The Structure of Privatization Plans

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Introduction

In recent years a vast transfer of state-owned assets to the private sector has taken place in many countries, irrespective of their level of development or the political affiliation of their government. Privatization is believed to improve economic incentives; attract managerial and technological resources from the private sector; broaden share ownership; and reduce public sector borrowing. In fact, privatization can be interpreted as an alternative form of public financing, a sort of "equity financing" to reduce the overhang of public debt, as the budget gains from the higher value of the firm under private ownership. In fact, the historical evidence indicates that state-owned enterprises have systematically drained public resources rather than contributed earnings, particularly in the Third World (World Development,[18]).

We document strong regularities in privatization programs across several countries. The data indicate a predominance of partial, staggered sales. Even though transfer of control typically takes place rapidly, governments tend to retain a significant stake for long intervals of time.

The paper also examines the traditional argument for gradual sales, namely limited market capacity, with a confidence-building rationale.

Even after privatization restrains government interference, a firm is still exposed to the risk of adverse policy changes, particularly when it operates in a monopolistic market. A selling government will face investors' diffidence about its policy intentions after the sale; it may therefore structure the sale as to build policy credibility and maximize proceeds. To enhance investors' confidence, a selling government may signal commitment to current policy by retaining a stake in the firm for some time (while transferring managerial control), thus showing willingness to bear

some financial cost of policy changes; as time passes without a policy reversal, confidence and thus sale prices improve. In addition, early sales may be deliberately underpriced in order to convince the market to absorb larger sales, which reduce the risk born by the government and therefore enhance policy risk.

While the two explanations have similar empirical implications, our informal evaluation of the evidence appears more favorable to the reputation-building hypothesis than to the notion of temporary market capacity constraints. Presumably, the risk and the extent of policy change is largest for monopolistic industries or firms in protected markets, while firms operating in competitive markets are less subject to the threat of quasi rent appropriation. We find evidence that firms in such policy-sensitive sectors tend to be privatized with smaller initial sales and larger underpricing, and possibly requiring a longer time horizon before the share retained by the government can be sold. Complete sales are on average associated with manufacturing firms in competitive markets, while sales of utilities with potential monopolistic rents are more distributed over time.

We document that retained stakes are explicitly meant to be sold gradually over a few years. Often, stakes in several firms are sold simultaneously, creating considerable government risk sharing across industries. The profile of privatization proceeds increases over time, suggesting gradual selling calibrated to build investors confidence. As policy credibility increases, larger initial sales become more frequent.

We also document extensive underpricing, which is on average greater in privatization sales than in initial public offerings (IPO) of private firms. Underpricing appear to be largest for firms with large taxable rents, such as utilities. This is consistent with a signalling argument, since these firms are exposed to greater policy risk, and inconsistent with an asymmetric information

explanation over asset values, since these firms tend to be large and well known relative to private IPOs.

Section I interprets privatization as an enhanced commitment to reduced policy interference which reinforces incentives. Even after a sale, however, a sovereign government still retains considerable ability to affect the value of a firm sold. This has implications for the structure of privatization sales: specifically, policy risk can be resolved only through a maintained policy over time; and therefore, gradual sales may maximize sale proceeds. Section II presents data from several large privatization plans, and offers an informal evaluation of the empirical support for the reputation building hypothesis.

Section I A Rationale for Privatization

There is evidence that state-owned firms are less profitable than comparable private firms (e.g., Boardman and Vining,[3]; Megginson et al.[13]; Galal et al.[5]). Evidence of lower profitability does not prove by itself that public ownership is undesirable, since public firms may be pursuing worthy purposes other than profit maximization. For instance, higher profits in the private sector may derive from the exercise of market power.[1] However, it is not clear why public policy needs to be pursued through state ownership rather than by arm's length regulation, particularly if private ownership is desirable on the ground of efficiency. Even the argument that state ownership might overcome information asymmetries relevant for regulatory purposes can at most justify partial ownership or board membership, and certainly not state control.[2] In fact, the British experience indicates that the process of public regulation actually improved because of privatization, becoming more openly scrutinized.

Two related questions are just as important. Why should private ownership be necessary for

[1] It is in fact at best unclear whether state firms are more restrained in exploiting lack of competition, although monopoly power may manifest itself in lower quality and efficiency rather than high prices. Many state firms rely on exclusive licenses: public monopolies are common in telecommunications, oil, electricity, railways, utilities. Competition is often explicitly prohibited.

[2] An opposite view holds that public ownership actually aims at suppressing information about the extend of benefits to favored constituencies. The literature on rent-seeking behavior maintains that economic rents associated with control over public policy are easily captured by interest groups. Privatization can then ensure that regulation is more exposed to public scrutiny.

improved efficiency? Why could a government not minimize costs while pursuing its policy?

The property rights school (Alchian [1]), interprets public ownership as non transferrable common ownership, which reduces incentives by not allowing firm stakeholders to receive the capitalization of future earnings through the sale of property rights. This view ignores the possibility of privatization; it also does not explain why agents could not be given transferrable income rights distinct from property rights.

Stiglitz and Sappington [16] argue that public control reduces the cost of intervention to the policymaker; however, it also limits its ability to commit. Their analysis, however, leaves unclear the nature of costs of intervention and limited commitment. In Perotti [14], a rationale for privatization is presented, based on the residual nature of property rights. The idea is that under public ownership the government retains unconditional control over the use of firm assets; this discretionary power is very costly because it encourages rent seeking behavior by firm insiders, which represent a more coordinated interest group than dispersed taxpayers. Even if a government may in principle prefer to minimize costs, it is vulnerable to political pressure to maintain established rents (such as high wages/low effort, high and secure employment, favor to domestic suppliers etc); this leads to loss of incentives. In contrast, a private owner has both an incentive and the ability to commit contractually to reward efficient behavior.

In this view, privatization establishes a firmer commitment by the state because property rights are constitutionally protected against direct state interference. However, the transfer of property rights does not eliminate arm's length policy risk. Control over implementation of legislation still allows the government discretion to redistribute part of firm value, through new regulation, taxation, deregulation of entry, etc. A sovereign government cannot commit to maintain

its current policy in the future, even when it is in part enshrined in detailed legislation or semi-independent legislation; often only a policy maintained over time will gradually eliminates the perception of political risk.[3]

This raises the issue of which instruments the government has to signal commitment. In private initial public offerings (IPOs) there is also an adverse selection problem faced by investors, since the seller has presumably better information on the value of assets. The literature on IPOs has demonstrated that partial sales may be employed as signalling devices (Leland and Pyle,[10]). More recently, several authors (Allen and Faulhaber [2], Grinblatt and Hwang [6], Welch [18]) have shown that underpricing may be also interpreted as a signal of high value of assets.

One difficulty with a direct application of these models to a privatization sale is the assumption that a government knows more about asset values than the private sector, which seems implausible. Vickers and Yarrow [19] argue the opposite is likely to be true. Another hypothesis is that in the case of privatization sales the information asymmetry over firm value concerns the preferred choice of policy of the selling government. Perotti [14] extends the partial sale/underpricing model to the case of privatization, and shows that a committed government can improve its reputation with investors by transferring control immediately to the private sector, but initially selling only a fraction of the shares, retaining the remainder for a certain time period. As in the literature, the underpricing of the stock sale may also contribute to signal greater commitment.

The intuition gained by the model is that a government with no intention to interfere is

[3] Confidence may take time to develop in part because a government may dissimulate their policy intent for some time, in order to obtain higher sale prices or more private investment in the firms sold. Thus there is a minimum holding period necessary to achieve higher confidence.

inherently more willing to retain a (noncontrolling) stake in the firm for some time period, since it knows that it will sell it at a high price in the future once its credibility has grown. Conversely, a government which expects to change its current policy prefers a rapid sale, since it expects reduced profits from the policy change and a lower market value for the firm. Similarly, underpricing may signal commitment because an uncommitted government cannot expect higher proceeds from a subsequent sale, and is therefore not willing to underprice the initial sale.

In conclusion, investors' valuation for the firm will be lower when the sale asks them to absorb a lot of policy risk in early stages. More generally, in a large privatization plan firms will be sold gradually, according to a timetable. Over time, in the absence of changes in policy the subsequent sales will fetch higher prices.

An alternative and popular rationale for gradual sales is that capital markets are capacity constrained in the short term. This view implies a temporarily highly inelastic demand for stocks. A very large stock sale in a small, segmented market may require investors to invest a large fraction of their wealth in the issue, and therefore demand a large risk premium. Then a rapid sale program would swamp the capital market, temporarily depressing share prices and reducing sale revenues. The speed of privatization is then constrained by the gradual increase in financial wealth available for equity investment.

The two view are difficult to distinguish empirically, because the reputation-building hypothesis also suggests that the sale price is lower for a larger sales, reflecting a rational inference by investors on policy intentions. We discuss the evidence in Section II.

The Separation of Income and Control Rights

Another rationale for underpricing arises once we realize that since stock provides voting rights, it is necessary to sell a minimum stake to offer to the private sector a reliable controlling majority. In fact, the initial sale may need to be larger than 50 % if there are coordination problems among private investors. But a larger sale has the effect of shifting more risk towards the private sector, which may not be interpreted favorably. In these circumstances, underpricing allows the state to sell more of the stock while still signalling commitment. This is also important when private incentives to invest in the firm depend, in addition to credibility, also on the fraction of residual profit they receive.

A reliable transfer of control may also be achieved simultaneously to signalling through an unbundling of the voting and residual income rights contained in corporate stock. In other words, the government could retain a significant amount of nonvoting stock while selling on the market all voting rights: this would signal willingness to bear risk while ruling out any intent to run the firm. There have been in fact a few examples of such arrangements, such as in the sale of Telmex (Telefonos de Mexico) and in bank privatization in Jamaica (Leeds, 1986). However, unbundling income and control rights may be impossible, perhaps because income rights alone may not be as unambiguously protected as property rights. Alternatively, the stock's voting rights may be suspended until the time of a final sale to the public.[4]

[4] There are other contractual arrangements that allow such a separation. A prime example is the award to the private sector of a management contract, while the state retains ownership of the assets. However, this is at best a temporary solution, since it does not provide long term incentives.

The implications of the reputation-building conjecture for the time series of sales can be summarized in a few predictions. In general, the time profile of privatization proceeds should increase over time, since demand will tend to increase with the degree of confidence in public policy. Particularly at the beginning of the program, individual firms should be sold in stages; in a privatization plan involving the sale of several firms, the government should distribute their sales over time. Government statements on the retained stakes should indicate a complete sale within a certain time interval. As reputation for commitment increases, larger initial share offerings ought to become more frequent, while discounts decrease.[5] In general, the probability of a policy change as well as its redistributive effect are greater for monopolistic industries operating in a rent-earning, protected market; in contrast, firms operating in a competitive market are subject to a lower threat of appropriation. The model predicts that firms in policy-sensitive sectors (monopolies, protected or subsidized manufacturers, etc.) will tend to be privatized with smaller initial sales and larger underpricing, and possibly a longer time horizon for the share retained by the government.

The next section presents transaction data from several privatization plans, and examines whether the evidence supports the reputation-building hypothesis.

Section II Empirical evidence and discussion

We present here suggestive evidence concerning several privatization programs in both developed and developing countries. Although the data comes from only a few countries, they

[5] In an econometric investigation of discounts, it is necessary to adjust for the risk profile of each firm (the sensitivity of its value to policy changes) as well as control for the amount of stock sold, since the formal analysis suggests that underpricing should increase with sale size.

represent some of the most extensive and successful programs.

The first four Exhibits refer to privatization programs from economically developed countries, namely France, the United Kingdom and Spain. A common character to all these cases is the presence of a well developed domestic capital market. We can therefore could evaluate the argument for gradual sales due to a limited capacity of the capital market to absorb the whole amount. The evidence suggests, however, that the structure of privatization sales does not differ across developed and underdeveloped markets. It seems also that many countries which initially had small equity markets (e.g. Mexico, Jamaica, Turkey) succeeded in promoting their growth through progressively large privatization sales and a stable policy.

Exhibits I and II document the history of public sales and proceeds in the UK program. There is a clear progression of sale volumes, which indicates an allocation of risk-bearing over time consistent with a model of reputation building. Exhibit II offers more detail on sales to the stock market. Note the tendency, particularly early in the program, to only partly privatize individual companies and retain large stakes in them for a few years. Some early partial sales are for the 51 % of stock, suggesting a symbolic transfer of a majority of voting rights. Complete sales seem to become common only at the end of the privatization program, presumably when the determination of the government to allow free rein to market forces had been established.

Data on French and Spanish transactions, portrayed in Exhibits III and IV, also suggest that partial sales are indeed common. Unfortunately, the French sample is quite short because the program was interrupted after a change in government.

Exhibits II, III and IV offer evidence on the remarkable extent of underpricing in these privatization programs. Although there are a few instances of undersubscribed issues in the UK, the

data suggests a remarkable and presumably deliberate choice of low offering prices. Note that in almost all cases where the price did not rise to a premium (excluding the sale of British Petroleum, whose price was set just prior to Black Monday for an offering on Oct. 30, 1987) the government sold the stock through an auction (tender sale) offer. This form of sale invites bids without a fixed price, so it ensures that the final price eliminates any excess demand. Thus the data offer evidence that when the UK Treasury chose to sell stock through a tender sale offer, it was able to capture the full market value of the company (Jenkinson and Mayer [8]). However, more often the government deliberately chose a form of sale (fixed price offerings) and a pricing which generated enormous excess demand, a phenomenon often anticipated in the press before the sale. The data on application multiples (the ratio of demand to supply at the offer price) gives an indication on the degree of excess demand at the fixed issue price. The resulting rationing was deliberately skewed in favor of smaller domestic investors, consistently with the government's policy to broaden share ownership. The goal of this policy was probably to create a class of investors which will resist policy changes adverse to the firm, thus binding future governments. This reinforces the view that the perception of policy commitment is crucial in privatization sales.

This evidence on underpricing should be compared with initial returns on private public offerings, a well-documented phenomenon for private IPOs. Interestingly, there is strong evidence (Jenkinson and Mayer [8]) that underpricing on privatization sales is even greater, both in the UK and France. This is very hard to reconcile with the prevailing explanation for discounting IPOS, which is based on the presence of better informed investors. While most private IPOs are relatively new and unknown companies, firms privatized in the UK and France were large and well-known companies with a long track record. Moreover, many of those showing the largest discounts were

utilities, which operate in less than competitive markets and whose revenues are fairly predictable. A gradual sale may be interpreted as suggesting that the government had superior information over the value of the assets; if the private sector were better informed, as it seems natural, an auction sale would maximize proceeds. In contrast, the choice of a gradual sale and a high level of discounts suggests that the government needed to convey some strong signal. Underpricing may then be interpreted as an attempt by the government to signal political intent, and invest in credibility capital.

Exhibit I **PRIVATIZATION IN THE UK**

Financial Year	Net proceeds (Million Pounds)
1979	290
1981	373
1982	611
1983	862
1984	4655
1985	1602
1986	6963
1987	3541
1988	2500
1989	5239
1990	5181
1991	5034

Source: Vickers and Yarrow [19] and London Stock Exchange.

Exhibit II **PRIVATIZATION IN THE UK: Sales on the Stock Market**

Enterprise	Date of Sale	Stake Sold (%)	Offer Price (Pence)	Market Price	Discount (%)	Demand Multiple	Gross Proceeds
British Petroleum	Jun 77	17	300	368	22.6	4.7	564
	Nov 79	51	363	367	1	1.5	290
	Sept 83	7	435	441	1*	2.7	565
	Oct 87	36.8			(13)**[6]		
British Aerospace	Feb 81	50	150	171	14	3.5	149
	May 85	na	375	420	12	5.4	550
Cable and Wireless	Nov 81	49	168	197	17	5.6	224
	Dec 83	31	275	273	-1*	0.7	275
	Dec 85	22	587	590	0.5	2	602
Amersham	Feb 82	100	142	188	32	25.6	63
Ass. British Ports	Feb 83	51.5	112	138	23	35	22
	Apr 84	48.5	270	272	0.7*	1.6	52
Jaguar	Aug 84	100	165	179	8	8.3	294
British Telecom	Dec 84	50.2	130	173	33	5	3916
	Dec 91	23.9	110	125.5	14	2.5	5035
Enterprise Oil	Jul 84	100	185	185	0*	0.7	393
BritOil	Nov 82	51	215	196	-9*	0.3	548
	Aug 85	49	185	207	12	10	450
Trustee Svs Bank	Oct 86	100	100	135.5	35.5	8	1360
British Gas	Dec 86	100	135	147.5	9	4	5603
British Airways	Feb 87	100	125	169	35	32	900
RollsRoyce	May 87	100	170	232	36	9.4	1360

[6] Issued during the October 1987 stock crash. The price fall of the issue was less than the general price decline.

BAA	Jul 87	100	245	291	19	8	919
			290	291*	0.3*	6	362

Exhibit II (cont) PRIVATIZATION IN THE UK: Sales on the Stock Market

Enterprise	Date of Sale	Stake Sold (%)	Offer Price (Pence)	Market Price	Discount (%)	Demand Multiple	Gross Proceeds
British Steel	Dec 88	100	60	62.7	4.2	3.3	2500
Anglian Water	Dec 89	100	100	148.5	48.5	2.2	707
N.W. Water	Dec 89	100	100	135	35	1.6	853
Northu. Water	Dec 89	100	100	157	57	9.0	157
Severn Trent	Dec 89	100	100	131	31	1.8	848
S.W. Water	Dec 89	100	100	147	47	1.8	293
Southern Water	Dec 89	100	100	141	41	3.4	392
Thames Water	Dec 89	100	100	136	36	4.3	922
Welch Water	Dec 89	100	100	141	41	2.1	345
Wessex Water	Dec 89	100	100	154	54	4.0	246
Yorkshire Water	Dec 89	100	100	149	49	2.6	471
East Mid.Electr.	Dec 90	100	100	150.5	50.5	9.5	523
Eastern Electr.	Dec 90	100	100	148	48	9.2	647
London Electr.	Dec 90	100	100	142	42	8.1	523
Manweb	Dec 90	100	100	166	66	15.4	284
Midlands Electr.	Dec 90	100	100	150.5	50.	9.5	502
Norweb	Dec 90	100	100	152	52	11.7	414
Northern Electr.	Dec 90	100	100	142.5	4.5	13.7	296
Seaboard	Dec 90	100	100	142	2	13.2	305
S. Wales Electr.	Dec 90	100	100	164	64	15.8	243
S. West. Electr.	Dec 90	100	100	150	50	12.2	295
Southern Electr.	Dec 90	100	100	150	50	11.6	647
Yorkshire Electr.	Dec 90	100	100	159.	59.5	7.7	497
National Power	Mar 91	60	100	137.5	37.5	5.4	1338
PowerGen	Mar 91	60	100	137	37	5.4	820
Scott. Hydro-El.	Jun 91	100	100	122	22	3.0	920
Scottish Power	Jun 91	100	100	115.5	15.5	3.0	1955

***** Tender sale. ****** Partial tender sale.

Sources: Jenkinson and Mayer [8] , Vickers and Yarrow [19] and the London Stock Exchange.

Discounts are calculated based on prices one day later, on the amount actually paid for purchases, which may include the value of an attached voucher offered by some utilities.

Exhibit III PRIVATIZATION IN FRANCE

Enterprise	Date of sale	Stake Sold	Discount* (%)	Appl. Multiple	Gross Proceeds (bil. FF)	Gross Proceeds ** (mil. US$)
Elf Aquitaine	Sept 86	na	30.5	na	3.3	494
St. Gobain	Nov 86	na	19.9	14	13.5	2064
Paribas	Jan 87	42	24.2	na	17.5	2827
Sogenal	Mar 87	44	36.0	46	1.5	246
Banque de Traveaux Publiques	Apr 87	94	23.1	65	0.4	66
Banque Industrielle et Mobiliere Privee	Apr 87	51	21.4	29	0.4	66
Credit Commercial de France	Apr 87	94	16.8	10.7	4.4	729
Havas	May 87	45	8.0	20	6.4	1073
Compagnie Generale d'Electicite'	May 87	29	11.4	na	8.0	1342
Societe' Generale	Jul 87	49	6.1	na	21.5	3496
Television Francaise 1	Jul 87	50	7.9	na	3.5	569

***** Discounts calculated on fully paid basis.
****** Calculated on the basis of the exchange rate at date of transaction.

Source: Jenkinson and Mayer [8] and Financial Times.

The signalling model suggests that as reputation for commitment increases, larger initial

share offerings may be preferred (in part to improve incentives), while discounts, controlling for sale size and specific firm risk, may decrease. In the case of the UK, the country with the longest data series, sales of larger stakes seem indeed to become more common over time. More recent privatization sales, such as the sale of Rolls Royce, British Airways or BAA, were in fact for the entire capital stock. This could be interpret either as an improvement in the ability of the government to access equity markets because of improved confidence, or an exogenous increase in the share of financial wealth allocated to equity investment which relaxes the capacity constraints in the market.

The progressive decrease in discounts is quite clear in the French data, which is however a very short sample. There is less clear evidence in the UK case.[7]

The next Exhibit contains fairly detailed data on public sales in the Spanish privatization program. This sample is only a subset of all privatization sales. Once again, the evidence indicates a preference for partial initial sales, associated with a progressive dismissal of the remaining stake held by the government. These sales were fixed price offerings: the evidence on their pricing is consistent with deliberate underpricing, with discounts ranging as high as 100%. The data on application multiples also indicate enormous excess demand at the sale price. It is apparent that there were no binding market capacity constraints. Finally, we have no table on the time series of total privatization proceeds, since we do not have information on private sales, which were predominant in the Spanish program. However, one can infer from the column of proceeds from public sale the usual sharp progression in proceeds over time. Finally, the size of the stakes sold is much higher on average for the manufacturers such as AMPER, ACESA or ENCE than for the utilities such as GASMADRID or the oil company REPSOL, which is consistent with the reputation-building argument. Moreover, while the REPSOL was quite large, it seems hard to explain the limited size of the GASMADRID sale on the basis of its size.

[7] However, the need for retaining a large stake will appear every time a firm for sale is in a sector which presents large quasi rents (as it is the case for firms in oligopolistic markets requiring large fixed investment, such as utilities). A track record of non-interference in the manufacturing industry (the object of many early sales) may not be sufficient evidence of a reluctance to tax away rents in firms such as British Telecom or the water utilities.

Exhibit IV PRIVATIZATION IN SPAIN

Enterprise	Date of Sale	Stake Sold (%)	Offer Price (Ptas)	Market Price	Appl. Multiple	Gross Disc. (%)	Gross Proceeds (mil. Ptas)	Proceeds (mil. US$)
AMPER	May 86	67.7	1720	4500	3.3	161.6	4,377.5	30.8
GESA	Nov 86	38.0	1912	2550	3.6	33.3	8,221.6	60.4
ACESA	May 87	57.6	707	1490	3.6	110.7	43,669.4	348.9
GAS MADRID	Dec 87	16.0	3375	6750	na	100.0	5,495.0	49.6
ENCE	Apr 88	39.3	4850	5530	1.4	14.0	17,603.8	158.7
ENDESA	Jun 88	20.4	1400	1980	na	41.4	74,200.0	636.3
REPSOL	May 89	26.6	1700	2040	2.8	20.0	135,575	1111.8

TOTAL PROCEEDS

Year	Proceeds (mil. Ptas)	(mil. US$)
1986	12,599.1	91.2
1987	49,164.4	398.5
1988	91,803.8	795.0
1989*	135,575	1111.8
	289,142.3	2396.5

* As of May 1989. Source: FEDEA, Madrid

Exhibit V presents some aggregate data on the Chilean program. Two subperiods can be identified: a first massive transfer of assets to the private sector in 1974-1981, and a second wave of sales from 1986 onwards. Also in this case the progression of sales appears to increase over time in both subsamples.

The particular history of the Chilean experience deserves some attention. The first wave of sales was aimed at a very rapid transfer of majority stakes in a large number of firms to the private sector; as a result, it was biased towards sales to those private firms which could raise substantial amounts. Specifically, a small number of conglomerates had access to international capital markets,

and could finance large purchases through foreign borrowing. In addition, the government de facto financed a large amount of these sales by extending terms of payment over time. A traumatic recession with very high real interest rates in 1981-1982 caused the collapse of several of these overborrowed private groups. As a result, the state found itself forced to renationalize many of the firms sold. The second wave was financed more conservatively with a broader equity base and with a greater dispersion of buyers, which included many foreign firms.

The Chilean experience offers some important insights for privatization. We have so far focused on the effect of public policy commitment on incentives. However, private commitment may be just as important. For instance, the private buyer of state assets ought to be required to contribute an adequate amount of new capital to finance its purchase, in order to avoid creating perverse incentives for risk taking behavior which shifts the ultimate financial responsibility to the state in the form of contingent liabilities. Similarly, a commitment to new investment may be demanded from the private sector to rule out both high-risk strategies where the private owner gambles with the acquired assets with little new capital, or slows investment in capacity to maintain low output and oligopolistic profits.

Exhibit VI offers an interesting perspective on gradual sales. It describes in detail the plan for sequential sales of stakes in several firms to the private sector. It also contains information which allows to verify that the original plan was in fact executed rather precisely. Although there are some deviations from sale targets, perhaps reflecting some attention to market conditions, it is remarkable to see how the sale plan indicated in advance a gradual dismissal policy, to which it adhered quite closely.

Exhibit V PRIVATIZATION IN CHILE

YEAR	Revenues from Divestitures (bil. Pesos)	Revenues from Divestitures (mil. US$)	Percentage of Fiscal Revenues	As Percentage of GDP
1974	15.7	0.83	0.9	0.1
1975	224.1	4.91	10.4	2.0
1976	106.8	13.00	4.6	0.9
1977	124.2	21.53	4.4	1.0
1978	114.8	31.65	3.3	0.8
1979	164.6	37.24	3.2	1.1
1980	69.7	39.00	1.0	0.4
1981	112.0	39.00	1.4	0.6
1982	20.0	50.90	0.3	0.1
1983	n.a.	n.a.	n.a.	n.a.
1984	n.a.	n.a.	n.a.	n.a.
1985	10.3	161.08	0.025	0.1
1986	231.7	193.01	5.0	1.4
1987	313.3	219.54	5.7	1.8
1988	642.0	245.05	10.6*	3.3*

***** Estimated

Source: Santiago Stock Exchange and R.J. Luders [11].

Exhibit VI Sale intentions in the Chilean privatization plan

	Planned (%)			Realized (%)			
ENTERPRISE NAME	Sept 1985	Dec 1986	Dec 1987	Sept 1988	Dec 1986	Dec 1987	Sept 1988
CAP	49	80	100	100	52	100	100
COFOMAP	30	100	100	100	n.a.	n.a.	100
COLBUN	30	30	51	51	0	30	30
CTC	30	51	100	100	11	25	75
CHILMETRO	30	100	100	100	63	100	100
CHILGENER	30	49	100	100	35	65	100
CHILQUINTA	30	100	100	100	63	100	100
ECOM	30	100	100	100	100	100	100
EMEC	30	100	100	100	100	100	100
EMEL	30	100	100	100	100	100	100
EMELAT	30	100	100	100	0	100	100
ENAEX	30	100	100	100	0	100	100
ENDESA	30	30	49	55	0	20	51
ENTEL	30	30	51	75	30	33	51
IANSA	30	49	56	100	46	49	88
LAB.CHILE	30	49	49	63	23	49	63
LAN CHILE	30	33	60	60	0	0	33
PILMAIQUEN	30	100	100	100	100	100	100
PULLINQUE	30	100	100	100	0	100	100
SOQUIMICH	30	65	100	100	55	82	100
SCHWAGER	30	49	100	100	0	33	46
TELEX	49	100	100	100	100	100	100
EDELMAG	0	0	49	100	0	0	67
ISE	0	0	33	33	0	0	0
CHILE FILMS	0	0	0	100	0	0	0
EMPREMAR	0	0	0	35	0	0	0
PEHUENCHE	0	0	0	50	0	0	0
EMOS	0	0	0	49	0	0	0
ESVAL	0	0	0	49	0	0	0

Source: Mario Marcel [12].

Exhibits VII through XI present extensive data on the Nigerian, Turkish and Malaysian programs. Although our Nigerian data lack detailed information on the timing of sales, the extent of partial sales and their progression over time document a significant but temporary risk-bearing

role of the government. This is particularly evident in Exhibits VII and IX. However, this privatization program has certain specific features. In the first place, Exhibits VII and IX indicate that the government intends to sell its entire shareholdings in many firms (although we do not know whether this represents a final sale, implemented in stages). It can be argued that a sequence of complete sale of stock in individual firms, when distributed over time, is equivalent to a sequence of partial sales in a larger number of firms from the point of view of aggregate retained shareholdings. This may not establish policy credibility on a sector-by-sector basis; but a comparison of firms which are the object of complete and partial sales reveal that there is significant overlap of sectors. In addition, partial shareholding by the state appears to have been already important in the past; thus these complete divestitures may simply represent a final sale of firms in sectors over which the government has already established a certain policy credibility over time.

The information available on pricing of these sales is not very satisfactory for our purposes. The data presented on post-sale market prices comes from the same point in time for all firms; so we cannot measure underpricing, since post-sale changes in market valuation presumably have been different for different firms. It is significant, however, that all these later prices indicate a very strong value appreciation, which is suggestive of consistent and significant underpricing.

Exhibit VII PRIVATIZATION IN NIGERIA

Enterprise	Date of Sale	Gov't Stake Prior to Sale (%)	Stake Sold (%)	Offer Price (Naira)	Market Price*	Premium Since Sale (%)	Gross Proceeds (mil.Naira)	
FLOUR MILLS	8/89	51	51	0.80	50.00		6150	6.2
AFRICAN PETROLEUM	5/89	60	20	1.90	2.95	55.2	32.8	
NATIONAL OIL	12/89	60	20	2.00	2.93	46.5	33.6	
ASHAKA CEMENT LTD	7/89	72	30	1.20	1.89	57.5	39.0	
NIGERIA YEAST & ALC	10/89	51	51	0.70	1.45	107	3.2	
UNITED INSUR. CO.	3/89	42	42	1.20	1.57	30.8	17.6	
NEW INSURANCE	9/90	47	47	1.20	1.57	30.8	0.9	
WEST AFRICAN INSUR.	8/90	40	40	1.10	1.30	18.2	0.7	
NIGER INSURANCE	8/90	100	100	1.30	1.51	16.1	8.8	
AMERICAN INT'L INSUR	12/90	49	49	1.65	2.16	30.9	6.8	
PRESTIGE ASSURANCE	12/90	49	49	1.15	1.38	20.0	3.4	
ROYAL EXCHANGE	12/90	49	49	1.75	1.87	6.8	17.7	
SUN INSURANCE	12/90	49	49	1.25	1.36	8.8	1.5	
BRITISH AMERIC.INSUR	7/90	49	49	1.10	1.38	25.4	4.3	
CRUSADER INSURANCE	7/90	49	49	1.30	1.41	8.4	2.5	
GUINEA INSURANCE	8/90	25	25	0.80	1.10	37.5	1.5	
LAW UNION INSUR.	7/90	39	39	0.95	1.10	15.7	3.7	
UNITY LIFE INSUR.	7/90	na	na	0.90	na		na	0.6
BENUE CEMENT	3/91	na	na	0.90	1.20	33.3	42.6	
OKUMU PALM OIL	3/91	na	na	0.90	na	na	23.2	

***** Market prices as of end of February, 1991.

Source: Privatization Committee, Government of Nigeria.

Exhibit VIII PRIVATIZATION IN NIGERIA (cont)

ENTERPRISES IN WHICH STATE HOLDINGS ARE TO BE PARTIALLY PRIVATIZED

E N T E R P R I S E	Present State Holding	Intended State Participation as % of Equity After Sale
Federal M.Bank of N.	100	70
Niger. Ind. Dev. Bank.	100	70
N.Bank for Com&Ind.	100	70
Federal Savings Bank	100	70
Unipetrol	100	40
Nat'l Oil&Chem.Markt.Co.	60	40
African Petroleum Ltd.	60	40
Jos Steel Roll. Mill	100	40
Katsina Steel Roll. Mill	100	40
Oshogbo Steel Roll. Mill	100	40
Nigeria Airways Ltd.	100	40
N. Nat'l Shipping Line	100	40
N. Superphosphate Fertilizer	100	40
Nat'l Fertilizer Co.	70	40
N.Nat'l Paper Manuf.Co.	86.5	40
N.Newsprint Manuf.Co.	90	40
N. Paper Mills Ltd.	90	40
Savannah Sugar Co.Ltd.	75.4	40
Sunti Sugar Co.Ltd.	90	40
Lafiagi Sugar Co.Ltd.	70	40
Ashaka Cement Co.Ltd.	72	30
Benue Cement Co.Ltd.	39	30
Calabar Cement Co.Ltd.	68	30
Cement Co. of Northern N.	31.53	30
N. Cement Co. Ltd.,Nkalagu	10.72	10

Source: Privatization Committee.

Exhibit IX PRIVATIZATION IN NIGERIA (cont)

NIGERIAN ENTERPRISES IN WHICH THE WHOLE STAKE CURRENTLY HELD BY THE GOVERNMENT WILL BE SOLD

E N T E R P R I S E	Current State Ownership Stake
Nigeria Hotels Ltd.	51
Durbar Hotels Ltd.	100
Aba Textile Mills	70
Central Water Trans.Co.	100
Nat'l Cargo Handling Ltd.	100
N. Nat'l Fish Co.Ltd.	55
N. Food Co.Ltd.	56
Nat'l Grains Prod.Co.Ltd.	100
Nat'l Root Crops Prod.Co.	100
N.Nat'l Shrimps Co.Ltd.	86
New Nigerian Salt Co.Ltd.	100
Nat'l Salt Co.Ltd.,Ijoko	100
Specomill Nigeria Ltd.	60
South East R.Wood Ind.	16.27
Niger.-Rumanian Wood Ind	25
Nigerian Film Co.	100
Opobo Boat Yard	35
Ore/Irele Oil Palm Co.Ltd.	60
Road Constr. Co.of Nigeria	60
Impresit Bakolori Nigeria	60
North Breweries Ltd.,Kano	50
West African Distilleries	100
N.Engineering Constr.Co.	60
Tourist Company of N.Ltd	100
Elect. Meters Co.Ltd.	60
United N.Insurance Co.	42
United N.Life Insurance	33
Mercury Assurance Co.	40
Ayip-Eku Oil Palm Co.	60
Ihechiowa Oil Palm Co.	60
Sokoto I. Livestock Co.	80
Motor Engineering Service	100
Nichemtex Industries Ltd.	10

Source: Privatization Committee.

Exhibit X presents data from the Turkish privatization program. Here we are able to determine the timing of sales, which indicate the usual progression in amount sold.

Here, as before, partial sales appear to be the norm. Some earlier partial sales are of firms with considerable exposure to public policy changes, such as the telecommunications monopoly. Such a firm has very large capital investment and supplies the entire population; the political risk of redistribution of their quasi-rents is evident. Therefore, an early sale of such firms may establish credibility faster; as a populist government will be eager to intervene in these firms, the development over time of a reputation for commitment to current policy would be faster. The fact that no further sale of stock in these firms was made in the following two years seems consistent with a desire to establish a track record. Moreover, its initial sale exhibits the strongest underpricing. On the other hand, this is also a much larger sale than average, and it may be made gradually to avoid swamping the market. Moreover, it is not clear that the sale of monopolies should come earlier than the sale of enterprises in more competitive industries.

The data on pricing indicate that many sales traded at small or even negative premia, although the situation appears to have been reversed in more recent sales. Since we do not know whether these sales were tender offer rather than fixed price sales, it is impossible to tell whether the full pricing was deliberate.

Exhibit X **PRIVATIZATION IN TURKEY**

Enterprise (Industry)	Date of Sale	Stakes Sold %	Offer Price	Market Price	(%)	Discount	Proceeds (mil. TL)
TELETAS (Telecom)	Mar 88	22.00	5000	6396		27.92	9719
EREGLI D-C (Steel)	Apr 90	52.00	11750	12243	4.19	13239.2	
CUKUROVA (Electr)	Apr 90	25.41	23750	24000	1.05	96995.4	
KEPEZ E.(Electr.)	Apr 90	43.68	14400	15255	5.93	23457	
ARCELIK Appliances	May 90	25.00	21500	23149	7.66	50162	
BOLU C.(Cement)	May 90	35.33	12750	13911	9.10	20851.8	
CELIK H.(Cables)	May 90	29.28	13750	15948			19545.5
PETKIM (Refining)	July 90	8.09	2500	2451		-1.96	315477.8
[Employees]		2500			19809.4		
[Through Bond Cert.]			2250				61890
KONYA C.(Cement)	Oct 90	39.90	25000	25000		0	48619.7
MARDIN C.(Cement)	Nov 90	48.20	50000	50800	1.60	25463.7	
UNYE C.(Cement)	Dec 90	12.00	10000	10000		0	2570.5
THY (Turk. Airlines)	Dec 90	small	3000	2750		-8.33	12307.9
[Employees]		amount	3000	1617.3			
ADANA (Cement)[A]	Feb 91	23.90	270000	300000		11.11	79128.9
" " [B]	Feb 91	23.40	30000	33000		10.00	8792
MIGROS (Chain St.)	Feb 91	42.20	8000	8800		10.00	18199
KALKINMA (Bank)	Mar 91	19.88	3000	3000	0	596433	
AFYON C. (Cement)	Mar 91	48.60	30000	39000		30.00	36448.6
DITAS	May 91	14.77	7000	6300		-10.00	5087
NIGDE C. (Cement)	May 91	99.80	165000	145000	-12.12		921731.2
PETROL OFISI	May 91	5.00	4000	4000	0	72000	
TUPRAS (Refining)	May 91	2.50	2000	1800		-10.10	36500
GIMA (Chain Stores)	June 91	54.68	4000	4000	0	21871.4	
TOFAS (Automobile)	July 91	6.25	19000	20000	13.15	190000	
TOFAS (Auto. Distr.)	July 91	10.00	15000	16500	10.00	30000	

Year	Proceeds (mil. TL)	(mil. US$)
1988	15,400	8.5
1989	na	na
1990	831,161	269.9
1991	2,016,191	528.2
	2,862,752	806.6

Source: Istanbul Stock Exchange.

Finally, Exhibit XI collects the information available on the Malaysian privatization program, one of the oldest in the developing world. The data is here quite complete, and therefore offers some scope in interpreting its evolution. The extend of underpricing is truly remarkable: the market price immediately after the sale jumps to an average premium of roughly 80 % from the offer price, while the application multiples suggests a demand on average ten times larger than supply. We find that the smaller stakes sold refer to sales of firms with a certain degree of domestic monopoly power, such as the national telecommunication company and the airline affiliate; presumably these companies are particularly vulnerable to the risk of changes in domestic regulatory policy, unlike the cement manufacturers or the hotel company. The case of the sale of the highly subsidized automobile manufacturer is probably similar, since the company relies heavily on a protective attitude by the government. Annual proceeds follow a rising progression, culminating in recent years in the sales of the Malaysian Telecom Syarikat. The timing of this delicate sale, six years after the onset of the program, is probably not accidental.

Exhibit XI **PRIVATIZATION IN MALAYSIA**

Enterprise	Date of Sale	Stake Sold (%)	Offer Price	Market Price	Disc. (M$)	Appl. (%)	Gross Proceeds Multiple	(mil. M$)
Cement Ind. of Malaysia	Jun 84	83.9	1.00	1.91	91.0	34.6	8.8	
Malaysian Intl Shipping	Feb 87	67.0	2.40	5.00	108.3	1.2	203.9	
Ports Toto Malaysia	Jul 87		71.4	2.00	9.55	377.5	87.8	10.5
Tradewinds	Mar 88	93.2	1.10	1.83	66.3	8.0	16.5	
Sistem Tel.	Apr 88	nil	2.00	6.05	202.5	63.4	13.2	
Cement Manuf. Ser.	Feb 89	91.1	1.30	2.17	66.9	20.0	6.5	
Malaysian Airline Sys.	Dec 89	47.1	1.80	2.45	36.1	7.0	189	
Ederan Auto National	Jul 90		36.4	4.30	8.15	89.5	22.0	154.8
Pernas Intl Hotels	Sep 90	89.5	1.30	2.32	78.4	15.1	20.5	
Syarikat Telecom	Nov 90	31.4	5.00	6.10	22.0	1.1	2,352.5	
Kedah Cement	Jan 92	n.a.	2.00	2.60	30.0	1.5	58.5	
Perusahaan Otomobil	Mar 92	n.a.	5.00	6.60	32.0	6.4	750	
Tenaga Nas.	May 92		n.a.	4.50	8.75	94.4	3.5	3,213.9

EXHIBIT XIa Time profile of privatization revenues in Malaysia

Year	Proceeds (mil. M$)	(mil. US$)
1984	8.8	3.8
1987	214.4	84.4
1988	16.5	6.4
1989	195.5	72.3
1990	2527.8	939.4
1992	4022.4	1599.0

Source: Kuala Lumpur Stock Exchange.

The early forms of privatization in Eastern Europe

A major test for the reputation-building approach presented here will be its ability to predict the form that the privatization plans in Eastern Europe will take in the next years.
However, privatization in Eastern Europe is certainly a more complex process for two reasons: the fact that most state owned firms are unprofitable, and the sheer enormity of the task. These elements suggest that a gradual approach may not be desirable. First, failure to attain rapidly a critical mass of privatized firms could lead to a much too slow improvement in productivity and to a collapse of the reform program (Roland and Verdier [15]). Second, for countries in difficult financial conditions, only a clear separation of firms' liabilities and the budget can avoid fiscal collapse. Finally, speed may be required to overcome the effect of a control vacuum over the corporate sector. As plan discipline has disappeared, labor and management are de facto in charge of most decisions; in the end-game period after privatization is announced but prior to firm private control, they are led to decapitalize the firms by appropriating or liquidating assets. A rapid transition to private owners and a clear separation from the government budget seems necessary to introduce some discipline and avoid further subsidization of inefficient production.

There is however a set of firms in these countries which are profitable, often because they command a strong market position, and have attracted foreign investors, for whom the risk of policy

changes is certainly a major consideration. The next exhibits describe the structure of sales to foreigners of these potentially profitable firms. Since these are private sales, data on pricing are unavailable. However, the evidence on the gradual transfer of shares and residual income rights is evident, even though it is well known that managerial control transfer is quite complete from the outset.

Exhibit XII PRIVATIZATION IN POLAND

Enterprise	Industry	Date of Sale	Stake Sold (%)	Proceeds (mil $)	Acquirer
HSO Sandomierz	Glass	1990	40	140	Pilkington
Fampa	Paper	1991	80	7	Beloit Corp
FMS	Vehicles	1991	51	800	FIAT
Alima	Food	1991	60	11.3	Gerber Products
Wedel	Food	1991	40	24	Pepsico
Polam	Lighting	1991	51	na	Philips
Bydgoszcs	Detergent	1991	80	20	Unilever

Source: Euromoney, 1992.

Exhibit XIII PRIVATIZATION IN HUNGARY

Enterprise	Industry	Date of Sale	Stake Sold (%)	Proceeds (mil $)	Acquirer
Hunguard	Glass	1988	80	120	Guardian Glass
Biztosito	Insurance	1989	49	80m DM	Allianz
Tungsram	Lighting	1989	50	150	Gen. Electric
		1991	25	na	Gen. Electric
Raba	Vehicles	1989	na	150	Gen. Motors
Ganz-Unslet	Vehicles	1989	51	4	Telfos
Chinoin	Drugs	1990	40	75	Sanofi
Dunapack	Paper	1990	40	82	Prinzhorn Group
GM Hungary	Vehicles	1990	67	66	Gen. Motors
Szabadegyhazi	Food	1990	49	35	Agrana
Lehel	Appliances	1991	100	65	Electrolux
Compack	Food	1991	51	60	Sara Lee
Intercscokol.	Food	1991	97	38	Nestle'
Magyar Suzuki	Vehicles	1991	40	30	Suzuki Motors
Csemege	Retail	1991	majority	35	Julius Meinl
Ikarus	Vehicles	1991	30	50	Atex
Egri Dohangy	Tobacco	1991	20	na	Austria Tabak
Szolnok Szer.	Sugar	1991	40	40	Beghin-Say
Komaromi	Beer	1991	50.3	na	Heineken
Hajdusagi	Sugar	1991	30	20	Tate & Lyle
Gyori Keksz	Food	1991	84	na	United Biscuits
Revai Obuda	Printing	1991	57	5	Watmoughs
Allami Bizt.	Insurance	1992	75	50	Aegon

Source: Financial Times, various issues 1991-1992.

Exhibit XIV PRIVATIZATION IN CZECHOSLOVAKIA

Enterprise	Industry	Date of Sale	Stake Sold (%)	Proceeds (mil $)	Acquirer
Sklo Union	Glass	1990	40	48	Graverbel
Zavody Solokov	Chemicals	1991	51	53	Dow Europe
Pragnocement	Cement	1991	40	10.8	Heidelberger Zement
Ceva Kraluv Dvur	Cement	1991	40	20	Heidelberger Zement
Prachovice	Cement	1991	30	DM 42m	Holderbank
Jihoceska Keramika	Ceramics	1991	majority	na	Laufen
VCS	Limestone	1991	49	DM 22m	Lhoist
Technoplyn	Gases	1991	majority	106	Linde
Rakona	Detergents	1991	100	24	Procter & Gamble
Skoda Pilsen	Energy	1991	67	170	Siemens
Skoda	Vehicles	1991	70	na	Volkswagen
Tatra	Vehicles	1992	51	20	Iveco
Avia	Vehicles	1992	31	na	Mercedes Benz
Liaz	Vehicles	1992	20	na	Mercedes Benz

Source: Financial Times, various issues.

In addition, the mass privatization programs in these countries have elements consistent with

both capital scarcity (most certainly a major consideration) and confidence building. In Poland, for instance, the mass privatization scheme involves a combination of partial sales with underpricing. The plan calls for distributing 30 % of stock **free** to the general population through a voucher program; an additional deeply discounted sale of 20 % of the stock to the firms' employees, while the state sector would retain the remaining 50 % of stock for some time (Dhanij [4]). The structure of this privatization program is similar to programs announced later in other Eastern European countries, such as Romania and Bulgaria. It is noteworthy that while these governments are retaining significant stakes, they have already indicated their intention to sell them in just a few years' time.

Finally, the idea of free distribution of vouchers clearly represents an extreme form of underpricing. On the other hand, a voucher program is probably the only option available, given the extent of the transfer.

Future Research and Discussion

We have provided a set of data on privatization transactions which documents striking similarities across countries. Sales tend to be gradual; the government provides a temporary risk bearing role even well after it transfers control; and they are often underpriced.

One explanation is the existence of temporary market capacity constraints. Another is based on a confidence-building strategy by the selling government, in which willingness to retain a minority stake (as well as underpricing) signals a more reliable future policy and reassures investors, a crucial element for the success of a privatization program. However, the data available does not easily distinguish between the two hypotheses. In part is because they have similar empirical implications, that gradual sales are a mean of avoiding depressing prices by large sales, although for different reasons: in one case because of exogenous capacity constraints, in the other because investors make some inference over stock value from the amount sold.

A formal test would become possible only once more datapoints are collected. However, the limited evidence presented here seems more supportive of the reputation- building hypothesis. The predominance of partial sales is true across all countries, whatever the degree of development of the domestic capital market. Sale proceeds tend to increase sharply over time rather than match the

growth of private savings. Sales are deliberately underpriced, and to a greater degree than private IPOs. A casual evaluation of the evidence suggests that smaller initial sales, a long time interval between stock issues, and large underpricing of sales seem to be features more common for firms which are more policy-sensitive, such as natural or legal monopolies (utilities, concessions) or heavily subsidized/protected manufacturers.

Moreover, experience has shown that a stock market is able to absorb very large stock sales. The first British Telecom sale was three time larger than the previous largest share issue, but it was still oversubscribed several times. The Telmex sale was an even larger sale relative to the sale of the domestic market, but was a huge success.

It is puzzling that public sales are made through fixed-price offerings even though tender (auction) sales are in principle better at maximizing proceeds. These prices are set well below market values, as our data from application multiples and one-day return indicate. The recent literature on underpricing has suggested that it fulfills a signalling role; and while a government is not likely to have better information over asset values than the market, it certainly does over its policy intentions. To the extent that early credibility of policy also has an important effect on private investment, underpricing may be justified. Thus the pricing and sequencing of sales are substitutes: slower sales at full price would achieve the same result over a longer period than discounted sales. In general, when policy credibility has an important effect on investment, a more rapid privatization may be justified even if associated with greater discounts.

Although the confidence building view may explain the extent of underpricing, the issue is probably complex. The choice of underpricing offers the government the opportunity to determine the allocation of shares, which may be employed to induce wider share ownership. This policy goal is also consistent with a commitment motivation. A committed government may ration the allocation of shares with a bias towards the smaller investors, with the intention to create a large constituency vested in the success of privatization in order to reduce future political risk (and even bind a future government's action). However, this requires also the introduction of incentives to maintain these shareholdings for the long term in order to avoid immediate resale. Consistent with this point, the 1984 offering of British Telecom included a bonus to be paid in 1987 to buyers who still held the shares; similar vouchers were distributed at other UK sales.

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