

## Potential Implications of the Sprint/T-Mobile Merger on Wholesale Markets

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In 2011, the Department of Justice (“DOJ”) sought to “enjoin the merger of two of the nation’s four largest mobile wireless telecommunications service providers.”<sup>1</sup> The proposed merger of AT&T and T-Mobile, the DOJ observed, would increase the Hirschman-Herfindahl Index (“HHI”) by 700 points in an industry already classified by the HHI and highly concentrated.<sup>2</sup> This increase in concentration far exceeded the 200-point threshold for a merger “presumed to be likely to enhance market power.”<sup>3</sup> With accompanying resistance to the transaction by the Federal Communications Commission (“FCC”), the merger was abandoned.<sup>4</sup>

The DOJ’s strongly worded Complaint was sensibly read as a prohibition on any merger between two of the four nationwide providers of mobile wireless services: AT&T, Verizon, T-Mobile and Sprint. On April 29, 2018, T-Mobile and Sprint decided to put this interpretation of the DOJ’s position on wireless mergers to the test.<sup>5</sup> The proposed \$26.5 billion merger of the third- and fourth- largest wireless companies would increase the HHI by over 400 points, again blowing the lid off the presumption of market power threshold.<sup>6</sup> Consistent with this presumption, stock market evidence points to increased market power from the merger.<sup>7</sup>

Unlike the earlier proposed AT&T/T-Mobile merger, the Sprint/T-Mobile transaction has drawn significant resistance from smaller mobile

wireless providers in the pre-paid and wholesale markets. Both companies operate their own successful pre-paid brands and provide 28 million wholesale connections to Mobile Virtual Network Operators (“MVNOs”). Despite the fact that T-Mobile has launched a clandestine campaign to seek support from its MVNOs and other wholesale customers for the proposed merger,<sup>8</sup> these potential anticompetitive concerns are not lost on the Antitrust Division.<sup>9</sup>

The existence of significant vertical relationships among market competitors is a recurring issue in the regulation of information sector firms. The difficulty in opening local switched access telephone markets to competitive entry in the 1990s highlighted the profound challenges such vertical relationships can produce.<sup>10</sup> When one firm supplies a crucial intermediate input to a retail market competitor, that supplier has a powerful incentive to undermine the competitive position of the dependent rival, either through price or, if wholesale prices are regulated, via sabotage. A large literature examining this problem from both the theoretical and empirical perspectives has developed as a result.<sup>11</sup>

In the case at hand, some analysts have suggested that the poor incentives created by retail rivals who are wholesale suppliers are minimal for the Sprint/T-Mobile merger due to the relatively small share of revenues such sales represent: about 3% for T-Mobile and 5% for

Sprint.<sup>12</sup> It is not, however, these revenue shares that are most relevant for the wholesale market, but rather *the change in the retail market shares of the companies*. In this PERSPECTIVE, I review some basic economic theory on the incentives for wholesale pricing where the wholesaler supplier operates in the same retail market with its wholesale customers.

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*T-Mobile's 2017 ANNUAL REPORT suggests a gross retail margin of around \$40 per customer month (setting aside equipment revenues and costs). Given its retail market share of 16.6%, the opportunity cost of a wholesale transaction is approximately \$6.64. Adding Sprint's market share (12.3%) to T-Mobile's share, the opportunity cost for the combination of the two firms rises to about \$12. Plainly, the merger significantly raises the opportunity cost of a wholesale transaction, and we would expect the post-merger wholesale price to reflect those costs.*

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### Economic Framework

When a wholesaler supplies a retail rival, it is rational for the wholesaler to recognize that a profitable retail customer may be lost as a result. That is, the wholesale service will be used to serve a customer, and that customer might have otherwise bought the wholesaler's own retail service. Every wholesale connection sold by the firm, therefore, has an opportunity cost that reflects this reality. As a useful (if over-simplified) approximation, we may write this opportunity cost ( $t$ ) as,

$$t = c + s \cdot m, \quad (1)$$

where  $c$  is the marginal cost of the seller,  $s$  is its retail market share, and  $m$  is the profit margin on retail customers.<sup>13</sup> This expression approximates the implicit cost to the wholesaler of providing service to a retail competitor and affects the wholesaler's willingness to provide such services.

For example, if the seller of the wholesale connection has a 50% retail market share ( $s$ ), then there is an approximately 50% chance that the purchaser of the wholesale connection is then using that connection to serve an existing customer of the seller.<sup>14</sup> If a retail customer produces a profit margin of  $m$ , then the expected lost retail margin on the sale is  $s \cdot m$ , and the total cost of the wholesale transfer is  $c + s \cdot m$ , the marginal cost plus the expected lost retail margin.

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*In keeping with the antitrust tradition of asserting substantial cost savings attainable only through the merger, Sprint and T-Mobile have pointed to an annual savings of \$6 billion resulting from the proposed transaction. Much of these savings will be fixed in nature and not marginal to an account. Even counting them all as incremental, all these savings only translate to about \$4 per subscriber, which is well-below the impact on the opportunity cost of a wholesale transaction (about \$6).*

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### Some Evidence

Although this conceptualization of implicit cost is very simple, it is surprisingly consistent with some stylized facts. For example, evidence from 2000 on wholesale transactions in the (now

vanished) long-distance telephone market supported the theoretical predictions: higher retail market shares translated to less desirable wholesale prices.<sup>15</sup>

Customer count data from the mobile wireless telecommunications industry is also supportive of the theory. The theory predicts that wholesale prices will be higher, and quantities lower, for mobile wireless firms with higher retail market shares. With a retail market share of 32%, about 6.6% of AT&T's wireless subscribers are wholesale connections.<sup>16</sup> For T-Mobile, with a market share of 16.6%, wholesale customers make up about 19% of its customer base.<sup>17</sup> And for Sprint, with a smaller market share of 12.3%, wholesale customers are nearly 25% of its customer base.<sup>18</sup> While merely suggestive, these data comport with predictions, but more detailed information is desirable. As part of its merger review, the DOJ will certainly have better information with which to evaluate this issue.

Now, let's consider a somewhat crude assessment of the impact of the present merger on the opportunity cost of the combined entity. T-Mobile's 2017 ANNUAL REPORT suggests a gross retail margin of around \$40 per customer month (setting aside equipment revenues and costs).<sup>19</sup> Given its retail market share of 16.6%, the opportunity cost of a wholesale transaction is approximately \$6.64. Adding Sprint's market share (12.3%) to T-Mobile's share, the opportunity cost for the combination of the two firms rises to about \$12. Plainly, the merger significantly raises the opportunity cost of a wholesale transaction, and we would expect the post-merger wholesale price to reflect those costs.

It is common in contentious mergers that the merging parties will point to (real or imagined) cost savings to mitigate concerns about potential price increases. In effect, a reduction in costs can potentially offset, and even swamp, the tendency for concentrated markets to produce

higher prices.<sup>20</sup> For mergers in the mobile wireless sector, the more efficient use of spectrum may lead to welfare improvements.<sup>21</sup> Depending on the natures of product market competition and technology, such cost savings can make even a merger to monopoly socially beneficial. Of course, in any particular case, the magnitudes of any cost savings must be carefully assessed. Unqualified theoretical prediction is not feasible.

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### Conclusion

Like the failed AT&T and T-Mobile merger a few years ago, the proposed merger between

Sprint and T-Mobile will be presumed anticompetitive and thus heavily scrutinized by antitrust authorities. One area of attention is the wholesale market in which both Sprint and T-Mobile are active sellers. These wholesale transactions add to the competitive landscape of the mobile wireless industry.

In this PERSPECTIVE, I demonstrate that the merger's effect on the wholesale market depends, in part, on the retail market shares of the merging firms. This proposed merger greatly increases the retail market shares of Sprint and T-Mobile, and the simple analysis presented here suggests that the merger will put upward pressure on wholesale prices. Moreover, it seems unlikely that claimed merger efficiencies will be sufficient to overturn the incentive to raise wholesale prices the merger creates.

My analysis, however, is admittedly crude and preliminary. A full accounting of the

competitive effects in the wholesale market is beyond the scope of this PERSPECTIVE, largely because public data on the wholesale market is scarce. Presumably, the DOJ and FCC have access to detailed data on the wholesale market and are thus in a place to make informed judgements. As shown here, concerns about the merger's impact on the wholesale market are legitimate. In evaluating the proposed combination, attention must be given to the retail market shares of the merging firms when determining the merger's influence on wholesale prices.

## NOTES:

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<sup>1</sup> *United States of America v. AT&T Inc., T-Mobile USA, Inc., and Deutsche Telekom AG*, Complaint, Case: 1:11-cv-01560, In the United States District Court for the District of Columbia (August 31, 2011) (available at: <https://www.justice.gov/atr/case-document/file/487776/download>).

<sup>2</sup> *US. v. AT&T and T-Mobile Complaint*, *id.* at ¶ 25.

<sup>3</sup> *US. v. AT&T and T-Mobile Complaint*, *id.* at ¶ 23; see also U.S. DEPARTMENT OF JUSTICE AND FEDERAL TRADE COMMISSION HORIZONTAL MERGER GUIDELINES (August 19, 2010) at Section 5.3 (available at: <https://www.ftc.gov/sites/default/files/attachments/merger-review/100819hmg.pdf>).

<sup>4</sup> C. Albanesius, *FCC Chairman Opposes AT&T, T-Mobile Deal, Wants Hearing*, PC MAGAZINE (November 22, 2011) (available at: <https://www.pcmag.com/article2/0,2817,2396782,00.asp>); J.L. Yang, *FCC Deals Serious Blow to AT&T and T-Mobile Deal*, WASHINGTON POST (November 22, 2011) (available at: [https://www.washingtonpost.com/business/economy/fcc-deals-serious-blow-to-atandt-and-t-mobile-deal/2011/11/22/gIQAHQwYmN\\_story.html?utm\\_term=.98ba135f6d47](https://www.washingtonpost.com/business/economy/fcc-deals-serious-blow-to-atandt-and-t-mobile-deal/2011/11/22/gIQAHQwYmN_story.html?utm_term=.98ba135f6d47)); M. Reardon, *AT&T Abandons Bid for T-Mobile*, CNET (December 19, 2011) (available at: <https://www.cnet.com/news/at-t-abandons-bid-for-t-mobile>).

<sup>5</sup> A. Sherman, *Sprint and T-Mobile Agree to \$26.5 billion, and John Legere Will Be Chief, Sources Say*, CNBC (April 27, 2018) (available at: <https://www.cnb.com/2018/04/27/t-mobile-sprint-merger-near-value-at-26-billion.html>).

<sup>6</sup> Market share data available at: <https://www.statista.com/statistics/199359/market-share-of-wireless-carriers-in-the-us-by-subscriptions>.

<sup>7</sup> G.S. Ford, *Stock Market Reactions to the Sprint-TMO Merger*, PHOENIX CENTER POLICY PERSPECTIVE No. 18-04 (May 23, 2018) (available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3188066](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3188066)); C. Moffett, C. Yao, and J. Moffett, *T-Mobile Q2 2018 Earnings: Would TMUS Really Be Better Off if the Deal Doesn't Happen*, MOFFETT NATHANSON (August 1, 2018) at p. 1 (“a back-of-the-envelope pro forma that seemed to suggest the combined EBITDA of the two companies—including some four billion dollars of annual synergies—would be no better than the consensus for the two companies on a standalone basis”).

<sup>8</sup> See, e.g., S. Dang, *T-Mobile Runs Behind-The-Scenes PR Push to Support Sprint Deal*, REUTERS (August 20, 2018) (available at: <https://www.reuters.com/article/us-sprint-corp-m-a-t-mobile-us/t-mobile-runs-behind-the-scenes-pr-push-to-support-sprint-deal-idUSKCN1L512A>); E. Niu, *T-Mobile Wants Wholesale Customers to Support Sprint Megamerger*, NASDAQ (August 22, 2018) (available at: <https://www.nasdaq.com/article/t-mobile-wants-wholesale-customers-to-support-sprint-megamerger-cm1011176>).

<sup>9</sup> E. Niu, *Antitrust Regulators Are Worried About Wholesale Prices in T-Mobile-Sprint Merger*, MOTLEY FOOL (June 7, 2018) (available at: <https://www.fool.com/investing/2018/06/07/antitrust-regulators-are-worried-about-wholesale-p.aspx>).

<sup>10</sup> See, e.g., T.R. Beard, G.S. Ford, L.J. Spiwak, *Why Adco? Why Now? An Economic Exploration into the Future of Industry Structure for the “Last Mile” in Local Telecommunications Markets*, 54 FEDERAL COMMUNICATIONS LAW JOURNAL 421-460 (2002) (available at: <https://ssrn.com/abstract=503448>); G.S. Ford and L.J. Spiwak, *Lessons Learned from the U.S. Unbundling Experience*, 68 FEDERAL COMMUNICATIONS LAW JOURNAL 95 (2016) (available at: <http://www.fclj.org/wp-content/uploads/2016/01/68.1.3-Spiwak-and-Ford.pdf>); K.C. Hearle, G.C. McHenry, J.D. Reitzes, J. Verlinda, and C. Bazelon, *Vertical Foreclosure in Canadian Wholesale Services Market: Supplemental Filing*, Brattle Group (August 18, 2014) (available at: [http://files.brattle.com/files/7654\\_vertical\\_foreclosure\\_in\\_canadian\\_wholesale\\_services\\_markets.pdf](http://files.brattle.com/files/7654_vertical_foreclosure_in_canadian_wholesale_services_markets.pdf)).

<sup>11</sup> See, e.g., *Why Adco? Why Now?*, *id.*; W.J. Baumol and J.G. Sidak, *TOWARD COMPETITION IN LOCAL TELEPHONY* (MIT Press 1994); W.J. Baumol and J.G. Sidak, *The Pricing of Inputs Sold to Competitors*, 11 YALE JOURNAL ON REGULATION 717-202 (1994) (available at: <http://digitalcommons.law.yale.edu/yjreg/vol11/iss1/8>); T.R. Beard, D.L. Kaserman, J.W. Mayo, *Regulation, Vertical Integration and Sabotage*, 49 JOURNAL OF INDUSTRIAL ECONOMICS 319-333 (2001) (available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/1467-6451.00152>); D.M. Mandy and D.E.M. Sappington, *Incentives for Sabotage in Vertically Related Markets*, 31 JOURNAL OF REGULATORY ECONOMICS 235-260 (2007) (available at: <https://link.springer.com/article/10.1007/s11149-006-9015-7>).

## NOTES CONTINUED:

<sup>12</sup> *Antitrust Regulators Are Worried*, *supra* n. 9.

<sup>13</sup> *Why Adco? Why Now?*, *id.*; W.J. Baumol and J.G. Sidak, *The Pricing of Inputs Sold to Competitors*, 11 YALE JOURNAL ON REGULATION 171-202 (1994) (available at: <https://www.criterioneconomics.com/docs/pricing-of-inputs-sold-to-competitors-baumol-sidak.pdf>).

<sup>14</sup> This expectation is based on this rather simple construct. It may be that a wholesale customer serves a particular sub-market that the wholesaler has little interest in.

<sup>15</sup> *Why Adco? Why Now?*, *supra* n. 10 at Table 3.

<sup>16</sup> AT&T 2017 ANNUAL REPORT at p. 26.

<sup>17</sup> T-Mobile 2017 ANNUAL REPORT at p. 37.

<sup>18</sup> Sprint 2017 ANNUAL REPORT.

<sup>19</sup> This margin is large, but large margins are necessary to support the significant investments made in mobile wireless networks.

<sup>20</sup> O. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AMERICAN ECONOMIC REVIEW 18-36 (1968) (available at: <https://www.jstor.org/stable/1831653>).

<sup>21</sup> T.S. Beard, G.S. Ford, L.J. Spiwak and M. Stern, *Wireless Competition Under Spectrum Exhaust*, 65 FEDERAL COMMUNICATIONS LAW JOURNAL 79 (2012) (available at: <http://www.phoenix-center.org/FCLJSpectrumExhaust.pdf>).