effects on firm efficiency.

## Acknowledgments

We are grateful for helpful comments from Soehnke Bartram, Ekkehart Boehmer, Natasha Burns, Walid Busaba, Laura Field, Simi Kedia, Phyllis Keys, Michael Leiblein, Josh Lerner, Alexander Ljungqvist, Henock Louis, Michelle Lowry, Lubomir Petrasek, David Reeb, Jay Ritter, Sergei Sanzhar, Rene Stulz, Karen Wruck, John Wald, Ralph Walkling, John Wolken, seminar participants at the University of Arizona, Bank for International Settlements, 2000 Financial Management Association, George Mason University, Indiana University, University of Kentucky, Ohio State University, Penn State University, University of Texas at San Antonio, University of Toronto and University of Western Ontario. We thank Grace Adelson, Josh Adelson, Niki Boyson, Sabina Golden, Scott Hively, Kuan Lee, Mingqiang Li, Qin Wang, Yuan Wang, Guang Yang, and Ka Lok Yuen for research assistance.

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