Why Do Public Firms Issue Private and Public Securities?

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ABSTRACT

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Comments Welcome

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1 Introduction

This study is a comprehensive examination of why public firms issue different security types and why they issue these securities in private versus public security markets. We study both private and public issues of debt, convertibles and common equity - a total of 6 different security-market choices. Our comprehensive database allows us to assess the factors that impact both security type and market choice. Private security markets are of increasing importance for public firms. Of the over 13,000 issues by public firms we examine, more than half are in the private market, comprising issuances of equity, debt and convertible bonds and convertible preferred stock (henceforth convertibles). Among firms choosing to issue equity or convertibles, 58 percent of the issues are in the private market. Furthermore, 81 percent of small public firms (firms in the lowest size quartile) that issue equity or convertibles issue in the private market.

We explore several major determinants of the market in which firms sell securities and the type of securities that firms issue. First, the existence of asymmetric information may induce firms to sell securities to private parties who may be better informed or who may more efficiently produce information, thus mitigating adverse selection problems. Second, firm risk and investment opportunities may influence the choice of market in which firms sell securities and the security a firm issues to mitigate agency problems. Third, trade-offs between taxes, profitability and distress may impact security issuance decisions.

Our study uses a new methodology and a comprehensive database to examine the key factors driving security and market choice. This new approach allows us to *jointly* determine how security issuance decisions of multiple types and in different markets are used by firms as a mechanism to address asymmetric information and agency problems. Our study links three different databases, a private equity and convertible database, a private debt database and the SDC new issue database, to Compustat and CRSP in order to examine issuance decisions. We also link these databases to IBES to use analyst earnings estimate data to construct measures of asymmetric information.

We have three central *new* results on security issuance in this paper. First, our results show that measures of asymmetric information are major determinants of security issuance decisions both across markets and across security type. Our results on asymmetric information show that the distinction between public and private markets is very important. The results show that *conditional* upon issuing in the public market, the probability of firms issuing equity declines, and the probability of issuing debt increases, with analyst earnings surprise and dispersion (our measures of asymmetric information). However, we find that *conditional* upon issuing in the private market, we find that the probability of public firms issuing private debt decreases with asymmetric information and slightly increases for firms that issue private equity and convertibles. The overall range of the sensitivity of security issuance to asymmetric information is also

lower in the private market. We call these results the pecking order of *security issuance*. We also show that the probability of public firms issuing private over public securities is positively related to our measures of asymmetric information for all security types. Lastly, we find that stock market returns around equity issues are negatively related with the degree of information asymmetry for public equity and convertible offerings but the reverse holds for private equity offerings. This evidence is consistent with the view that public investors believe that private investors produce or obtain valuable information, and learning about private investments is more valuable when there is a higher degree of asymmetric information.

Second, we find a fundamental difference in the market timing of security decisions in the public and private markets. We find that firms are more likely to issue public equity as opposed to private equity after their stock price has risen recently. We also show that security issuance to the public markets - but not the private markets - more closely follows earnings reports. These results show market timing of security issues to the public market where public investors are more likely to face asymmetric information and a relative lack of timing of security issues to private investors.

Third, we find that profitability, distress and taxes are very important factors for security issuance in the private security markets but distress and taxes have only weak to insignificant effects in the public market. In the private securities market - consistent with the classic trade-off motivation for issuing securities - we find that higher marginal tax rates and profitability increase, while financial distress decreases, the probability of firms issuing debt in the private markets. These results provide strong support for the trade-off theory in private markets. Hovakimian, Opler and Titman (2001) also find that trade-off variables, and in particular profitability, impact security issuance using Compustat data. Our results show that distress and taxes are important for private but *not* public security issuance.

We also find that risk and investment alternatives and the associated potential agency problems between equityholders and debtholders are important to security issuance across markets. However, while these results are important they are largely consistent with previous empirical evidence.[2] Given that we view these results as less novel, we focus on the three major new findings that we document. We do note that by considering all the security-market choices rather than a more limited choice set allows us to draw some novel implications with respect to the influence of risk on security issuance. In particular, we show empirically that firms issue private debt for moderate levels of risk but firms with high levels of risk and asymmetric information tend to issue private convertibles or equity.

While we do not examine the traditional Myers and Majluf (1984) pecking order theory of capital structure, our overall results on security issuance show that traditional pecking order theory and tests of theories of security issuance need to take into account the market a security is issued in as well as the type of security. Our results for security issuance conditional on issuing in the public markets do provide

[2]For example, the private-public debt choice has been explored by Houston and James (1996), Krishnaswami et al. (1999), Cantillo and Wright (2000) and more recently by Denis and Mihov (2002). Faulkender and Petersen (2005) also illustrate the importance of a firm's source of capital for its financing decisions. They show that firms with access to the public debt markets have significantly more leverage.

support for a traditional pecking order of security issuance. However, our study does not overall support a traditional pecking order as we find a slight positive sensitivity of private equity and convertibles issuance to asymmetric information versus a negative sensitivity for private debt.

Our results are broadly consistent with the private markets functioning very differently than public markets vis à vis information asymmetry. Our results are consistent with private investors having better information or ability to evaluate firm quality, or firms using the private market in order not to release sensitive information to competitors.[3] The results are also consistent with Fulghieri and Lukin (2001) who argue that incentives for information production by private investors are higher the more information-sensitive the securities being issued are and predict private equity securities are more likely than debt securities to be issued by firms with asymmetric information when private offerings are attractive.

Previous results on the pecking order and the importance of asymmetric information have been mixed. Shyam-Sunder and Myers (1999) find support for the pecking-order theory on a sample of large firms. However, Frank and Goyal (2003) and Leary and Roberts (2004b) do not when analyzing a larger sample of firms that includes small firms. They also note that small firms who are likely to be subject to adverse selection problems frequently issue equity, casting doubt on the importance of asymmetric information. Based on their findings, Helwege and Liang (1996) also conclude that asymmetric information is not important for security issuance decisions. Finally, Lemmon and Zender (2002) find support for the pecking order when adding a firm's debt capacity and desire for financial slack.

We show that a potential major reason for these mixed findings is that it is of fundamental importance to identify not just the type of security but also the market in which securities are sold. Previous papers examining security choice treat private equity and convertibles as equivalent to public equity and convertibles. Specifically, previous papers examining multiple security types use Compustat statement of cash flows to identify equity and debt issues and thus do not separate out public equity and convertibles from private equity and convertible issues.[4] Our results show that firms that issue in public and private markets are fundamentally different and their security issuance decisions conditional on market sold exhibit markedly different sensitivities to asymmetric information. We find no sensitivity to asymmetric information when we combine security issues across public and private markets.

Fama and French (2002) also recognize that the statement of cash flows does not identify the source of equity capital for the firm. They show that equity is issued in many different markets and that issues of equity to employees and in mergers are much greater than public issues of equity for most firms.[5] They

[3]Note the securities disclosure laws, including Regulation FD, exempt communications by the firm from the disclosure restrictions when those communications are to investors who " have expressly agreed to maintain the communication in confidence pursuant to a confidentiality agreement." An article by Houston and Laitin (2000) at the law firm Robins, Kaplan, Miller and Ciresi L.L.P., states: "As a result, companies should require confidentiality agreements prior to disseminating diligence materials or offering memoranda that contain material non-public information to securities market professionals or shareholders who are likely to trade on the information."

[4]Papers by Mackie-Mason (1990) and Helwege and Liang (1996) do identify private debt issues but still combine public and private equity issues as one type of security. These papers also do not find support for a pecking order of security issuance.

[5]Fama and French (2002) use changes in the number of shares and the average market price to identify equity issues. This

show that firms, including small firms, issue equity frequently and conclude that asymmetric information is not important to capital structure and that the traditional Myers' pecking order of capital structure does not hold. They, however, do not focus on the distinction between public and private markets. Our results are not inconsistent with Fama and French - who examine capital structure - as firms with different degrees of asymmetric information may still issue the same type of security but choose to issue in private versus public markets.

Our results showing that the probability that firms issue privately increases with asymmetric information for all security types extend the results of Hertzel and Smith (1993) and Wu (2003) who, examining just equity issues, find support for measures of asymmetric information being important for private placements of equity. By examining all securities in addition to equity, we are able to test for the impact of asymmetric information across securities and specifically to test for a pecking order (differential sensitivity) of security issuance within public and private markets.[6]

Our results on market timing join a growing literature. There is evidence of timing effects of security issuance on capital structure - although the persistence of these effects is still uncertain. Baker and Wurgler (2002) find a long-run effect on capital structure, while Leary and Roberts (2004a) and Kayhan and Titman (2004) present new evidence that shows that the market timing effect on capital structure exists only for a shorter period. We examine the market timing of security issuance decisions. There has been consistent evidence beginning with Asquith and Mullins (1986) that a firm's stock increases sharply prior to the firm issuing additional public equity. Korajczyk and Levy (2003) find evidence that firms that are unconstrained time their security issues to coincide with periods of favorable macroeconomic conditions. Chang, Dasgupta and Hillary (2004) provide evidence of market timing to public equity markets by firms with low analyst coverage. Korajczyk, Lucas and McDonald (1991) provide evidence of time varying asymmetric information consistent with Lucas and McDonald (1990). They show that equity issues are clustered following earnings announcements. Our evidence indicates significantly more issue timing, both for timing relative to stock market increases and for timing relative to earnings announcements for all security types, occurring in the public markets vis à vis the private markets.

The paper proceeds as follows. In the next section, we discuss the theoretical and empirical literature in more detail and present a reduced form model for our empirical analysis. Section 3 describes the data. Section 4 presents the empirical results and discussion. Section 5 concludes.

method does not identify private versus public equity issues. Leary and Roberts (2004b) also use the Fama and French method to identify equity issues and also find the traditional pecking order theory of capital structure does not hold.

[6] As we discuss in the last section of the paper, these results are robust to the identification of price-protected private issues that have been analyzed by Chaplinsky and Haushalter (2003) and Brophy et al. (2004).

2 Theoretical Background and Framework for Security-Market Choice

A substantial amount of theory has focused on the role of asymmetric information and agency problems as primary determinants of the choice of security and market. In this section we review the main predictions of these models. From the theory we present testable hypotheses that we will examine. We then formulate a reduced form econometric model that enables us to test these hypotheses. More generally, the econometric model will allow us to estimate the implied sensitivity of the firms' security issuance choices to proxies for asymmetric information, agency problems and market timing. We also test the impact of trade-off variables, including taxes, profitability and financial distress variables on security and market choice.

A. Theoretical Background

A1. Asymmetric Information

One large strand of the literature focuses on problems related to adverse selection due to ex-ante information asymmetries between managers and investors. The classic article is Myers and Majluf (1984) that shows that asymmetric information results in a pecking order for external finance - with less informationally sensitive securities such as debt being chosen first by firms with asymmetric information. Moreover, this adverse selection problem may result in underinvestment because undervalued firms may refrain from raising finance due to the dilution cost of selling underpriced securities. Several papers that followed study how security design may mitigate or solve the adverse selection problem. In particular, Brennan and Schwartz (1987) and Brennan and Kraus (1987) demonstrate that convertible securities can be used to solve the adverse selection problem.

The second large strand of the literature focuses on the incentives of investors to become informed and produce information about firms. Private placements to one or few investors (as opposed to an offering to dispersed public investors) is another mechanism that can resolve the adverse selection problem. In the context of debt offerings, Boyd and Prescott (1986) and Diamond (1984) argue that intermediaries such as banks have a cost advantage in producing information because a public offering to dispersed investors leads to either duplication of effort or a free-rider problem. In the context of equity offerings, Chemmanur and Fulghieri (1999) and Maksimovic and Pichler (1999) model how asymmetric information affects the choice between going public and private placements. Chemmanur and Fulghieri (1999) show that firms with significant information asymmetry may prefer a private placement over going public, because private investors have higher incentives to produce costly information than dispersed public investors.[7]

The benefits of private placements vis à vis public offerings are also likely to be increasing in the information-sensitiveness of the security being issued. Private investors' information production capabilities are likely to be more relevant for equity issues than debt issues, as private information learned during the due diligence process is likely to impact more the value of equity than debt. Therefore, we expect to see

[7]The cost of private placements though is that public offerings allow for better diversification of risks and more liquidity. Private placements may also give private investors a costly information monopoly or too much bargaining power (Rajan (1992)).

the difference in the likelihood of issuing private versus public equity will be larger than private versus public debt as asymmetry of information becomes more severe. Similar relationships should hold for the comparison between equity and convertibles and between convertibles and debt.

The interaction between the security and market choice and asymmetric information is explored in Fulghieri and Lukin (2001). They show that incentives for information production by investors depend on the degree of information sensitivity of the securities being issued. Issuance of more information-sensitive securities provides greater incentives for information production by investors, thus reducing the extent of information asymmetry and conveying a more positive signal to uniformed investors. Fulghieri and Lukin predict a reversal of the pecking order when the costs of producing private information are relatively low, with the likelihood of issuing equity relative to debt being positively related to the degree of information asymmetry. However, the classic pecking order still holds when the costs of producing private information are high, in which case the firm is more likely to make a public offering.

Overall, these theories suggest several testable predictions:

> *ASY 1:* Conditional on a public offering we expect a pecking-order probability ordering of security issuance to hold. Conditional on a private offering the reverse of this ordering should hold. That is, the likelihood of issuing securities that are more information sensitive is increasing (equity being the most information-sensitive security) or decreasing with the degree of information asymmetry depending on whether the securities are placed privately or publicly, respectively.
>
> *ASY 2:* Conditional on the security type, the likelihood of firms issuing private securities versus public counterparts is increasing with the degree of asymmetric information.
>
> *ASY 3:* The likelihood of switching from public to private markets, conditional on a security type, is increasing with the information sensitivity of the security.

Empirically, early studies that examine stock returns around offerings are consistent with theory predictions. Wruck (1989), Hertzel and Smith (1993), Allen and Phillips (2000), Chaplinsky and Haushalter (2003), and Brophy et al. (2004) find positive stock market returns around traditional private placements of equity and convertibles. These results are in contrast to the negative returns around public offerings of securities found in Asquith and Mullins (1986), Masulis and Korwar (1986), and Mikkelson and Parch (1986).

Chaplinsky and Haushalter (2003) and Brophy et al. (2004) also examine separately price-protected or floating rate convertibles from traditional private securities without price-protection conversion features. Price-protected security issues provide investors with additional securities if the stock price decreases after the closing. In floating rate issues, the conversion price is reduced and investors receive more common shares upon conversion, while in the traditional or fixed rate convertibles the conversion rate is fixed.

They find the excess returns to these price-protected issues are negative. We examine the robustness of our overall results to these security issues in the last section of our paper.

The asymmetric information theories also have implications for the stock price market reaction around issues depending on the security-market choice. We add to the existing empirical results on abnormal returns by examining whether the predicted relations between information asymmetry and returns in *each* market hold.

> *ASY 4:* The abnormal return around issues should be negatively (positively) related with the degree of information asymmetry for public (private) offerings of information sensitive securities such as equity.

Related to asymmetric information, we also examine the extent that firms issue securities in markets based on recent market performance or market timing. We look at the effect of market timing on security issuance across private versus public markets. The hypotheses regarding market timing that we investigate are simple. We examine whether firms are more likely to issue public equity versus private equity after periods in which firms stock has risen. We also examine if security issues are clustered symmetrically before and after earnings announcements for private as well as public issues.

A2. Risk, Investment Opportunities and Agency Problems between Claimants

The literature has emphasized two classical types of agency problems between security holders: the asset substitution problem (Jensen and Meckling (1976)) and the debt overhang or underinvestment problem (Myers (1977)). These problems are more severe for firms with volatile cash flows and low profitability (riskier firms) because the chances of entering in financial distress are higher, and agency problems are particularly acute for firms in financial distress. Also, agency problems are stronger for firms with better investment opportunities (often proxied by Tobin's q and research and development expenditures) due to the higher potential cost of passing up valuable investment opportunities and the greater flexibility to undertake excessively risky projects.

The simplest solution to these debt-holder and equity-holder agency problems is to issue equity rather than debt.[8] Moreover, Green (1984) and Brennan and Schwartz (1988) propose that convertibles can mitigate agency costs of debt as convertibles provide incentives for managers not to undertake projects with excessive risk.

Private placement of debt is another solution to the problem (Blackwell and Kidwell (1988), Diamond (1991), and Ramakrishnan and Thakor (1984)). When debt is sold to a smaller number of private investors they have more incentives to produce costly information and monitor the firm than dispersed public bondholders. Moreover, private debt is advantageous when the firm enters in financial distress because public debt is governed by the Trust Indenture Act of 1939, which makes renegotiation of public debt

[8]However, equity issues have other costs, such as adverse selection costs and no interest tax shield benefit.

contracts more difficult than private debt (see Gorton and Winton (2003) for a recent survey of the literature). Both considerations also apply to convertibles - however we have not seen any references to this possibility in the literature.

The testable implications of these theories are thus the following:

> *AG1:* The likelihood of firms issuing equity and convertibles is increasing with risk and investment opportunities, for both private and public markets.
>
> *AG2:* The likelihood of firms issuing private placements of debt and convertibles versus public placements of debt and convertibles respectively is increasing with risk and investment opportunities.

Agency problems between managers and shareholders can also create significant distortions. The importance of debt as a mechanism to mitigate agency problems has been argued by many, notably Jensen (1986). The threat of takeover or loss of control is an alternative (or substitute) mechanism to the use of debt in curbing managerial distortions. Indeed Jensen and Ruback (1983), and Shleifer and Vishny (1989) argue that agency problems among shareholders and managers are particularly severe when managers can resist hostile takeovers. Another mechanism to deal with managerial excess considered in the literature (e.g., Shleifer and Vishny (1989) or Kahn and Winton (1998)) is monitoring by large shareholders. A private placement of a block of shares to an investor that naturally becomes a large shareholder is a direct way to improve monitoring and concentrate ownership.

Managers, however, have discretion over leverage decisions and the use of debt or monitoring itself may be plagued by conflicts. The more antitakeover defenses the firm has the lower can the debt level and the lower the probability of issuing debt securities as modeled by Zwiebel (1996). Similar considerations are likely also to impact the likelihood of using a monitor.

Empirically, Hertzel and Smith (1993) and Wu (2003) do not find evidence that private placements are motivated by monitoring. Recently, Barclay, Holderness and Sheehan (2003) examine long-run equity returns following private placements and find evidence consistent with the conclusion that discounts to private equity are compensation to private blockholders for passively allowing management to become more entrenched. Our interpretation of the current theory and evidence is that the predictions for security issuance are mixed depending on whether managers with poor current governance have discretion in choosing securities. We do not formulate specific hypotheses for managerial agency problems in this paper, but rather just include corporate governance provisions in our specifications to examine empirically whether these provisions impact security issuance differentially in public and private markets.

Finally, incentives to use debt financing increase with a firm's marginal tax rate due to deductibility of interest expenses. So the incremental use of debt (and convertibles) could be driven by tax motives. Graham (1996) provides evidence that high-tax-rate firms issue more debt than low-tax-rate firms. In our

analysis we also include the Graham's marginal tax rate as a control variable to evaluate the importance of taxes relative to other key variables for issuance decisions in public and private markets.

B. Reduced Form Model of Security-Market Issuance

We estimate several different econometric models of security-market issuance decisions. These models allow us to precisely test the predictions from the theories formulated in section 2A.

Our reduced-form econometric model assumes that the firm wants to raise external funds I to invest in a project with positive NPV. Let the NPV of a firm when issuing security j be $V_j(x)$ net of direct and indirect issuance costs, where x is a vector of exogenous, observable firm characteristics, and $j = e, c, d, E, C, D$ denotes, respectively, private equity, private convertibles, private debt, public equity, public convertibles, and public debt. The firm chooses the securities-market J that maximizes firm value. We model the (unobserved) value function as a linear function of observed relevant firm characteristics plus a random noise. We will consider several different specifications, both multinomial logit and nested logit models, for the security issuance decision based on different assumptions about the random noise or error.

The *multinomial logit model* is one of the models we estimate. In this model the random errors for each choice are independent and identically distributed with the extreme value distribution. The multinomial logit model, while appealing due to its simplicity, turns out not to be a good model for security issue decisions.[9] This model assumes that choices between any two alternatives are independent of the others– i.e. the independence of irrelevant alternatives (IIA) assumption. The IIA assumption says that if one of the alternatives is removed from the model, the other alternatives will have a proportionate increase in their probability of being chosen. It turns out that when we estimate the model without private convertibles, private equity and private debt disproportionately gain in probability versus the other choices.

Thus we also estimate more general *nested logit models*, which do not impose the IIA assumption. We estimate two different nested logit models: Model 1 where unobserved factors affect security choice conditional on market, causing errors to be correlated across securities within markets; and Model 2 where unobserved factors affect market choice conditional on the security choice, causing errors to be correlated across markets for the same security issued.[10]

All three models are estimated using the maximum likelihood estimation method. The multinomial logit model arises as a particular case of the nested logit models (when all errors are uncorrelated) and we reject this model. While there is no formal test of Model 1 versus Model 2 given they are not nested models, we do examine the estimated unconditional probabilities arising from each model and find that they are very similar and the conclusions we can make about *unconditional* probabilities are the same from either model. The advantage of these two models is that they allow us to estimate different *conditional*

[9] We do present the results of the simultaneous choice multinomial model in an appendix available from the authors for comparison purposes. If one examines these results our conclusions are similar and the results actually stronger than the nested logit models.

[10] Another possibility is to use a multinomial probit model with a general correlation structure. We attempted to estimate this model, however it did not converge. Multinomial probit models are known to be computationally very intensive and become impractical when the number of choices is above three and there is a large number of observations.

probabilities that are economically interesting. In particular, the theory, most notably Fulghieri and Lukin, makes predictions about issuance decision that are conditional on the market chosen (see hypothesis *ASY1*); moreover other hypotheses such as *ASY2* and *ASY3* make predictions about issuance conditional on the security chosen.

Model 1: The market-security nested logit model. This model estimates the unconditional sensitivity of the probability of choosing a market (public or private) to firm and market factors, and the sensitivity *conditional on market type* of the probability of choosing to issue debt, convertibles or equity. This model thus allows for a test for a probability ordering of the conditional sensitivity of security issuance decisions to firm and market factors. In this nested logit model, the choice between security type conditional on the market (or nest) is assumed to be correlated, and the errors across markets are uncorrelated (see Train (2003)).[11] The value of each choice is given by:

		Choice 1	
		Private	Public
Choice 2	Equity	$V_e = b_e x + b_{priv} x + \varepsilon_e$	$V_E = b_E x + \varepsilon_E$
	Convertibles	$V_c = b_c x + b_{priv} x + \varepsilon_c$	$V_C = b_C x + \varepsilon_C$
	Debt	$V_d = b_{priv} x + \varepsilon_d$	$V_D = \varepsilon_D$

In the above table $b_j x$ is the additional value from choosing a particular security $j = e, c, E, C$ relative to debt, with $b_{priv} x$ the additional value a firm gets from making a decision to issue in the private markets.

A key property of Model 1, which involves estimating the predicted choice using a nested logit specification, is that the odds ratio between grouped choices, say public equity and public debt, conditional on the firm issuing publicly is explicitly given by

$$\frac{P_E}{P_D} = \frac{\Pr[Y = E|public]}{\Pr[Y = D|public]} = e^{b_E x}.$$

Note that we estimate the choice model using a nested logistic model and thus coefficients from this model represent an increase in the *log* odds ratio relative to the base category (public in the first choice, and debt in the second choice). So, if the coefficient b_E^k for public equity for variable x_k is positive (negative) then increases in this control variable x_k increase (decrease) the relative *log odds ratio* of issuing public equity over public debt, conditional on the firm issuing publicly, i.e. $\frac{d \ln(\frac{P_E}{P_D})}{dx_k} = b_E^k$. Other analogous relationships hold for the relative odds of issuing different securities in the private markets.[12]

Model 2: The security-market nested logit model. This model estimates the unconditional sensitivity of the probability of choosing security type (debt, convertibles, equity) to firm and market factors and

[11] In model 1, it is assumed that the errors have a generalized extreme value distribution (GEV) (see Train (2003)). For any two alternatives in two different nests, say private debt and public convertibles, the errors are uncorrelated, $\text{cov}(\varepsilon_d, \varepsilon_C) = 0$. But for two alternatives in the same nest the errors are correlated.

[12] Model 1 implies that the IIA holds within each nest (security choice given market). We do find that when we estimate a conditional multinomial logit model using just private or public issues the IIA assumption holds.

the sensitivity *conditional on security type* of the probability of choosing to issue in the public or private market. This model thus allows for a test of how the probability of choosing private over public markets, conditional on the security sold, depends on firm and market specific factors. In this model the choice between public and private for each security is assumed to be correlated and the errors across security types uncorrelated (see Train (2003)).[13] The value of the choices is given in the following table:

			Choice 1	
		Equity	Convertibles	Debt
Choice 2	Private	$V_e = a_{priv,e}x + a_E x + \varepsilon_e$	$V_c = a_{priv,c}x + a_C x + \varepsilon_c$	$V_d = a_{priv,d}x + \varepsilon_d$
	Public	$V_E = a_E x + \varepsilon_E$	$V_C = a_C x + \varepsilon_C$	$V_D = \varepsilon_D$

In the above table $a_E x$ and $a_C x$ are the values of choosing equity, E, and convertibles, C, respectively for a given characteristic x (debt is normalized to zero), and $a_{priv,j}x$ is the additional value from the private choice over the public choice for security choice j indexed by j=e,c,d, respectively, equity, convertibles and debt.

As in model 1, we can examine the coefficients from estimating the nested logistic model to examine the impact of an increase in specific variables on the relative log odds ratio. If the coefficient $a^k_{priv,e}$ is positive (negative) then increases in the control variable x_k increases (decreases) the relative log odds ratio of issuing private equity over public equity, *conditional* on the firm issuing equity. Similar relationships apply to convertibles and debt, allowing us to test the various hypothesis discussed in the previous section about the relevance of the market choice conditional on the security choice.[14]

Testing our hypotheses:

Using the coefficients of the nested logit models we can test the following hypotheses related to the specific theories and predictions discussed in section 2.A.

Sensitivity to asymmetric information: Let x_k represent the degree of asymmetric information facing the firm, and let b^k_j ($j = e, c, E, C$) and $a^k_{priv,j}$ be the coefficients with respect to variable k, from Model 1 and Model 2 respectively. We can test the following hypotheses about the importance of asymmetric information:

Hypothesis ASY1: $b^k_E < b^k_C < 0$, for public markets and $b^k_e > b^k_c > 0$, for private markets. That is, a traditional ordering of the sensitivity of security issuance to asymmetric information holds in public markets and the reverse of this sensitivity holds in private markets.

Hypothesis ASY2: $a^k_{priv,e} > 0$, $a^k_{priv,c} > 0$, $a^k_{priv,d} > 0$. This hypothesis says that firms are more likely to issue private securities over public securities as asymmetric information increases, conditional on a given security choice.

[13] Given that there are only two choices in each nest in this model, we do not have to worry about the IIA assumption within nests.

[14] Note that the odds ratio among choices in different nests, say $\frac{P_e}{P_c}$, under the nested logit model 2 is a complicated function of all the alternatives.

Hypothesis ASY3: $a^k_{priv,e} > a^k_{priv,c} > a^k_{priv,d}$. This ordering states that firms are more likely to issue private equity versus public equity than they are to issue private versus public convertibles, and private versus public debt, as the level of information asymmetry increases.

Sensitivity to risk and agency problems: Let x_r represent the risk and investment opportunity variables, and let b^r_j ($j = e, c, E, C$) and $a^r_{priv,d}$ be the coefficients with respect to variable r. We can test the following hypotheses about the importance of agency costs:

Hypothesis AG1: $b^r_E > b^r_C > 0$, for public markets and $b^r_e > b^r_c > 0$, for private markets. If agency cost of debt is important for firms we expect that firms are more likely to issue equity over convertibles, and convertibles over debt as risk and investment opportunities increase.

Hypothesis AG2: $a^r_{priv,d} > 0$ and $a^r_{priv,c} > 0$. This hypothesis says that firms are more likely to issue private debt (convertibles) over public debt (convertibles) as risk and investment opportunities increase.

We do not explicitly state the hypotheses developed for corporate governance and agency problems as they depend on whether value maximization or managerial discretion are the predominant force in security issuance. Which motive dominates will depend on the signs of the estimated coefficients on the corporate governance variable. Moreover, tests of the effect of market timing and taxes can also be inferred from the estimated coefficients on those variables.

3 Data and Variables

A. Data

We study security issuance by public U.S. corporations from January 1995 to December 2003. The data on securities issuance comes from three different databases: PlacementTracker Database of Sagient Research Systems, SDC new issues database, and DealScan database of the Loan Pricing Corporation.

The data source for privately placed common stock (or private equity deals) and privately placed convertibles preferred stock and bonds (henceforth, convertibles) is the PlacementTracker database of Sagient Research Systems. The company specializes in collecting data on private placements of common stock and convertibles primarily from SEC filings such as 8-Ks, 13Ds, 10-Ks and 10-Qs (coverage started in 1995, hence the beginning of our sample).[15] We obtain public offerings of debt, equity and convertibles from the Thomson Financial SDC new issues database.[16]

A private placement is a private sale of unregistered securities by a public company to a selected group of individuals or institutional investors without general investor solicitation. These sales are typically made to a small number of investors (the median (mean) number of investors in our private equity offerings is 3 (5.4)) and are generally conducted in accordance to the "safe harbor" provisions of Regulation D of

[15]Public firms are required to make disclosure about sales of unregistered securities on forms 10-Q and 10-K (item 701 of Regulation S-K), and since August 2004 such disclosures are also required on form 8-K. Moreover, private placements to investors surpassing a five percent ownership threshold have to be disclosed on a schedule 13-D.

[16]We excluded secondary offerings, in which the company is not issuing new shares, and short-term debt offerings (maturity less than one year). We exclude short-term offerings as these are not typically viewed as part of capital structure.

the 1933 Securities Act.[17] Prior to negotiations leading up to the sale of securities privately, investor(s) conducting negotiations with the firm will sign a confidentially agreement that precludes them from trading on any information privately revealed (see footnote 3). In fact, the mere fact that they sign the agreement and learn of the issue classifies them as an insider even if they do not purchase any securities until the issue has been publicly announced.

Private placements of equity-linked securities are also commonly referred to as Private Investments in Public Equity, or PIPEs, and the PlacementTracker database is a comprehensive source of such deals.[18] This source for private equity is more comprehensive than SDC having 2.5 times as many private equity issues for the same period as SDC. After matching with Compustat and CRSP, and excluding financial companies and regulated firms, we have a total of 1,377 private equity issues and 1,156 private convertible issues made respectively by 838 and 748 different companies.

Our sample of private corporate debt is from the DealScan database. DealScan contains information on term loans and revolving credit lines made to U.S. companies by banks or syndicates of lenders. We include in our sample only long-term commercial loans and revolving credit lines (thus, for example, we drop 364-day facilities and any other loan with less than one year of maturity).[19] Companies often borrow using multiple loans or tranches at the same time. In our dataset, we aggregate all tranches into a single transaction or deal adding up the amount of all long-term loans and revolving credit lines. Our final sample of private corporate debt involves 5,609 deals by 2,667 different companies over the 1995-2003 period (mean (median) number of 2.1 (2.0) private debt offerings per company). The most common type of private debt are revolving credit lines (78% of the deals) followed by term loans (18% of the deals)-deal type was determined based on the type of the largest tranche in case of multiple tranches.

We also include in our dataset Rule 144-A convertible and debt issues, which are also private placements of unregistered securities. Rule 144-A transactions are placements to investors that are all Qualified Institutional Buyers (QIBs)- large institutional investors with over $1billion under management. Rule 144-A placements are more liquid than the typical (Reg D) private deal because QIBs are allowed to trade or resell their securities to other QIBs without registration while private securities placed under Regulation D have resale restrictions. Moreover, 144-A transactions are typically made to a significant number of investors. For example, the median (mean) number of investors in 144A-convertible offerings is 33 (41), while in the private convertible offering it is just 2 (3.4). In addition, the company often agrees to register 144-A securities a few months after the offering, making these transactions similar to public offerings. Our sample for 144-A convertibles is obtained from the PlacementTracker database (597 deals) and for the

[17] Regulation D is an SEC Rule that allows public companies to issue stock privately, without the need for public registration prior to the sale, to an unlimited number of accredited investors and no more than 35 non-accredited investors.

[18] PlacementTracker is a main provider of PIPE data to market participants including issuers, investors, and placement agents. We exclude from our sample a few transactions classified as common stock shelf sales and equity line arrangements, because they typically require a registration statement to be effective prior to the sale of the stock, technically making them public offerings.

[19] We also dropped credit lines whose primary purpose is to back-up commercial paper, as those credit lines are seldom used.

144-A debt offerings is obtained from the SDC new issues database (1,017 deals).[20]

In our analysis we are interested in the security choice-equity, debt, or convertibles-and the market choice-private versus public-a total of six choices. The key distinction we explore between publicly and privately placed securities is that in the later there are fewer investors purchasing securities and the private (unregistered) securities acquired are less liquid. Private placement investors are then likely to have more incentives to produce information and monitor. The institutional details and our data indicates that 144-A issues and public issues are similar while 144-A and private offerings are quite different (see for example the results in Table 2B). Thus throughout most of our analysis we aggregate 144-A and public offerings (we also do the analysis excluding 144-A and the results are similar). We also consider a full eight choice model in which we look separately at the choice of 144-A convertibles and debt.

We match the data obtained from these sources to Compustat and CRSP, to obtain information on firm financials and stock prices. Following standard practice in the literature, we excluded from our sample financial firms (SICs 6000-6999) and regulated utilities (SICs 4900-4999). Matching to CRSP and Compustat yields a total of 17,634 transactions during the 1995-2003 period. We drop observations with insufficient stock price information in CRSP (1,506) and without information in Compustat on assets, debt, or earnings at the fiscal year ending before the issue date (1,851). Note that we need data from Compustat for two years prior to the security issue given the lagged debt ratio is computed as debt ratio divided by lagged assets. These requirements give us 13,419 transactions. For these transactions, there are 11,770 observations with data on the marginal tax rate, 10,523 observations with data on corporate governance and 11,209 observations with IBES analyst data. The intersection of these databases yields 8,346 observations used in the regressions.

B. The Variables

We include variables to proxy for asymmetric information, risk, investment opportunities, market timing and market conditions. These variables are obtained and calculated as follows:

B1. Asymmetric Information

We match our dataset to IBES to use analyst earnings forecasts as a proxy for asymmetric information. The main idea is that dispersion among analysts' forecasts and analysts' earnings surprises are two measures that are positively correlated with information asymmetry (between managers and investors). Lang and Lundholm (1996) show that both analysts' forecast accuracy and dispersion significantly decrease when firms make more informative disclosures about future earnings (see also Atjintkya et al (1991)). Better firm disclosure reduces information asymmetry and thus we expect a positive relation between both dispersion and earnings surprise and information asymmetry. Note that information disclosure can also be costly (or not credible because firms want to increase their share price). For example, competitors are also able to

[20]We aggregate multiple deals by the same company and of the same type (i.e., one of the eight security-market choices) that occur within the same month, as we believe that they are likely to be different tranches of the same deal-the procedure serves to combine mostly multiple debt issues.

observe publicly disclosed information, so public disclosures can potentially reduce firm value (James and Wier (1988)).

In our study we use analysts' forecasts for the company's upcoming quarterly earnings release in the IBES summary history database. We compute a quarterly *analyst earnings surprise* as the absolute value of the difference between the median quarterly earnings estimate and the actual quarterly earnings per share, normalized by the stock price at the fiscal quarter end (we also consider the robustness to alternative normalizations based on the book value of equity per share and earnings per share). A similar approach is used to construct the quarterly *analyst earnings dispersion* measure: it is the standard deviation of outstanding earnings forecasts normalized by the stock price. Note that this measure is only available if there are at least two outstanding earnings forecasts.

Even though all firms in our sample are public, they may have incentives to disclose more information prior to a public issue versus prior to a private issue. To control for this endogeneity and potential change in firms' disclosure policy prior to a financing round, when we build our measures for forecast accuracy and dispersion we drop the most recent quarter before the issue date, and we use the average of the last four quarters ending a quarter before the issue date. Thus the earnings surprise and dispersion measure used for each deal is the mean quarterly earnings surprise and dispersion for the last four quarters ending a quarter before the issue date. The surprise and dispersion measures are trimmed to remove the most extreme 1% observations. This serves to remove outliers and potentially misrecorded data.

Summary statistics are reported in Table 2A. Note that the surprise measure is available for 11,209 of the transactions (85% of total) and the dispersion measure for 9,793 (75% of total). The dispersion measure is available for fewer deals as we require at least two earnings forecasts for this measure. Also, note that tests for differences in means and medians reveal that both surprise and dispersion are significantly higher for private than public offerings, consistent with the view that there is more asymmetric information for companies involved in private deals.

B2. Risk

Our measure of risk is a firm's *cash flow volatility* calculated as the standard deviation of cash flow (operating income before depreciation, Compustat data number: data13) using up to twenty fiscal quarters prior to the deal date.

B3. Investment Alternatives, Taxes and a Firm's Need for Funds

Our measures of investment alternatives include *Tobin's q*, which is calculated as the market value of the firm divided by the book value of assets (data6), R&D divided by lagged property plant and equipment, which is defined as the total of R&D plus advertising (Compustat data numbers ((data45+data46)/lagged data8). Profitability is operating cash flow before depreciation divided by lagged assets (data13/lagged data6). All of these variables are computed for the last fiscal year ending before the transaction date. We also include a *financial distress* indicator variable equal to one if Altman's Z-score is less than 1.81 and

zero otherwise. Altman (2000) shows that a Z-score below 1.81 is a good predictor of corporate distress.

Other control variables include a firm's *debt/asset ratio*, calculated as long term debt divided by book value of assets (Compustat data numbers: data9/lagged data6), the *log of firm value* (*log firm size*) which is equal to market value of equity plus book values of preferred stock and total debt (Compustat data numbers: data24*data25 + data9 + data34 + data39), and a firm's marginal tax rate. The data on a firm's *marginal tax rate* was kindly provided to us by John Graham and is described in more detail in Graham (1996) and Graham and Lemmon (1998). For our transactions, there are 11,770 observations with data on the marginal tax rate.[21]

We also include a measure of a firm's "need for funds" (its internal funding deficit). This measure is constructed for the year prior to the issue and is calculated as capital expenditures (Compustat data number: data128) plus the change in net working capital (-data302 -data303 -data304 -data305 -data307 +data274 -data312 -data301) less a firm's cash flow from operations (data13). We include this measure to control for the possibility that a firm may go to the private market, not because of asymmetric information or risk, but because it only needs a smaller amount of funds given the private markets may have a smaller fixed cost of raising capital. We also recognize that this measure may be endogenous as a small calculated "need" or deficit may not be indicative of actual need as the firm may also have been constrained in the past. Thus we instrument the measure of a firm's financial need with industry instruments and lagged firm instruments and use the predicted value in our regressions.[22] We use as instruments median industry Tobin's q, median industry capital intensity (capx divided by sales), lagged firm size (total assets), lagged firm size squared, and lagged profitability. These instruments follow from Maksimovic and Phillips (2004) prediction of external financial dependence.

For all firm-specific constructed variables except Tobin's q, marginal tax rate and firm size we eliminate outliers by dropping the top and bottom one-percent of the sample. Given correlation of variables, this screen affects only approximately 3 percent of the sample (in addition many of these observations would be dropped given missing values for some variables). We also eliminate firms whose lagged book value of assets are less than .1 million dollars and whose Tobin's q is in the 99th percentile or above.

B4. Market-Timing and Market Conditions

Using CRSP data we calculate a firm's *cumulative abnormal return* 250 days prior to the deal minus the excess return relative to a benchmark portfolio of firms in the same size decile at the end of the year previous to the transaction (we also used risk-adjusted beta decile portfolios for robustness). For each deal we also compute the abnormal excess return using a 10 trading-day window around each issue- the parameters of the market model were estimated in the prior 250 trading days ending at the beginning of the event window.

[21] Like Graham (1996), we use the marginal tax rate *after* deductions for depreciation, interest and leasing expenses.

[22] Note including predicted financial need or deficit is meant to capture the same idea of the fixed cost of raising capital that the issue size would capture without the endogeneity problems that would arise from including a choice variable.

We include three market variables in our regressions to capture aggregate market conditions in the public markets. We include the *Aaa bond yield*, a *credit spread* to capture a distress risk premium, measured as the Baa less the Aaa bond yield- we use the value of these variables as of the end of the previous month before the issue date. To capture conditions in the public equity markets we include the *cumulative market return* over the 250 days prior to the security issue date. Finally to control for industry-specific factors we include Fama and French industry dummies (17 industry categories) in all regressions we estimate.

B5. Corporate Governance

Our proxy for the degree of agency costs of equity is the quality of corporate governance as reflected by the provisions adopted by firms in their charters and bylaws. We follow the approach used by Daines and Klausner (2001) to build a corporate governance measure. They focus on four key antitakeover provisions on the charter and bylaws that erect significant barriers to a hostile acquisition: (1) dual-class shares; (2) a classified (or staggered) board; (3) prohibition of shareholders voting by written consent; and (4) prohibition of shareholders calling a special shareholder meeting. Daines and Klausner (2001) argue that (2) and (3) are almost perfect substitutes so there is a shareholder voting restriction if and only if (3) and (4) are both in place.

We construct a rank level ordering measuring the *quality of corporate governance* following Daines and Klausner (2001, pg.116): 1 (worst), if the firm has dual-class shares or has a classified board and a shareholder voting restriction; 2, if the firm has a classified board but no shareholder voting restriction or dual-class shares; 3, if there is a shareholder voting restriction but not a classified board or dual class shares; and 4 (best), if the firm has none of the restrictive provisions above.[23]

Our data on corporate governance provisions are from three different sources: the Investor Responsibility Research Center (IRRC) dataset on takeover defenses, SharkRepellent.net dataset, and, for a randomly selected sample of 2,000 deals not matched to any of the two datasets, we hand collected the information from the firm's charter and bylaws. The information we use to construct the governance measure is based on the provisions prevailing in the charters and bylaws before the deal date.[24] The use of takeover defenses in our sample is similar to the results reported in Daines and Klausner (2001), Field and Karpoff (2002), and Gompers et al. (2003). The distribution of the corporate governance measure is, in increasing order, 31% (worst), 29%, 6%, and 34% (best), for the 10,523 deals with complete information.

[23]Daines and Klausner (2001) also make a further refinement based on whether the charter require a 90 days or more advance notice for the nomination of board candidates. We chose not to use this provision because it is not available in the IRRC dataset (also we believe this provision is not as relevant as the other ones).

[24]IRRC data is available for 1990, 1993, 1995, 1998, 2000, and 2002. SharkRepellent.net does not record historical information, so we used the current information for 2,700 deals matched to SharkRepellent.net. However, since firms seldom change provisions in charters and bylaws, we believe that this procedure is not likely to introduce significant measurement errors.

4 Results

A. The Sample

Table 1 summarizes our sample of public firms and their issue decisions by year and for the entire period. We present data for eight different security types: public equity, convertibles and debt, private equity, convertibles and debt, and Rule 144-A debt and convertibles. The total amount raised was over $2.9 trillion and the mean (median) amount raised by each deal is also large, representing 23% (13%) of the total firm value. There are a total of 4,267 different firms in our final sample, and the median firm financed 2 times during the period (most of the multiple issues are multiple debt offerings by the same company).

Insert Table 1 here

Table 1 shows several important facts. First, private equity and private convertible issues are a substantial fraction of securities issued by public companies. This fraction has also been increasing over time with the number of private equity issues exceeding public equity issues from the year 2000 to 2003, the last year of our database. Second, the number of private convertibles is greater than the number of public convertibles for all years since 1995. The table shows that while private debt issues are larger than public debt issues, private equity issues are smaller and represent a smaller fraction of firm value. Third, the size of private equity issues and the size of issuers has also grown sharply in the later years. In later years the size of private equity issues on average is almost 25% of the size of an average public equity issue. Finally, Table 1 shows that Rule 144-A debt and convertible issues are closer in size to public debt and convertible issues versus private issues.

Table 2A summarizes the major firm- and market-specific variables that we examine. We present summary statistics in this table for the whole sample and also for each of the eight security categories. We present means, standard deviations and the number of observations for each variable. Table 2B presents t-statistics testing whether the means and Mann-Whitney tests of whether the medians from Table 2A are different across issue types.

Insert Table 2A and Table 2B here

Tables 2A and 2B show several interesting and significant patterns across the variables. First, columns one and two show our measures of asymmetric information, analyst earnings surprise and dispersion, are both significantly higher (test statistics for significant differences in means and medians are presented in Table 2B) for securities issued in the private market. Measures of corporate governance are also higher in the private equity, convertible and debt markets. Tables 2A and 2B also show that private firms are smaller, have higher cash flow volatility (our measure of risk), higher R&D ratios and higher Tobin's qs versus private securities of the same security type. Firms that issue in the private market, however, have

lower profitability and higher measure of financial distress despite having less debt. While private convertible issuers are sharply different from public issuers, issuers of convertibles in the 144-A market are not significantly different for most variables from public issuers. They are also closer to public debt issuers than they are to private debt issuers.

The picture that emerges from these summary statistics is that public firms issuing in the private market are smaller, highly valued, and less profitable versus public issuers that have higher measures of our proxies for asymmetric information. This conclusion holds irrespective of the security type. Finally, issuers in the public equity and convertible markets issue after a period of high cumulative abnormal returns - reinforcing the conclusions of Asquith and Mullins (1986) about market timing. Also especially interesting, and consistent with the classic trade-off theory, issuers of debt are more profitable - especially when we compare issuers of private debt to issuers of private equity and private convertibles - who have significantly negative operating cash flows.

B. Stock Market Response

We now present the stock market reactions to each type of security issuance decision. Table 3 presents the results from cross-sectional regressions of the cumulative abnormal returns on issue type and issuer characteristics. We run regressions for equity, convertibles and debt separately to examine the differences across markets, conditional on security type.

Insert Table 3 here

Inspection of Table 3 models (1), (3), and (5) reveals results consistent with previous event studies. We regress the 10 trading-day CAR around the issue on the private and public dummies and other control variables. The market reaction to public equity, convertibles and debt are negative while the market reaction to private equity is significantly positive, consistent with Wruck (1989), Hertzel and Smith (1993), and Allen and Phillips (2000). For private convertibles and private debt coefficients are insignificantly different from zero.

In models (2), (4), and (6) we add the earnings surprise interacted with the private public dummies to explore the hypothesis *ASY4*. The significant positive interaction variable between earnings surprise and private issues in the equity markets is consistent with the market valuing the new information conveyed by private investor purchases of securities. Finally, the results also show that firms that issue equity after a large runup in the stock price suffer a negative reaction, consistent with the market believing that equity issuers are timing the market.

C. Does the Public-Private Distinction Matter?

Before we present our models which recognize the public-private market explicitly, we first examine results where we make no market distinction. In Table 4 we present results of a logit model where we combine the private and public equity and also the private and public debt. In this model the dependent variable is equal to one if the firm issues equity and zero if the firm issues debt. We also combine the

convertible preferred stocks into the equity category and the convertible bonds into the debt category. This approach closely resembles what one would get using a firm's statement of cash flows to infer security issuance when one does not know the market in which the security is sold. Comparison of these results with the results in which we break out the specific market in which a security is sold, allow us to check whether a different sample is driving our results.

Insert Table 4 here

Examination of the results in Table 4 show that when we combine public and private equity and public and private debt, none of our asymmetric information variables are significant. In addition the governance variable is not significant either. The finding of insignificance for the asymmetric information variables when we do not identify the choice of market in which securities are sold is consistent with the results of previous studies. Note that the results for risk, investment opportunities, and taxes are also consistent with previous studies.

D. Model 1: Security Choice within Markets

In this section we present and discuss our nested models of security issuance which explicitly identify the market in which the security is sold. Table 5 presents the results of our nested logit model 1, which allows correlation within security type (debt, convertibles, equity).[25] Under this model we can test the hypotheses on the security choice conditional on the private or public market. The model also gives us unconditional estimates of the value of issuing in the private and public market for all security types. Table 5 uses analyst earnings surprise as our measure of asymmetric information.[26]

Insert Table 5 here

The results on market choice reported in column 1 of Table 5 show that firms with a high degree of asymmetric information and high cash flow volatility are more likely to sell securities in the private market. Small firms, with high Tobin's q, with high R&D, with lower one year abnormal returns and low profitability are more likely to choose to issue securities privately.

Columns 2 through 5 report the results conditional on the market. We see that conditional on issuing in the public market, the probability of issuing public debt (equity) increases (decreases) with asymmetric information. We test Hypothesis *ASY1* formally and find that the coefficient for public equity (which shows the sensitivity versus public debt) is significantly lower than public convertibles. Our results show that

[25] We also note that all the inclusive value parameters, which measure the correlation between unobserved shocks, are in the interval 0-1, which shows that the nested logit models are consistent with value maximization.

[26] Examining the coefficients of the multinomial logit model and comparing them to the nested logit models (in Tables 5 and 7), we found that while there are differences in magnitude between the multinomial and the nested logit models (the coefficients and marginal effects from the multinomial model are actually larger in magnitude than the ones from the nested model), the good news is that the signs and significance across the multinomial and nested logit models for our key asymmetric information, tax and risk variables are similar.

firms' probability of issuing informationally sensitive securities decreases with asymmetric information in the public market.

We also find that conditional on issuing in the private market the opposite of this sensitivity to asymmetric information holds. In addition, firms' issuance decisions are much less sensitive overall to asymmetric information. Hypothesis *ASY1* predicting a *reversal* of the sensitivity to asymmetric information for the private market is partially supported, as coefficients for asymmetric information for both private convertibles and equity are statistically greater than zero - however we do show a larger coefficient for private convertibles versus private equity. Distress is the another variable that shows a different pattern for public and private markets. Firms issuing privately are more likely to issue equity and convertibles if they have high measures of financial distress and a lower marginal tax rate. There is no significant sensitivity of security issuance in the public markets to distress or the marginal tax rate.

With respect to risk and our tests of Hypothesis *AG1* for risk, we find that the ordering of sensitivity to risk holds in the public market; it is highest for equity, next highest for convertibles, and lowest for debt and the differences are statistically significant. In the private market both equity and convertibles have a higher sensitivity to risk versus the benchmark of private debt, but the sensitivities of private equity and private convertibles are not statistically different from each other. Thus we find a strict ordering for sensitivity to risk holds in the public market as specified by Hypothesis *AG1*, while a weak ordering holds in the private market.

Table 6A presents the economic significance of the results in Table 5. To compute the economic effects we use the estimated model and associated coefficients from our results in Table 5. We first present the marginal significance of our primary nested logistic specifications and then we graphically show the overall significance of our results in the next subsection. For each variable, we compute the predicted probability of each of the six firm-level choices at two points, one-half standard deviation above and below, around each individual sample values. All other variables are held at their observation values. We then average these probabilities over all firms in the sample.

Insert Table 6A here

The first two columns of Table 6A show that the marginal probability of issuing in the private market is 8.8 percentage points higher as asymmetric information increases. These pattern are also stronger for firms that have less than the median market capitalization, as shown in the second row of the table. The subsequent columns of Table 6A shows that the sensitivity of security issuance to asymmetric information is highest in the public markets, where the probability of issuing firms issuing public equity (debt) declines (increases) with our measure of asymmetric information. If we increase our measure of asymmetric information, analyst earnings surprise, by one standard deviation, the predicted probability of issuing public debt rises by 6.8 percentage points and the probability of issuing public equity declines by 11 percentage points.

We see a *weak inverse* ordering of probabilities in the private market. Conditional on issuing in the private market the probability of issuing convertibles and equity increases slightly with asymmetric information and decreases for debt. The magnitudes are much smaller than the probabilities in the public market and show a markedly different pattern consistent with information being revealed to private investors.

Security choice is also highly sensitive to risk and investment opportunity, and variables such as R&D to net fixed assets and profitability have a large effect on the predicted probabilities, especially in the public markets. If we increase our risk and investment opportunity measures by one standard deviation, the predicted probability of issuing debt declines by 7.4 as risk increases one standard deviation and declines 14 percentage points as Tobin's q increases one standard deviation.

Market timing, measured by the cumulative abnormal stock return, also has a large effect on market choice and security issuance. The first two columns of Table 6A show that firms are 8.9 percentage points more likely to issue in the public markets (and 8.9 percentage points *less* likely to issue in the private markets) after a one standard deviation increase in the firm's cumulative abnormal stock return. The effect is magnified in the public markets for public equity. Public equity is an additional 3.7 percentage points more likely to be issued versus a decline of 5.4 percentage points for public debt after a one standard deviation increase in the firm's cumulative abnormal stock return. This relation is weaker in the private markets, with a 1.9 percentage point increase for private equity and 1.3 percentage point decline for private debt. Thus the overall effect is that public equity is more that 10 percentage points more likely to be issued after a one standard deviation increase in the firm's cumulative abnormal stock return - versus an overall decrease in the predicted probabilities in the private markets.

Trade-off variables also have a significant economic impact in private security markets, with increases in profitability and the marginal tax rate and decreases in financial distress making firms more likely to issue private debt. Finally, corporate governance has a limited impact on security issuance.

The overall message that emerges from these tables is that effect of asymmetric information and market timing is quite different in the public and private markets. The results reinforce the conclusion that in order to gauge the effect of information on security issuance decisions, it is crucial that one does not combine private and public security issues.

Table 6B contains measures of goodness of fit of our model as it shows how well the nested logit model from Table 5 does in predicting the actual observed choice. The table contains the observed choice in the rows and the predicted choice in each column. For each observation, the predicted choice is the choice with maximum probability among the six choices using the coefficient estimates from Table 5. The first row of each cell gives the number predicted to choose the security given in the column header. The second row gives the percentage predicted to choose that security versus the actual choice. The third row gives the percentage of observed, predicted pairs divided by the overall number predicted to issue that security.

Insert Table 6B here

Table 6B shows that our model from Table 6 overall does very well in predicting security issues for most securities. The model does very well in predicting public debt (61 percent predicted correctly), private debt (78 percent predicted correctly) and private equity (53 percent predicted correctly). Perhaps not surprisingly the model does less well in predicting convertible securities as they are a blend of equity and debt.

E. Graphical Presentation of our Results

The logistic distribution has an S-shape and the marginal effects are mostly concentrated on the tails of the distribution with sharp increases around the cut-off levels. Thus the average marginal effects of Table 6A may be underestimating the extent of the impact of changes on firm characteristics on the financing choices. In order to explore this issue further, we graphically depict our predicted results. We show how firms in different size classes (Figure 1) and firms issuing each of the six different type of securities (Figure 2) are predicted to change their issuance behavior as we vary our two primary variables, asymmetric information and risk. We plot the *issuance choice with maximum probability,* for a "hypothetical firm" as only risk and asymmetric information changes.

Figure 1 shows the predicted probability of security issuance using coefficient estimates from our model in Table 5. We present graphs for firms of different sizes, given the importance of size in the model. We construct three different size groups, small, below the 33rd percentile, medium, between the 33rd and 66th percentile and large, above the 66th percentile. We plot the predicted security issued (maximum probability of issuance) as we move our asymmetric information and risk variables +/- ten standard deviations away from their *size-based* mean values, keeping all other variables at their mean values for each size group. Risk (volatility of cash flows) is on the y-axis and asymmetric information (earnings surprise relative to analyst forecasts) is on the x-axis. PuE (PrE) is public (private) equity, PuC (PrC) is public (private) convertibles, PuD (PrD) is public (private) Debt. Dark and light shading within regions represent the security with predicted probability greater than 50 percent and between 0-50 percent higher than the next highest security.

Insert Figure 1 here

Figure 1 clearly shows that as asymmetric information increases firms are more likely to issue privately. Small firms with both high risk and asymmetric information are more likely to issue private equity and convertibles. Medium size firms are more likely to issue private debt for high levels of asymmetric information and low levels of risk, and more likely to issue private convertibles for both high levels of asymmetric information and risk. As shown in the graphs for medium and large firms, conditional upon issuing publicly, firms with the highest degree of asymmetric information are more likely to issue public debt - consistent with the Myers's pecking order. However, as before, when issuing privately the security

choice is more nuanced. Firms with low risk but high asymmetric information are likely to issue private debt while firms with the highest levels of risk and asymmetric information issue private convertibles for all three size classes.

In Figure 2 we present graphs of predicted probability of security issuance for firms that actually issued each one of the six securities. For example, in the last of the six graphs in this figure, we take all firms that issue private equity and then examine how their *predicted choice might change* as we vary our asymmetric information and risk variables +/- ten standard deviations away from their *security-based* mean values, keeping all other variables at the mean values for private equity.

Insert Figure 2 here

Inspection of the graphs in Figure 2 reveal that predicted probability of security issuances are markedly different as risk and asymmetric information varies - for each set of firms issuing different types of securities. Considering the first graph for public debt issuers, we can see that the model predicts public debt fairly accurately with public debt predicted to be issued at the means of the data. However, as we move risk and asymmetric information away from their mean values, we get public equity predicted to be chosen for low earnings surprise (asymmetric information) - consistent with a pecking order model - and private debt predicted to be chosen for high asymmetric information. Private convertibles are predicted to be chosen for high levels of risk and asymmetric information. Examining the graphs in the middle (graphs 2 and 5) for both public and private convertibles, we can see that the model in Table 5 does not predict these securities very well, as at the mean levels of the variables (the middle of each graph) private debt is predicted to be issued for firms issuing public convertibles and private equity is predicted to be issued by firms actually issuing private convertibles. Examining the fourth and sixth graphs, we can see that the model does very well predicting private debt and private equity. What is especially interesting is that firms that issue private equity and convertibles are rarely predicted to issue debt securities. For low levels of our asymmetric information variable, private equity issuers are predicted to issue public equity and private convertibles for the highest levels of asymmetric information.

Overall, it is clear from all graphs in Figure 2 that firms with both high asymmetric information and high risk issue private convertibles and private equity. Firms with lower risk but still high asymmetric information issue private debt. Firms with high risk but low asymmetric information are more likely to issue public equity. All of the graphs quite clearly show that firms likelihood of issuing public equity and issue other securities decreases as asymmetric information increases. The most important distinction for the decision to issue securities privately is asymmetric information. Risk influences more the type of security that the firm issues conditional upon issuing publicly or privately.

F. Logistic Regressions of Security-Market Choice

Table 7 presents the results of the security-market nested logit model (Model 2). The results presented in Table 7 show that in the first stage when firms choose securities, firms probability of choosing equity

over debt decreases with asymmetric information. Second, the likelihood of issuing equity and convertibles increases with risk and investment opportunities and decreases wtih profitability. Similar to the results by Asquith and Mullins (1986), the positive significant coefficient on a firm's past year abnormal returns shows that a firm is more likely to issue equity when the firm's stock price has risen recently. The overall results are consistent with decreases in asymmetric information and increases in risk (and thus agency problems of debt) causing firms to be more likely to issue equity. The positive coefficients in the equity column for the Aaa bond rate and the credit spread, Baa-Aaa, are consistent with the firm choosing to issue equity the more costly debt becomes and the higher the default risk spread.

Insert Table 7 here

Examining, the choice between public and private in the second stage, we see that our measure of asymmetric information is positively related to the decision to issue private securities - especially so for equity. This result is consistent with Hypothesis *ASY2*. The ordering of the coefficients also statistically satisfies Hypothesis *ASY3* which states that as the extent of information asymmetry increases the firm is more likely to issue private securities that are more information-sensitive. The coefficient on analyst earnings surprise for private equity is 1.06 which is statistically greater than .388, the coefficient for private convertibles, which in turn is statistically greater than the coefficient for private bank debt of .201.

The results for market choice also show that increases in risk increases the tendency toward private issuing debt relative to public debt - but not so for convertibles. Thus, the results show only limited support to Hypothesis *AG2*. In addition, examining the effect of corporate governance, the positive and significant coefficient for corporate governance for private equity in column 3, indicates that better governance is associated with an increased tendency to issue private equity over public equity. This is perhaps surprising, if one views the private market as providing increased monitoring. For debt the corporate governance variable is insignificant.

Looking at the other control variables for investment opportunities we can see that firms are more likely to issue privately with increases in Tobin's q for all security types, and firms likelihood of issuing private equity and convertibles relative to their public counterparts decreases with profitability and the marginal tax rate. Finally, firms that have had higher abnormal returns over the past year are more likely to issue stock publicly - consistent with a market timing explanation for public equity security issuance. Given that this result holds for public and not private equity it seems convincing evidence of market timing. Conditional on security type, firms are less likely to issue privately if they have had lower abnormal returns in the past year. Thus the picture that emerges is that smaller, highly valued firms whose stock market performance recently have not been good and whose cash flows are low are more likely to choose to issue privately.

The overall conclusions that emerge from Table 7 are consistent with the summary statistics presented earlier. There are sharp differences between public and private issuers in all markets - and an especially

sharp distinction between issuers of public and private equity. Firms probability of issuing private equity increases with asymmetric information. Risk and investment opportunities affect the security choice the most with increases in these measures increasing the likelihood of firms issuing equity and convertibles. With respect to market choice conditional on security type, risk has a positive effect on the tendency to issue private debt over public debt but no significant effect for choice of market for equity and convertibles.

Table 8A examines the economic significance of our results and Table 8B contains measures of goodness of fit by security - showing how well the model predicts actual observed choices. We compute the economic effects similar to the method used for Table 6A.

Insert Table 8A here

Table 8A shows there is significant variation in the predicted probability of security issuance as we vary each variable. Table 8A shows that if we increase our measure of asymmetric information, analyst earnings surprise, by one standard deviation, the predicted probability of issuing equity decreases by 5.7 percentage points. Moreover, conditional on issuing equity, the probability of issuing in the private market increases by 12 percentage points with a one standard deviation increase in our measure of asymmetric information. For all securities, we find that the predicted probability of issuing in the private market, conditional on the security type, increases with our measure of asymmetric information.

Security choice is also highly sensitive to risk and investment variables, such as R&D to net fixed assets and Tobin's q. The table also shows that after a one standard deviation movement in the one-year cumulative abnormal stock return the probability of an equity issue increases by 4.7 percentage points, while the probability of issuing debt decreases by 6.2 percentage points. Interestingly, the probability of issuing in the private market decreases with a firm's cumulative abnormal return for all security types. This result is consistent with market timing of equity issues to the public market versus timing of both private and public equity issues after market runups. Finally, the table also shows that corporate governance is not economically important to security issuance decisions.

Table 8B contains measures of goodness of fit of our model as it shows how well the nested logit model from Table 7 does in predicting the actual observed choice. The table contains the observed choice in the rows and the predicted choice in each column. The predicted choice is the one with maximum probability among the six choices using the coefficient estimates from Table 7. The first row of each cell gives the number predicted to choose the security given in the column header. The second row gives the percentage predicted to choose that security versus the actual choice. The third row gives the percentage of observed, predicted pairs divided by the overall number predicted to issue that security.

Insert Table 8B here

Table 8B shows that our model from Table 7 overall does very well in predicting security issues for most securities. The results are very similar to Table 6B. The model does very well in predicting public

debt (61 percent predicted correctly), private debt (78 percent predicted correctly) and private equity (53 percent predicted correctly). Perhaps not surprisingly the model does less well in predicting convertible securities as they are a blend of equity and debt.

G. The Timing of Private and Public Security Issues Relative to Earnings Releases

Lucas and McDonald (1990) argue that firms wishing to issue equity, prefer to issue when the market is most informed about the firm, because at this point the firm faces the least amount of adverse selection. Consistent with this prediction, Korajczyk et al. (1991) show that public equity issues tend to follow earnings releases. We examine whether the relationship between the timing of earnings releases and private offerings is weaker or disappears in the private equity markets. This outcome is likely if investors in the private markets are more capable of producing information and/or firms can more easily transmit information to private investors than to dispersed public investors.

To investigate this hypothesis, we generalize the analysis in Korajczyk et al. (1991) for public equity to all six security-market combinations of our paper. In order to facilitate comparison with Korajczyk et al. (1991) we perform tests similar to their Table 3. The null hypothesis is that within a certain window around a security-market issue there are an equal number of earnings releases before and after the issue. The variable of interest is defined as the number of days between an issue and the closer earnings release. This variable is positive (negative) if the preceding earnings release is closer to (farther from) the security issue than the subsequent release. A positive (negative) statistic in Table 9 indicates that the earnings release before (after) the issue date is the closest one. In Panel A of Table 9 we perform the test separately for all six security-market combinations and also test whether timing decisions are different in the private versus public markets. Panel B contains a test that timing decisions are similar across securities within a given market.

Insert Table 9 here

The results in Panel A of Table 9 show that the Korajczyk et al. result for public equity also holds for public convertibles and debt. All public issues seem to be more clustered after an earnings release than before earnings release. These results are strong for all quarters combined and for the annual earnings reports. However, we find different results for the private equity markets. We cannot reject the hypothesis that private security issues are symmetrically distributed around earnings release. Moreover, the hypothesis that the timing of issues in the public and private markets have the same distribution is significantly rejected in the last column of Panel A (Mann-Whitney two-sample statistics tests) in 12 of the 18 different specifications - and at the one-percent level for all quarters combined for all security types (z-values of 3.45, 3.49, and 3.40).

In Panel B of Table 9 we examine whether the timing distribution for different securities within markets is similar. Panel B reports the Mann-Whitney two-sample statistics for tests of similar samples. This hypothesis that any security choice pair, for a given market, has the same distribution is not rejected except

for public equity and public debt in 5 cases and in only two cases at the ten-percent level for private equity versus private debt. Firms seems to be timing public equity issues more than public debt securities but all other securities in a given market seem to have similar distributions.

The overall results confirm our earlier security choice analysis of Table 5 that firms time public security issues but that there is limited or no evidence that firms time their private market issues of securities.

H. Robustness of our Results:

H.1 Other Measures of Asymmetric Information

As discussed earlier, we estimate all of our results using the dispersion of analyst earnings estimates as an alternative measure of asymmetric information. In Table A3 of the appendix available from the authors, we estimate the same model as Table 5 with analyst forecast dispersion. This table omits firms that have less than 2 analysts so the sample is smaller. The results using analyst forecast dispersion as the measure of asymmetric information are generally similar to those of Table 5 for nearly all coefficients. One exception is the coefficient on forecast dispersion for issuing privately in the first stage, which is insignificant. However, all other coefficients on analyst forecast dispersion for the second stage security decisions remain similar in size and significance to those for analyst earnings surprise in Table 5. Notably the coefficient on asymmetric information for public equity remains significantly negative and the coefficients on private equity and convertibles remain significantly positive.

In Table A4 of the appendix, we estimate the same model as Table 7 with analyst forecast dispersion as the measure of asymmetric information. The results are generally similar to those reported using analyst earnings surprise. One exception is the coefficient on asymmetric information for the choice of private debt which becomes insignificant. However, all other asymmetric information coefficients remain similar in size and significance. This table also shows that firms in distress are less likely to issue private debt - result consistent with the view that private lenders and banks do not like to lend to firms already in distress.

H.2 Rule 144-A Market

We examine the robustness of our results to the categorization of 144-A debt and convertible issues as public securities and create additional categories for these types of securities. In Table 10, we expand the number of markets to estimate separate coefficients for Rule 144-A debt and convertibles issues. We present these results for the dispersion measure of asymmetric information - similar results hold for earnings surprise as well. We present results for security-market model of Table 7. The results for the market-security model as they were similar to in Table 5.

Insert Table 10

The results for equity and convertibles are similar to those in Table 7. Firms with higher measures of asymmetric information are less likely to issue equity. Conditional upon issuing equity and convertibles, they are more likely to issue privately. The results on asymmetric information for issuing privately,

conditional upon issuing debt, become insignificant and the results on asymmetric information for securities issued under Rule 144-A are insignificant. The results for risk are similar to the previous results, with the additional result that firms that issue debt are more likely to issue Rule 144-A versus public debt if they have high risk. Other results for debt securities issued under Rule 144-A are that these firms are smaller, less profitable, highly valued, less R&D intensive than firms issuing in the public debt markets. Overall the results are consistent with firms issuing debt under Rule 144-A being riskier (but with a similar sensitivity to asymmetric information) than firms that issue in the public debt markets.

H.3 Floating and Fixed Rate Convertibles

We also analyze the robustness of our results to the inclusion of floating rate convertibles - called price protected issues by Chaplinsky and Haushalter (2003). These securities provide investors with protection if the stock price decreases after the closing. In floating rate issues, the conversion price is reduced and investors receive more common shares upon conversion, while in the traditional or fixed rate convertibles the conversion rate is fixed. Chaplinsky and Haushalter (2003) and Brophy et al.(2004) have shown that issuers of floating and fixed rate convertibles are quite distinct. For example, companies issuing floating rate securities substantially underperform companies issuing fixed rate securities, and the market reaction to PIPE announcements are negative for floating rate issues and positive for fixed rate issues.

All results reported in the paper include both floating and fixed rate convertibles. For robustness we thus perform all tests excluding floating rate convertible issues. In the sample of firms we matched to Compustat and CRSP there were 487 floating rate issues. Of the final sample in our regression tables there were 175 issues out of 8,346 total issues. When dropping these 175 issues, the key results on the security and market choice do not change significantly.[27] The market reaction result (Table 3) does change (and gives stronger support of our Hypothesis *ASY 4*) when we exclude floating rate convertibles from the sample: the reaction to fixed rate convertible issues is now positive and significant at the 1% level, but the coefficients for other variables do not significantly change. This result is consistent with the findings of Chaplinsky and Haushalter (2003) and Brophy et al. (2004), which indicate that the market reaction to announcements of floating (fixed) rate or price protected issues is negative (positive).

H.4 Other Robustness Checks

The most common type of private debt is revolving credit lines followed by term loans (respectively, 78% and 18%). It may be argued that the revolving credit lines do not represent actual loans given that the firm does not have to borrow under these lines. Thus, we also examine the robustness of our results to the exclusion of revolving credit lines. After excluding revolving credit lines from our final sample, we are left with 5,722 issues out of 8,346 originally. Our results do not change significantly when we exclude revolving credit lines from the analysis.

[27] The reason that there are only 175 issues of these types of securities is that issuers of price-protected securities are smaller and frequently do not have analyst coverage. For conciseness we do not report those results but they are available from the authors upon request.

5 Conclusions

In this paper we analyze the public and private security issuance decisions by public companies. Using a comprehensive database of public and private security issues we examine the impact of asymmetric information and agency problems on security issuance decisions. We show that private equity issues are significant in number, especially for smaller firms that potentially have more asymmetric information and higher risk. Our comprehensive sample also shows that private equity and private convertible issues are a substantial fraction of equity and convertibles issued by public companies. This fraction has also been increasing over time, with the number of private equity issues exceeding public equity issues from the year 2000 to 2003, the last year of our database. Private equity and convertibles issued by public firms comprise 58 percent of their equity and convertibles issues, and the number of private convertibles is greater than the number of public convertibles for all years of our database. In addition, 81% of small public firms (firms in the lowest size quartile) issuing equity and convertibles choose to issue privately.

We analyze the factors that are related to the probability a firm chooses to issue public and private equity, public and private convertibles and public and private debt. We have three main new results on security issuance decisions:

1. Overall the probability of public firms issuing securities privately increases with asymmetric information for all security types. Conditional upon issuing in the public market, we find support for a pecking order of security issuance: the predicted probability of issuing equity declines with asymmetric information, while it increases for public debt. However, conditional on issuing in the private markets, we find a partial reversal of this sensitivity: firms' predicted probability of issuing debt decreases with measures of asymmetric information and increases slightly for convertibles and equity (slightly higher for convertibles). When we do not distinguish between the market in which securities are sold, we find no evidence that asymmetric information is important to security issuance.

2. Our results on market timing indicate that the probability of firms issuing public equity (much more so than for private equity) increases with a firm's stock return in the past year relative to a benchmark portfolio. We also show that security issuance to public but *not* private security markets more closely follows after earnings reports. These results are consistent with market timing of security issues to the public market versus just timing of equity issues overall.

3. Our results also show support for the classic trade-off theory in private security markets. Taxes, profitability, and financial distress impact security choice in private issuance decisions. The probability of firms issuing private debt increases with profitability, the marginal tax rate and a low indication of financial distress. In public security markets, financial distress has an insignificant effect and taxes a weak effect on issuance decisions.

We have several other findings that, while important, are less novel. Our findings regarding the importance of agency problems for the security-market decision show that firms' likelihood of issuing equity and convertibles in both public and private markets increases with risk and Tobin's q - consistent with agency problems between equity and debt holders.

Our results show that the sensitivity of security issuance by public firms to asymmetric information is fundamentally different in the public and private markets. Economic significance of the results indicates that asymmetric information is one of the most significant and economically important factors that influences security issuance decisions. The results are consistent with several explanations that emphasize the importance of asymmetric information. The explanations include private issues being sold to investors with better ability to evaluate firm prospects, private issues being sold to investors to provide stronger incentives for information production, and private issues being sold to minimize the release of information that may benefit competitors.

These results establish that private markets are quite different from public markets on many different dimensions. Overall, the results indicate that market and security issuance choice is not a "one-horse" shay and securities are issued to solve multiple problems. The results also point to a potentially important unexplored dimension of capital structure - the public-private funding ratio in addition to the debt-equity ratio.

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Table 1

Number and Gross Proceeds of Securities Issued by Year

Table shows the number of issues, the total gross proceeds raised in millions of dollars, and the mean amount raised as a percent of firm value (%FV) for each year and security-market choice. The source of information is SDC (all public issues and 144-A debt issues), DealScan (private debt), and PlacementTracker (private equity and convertibles and 144-A convertibles). Securities are included if from public companies matched to Compustat and CSRP (financials and regulated utilities are excluded)

Year		Public			144-A		Private			
		Debt	Convertibles	Equity	Debt	Convertibles	Debt	Convertibles	Equity	Total
	N	210	25	217	46	21	500	30	50	1,099
1995	$MM	38,735	3,277	13,791	6,328	2,480	154,573	456	656	220,295
	%FV	8%	27%	24%	36%	18%	33%	17%	13%	25%
	N	233	32	274	71	41	659	108	64	1,482
1996	$MM	53,354	6,053	16,943	11,643	5,397	198,719	1,660	628	294,398
	%FV	10%	19%	26%	45%	25%	32%	21%	16%	26%
	N	224	26	224	186	69	729	155	66	1,679
1997	$MM	59,355	3,792	14,011	37,009	11,433	246,692	2,560	1,135	375,987
	%FV	8%	21%	24%	32%	26%	32%	13%	13%	25%
	N	289	18	146	181	46	640	130	78	1,528
1998	$MM	89,008	4,496	14,509	49,079	10,776	142,502	1,020	664	312,054
	%FV	6%	11%	20%	31%	15%	37%	14%	11%	24%
	N	184	21	173	118	36	603	148	170	1,453
1999	$MM	69,356	11,265	22,442	46,908	9,808	131,333	4,534	2,211	297,855
	%FV	8%	9%	22%	22%	15%	37%	16%	14%	25%
	N	139	22	174	40	64	602	178	221	1,440
2000	$MM	58,039	11,723	30,893	32,320	20,287	172,311	9,690	7,121	342,383
	%FV	4%	11%	24%	19%	14%	34%	15%	13%	23%
	N	191	29	136	140	91	619	154	250	1,610
2001	$MM	104,940	13,557	16,434	69,197	39,370	146,627	3,873	5,878	399,875
	%FV	5%	7%	14%	19%	11%	31%	16%	14%	20%
	N	190	11	129	88	50	613	136	209	1,426
2002	$MM	82,772	8,030	16,256	24,446	17,299	145,998	4,320	3,012	302,134
	%FV	4%	6%	11%	20%	10%	29%	12%	11%	18%
	N	160	17	169	147	179	644	117	269	1,702
2003	$MM	80,685	10,165	18,484	44,040	42,627	154,405	2,574	4,296	357,275
	%FV	5%	7%	21%	19%	18%	29%	19%	20%	22%
	N	1,820	201	1,642	1,017	597	5,609	1,156	1,377	13,419
Total	$MM	636,245	72,357	163,762	320,968	159,477	1,493,159	30,686	25,601	2,902,255
	%FV	7%	14%	22%	27%	17%	33%	15%	15%	23%
%FV (med)		3%	9%	15%	16%	13%	22%	9%	9%	13%

Table 2A: Summary Statistics

Summary statistics by security-market choice in the year prior to the issue. Analyst earnings surprise is the absolute value of actual earnings less median analyst forecast divided the price per share. Analyst earnings dispersion is the standard deviation of analyst earnings estimates divided the price per share. Corporate governance (ordered from 1-worst- to 4-best) is based on whether the firm has dual class voting stock, classified board, restrictions on shareholders to call special meeting or on action by written consent. R&D is divided by lagged property, plant and equipment. Cash flow volatility is the standard deviation of operating cash flow using up to twenty quarters prior to the issue. Profitability is Operating Income before Depreciation divided by lagged assets. Financial distress is Altman's Z-score less than 1.81. Tobin's q is market to book value. Cumulative abnormal return is the excess return relative to a portfolio of firms in the same size decile. Debt to asset ratio is long term debt divided by book value of assets. The corporate marginal tax rate is computed as in Graham (1996). Firm value is market value of equity plus book values of preferred stock and total debt.

Security/Market		Analyst Earnings Surprise	Analyst Earnings Dispersion	Cash flow Volatility	R&D / lagged PPE	Tobin's *q*	Debt/Asset ratio	Marginal Tax Rate (%)	Profitability (OCF/ lagged assets)	Financial Distress	Cumulative Ab. Return prior 250 days	Corporate Governance	Firm Value ($ Millions)
Public Debt	Mean	0.7%	1.2%	2.4%	13.3%	1.6	26.8%	25.1%	18.0%	10.1%	6.8%	3.3	24,561
	Med	0.3%	0.2%	1.9%	2.5%	1.3	25.2%	35.0%	17.4%	0.0%	1.4%	3.0	7,841
	Stdev	1.9%	5.3%	2.8%	29.5%	1.1	14.9%	14.5%	8.2%	30.2%	42.3%	1.2	45,161
	N	1,756	1,717	1,820	1,820	1,820	1,820	1,705	1,820	1,820	1,820	1,712	1,820
Public Convertibles	Mean	1.8%	1.9%	4.2%	32.6%	2.0	27.5%	18.3%	12.6%	21.4%	43.4%	3.2	8,152
	Med	0.6%	0.4%	2.4%	0.0%	1.4	27.0%	17.7%	14.2%	0.0%	18.0%	3.0	2,346
	Stdev	4.5%	4.7%	5.5%	102.2%	2.0	17.4%	16.0%	18.9%	41.1%	101.4%	1.3	19,600
	N	187	180	201	201	201	201	180	201	201	201	175	201
Public Equity	Mean	1.9%	1.1%	8.0%	110.4%	2.7	22.4%	18.1%	11.1%	13.1%	83.5%	3.4	1,449
	Med	0.6%	0.3%	4.5%	4.3%	1.8	17.6%	21.2%	16.0%	0.0%	44.7%	3.0	367
	Stdev	5.4%	3.3%	13.4%	233.5%	2.3	22.2%	16.1%	26.8%	33.7%	134.1%	1.2	5,358
	N	1,491	1,326	1,642	1,642	1,642	1,642	1,337	1,642	1,642	1,642	1,167	1,642
144-A Convertibles	Mean	2.9%	2.0%	3.9%	12.9%	1.4	37.6%	17.9%	15.3%	30.9%	18.8%	3.2	5,340
	Med	0.7%	0.5%	2.5%	0.0%	1.1	35.8%	18.3%	14.6%	0.0%	4.0%	3.0	1,162
	Stdev	10.0%	5.9%	4.9%	44.1%	1.1	22.0%	15.8%	14.0%	46.2%	75.2%	1.2	17,638
	N	930	851	1,017	1,017	1,017	1,017	915	1,017	1,017	1,017	814	1,017
144-A Debt	Mean	2.4%	1.7%	6.2%	100.6%	2.4	23.5%	15.1%	10.6%	17.8%	50.9%	3.5	4,258
	Med	0.5%	0.3%	3.7%	12.2%	1.6	20.3%	3.7%	12.2%	0.0%	17.5%	3.0	1,255
	Stdev	9.2%	4.7%	10.6%	216.9%	2.4	21.7%	15.8%	21.2%	38.2%	152.9%	1.2	9,413
	N	571	551	597	597	597	597	502	597	597	597	524	597
Private Debt	Mean	3.6%	1.7%	4.8%	29.5%	1.5	23.6%	20.5%	15.5%	14.0%	4.9%	3.3	2,777
	Med	0.7%	0.4%	3.1%	0.9%	1.1	20.7%	30.9%	15.1%	0.0%	-5.9%	3.0	468
	Stdev	11.7%	5.4%	7.1%	89.8%	1.2	19.8%	15.6%	14.8%	34.7%	66.5%	1.2	10,934
	N	4,784	4,166	5,609	5,609	5,609	5,609	4,993	5,609	5,609	5,609	4,058	5,609
Private Convertibles	Mean	16.2%	5.8%	17.0%	161.9%	2.7	16.5%	4.5%	-22.0%	32.9%	1.8%	3.8	374
	Med	5.6%	1.8%	11.5%	56.7%	1.7	7.5%	0.7%	-17.3%	0.0%	-30.4%	4.0	65
	Stdev	27.4%	10.5%	21.3%	255.0%	2.7	21.3%	10.0%	34.4%	47.0%	131.4%	1.2	1,752
	N	638	428	1,156	1,156	1,156	1,156	976	1,156	1,156	1,156	905	1,156
Private Equity	Mean	13.4%	5.3%	17.6%	244.7%	3.0	12.3%	4.5%	-25.1%	26.2%	24.5%	3.8	486
	Med	3.9%	1.5%	11.3%	111.6%	2.1	3.6%	0.8%	-21.4%	0.0%	-10.6%	4.0	79
	Stdev	24.8%	10.3%	22.6%	333.5%	2.8	18.6%	9.8%	35.8%	44.0%	131.2%	1.2	3,234
	N	852	574	1,377	1,377	1,377	1,377	1,162	1,377	1,377	1,377	1,168	1,377
Total	Mean	4.2%	1.9%	7.2%	72.7%	1.9	23.2%	17.5%	7.6%	17.8%	20.2%	3.4	5,468
	Med	0.7%	0.4%	3.5%	3.7%	1.3	20.0%	15.1%	13.6%	0.0%	0.9%	3.0	520
	Stdev	13.5%	6.0%	13.0%	187.2%	1.9	20.6%	16.1%	26.4%	38.3%	99.2%	1.2	20,590
	N	11,209	9,793	13,419	13,419	13,419	13,419	11,770	13,419	13,419	13,419	10,523	13,419

Table 2B

Summary Statistics: Tests of Differences in Markets

The first row presents the t-statistics for the equality of means of each variable in Table 2A by market, and the second row presents the Mann-Whitney two-sample statistics.

Statistics for difference in Market	Analyst Earnings Surprise	Analyst Earnings Dispersion	Cash flow Volatility	R&D / lagged PPE	Tobin's *q*	Debt/ Assets	Marginal Tax Rate	Profitability (OCF/lagged assets)	Financial Distress	Cumulative Ab. Return prior 250 days	Corporate Governance	Firm Value ($ Millions)
Debt												
Private Debt	10.3 [a]	2.9 [a]	14.0 [a]	7.6 [a]	-3.3 [a]	-6.4 [a]	-10.5 [a]	-6.9 [a]	4.3 [a]	-1.1	2.3 [b]	-33.2 [a]
vs. Public Debt	22.0 [a]	13.0 [a]	25.2 [a]	-2.0 [b]	-8.6 [a]	-10.1 [a]	-11.1 [a]	-9.3 [a]	4.3 [a]	-7.6 [a]	1.8 [c]	-49.2 [a]
Private Debt	1.5 [b]	-1.7	4.2 [a]	5.8 [a]	1.2	-20.4 [a]	4.6 [a]	0.5	-13.5 [a]	-6.0 [a]	2.6 [a]	-6.2 [a]
vs. 144-A Debt	0.7	-3.9 [a]	7.5 [a]	5.5 [a]	-0.1	-19.3 [a]	4.2 [a]	1.2	-13.3 [a]	-6.9 [a]	2.7 [a]	-16.9 [a]
144-A Debt	9.1 [a]	3.5 [a]	9.8 [a]	-0.3	-3.6 [a]	15.5 [a]	-11.6 [a]	-6.6 [a]	14.4 [a]	5.5 [a]	-0.8	-13.0 [a]
vs. Public Debt	15.0 [a]	12.4 [a]	11.1 [a]	-6.9 [a]	-6.4 [a]	13.3 [a]	-10.7 [a]	-8.0 [a]	13.9 [a]	1.8 [a]	-1.3	-27.3 [a]
Convertibles												
Private Convertibles	7.1 [a]	4.9 [a]	8.4 [a]	7.1 [a]	3.2 [a]	-6.9 [a]	-15.3 [a]	-13.9 [a]	3.3 [a]	-4.3 [a]	5.8 [a]	-13.2 [a]
vs. Public Convertibles	14.3 [a]	9.0 [a]	16.7 [a]	9.8 [a]	3.1 [a]	-9.2 [a]	-11.3 [a]	-15.8 [a]	3.2 [a]	-9.7 [a]	5.7 [a]	-18.9 [a]
Private Convertibles	11.4 [a]	8.3 [a]	11.6 [a]	5.0 [a]	2.3 [b]	-6.5 [a]	-15.7 [a]	-21.2 [a]	6.8 [a]	-7.0 [a]	4.9 [a]	-13.6 [a]
vs. 144-A Convertibles	20.6 [a]	13.6 [a]	21.1 [a]	6.2 [a]	1.8 [c]	-7.8 [a]	-14.9 [a]	-21.5 [a]	6.7 [a]	-14.6 [a]	4.8 [a]	-29.7 [a]
144-A Convertibles	0.9	-0.5	2.6 [a]	4.3 [a]	1.8	-2.3 [b]	-2.4 [b]	-1.2	-1.1	0.6	2.4 [b]	-3.7 [a]
Public Convertibles	-0.2	-0.8	5.5 [a]	6.1 [a]	2.1 [c]	-3.7 [a]	-1.7 [c]	-1.9 [c]	-1.1	0.0	2.7 [a]	-3.2
Equity												
Private Equity	17.2 [a]	13.2 [a]	14.4 [a]	13.0 [a]	3.9 [a]	-13.4 [a]	-25.2 [a]	-31.7 [a]	9.3 [a]	-12.2 [a]	7.8 [a]	-5.8 [a]
vs. Public Equity	23.7 [a]	17.4 [a]	23.8 [a]	18.1 [a]	2.1 [a]	-13.9 [a]	-21.3 [a]	-30.7 [a]	9.1 [a]	-21.1 [a]	7.6 [a]	-26.6 [a]

a, b,c- represent significance levels of one, five, and ten percent.

Table 3
Market Reaction to Security Issuance

Table presents regression of 10 trading-day cumulative abnormal returns around security issues on the variables defined in Table 2A. The analyst earnings surprise variable appears interacted with the public and private market dummy. All explanatory variables (except the dummy variables) have been normalized by their standard deviation. t-statistics are denoted below the coefficients. a,b,c - Significantly different from zero at the one-percent (five, ten) level of significance. We include industry fixed effects (Fama and French 17 industry categories) in all regressions.

	Equity Issues		Convertible Issues		Debt Issues	
	(1)	(2)	(3)	(4)	(5)	(6)
Public Market	-1.62% [b]	-1.60% [c]	-2.31% [a]	-2.53% [a]	-0.89% [b]	-0.95% [c]
	-2.54	-1.82	-2.65	-2.65	-1.97	-1.83
Private Market	2.77% [b]	1.76%	-0.35%	1.83%	-0.07%	-0.02%
	2.16	1.29	-0.24	1.14	-0.19	-0.06
Measures of Asymmetric Information						
Analyst Earnings Surprise*Public Market		-3.60%		-3.68% [a]		-0.22%
		-1.25		-4.15		-0.20
Analyst Earnings Surprise*Private Market		0.96% [c]		-0.81%		1.10%
		1.80		-1.10		1.25
Risk Measure						
Cash Flow Volatility	0.06%	0.26%	-0.19%	-0.68%	0.65%	0.72%
	0.11	0.50	-0.21	-0.69	1.31	1.32
Investment Opportunities Measures						
R&D / lagged PPE	0.49%	0.12%	0.81%	1.12%	-1.14%	-1.11%
	0.94	0.20	1.09	1.25	-1.36	-1.25
Tobin's *q*	-0.18%	-0.27%	0.57%	0.06%	-0.54%	-0.48%
	-0.30	-0.48	0.76	0.08	-1.42	-1.22
Debt, Taxes and Profitability						
Debt/Asset Ratio	-0.40%	-0.59%	-0.56%	-1.65% [b]	0.31%	0.24%
(Industry Adjusted)	-0.78	-1.19	-0.78	-2.26	1.44	1.07
Marginal Tax Rate	-0.55%	-0.07%	0.35%	-0.02%	-0.11%	-0.06%
	-0.91	-0.11	0.46	-0.02	-0.58	-0.30
Profitability	-0.40%	-1.53% [b]	-0.55%	-1.43%	-0.31%	-0.19%
(Operating cash flow/ lagged assets)	-0.60	-2.13	-0.60	-1.33	-0.61	-0.36
Financial Distress	3.43% [c]	2.98% [c]	6.21% [a]	4.08%	1.09%	0.89%
(Z-score < 1.81)	1.90	1.66	2.90	1.63	1.53	1.30
Market Timing						
Cumulative Ab. Stock Return	-1.69% [a]	-1.38% [a]	-0.79%	0.70%	-2.36% [a]	-2.50% [a]
(250 prior days)	-3.66	-2.81	-1.05	0.77	-6.50	-6.92
Cumulative Market Return	0.84%	0.77%	-1.10%	-0.54%	-0.41% [b]	-0.48% [b]
(Prior year)	1.20	1.13	-1.63	-0.69	-1.97	-2.26
Size and Corporate Governance						
Corporate Governance	0.50%	0.16%	-0.07%	0.07%	0.07%	0.01%
	0.87	0.28	-0.10	0.09	0.38	0.08
Log Size	-0.23%	0.74%	-1.30%	-0.90%	0.12%	0.14%
(firm value)	-0.26	0.90	-1.18	-0.77	0.44	0.50
Number of observations	1,959	1,593	1,374	1,102	5,305	4,981
F-value	5.85	4.01	2.47	2.94	4.90	4.65
Adjusted R^2	4.40%	4.51%	2.74	3.38%	2.14%	2.70%

Table 4
Choice of Security: Debt versus Equity
Debt and Equity Aggregated Across Markets

Table presents coefficient estimates from simple binomial logit regressions combining security issues into equity and debt groups with no indication of choice of market, nor choice of convertible securities. The dependent variable equals one for equity issues and zero for debt issues. All firm-specific variables are lagged. All market-specific variables represent three months prior to the security issuance. For the measure of asymmetric information, column 1 uses the analyst earnings forecast surprise calculated as the absolute value of the median forecast less the actual earnings divided by the price per share. Column 2 uses analyst earnings dispersion calculated as the standard deviation of the analyst forecasts divided by price per share. All explanatory variables (except predicted financial need) are as defined in Table 2A and they have all been normalized by their standard deviation (except the dummy variable financial distress). Predicted financial need (internal funding deficit) is the instrumented amount of capital expenditures plus increase in net working capital less operating income before depreciation. (Robust Z-statistics are industry categories) are included.

Explanatory Variables	Analyst Earnings Surprise	Analyst Earnings Dispersion
Measures of Asymmetric Information	0.001	-0.028
	(.050)	(-.840)
Risk Measure		
Cash Flow Volatility	0.130 [a]	0.183 [a]
	(2.510)	(2.870)
Investment Opportunities Measures		
R&D / lagged PPE	0.108 [b]	0.093 [c]
	(2.380)	(1.870)
Tobin's *q*	0.384 [a]	0.359 [a]
	(7.830)	(6.910)
Debt, Taxes and Profitability		
Debt/Asset Ratio (Industry Adjusted)	0.091 [a]	0.109 [a]
	(2.550)	(2.810)
Marginal Tax Rate	-0.153 [a]	-0.126 [a]
	(-3.710)	(-2.900)
Profitability (Operating cash flow/ lagged assets)	-0.361 [a]	-0.372 [a]
	(-6.860)	(-6.170)
Financial Distress (Z-score < 1.81)	0.219 [b]	0.225 [b]
	(2.140)	(2.030)
Size and Corporate Governance		
Predicted Financial Need	0.106	0.079
	(1.350)	(.880)
Log Firm Size (firm value)	7.250 [a]	6.710 [a]
	(.000)	(.000)
Corporate Governance	0.026	0.016
	(.760)	(.460)
Market Timing & Market Characteristics		
Cumulative Abnormal Stock Return (250 prior days)	0.288 [a]	0.301 [a]
	(7.250)	(6.710)
Cumulative Market Return (Prior year)	0.093 [a]	0.047
	(2.780)	(1.250)
Aaa Bond Rate	0.187 [a]	0.234 [a]
	(4.880)	(5.620)
Credit Spread: Baa - Aaa	0.204 [a]	0.212 [a]
	(4.910)	(4.720)
Number of issues	8,346	7,536
Pseudo R-squared	27.7%	25.6%

a,b,c - Significantly different from zero at the one-percent (five, ten) level of significance.

Table 5
Security Choice Conditional on Public versus Private Markets

Table presents coefficient estimates from a nested logit regression testing the impact of explanatory variables on firm public and private security choice by public firms. First stage is the decision of market with coefficients representing sensitivity *relative to the public market*. Second stage is the choice of security conditional on market, with coefficients representing *sensitivity versus debt issuance*. All firm-specific variables are lagged. Explanatory variables are as defined in Table 2A and they have all been normalized by their standard deviation (except the dummy variable financial distress). Analyst earnings surprise is the absolute value of actual earnings less median analyst forecast divided the price per share. (Robust Z-statistics are presented in parentheses.) Predicted financial need (internal funding deficit) is the instrumented amount of capital expenditures plus increase in net working capital less operating income before depreciation. Chi-squared statistic for test of overall significance is 11693 (p-value .001). Sample is 8346 security issues. Industry fixed effects are included for each security type.

	First Stage	**Second Stage**			
	Market Choice	**Security Choice Conditional on Market**			
Explanatory Variables	Private (vs. Public Market)	Public Equity (vs. Public Debt)	Public Convertibles (vs. Public Debt)	Private Equity (vs. Private Debt)	Private Convertibles (vs. Private Debt)
Asymmetric Information Measure					
Analyst Earnings Surprise	0.215 [a]	-0.773 [a]	-0.026	0.082 [c]	0.118 [a]
	(3.480)	(-4.730)	(-.280)	(1.940)	(2.880)
Risk Measure					
Cash Flow Volatility	0.206 [c]	0.538 [a]	0.441 [a]	0.308 [a]	0.334 [a]
	(1.730)	(4.600)	(3.530)	(4.300)	(4.590)
Investment Opportunities					
R&D / lagged PPE	0.360 [b]	0.725 [a]	0.736 [a]	0.230 [a]	0.141 [b]
	(2.070)	(4.630)	(4.640)	(3.590)	(2.060)
Tobin's *q*	0.491 [a]	0.997 [a]	0.875 [a]	0.656 [a]	0.634 [a]
	(4.690)	(11.690)	(10.190)	(9.650)	(8.970)
Debt, Taxes and Profitability					
Debt/Asset Ratio (Industry Adjusted)	-0.052	0.134 [a]	-0.014	0.113 [c]	0.179 [a]
	(-1.470)	(2.680)	(-.270)	(1.940)	(2.970)
Marginal Tax Rate	0.023	0.001	-0.142 [b]	-0.434 [a]	-0.381 [a]
	(.660)	(.020)	(-2.430)	(-5.360)	(-4.640)
Profitability (Operating cash flow/ lagged assets)	-0.145	-0.632 [a]	-0.769 [a]	-0.958 [a]	-0.827 [a]
	(-1.490)	(-6.300)	(-7.320)	(-11.770)	(-9.930)
Financial Distress (Z-score<1.81)	-0.431 [a]	-0.222	-0.083	0.413 [a]	0.563 [a]
	(-4.250)	(-1.440)	(-.520)	(2.560)	(3.430)
Size and Corporate Governance					
Predicted Financial Need	0.003	0.234 [b]	0.184 [a]	-0.800 [a]	-0.436
	(.050)	(2.390)	(3.820)	(-5.130)	(-1.480)
Log Size (Firm Value)	-1.397 [a]	-1.778 [a]	-0.497 [a]	-1.402 [a]	-1.489 [a]
	(-14.750)	(-20.300)	(-6.590)	(-13.430)	(-13.530)
Corporate Governance	0.030	0.007	0.067	0.143 [a]	0.082
	(.910)	(.140)	(1.300)	(2.560)	(1.390)
Market Timing & Market Characteristics					
Cumulative Abnormal Stock Return (250 prior days)	-0.333 [a]	0.387 [a]	0.328 [a]	0.305 [a]	0.041
	(-5.930)	(6.720)	(5.450)	(5.200)	(.580)
Cumulative Market Return (Prior year)	-0.073 [c]	0.102 [c]	0.028	0.142 [a]	-0.021
	(-1.950)	(1.940)	(.480)	(2.520)	(-.350)
Aaa Bond Rate	0.298 [a]	0.364 [a]	-0.140 [b]	0.174 [a]	0.227 [a]
	(7.250)	(5.970)	(-2.240)	(2.560)	(3.010)
Credit Spread: Baa - Aaa	0.318 [a]	0.383 [a]	0.169 [b]	0.500 [a]	0.144 [c]
	(6.920)	(5.590)	(2.340)	(7.200)	(1.880)

a,b,c - Significantly different from zero at the one-percent (five, ten) level of significance.

Table 6A
Economic Significance: Changes in Predicted Probabilities by Security Type

This table illustrates the economic significance of our results using the coefficients from the nested logit model of Table 5. We vary each specific variable by +/- 1/2 of its standard deviation, and evaluate the change in each predicted probability of security issuance, keeping all other variables fixed at their actual observation values. For the asymmetric information and risk variables, we also compute these predicted marginal effects for firms above and below the median market value of all firms issuing securities in our sample.

	Prob. of Issuing in:		Conditional on Public Market Probability of Issuing			Conditional on Private Market Probability of Issuing		
	Public Market	Private Market	Debt	Convertibles	Equity	Debt	Convertibles	Equity
Asymmetric Information Measure								
Analyst Earnings Surprise: all firms	-8.8%	8.8%	6.8%	4.2%	-11.0%	-0.6%	0.5%	0.1%
firms <= median market value	-10.8%	10.8%	8.2%	6.7%	-14.9%	-0.9%	0.9%	0.1%
firms > median market value	-6.8%	6.8%	5.3%	1.8%	-7.1%	-0.3%	0.2%	0.1%
Risk Measure								
Cash Flow Volatility: all firms	-0.5%	0.5%	-7.4%	2.2%	5.2%	-2.3%	1.2%	1.1%
firms <= median market value	0.8%	-0.8%	-7.5%	1.0%	6.6%	-3.4%	1.8%	1.6%
firms > median market value	-1.9%	1.9%	-7.2%	3.4%	3.8%	-1.2%	0.5%	0.7%
Investment Opportunities								
R&D / lagged PPE	-1.2%	1.2%	-10.8%	4.7%	6.1%	-1.3%	0.2%	1.1%
Tobin's *q*	-3.1%	3.1%	-14.0%	4.8%	9.2%	-4.6%	2.0%	2.6%
Debt, Taxes and Profitability								
Debt/Asset Ratio	1.3%	-1.3%	-1.1%	-1.0%	2.0%	-1.0%	0.8%	0.3%
Marginal Tax Rate	0.3%	-0.3%	0.9%	-1.7%	0.9%	2.9%	-1.1%	-1.8%
Profitability	-0.5%	0.5%	10.2%	-5.7%	-4.6%	6.4%	-2.3%	-4.1%
Financial Distress	5.4%	-5.4%	0.4%	0.3%	-2.7%	-3.6%	2.4%	1.2%
Market Timing & Corporate Governance								
Cumulative Abnormal Stock Return	8.9%	-8.9%	-5.4%	1.7%	3.7%	-1.3%	-0.6%	1.9%
Corporate Governance	-0.7%	0.7%	-0.5%	0.8%	-0.3%	-0.8%	0.1%	0.7%

Table 6B: Goodness of Fit
Predicted versus Actual Choices

For each choice made by firms, this table shows the predicted choices made using the model and coefficients of Table 5. The predicted choice is the maximum probability over the six possible choices in Table 5. For each type of security issued, the first row gives the number predicted to choose the security given in the column header. The second row gives the percentage predicted to choose that security versus the actual choice. The third row gives the percentage of observed, predicted pairs divided by the overall number predicted to issue that security.

	Predicted Choice						
Observed Choice	Public Debt	Public Convertibles	Public Equity	Private Debt	Private Convertibles	Private Equity	Observed Count
Public Debt	1,382	17	24	840	1	2	2,266
	61%	1%	1%	37%	0%	0%	
	62%	15%	5%	18%	0%	0%	
Public Convertibles	155	37	70	305	0	16	583
	27%	6%	12%	52%	0%	3%	
	7%	33%	16%	7%	0%	2%	
Public Equity	83	21	211	528	7	78	928
	9%	2%	23%	57%	1%	8%	
	4%	19%	48%	11%	3%	12%	
Private Debt	589	23	74	2,621	32	43	3,382
	17%	1%	2%	78%	1%	1%	
	26%	21%	17%	57%	13%	6%	
Private Convertibles	11	5	23	170	129	180	518
	2%	1%	4%	33%	25%	35%	
	0%	4%	5%	4%	51%	27%	
Private Equity	17	9	38	166	85	354	669
	3%	1%	6%	25%	13%	53%	
	1%	8%	9%	4%	33%	53%	
Predicted Count	2,237	112	440	4,630	254	673	8,346

	Predicted Market	
Observed Market	Public	Private
Public	2,000	1,777
	72%	32%
Private	789	3,780
	17%	83%
	28%	68%

Observed	Predicted Security		
Security	Debt	Convertibles	Equity
Debt	5,432	73	143
	79%	20%	13%
Convertible	641	171	289
	58%	16%	26%
	9%	47%	26%
Equity	794	122	681
	50%	8%	43%
	12%	33%	61%

Table 7
Choice of Security Issuance in Public and Private Markets

Table presents coefficient estimates from a nested logit regression testing the impact of explanatory variables on public and private security choice by public firms. First stage is the choice of security type with coefficients representing sensitivity relative to debt. Second stage is the choice of market conditional on security type, with coefficients representing sensitivity versus public issuance. All firm-specific variables are lagged. Explanatory variables are as defined in Table 2A and they have all been normalized by their standard deviation (except the dummy variable financial distress). Analyst earnings surprise is the absolute value of actual earnings less median analyst forecast divided the price per share. (Robust Z-statistics are presented in parentheses.) Predicted financial need (internal funding deficit) is the instrumented amount of capital expenditures plus increase in net working capital less operating income before depreciation. Chi-squared statistic for test of overall significance is 11642 (p-value .001). Sample is 8346 security issues. Industry fixed effects are included for each security type.

	First Stage Security Choice		**Second Stage: Public versus Private**		
Explanatory Variables	Convertibles	Equity	Private Equity	Private Convertibles	Private Debt
Asymmetric Information Measure	(vs. Debt)		(vs. Pu. Eq.)	(vs. Pu. Conv.)	(vs. Pu. Debt)
Analyst Earnings Surprise	0.007	-0.655 [a]	1.060 [a]	0.388 [a]	0.201 [a]
	(.080)	(-3.440)	(6.520)	(3.670)	(3.300)
Risk Measure					
Cash Flow Volatility	0.419 [a]	0.491 [a]	-0.005	0.137	0.218 [b]
	(3.630)	(4.440)	(-.120)	(1.480)	(1.970)
Investment Opportunities Measures					
R&D / lagged PPE	0.639 [a]	0.651 [a]	-0.102 [b]	-0.227 [a]	0.415 [a]
	(4.200)	(4.410)	(-2.110)	(-2.950)	(2.720)
Tobin's *q*	0.817 [a]	0.921 [a]	0.179 [a]	0.311 [a]	0.523 [a]
	(7.570)	(8.290)	(3.170)	(3.910)	(6.820)
Debt, Taxes and Profitability					
Debt/Asset Ratio	-0.009	0.138 [a]	-0.084	0.204 [b]	-0.055
(Industry Adjusted)	(-.190)	(2.950)	(-1.260)	(2.340)	(-1.490)
Marginal Tax Rate	-0.166 [a]	-0.013	-0.408 [a]	-0.237 [b]	0.024
	(-3.030)	(-.260)	(-4.530)	(-2.140)	(.650)
Profitability	-0.739 [a]	-0.617 [a]	-0.517 [a]	-0.297 [a]	-0.150 [c]
(Operating cash flow/ lagged assets)	(-7.330)	(-6.440)	(-7.160)	(-2.800)	(-1.750)
Financial Distress	-0.021	-0.164	0.225	0.322	-0.439 [a]
(Z-score<1.81)	(-.130)	(-1.070)	(1.140)	(1.290)	(-4.230)
Size and Corporate Governance					
Predicted Financial Need	0.172 [a]	0.240 [a]	-1.087 [a]	-0.887 [a]	0.001
	(3.660)	(3.020)	(-4.940)	(-2.980)	(.030)
Log Size	-0.446 [b]	-1.547 [a]	-1.044 [a]	-2.846 [a]	-1.419 [a]
(Firm Value)	(-2.350)	(-6.690)	(-7.940)	(-13.710)	(-21.750)
Corporate Governance	0.074	0.006	0.176 [a]	0.023	0.030
	(1.560)	(.150)	(2.720)	(.270)	(.910)
Market Timing & Market Characteristics					
Cumulative Abnormal Stock Return	0.323 [a]	0.423 [a]	-0.394 [a]	-0.640 [a]	-0.307 [a]
(250 prior days)	(4.570)	(5.780)	(-7.200)	(-7.300)	(-5.720)
Cumulative Market Return	0.042	0.115 [b]	-0.037	-0.193 [b]	-0.065 [c]
(Prior year)	(.790)	(2.320)	(-.570)	(-2.080)	(-1.680)
Aaa Bond Rate	-0.141 [b]	0.307 [a]	0.113	0.837 [a]	0.296 [a]
	(-2.070)	(4.100)	(1.430)	(7.080)	(7.190)
Credit Spread: Baa - Aaa	0.131 [c]	0.337 [a]	0.469 [a]	0.365 [a]	0.321 [a]
	(1.650)	(4.360)	(5.590)	(3.150)	(6.930)

a,b,c - Significantly different from zero at the one-percent (five, ten) level of significance.

Table 8A
Economic Significance: Changes in Predicted Probabilities by Security Type

This table illustrates the economic significance of our results using the coefficients from the nested logit model of Table 7. We vary each specific variable by +/- 1/2 of its standard deviation, and evaluate the change in each predicted probability of security issuance, keeping all other variables fixed at their actual observation values. For the asymmetric information and risk variables, we also compute these predicted marginal effects for firms above and below the median market value of all firms issuing securities in our sample.

	Probability of Issuing:			Probablility of Private Market Conditional on Issuing:		
	Debt	Convertibles	Equity	Debt	Convertibles	Equity
Asymmetric Information Measure						
Analyst Earnings Surprise: all firms	4.5%	1.2%	-5.7%	3.0%	4.0%	12.0%
firms <= median market value	5.3%	2.1%	-7.4%	2.0%	5.7%	14.0%
firms > median market value	3.6%	0.4%	-4.0%	4.1%	2.3%	9.9%
Risk Measure						
Cash Flow Volatility: all firms	-4.8%	2.0%	2.8%	3.3%	1.4%	-0.1%
firms <= median market value	-5.3%	1.8%	3.5%	2.2%	2.0%	-0.1%
firms > median market value	-4.3%	2.2%	2.1%	4.4%	0.8%	-0.1%
Investment Opportunities						
R&D / lagged PPE	-5.3%	2.1%	3.2%	6.3%	-2.4%	-1.2%
Tobin's *q*	-8.6%	3.5%	5.2%	7.9%	3.2%	2.0%
Debt, Taxes and Profitability						
Debt/Asset Ratio	-1.5%	0.3%	1.3%	-0.8%	2.1%	-1.0%
Marginal Tax Rate	2.2%	-1.6%	-0.6%	0.4%	-2.5%	-4.6%
Profitability	9.2%	-4.4%	-4.8%	-2.3%	-3.1%	-5.8%
Financial Distress	-2.6%	2.4%	0.3%	-6.8%	3.4%	2.6%
Market Timing & Corporate Governance						
Cumulative Abnormal Stock Return	-6.2%	1.4%	4.7%	-4.6%	-6.6%	-4.5%
Corporate Governance	-0.6%	0.4%	0.2%	0.5%	0.2%	2.0%

Table 8B: Goodness of Fit
Predicted versus Actual Choices

For each choice made by firms, this table shows the predicted choices made using the model and coefficients of Table 7. The predicted choice is the maximum probability over the six possible choices in Table 7. For each type of security issued, the first row gives the number predicted to choose the security given in the column header. The second row gives the percentage predicted to choose that security versus the actual choice. The third row gives the percentage of observed, predicted pairs divided by the overall number predicted to issue that security.

	Predicted Choice						
Observed Choice	Public Debt	Public Convertibles	Public Equity	Private Debt	Private Convertibles	Private Equity	Observed Count
Public Debt	1,381	14	25	843	2	1	2,266
	61%	1%	1%	37%	0%	0%	
	62%	13%	6%	18%	1%	0%	
Public Convertibles	154	38	69	306	0	16	583
	26%	7%	12%	52%	0%	3%	
	7%	34%	16%	7%	0%	2%	
Public Equity	83	23	211	528	8	75	928
	9%	2%	23%	57%	1%	8%	
	4%	21%	48%	11%	3%	11%	
Private Debt	591	22	72	2,624	32	41	3,382
	17%	1%	2%	78%	1%	1%	
	26%	20%	16%	57%	13%	6%	
Private Convertibles	12	5	24	172	124	181	518
	2%	1%	5%	33%	24%	35%	
	1%	5%	5%	4%	50%	27%	
Private Equity	18	9	39	165	82	356	669
	3%	1%	6%	25%	12%	53%	
	1%	8%	9%	4%	33%	53%	
Predicted Count	2,239	111	440	4,638	248	670	8,346

	Predicted Market	
Observed Market	Public	Private
Public	1,998	1,779
	72%	32%
Private	792	3,777
	17%	83%
	28%	68%

Observed	Predicted Security		
Security	Debt	Convertibles	Equity
Debt	5,439	70	139
	79%	19%	13%
Convertible	644	167	290
	58%	15%	26%
	9%	47%	26%
Equity	794	122	681
	50%	8%	43%
	12%	34%	61%

Table 9
The Timing of Private and Public Security Issues Relative to Earnings Releases

This table illustrates the timing of security issues. For each security-market combination, we test whether the number of days between an issue and the closer earnings release (positive if the preceding earnings release is closer to the issue date than the subsequent earnings release) is symmetrically distributed around zero (Wilcoxon matched-pairs signed-rank test). The Public-Private column reports the Mann-Whitney two-sample statistics for the hypothesis that the timing of issues in the public and private markets, for a given security type, have the same distribution. Panel B reports the Mann-Whitney two-sample statistics for the hypothesis that any security choice pair, for a given market, have the same distribution. We use a 40-day window around the issue date for quarterly earnings release and an 180-day window for annual earnings release.

		Market				
Security		Public		Private		Public-Private
		N	z-value	N	z-value	z-value
Panel A: Tests of Issuance Timing in and across Markets						
	all quarters	1,929	5.25 [a]	1,615	0.43	3.45 [a]
	1st qtr	527	3.20 [a]	416	0.84	1.69 [c]
Common	2nd qtr	491	-1.67 [c]	400	-0.93	-0.41
	3rd qtr	434	7.37 [a]	466	0.46	4.86 [a]
	4th qtr	477	1.95 [c]	333	0.56	0.91
	annual	2,030	2.97 [a]	1,909	1.04	1.65 [c]
	all quarters	801	3.93 [a]	1,296	-0.41	3.49 [a]
	1st qtr	225	1.88 [c]	377	-0.04	1.82 [c]
Convertibles	2nd qtr	202	0.72	283	0.25	0.30
	3rd qtr	189	3.79 [a]	387	-0.34	3.08 [a]
	4th qtr	185	1.67 [c]	249	-0.71	1.91 [c]
	annual	912	2.51 [b]	1,512	2.78 [a]	0.52
	all quarters	2,872	2.78 [a]	5,492	-1.77 [c]	3.40 [a]
	1st qtr	806	1.40	1,513	-1.50	2.00 [b]
Debt	2nd qtr	678	-2.33 [b]	1,351	-1.88 [c]	-0.61
	3rd qtr	648	4.76 [a]	1,376	2.31 [b]	2.57 [a]
	4th qtr	740	1.81 [c]	1,252	-2.65 [a]	2.98 [a]
	annual	3,204	3.31 [a]	6,293	5.48 [a]	-0.47
Panel B: Tests of Issuance Timing within Markets						
Common - Debt	all quarters		2.70 [a]		1.25	
	1st qtr		1.89 [c]		1.40	
	2nd qtr		0.27		0.07	
	3rd qtr		2.97 [a]		-0.78	
	4th qtr		0.47		1.89 [c]	
	annual		0.52		-1.79 [c]	
	all quarters		1.85 [c]		0.55	
	1st qtr		1.3		0.63	
Convertible - Debt	2nd qtr		1.33		1.02	
	3rd qtr		0.67		-1.36	
	4th qtr		0.34		0.81	
	annual		0.66		-0.08	
	all quarters		0.22		0.51	
	1st qtr		0.09		0.62	
Common - Convertible	2nd qtr		-1.12		-0.83	
	3rd qtr		1.65 [c]		0.46	
	4th qtr		-0.09		0.80	
	annual		-0.32		-1.36	

Table 10
Public and Private Security Issuance including 144-A Issued Securities

Table presents coefficient estimates from a nested logit regression testing the impact of asymmetric information and agency costs on public and private security issues by public firms. First stage is the decision of security with coefficients representing tendency relative to debt. Second stage is the choice of market conditional on security type, with coefficients representing tendency versus public market issuance. All firm-specific variables are lagged. Explanatory variables (except predicted financial need) are as defined in Table 2A and they have all been normalized by their standard deviation (except the dummy variable financial distress). Predicted financial need (internal funding deficit) is the instrumented amount of capital expenditures plus increase in net working capital less operating income before depreciation. (Robust Z-statistics are presented in parentheses.) Chi-squared statistic for test of overall significance is 13926 (p-value .001). Sample is 7536 security issues. Industry fixed effects are included for each security type.

	First Stage Security Decision		Second Stage Market Decision (vs. Public Market)				
Explanatory Variables	Equity	Convertibles	Private Equity	Private Conv.	Private Debt	144-A Convertibles	144-A Debt
Measures of Asymmetric Information	(vs. Debt)	(vs. Debt)	(vs Public Equity)	(vs Public Conv.)	(vs. Public Debt)	(vs Public Conv.)	vs. Public Debt)
Analyst Earnings Dispersion	-0.278 [a]	0.051	0.568 [a]	0.192 [c]	0.009	-0.102	-0.001
	(-3.100)	(.680)	(5.260)	(1.750)	(.190)	(-.890)	(-.020)
Risk Measure							
Cash Flow Volatility	1.257 [a]	1.127 [a]	-0.015	0.186	0.911 [a]	0.094	0.926 [a]
	(4.520)	(3.800)	(-.320)	(.890)	(4.720)	(.460)	(4.300)
Investment Opportunities							
R&D / lagged PPE	0.732 [a]	0.578 [b]	-0.130 [b]	0.077	0.426 [b]	0.247	-0.077
	(3.090)	(2.230)	(-2.360)	(.400)	(1.950)	(1.330)	(-.280)
Tobin's *q*	1.314 [a]	1.134 [a]	0.186 [a]	0.386 [a]	0.847 [a]	0.177 [c]	0.563 [a]
	(7.590)	(6.610)	(2.890)	(3.040)	(8.730)	(1.640)	(4.440)
Debt, Taxes and Profitability							
Debt/Asset Ratio	0.304 [a]	0.082	-0.073	0.371 [a]	0.124 [a]	0.152	0.269 [a]
(Industry Adjusted)	(4.420)	(.940)	(-.990)	(2.820)	(2.590)	(1.340)	(4.510)
Marginal Tax Rate	-0.056	-0.144 [c]	-0.370 [a]	-0.308 [b]	-0.031	-0.140	-0.175 [a]
	(-.920)	(-1.710)	(-3.690)	(-2.070)	(-.700)	(-1.180)	(-3.020)
Profitability	-0.960 [a]	-0.987 [a]	-0.558 [a]	-0.423 [b]	-0.479 [a]	-0.147	-0.436 [a]
(Operating cash flow/ lagged assets)	(-6.030)	(-5.390)	(-7.130)	(-2.290)	(-4.470)	(-.870)	(-3.310)
Financial Distress	0.166	0.487 [b]	0.395 [c]	0.300	0.038	-0.277	0.804 [a]
(Z-score <1.81)	(.930)	(2.090)	(1.790)	(.840)	(.290)	(-.870)	(5.150)
Size and Corporate Governance							
Predicted Financial Need	0.187	0.207 [a]	-1.226 [a]	-0.843 [b]	-0.095	-0.150	0.028
	(1.430)	(3.310)	(-4.330)	(-2.350)	(-1.410)	(-1.300)	(.400)
Log Size	-2.324 [a]	-0.916 [a]	-0.942 [a]	-3.042 [a]	-1.876 [a]	-0.586 [a]	-1.255 [a]
(Firm Value)	(-7.390)	(-3.570)	(-6.550)	(-11.740)	(-21.280)	(-3.710)	(-13.830)
Corporate Governance	0.044	0.050	0.136 [c]	0.129	0.062	0.126	0.071
	(.800)	(.650)	(1.860)	(1.020)	(1.520)	(1.150)	(1.320)
Market Timing & Market Characteristics							
Cumulative Abnormal Stock Return	0.463 [a]	0.396 [a]	-0.450 [a]	-0.641 [a]	-0.217 [a]	-0.039	0.168 [b]
(250 prior days)	(5.830)	(4.360)	(-7.000)	(-5.470)	(-2.990)	(-.460)	(1.970)
Cumulative Market Return	-0.061	-0.057	-0.067	-0.219	-0.152 [a]	-0.026	-0.217 [a]
(Prior year)	(-.900)	(-.640)	(-.880)	(-1.560)	(-3.260)	(-.220)	(-3.610)
Aaa Bond Rate	0.304 [a]	0.055	0.122	0.588 [a]	0.228 [a]	-0.389 [a]	-0.149 [b]
	(4.210)	(.540)	(1.350)	(3.350)	(4.600)	(-2.820)	(-2.310)
Credit Spread: Baa - Aaa	0.349 [a]	0.016	0.459 [a]	0.590 [a]	0.269 [a]	0.273 [c]	-0.057
	(4.250)	(.140)	(4.970)	(3.220)	(4.790)	(1.720)	(-.750)

a,b,c - Significantly different from zero at the one-percent (five, ten) level of significance.

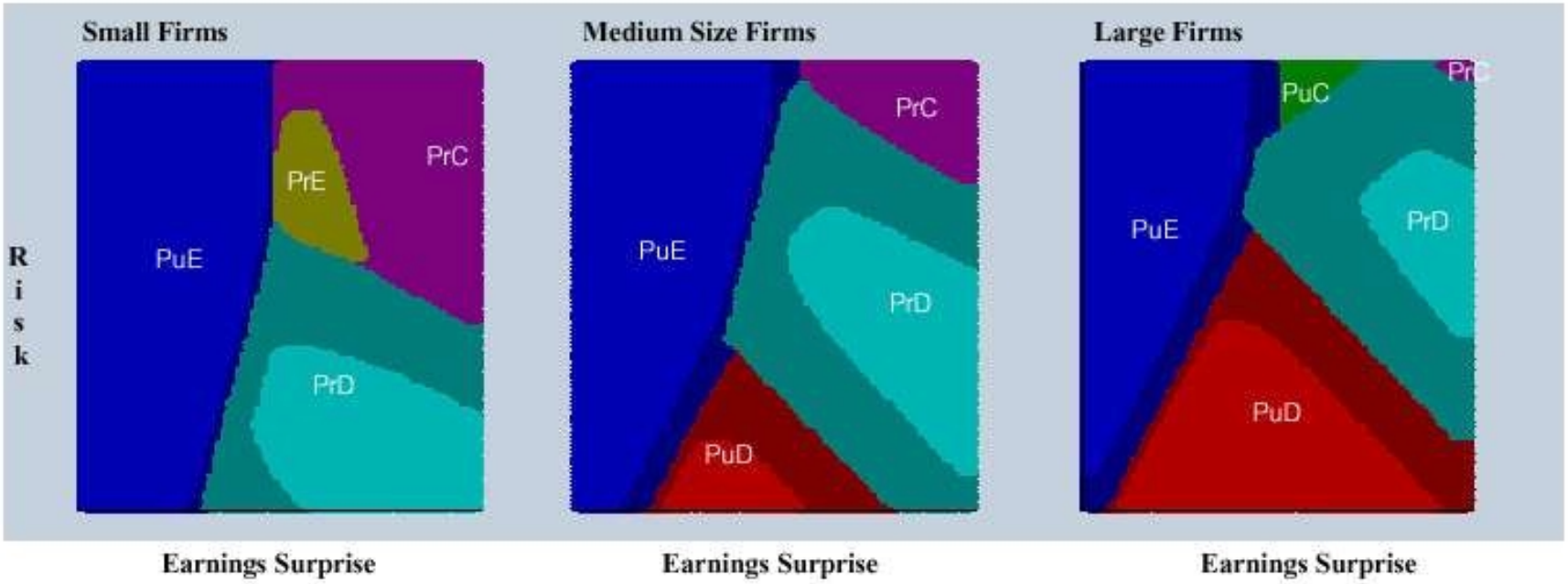

Figure 1. Predicted Security-Market Choices by Size Groups. The figure shows the security with the maximum predicted probability of issuance using the coefficients of Table 5 as we vary risk and earnings surprise for three size groups: small-below 33rd percentile, medium-between 33rd and 66th –percentile, and large-above 66th percentile. Risk (volatility of cash flows) is on the y-axis and asymmetric information (earnings surprise relative to analyst forecasts) is on the x-axis. We hold all data at security means for the respective size group and then vary risk and asymmetric information proxies from +/- 10 standard deviations away from the mean value for each size group. PuE (PrE) is public (private) equity, PuC (PrC) is public (private) convertibles, PuD (PrD) is public (private) Debt. Dark and light shading within regions represents predicted probability of that security greater than 50% and 0-50% higher than the next highest security.

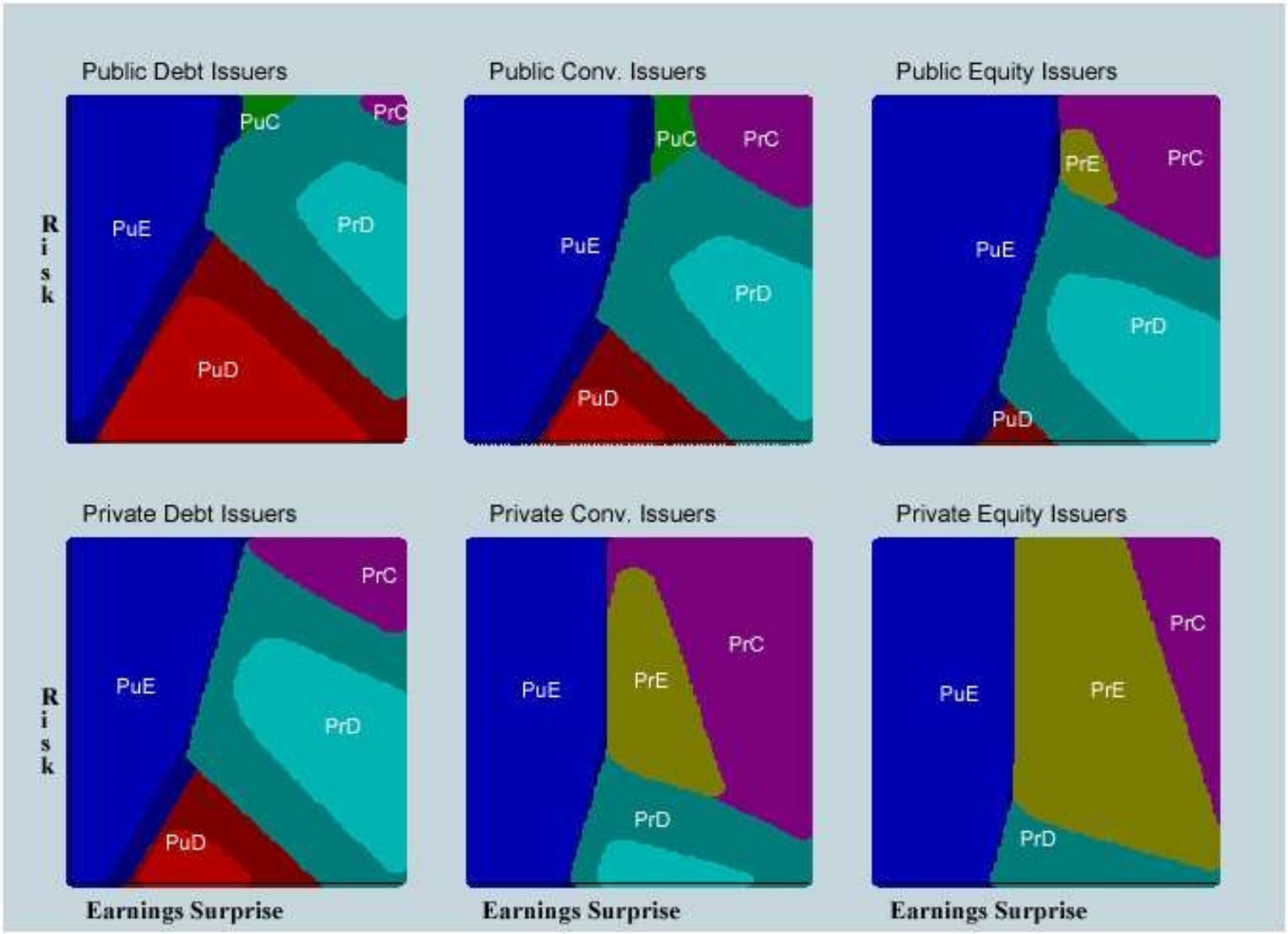

Figure 2. Predicted Security-Market Choices: The figure shows the security with the maximum predicted probability of issuance using the coefficient estimates from Table 5 as we vary risk and asymmetric information (earnings surprise) for each of the six actual security choices. Risk (volatility of cash flows) is on the y-axis and asymmetric information (earnings surprise relative to analyst forecasts) is on the x-axis. We hold all data at security means and then vary risk and asymmetric information proxies from +/- 10 standard deviations away from the mean value for each security type. PuE (PrE) is public (private) equity, PuC (PrC) is public (private) convertibles, PuD (PrD) is public (private) Debt. Dark and light shading within regions represents predicted probability of that security greater than 50% and 0-50% higher than the next highest security.