

## Mandatory Unbundling, UNE-P, and the Cost of Equity: A Rejoinder

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Abstract: A series of papers addressed the implications of unbundling on Bell Company risk. This paper shows that unbundling itself does not increase Bell Company stock volatility, but uncertainty regarding unbundling does. This finding suggests that regulators should infrequently revisit the unbundling rules.

In the Spring issue of the *Yale Journal on Regulation* we offered an empirical test of a hypothesis put forward by Thomas M. Jorde, J. Gregory Sidak, and David J. Teece (“JST”) regarding an important aspect of the Telecommunications Act of 1996.<sup>1</sup> Their initial conjecture was that mandatory unbundling increases the risk and cyclicity of Bell Company economic performance, which in turn has a negative impact on their weighted-average cost of capital. In the same *Journal* (Spring 2003) we offered an empirical test of the JST hypothesis and found no evidence to support it.<sup>2</sup>

Ingraham and Sidak (Spring 2003), in a rebuttal of our test, employ daily stock returns and an extended test period to provide some contrary evidence.<sup>3</sup> Specifically, I-S present econometric results showing a positive and statistically significant increase in the financial risk of BellSouth (only one of four firms evaluated) during the recessionary period. For the other Bell Companies, however, no statistically significant increase in risk was found. We argue, in this rejoinder, that by introducing an extension of the time period, I-S incorporate an element of risk that is *unrelated* to the recession. More specifically, a critical FCC proceeding dealing with unbundled elements was initiated in early 2002 and an order has yet to be released (as of July 2003). An important question, therefore, is

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<sup>1</sup> Jorde, Thomas M., J. Gregory Sidak, and David J. Teece, Innovation, Investment, and Unbundling, *Yale Journal on Regulation*, Vol. 17, Winter 2000, pp. 1-37.

<sup>2</sup> Ekelund Jr., Robert B. and George S. Ford, Innovation, Investment, and Unbundling: An Empirical Update, *Yale Journal on Regulation*, Vol. 20, Summer 2003, pp. 383-388.

<sup>3</sup> Ingraham, Allan T. and J. Gregory Sidak, Mandatory Unbundling, UNE-P, and the Cost of Equity: Does TELRIC Pricing Increase Risk for Incumbent Local Exchange Carriers, *Yale Journal on Regulation*, Vol. 20, Summer 2003, pp. 389-406.

whether I-S's findings of increased risk for BellSouth was the result of the recession or whether it was created by the inherent uncertainty created by the important FCC proceeding regarding unbundling. We find that latter to be a better explanation for the increased volatility of BellSouth's stock (and the stock of both SBC and Verizon).

Both papers employed a standard model of financial risk to assess the impact of the recession, which began March 2001, on Bell Company risk. Our paper used three and five years of data ending in June 2002. I-S extended the data through December 2002. The empirical model is summarized by

$$R_S = \alpha + \beta \cdot R_M + \gamma \cdot DREC + \Delta \cdot DREC \cdot R_M, \quad (1)$$

where  $R_S$  is the return on the Bell Company stock,  $R_M$  is the return on the market overall (S&P 500), and  $DREC$  equals 1 during the recessionary time period (which continues to this day). The coefficient  $\beta$  is the standard beta from financial theory, and the coefficient  $\Delta$  measures the difference in beta during the recessionary period. Given the statistical irregularities characteristic of daily stock returns (non-normal and asymmetric distributions), we employed weekly stock returns in our earlier analysis (Piero 2002; Ford 2003).<sup>4</sup> I-S employed daily stock returns, which may render reported test statistics invalid for hypothesis testing.

By extending the analysis from an endpoint of June 2002 to December 2002, I-S added to the sample an extremely volatile time for the telecommunications industry as a whole. The volatility was the result of the FCC's Triennial Review - an important proceeding in which the agency's unbundling regime was to be re-evaluated. While formally initiated in December 2001, news coverage began in earnest around February 11, 2002.<sup>5</sup>

Given the uncertainty regarding the outcome of the FCC's review, measures of telecommunication company risk are expected to increase during the proceeding. By extending the data set into the most intense phase of the proceeding may detect the risk-effect of the Triennial Review rather than the recession. To test this hypothesis, Equation (1) is re-formulated as

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<sup>4</sup> Piero, Amado, Skewness in Individual Stocks at Different Investment Horizons, *Quantitative Finance*, Vol. 2, 2002, pp. 139-146; Ford, George, *Daily Stock Returns, Non-Normality and Hypothesis Testing*, Telepolicy.com Working Paper, July 2003.

<sup>5</sup> Based on a news search in Lexis/Nexis.

$$R_S = \alpha + \beta \cdot RM + \gamma \cdot DREC + \Delta \cdot DREC \cdot R_M + \lambda \cdot DTR + \delta \cdot DTR \cdot R_M , \quad (2)$$

where  $DTR$  is a dummy variable that equals 1 during the Triennial Review period (beginning February 11, 2002). The coefficient  $\Delta$  continues to measure the risk-effect of the recession, but  $\delta$  measures the risk-effect of the Triennial Review proceeding. Given the inherent uncertainty caused by a proceeding of great importance, we expect  $\delta$  to be positive.

For consistency with I-S, we use daily return data beginning May 1999 and ending December 2002. The results of the regression for each Bell Company are summarized in Table 1. As illustrated in the table, the only statistically significant coefficients are  $\beta$  and  $\delta$  (based on asymptotically valid critical values), both having very large t-statistics. For none of the three companies is  $\Delta$  statistically significant at standard levels, but  $\Delta$  for SBC is negative and statistically significant at the 16% level (we report a similar finding in our earlier paper).<sup>6</sup>

These regression results suggest that the increased volatility of Bell stocks arose not from the recession, as JST and I-S hypothesize, but from the inherent risk accompanying an important proceeding at the FCC. Because the FCC proceeding regarded unbundling, it may be tempting to conclude that unbundling did in fact increase the financial risk of Bell company stocks. However, *the evidence suggests that it was the uncertainty about unbundling and not unbundling itself that increased risk for Bell Companies*. In this light, I-S's analysis is insufficient to rebut our conclusion that substantive unbundling requirements do not increase Bell company risk.

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<sup>6</sup> This significance level is based on the asymptotically valid critical values, which may not be valid with daily return data. Normality of the error terms is rejected for all three stocks (using the Jargue-Bera test). The t-statistics reported are sufficiently large that concerns regarding daily returns and hypothesis testing are minimal (Ford 2003). Therefore, we do not bootstrap the confidence intervals (or t-statistics).

**Table 1. Summary of Regression Results**  
**(asym. t-statistics in parenthesis)**

Company	$\alpha$	$\beta$	$\gamma$	$\Delta$	$\lambda$	$\delta$	R <sup>2</sup>
BLS	0.0001 (0.18)	0.444 (5.79)*	-0.00001 (-0.04)	0.041 (0.31)	-0.0002 (-0.08)	0.664 (4.90)*	0.22
SBC	0.0002 (0.17)	0.673 (8.31)*	-0.0006 (-0.34)	-0.195 (-1.40)	0.0005 (0.23)	0.571 (3.99)	0.20
VZ	0.00006 (0.06)	0.610 (7.86)*	0.0004 (0.22)	-0.039 (-0.29)	0.00007 (0.03)	0.485 (3.53)*	0.22

\* Statistically Significant at the 5% level or better.