

The Choice of Private versus Public Capital Markets: Evidence from Privatizations

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Evidence from Privatizations**

Using a sample of 2477 privatizations from 108 countries that raised \$1.2 trillion between 1977 and 2000, we analyze the choice between raising funds in public versus private capital markets. This choice is influenced by capital market, political, and firm-specific factors. Share issue privatizations (sales of shares through public equity markets) are more likely in less developed capital markets, probably as a way to help develop capital markets, and for larger and more profitable state-owned enterprises. In contrast, asset sales (sales to a small group of investors using private capital markets) are more likely to occur where governments respect property rights, and are thus not expected to expropriate the privatized assets.

The Choice of Private versus Public Capital Markets: Evidence from Privatizations

In the late 1970s, the Thatcher government coined the term “privatization” to mean the sale of state-owned enterprises (SOEs) to private investors. Since then, the growth of privatizations throughout the world has been phenomenal. This change in ownership has greatly reduced the role of the state in many national economies. An economic event as profound as privatization raises many important questions. The laboratory provided by the privatization market allows researchers to examine theories in finance, economics, and political science. Megginson and Netter (2001) provide a comprehensive survey of the extensive literature that has developed around the privatization phenomenon. In this paper, we examine the factors that influence the way governments choose to privatize state-owned enterprises. We identify the factors that affect the choice between selling the SOE in the public capital market through a share-issue privatization (SIP) or selling it in the private capital market to a relatively small group of buyers in an asset sale.

We hypothesize that the choice between the use of private or public capital markets in privatizations is influenced by three types of economic, political, and institutional factors -- market considerations, the political and legal environment, and firm-specific characteristics. In the first category, we find that the choice of privatizing via a share-issue privatization is more likely the less developed the country's capital markets, and the greater the level of income equality. Our finding that SIPs tend to be used in countries with less-developed stock and bond markets suggests that governments explicitly try to use SIPs as a means to develop their capital markets. The finding that SIPs are more likely to be used when income equality is higher supports the theoretical prediction by Biais and Perotti (2001) that SIPs would be more expensive in countries with greater income inequality since governments would have to underprice share offerings by larger amounts.

Our findings also support the importance of the political and legal environment in the choice of whether to privatize through a SIP or an asset sale. We find that the greater the government's ability to credibly commit to policy and the protection of property rights, the greater the likelihood that an SOE will be sold in an asset sale. Since renationalization would be easier if an asset were held by a smaller group of investors, these results suggest that investors would be more willing to make the substantial investment of purchasing an SOE through an asset sale when government can be trusted to proceed with its policy of privatization.

As expected, firm-specific characteristics such as the size of the firm and its profitability also impact the privatization decision. The larger the SOE, the more likely it is to be sold through a SIP, suggesting that SIPs are more expensive for smaller firms where information costs are higher. Also, SIPs

may be the only practical means of privatizing the larger SOEs since the primary participants in asset sales (private firms or small groups of private investors) may not be able to raise enough capital to directly purchase the largest enterprises. Additionally, we find that more profitable firms are more likely to be privatized through a SIP, a strategy consistent with building popular support for privatization programs since SIPs frequently involve millions of individual domestic shareholders.

The paper is organized as follows. Section I provides an overview of the types of privatization techniques. Section II identifies economic and political characteristics that affect the choice of privatization technique and offers predictions as to the relation between these factors and the government's choice of privatization method. In this section, we also review the proxies that measure the economic and political characteristics in each country. Section III describes the empirical analysis and results, and Section IV summarizes and concludes.

I. Privatization Techniques

Governments usually choose one of three techniques to privatize: asset sales, share-issue privatizations, or voucher privatizations. With an asset sale, the government sells ownership of the state-owned enterprise to an existing private firm or to a small group of investors. This is similar to the traditional use of the private capital market in non-SOE transactions. The government may sell a fraction or all of the SOE through an asset sale. Typically, these asset sales are implemented through an auction, although governments sometimes sell SOEs directly to private investors. López-de-Silanes (1997) and LaPorta and López-de-Silanes (1999) describe a very important national privatization program (Mexico) that relied almost exclusively on asset sales.

In share-issue privatizations (SIPs), the privatizing government sells equity shares in the public capital market to both retail and institutional investors. SIPs are the largest and most economically significant of all privatizations, and account for the preponderance of assets privatized. Jones, Megginson, Nash, and Netter (1999) report that through 1997, governments in 59 countries raised over \$446 billion through 630 SIP transactions.

Formerly Communist Eastern European nations such as Russia, Poland, and the Czech Republic have primarily used voucher privatizations. Voucher privatizations are similar to SIPs in that shares of ownership are distributed broadly. However, in this method of privatization, the government distributes vouchers (paper claims that are exchanged for ownership in previously state-owned firms) to each citizen. These vouchers are usually free or very low cost and are available to most citizens. Thus, voucher privatizations result in assets virtually being given to citizens. In a sense, they are SIPs offered at a very low price.

We exclude voucher privatizations in our analysis for several reasons. Boycko, Shleifer, and Vishny (1994), for example, discuss the fundamental differences between the Communist (and formerly Communist) countries and the rest of the world. Low income levels characterize the Communist countries, and income is also distributed very unequally. In addition, the Communist countries had huge amounts of assets to be quickly privatized. SIPs were politically unacceptable in Eastern Europe because the only individuals with the wealth to acquire shares were "communists, criminals, and foreigners". Thus, the only viable way to privatize and maintain significant domestic ownership was perceived to be through voucher distributions. In addition, during this period, the Communist and formerly Communist countries were undergoing dramatic changes in their political and economic processes that would be difficult to capture in our empirical tests. Perhaps the best evidence that it would be inappropriate to include the Communist countries in our general analysis is that there simply are no voucher distribution plans outside the Communist countries, indicating that the Communist countries are fundamentally different from the rest of the world. Data availability is also very limited for the Communist voucher distributions.¹

II. Economic and Political Determinants of the Method of Privatization

When determining the method of privatizing SOEs, a government considers numerous factors including characteristics of the markets and the potential investors, the institutional environment, and the firm itself, as well as considering its own political objectives. Previous research has documented the importance of these factors in the development of financial markets in general, including Stulz (2000), Levine (1997), La Porta, López-de-Silanes, Shleifer, and Vishny (1997, 1998), and Demirguc-Kunt and Maksimovic (1999). The following section describes the economic and political characteristics that may influence the choice of a particular method of sale in a privatization. Several of these factors may influence the choice of privatization method in ways that are difficult to predict *ex ante*. We recognize this uncertainty by stating alternative hypotheses where appropriate and seek to clarify ambiguities through our empirical analysis.

A. Market Considerations

The current level of market valuation may be a critical factor in a government's choice of privatization method. Similar to a private firm attempting to time the market with its IPO, a government would be more likely to privatize by SIP during periods of high valuations or "hot markets". Loughran, Ritter, and Rydqvist (1994) present evidence of market timing by private firms. In their multi-country

¹ In a more complete analysis, we would include not only the Communist privatizations but also every decision by a government to privatize or not to privatize an SOE. However, the limitations of data and the difficulty of modeling every political environment preclude this alternative. We believe our analysis does provide significant information about the SIP versus asset sale decision in non-Communist countries.

analysis, they find a positive correlation between the volume of IPO activity and the level of the stock market. We follow Loughran, et al., and measure the level of each nation's stock market with its inflation-adjusted market index. Finding a positive relation between the value of this index and a government's use of SIPs would support the hypothesis that governments time their SIPs in a way similar to private firms.

In addition to the current level of market valuation, the overall degree of development of the privatizing country's capital market may also affect how a government privatizes a SOE. If the domestic capital market is relatively primitive, it may be difficult for share-issue privatizations to succeed, in part because it is hard to find buyers. Dewenter and Malatesta (1997) report that countries with less developed capital markets may find it more costly to use SIPs (generally due to greater required underpricing). A government's desire to promote wider equity ownership by significantly underpricing shares and the greater uncertainty regarding the SOE's intrinsic value (because of fewer comparable firms or fewer analysts) in lesser-developed markets are factors that influence these costs. Because of the higher costs of using the public capital markets, governments may favor privatizing by asset sales in less developed capital markets.

Alternatively, governments may use privatizations to spur the growth of fledgling financial markets. Perotti and Oijen (2001), Subrahmanyam and Titman (1999), McLindon (1996), and Kleiman and Morrissey (1994) note that privatization through SIPs can jumpstart stock-market development and trigger gains in economic growth and efficiency.² Specifically, Subrahmanyam and Titman (1999) and McLindon (1996) describe how SIPs can initiate a "snowball" effect. That is, as new firms go public, the enhanced liquidity and efficiency encourage more firms to go public, and the capital market experiences rapid growth. The benefits from the SIPs' creation of often millions of new, tradeable securities should be especially pronounced in emerging or less-developed equity markets.

Furthermore, privatizing governments often try to develop a new class of shareholders out of citizens who have never previously owned equity shares. This desire to widen share ownership and promote an "equity culture" is an explicit goal of many privatization programs. SIPs have played a major role in accomplishing this objective. Because of the massive size of the offerings and the preferential allocation and pricing, SIPs have generated rapid growth in share ownership in many nations, as detailed in Megginson and Boutchkova (2000). Subrahmanyam and Titman (1999) and McLindon (1996) note

² Wurgler (2000), Beck, Levine, and Loayza (2000), Rousseau and Wachtel (2000), Subrahmanyam and Titman (1999), Rajan and Zingales (1998), Dow and Gorton (1997), Levine (1997), and Atje and Jovanovic (1993) provide additional description of how the development of a nation's financial market leads to greater economic efficiency and growth.

that privatizations have been key to the explosion in value of many developing stock markets and have substantially increased the number of active investors in these countries.³

Therefore, governments might use SIPs to intentionally spur the development of the local capital market. However, as previously noted, large SIPs might not be efficient (or even possible) in less-developed equity markets. Thus, the relation between capital market development and choice of privatization technique is ambiguous. We do note, however, that the statements of politicians at the announcement of major privatizations or privatization programs often emphasize the importance of privatizations in the development of capital markets.

There are several possible empirical measures of market development. Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001), Perotti and Oijen (2001), Wurgler (2000), Levine and Zervos (1998), and Mayer (1990) use the ratio of market capitalization to GDP as a measure of financial market development. However, the ability of this variable to accurately gauge financial market development has been questioned recently. Rajan and Zingales (1998) and Levine and Zervos (1998) note that, since financial markets are forward-looking, market capitalizations can be distorted by differing growth estimates. As a result, the stock market capitalization does not reflect the amount of funding that issuers actually obtained. Furthermore, Rousseau and Wachtel (2000) recognize that periods of investor exuberance will raise stock prices and market capitalizations, but there will be no actual change in market depth. Accordingly, the market capitalization ratio is a potentially misleading measure of financial sector development.

Rousseau and Wachtel (2000), Subrahmanyam and Titman (1999), Levine (1997), Holmstrom and Tirole (1993), and Atje and Jovanovic (1993) argue that it is the level of stock market activity (and not so much the size of the stock market) that is the most important characteristic of financial market development. Greater market liquidity lowers transaction costs, allows for improved monitoring, and promotes informational efficiency. To measure market liquidity and development, Rousseau and Wachtel (2000), Beck, Demirguc-Kunt and Levine (1999), Levine (1996, 1997), Demirguc-Kunt and Levine (1996), and Atje and Jovanovic (1993) use the value-traded ratio (total value of shares traded divided by GDP). However, the value-traded ratio may also be distorted by the same factors that may contaminate the market capitalization ratio. Markets with high valuations (i.e., exuberant or “hot” markets) will have greater activity, which will lead to larger amounts of value traded.

³ Several commentators indicated to us that development was an extremely important consideration in the privatization decision. For example, one member of the OECD’s Privatization Working Group wrote us, “[T]he objective of privatizations had nothing to do with raising money for the budget, but solely for broadening the capitalistic base, getting people to become shareholders and private owners.... [I]n other words, the objective was purely political to foster market economy and thus democracy.”

Therefore, if used independently, both the market-capitalization and the value-traded ratios may be misleading measures of financial sector development. However, combining the two into a turnover ratio (value-traded to market-capitalization) provides a more accurate indication of capital market development. The turnover ratio is more accurate because both the numerator and denominator reflect the current market conditions. Accordingly, the turnover ratio is less likely to be distorted by variations in investor expectations and fluctuations in the general “hotness” of the financial markets.⁴ Booth et al. (2001), Demirguc-Kunt and Maksimovic (1999), Beck et al. (1999), Demirguc-Kunt and Levine (1996), and Levine (1996) favor the turnover ratio as an indicator of financial market liquidity and development. We use the turnover ratio as one of our measures of market development. A lower ratio suggests a less developed financial market.⁵

The income characteristics of the country provide an alternative indication of the development of the financial markets and can also impact the choice between public or private capital markets. We use two measures of income – gross national income per capita (GNI) and the Gini coefficient. GNI per capita measures average income of the population. We use the purchasing power parity-adjusted per capita GNI to control for differences in purchasing power across countries. Beck et al. (1999) find that per capita income is positively correlated with the level of market development. Accordingly, GNI per capita may proxy for overall development of the markets. Lower GNI may be associated with the decision to privatize via SIPs as governments attempt to spur the development of those markets. However, SIPs may be difficult in nations with low average income if the citizens lack the wealth to participate in the share offerings. Our empirical analysis will provide clearer insights regarding the effect of per capita GNI on a government’s choice of privatization method.

The Gini coefficient is a measure of income distribution. A higher Gini value indicates greater income inequality within a nation’s population. Biais and Perotti (2001) argue that countries with greater income inequality also find it more expensive to privatize through SIPs since the median investor in the country has a lower average income, requiring more underpricing for a successful offering. La Porta, López-de-Silanes, Shleifer, and Vishny (1998) show that the concentration of share ownership across countries is related to the Gini coefficient, finding that countries with more unequal incomes also have

⁴ We further control for the current level of market “hotness” by including the inflation-adjusted market index as an additional explanatory variable.

⁵ Morck, Yeung, and Yu (2000) and Rajan and Zingales (1998) use the level of sophistication of a country’s accounting standards as another proxy for financial market development. Subrahmayam and Titman (1999) and Pagano and Roell (1998) argue that higher accounting standards increase the benefits of financing through public markets. More stringent accounting rules allow issuers to more easily raise funds from a wider array of potential investors. We include the LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1997) measure of a country’s accounting standards in empirical tests not reported here and find little additional information from this variable.

more concentrated ownership of companies. Either of these effects would suggest that more unequal incomes (higher Gini coefficient) would be more likely to be associated with the privatization of firms through asset sales. However, if the Gini coefficient proxies for less developed markets, we might observe the opposite effect.

To further control for differences in the level of capital market development and in the distribution of investor incomes, we include regional dummy variables. Our sample privatizations are from the following regions: Asia/Australia, Middle East/North Africa, Sub-Saharan Africa, Western Europe, North America, and South America. To the extent that there are regional effects in our results, these dummy variables should help to control for correlations across the regions.⁶ Table IV provides descriptive statistics of the privatizations from each of these regions.

B. Political and legal environment and the protection of investor rights

The government's protection of private property rights (from itself and from other parties) and the long-term viability of contractual commitments are expected to have an important impact on privatization policy in general and the method chosen to privatize assets in particular. (See, for example, Perotti (1995).) In this case, the greater the protection of private property, the more likely the government will choose to privatize through an asset sale. This is because in an asset sale, where the SOE is sold to a few investors, buyers must have assurance the government will not renationalize or heavily regulate or tax the firm. The buyer (in an asset sale) would have little political power to influence subsequent government activity and thus would have no protection against this eventuality. In contrast, in a SIP, where the SOE is sold to a large number of investors, the government would have much greater difficulty engaging in post-transaction opportunistic behavior.

There is an extensive literature that relates measures of the political and legal environment to economic development and growth. (See, for example, Knack and Keefer (1995), La Porta, López-de-Silanes, Shleifer, and Vishny (1997), Henisz (2000), and Beck, Demirguc-Kunt, and Levine (2001).) We follow this literature and introduce several proxies for the political and legal environment into our empirical analysis.

We hypothesize that private investors will only commit the substantial investment required in an asset sale if the buyer believes that the government will not renationalize the firm or otherwise reverse its privatization policy. To gauge a government's commitment to the private ownership of assets, we observe

⁶ We also would have liked to include country dummy variables, but the optimization procedure was unable to find a solution to the logistical regression with all of the dummies included.

the economic policy preferences of each nation's governing party. Beck, Clarke, Keefer, and Walsh (2001) describe the Database of Political Institutions (DPI) which provides an indicator of the economic orientation of each ruling party. The DPI reveals whether the ruling party is right-wing (party defined as conservative, Christian democratic, or rightist), left-wing (party defined as communist, socialist, or leftist), or centrist (party defined as centrist). We obtain the economic orientation variable for each year and each country in the sample for which it is available and examine its relation with the choice of privatizing through an asset sale or a SIP. We expect a positive relation between the right-wing variable and the use of asset sales (since investors would only be willing to make the substantial investment required in an asset sale if the government supports the protection of private property rights). Similarly, we expect a greater use of SIPs when a government's economic policy is not right-wing. If a non-right wing government sought to privatize a SOE, such a government would find an asset sale difficult to implement because of investors' worries about the government's commitment to market reform.⁷

Privatizing through SIPs creates incentives for the current regime to recognize the rights of new shareholders and instills disincentives for governments to reverse the privatization process. SIPs create thousands (sometimes millions) of citizen investors and a government would bear a substantial political cost if it renationalized a privatized firm or reversed its privatization policy. Perotti and Guney (1993) contend that the broad share ownership created by SIPs binds an existing government to continuing its pro-privatization stance and to avoiding policy shifts that could be harmful to current shareholders. Menyah and Paudyal (1996) refer to widespread share ownership as an "insurance policy" against subsequent renationalization. Asset sales do not create the same element of irreversibility. Unlike SIPs, asset sales involve a small number of private investors. These private investors (particularly wealthy individuals) represent attractive targets for potential renationalization. Thus, SIPs implicitly provide an additional government commitment to respect the private ownership of assets that may be necessary in a privatization by a non-right wing government.

In addition to its stated economic orientation, a government's overall stability may also impact the investor's perception of a nation's commitment to policy. Bortolotti, Fantini, and Siniscalco (2001) show that a government's political ideology significantly influences its decision to sell privatization share offerings internationally versus strictly in domestic markets. Clague, Keefer, Knack, and Olson (1996) note that many right-wing governments (especially those established in turbulent political environments) may lack the power to protect property and contract rights. Therefore, a government's proclamation of a right-wing economic policy may not be sufficient to convince investors to make the significant capital

⁷ Privatizations by non-right wing governments account for over half of the transactions in our sample.

investment required in an asset sale. The government must also have the strength and stability to enforce the rights of private investors. To determine how a government's stability influences its choice of privatization technique, we include a measure of the privatizing regime's political strength and stability. Our stability variable measures the government's ability to stay in office and carry out its declared programs. We expect a greater use of asset sales by more stable governments. The stability variable is from the PRS Group, a political-risk consulting firm. Higher values of the variable indicate a more stable government.

LaPorta, López-de-Silanes, Shleifer, and Vishny ((1997), (1999)) and Morck, Yeung, and Yu (2000) also note that the extent to which individual countries protect shareholders' legal rights varies significantly. Shareholders in countries with an English common-law tradition benefit from much stronger legal protection than do those living in nations with French civil-law systems. Bortolotti, Fantini, Siniscalco, and Vitalini (1997) argue that privatizing governments recognize the importance of shareholder-rights protection when they formulate privatization policy. We use La Porta, López-de-Silanes, Shleifer, and Vishny's shareholder rights index (SRI) to measure how strongly a nation's laws favor the interests of minority stockholders. This shareholder rights index takes on a higher value as the legal support of shareholder rights increases. Since greater shareholder protection may encourage the use of public equity markets through SIPs, we would expect that governments in countries with stronger legal protection of shareholder rights would be more likely to privatize by SIP. However, shareholder protection is also an indicator of overall protection of property rights, important to potential investors in asset sales.

C. Firm-specific Characteristics

The choice of privatization method is also affected by factors similar to those faced by any firm that must decide whether to use the public or private capital markets to raise funds. As with private firms seeking external funding, a government must consider the amount of uncertainty regarding the value of the SOE prior to selecting the privatization method. Several studies have examined the effects of information asymmetry on how a private firm raises capital. Hertz and Smith (1993) find that private placements are often sold at a discount. However, in contrast to the generally negative price reaction to a public equity sale, private placements are usually accompanied by positive stock-price reactions. Hertz and Smith argue that the discounts are a function of the costs that investors incur in assessing firm value in private placements, and that positive abnormal returns result from favorable new information revealed about the firm. Slovin, Sushka, and Ferraro (1995) analyze the choice between the use of public and

private capital markets in restructuring.⁸ Slovin, Sushka, and Ferraro (1995), like Hertz and Smith (1993), find that information effects are very important in the decision of which capital market to use. In analyzing the choice between privately and publicly placed debt, Diamond (1991), Rajan (1992), Chemmanur and Fulghieri (1994), Houston and James (1996), and Repullo and Suarez (1998) also stress the role of information costs and strategic behavior. Thus, privatizing governments should consider the degree of information asymmetry about the value of the to-be-privatized asset in choosing the optimal privatization method.

Firm size is frequently used as a measure of information asymmetry, with more information available for larger firms. Thus, size should be a critical factor in the government's choice of privatization technique with larger firms being privatized through SIPs. In addition, SIPs might be the only practical method of selling the largest SOEs. Due to the massive size of many privatizations, the principal participants in asset sales (private companies or small groups of individual investors) are often not generally able to raise the necessary capital to purchase the SOE. Therefore, when divesting the larger SOEs, governments might only be able to use SIPs. Our size measure is the log of proceeds from the privatization expressed in U.S. dollars. We expect a positive relation between size and the likelihood of using the public capital markets (a SIP).⁹

The expected post-divestment performance of the SOE may also influence the government's choice of privatization technique. Particularly with early privatizations, governments stake a great deal of reputational capital on the economic success of the newly-privatized firms. Dewenter and Malatesta (1997), Alexandrowicz (1994) and Megginson, Nash, and Van Randenborgh (1994) argue that the public's perception of the newly-privatized firm's performance is important to the success or failure of the privatization program. Most importantly, the early privatizations must be financial "success stories" in order to build credibility for the government and encourage investors to participate in subsequent privatizations. Share issue privatizations involve the greatest amount of risk because the sales are frequently preceded by extensive promotional campaigns and often create thousands of small, first-time

⁸ Slovin, Sushka, and Ferraro (1995) compare carve-outs (IPOs of a subsidiary's equity in the public market), spin-offs (pro-rata stock dividends) and asset selloffs (sales of subsidiaries to third parties in the private market). They argue that firms use equity carve-outs "when outside investors are likely to price the unit's equity favorably relative to managers' perceived value" and asset selloffs when it is more difficult to value the unit.

⁹ However, Jones, Megginson, Nash, and Netter (1999) show in their analysis of SIPs that the standard information asymmetry effects between the firm and potential investors about the prospects of the firm are less relevant in privatizations than in IPOs of privately-owned firms. SOEs that are privatized are usually older, well-established firms where there is little information asymmetry between the managers (who may be replaced in any event) and the market. Thus, this effect may mitigate the importance of the size variable in characterizing information asymmetry in the privatization decision.

shareholders.¹⁰ Alternatively, asset sales involve fewer investors and much less public scrutiny. As a result, the SOEs with the brightest futures should be divested by SIP while the more questionable ones should be privatized by asset sale. We measure the firm's potential profitability with the ratio of net income to sales (from the year prior to privatization). To the extent possible, these data are obtained from the *Privatisation International* database. However, this variable is available for only about 20% of our sample.

An SOE's industry may also affect whether a government privatizes through a SIP or an asset sale. Manzetti (1994) notes that governments are sometimes hesitant to privatize firms of "strategic" importance. Industries such as defense, transportation, and energy could be of such strategic significance that foreign ownership may be unacceptable. If one of these strategic firms were to be privatized, governments might wish to control which investor became the new owner. López-de-Silanes (1997) reports that asset sales give a government greater discretion over the type of participant in the privatization (e.g., the nationality of the potential investor) and the terms of the purchase (e.g., the period of mandatory ownership, future capital investment commitments, etc.). Therefore, governments may be more likely to privatize strategic firms through asset sales. Manzetti (1994) reports a general consensus that steel, telecommunications, aviation, mining, mail service, electricity, oil, petrochemicals, banking, nuclear energy, rail transportation, and military-related production are strategically important industries. We include an indicator variable that takes the value of one if the SOE is in a strategic industry.¹¹

IV. Empirical Results

In our analysis of the choice of privatization method, it is important to have a complete set of privatizations to avoid sample selection bias. A potential source of sample selection bias is the fact that SIPs, which take place in the public capital markets, are more likely to be reported to the public than asset sales to private parties. While we cannot totally eliminate the bias, we believe we have constructed as complete a list of privatizations as possible.

We draw our sample of SOEs (privatized from 1977 through 2000) from two principal sources. The first source is *Privatisation International*, a continually updated proprietary database that attempts to

¹⁰ The German government's privatization of VEBA provides a graphic example of this risk. As part of the earliest large-scale, ideologically motivated "denationalization" program, the government of Konrad Adenauer privatized a portion of VEBA through a SIP in 1965. This SIP created hundreds of thousands of new shareholders. A significant decline in VEBA's share price prompted a governmental rescue effort aimed at "protecting" small investors. Following this economic and political debacle, the German government waited another twenty years before its next SIP.

¹¹ While privatization by asset sale provides a government with greater control, privatization via SIP may be inevitable because of the large size of many "strategic" firms (such as utilities, telecoms, and airlines).

include privatizations from all nations (emerging and developed) since 1977. We identify most of the privatizations in our sample from *Privatisation International*. The *Privatisation International* database is especially good at identifying large privatizations and privatizations in developed countries, but less comprehensive in emerging markets. We also obtained the World Bank Privatisation database. While there is considerable overlap in the two databases, we added a significant number of privatizations in emerging markets with the World Bank database.

From *Privatisation International*, we obtain the offer type (SIP or asset sale), offer size (in US\$), and percent of capital sold. *Privatisation International* also describes the terms of the transaction and identifies the purchaser. The World Bank data reports information on the offer type, offer size, and percent of capital sold but is not as complete on the terms of the transaction and the identity of the purchaser.¹²

To verify the completeness of our data and to develop a more complete picture of how individual national stock exchanges were influenced by SIPs, we solicited information and data directly from the members of the International Federation of Stock Exchanges (FIBV).¹³ We also solicited information about national privatization programs directly from members of the OECD's Privatization Working Group.¹⁴ Additionally, we contacted the relevant privatization agency in every nation in our sample, asking them for a list of privatizations, both SIPs and asset sales, within their country. We received responses from more than two-thirds of our sample countries. These reports confirmed that we had already obtained information on essentially all the privatizations in each nation that responded to our request.

An additional verification of our sample comes from the OECD. The OECD compiled a breakdown of gross privatization proceeds during the 1990s for 25 countries from each country's national

¹² In the regression analysis, we note that there are more data availability problems for emerging markets countries.

¹³ We thank the following people (exchanges) for providing useful information: Greg Wojciechowski (Bermuda Stock Exchange), Angeles Hewett, Claudio Pacheco, Eduardo Trigueros (Bolsa Mexicana de Valores), Juliana Bruns (Bolsa de Sao Paulo), Rajeeva Bandaranayake (Colombo Stock Exchange), Paul Erik Skanning (Copenhagen Stock Exchange), Dirk Schlochtermeyer, Stefan Seip (Deutsche Borse), Huve Allard, Martine Charbonnier (Euronext-Paris), Vanessa Yeung (Hong Kong Stock Exchange), Tom Healy (Irish Stock Exchange), Kgosi Monaisa (Johannesburg Stock Exchange), Raoul Bertemes (Luxembourg Stock Exchange), Alfred Mallia (Malta Stock Exchange), Vegard Annweiler (Oslo Stock Exchange), Masayoshi Miyagawa (Tokyo Stock Exchange), Wieslaw Rozlucki (Warsaw Stock Exchange) and Erich Obersteiner (Weiner Borse).

¹⁴ We thank the following people (countries) for providing useful information: Herbert Schmidt (Germany), Nikiforos Manolas (Greece), Peter Mihalyi (Hungary), Magnus Hardarson (Iceland), Piotr Bednarski (Poland), Ovidiu Musutescu (Romania), Yuen Teen Mak (Singapore), Lars Johan Cederlung (Sweden) and Gregor Valko (Switzerland). We especially thank the Brazilian development agency BNDES for providing us with a detailed listing of the population of Brazilian privatizations and for detailed supplemental information about the Brazilian national and state-level privatization programs.

statistics. Our sample includes 95% of the proceeds reported by the 25 governments. The remaining 5% represents the proceeds from privatizations implemented through convertible debt offerings, concessions, management buyouts, or methods other than SIPs or asset sales.

A. Descriptive Information

Table I presents an overview of the sample. After excluding Communist and formerly Communist countries, we identify 2477 privatizations from the *Privatisation International* (n=1619) and World Bank (n=858) databases from 1977 through 2000. Of the 2477 transactions, 938 are SIPs and 1539 are asset sales.¹⁵ The 108 countries represented in the data raised \$1.2 trillion through these privatizations, with \$745 billion coming through SIPs in 78 different countries and \$445 billion through asset sales in 96 countries. The table highlights two important differences between SIPs and asset sales. First, the SIPs are substantially larger transactions than the asset sales. The average SIP generates \$794 million (median of \$105 million), whereas asset sales have average proceeds of \$289 million (median of \$31 million). Also, governments privatize smaller portions of SOEs through SIPs. In the average SIP, governments sell 35% of the SOE's capital. The average asset sale privatizes 74% of the SOE, with a median value of 90%. This difference in the percentage of capital privatized supports the contention that governments are more likely to relinquish majority ownership through asset sales.¹⁶ Furthermore, governments may use a SIP to privatize only a portion of the SOE simply because the immense size of many SOEs precludes a larger sale. (The average enterprise value is more than \$4.6 billion in SIPs vs. \$641 million in asset sales.) This is especially true given the usual political constraint that significant portions of a privatization sale must go to domestic investors. (See, e.g., Jones, Megginson, Nash, and Netter (1999).)

In Tables II, III and IV, we provide details about the sample based on the year of the privatization, the industry of the SOE, and the region of the world where the privatization occurs. Throughout the 1990s, assets privatized each year increased steadily (except for a drop in 1992 following a very large year in 1991). Most of the privatizations in our sample occurred in the 1990s, with 2205 of the 2477 transactions and \$833 billion of the total \$1.2 trillion occurring in this period. Table II also illustrates that the average (median) SIP is generally larger than the average (median) asset sale in the same year. This supports the premise that private investors are less likely to be able to raise the necessary capital to purchase the largest SOEs. The time trend also shows, however, that asset sales have become larger and more

¹⁵ Since we are analyzing the choice between selling part (or all) of a SOE through the private and the public capital markets, the SIP data include both initial and seasoned offers. All of the reported results are similar if we analyze the initial offers of the SOEs alone.

¹⁶ Jones, Megginson, Nash, and Netter (1999) find that in privatizing through SIPs, certain governments maintain ultimate control of firms by retaining "golden shares" or similar rights to veto major corporate events following privatization. However, such veto rights are not universal and are concentrated in the U.K. and Commonwealth privatizations.

numerous over time. Prior to the 1990s, asset sales accounted for 38% of the number of privatization transactions and 8% of the value of assets privatized. Since 1990, these numbers changed dramatically, with asset sales accounting for 64% of the transactions and 42% of the value of privatized assets.

Table III reports the distribution of privatizations by industry classification. When we consider the dollar value of all privatizations, telecommunications firms represent the largest fraction of the dollar value of assets sold (41% of the total in our sample). However, the 184 telecommunications offerings represent only 7.4% of the number of transactions, illustrating the enormous size of the telecommunications SOEs. The average telecommunications offering is \$2.6 billion and the median size is \$685 million. The manufacturing, mining, and service industries account for 23.5% of the dollar value of the privatized assets and 56% of the number of transactions, with an average size of \$202 million (median of \$14 million).

Table III also differentiates between privatization by SIP versus asset sale according to industry. As with the overall sample, telecommunications predominate among SIPs, representing 46% of the dollar value of assets sold through SIPs (while being only 32% of the value sold through asset sales). Manufacturing, mining, and service firms are the next most commonly privatized types of firm, representing 22% (26%) of the value sold through SIPs (asset sales).

We report offerings from 108 different countries, reflecting the global nature of the privatization phenomenon. As reported in Table IV, 55% of the value and 30% of the number of the privatizations are from Western Europe. Privatizations in Asia/Australia account for 26% of the transactions in value (18% in number) while South America (12% in value, 22% in number) and North America (5% in value, 5% in number) also contribute significantly to the overall total. The Mid East and Africa have fewer transactions. Most of the SIPs (59% of the value) are in Western Europe while asset sales are distributed more equally across Western Europe (50% in value) and South America (28% in value).

B. Regression analysis

In Table V, we report logistic regressions that explain the choice of method for privatizations from 1977-2000. We exclude offerings for less than US \$1 million from our analysis, decreasing the overall sample size from 2477 to 2199 observations. We find no significant differences if these smaller transactions are included but they are characterized by more missing data. Other observations are eliminated from the regressions because of missing values, including 396 observations without the shareholder rights index, an additional 130 without the inflation-adjusted market index, and an additional 17 missing other macroeconomic variables. If we do not include the shareholders rights index in the regression analysis, we are only able to increase the sample size for the regression by 128 observations,

due to other missing macroeconomic variables. We find no substantive differences in our results if we do exclude the shareholders rights index.

The dependent variable equals one if the privatization is through a SIP, and zero if through an asset sale. A positive coefficient on an explanatory variable implies that higher values of the independent variable are associated with a greater likelihood of a government choosing to privatize through a SIP. Overall, our empirical results are strongly supportive of the hypothesized relations discussed above.

As noted, we use three general types of variables to explain the choice of the means of privatization -- market characteristics, political and legal characteristics, and firm-specific characteristics. Though we place each of our explanatory variables into one of the three categories, we do so for ease of exposition. Clearly, the political and legal characteristics of the country impact the market characteristics, and vice versa. Firm-specific variables result from and impact many factors in their environment. In Table V, we include several specifications of the regressions testing these relations. Regression 1 includes the suggested explanatory variables discussed earlier and regression 2 adds regional dummies to this specification. In the last two regressions, we include the return on sales variable, which significantly drops the sample size. The regional dummies are also included in the last two regressions.

The market characteristic variables provide information about the economic development of the privatizing country and are included in regressions 1 through 3. The turnover ratio (total value of shares traded in the country each year divided by market capitalization) serves as a proxy for the degree of capital market development. The purchasing power parity-adjusted GNI per capita measures overall economic development. Both of these variables can affect the choice of the public versus private capital markets in two ways. One is a straightforward economic effect – the more developed the markets, the easier it is to use the public capital market for raising capital. Alternatively, privatization of SOEs offers the governments the opportunity to use SIPs to help develop capital markets in less developed countries. We find that the second effect dominates. The coefficient on the turnover variable is negative as is the coefficient on the GNI per capita variable. Thus, the less developed the capital market, all else constant, the more likely it is that governments will sell SOEs by SIPs in the public market. This finding is consistent with the Subrahmanyam and Titman (1999) and McLindon (1996) contention that governments use SIPs to trigger the expansion of domestic capital markets.

The Gini coefficient measures the skewness of the income distribution, with lower values representing more equal incomes and higher values less equal incomes across the population. While more developed countries generally have more equal incomes (we find that GNI per capita and the Gini coefficient are significantly negatively correlated), there is substantial variation in Gini coefficients across development levels. If we split our sample into lower-than-median GNI per capita and greater-than-

median GNI per capita, we find that lower income countries are associated with higher mean and median Gini coefficients (43 mean, 45 median vs. 35 mean, 32 median). However, the standard deviation is high (9 for lower income countries and 6 for richer countries) and the 10% percentile to 90% percentile observations range from 32 to 51 for the lower income countries and 28 to 48 for the higher income countries. Thus, Gini coefficients seem to contribute additional information beyond the relative wealth of the country.

Biais and Perotti (2001) argue that more unequal incomes result in significantly greater underpricing in a SIP to ensure that the median citizen can afford to purchase shares, increasing the SIP's cost relative to an asset sale. La Porta, López-de-Silanes, Shleifer, and Vishny (1997, 1998) also find that more unequal incomes are associated with greater ownership concentration. These observations would imply a negative relation between the Gini coefficient and the probability of choosing to privatize via a SIP. Our findings confirm this hypothesis – the Gini coefficient is negatively and significantly related to the probability of choosing to privatize via a SIP in every regression.

Studies of IPOs, both US and foreign, have shown that these stock issuances are more likely to occur in “hot markets.” We follow Loughran, Ritter, and Rydqvist (1994) and use an inflation-adjusted relative market index. We find a significant positive relation between this variable and the probability of privatizing via a SIP, confirming the Loughran, et al. result. The inclusion of this control variable, along with deflating the value of shares traded by market capitalization in the turnover ratio, helps to offset concerns that our turnover variable is simply an alternative measure of a hot market.

The next general category of explanatory variables measures the political and legal environment of the privatizing country. The right-wing variable measures the ability of the government to credibly commit to policy and property rights. The stability variable measures the strength of the current government and its ability to enforce the rights of private investors. We hypothesize that governments with a greater ability to commit to protecting private property rights would be more likely to privatize via an asset sale since investors would feel more confident in the large investment required. In general, the more supportive of property rights and enforcement, the more likely we expect the SOEs to be privatized via asset sales since investors risking large amounts of capital could expect greater protection. Since higher values of each of these variables are associated with greater protection, we expect these variables to be negatively associated with the probability of a SIP. The shareholder rights index (SRI) measures the degree of legal protection of minority shareholders. Since a higher SRI suggests greater legal recognition of the rights of small shareholders, we expect a positive relation between the SRI and the use of SIPs. However, it may be that the SRI also proxies for general protection of property rights, leading to greater use of asset sales.

As predicted, the coefficient on the right-wing measure is significantly negative in the regressions, as is the stability measure. The SRI variable, however, is insignificant. We note though that all of the political and legal variables (including the SRI measure) are positively and significantly correlated with each other, suggesting that collinearity could affect the sign and significance of the coefficients. When we enter either of the first two political measures individually, each is negatively and significantly related to the probability of privatizing via a SIP. The shareholder rights index is never significantly different from zero, whether included individually or with the other variables.

The third category of explanatory variables reflects characteristics about the firms being privatized. We include here the log of the size of the offer, the return on sales of the firm being privatized, and whether the firm is in a strategic industry. We expect that larger offers will be associated with the use of a SIP. The greater liquidity of the public capital markets would benefit governments in selling larger offers. In addition, size may proxy for information asymmetry (larger implies less asymmetry) between the firm and the investors. We also expect a positive relation between the profitability variable (return on sales) and the likelihood of privatizing via a SIP, since governments may seek to gain political support by privatizing the most profitable firms by SIP. We include the profitability variable in regressions 3 and 4. Finally, a dummy variable indicates whether the assets are in a strategic industry. It is easier for the government to maintain a significant control stake when privatizing through an asset sale and thus, we hypothesize that SOEs in strategic industries are more likely to be privatized via an asset sale. Regression 4 includes only the firm-specific variables and the regional dummy variables.

The results reported in Table V support the importance of the firm-specific characteristics. The size of the offer is positively and significantly related to the probability of choosing to privatize via a SIP, as is the return on sales variable (which is available for many fewer observations). Looking across the reported regressions, however, we find that the strategic industry dummy variable is never significant.

Overall, our results strongly support the importance of market, political, and firm-specific considerations in the choice of the method of privatization. Firms with less developed capital markets are more likely to use SIPs, perhaps as a means to help develop those capital markets. Countries with more equal income distributions are more likely to use SIPs due to the broader base of potential investors and the reduced need for substantial underpricing. We find that asset sales, involving large financial commitments by the investors, are more likely the better the country is at committing to policy and to the protection of property rights. We also find that SOEs are more likely to be privatized through SIPs the larger and the more profitable the enterprise.

C. Alternative Samples

In Table VI, we present tests of the specification from regression 2 (Table V) for several different samples. The regressions estimated for Table VI also include the regional dummies though the regional coefficients are not included in the reported results. In regression 1 of Table VI, we eliminate the very largest privatizations in which the transaction is valued at more than \$1 billion. It is possible that these very large transactions are significantly different from the remainder of the sample since they must involve considerable efforts to raise sufficient capital. However, we again find no substantive differences between this smaller sample (n=1448) and the more broad-based sample in Table V. Similarly, in regression 2, we eliminate transactions from the 1980s. Since the markets were in transition and since asset sales were less common (or else the data were collected less aggressively), it may be that the 1980s data are less representative of the privatization process. Again, we find no differences from the other samples.

In regressions 3 and 4, we split the sample on the basis of whether the privatizations were identified in the *Privatisation International* database (n=1267 with the necessary data for the regression) or only by the World Bank (n=389). The privatizations from the World Bank included in the regression are significantly smaller than the *Privatisation International* observations (\$140.9 million vs. \$722 million) and are from significantly less developed countries (\$4,467 GNI per capita vs. \$13,120 GNI per capita) but are more likely to be share issue privatizations (56.7% vs. 40.1%). Note that this last comparison indicates an important difference between these databases. Before controlling for missing data, the two sources have relatively close ratios of SIPs (44.3% vs. 39.3%). However, the lack of data for asset sales identified by the World Bank results in the loss of a disproportionate number of those transactions in the regressions. (The most common missing variables are the shareholder rights index and the Gini coefficient.)

The *Privatisation International* observations are included in regression 3, with very slight differences from the regressions reported in Table V. Only the coefficient of the stability variable changes its significance level, becoming insignificant here. The World Bank results are similar to the earlier regressions with respect to the impact of the turnover ratio, GNI per capita, stability variable, and the size of the offer. However, the right-wing variable is significantly positive for this sample, suggesting that more right-wing governments emphasize SIPs in these smaller and less developed countries. Perhaps the right-wing governments are especially supportive of developing capital markets in these countries.

In Table VII, we consider the area of the world where the privatizations occur. As noted in Table IV, 85% of the value of the privatization transactions comes from Western Europe, Asia/Australia, or North America. In addition, there is a strong regional component for the observations that are missing in

the regressions in Table V, with the greatest fraction of missing observations coming from Africa. In the first regression of Table VII, we include only Western European, Asian/Australian, or North American privatizations, with transactions from the rest of the world included in the second regression. The first regression is virtually the same as the regressions for the full sample. In addition, we confirm most of the relations in the rest of the world regression. SIPs are negatively related to the measures of economic development, significantly so for GNI per capita and close to significant for the turnover ratio. The Gini coefficient also indicates that countries with more equal incomes are more likely to privatize assets via SIPs. While the stability coefficient is not significantly different from zero in the rest of the world regression, the shareholder rights index coefficient is significantly positive. Thus, estimating the different areas of the world separately does not alter our basic conclusions that SIPs are important in helping to develop capital markets and that the political and legal environment of the privatizing country has an important role in determining the method of privatization.

D. The Country as the Unit of Decision

An alternative way to consider our sample is from the perspective of the individual country rather than the individual transaction. Each government determines an optimal ratio of SIPs and asset sales based on the country's characteristics. We attempt to explain this decision by the country's government through regressions that have the fraction of assets privatized through SIPs as the dependent variable. This is, in some sense, similar to estimating the optimal capital structure of a firm by considering overall leverage, rather than each marginal decision to raise capital.

Estimating this regression presents some difficulties since the decision makers change over time, as do the characteristics of the country. In addition, firm-specific characteristics are reduced in importance in this analysis. We address the first issue by estimating several different specifications of the basic regression. We identify the ratio of SIPs to total assets privatized for each country over the full period of our sample, five-year periods, and one-year periods. We report the results for the full period and for the one-year averages. For the full period, we regress the fraction of SIPs on explanatory variables equal to the average turnover ratio for the full period, average GNI per capita, average Gini coefficient, average market index, and the averages of the right-wing, stability, and shareholder rights variables. The data allow us to include 48 countries in this regression. We also include the average size of the transaction as an approximate measure of typical firm characteristics for each country in two of the four regressions reported.

Because this specification results in averaging the country data over a long period of time, we also report the results from estimating each country's ratio of SIPs to privatized assets in each year on the independent variables from that same year. In this case, the only variable that is averaged for each

country-year observation is the size of the offer. The sample size is larger (369) and the country data is more representative of the environment in which the privatization decision is made. However, our analysis is closer to looking at marginal decisions regarding the method of privatization, as in the previous sections, rather than the overall optimal ratio of SIPs to privatized assets.

In the regressions reported, the significance of the explanatory variables declines from the earlier regressions. This is not unexpected given the compression of the data and the corresponding lack of variability. However, while the coefficients on the turnover ratio, per capita GNI, and market index variables are insignificantly different from zero, we still observe that countries with greater income equality are more likely to privatize via a SIP. The right-wing government variable is also significantly negative and the size of the offer variable is significantly positive. Thus, while we lose some significance, the basic thrust of our earlier findings is supported. Market characteristics, political considerations, and firm-specific details are all important in the choice of privatization method.

IV. Conclusions

The choice between public and private capital markets is an important one for any entity seeking to raise money. In this paper, we examine the factors that influence how countries have chosen to privatize state-owned enterprises. There are two primary ways in which a government may sell a SOE to raise revenue for a country: either in an asset sale of the SOE to a small group of investors or another firm (i.e., through the private capital market), or as a share-issue privatization (i.e., through the public capital market). We consider the importance of market, political, and firm-specific characteristics in this choice.

We find that the nature of the capital market in the privatizing country affects the privatization decision -- SIPs are more likely to be used in countries with less-developed capital markets, perhaps resulting from the governments' need and desire to use SIPs to develop the national market's liquidity and absorptive capacity. In addition, SIPs are also more likely when income is more equal throughout the country, providing more potential investors and avoiding the need for extensive underpricing of offerings.

Our results support the importance of a country's political and legal environment in the privatizing decision. We find that governments that have a greater ability to credibly commit to property rights are more likely to privatize SOEs via asset sales. Investors should be more willing to make the substantial investments required for acquiring SOEs through asset sales when there is stronger commitment that they will be able to maintain ownership of those assets without fear of renationalization.

Firm-specific characteristics, such as the size of the offering or sale and the profitability of the SOE, also impact the method of privatization. Larger offerings and more profitable SOEs are more likely to be privatized through SIPs and the public capital markets. Asymmetric information problems are less

for larger and more profitable offerings, attracting more potential investors. In addition, some have argued that governments are more likely to choose to privatize profitable firms via SIPs to gain more political support for their privatization policies.

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Table I
Summary Statistics for Privatizations

Summary data for privatizations of state-owned enterprises from 1977 to 2000, excluding Communist and formerly-Communist countries. Median values are in parentheses. We convert values to U.S. dollars as of the time of the privatization. Data are from *Privatisation International* and the World Bank.

	Full Sample	SIPs	Asset Sales
Number of Privatizations	2477	938	1539
Number of Countries	108	78	96
Average (median) % of enterprise sold in privatization	59.3% (55%)	34.8% (25%)	74.2% (90%)
Average (median) amount of offering in US \$ million	480.2 (46)	794.0 (105)	288.9 (31)
Average value of total enterprise in US \$ million	2149.9 (103)	4625.9 (476)	640.8 (45.5)
Total value of all offerings in US \$ million	1,189,480	744,794	444,686

Table II
Summary Statistics for Privatizations by Year

Summary data for privatizations of state-owned enterprises from 1977 to 2000, excluding Communist and formerly Communist countries. Median values are in parentheses. Data are from *Privatisation International* and the World Bank. Values are in US \$ million as of the time of the privatization.

	All Privatizations				SIPs				Asset Sales			
Year	N	Average Value of Offering (median)	Total Value of Offers	Year Value as % of Total	N	Average Value of Offering (median)	Total value of Offers	Year Value as % of Total	N	Average Value of Offering (median)	Total Value of Offers	Year Value as % of Total
1977-1982	8	384.1 (305)	3073	0.3	6	502.2 (419)	3013	0.4	2	30 (30)	60	0.01
1983	5	315.6 (98)	1578	0.1	3	469 (448)	1407	0.2	2	85.5 (85.5)	171	0.04
1984	8	999.9 (142.5)	7999	0.7	4	1896.5 (559)	7586	1.0	4	103.2 (119)	413	0.1
1985	9	478.2 (411)	4304	0.4	7	602.7 (437)	4219	0.6	2	42.5 (42.5)	85	0.02
1986	10	2772.2 (19.5)	27722	2.3	5	5511.4 (17)	27557	3.7	5	33 (22)	165	0.04
1987	17	4091.5 (334)	69556	5.8	13	5309.5 (1467)	69023	9.3	4	133.2 (78.5)	533	0.1
1988	40	883.0 (113)	35322	3.0	19	1593.1 (73)	30270	4.1	21	240.6 (167)	5052	1.1
1989	72	358.7 (74.5)	25826.8	2.2	48	381.8 (125)	18328.8	2.5	24	312.4 (45)	7498	1.7
1990	75	328.1 (60)	24610.2	2.1	53	286.7 (53.1)	15196.2	2.0	22	427.9 (78.5)	9414	2.1
1991	124	385.5 (27.0)	47807.7	4.0	77	473.0 (23.5)	36424.4	4.9	47	242.2 (36)	11383.3	2.6
1992	183	183.4 (51.6)	33557.5	2.8	72	225.3 (65)	16220.9	2.2	111	156.2 (35)	17336.6	3.9
1993	204	276.3 (30)	56375.2	4.7	86	473.5 (38.5)	40723.5	5.5	118	132.6 (26)	15651.7	3.5
1994	326	225.5 (17)	73516.1	6.2	95	510.4 (146)	48484.3	6.5	231	108.4 (7)	25031.8	5.6

Table II (continued)

Summary Statistics for Privatizations by Year

1995	272	265.3 (31.5)	72169.5	6.1	67	542.9 (72.8)	36373.1	4.9	205	174.6 (24)	35796.4	8.1
1996	342	262.8 (22.1)	89882.7	7.6	122	492.5 (48.5)	60084	8.0	220	135.4 (17.1)	29798.7	6.7
1997	278	487.0 (57)	135384.8	11.4	86	933.3 (105.9)	80260.8	10.8	192	287.1 (40.5)	55124.0	12.4
1998	226	612.4 (61.5)	138401.5	11.6	73	1033.7 (112)	75462.8	10.1	153	411.4 (42.3)	62938.7	14.2
1999	175	920.8 (147)	161147.1	13.5	65	1557.0 (348)	101206.1	13.5	110	544.9 (114.2)	59941	13.5
2000	103	1759.7 (386)	181247.1	15.2	37	1971.7 (524.6)	72954.1	9.8	66	1640.8 (316.1)	108293	24.3
Pre-1990s	169	1037.7 (108)	175380	14.7	105	1537.2 (213)	161403.4	21.7	64	218.4 (57.5)	13976.6	3.1
1990 – 1995	1184	260.2 (30)	308037	25.9	450	429.8 (58)	193422.5	26.0	734	156.1 (20)	114614.5	25.8
1996 - 2000	1124	628.2 (63.3)	706063	59.4	383	1018.2 (123)	389968.1	52.3	741	426.6 (42)	316094.9	71.1
Total	2477	480.2 (46)	1189480	100%	938	794.0 (105)	744794	100%	1539	288.9 (31)	444686	100%

Table III
Summary Statistics for Privatizations by Industry

Summary data for privatizations of state-owned enterprises from 1977 to 2000, excluding Communist and formerly-Communist countries. Median values are in parentheses. Data are from *Privatisation International* and the World Bank. Values are in US \$ million as of the time of the privatization.

Industry	All Privatizations				SIPs				Asset Sales			
	N	Average Value of Offering (median)	Total Value of Offers	Industry Value as % of Total	N	Average Value of Offering (median)	Total Value of Offers	Industry Value as % of Total	N	Average Value of Offering (median)	Total Value of Offers	Industry Value as % of Total
Telecommunications	184	2645.7 (685)	486811	40.9	109	3145.3 (932)	342841	46.0	75	1919.6 (546)	143970	32.4
Financial	331	449.6 (147.9)	148831	12.5	165	497.1 (180)	82026	11.0	166	402.4 (138.2)	66805	15.0
Transportation	229	297.4 (40)	68096	5.7	67	743.4 (130)	49808	6.7	162	112.9 (31)	18288	4.1
Utilities	312	627.0 (215.5)	195618	16.5	92	1059.1 (470)	97441	13.1	220	446.2 (179)	98176	22.1
Manufacturing, Mining and Service	1381	202.4 (14.4)	279508	23.5	487	339.9 (32)	165529	22.2	894	127.5 (8.1)	113978	25.6
Other	40	265.4 (22)	10616	0.9	18	397.1 (8.6)	7148.0	1.0	22	157.6 (54)	3469	0.8
Totals	2477	480.2 (46)	1189480	100%	938	794.0 (105)	744794	100%	1539	288.9 (31)	444686	100%

Table IV
Summary Statistics for Privatizations by Geographic Region

Summary data for privatizations of state-owned enterprises from 1977 to 2000, excluding Communist and formerly-Communist countries. Median values are in parentheses. Data are from *Privatisation International* and the World Bank. Values are in US \$ million as of the time of the privatization.

Region	All Privatizations				SIPs				Asset Sales			
	N	Average Value of Offering (median)	Total Value of Offers	Region Value as % of Total	N	Average Value of Offering (median)	Total value of Offers	Region Value as % of Total	N	Average Value of Offering (median)	Total Value of Offers	Region Value as % of Total
Western Europe	736	894.2 (177.5)	658120	55.3	349	1253.7 (450)	437552	58.7	387	569.9 (66)	220568	49.6
Asia/ Australia	437	695.7 (72.8)	304011	25.6	239	1059.2 (100)	253161	34.0	198	256.8 (42)	50850	11.4
Mid East/ North Africa	302	65.2 (22)	19696	1.6	163	63.7 (26.8)	10379	1.4	139	67.0 (18.8)	9317	2.1
Africa	332	24.4 (1.7)	8112	0.7	75	40.0 (3.0)	2998	0.4	257	19.9 (1.2)	5114	1.2
North America	113	486.7 (195)	55008	4.6	41	474 (205)	19433	2.6	72	494.1 (175.5)	35575	8.0
South America	557	259.5 (37)	144533	12.2	71	299.6 (74)	21271	2.9	486	253.6 (33)	123262	27.7
Totals	2477	480.2 (46)	1189480	100%	938	794.0 (105)	744794	100	1539	288.9 (31)	444686	100

Table V
Logit Regression Results Explaining the Choice of SIP or Asset Sale for Privatization Method

Logistic regressions are estimated where the dependent variable is equal to 1 if the privatization of the state-owned enterprise is through share-issue privatization and 0 if through an asset sale. The market turnover ratio (the ratio of the value of shares traded to market capitalization), GNI per capita adjusted for purchasing power, the Gini coefficient (higher value reflects more unequal incomes in the country) and the inflation-adjusted relative market index measure capital market characteristics in the privatizing country. The right-wing, stability, and shareholder rights indices measure the political and legal environment of the privatizing country. Higher values for each index represent stronger protection of property and shareholder rights. The log of the size of the offer, the return on sales, and whether the firm is in a strategic industry are firm-specific variables for the privatized enterprise. Regressions 2-4 include regional dummy variables (coefficients not reported). The p-values of the coefficients are in parentheses.

Variable	Predicted Sign	Regression 1	Regression 2	Regression 3	Regression 4
Intercept		3.7827 (.0001)	1.1609 (.0546)	6.4489 (.0162)	-2.1469 (.0002)
Turnover	?	-0.7661 (.0001)	-0.7843 (.0001)	-1.5969 (.0031)	
GNI Per Capita in thousands of US\$?	-0.00009 (.0001)	-0.0001 (.0001)	-0.00025 (.0001)	
Gini Coefficient	-	-0.0968 (.0001)	-0.0684 (.0001)	-0.1451 (.0018)	
Market Index	+	.3363 (.0006)	.3635 (.0010)	-.0709 (.8409)	
Right-Wing Government	-	-0.7092 (.0001)	-0.2850 (.0601)	-0.4903 (.1443)	
Stability of Government	-	-0.0605 (.0264)	-0.0639 (.0227)	0.0411 (.5929)	
Shareholders Rights Index	+	0.0221 (.6488)	-0.0043 (.9485)	-0.0432 (.7714)	
Log (Size of Offer)	+	0.3005 (.0001)	0.3359 (.0001)	.6785 (.0001)	.03623 (.0001)
Return on Sales	+			0.9589 (.3506)	1.887 (.0407)
Strategic Industry	-	.0188 (.8769)	.1349 (.2840)	-0.5939 (.0809)	-0.3144 (.1968)
Chi – Squared		371.3 (.0001)	452.1 (.0001)	120.7 (.0001)	44.22 (.0001)
Number of Observations (SIPs)		1656 (730)	1656 (730)	345 (235)	390 (260)

Table VI
Logit Regression Results Explaining the Choice of SIP or Asset Sale for Privatization Method --
Alternative Samples

Logistic regressions are estimated where the dependent variable is equal to 1 if the privatization of the state-owned enterprise is through share-issue privatization and 0 if through an asset sale. The market turnover ratio (the ratio of the value of shares traded to market capitalization), GNI per capita adjusted for purchasing power, the Gini coefficient (higher value reflects more unequal incomes in the country) and the inflation-adjusted relative market index measure capital market characteristics in the privatizing country. The right-wing, stability, and shareholder rights indices measure the political and legal environment of the privatizing country. Higher values for each index represent stronger protection of property and shareholder rights. The log of the size of the offer, the return on sales, and whether the firm is in a strategic industry are firm-specific variables for the privatized enterprise. All regressions include regional dummy variables (coefficients not reported). The p-values of the coefficients are in parentheses.

The samples are varied in the regressions. In the first regression, offerings or asset sales greater than \$1 billion are excluded and in the second regression, transactions from the 1980s are excluded. Regressions 3 and 4 separate the sample on the basis of the source identifying the transaction; in regression 3, the transactions were identified by *Privatisation International*, in regression 4, the transactions were only identified in the World Bank database.

Variable	Predicted Sign	Regression 1 Excluding large transactions	Regression 2 Excluding transactions from 1980s	Regression 3 <i>Privatisation International</i> Data	Regression 4 World Bank Data
Intercept		1.1078 (.0827)	0.9678 (.1176)	1.5999 (.0577)	-0.6630 (.7222)
Turnover	?	-0.8404 (.0001)	-0.7870 (.0001)	-0.7097 (.0002)	-2.8548 (.0005)
GNI Per Capita in thousands of US\$?	-0.00009 (.0001)	-0.00009 (.0008)	-0.00008 (.0001)	-0.00034 (.0076)
Gini Coefficient	-	-0.0595 (.0001)	-0.0596 (.0001)	-0.1101 (.0001)	-0.0015 (.9660)
Market Index	+	.3784 (.0013)	.4196 (.0008)	.2513 (.0481)	.1431 (.6252)
Right-Wing Government	-	-0.2475 (.1412)	-0.3611 (.0247)	-0.5620 (.0008)	2.6215 (.0276)
Stability of Government	-	-0.0586 (.0516)	-0.0834 (.0069)	-0.0216 (.5226)	-0.2806 (.0001)
Shareholders Rights Index	+	-0.0333 (.6063)	-.0025 (.9669)	0.0996 (.1375)	0.2895 (.2568)
Log (Size of Offer)	+	0.2404 (.0001)	0.3171 (.0001)	0.5477 (.0001)	0.1583 (.0661)
Strategic Industry	-	0.1473 (.2695)	0.0778 (.5586)	0.0468 (.7520)	0.0943 (.7675)
Chi - Squared		374.6 (.0001)	406.1 (.0001)	408.6 (.0001)	180.3 (.0001)
Number of Observations (SIPs)		1448 (593)	1510 (645)	1267 (509)	389 (221)

Table VII
Logit Regression Results Explaining the Choice of SIP or Asset Sale for Privatization Method
By Geographic Region

Logistic regressions are estimated where the dependent variable is equal to 1 if the privatization of the state-owned enterprise is through share-issue privatization and 0 if through an asset sale. The market turnover ratio (the ratio of the value of shares traded to market capitalization), GNI per capita adjusted for purchasing power, the Gini coefficient (higher value reflects more unequal incomes in the country) and the inflation-adjusted relative market index measure capital market characteristics in the privatizing country. The right-wing, stability, and shareholder rights indices measure the political and legal environment of the privatizing country. Higher values for each index represent stronger protection of property and shareholder rights. The log of the size of the offer, the return on sales, and whether the firm is in a strategic industry are firm-specific variables for the privatized enterprise. The p-values of the coefficients are in parentheses.

Regression 1 includes privatizations from Western Europe, Asia/Australia, and North America, accounting for 85% of the value in our sample. Regression 2 includes privatizations from the rest of the world.

Variable	Predicted Sign	Regression 1 Western Europe, Asia/Australia, and North America	Regression 2 Rest of the World
Intercept		2.2801 (.0001)	4.650 (.0001)
Turnover	?	-0.7858 (.0001)	-0.8853 (.1057)
GNI Per Capita in thousands of US\$?	-0.0001 (.0001)	-0.00015 (.001)
Gini Coefficient	-	-0.0685 (.0001)	-0.1139 (.0001)
Market Index	+	.4359 (.0001)	.1915 (.3269)
Right-Wing Government	-	-0.3152 (0.0274)	-1.1563 (0001)
Stability of Government	-	-0.0622 (.0521)	-0.0641 (.2772)
Shareholder Rights Index	+	.0083 (.8791)	0.5597 (.0012)
Log (Size of Offer)	+	0.3804 (.0001)	0.1185 (.0909)
Strategic Industry	-	0.1755 (.2224)	-0.1236 (.6130)
Chi - Squared		197.1 (.0001)	212.1 (.0001)
Number of Observations (SIPs)		1081 (526)	575 (204)

Table VIII
OLS Regression Results Explaining the Fraction of Assets Privatized Through SIPs (versus Asset Sales) By Country and Year and By Country

OLS regressions are estimated where the dependent variable is the fraction of assets privatized through a SIP. The market turnover ratio (the ratio of the value of shares traded to market capitalization), GNI per capita adjusted for purchasing power, the Gini coefficient (higher value reflects more unequal incomes in the country) and the inflation-adjusted relative market index measure capital market characteristics in the privatizing country. The right-wing, stability, and shareholder rights indices measure the political and legal environment of the privatizing country. Higher values for each index represent stronger protection of property and shareholder rights. The log of the size of the offer is a firm-specific variable for the privatized enterprise. We average the independent variables over the time period of measurement: over the full sample in regressions 1 and 2 and by year in regression 3 and 4. The p-values of the coefficients are in parentheses.

Variable	Predicted Sign	Regression 1 By Country	Regression 2 By Country	Regression 3 By Country and Year	Regression 4 By Country and Year
Intercept		.6781 (.0643)	.5108 (.1742)	1.264 (.0001)	1.207 (.0001)
Turnover	?	.1019 (.3134)	.1047 (.3269)	-0.0582 (.3401)	-0.0543 (.3830)
GNI Per Capita in thousands of US\$?	-0.0000 (.2116)	-0.0000 (.6525)	-0.0000 (.3159)	-0.0000 (.8127)
Gini Coefficient	-	-0.0114 (.0240)	-0.0100 (.0555)	-0.0137 (.0001)	-0.0134 (.0001)
Market Index	+	.1031 (.2745)	.1498 (.1272)	-0.2036 (.9600)	.0197 (.6303)
Right-Wing Government	-	-0.3175 (.0014)	-0.3217 (.0020)	-0.1224 (.0068)	-0.1057 (.0212)
Stability of Government	-	0.0362 (.3837)	0.0411 (.3494)	-0.0233 (.0312)	-0.0223 (.0433)
Shareholder Rights Index	+	.0278 (.3641)	0.0294 (.3638)	0.0270 (.1408)	.0286 (.1250)
Log (Size of Offer)	+	.00005 (.0216)		.00004 (.0001)	
R - Squared		.4976	.4239	.1395	.1017
Number of Observations		48	48	369	369