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Capital subsidies, profit maximization, and acquisitions by partially privatized telecommunications carriers

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Abstract

A recent phenomenon in competition policy is the acquisition of a private firm by an enterprise that is either wholly owned by government or in the midst of privatization. Such an acquisition poses the question of how public ownership may alter the incentives of a firm to engage in anticompetitive conduct. It also prompts one to examine the process by which such altered incentives revert, as the level of government ownership declines, to the same incentives that face purely private firms. Using Deutsche Telekom's acquisition of VoiceStream Wireless as a case study, this article presents the economic questions relevant to evaluating the competitive consequences of acquisitions by partially privatized firms. It predicts gains or losses to various constituencies of producer groups. It then analyzes bond ratings and weighted-average costs of capital to determine whether such data are consistent with the hypothesis, advanced by parties opposed to such foreign investment, that partially privatized acquirers benefited from the government subsidization of their credit.

Keywords: Anticompetitive behavior; Capital subsidy; Cross-subsidization; Deutsche telekom; Government-owned enterprises; Predatory pricing; Privatization; VoiceStream

The announced acquisition in 2000 of the American wireless telecommunications firm VoiceStream Wireless by Deutsche Telekom AG of Germany presented the Federal Communications Commission (FCC) with the novel issue of whether the acquisition could harm US incumbent wireless carriers not because of greater competition, but because of potential anticompetitive behavior that is unique to a market entrant that has partial government ownership. In this paper, I examine two specific economic questions raised by Deutsche Telekom's

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[1] F.K. Weyerhaeuser Fellow in Law and Economics, American Enterprise Institute for Public Policy Research. This Article draws from testimony concerning the acquisition of VoiceStream Wireless by Deutsche Telekom AG, which I submitted on behalf of Deutsche Telekom on September 7, 2000 before the Subcommittee on Telecommunications, Trade, and Consumer Protection of the Committee on Commerce of the US House of Representatives and, in revised form, before the Federal Communications Commission in January 2001.

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acquisition of VoiceStream. First, does partial government ownership remove profit maximization as the carrier's objective and thereby increase the risk of predatory conduct? Second, does a telecommunications carrier that is undergoing privatization receive a capital subsidy from its national government, such that the carrier poses an unusual risk of predatory behavior in the US market after its acquisition of the US firm?

The FCC approved Deutsche Telekom's acquisition of VoiceStream in April 2001 and in the process answered both of these questions in the negative, at least with respect to Deutsche Telekom.[2] These same questions are likely to arise in the future, as other carriers undergoing privatization invest in or acquire US wireless carriers.[3]

1. Predation, privatization, and profit maximization

It is a subtle economic question whether a firm having a government owner has different incentives from those of a wholly private firm. The scholarly literature in economics and law contains virtually no published analysis for this question. Professor David Sappington and I have analyzed the competitive incentives of government enterprises.[4] Our analysis assumed, however, that the public enterprise was 100 percent owned and controlled by a government entity.

There is a fundamental difference between a company with *domestic* government ownership and a company with *foreign* government ownership. Plainly, the former is a greater threat to competition than is the latter. For example, predation and cross-subsidization by the US Postal Service in the American overnight mail or parcel delivery market is plausible, given that the Postal Service is 100 percent government-owned with no realistic prospect of privatization in the near future, enjoys a statutory monopoly over both the delivery of letters and access to the customer's letter box, and is subject to relatively light-handed regulation by the Postal Rate Commission.[5] The same is true of Deutsche Post and the German parcel delivery market, as the European Commission ruled in March 2001, when it found Deutsche Post to have engaged in predatory pricing in violation of Article 82 of the EC Treaty.[6] If particular members of the US Congress seek to prevent possible competitive abuses by government-owned enterprises, there is much that can

[2] Applications of VoiceStream Wireless Corp., Powertel, Inc., Transferors, and Deutsche Telekom AG, Transferee, for Consent to Transfer Control of Licenses and Authorizations Pursuant to Sections 214 and 310(d) of the Communications Act and Petition for Declaratory Ruling Pursuant to Section 310 of the Communications Act and Powertel, Inc., Transferor, and VoiceStream Wireless Corp., Transferee, for Consent to Transfer Control of Licenses and Authorizations Pursuant to Sections 214 and 310(d) of the Communications Act, etc., Memorandum Opinion and Order, IB Dkt. No. 00-187, 16 F.C.C. Rcd. 9779 (See Sidak, 2001) [hereinafter *Deutsche Telekom Order*].

[3] Acquisitions of wireless carriers in the United States are subject to the foreign ownership restrictions of the Communications Act. See 47 USC. Section 310. These restrictions are not supported by any serious economic argument. (See Sidak, 1997).

[4] Sappington and Sidak (2000); see also Sappington and Sidak (1999) <posted at http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=206474>. See also Lott (1990). It bears emphasis that the Sappington–Sidak analysis addresses the question of the plausibility of predation, not the relative efficiency of public and private enterprises in the absence of predatory behavior. On the latter question, see Cremer, Marchand, and Thisse (1989).

[5] See Sidak and Spulber (1996).

[6] Case COMP/35.141, Deutsche Post AG, C (2001) 728, OJ L 125/27, 5.5.2001 (March 20, 2001) (holding Deutsche Post liable for predatory pricing of parcel delivery services in Germany and ordering structural separation).

be done first by scrutinizing the businesses that the US government itself wholly owns and operates behind the protection of statutory monopolies and other privileges and immunities.

In contrast to the plausible anticompetitive behavior in domestic markets by public enterprises such as the US Postal Service or Deutsche Post (before its initial public offering), predation and cross-subsidization by Deutsche Telekom in the American market for wireless telecommunications services is highly *im*plausible. A critical assumption of the cross-subsidy argument is that Deutsche Telekom would use cross-subsidies to obtain a temporary competitive advantage over its rivals in the US wireless market, with the objective of eliminating competitors. That view implies that Deutsche Telekom would engage in behavior resembling predatory pricing, which is said to occur when a firm incurs a loss with the intention of eliminating rivals and later raising prices to supracompetitive levels to recoup earnings after the rivals have exited the market.[7] The published economics literature questions this argument and the Supreme Court of the United States has stated its view that predatory pricing is unlikely to succeed because (1) there is little guarantee of successful recoupment, (2) rivals can also incur losses in anticipation of future profits, and (3) new entrants will appear if prices are raised after the existing competitors have exited the industry.[8] Moreover, it is difficult in practice to distinguish low competitive prices from predatory prices and to distinguish low earnings from predatory losses.[9]

The German government's partial ownership of Deutsche Telekom during the remaining period of the company's privatization does not increase the incentive for Deutsche Telekom to engage in predatory behavior in the US wireless telecommunications market. As Professor Sappington and I have emphasized, the absence of long-run profit maximization is the critical factor behind the theory that a public enterprise will have a heightened incentive for predatory conduct. But profit maximization necessarily becomes the objective of a firm as soon as it is *at least partly* privatized and listed on a stock exchange. (The same is not true of the US Postal Service, for example, which is wholly owned by the US government and thus has no shares publicly traded on a stock exchange.[10])

This insight has critical implications for the competitive analysis of the partial government ownership of Deutsche Telekom. That partial government ownership does not relieve Deutsche Telekom from the objective of profit maximization. Because Deutsche Telekom must compete with other firms for capital, Deutsche Telekom is not free to choose predatory prices (or any other prices) that do not maximize long-run profits, and hence returns to investors. In short, because Deutsche Telekom is a publicly traded company, it must seek to maximize profit.

It is a fundamental principle of corporate law that the major shareholder of a corporation owes a fiduciary duty of loyalty to minority shareholders.[11] Even though Deutsche Telekom is a German corporation, its securities trade on not only the Frankfurt and London exchanges, but also the New York Stock Exchange. As of January 2001, nearly 20 percent of Deutsche Telekom's

[7] See, e.g., Baumol and Sidak (1994), Spulber (1989), see also Lott (1999).

[8] See Brooke Group Ltd. *v.* Brown & Williamson Tobacco Corp., 509 US 209, 224–26 (1993), Bork (rev. ed. 1993, Basic Books 1978). For a survey of the legal and economic literature on predatory pricing, including game-theoritic models that regard predation as more plausible than the courts have heretofore recognized, see Bolton, Brodley, and Riordan (2000).

[9] Bork, *supra* note 7, at 144–55.

[10] See Sidak and Spulber, Protecting Competition from the Postal Monopoly, *supra* note 4.

[11] See, e.g., Jones v. H. F. Ahmanson & Co., 460 P.2d 464 (Cal. 1969).

stock was held by US individual and institutional investors. If, as major shareholders of Deutsche Telekom, the German government and the Kreditanstalt für Wiederaufbau (the German reconstruction bank) attempted to influence the management of Deutsche Telekom to deviate from profit-maximizing behavior, and if Deutsche Telekom acquiesced to that attempt, Deutsche Telekom would expose itself to liability under American corporate law to the company's minority shareholders. Similar risk of liability could arise for Deutsche Telekom under the laws of other nations with respect to the rights of Deutsche Telekom shareholders in those nations.

Given the highly developed market for shareholder litigation in the United States, these various fiduciary duties are powerful incentives to keep the current majority shareholders of Deutsche Telekom inclined toward profit maximization. That legal duty accords with good business sense. Deutsche Telekom is in the midst of privatization. Plainly, to ensure successful share offerings in the future, the Kreditanstalt für Wiederaufbau and the German finance ministry have a powerful incentive to see that Deutsche Telekom delivers maximum value to its current shareholders, which is an objective that cannot be reconciled with a strategy of incurring predatory losses in new markets.

2. The capital-subsidy hypothesis

Opponents of the Deutsche Telekom-VoiceStream transaction alleged that Deutsche Telekom's debts are backed, explicitly or implicitly, by the full faith and credit of the German government, thus allowing the firm to borrow more than a company that faces some prospect of failure. If so, then Deutsche Telekom might enjoy an artificially low cost of capital relative to totally private firms. The capital-subsidy hypothesis, however, is not consistent with either the relevant institutional details or the data from the capital markets.

Deutsche Telekom is a private law stock corporation subject to applicable German federal law, such as the German Stock Corporation Act and German tax laws.[12] Thus, Deutsche Telekom has the same responsibilities (for example, with regard to taxation) as does any other private enterprise in Germany; nor does Deutsche Telekom enjoy tax benefits or any kind of preferential tax treatment (See footnote 12). Equally, Deutsche Telekom does not receive state aid, as European Union legislation prohibits state aids that would distort competition.[13] Deutsche Telekom's debt is not backed, explicitly or implicitly, by the full faith and credit of the German government. Deutsche Telekom does not benefit from any preferential conditions regarding access to capital, such as government guarantees. After January 2 1995, the date of Deutsche Telekom's registration in Germany's Commercial Register, liabilities incurred were no longer guaranteed by the Federal Republic of Germany.[14]

[12] Deutsche Telekom AG 1999 Ann. Rep., 1999 SEC Form 20-F, at 73–74 (2000) [hereinafter Deutsche Telekom Ann. Rep.].

[13] Treaty Establishing the European Community, art. 87, Feb. 7, 1992, O.J. (C 224) 1 (1992), C.M.L.R. 573 (1992), as amended by the Treaty of Amsterdam, Oct. 2, 1997, O.J. (C 340) 173 (1997), E.U.L.R. 25,500 (1997).

[14] *Deutsche Telekom AG, Prospectus for 200 Million Ordinary Shares in the Form of Shares or American Depositary Shares*, June 17, 2000, at 23, *available at* <http://www.eoffering.com/company/pdf/deutsche_telekom.pdf>.

These institutional details undercut the capital-subsidy hypothesis. Further evidence that Deutsche Telekom does not have a subsidized cost of capital is found in Deutsche Telekom's credit rating.

2.1. Bond ratings

Deutsche Telekom's bond ratings refute the hypothesis that the company has subsidized capital. As Table 1 indicates, in January 2001 (during the pendency of VoiceStream's license transfer application) the German government was rated at the highest possible Standard and Poor's rating of AAA. At the same time, Deutsche Telekom had a significantly lower Standard and Poor's rating of A–. As of August 2000, Deutsche Telekom's credit ratings had been higher, at AA2 (Moody's) and AA– (Standard and Poor's), respectively. At the conclusion of the 3G spectrum auction in Germany in August 2000, Deutsche Telekom's credit rating was downgraded.[15]

Deutsche Telekom's credit rating in January 2001 not only was significantly lower than the German government's credit rating, but also was below or comparable with the credit ratings of private telecommunications firms in the United States and Europe. Deutsche Telekom's bond rating was below that of SBC, Verizon, British Telecom, and AT&T and comparable with the bond rating of WorldCom, a company with a leveraged capital structure and high beta. Deutsche Telekom's credit rating is therefore inconsistent with the hypothesis that it receives a credit subsidy from the German government. The FCC expressly relied on this credit-rating evidence in its April 2001 order approving Deutsche Telekom's acquisition of VoiceStream.[16]

2.2. Weighted-average cost of capital

One can also use a weighted-average cost of capital (WACC) analysis to evaluate the hypothesis that Deutsche Telekom has preferential access to capital by virtue of its partial government ownership. The results of this analysis also refute the credit-subsidization hypothesis.

A firm's WACC is the expected return on a portfolio of all of that firm's securities.[17] The formula for WACC is simply a weighted-average of the return on equity and the return on debt: $\text{WACC} = (D/V)r_D(1-t) + (E/V)r_E$, where D is the firm's outstanding debt, E is the market capitalization of the firm's equity, V is the sum of the firm's outstanding debt (D) and the market capitalization of the firm's equity (E), r_D is the firm's average borrowing rate, r_E is the firm's

[15] *German 3G Winners Take Hit From Credit Rating Agency S&P*, Telecommunications Rep. Daily, Aug. 21, 2000 (discussing how S&P analysts planned to downgrade the credit ratings of Dutch carrier KPN NV, British Telecommunications plc, and Deutsche Telekom AG within two weeks of the auction close); Andrews, 2000, at *1.

[16] See *Deutsche Telekom Order*, *supra* note 1, at 64.

[17] See, e.g., Brealey and Myers (1996).

Table 1
Credit ratings for selected global telecommunications companies, January 2001

Carrier or government	Standard & Poor's rating	Moody's rating
German government	AAA	Aaa
SBC Communications	AA–	Aa3
Verizon Communications	A+	A1
British Telecom[a]	A	A2
AT&T Corp.[b,c]	A	A2
Deutsche Telekom[a]	A–	A2
WorldCom Inc.[a]	A–	A3

[a] Standard & Poor's: negative outlook.
[b] Standard & Poor's: negative credit watch.
[c] Moody's: on watch for possible downgrade.
Sources: Standard & Poor's ratings obtained from Standard & Poor's New York ratings desk at (212) 438–2400 on January 2, 2001. Moody's ratings obtained from Moody's New York rating desk at (212) 553–0377 on January 2, 2001.

return on equity, and t is the corporate income tax rate.[18] To estimate the firm's return on equity, I use the capital-asset pricing model.[19]

To determine whether Deutsche Telekom has preferential access to capital, I computed the weighted-average cost of capital for Deutsche Telekom and other telecommunications operators. If Deutsche Telekom's WACC is not significantly less than the WACC of its global competitors, then one must reject the hypothesis that Deutsche Telekom has the opportunity to engage in predatory tactics in the United States by virtue of its (supposedly) preferential access to capital due to its partial government ownership. In actuality, Deutsche Telekom's cost of capital is, as Table 2 shows, *higher* than that of SBC, Sprint, AT&T, Verizon, and BellSouth and is roughly equal to British Telecom's cost of capital. The FCC embraced this WACC analysis in its order approving Deutsche Telekom's acquisition of VoiceStream.[20]

In short, the theoretical argument that a firm with partial government ownership might have access to subsidized capital did not accurately describe Deutsche Telekom. At the time of its

[18] I use the tax rate of the country that hosts the parent company. For Deutsche Telekom, I use the corporate tax rate of Germany, which is 31.65 percent. See Deutsche Telekom Ann. Rep., *supra* note 11, at 72. According to Deutsche Telekom:

> German corporations are subject to corporate income tax at a rate of 40 percent on non-distributed profits and of 30 percent on distributed profits. The corporate income tax liability is subject to a 5.5 percent solidarity surcharge (Solidaritätszuschlag). This results in an effective aggregate charge of 31.65 percent on distributed profits.

Id. When calculating the WACC for foreign companies, it is important for consistency to use betas and risk premiums based on the same markets. In Deutsche Telekom's case, one could use either a beta based on a US market index with the US market risk premium, or a beta based on a German market index with the German market risk premium. (Using the beta from one market and the risk premium from another will bias the WACC calculation upwards or downwards.) I use betas based on the S&P 500 (taken from NASDAQ's web site) in conjunction with the US risk premium when calculating WACCs for all the firms, foreign and domestic, in my sample.

[19] See, e.g., Brealey and Myers, *supra* note 17, at 180.

[20] See Deutsche Telekom Order, supra note 1, at 63.

Table 2
Weighted-average cost of capital (WACC) for major telecommunications companies

Rank	Company	Weighted-average cost of capital	Government ownership (%)
1	Telmex	15.7	0.0
2	Qwest	15.7	0.0
3	Worldcom	13.5	0.0
4	Vodafone	13.3	0.0
5	France Telecom	13.0	63.6
6	Telecom Italia	11.9	3.46
7	British Telecom	11.9	0.2
8	Deutsche Telekom	11.7	58.2
9	Bell Canada	11.7	0.0
10	SBC	10.8	0.0
11	Sprint	10.1	0.0
12	Telefónica	9.9	0.0
13	AT&T	9.8	0.0
14	Verizon	8.7	0.0
15	BellSouth	8.6	0.0
16	Telstra	8.2	50.1
17	NTT	7.9	53.2
18	KPN	7.5	43.0
19	Eircom	7.4	1.1
20	Telecom New Zealand	7.2	0.0
	Average	10.7	

Note: Classes of non-traded common stock are not included in the market value of current outstanding equity.
Sources: Market risk premium from Brealey and Myers, *supra* note 17, at 146. Risk-free rate is the 10-year Treasury Constant Maturity Rate on December 15, 2000, downloaded from the Federal Reserve Bank of Chicago's web site at http://www.frbchi.org/econinfo/finance/int-rates/const_cd.prn. Betas downloaded from: http://www.nasdaq.com/. Debt borrowing rates, value of debt (which includes current maturities), corporate income tax rates, and shares outstanding taken from, or calculated on the basis of, data from companies' annual reports and publicly available SEC documents. Market prices per share downloaded on January 2, 2001 from various stock exchanges' websites and http://finance.yahoo.com/?u.

acquisition of VoiceStream, Deutsche Telekom's cost of capital was virtually the same as that of France Télécom, a company with a greater level of government ownership, and that of British Telecom, a company with no appreciable government ownership at all. Clearly, partial government ownership does not determine the cost of capital for global telecommunications carriers.

3. Conclusion

In the case of Deutsche Telekom, the FCC correctly rejected the hypothesis that the carrier's partially privatized status increased the likelihood of anticompetitive behavior in the US wireless market following the acquisition of VoiceStream. Deutsche Telekom does not benefit from subsidized capital because of its partial government ownership. Its bond ratings and weighted-average cost of capital are inconsistent with the credit-subsidization hypothesis. Moreover, Deutsche Telekom lacks the opportunity to engage in predatory behavior because, like an entirely privately owned carrier, Deutsche Telekom must pursue profit maximization, and its fiduciary duties to minority shareholders reinforce that managerial objective.

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