# Is privatization of telecom operators socially desirable?

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Key Words: Telecommunications, Privatization, IPO, BHAR

Abstract -

This paper compares long—run buy—and—hold returns of privatization initial public offerings to those of domestic stock markets of respective countries using a sample of 29 privatized telecom initial public offerings from 27 countries. The evidence indicates that the privatization IPOs significantly outperform their domestic stock markets if the returns are equally—weighted while they do not outperform the markets if value—weighted. In addition, this paper analyzes the cross—sectional determinants of long—run buy—and— hold returns of privatized telecom shares. The results indicate that the long—run performance of privatized telecom IPOs is moderately related to the proxies of policy uncertainty or systematic risk while the size of the firm and some market wide variables such as the accounting standard, origin of commercial law, and the corporate governance scheme significantly affect the stock performance of privatized telecom shares.

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## I. Introduction

Since its introduction by Britain's Thatcher government in the early 1980s to a then-skeptical public, privatization now appears to be accepted as a legitimate, often a core tool of state craft by governments of more than 100 countries. The privatization programs of the last twenty years have significantly reduced the role of state-owned enterprises (SOEs) in the economic life of most countries. Megginson and Netter (2001) report that the SOE share of global GDP has declined from more tha 10 percent in 1979 to less than 6 percent today. Total market size of and liquidity of the domestic capital market is greatly improved by the share offerings of telecom operators. On the basis of the last day of the month of initial public offerings (IPOs), OTE, the Greek telecom operator accounts for the 69 percent of Athens stock market and Telecomunikacja Polska, the Polish operator explains 39 percent of Warsaw stock exchange. Publicly traded stocks issued by 42 telecom operators from 38 countries account for 16 percent of their domestic stock markets in 2003.

The privatization programs have been widely promoted based on the evidence that privatizations serve to improve the efficiency and profitability of a firm. Megginson, Nash, and van Randenborgh (1994), Boubakri and Cosset (1998), D'Souza

and Megginson (1999), and Dewenter and Malatesta (2001) report that there are significant improvements in firm output, efficiency, and profitability following privatization. More recently, several researches examine the operating performance of privatized telecom operators. Parker (1994) finds significant improvements in profitability and efficiency of privatized British telecom operators. Tandon (1995) reports same results from Mexican operators. Boyland and Nicoletti (2000) report that privatization of telecom operator leads to significant decrease in rate and significant increase in quality of service from the member of OECD.

These findings are consistent with the predictions of the property rights theory, advanced by Alchian (1965). He suggests that state-owned enterprises tend to be less efficient and less profitable than privatelyowned enterprises. Perotti (1995) argues that, under public ownership, firm profits are independent of managerial efforts because stakeholders can force the government to grant them a share of the output regardless of their endeavors; managers therefore have no incentive to exert themselves. In contrast, once the firm is privatized, managers have an increased incentive to exert themselves as a result of the private owner's residual rights of control.

Megginson, Nash, Netter, and Shwartz (2000) and Dewenter and Malatesta (2001)

document that average market-adjusted abnormal returns of privatization issues are significantly positive over five-year holding periods. Their findings are in sharp contrast with those of Ritter (1991) who reports short-run over-reaction and long-run under-performance in the U.S. IPO market. However, we have no information on the long-run stock returns of privatized telecom operators.

The major motivation of this paper is to estimate the long-run stock returns for privatized telecom operators and to analyze the determinants of privatization returns. We confirm the findings of earlier studies that privatization IPOs outperform the respective domestic market if we equally weight the returns. The reverse is true if the long horizon returns are valueweighted, however. Moreover, there are substantial variations in the long-run performance across industries and issuing countries. The time series behavior of longrun BHARs of privatization shares tends to be consistent with the signaling model of Perotti (1995). The long-run performance of privatization IPOs is positively related to the signaling variables of stake sold (percentage of the firm's capital offered) at the initial offer and to market variables such as beta and size of the firm. Furthermore, the long-run privatization returns can be explained by the institutional features of the issuing countries which in turn seem to depend on the accounting standards, income level, and the origin of commercial law of the country.

The paper is organized as follows. The sample selection procedure and data are described in section 2. Section 2 also briefly reviews the statistical issues concerning the estimation of long—run abnormal returns of event firms. Section 3 presents our findings on the long—run abnormal returns of privatization IPOs in telecommunications industry and section 4 puts forward our conclusions.

## II. Data and Methodology

2.1. Data and Descriptive Statistics

Table 1 IPOs and Seasoned Offerings conducted by Telecom Operators.

Offering through the end of May 2003, excluding Telefonica of Spain which was listed before 1980.

Country	Company Name	Issue Date	Cumulative Issue Size in Millions of US dollars	Government % Share Capital		Number of Offerings
				Before	2003	
Argentina	Telefonica de Argentina	Dec 91	849	40	10	1
	Telecom Argentina	Mar 92	1,050	30	0	1
Australia	Telstra	Nov 97	20,930	100	50.1	2
Austria	Telecom Austria	Nov 00	853	75	48	1
Chile	Telefonos de Chile	Sep 90	89	100	72	1
China	China Telecom	Oct 97	6,000	100	75	2
	China Unicom	Jun 00	4,900			1
Denmark	Tele Danmark	May 94	2,894	89.9	51	1
Estonia	Estonian Telecom	Feb 99	221	100	76.3	1
Finland	Sonera	Jan 99	6,900	100	54.5	3
France	France Telecom	Oct 97	33,380	100	56	3
Germany	Deutsche Telecom	Nov 96	28,060	100	59	2
Greece	OTE	Mar 96	3,465	100	65	3
Hungary	Matav	Nov 97	1,200	22.8	5.6	1
Indonesia	Indosat	Nov 94	1,060	100	65.5	1
	PT Telkom	Nov 95	2,190	100	76.5	2
Ireland	Telecom Eirean	Jul 99	4,300	87.9	23	1
Italy	Telecom Italia	Nov 85	17,828	100	0	5
Japan	NTT	Feb 87	111,357	100	46	6
	NTT DoCoMo	Oct 98	18,400		67.1	1
Jordan	Jordan Telecom	Oct 02	150	100	76	1
Korea	Korea Telecom	May 99	8,690	72.2	0	2
Lithuania	Lithuanian Telecom	Dec 98	160	100	75	1
Malaysia	Telecom Malaysia	Oct 90	872	100	76	1
Mexico	Telefonos de Mexico	May 91	4,120	29.8	0	3
The Netherlands	KPN	Jun 94	11,982	100	34.8	3
New Zealand	Telecom New Zealand	Jul 91	819	46	0	1
Norway	Telnor	Dec 00	1,600	100	79	1
Pakistan	Pakistan Telecom	Sep 94	997	100	88	1
Peru	Telefonica del Peru	Jul 96	1,100	28.6	5	1
Poland	Telecomunikacja Polska	Nov 98	1,020	100	85	1 -
Portugal	Portugal Telecom	Jun 95	7,371	100	0	5
Qatar	Qatar Telecom	Dec 98	740	100	55	1
Saudi Arabia	Saudi Telecom	Jan 03	3,700	100	70	1
Singapore	Singapore Telecom	Oct 93	2,210	100	87.5	1
South Africa	Telkom	Mar 03	500	100	75	1
Sweden	Telia-Sonera	Jun 00	8,800	100	70	1
Swiss	Swiscom	Oct 98	5,600	100	65.5	1
Taiwan	Chunghwa Telecom	Sep 00	988	100	97.2	1
UK	Cable and Wireless	Oct 81	2,260	100	0	3
	British Telecom	Nov 84	22,050	100	0	3
Venezuela	CANTV	Nov 96	1,010	49	0	1

The main sources of data are the privatization database, Privatisation International and the World Bank privatization file provided by William Megginson.1) The sample of privatized telecom IPOs, as described in Table 1, consists of 42 initial equity issues and 32 seasoned offerings, which collectively raised 353 billion U.S. dollars for 38 countries. Governments around the world have absorbed total proceeds of 832 billion dollars. Thus, telecom issues explain 42.37 percent of privatization issues overall. The average holdings of the governments in telecom companies were 86.64 percent while they were reduced to 47.52 percent. The governments are controlling shareholders despite the two decade efforts of changing ownership. Therefore, we can say privatization initiative is on going in the telecommunications industry.

Interestingly enough, Table 1 shows that the frequency of privatization issues of telecom companies and mean of stake sold are closely related to the income level (gross national product per capita) of the issuing country. However, more privatization IPOs are expected to take place in the less developed countries over the next decades since the number of issues from low— to middle—income economies have been rapidly increasing recently.

Data collected for each privatization IPO include the name of the firm, its industry

classification, the issuing country, offer dates, the issue size, the initial return, the percentage of the firm's capital in the initial offer, and the percentage of the offer allocated to foreigners. For those transactions representing IPOs, local currency denominated stock price, return series and relevant country stock market indices are collected from Datastream International. The issues from communist or socialist economies are removed from the sample reflecting the fact that Datastream International is a customer-based commercial database, it tends not to provide data on smaller issues and issues from thin markets. Issues conducted after 2001 are also removed from the sample to ensure enough holding period. The final sample consists of 29 telecom operators from 27 countries.

#### 2,2, Methodology

We calculate privatization returns over holding periods of one through five years following the offer. The long-horizon returns are based on monthly returns, and are calculated using the closing price of the first trading date. We adjust the stock return by subtracting the contemporaneous return on a domestic market index from the return on each privatized firm. Specifically, the long-horizon buy-and-hold abnormal returns are calculated as follows:

<sup>1)</sup> We appreciate Professor William Megginson at the University of Oklahoma.

$$BHAR_{it} = \prod_{t=0}^{\tau} (1 + R_{it}) - \prod_{t=0}^{\tau} (1 + R_{MCt}) \Lambda \Lambda$$
 (1)

where, t is the number of months from the first trading day;  $\tau$  is the period of investment in months ( $\tau$  = 12, 36, 60);  $R_{it}$  is the return on security i in month t, and RMCt is the market return of the country in month t. We employ comprehensive, value—weighted Datastream Total Market Index for the sample countries to capture the general movement of the market, because most of the representative indexes available for the sample countries do not reflect dividend yields.

To calculate value—weighted abnormal returns, we calculate the weights as the aftermarket value of each firm at the end of the initial month, divided by the sum of the market value of sample firms. All of the market values are restated to 2001 U.S. dollar. Let  $w_i$  denote stock i's weight in forming the average holding—period return. The effective holding period for stock i is  $T_i$  which is five years or the time until delisting, whichever comes first. The percentage weighted average holding period returns across a sample of N stocks is given by

$$WR = \sum_{i=1}^{N} w_i \left[ \prod_{t=\tau_i}^{T_i} (1 + R_{it}) - 1 \right] \qquad \Lambda \Lambda \qquad (2)$$

### III. Results

#### 3.1. Tests of Zero Mean BHARs for Privatization IPOs

This section presents the long-horizon return results for our samples of telecom IPOs. Table 2 reports summary statistics for the long-horizon BHARs for the 29 telecom IPOs in the sample. Results in panel A of Table 2 reject the null hypothesis of no difference in holding period returns of privatization IPOs and the market returns of their home countries. Equally-weighted BHRs are significantly and consistently positive over each holding period, while equally-weighted BHARs are significantly positive in the earlier period, but become insignificant as time elapses. Over the five year period, privatization IPO firms have outperformed their domestic markets by markedly 199.53 percent, on average. The median returns are much smaller, but nevertheless remain positive over each holding period.

However, panel 2 of Table 2 tells a different story. Value-weighted returns which are assumed to be held from the offer

date are significantly positive in the oneyear, but negative in the three- and fiveyear holding periods. The results are consistent with Mitchell and Stafford (2000) who assert that value-weighting the abnormal returns of the issuer reduces measured abnormal performance. The results confirm the general observation that the largest telecom issues have underperformed the market. underperform. Brav et al. (2000) indicate that privatization returns could be explained by issue-specific factors such as firm size and book-to-market ratio. La Porta et al. (1998) emphasize the importance of law origin and accounting standards of the economy in explaining issuer returns. Jones et al. (1999) show that unusually high one-day returns for privatization IPOs can be explained by the signaling models of

Table 2 Long-run Returns

This table reports raw and market adjusted holding-period stock returns calculated by equally—and by value—weighted returns, BHR refers to raw buy—and—hold returns, and BHAR to market—adjusted buy—and—hold abnormal returns, N indicates the number of observations, t—statistics are quoted in ( ) and medians in [ ], \*, \*\*, and \*\*\* indicate results are significant at 5 percent, and 1 percent level, respectively.

Holding period	One-year	Three-year	Five-year		
		[median]			
	(t-value)				
Panel A) Equally-weighed r	eturns				
BHR	0.7030	1.8058	3.2721		
	[4.630]	[0.7930]	[1.1292]		
	(4.139***)	$(2.104^{**})$	$(2.357^{**})$		
BHAR	0.4800	1.0503	1.9953		
	[0.2432]	[0.2701]	[0.4104]		
	(3.470***)	(1.211)	(1.476 <sup>*</sup> )		
Panel B) Value-weighed ret	urns – unrebalanced				
BHR	0.8275	0.5556	0.0228		
	$(1.681^{**})$	(2.863**)	(0.109)		
BHAR	0.5765	-0.0867	-0.2205		
	$(1.626^*)$	(-0.236)	(-0.851)		

#### 3.2. Determinants of Privatization Returns

Lee (1997) and Teoh, Welch, and Wong (1998) indicate that various attributes of the IPO firms can predict which issuers will

Perotti (1995).

The signaling model of Perotti (1995) predicts that the higher the stake offered at the IPO, the more efficiency gains are expected. However, the price at which a

competitive capital market will be willing to pay for the shares is affected by the anticipated degree of redistribution (or policy uncertainty). The market is not willing to pay full economic price for the privatized shares until the credibility of the issuer or the government is built. If the market is efficient, a discount will be required to compensate for policy uncertainty, and the degree of underpricing should be positively related to the ex ante volatility.

We select beta and firm size (defined as the market value of a firm to total market capitalization of the domestic market) as the issue-specific factors. La Porta et al. (1998) show that the origin of commercial law, together with an accounting standards index for a country, is closely related to the performance of the economy. We employ law dummies and an accounting standards index for each country which is taken from

La Porta et al. (1998). Therefore, accounting standards index, GNP per capita, and law dummies are included in the regression equation to examine the effect of the economy's institutional features on the aftermarket performance of issuers.

In sum, our multivariate regression equation is as follows: the explanatory variables are one signaling variable (stake sold at initial offer), two issue-specific variables (beta and market proportion), and three economy-wide variables (accounting standards, logarithm of GNP per capita, and law dummies). This type of multivariate regression enables us to further refine our tests by controlling several factors affecting the privatization returns. Coefficients are White (1980)'estimated by heteroskedasticiy-adjusted regressions. Dependent variables are one, three, and five year BHARs.

#### Table 3 Determinants of Buy-and-Hold Returns of Privatization IPOs

One-, three-, and five-year holding period buy-and-hold abnormal returns are regressed on Stake Sold, Ex Ante Risk, and three origin-of-law dummy variables. Stake Sold means the percentage of the firm's capital in the initial offer. Beta is obtained from Datastream International. Information on law origin and accounting standard is taken from La Port et al. (1998). Coefficients are estimated by White (1980)'s heteroskedasticiy-adjusted regressions. The t-statistics are given in parentheses. N indicates the sample size. \*, \*\*\*, and \*\*\* indicate results significant at 10 percent, 5 percent, and 1 percent level, respectively.

<sup>2)</sup> The amount of stake sold signals potential risk of policy change and it serves to ensure the success of privatization.

Dependent Variable	One-year	Three- year	Five- year
		(t value)	
Constant	-0.2120	-0.8371	1.1883
Constant	(-0.153)	(-0.442)	(0.483)
Stake Sold	-0.0256	-0.00086	0.0073
Stake Sold	(-1.837 <sup>*</sup> )	(-0.449)	(0.307)
Beta	0.9948	0.7595	0.3258
Beta	$(1.886^*)$	(1.041)	(0.273)
Mouleat Dunnantin	-1.2979	-4.0767	-3.5806
Market Proportion	(-1.199)	(-2.751**)	(-1.779)
A accounting at d	0.0107	-0.0233	-0.1202
Accounting std	(1.205)	(-1.923 <sup>*</sup> )	(-7.020***)
GND per cenite	-0.0049	0.3030	0.6026
GNP per capita	(-0.031)	(1.387)	$(2.110^*)$
Emplish Lass	-0.1409	1.4419	3.0258
English Law	(-0.803)	$(2.330^*)$	$(3.592^{***})$
Donald I	-0.2777	0.5402	-0.2855
French Law	(-0.803)	(1.141)	(-0.383)
F value	2.1497***	2.2430**	8.8903***
Adj R²	0.2511	0.2661	0.7781
N	25	25	19

Three sets of regression results are presented in Table 3. All of the estimated equations are significant and show relatively good explanatory power. The findings do not support the predictions of the signaling model. The estimated coefficients on stake sold have the predicted signs in the later period, while are negative in the earlier period. Interestingly, the signaling variable is not closely related to returns in the whole post-IPO period, while issue-specific factors (beta and market proportion) and economy-wide variables (accounting standard, GNP per capita and law dummies) become more important as the market experience increases. An implication of this is that the transfer of ownership from the public to the private

sector contributes to an increase in the value of the privatized firm. Beta has significance in earlier period after privatization. Those findings are consistent with the implication of Perotti (1995)'s signaling model. That is, in the earlier period immediately following privatization the value of privatized shares is closely related to the political risk of the government. As the reputation of the privatizing government grows, however, conventional risk measures such as beta become more important in determining the market price of the privatized shares.

Perotti and Guney (1993) propose a reputation building hypothesis and compare it with the market capacity hypothesis. The reputation building hypothesis deals with

the credibility of issuer, i.e., the government, over time. The market capacity hypothesis implies that the market cannot absorb the privatization shares because the offer size of the privatization IPO is immense compared to the total market capitalization of the domestic capital market. Thus the market capacity hypothesis predicts an inverse relationship between long-horizon return performance and the offer size of the firm.

The coefficient for the market proportion, i.e., proportion of the market value of the firm to total market value, which is a proxy for firm size, is significantly negatively related to the holding period returns for the all post privatization period. It shows significant negative sign in three- and five-year holding period. This result supports the market capacity hypothesis. However, this is not consistent with Loughran and Ritter (1995), and Brav and Gompers (1997) who report that large firms do not show underperformance in the longer-horizons. Possible explanations for this include that market discipline did not function well, or the market capacity was inadequate, in the case of large privatization IPOs offered in countries with less-developed capital markets (for example, PT Telkom of Indonesia).

GNP per capita, a proxy for average corporate governance of the firms in the

country, also contributes to privatization returns. Profitability improvement and efficiency gains are much higher in developed than developing countries. Surprisingly, the coefficients for the accounting standards are significantly negative. Privatization issues in countries with better investor protection provide below average returns.<sup>3)</sup> This is presumably because the privatization issues from countries with low investor protection and less stringent accounting standards are listed on the thin local markets, and are not prone to market discipline. For example, La Porta et al. (1998) report that Russian stocks immediately after privatization traded as low as 1/100 of the western European stocks backed by comparable assets. This implies that for privatization to yield better results it should be preceded by market reform to ensure investor protection. Ramamurti (2000) emphasizes the importance of a country's level of institutional development in determining the failure or success of a privatization program. Williamson (1996) also asserts that an economy will only get the price mechanism right if it establishes appropriate property rights institutional features first. IPO issues from English law based economies perform well while those from French and other law based economies do not. French law may

<sup>3)</sup> To probe this issue further, the interaction effect of the accounting standard and per capita GNP, and of accounting standard and origin of law, were both examined. However, no additional explanatory power was found. Univariate tests indicate that the negative sign is due to issues from low level of accounting standards.

not contribute to profitability gains in the post-privatization regime. The estimated coefficients of the service dummy are significantly negative in immediate post-IPO

The evidence presented here tends to give an explanation for the implication of the signaling model. The capital markets require a discount for the anticipated policy uncertainty of the privatized firms, until the privatizing government builds up its reputation over time. As the credibility of the government grows the market begins to recognize the issue-specific factors such beta and firm size, as well as the increased performance of the privatized firm. This is also determined by the institutional features such as the origin of the country's commercial law and its accounting standards. Thus, the evidence indicates that the abnormal returns of telecom IPOs might be explained by the risk and return framework by the traditional market factor such as firm size and economy-wide variables such as origin of commercial law and GNP per capita in the later postprivatization periods.

## IV. Conclusion

This study investigates the long-run return performance of 27 telecom IPOs from 29 countries. It is one of the few multinational studies to have explored the

determinants of performance changes for newly-privatized telecom operators. There has been a general tendency for privatization IPOs to outperform their domestic capital markets, over a five-year holding period, if we equally weight the returns. However, value-weighting the abnormal returns of issuers reduce the measured abnormal performance to a level that is economically meaningless. These findings are consistent with those of Brav et al. (2000), Eckbo et al., and Mitchell and Stafford (2000). The results are robust to alternative samples.

There are two main contributions of this paper. First, this study shows that the differences in long-run returns are related to the extent of investor protection and the mechanism of corporate governance. Specifically, for privatization to yield better results, it should be preceded by market reform to ensure investor protection and market discipline. Secondly, this study also shows that privatization returns can be explained by the traditional risk-return framework. Stake sold is used as signaling variables; beta and market proportion as issue-specific variables; and accounting standards, GNP per capita, and three law dummies as economy-wide variables. Results from the multivariate regression analysis showed that signaling variables are closely related to the earlier post-IPO period, while issue-specific factors and economy-wide variables become more important as the market experience increases.

The test results support the implications of the signaling model. Higher returns for privatization IPOs are associated with larger stake sold in the later period. This effect appears to be overwhelming in the earlier post-IPO period, while the

traditional market and economy wide factors become more important as the policy uncertainty disappears over time. The evidence also indicates the importance of a country's level of institutional development in determining the failure or success of a privatization program.

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