
MCI Communications, Corp.: Capital Structure Theory

On a cold winter morning in February 1996, Katzu Mizuno stood admiring the panoramic view of New York Harbor from the nineteenth floor of the World Trade Center. In his first five months in New York as a first-year associate for Lynch Investments, Katzu had been pleasantly surprised to have some free time to explore the Big Apple. During this period, he had found an apartment, been to Madison Square Garden for a Knicks game, attended the symphony at Lincoln Center, and had made frequent trips to a sushi bar in his neighborhood. The tranquility of the moment ended, however, with an urgent phone call from his boss, Anna Curti.

Earlier that morning, MCI Communications, Corp., a long-time client of the firm, had called seeking advice about establishing a program to repurchase some of its outstanding common stock. As **Exhibit 1** shows, throughout most of 1995 MCI's stock had been a sluggish performer in an otherwise buoyant market, and management sensed a growing restlessness on the part of shareholders. At a recent meeting of the board of directors, discussions had centered on repurchasing some of company's stock as a means to enhance shareholder value. One longtime director, Gavin Philips, pushed hard to finance the repurchase by increasing MCI's debt financing. He argued that this action would send a bold signal to the market about the future prospects of the firm. To be effective as a signal, Philips suggested that the company would need to increase its debt-equity ratio from its current level of around 40 percent to "more or less twice that." He said, "Even at that debt level, MCI's debt-to-cap would be moderate relative to the industry." He estimated that such action would require MCI to issue approximately \$2 billion in additional debt. Other direc-

This case was prepared by Susan Chaplinsky, Associate Professor of Business Administration, and Robert S. Harris, Professor of Business Administration, University of Virginia. Support for this work came from funds provided by both the Darden School Foundation and the TVA: This case is drawn entirely from public data. All persons and events recounted are fictionalized to facilitate the teaching objectives of the day. Copyright © 1997 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. To order copies, send an e-mail to dardencases@virginia.edu. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation. Rev. 3/00.

tors, concerned that the increased debt burden might impede the company's current capital-expansion program, argued for a less extreme approach. They favored an open-market purchase program instead. Under this option, the company would announce its intentions to repurchase its stock from "time to time" but only as corporate funds allowed. This course of action, therefore, did not call for any increase in debt.

On hearing the directors' concerns, a senior vice president of MCI, William Duran, called Curti to seek advice on the repurchase and particularly whether debt financing would be advisable. Duran also indicated that since the board hoped to disclose the details of its plan to improve shareholder value by the end of next week, it would be necessary to get back to him as soon as possible. Curti responded quickly: she assigned a second-year associate, Lance Alton, to gauge the possible interest in any debt securities MCI might choose to issue, and she asked Mizuno to examine the consequences of substantially increasing the firm's use of debt. She instructed both of them to report their initial findings to her the following day.

Mizuno decided to compare MCI with its major competitors in long-distance telecommunications. However, he grew somewhat alarmed when his initial screen of peer companies produced approximately 40 firms in long-distance communications.¹ He knew that all of these firms could not be considered comparable to MCI based on their business risk, the markets they operated in, and their tax and regulatory environments. After comparing them to MCI on these dimensions, he narrowed his list to certain companies. (See Table 1.)

Exhibit 2 contains financial data for the peer companies. In assembling the data, Mizuno made several assumptions to help ensure consistency across the peer firms. First, although he was not certain of the tax status of each firm, he decided to initially assume that all companies faced a 40 percent tax rate. Second, it was the usual practice at Lynch to use a market-risk premium of 7 percent, the latest estimate of the arithmetic mean return of stocks over Treasury bonds.

Mizuno recalled from his finance classes that the maximum value of the firm corresponded to the lowest overall cost of capital. Thus, he intended to estimate what the cost of equity and the weighted average cost of capital (WACC) might be if MCI pursued this capital-structure change. After discussions with other personnel at the bank, he concluded that the higher debt equity ratio would increase MCI's borrowing costs from its current level of 6.3 percent. **Exhibit 3** contains the latest capital market rates from which an estimate of the revised borrowing costs could be obtained. But what would the cost of equity (K_E) be? Mizuno decided that one approach was through "levering" and "unlevering" betas using the following equation:

$$\beta_{E,L} = \beta_U (1 + D(1 - T)/E)$$

where $\beta_{E,L}$ and β_U are the betas for levered and unlevered equity, respectively, D and E are the market values of debt and equity, respectively, and T is the corporate tax rate.²

¹The domestic companies competing with MCI in telecommunication services were Ameritech, Bell Atlantic, BellSouth, NYNEX, Pacific Telesis, SBC Communications, US West, AT&T, Sprint, Worldcom, Frontier Communication, GTE, So. New England, IntelCom, and MFS Communications. In addition, there were 25 international telecommunication services companies.

²See "The Effects of Debt-Equity Policy on Shareholder Return Requirements and Beta" (UVA-F-1168) for a discussion of the underlying principles and the rationale for the equations developed here.

TABLE 1
Description of Industry Comparables

Company	Description
Ameritech	Ameritech is a holding company for Illinois, Indiana, Michigan, Ohio, and Washington State Bells and other subsidiaries, providing communications services directly to 75 percent of the population in these states. In 10/83 Ameritech became the first regional holding company to offer cellular phone service (21 million POPS). 1994 revenue breakdown: local service, 42 percent; long-distance, 12 percent; network access, 23 percent; other, 23 percent. Purchased 49.9 percent stake in Telecom Corporation of New Zealand on 9/90 (now 25 percent after additional equity offerings). Ameritech will be among the first of the Baby Bells to offer long-distance telephone services. Bond rating AA2.
AT&T	AT&T Corporation is the world's largest long-distance telephone company. Formerly American Telephone and Telegraph, AT&T resulted from a court-ordered breakup of the Bell System in 1983, when it received about 23 percent of the former company's assets. AT&T operates in global information management, financial services, and leasing. 1994 revenue breakdown: telecommunication services, 59 percent; product and system sales, 28 percent; rentals and other, 10 percent; financial services and leases, 3 percent. Acquired McCaw Cellular in '94, NCR in '91; LIN Broadcasting in '95. Bond rating AA3.
MCI Communications	MCI Communications Corporation, the second-largest long-distance carrier, offers long-distance services domestically and internationally. Primary business is U.S. voice, using MCI's 3,556 million circuit-mile microwave and fiber network. Offers 800 Service, operator assistance, worldwide direct dialing, fax, and 900 Service. British Telecom holds 100 percent of Class A common stock representing a 20 percent voting interest. Bond rating A2.
Sprint Corporation	Sprint Corporation operates the second-largest independent-telephone system in the United States. Merged with Centel Corporation in a pooling-of-interests in March 1993. Provides long-distance services through US Sprint and local telecommunication services to 6.65 million access lines. Cellular business serves a market of 20.2 million POPs. Also has directory publishing and supply distribution operations. 1994 revenue breakdown: long distance, 53 percent; local phone, 34 percent; other, 13 percent. Bond rating BBB-.
Worldcom, Inc.	Worldcom, Inc. (formerly LDDS Communications, Inc.) is the fourth-largest long-distance carrier in the nation. The company offers long-distance service through its 15,000-mile owned-and-leased network. Serves the entire United States and points to 230 countries. The company derives a predominant share of its total revenues from sales to commercial customers. Products include: switched and dedicated lines for voice and data. Acquired IDB Communications, 12/94; WiTel Network Services, 1/95. Bond rating BBB-.

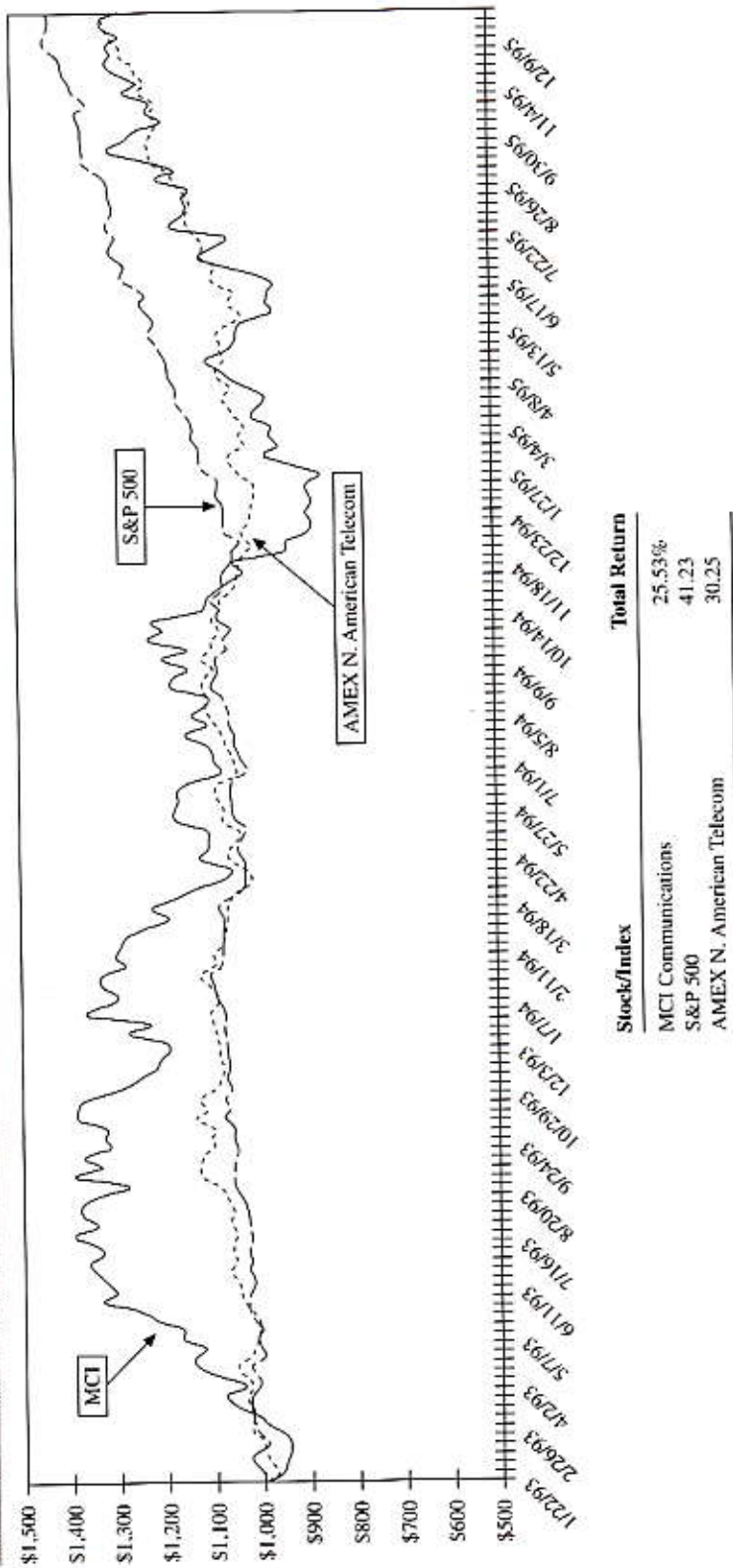
In addition to the information on peer firms, **Exhibits 4 and 5** contain the latest income statement and balance sheet for MCI. This information could be used to estimate the expected changes in earnings per share that would occur at different levels of operating income (EBIT) with a debt-financed stock repurchase. The beginnings of an EBIT/EPS analysis are formulated in **Exhibit 6**. Mizuno knew that this analysis and its implications would be of great interest to MCI's senior management.

As Mizuno prepared to tackle the analysis, he was concerned that his approach might not capture all the complexities of the decision. While shareholders' required returns typically increase as a firm uses more debt financing, he knew that the theoretical predictions of the cost of equity were only approximations. Mizuno had prepared a "to do" list from his readings on capital costs (**Exhibit 7**) and thought these might help guide him through the analysis. To be sure no issues had been ignored, he would pursue a three-pronged approach: (1) examine the effects of debt on the firm's future coverage ratios under both expected and downside cash flow projections, (2) check with Lance on the reactions gathered from potential creditors (i.e., would severe covenants be required?), and (3) review the company's need for future flexibility and consider how this financial strategy might affect business decisions.³

It would be a long night ahead. However, before he pursued these additional issues, Mizuno decided to start with the guidance theory offered.

³A useful framework for analysis is the FRICTO framework in which the analyst looks at Flexibility, Risk, Income, Control, Timing, and Other factors.

EXHIBIT 1
Telecommunications Industry Stock-Price Performance (value of \$1,000 investment made January 22, 1993, as of December 29, 1995)



25.53%
41.23
30.25

MCI Communications
S&P 500
AMEX N. American Telecom

EXHIBIT 2 Financial Characteristics for Long-Distance Telecommunications Firms

Company	Recent Share Price	Number of Shares (millions)	Market Capitalization (millions)	Incl. Current Portion + Capitalized Leases (LTD)	Total Interest Coverage (EBIT/Interest)	LTD/(LTD + Book Value of Equity)	LTD/(LTD + Market Value of Equity)	LTD/Book Value of Equity	LTD/Market Value of Equity	Long-Term Debt
Ameritech	\$ 59.50	554	\$ 32,963	\$ 4,547	7.1	0.392	0.121	0.645	0.138	
AT&T	66.88	1,592	106,473	13,073	9.6	0.392	0.109	0.645	0.123	
MCI Communications	27.75	681	18,898	3,944	6.2	0.292	0.173	0.412	0.209	
Sprint	40.00	351	14,040	5,474	4.7	0.573	0.281	1.342	0.390	
WorldCom (LDDS)	35.25	193	6,803	3,392	2.9	0.632	0.333	1.717	0.499	
S&P500	608.24									

Company	Stock Beta ¹	Estimated Year-End EPS ²	Price/Earnings Ratio ³	Annual Dividend	Dividend Payout (%)	Dividend Yield (%)	Historic		Projected	
							5-Year Growth	5-Year EPS (%) ⁴	5-Year Growth	5-Year EPS (%) ⁴
Ameritech	1.06	\$ 3.75	15.9	\$2.12	56.6%	3.6%	4.5	8.5	6.7	
AT&T	1.11	4.00	16.7	1.32	33.0	2.0%	7.0	11.5	8.9	
MCI Communications	1	1.75	15.9	0.05	2.9	0.2%	14.5	11.5	5.4	
Sprint	1.05	2.90	15.8	1.88	64.9	4.7%	17.5	13.5	6.1	
WorldCom (LDDS)	1.77	1.75	20.1	0	0	0.0%	35.0	NA	9	
S&P500	1	39.00	15.6	13.9	35.6	2.3%	7.0			

Source: February 1996 Salomon Brothers Global Equities Report and Value Line. Financial statement data are from year-end 1995.

¹Stock betas are from Bloomberg, Inc., and Value Line.

²Estimated 1996 Year End EPS.

³Based on 1996 estimated EPS.

⁴Growth rates in EPS are from Value Line.

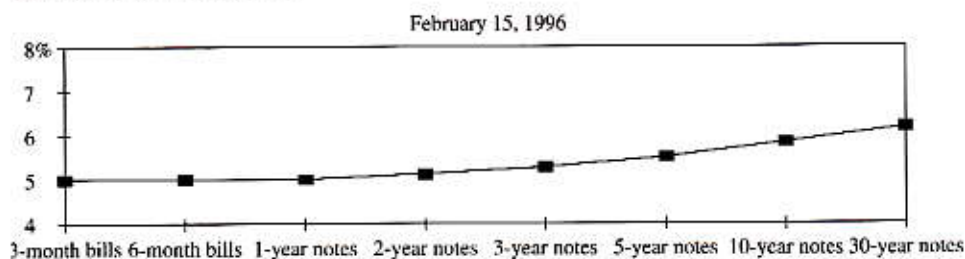
⁵Firm Value is the sum of long-term debt (LTD) and the market value of equity.

EXHIBIT 3
Capital-Market Conditions, February 15, 1996

U.S. Treasury Obligations	Yield
3-month bills	4.898%
6-month bills	4.894
1-year notes	4.832
2-year notes	4.872
3-year notes	4.977
5-year notes	5.235
10-year notes	5.697
30-year notes	6.168%

Corporate Debt Obligations (10-year)	Yield
AAA	6.030%
AA1	6.160
A1	6.190
BBB1	6.470
BB1	7.090
BB2	8.260
B1	9.420
AAA Phones	6.090
AA1 Phones	6.150
A1 Phones	6.260
BBB1 Phones	6.460%

Other Instruments	Yield
Federal Reserve Bank Discount Rate	5.125%
Certificates of Deposit (6-month)	4.633
Commercial Paper (6-month)	4.840%

U.S. Treasury Yield Curve


Data Source: Bloomberg.

EXHIBIT 4
Income Statement Year ended December 31, 1995
(in millions, except per share amounts)

REVENUE	<u>\$15,265</u>
OPERATING EXPENSES	
Telecommunications	7,813
Sales, operations and general	4,506
Depreciation	1,308
Asset write-down	<u>520</u>
Total operating expenses	<u>14,147</u>
INCOME FROM OPERATIONS	1,118
Interest expense	181
INCOME BEFORE INCOME TAXES AND EXTRAORDINARY ITEMS	937
Income tax provision	<u>364</u>
Income before extraordinary item	<u>573</u>
NET INCOME	\$ 573
Earnings applicable to common stockholders	<u>\$ 573</u>
EARNINGS PER COMMON AND COMMON EQUIVALENT SHARES	
Income before extraordinary item	\$0.84
Total	<u>\$0.84</u>
Weighted average number of common shares	<u>681</u>

EXHIBIT 5
Balance Sheet December 31, 1995 (in millions)

ASSETS	
CURRENT ASSETS	
Cash and cash equivalents	\$ 471
Marketable securities	373
Receivables	2,954
Other current assets	749
TOTAL CURRENT ASSETS	<u>4,547</u>
PROPERTY AND EQUIPMENT	
Accumulated depreciation	(5,238)
Construction in progress	1,304
TOTAL PROPERTY AND EQUIPMENT, NET	<u>10,309</u>
OTHER ASSETS	<u>4,445</u>
TOTAL ASSETS	<u>\$19,301</u>
LIABILITIES AND STOCKHOLDERS' EQUITY	
CURRENT LIABILITIES	
Accrued telecommunications expense	\$ 706
Other accrued liabilities	1,936
Long-term debt due within one year	1,728
	500
TOTAL CURRENT LIABILITIES	<u>4,870</u>
Long-term debt	3,444
Deferred taxes and other	1,385
TOTAL NONCURRENT LIABILITIES	<u>4,829</u>
STOCKHOLDERS' EQUITY	<u>9,602</u>
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	<u>\$19,301</u>

EXHIBIT 6
EPS vs. EBIT

Interest rate on old debt
Pre recap debt
Tax rate

Status Quo

Operating income (EBIT)
Interest expense
Taxable income
Taxes
Net income
Shares outstanding
EPS (status quo)

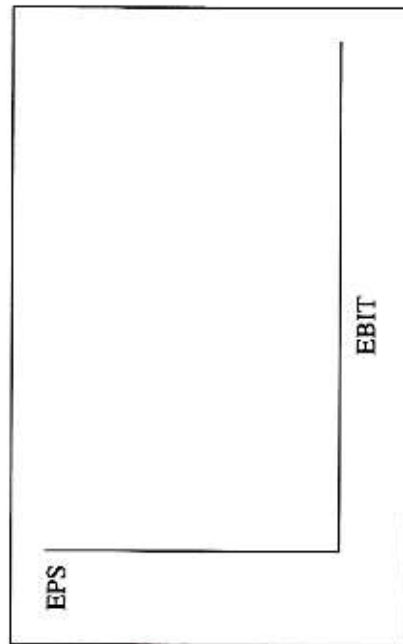
Worst Case	Most Likely	Best Case

Interest rate on new debt
Added debt
Tax rate

Additional Debt

Operating income (EBIT)
Interest expense (old + new)
Taxable income
Taxes
Net income
Shares outstanding
EPS (w/new debt)

Worst Case	Most Likely	Best Case



Analysts' Checklist for Cost-of-Capital Estimates

Principle	Why	Specific Implications
Think like an investor and be forward looking. Use financial market data.	You are estimating investor-required returns for the future. Use market values and other financial market data because that's what investors deal with.	Avoid using historical costs such as the historical interest rate. Use market value weights and forward-looking estimates of debt costs, equity costs, and tax rates.
Find comparable companies with similar business risk.	Different levels of risks carry different required rates of return.	Try to find companies that are comparable on important risk dimensions. These may include lines of business, international activity, competitive position, and strategic plans.
Be sensitive to trade-offs in looking for the best comparable versus using many companies.	If you focus on the one "best" comparable you have higher chances of large estimation errors in statistical estimates you may be using (e.g., betas). If you include a wide range of comparables, estimation errors may average out but you may not have as good a match on risk.	Look at both industry averages and specific comparables. If they differ, think about why.
Cost of equity must reflect not only business risk but also financial risk.	Shareholder required returns (and betas) are based on both business risk and financial risk introduced by the use of debt.	The cost of equity (and cost of debt) used in a WACC calculation must be consistent with the weights used. If looking at comparable companies, check to see if they have similar capital structures. One technique is to compute WACCs for each company. Another approach tries to unlever costs of equity to adjust for financial risk. The first approach assures numbers are consistent but doesn't directly address differences in debt policy. The second requires use of theoretical approximations.
Look to yields in debt markets for cost of debt.	In bond markets, yields to maturity and quotes on new issues (e.g. from banks or investment banks) provide forward-looking costs of debt.	Know your banker and debt markets well.
Use a number of models and approaches to triangulate your estimate.	Theoretical models are useful but not perfect in their application. Assumptions and comparables are sometimes hard to specify exactly. See if your results are very sensitive to what appears to be reasonable alternatives.	Try different methods to estimate cost of equity. Look at how sensitive your results are to these and your choice of comparables.
Be wary of false precision.	Estimating costs of equity and weighted average costs of capital involve many judgments and approximations. Your final estimate is subject to these approximations.	Cost of capital estimates are approximate. Narrow your range but don't think you've got it exactly right.
Match cash flows and discount rates in terms of currencies.	Increasingly, companies operate in many countries. If you are analyzing cash flows denominated in a currency (say DM), one must make sure that the cost of capital estimate reflects investor perceptions of investments in that specific currency.	There are two basic approaches. One is to estimate a cost of capital for each different currency, making sure to adjust for differential inflation among currencies. The second is to translate cash flows to a common currency using forecasted exchange rates and then use the common currency for cost of capital.