the merger was not happening because investors feared AT&T's and Verizon's earnings at the top are subject to greater challenge by an independent T-Mobile and Sprint.

The domination at the top is a strong indicator of an already-broken market, a problem that this proposed merger of the third- and fourth-largest carriers would exacerbate.[60] The proposed contraction from four to three carriers would have a particularly corrosive impact on innovation and what few competitive incentives exist.[61] That AT&T and Verizon were able to largely avoid dropping their prices during periods in which both T-Mobile and Sprint did so, and were still able to increase their profit margins and subscribers in the face of this price competition below them, is a strong

estimator: why firms do not increase prices?" Research Institute of Applied Economics, at 25-26 (Working Paper, May 2012). ("The econometric results show that we cannot reject the idea that the average behavior of the companies operating in the oligopolistic markets is monopolistic, either before or after the merger. The retail gasoline prices in the Canary Islands have remained unaffected by the DISA-Shell merger because, prior to the merger, prices maximized joint profits and because of this, the new company had no incentive to increase prices. If we analyze the Competition Authority's decision only from the standpoint of unilateral effects, the decision to accept the merger can be considered correct. Increasing market concentration was not detrimental to consumers. <u>However, if we take multilateral effects into account, it seems that the Antitrust Authority should have examined in greater depth the impact of the disappearance of a competitor on the maintenance of a collusive agreement</u>. This recommendation is essential for the gasoline market because the empirical literature reports evidence of non-competitive behavior in this industry.") (emphasis added).

[60] As noted in the *Horizontal Merger Guidelines*, "even a highly concentrated market can be very competitive if market shares fluctuate substantially over short periods of time in response to changes in competitive offerings." *Horizontal Merger Guidelines* at 18. However, this is not the case in the U.S. wireless market, where the shares of the top two carriers have stayed largely constant relative to the shares of the bottom two carriers, only declining slightly over the past half decade.

[61] *See id.* at 15 ("Market shares can directly influence firms' competitive incentives. For example, if a price reduction to gain new customers would also apply to a firm's existing customers, a firm with a large market share may be more reluctant to implement a price reduction than one with a small share. Likewise, a firm with a large market share may not feel pressure to reduce price even if a smaller rival does.").

indicator of the market's existing lack of effective competition. Indeed, the *Horizontal Merger Guidelines* state:

> If a firm has retained its market share even after its price has increased relative to those of its rivals, that firm already faces limited competitive constraints, making it less likely that its remaining rivals will replace the competition lost if one of that firm's important rivals is eliminated due to a merger.[62]

In sum, both Sprint and T-Mobile have proven to be critical sources of marketplace competition that has in recent years resulted in tangible consumer benefits. Indeed, the market had four national carriers prior to the government's rejection of the AT&T/T-Mobile merger, yet still showed no signs of effective competition. It wasn't until T-Mobile received an infusion of cash and spectrum in the 2012-2014 period that the market finally started to show signs of effective competition and to produce pro-consumer competitive outcomes. This strongly illustrates why it is critical to maintain Sprint and T-Mobile as independent firms, and why market contraction to just three carriers would be a disaster. The elimination of the two "maverick" firms currently running as the third- and fourth-place carriers would more than fully restore AT&T's and Verizon's pre-2012 market power, and would remove the only sources of what little pricing discipline currently exists in the wireless space.

There's simply no good argument against the inescapable conclusion that contracting to three carriers would lead to price increases and to unilateral and coordinated harms. The merging parties' hypothesis to the contrary is neither borne out by the historical evidence in the U.S. market, nor suggested by comparative analysis of

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[62] *See id.* at 18.

wireless markets in other nations, where the axiom of "more competitors equals more competition" proves true.[63]

E. There is no Prospect of Competitive Entry that Could Mitigate the Unilateral Harms and Coordinated Effects Resulting from This Merger.

Horizontal mergers of this size raise particular concern in markets where competitors are unable to enter sufficiently and quickly. In the wireless market – and particularly the wireless data market – sufficient new entry is impossible, and the smaller firms lack the ability to quickly and efficiently expand output at levels needed to offset the unilateral and coordinated harms that grant of the Application would cause.

No new firm has successfully entered the facilities-based cellular telephony and data market in the past two decades, and with the massive amount of consolidation many have exited.[64] This lack of successful entry combined with increasing margins[65] is a

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[63] There are at least two major international comparative market studies that provide strong evidence that markets with three carriers produce worse competitive outcomes than markets with four or more carriers. *See* Working Party on Communications Infrastructures and Policy, OECD, "Wireless Market Structures and Network Sharing," at 17 (Jan. 8, 2015) ("Competition in mobile markets benefits consumers by offering them better services, quality and price discipline. Particularly in countries with four or more mobile operators these benefits are visible through more competitive and more inclusive offers and services that are generally not available in countries with three mobile operators."); Price Waterhouse Coopers, "Grasping at differentiated straws: Commoditization in the wireless telecom industry" (Feb. 2018) (showing that markets with four or more carriers tend to have lower prices and exhibit behavior closer to a commoditized market, with low spreads in market share and ARPU; while markets with three carriers exhibit behaviors of a "comfortable" market, with high spreads in market share spread and ARPU).

[64] The only facilities-based carriers to enter the market in the past two decades are Clearwire in 1998, and Qualcomm's spin-off Leap in 1999. Clearwire did not enter the national market for integrated mobile voice and data. AT&T later acquired Leap. AT&T, Press Release, "AT&T Completes Acquisition of Leap Wireless" (Mar. 13, 2014).

[65] *See supra* Figure 6. This data showed that prior to T-Mobile's post-2012 revitalization, the margins of the two carriers at the top increased while Sprint and T-Mobile saw theirs decline.

strong indicator that market entry is incredibly difficult.[66] New entrants would have to amass substantial spectrum assets, navigate local and federal regulations, and incur substantial fixed deployment costs prior to signing up a single customer. In addition, the high valuation of existing leading firms indicates intangible assets that a new entrant would not be able to sufficiently and quickly duplicate.[67]

Even if timely entry were possible, the existing market structure would makes such entry would insufficient to mitigate the unilateral and coordinated harms of Applicants' proposed merger. In the cellular service market, AT&T and Verizon increasingly rely on bundled vertical content to differentiate themselves.[68] This practice, along with substantial switching costs, creates insurmountable barriers to effective entry.[69]

Any remaining regional carriers already have very little AWS, 600 MHz, and 700 MHz spectrum, and no millimeter wave spectrum (and little expectation they'll acquire it at auction based on recent history). Plus, they rely on the national carriers for data

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[66] *See Horizontal Merger Guidelines* at 28 ("Lack of successful and effective entry in the face of non-transitory increases in the margins earned on products in the relevant market tends to suggest that successful entry is slow or difficult.").

[67] *See id.* ("Market values of incumbent firms greatly exceeding the replacement costs of their tangible assets may indicate that these firms have valuable intangible assets, which may be difficult or time consuming for an entrant to replicate.").

[68] *See, e.g.*, Jacob Passy, "Why a T-Mobile-Sprint merger could be 'devastating' for consumers," *MarketWatch* (Apr. 30, 2018) ("One big reason why regulators could block the deal is the role TV and internet services now play in the wireless market. As Kagan described, there's a divide among the major carriers between those that offer bundled services including TV and internet (AT&T and Verizon) and those that don't (Sprint and T-Mobile). Only having one company in the latter category could have caused prices to go up.").

[69] *See Horizontal Merger Guidelines* at 29 ("Even where timely and likely, entry may not be sufficient to deter or counteract the competitive effects of concern. For example, in a differentiated product industry, entry may be insufficient because the products offered by entrants are not close enough substitutes to the products offered by the merged firm to render a price increase by the merged firm unprofitable.").

roaming (at terms set by the national carriers). There's simply no prospect of existing carrier expansion to act as a sufficient check on the market power of the strengthened post-merger triopoly that would result from grant of the Application in the instant proceeding.

Applicants contend there are several other firms that are on the verge of market entry, and that this will discipline wireless market competition. This is simply not the case. Cable companies Comcast and Charter have very limited wireless offerings which are not competitively-priced as direct alternatives to T-Mobile's and Sprint's. These offerings are largely designed as a value-add product for high-ARPA bundling households,[70] in order to reduce churn. Furthermore, cable companies are regional, and rely heavily on Verizon's network. (The same is true for Altice's ambitions, though its facilities agreement is with Sprint).

Applicants also hold up Dish as an option, but their is little reason to expect Dish will ever launch a nationwide, competitive service, certainly not in the foreseeable future. What's more, Dish's current plans (which it may not be able to achieve) are for a narrowband IoT network, not a full broadband network offering a nationwide integrated mobile voice and data service that competes in the retail market with T-Mobile and Sprint, or with the other national carriers.[71]

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[70] *See supra* note 16 (indicating that XFINITY Mobile is only available for existing Comcast internet access service customers, who can then choose to pay an additional amount just to access any quantity of 4G data).

[71] *See* Sarah Barry James and Waqar Jamshed, "Analysis: Debt load, build-out deadlines complicate DISH's wireless ambitions," *S&P Global Market Intelligence* (Aug. 7, 2018).

IV. Applicants' Claimed Efficiencies of the Merger Are Speculative, Non-Merger Specific, and Non-Cognizable, and They Would Not Outweigh the Adverse Competitive Impacts of this Transaction.

A. Applicants' Claims of Accelerated 5G Deployment Are Vastly Overstated, as Are Their Claimed Benefits from Accelerated Deployment.

The Applicants' primary claimed benefit from the proposed merger is acceleration of their deployment of the next-generation wireless networking standard, so-called 5G.[72] As was the case with 4G technology, much of the discussion around 5G is marketing hype.[73] While there are potential benefits of true 5G technology, most of the real-world use cases are already possible with existing advanced 4G networks. Therefore, even if the Applicants' claims about actually accelerating 5G deployment were real, the measurable benefits of this modest acceleration in availability of 5G access (from one of what would be three post-merger national carriers) would be virtually non-existent, relative to likely use cases. This is particularly true for T-Mobile's and Sprint's proposed 5G deployments which will largely rely on non-millimeter wave spectrum for the present.[74]

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[72] 3GPP recently certified a standalone 5G standard, though there is still apparently more work to be done at the standards bodies, in addition to physical deployments. *See* Monica Alleven, "3GPP puts finishing touch on Standalone version of 5G standard," *FierceWireless* (June 14, 2018).

[73] *See, e.g.*, Ian Morris, "Vodafone CTO: 5G Is Overhyped & It's Mainly About Cost," *LightReading* (Nov. 15, 2017); Karl Bode, "5G Wireless Broadband is Being Ridiculously Overhyped," *DSL Reports* (Apr. 24, 2018) ("For example Eric Xu, current Huawei Chairman, recently argued that consumers will ultimately 'find no material difference between 5G & LTE.'").

[74] Millimeter wave spectrum, deployed in a dense network architecture, is required for some of the more robust hypothetical use cases for 5G, as it enables the lowest-latency/highest-speed transmissions that are often cited as 5G's primary evolutionary benefit. However, Sprint's and T-Mobile's mobile 5G plans largely involve 600 MHz or 2.5 GHz spectrum bands. *See, e.g.*, T-Mobile Press Release, "T-Mobile Building Out 5G in 30 Cities This Year . . . and That's Just the Start" (Feb. 26, 2018); Sprint, Press Release, "Sprint Announces New York City, Phoenix and Kansas City Among First to Experience Sprint 5G" (May 15, 2018).

But there is ample evidence indicating that Applicants' 5G investment claims are bogus. The Commission and DOJ have been down this road before. To sell their proposed merger, AT&T and T-Mobile made similar claims about how they <u>needed</u> to merge in order to deploy 4G LTE technologies. They claimed T-Mobile had "no clear path" to LTE without the merger,[75] which was completely wrong.[76] AT&T also claimed its 4G LTE deployments would stop at approximately 80 percent of the U.S. population.[77] Not only was this completely wrong, but AT&T achieved nationwide 4G LTE coverage faster <u>without</u> acquiring T-Mobile than it claimed it could had the firms merged.[78]

T-Mobile and Sprint's primary claimed benefit from the merger is that they would "invest nearly $40 billion to bring the combined company into the 5G era over the next three years, or approximately three times the amount that T-Mobile would have invested

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[75] *See Applications of AT&T Inc. and Deutsche Telekom AG For Consent To Assign or Transfer Control of Licenses and Authorizations*, WT Docket No. 11-65, Description of Transaction, Public Interest Showing and Related Demonstrations, at 1 (filed Apr. 21, 2011) ("AT&T/T-Mobile Application") ("In this transaction, AT&T Inc. — an American company on the leading edge of mobile broadband innovation – is acquiring T-Mobile USA, a Deutsche Telekom subsidiary with declining market shares and no clear path to Long Term Evolution (LTE), the gold standard for advanced mobile broadband services.").

[76] *See* Comments of John Legere, President & CEO, T-Mobile US Inc., Third Quarter 2015 Earnings Call (Oct. 27, 2015) ("You're the first to hear officially that we now cover 300 million LTE POPs. This was our goal for the end of 2015, and we achieved the milestone months ahead of schedule.").

[77] *See* AT&T-T-Mobile Application at 54-55 ("As a result of this transaction, AT&T can increase its LTE deployment from 80 to more than 97 percent of the U.S. population. . . . AT&T's current (pre-merger) plans call for deployment of LTE to approximately 80 percent of the U.S. population but no more.").

[78] *See, e.g.*, AT&T, Press Release, "AT&T 4G LTE Network Reaches More Than 300 Million People" (Sept. 4, 2014). AT&T indicates its 4G LTE network now reaches more than "317 million Americans." *See, e.g.*, Jon Brodkin, "T-Mobile and Sprint don't need to merge for 5G – they said so two months ago," *Ars Technica* (May 1, 2018) (citing www.att.com/offers/network.html). Archive.org contains a cached version of this page with the same population count as of December 2016. *See* https://web.archive.org/web/20161222074213/https://www.att.com/offers/network.html.

on its own without the merger."[79] Of course not mentioned is the amount that both Sprint and T-Mobile would have spent over the next three years. This omission is important, because if we examine the "but-for" scenario, we see that the marginal investment attributed to the merger is very small, the acceleration of investment is very small, and it may not be real.

T-Mobile's capital expenditure guidance is approximately $5.3 billion in 2018, and $5.4 billion in 2019.[80] Sprint's capital expenditure guidance for calendar year 2018 is $6 billion (not including capital expenditures for leased devices; with leased devices, the total would top $10 billion).[81] Though they've not given guidance for revenues, the combined companies took in approximately $74 billion in 2017. This equates to a combined company capital intensity value of 15.2 percent (capital intensity is capital expenditures as a percentage of revenues). This implies that in the but-for world, the two firms would invest just under $34 billion over the next three years, <u>if revenues were static or 2018 guidance held for 2019 and 2020</u>. That is, the three-year combined capital investment for the two companies without the merger would likely be higher than $34 billion, assuming each company's current capital intensity and modest revenue growth.[82]

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[79] Application at 15.

[80] T-Mobile US, Inc., Current Report, Form 8-K (May 1, 2018) ("Cash purchases of property and equipment, excluding capitalized interest, are expected to be between $4.9 and $5.3 billion, unchanged from the prior guidance. This includes expenditures for 5G deployment.").

[81] Sprint Corporation, Current Report, Form 8-K (May 2, 2018) ("The company expects cash capital expenditures excluding leased devices to be $5 billion to $6 billion.").

[82] T-Mobile's revenues increased more than 8 percent during 2017 from the prior year. Sprint's revenues were flat.

Thus, at best, the merging firms are claiming a total capital investment acceleration of $6 billion over a three-year period. This equates to merely a six-month acceleration of 2021 investments into 2020. However, it is important to note that these figures (and Sprint's $6 billion capital investment guidance for 2018) excludes a substantial portion of Sprint's capital investments. Between April 1, 2017 and April 1, 2018, Sprint's total capital expenditures were $10.8 billion. This amount included $3.3 billion in network capital investment, and $7.5 billion in leased device capital investment. Thus we see that in the coming months Sprint is already committing to a substantial increase in its network spend. But the merging parties have not given an indication of the fate of Sprint's leased device program after the merger. Given that T-Mobile is the acquiring party, it is entirely possible that New T-Mobile would end Sprint's leased device program in favor of T-Mobile's EIP. If so, this implies that the merged firm would actually invest $8 billion less than the stand-alone firms would over a three-year period.[83]

But the issue of the merger's impact on investment timing aside, it is clear that the impact of the merger on 5G deployment and adoption would be modest, at best.

i. Applicants Previously Outlined their Plans to Each Fully Deploy 5G Technology Across their Respective Service Footprints.

Applicants claim that they without the merger they "would be unable . . . to deploy a fully capable 5G network as quickly or as cost efficiently as New T-Mobile."[84] But T-Mobile and Sprint each independently have committed to deploying 5G

[83] This assumes standalone T-Mobile's total capital spend would be $16 billion during 2018-2020 (based on current guidance), and standalone Sprint's total capital spend would be $32 billion during 2018-2020 (based on current guidance and current total capital investments).

[84] Application, App. B (Declaration of Neville R. Ray), ¶ 4.

technologies across their networks within the same time period the firms now promise with the merger.[85] Sprint has promised a nationwide 5G network by the end of 2019, and T-Mobile has indicated it would fully deploy its 5G network by the end of 2020.

In November 2017, T-Mobile Chief Technology Officer ("CTO") Neville Ray told an audience gathered at Mobile World Congress in Barcelona "we're committed to drive a 5G rollout by 2020 across the nation."[86] Ray offered details there on the company's path to 5G, which included its "focus on densification from a small cells perspective." He explained that the company would have "5,000-plus" unique small cells on top of its Distributed Antenna Systems ("DAS") by the end of 2017, and planned for 20,000 more in 2018, which he described as "tremendous." Ray also noted that T-Mobile was already a leader in speeds, which he indicated are "a great proxy for capacity" to customers, and that the 2018 small cell deployment would increase that headroom which the company would "draw down as capacity needs dictate." As we discuss below, these comments reflect the existing reality of excess capacities at T-Mobile and Sprint, which the companies' Application also suggests would hold in the absence of the merger.

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[85] *See, e.g.*, Mike Dano, "Sprint promises to launch nationwide mobile 5G network in first half of 2019," *FierceWireless* (Feb. 2, 2018) ("'We're working with Qualcomm and network and device manufacturers in order to launch the first truly mobile [5G] network in the United States by the first half of 2019,' Sprint CEO Marcelo Claure said today during the carrier's quarterly earnings conference call with investors. 'This development will put Sprint at the forefront of technology innovation on par with other leading carriers around the world. . . . We believe our next-gen network will truly differentiate Sprint over the next couple of years.' That timeline would put Sprint ahead of T-Mobile in terms of launching nationwide mobile 5G; T-Mobile has promised to start its launch in 2019 and finish it in 2020.").

[86] *See* Comments of Neville R. Ray, Chief Technology Officer and Executive Vice President, T-Mobile US, Inc., Morgan Stanley European Technology, Media & Telecom Conference (Nov. 16, 2017).

Just one month prior to the public announcement of the merger with Sprint, T-Mobile's CTO again confirmed the company's 2020 completion date for its 5G deployment plans. He also explained how its existing advanced LTE network will have more than enough capacity for the foreseeable future, how its 5G and LTE technologies will complement each other, the company's excess spectrum capacity, and how T-Mobile would beat AT&T and Verizon to market with 5G.[87] Despite these earlier repeated and detailed statements on its nationwide 5G deployment plans, and its network's superior capacity and room for growth, T-Mobile now wants everyone to believe that without the government's blessing to wipe out its closest competitor T-Mobile will be "unable" to do what it just said it was going to do. This little magenta lie simply is not true.

Like T-Mobile, Sprint too outlined its nationwide 5G deployment plans just ahead of the news of the merger. While T-Mobile's 5G plans involves small cell densification and deployment on its recently-acquired 600 MHz spectrum, Sprint's plans center around densification, "massive MIMO" (multiple-input-multiple-output) antennas, dark fiber

[87] *See* Comments of Neville R. Ray, Chief Technology Officer and Executive Vice President, T-Mobile US, Inc., European and Emerging Telecoms Conference (Mar. 20, 2018) ("[W]e want to build out nationwide 5G. And I want to make sure that folk have an ever-improving smartphone experience. And we have up to 50 megahertz, or 25 plus 25 megahertz of 600 megahertz spectrum to deploy. That is very meaningful. And a great thing in the 5G radio is it can combine though dual connectivity, it can combine with the LTE layer; so if you think about 4G or 3G, you live in one or the other; you can move between the two, but you can't live in both. In the 5G world, you can live in LTE and 5G and combine and compound the benefits of the two radios. And so for us, as we rollout the 5G layer in 600 megahertz and push towards nationwide, we are going to start lighting up huge spots of geography and we're already starting it in 2018 from a build perspective. But in '19, there's going to be a lot of 5G available to our customers in the U.S. and I compare and contrast that to the pockets of millimeter wave 5G that will exist from Verizon and AT&T, and I think that's going to be tremendous for our brand, for our messaging and for our customers.") (emphasis added).

deployment, and utilization of Sprint's large 2.5 GHz spectrum assets.[88] Sprint's 2018-2019 network improvement plans are substantial, and as described would certainly aid the company's already-impressive turnaround.

Just a few weeks prior to agreeing to merge with T-Mobile, Sprint laid out in detail its plan to deploy "the first national wireless 5G network in 2019."[89]

> "From a timing point of view and what do we expect to do, we expect to roll out 5G on a national-wide basis. We have announced [a] few plans – [a] few projects in order to make it work. First, expand our macro cell sites. So we have said that in the next coming years, we will expand our macro cell sites by roughly 20 percent. It takes a bit of time in order to do that because we didn't – we have not built any site[s] in the past few years. So we have to reignite the machine to ramp up, but that's underway, so that will catch up probably more late 2018, 2019 rather than let's say early 2018. Then we are bringing all of our spectrum on our sites, meaning today, we have sites which have only 800 MHz or 1900 MHz or 2.5 GHz. . . . Only 50 percent of our sites today have 2.5 GHz. So we are in a massive upgrade plan. We have started on thousands of sites, in order to bring all the[ ] spectrum on all the sites. The intent is to bring all three bands on all the sites as quickly as possible. That's a massive 2018 program. It will finish in 2019, but most of it will be achieved in 2018."

And as would be true for all carriers (including AT&T, Verizon, and even New T-Mobile), Sprint's CTO noted how incremental improvements to its 4G network would massively increase capacities above projected demand for the foreseeable future, as it also rolls out a national 5G network.[90] Sprint's confidence in its network improvement

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[88] *See, e.g.*, Comments of John C. B. Saw, Chief Technology Officer, Sprint Corporation, Citi 2018 Global TMT West Conference (Jan. 10, 2018).

[89] *See* Comments of Michel Combes, President, CFO & Director, Sprint Corporation, 26th Annual Media, Telecom & Business Services Conference (Mar. 7, 2018) (emphases added) ("Combes Comments").

[90] *Id.* ("Massive MIMO is a way to really improve quality of the network in terms of speed, 10 times LTE speed; in terms of reach, meaning extending the coverage; and in terms of bandwidth, at the edge of the cell, so which means a much better experience for the customer. So there, we intend to start in Q2 this year to roll [out] Massive MIMO. . . Massive MIMO . . . to introduce smoothly 5G, meaning that as soon as 5G in our

plans and its ability to finally leverage its 2.5 GHz spectrum advantages, expressed repeatedly in the months leading up to the merger announcement, stand in stark contrast to the tales of woe in the Application. It is simply impossible to square Sprint's March 2018 statement that "we have the next few years where we have a clear advantage"[91] with the Application's claim that "Sprint's standalone future will not be one that allows it to be an effective competitor to Verizon and AT&T on a nationwide basis."[92]

ii. Applicants Overstate the Transaction's Benefits Related to 5G Deployment.

Applicants also vastly overstate the overall benefits, as well as the temporal benefits, of their merger's supposed accelerated deployment of 5G technology. Independent analyst projections indicate only a tiny difference in 5G adoption levels between the merger and no-merger scenarios.[93] Figure 8 below presents a recent analysis from analyst firm Strategy Analytics. The firm did find that the T-Mobile/Sprint merger

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software will be available, probably by the end of the year, we'll be able from a software point of view just to switch on to 5G, our Massive MIMO sites. . . . [O]ur intent is to have . . . a national 5G network in first half of 2019.") (emphases added).

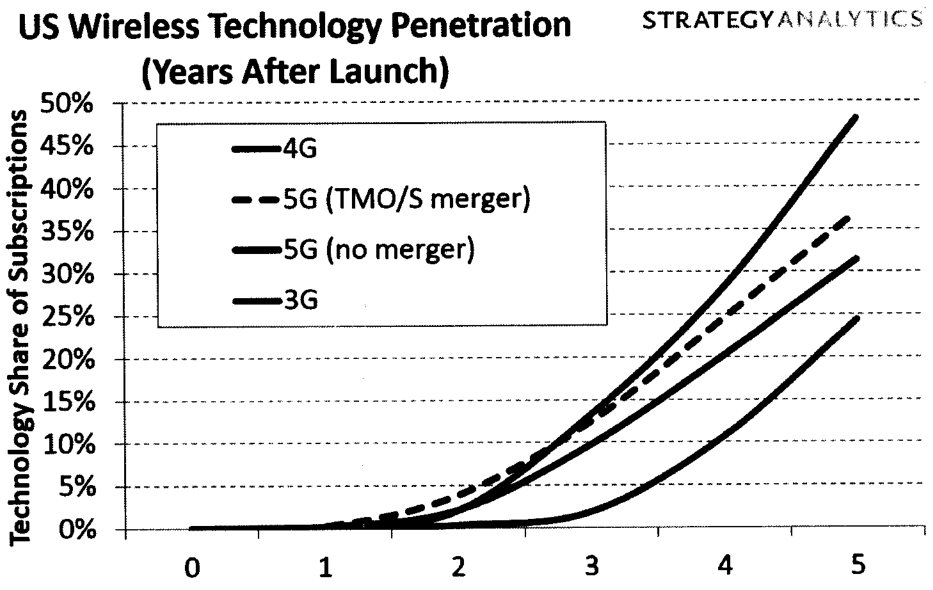
[91] *Id.* ("We have a unique opportunity to regain leadership in network, leveraging 5G. So, why should we miss it? That's now that we have to invest because we will enjoy the free – of course, our competitors at some stage will find additional spectrum or will invest massively even if they don't have the best spectrum. But we have the next few years where we have a clear advantage. So, let's play it. So, you can expect from us, and that's what we have guided the market, that we will invest more in the next 2 to 3 years. . . . Last but not least, it's also very good to invest earlier than later in 5G for two reasons. First it will support our unlimited offers. So that will help us to continue the race for unlimited, where some of our competitors might be a little more reluctant. And second, it reduces the cost per megabyte, because with the spectrum that we have, with the efficiency of 5G, we can reduce our cost to operate network. So on one side, we will continue to streamline the organization. On second, we will get the benefit of this 5G transition in terms of data cost." (emphases added).

[92] Application at 98.

[93] *See, e.g.*, Mike Dano, "Opposition to Sprint/T-Mobile merger rallies around '#All4Price'," *FierceWireless* (May 31, 2018).

would accelerate 5G adoption somewhat. That is not a surprising result, given that a horizontal merger would produce capital synergies (though integration headaches could of course thwart this prediction). Strategy Analytics estimated that five years after 5G launches, the merger-case has 37 percent of all wireless subscriptions on 5G. However, this is barely an improvement over the no-merger case, which shows an overall 5G adoption level of 32 percent. That is, the merger is (at best) only expected to produce a 5 percent marginal adoption benefit after five years, across all carriers (see Figure 8).[94]

Figure 8:
U.S. Wireless Technology Penetration Timelines



Source: Strategy Analytics

One of the authors of the Strategy Analytics' report also notes that "everything comes at a cost. Operators in three-player markets enjoy EBITDA margins 3-4 percentage points higher than those in four-player markets so a merger on this scale may

[94] Note that in this projection the 5G curves are more shallow than the 4G curve. This is because from the consumer perspective, 5G's marginal benefits are very minor, at least in the short-to-medium term. This is because the difference in capability between 3G and 4G was very big, particularly as the smartphone era became mature. But the difference between 4G and 5G in terms of speeds is not that large from a consumer standpoint.

weaken price competition and increase operator profits."[95] This risk hardly seems worth the very small potential gain in 5G adoption.

To be clear, availability of 5G is only part of Applicants' claimed benefits of New T-Mobile. The other is enhanced capacity. But as we describe throughout this Petition to Deny, there's scant evidence that there will be demand for capacities that cannot met be more than adequately by Applicants using their existing and planned networks.

For example, T-Mobile claims its planned standalone 5G network would have broad coverage, but lack capacity.[96] This claim is misleading, however, for numerous reasons. First and foremost, it completely ignores the fact that T-Mobile will no doubt acquire additional spectrum at future auctions or on the secondary market.[97] But this claim also ignores the fact that there likely will be little need for any additional excess capacity given the longevity of its 4G network. T-Mobile failed to establish its need for additional spectrum specifically for 5G. Its arguments boil down to speculative use cases

[95] *Id.* The 17 percent "uplift" predicted by these analysts and quoted in the *FierceWireless* story is the percent difference between an approximate 37 percent 5G adoption level and a 32 percent adoption level after five years.

[96] Application at 20.

[97] The failure of Applicants to adequately account for future spectrum auctions and/or secondary market spectrum transactions, and their failure to include more reasonable estimates of future data consumption, render their predictions unreliable and unreasonable approximations of the real world. The legal standard of the Commission's merger review (and for Section 7 too) requires assessment of probabilities, and it is clear that any reasonable model has a high probability that Applicants and their remaining competitors exercise the increased pricing powers the merger would occasion. The courts have found that economic models are inherent simplifications of the real world and thus "imprecise tool[s]," *United States v. H&R Block, Inc.*, 833 F. Supp. 2d 36, 88 (D.D.C. 2011). Accordingly, courts have recognized that an economist's quantitative analysis is probative if it is a "reliable, reasonable, close approximation" of the real world. *Id.* at 72. In the instant case, Applicants' models and predictions are certainly not close approximations of the real world, as they both are contradicted by recent history as well as the Applicants' repeated statements about their future expectations of market supply and demand.

for the select areas in which it won't hold millimeter wave spectrum (which T-Mobile could acquire in the upcoming millimeter wave auctions). But none of these hypothetical use-cases even arguably require T-Mobile to have additional, specific 5G spectrum in the short term. Regardless, T-Mobile's arguments do not offer a cognizable merger benefit that outweighs the lasting harm of a loss of a value-focused nationwide carrier.

Applicants also argue that Sprint's 5G network would lack nationwide coverage.[98] What this argument fails to account for, however, is the competitive benefits where Sprint would operate, how that is a critical component of the competitive forces that discipline the carriers with larger national footprints, and how this shortcoming has in fact benefited competition during the 4G LTE-era.[99] Indeed, Sprint's CFO made this clear in March when he stated "we are still the most aggressive players in the marketplace. We had to compensate a little bit for this bad perception by more aggressive pricing."[100]

Even considering the speculative predictions about future carried capacity offered by Applicants, it is clear that the standalone firms would have **[BEGIN HIGHLY CONFIDENTIAL INFORMATION]**

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[98] Application at 23-24.

[99] With consolidation wiping out most regional carriers, Sprint's modest geographic shortcomings in part force the company to more aggressively compete nationally on price and non-price dimensions. If the market further consolidates to three equal-sized (in terms of national coverage and quality) firms, consumers will only see "competition" in the form of product add-on differentiation, similar to the offerings of mid-2018 (*e.g.*, Sprint's bundling of Hulu, T-Mobile's bundling of Netflix, AT&T's bundling of DirecTV Now). In other words, it is likely whatever value is lost by not having Sprint's newer networks deployed to the entire country (like the other three national carriers) is more than outweighed by Sprint's subsequent need to compete more aggressively on price in order to make up for this perceived shortcoming.

[100] He continued, stating "it's obvious that once you change the perception, we would be able to close the gap in terms of pricing, [ ] which will give us some support to reignite growth for our wireless revenue." *See* Combes Comments. This is a strong indicator of what is to come post-merger: the end to price competition in the U.S. wireless market.

[END HIGHLY CONFIDENTIAL INFORMATION][101]

The Applicants hang their benefits hat largely on the notion that the average "national practical capacity per month per smartphone subscriber" for all carriers would be **[BEGIN HIGHLY CONFIDENTIAL INFORMATION]** **[END HIGHLY CONFIDENTIAL INFORMATION]**[102] But this wildly speculative prediction glosses over several factors. The most obvious is the fallacy that additional excess capacity would be utilized. Given that networks **[BEGIN HIGHLY CONFIDENTIAL INFORMATION]** **[END HIGHLY CONFIDENTIAL INFORMATION]**, this assumption is likely wrong. Second, like other parts of the Application, this prediction of capacity use assumes current spectrum holdings, when the Commission is on the verge of auctioning new 5G spectrum (and of course Applicants can seek other deals or partner with each other to share spectrum).

This analysis also highlights a critical slight-of-hand in the Applicant's public interest benefits case: the purposeful confusion of price-per-GB with the actual price paid for monthly services. Applicants' claims are based on a theoretical **[BEGIN HIGHLY**

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[101] Application at 42-43.

[102] *Id.* at 52-53.

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[END HIGHLY CONFIDENTIAL INFORMATION] and a speculative series of assumptions about what prices each national carrier would charge for those unlimited plans. But never discussed is the likelihood of what the merger would do to the various carriers' specific prices and plan compositions, and how the merger would impact competition for value-focused customers (as opposed to those specifically seeking to utilize substantially higher amounts of monthly data).

Therefore, we see that T-Mobile and Sprint's primary justification for this horizontal merger – the achievement of efficiencies in order to accelerate 5G deployment and adoption – is misleading. But even if it were true, these efficiencies are non-merger specific,[103] non-cognizable,[104] and would not outweigh the competitive harms of this transaction.

In sum, T-Mobile and Sprint have already announced their existing plans to achieve full 5G deployment, under essentially the same timeframe promised in the merger case. Thus, the merging parties' efficiency claims are non-merger specific and non-cognizable,[105] as each company could achieve these same gains either through utilization of existing assets or other methods such as licensing deals that would enable it to share capacity with other carriers.

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[103] *See Horizontal Merger Guidelines* at 30 n. 13 ("The Agencies will not deem efficiencies to be merger-specific if they could be attained by practical alternatives that mitigate competitive concerns, such as divestiture or licensing.").

[104] *See id.* at 30 ("Cognizable efficiencies are merger-specific efficiencies that have been verified and do not arise from anticompetitive reductions in output or service.").

[105] These claimed efficiencies are non-cognizable, because they are non-merger specific and would come at the expense of the merging parties reducing efficient output by reducing long-term capital deployment. *See id.*

Furthermore, even if these claimed efficiencies were merger-specific and cognizable, they would not outweigh the competitive harm of this transaction. The Applicants have offered no evidence to suggest that the net benefit of these supposed efficiencies would be passed along to the merged firm's customers; they merely speculate about hypotheticals, like new competition with wired ISPs. If the Commission and DOJ follow their own precedent and guidelines, they will have no choice but to find that the supposed efficiencies do not offset the harms from this merger.[106]

iii. Prior to the Merger Announcement, Applicants Made Repeated Statements that the Benefits of 5G are Speculative and Incremental to Their Robust 4G Networks, and Said that AT&T and Verizon Did Not Have Inherent Advantages in the "Race" to 5G.

The merging parties' Application is littered with jingoistic appeals about a meaningless "race" to be the first country with ubiquitous 5G. The Application also portrays impending doom for Sprint and T-Mobile as standalone companies, with claims that they will be unable to compete against AT&T's and Verizon's 5G networks. But T-Mobile and Sprint executives were singing a completely different tune just a few weeks before the merger's announcement. In February, responding to an analyst's question about the "arms' race" to be first in 5G, T-Mobile's CEO stated "I think your definition of it as an arms' race portrays some of the mass confusion that the market in the United States must have about what 5G is. What its opportunity is, when it's going to be delivered. . . . And I think one of the big problems we have is, AT&T and Verizon, in particular, who have lost or never had competitive network[s], are now trying to

[106] *See id.* at 31 ("The greater the potential adverse competitive effect of a merger, the greater must be the cognizable efficiencies, and the more they must be passed through to customers, for the Agencies to conclude that the merger will not have an anticompetitive effect in the relevant market.").

recapture the network brand by defining 5G in something that's only attainable by them. . . . [I]t sure as hell isn't a 2018 arms' race."[107]

Sprint's leadership made similar statements that blatantly contradict the tales of woe in the Application. In February, Sprint's then-CEO told analysts that there "are a lot of claims being made about 5G by our competitors. We believe that <u>Sprint is best positioned to be the first carrier with a nationwide mobile 5G platform</u>. Verizon and AT&T talk about a path to 5G, but they're relying on millimeter wave spectrum that, sure, it will give you super-wide channels of capacity, but the propagation is limited to a very short distance, in most cases requiring line of sight. It is really just a hot zone and not a true mobile experience, unless they spend a fortune to massively densify their network to connect the dots, which will take a long time under current regulatory restrictions for permit. <u>Sprint is the only carrier that doesn't have to compromise what 5G can deliver</u> because we can deliver the super-wide channels of more than 100 megahertz, while still delivering mid-band coverage characteristics."[108]

These statements likely reflect a mere fraction of the truths that will be found in Applicants' internal communications about their true network capacity, and about their pre-merger thinking regarding the necessity for the supposed "race" to 5G. Those internal communications will no doubt contradict the tall tales woven into the Application. We expect the Commission to issue a robust request for information that will uncover these internal communications, and we will provide further analysis on this matter in subsequent filings.

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[107] *See* Legere 4Q 2017 Comments.

[108] *See* Comments of Marcelo Claure, Chief Executive Officer, Sprint Corporation, Q3 2017 Earnings Call (Feb. 2, 2018) ("Claure Q3 2017 Earnings Call").

B. Applicants Offer No Evidence That The Transaction's Massive Consolidation and Elimination of Competition in the Value-Focused Market Segment Would Not Lead to Price Increases, Overstating Efficiencies and Benefits that Would Be Passed Along to Users.

Applicants claim a 6 percent post-merger reduction in ARPU by 2026, which they claim would result from the merged firm passing along scale benefits to customers.[109] Setting aside the reality that in the resulting (and obscenely highly concentrated) market, there would not be the normal competitive pressures that force a carrier to pass along these savings to users (as opposed to shareholders) – <u>this is a wildly misleading statistic</u>. <u>ARPU is already declining</u>.[110] As we explained above, this is in large part due to the growth in additional connections per account, and the concomitant lower revenue for such tablet and IoT lines. A six percent reduction in ARPU by 2026 is an average annual decline of 0.9 percent. But according to CTIA data summarized by the Commission in the *Twentieth Report*, industry ARPU declined by 7 percent in 2016 alone (and between 2012 and 2016, declined by an average annual rate of 1.9 percent). Given that the number of "users" in the form of low-priced narrowband IoT lines is expected to increase significantly, the magnitude of Applicants' claims about ARPU reduction may in fact mask the reality of price <u>increases</u> when measured on a per service or per account basis.

The meaningless nature of this claimed consumer benefit is laid bare by Applicants in their public materials touting the merger, which noted in the long term (5-plus years) their expectation that <u>profit margins</u> (expressed as adjusted EBITDA less capital expenditures) <u>would more than double to a whopping 45 percent</u>, well above the

[109] Application at 121.

[110] *See Twentieth Report* ¶ 59.

2018 *pro forma* values of 21 percent.[111] This massive margin expansion certainly cannot be explained by increased competition, nor can it be explained by supposed synergies. It's primary source is reduced market-wide competition that enables unilateral and coordinated behavior, as well as a reduction in investment.[112]

The Commission's 2011 decision to reject AT&T's takeover of T-Mobile was in part based on those applicants "significantly overstat[ing] the estimated cost savings of the proposed transaction."[113] This overstatement should not have been surprising, as it reflects the economic reality that large telecommunications firms have largely exhausted their returns to scale, which is particularly the case for wireless firms.[114] Following the collapse of that merger, DOJ economists produced an empirical analysis of firm-level economies of scale in the mobile telephony industry. The DOJ economists found that "in a regulatory system featur[ing] active competition among privatized oligopolies, the firms generally operate within the range of constant returns to scale."[115] The authors

[111] *See* T-Mobile US and Sprint Corporation, "Creating Robust Competition in the 5G Era," at 18 (Apr. 29, 2018) (showing the 2018 *pro forma* values for adjusted EBITDA and margins; adjusted EBITDA less capital expenditures and margins; capital intensity; as well as the short and long-term expectations for these values at New T-Mobile).

[112] *Id.* (showing the *pro forma* company spent approximately 18-19 percent of service revenues on capital expenditures during 2018, which Applicants expect would decline at New T-Mobile to 15-20 percent by year four, and decline further to 13-15 percent after the fifth year).

[113] FCC Staff Report ¶ 176.

[114] *See* Yan Li and Russell Pittman, United States Department of Justice Economic Analysis Group, Discussion Paper, "The proposed merger of AT&T and T-Mobile: Are there unexhausted scale economies in U.S. mobile telephony?" at 8 (Apr. 2012) ("[T]he literature suggests that it is unlikely that a firm as large as AT&T – and perhaps T-Mobile as well – is operating at a point on its overall enterprise cost curve of substantial unexhausted economies of scale."). Note that this was written in 2012, when T-Mobile's reach was well below where it is today, now reaching some 99 percent of the U.S. population.

[115] *Id.* at 15.

stated that they "did not find substantial unexhausted scale economies in mobile telephony in general, especially for firms of medium to large size."[116] Based on this, the DOJ economists concluded that their "results support the decision of DOJ to challenge the merger and the skepticism expressed by the FCC staff."[117]

The DOJ's findings that firms of Sprint's and T-Mobile's size likely do not have unexhausted scale economies suggests that Applicants' claims of substantial merger-related efficiencies are overstated. If this is the case, not only are the supposed benefits of this merger non-cognizable, they would not outweigh the competitive harms of the transaction – particularly the harms caused by the upward pricing pressure in the value-focused market segment.

V. Local Market Divestiture Would Not Remedy the Adverse Competitive Impacts That This Transaction Would Have on The Nationwide Product Market, and Would Impart Substantial Harm on Applicants' Price-Sensitive Customers by Forcing them to Purchase Service from a Higher-Priced Carrier.

We strongly believe, based on the evidence and past precedent, that as the Commission and DOJ conducts their analysis each agency will have no choice but to challenge this merger.[118] The merger will significantly increase market concentration in already highly concentrated markets.[119] The market structure is such that it is extremely

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[116] *Id.*

[117] *Id.* at 16.

[118] *Horizontal Merger Guidelines* at 25 ("The Agencies are likely to challenge a merger if the following three conditions are all met: (1) the merger would significantly increase concentration and lead to a moderately or highly concentrated market; (2) that market shows signs of vulnerability to coordinated conduct (see Section 7.2); and (3) the Agencies have a credible basis on which to conclude that the merger may enhance that vulnerability. An acquisition eliminating a maverick firm (see Section 2.1.5) in a market vulnerable to coordinated conduct is likely to cause adverse coordinated effects.").

[119] *See* discussion of HHIs *infra*. The exact HHI values will depend on how the product and geographic market is defined, whether subscribers or revenues are

vulnerable to coordinated conduct; and this merger's elimination of the only two maverick competitors (replacing it with a new firm equivalent in share to the current two largest firms) would only exacerbate that vulnerability.

The Commission and DOJ in the past have challenged horizontal transactions in the wireless market, including numerous acquisitions of smaller regional firms by large national carriers. Many of those transactions were ultimately approved with modest behavioral and structural conditions, most notably the divestiture of assets in certain local geographic markets. But these remedies came in an environment in which there were still at least four viable national carriers, and where divestiture to other firms was possible without raising additional antitrust concerns. This merger is not like those past transactions.

The merger of the market's only two non-vertically integrated and value-focused carriers presents an insurmountable obstacle that local market divestiture cannot cure. First, it is hard to conceive how local divestiture would mitigate the market harm that this transaction would cause at the national level. Because of the increasing market concentration and loss of viable competitive firms, local market divestiture is unlikely to reduce market concentration to an acceptable level. The markets are concentrated to an extent that local divestiture now would be simply rearranging deck chairs on the Titanic.

Second, and most important, the markets in which a post-merger New T-Mobile's market share really climbs into an HHI stratosphere are those in which T-Mobile and Sprint have done well gaining share precisely because these are the markets with

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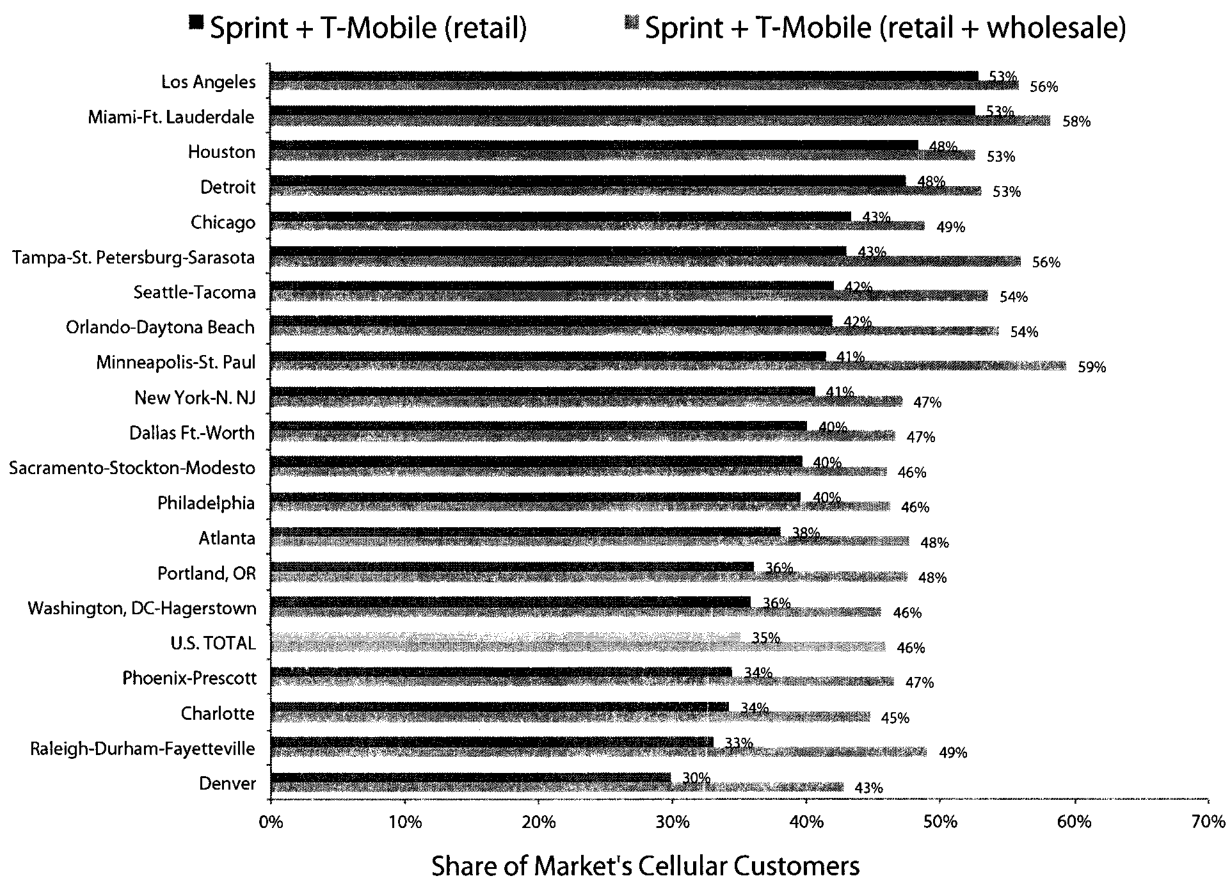
considered, and the available data. Whichever metric is chosen, it is clear that the transaction will violate the *Horizontal Merger Guidelines* by substantially increasing concentration in already highly concentrated markets.

disproportionately high levels of value-seeking customers. The markets in which New T-Mobile would be the dominant carrier are some of the country's largest, which have a disproportionate share of lower-income wireless users (see Figure 9).[120]

Indeed, as we see in Figures 10 and 11, T-Mobile's and Sprint's customers are far more disproportionately lower-income individuals than are customers of the Twin Bells, and T-Mobile's and Sprint's customers also far more likely to be a member of a racial or ethnic minority group. And because there are no other national carriers left, any local market divestiture would send millions of value-seeking customers into the arms of the two biggest current carriers that simply do not offer value-focused service plans.

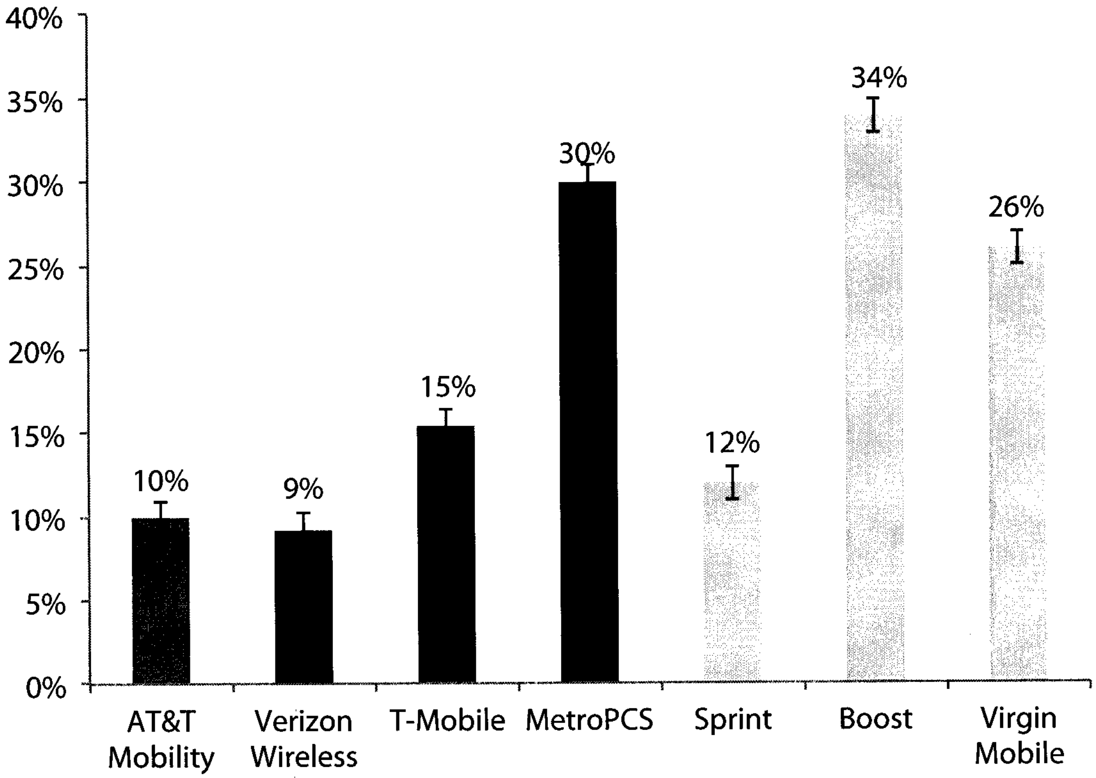
120 Markets shown in Figure 9 are only those in the top 25 most-populated Nielsen Designated Market Areas ("DMAs") where New T-Mobile would have the largest share of customers (as measured by their retail customers). Values for "Sprint + T-Mobile (retail)" represent the percent of survey respondents reporting either Sprint, Boost, Assurance, Virgin, T-Mobile, or MetroPCS as their carrier. Values for "Sprint + T-Mobile (retail + wholesale partners)" represents the retail share plus the share of the market's cellular customers who report using an MVNO that obtains network access from Sprint and/or T-Mobile. This includes MVNOs that may also purchase wholesale network access from other facilities-based carriers, weighted down to reflect those carriers' portions of the lines. Thus, these estimates are imprecise, as they are based on survey data as well as estimated shares of each MVNO. We expect to file more precise estimates based on our forthcoming analysis of the Highly Confidential NRUF/LNP data.

Figure 9:
Percent of Each Market's Customers that Report Cellular Service from a Sprint or T-Mobile-Owned Company, or Sprint or T-Mobile-Owned company or Wholesale Partner (Select Top U.S. Local Markets)



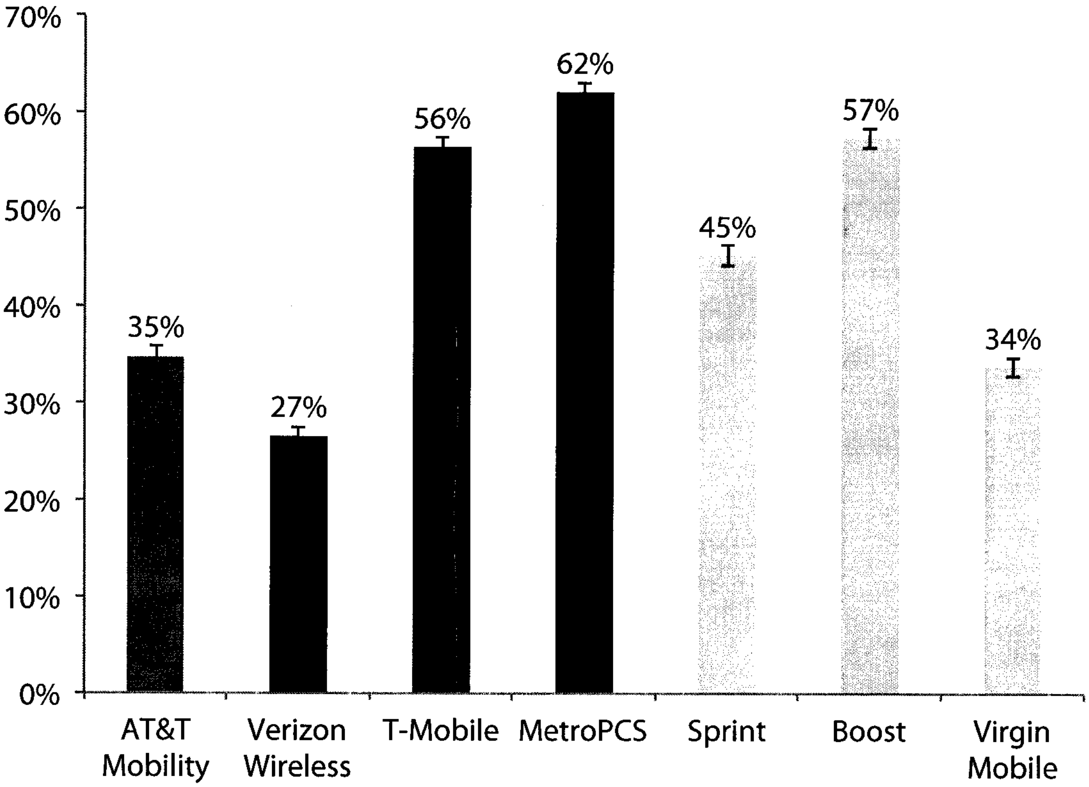
Source: Free Press analysis of a S&P Global Market Intelligence MediaCensus survey of 10,000 U.S. internet adults conducted in February 2018. Values for "retail + wholesale" represent MVNOs that exclusively purchase wholesale network access from Applicants, as well as an estimated allocation of customers from MVNOs that purchase wholesale access from Applicants and other carriers.

Figure 10:
Percent of Each Carrier's Customers that Report Annual Income Below $25,000



Source: Free Press analysis of a S&P Global Market Intelligence MediaCensus survey of 10,000 U.S. internet adults conducted in February 2018. Values for each carrier represent the percent of survey respondents claiming that brand as their carrier who reported their income as less than $25,000 per year. Values shown only represent branded customers, and do not include carriers' unlisted subsidiaries or customers of MVNOs that purchase wholesale network access from one of the facilities-based providers.

Figure 11:
Percent of Each Carrier's Customers that are Persons of Color



Source: Free Press analysis of a S&P Global Market Intelligence MediaCensus survey of 10,000 U.S. internet adults conducted in February 2018. Values for each carrier represent the percent of survey respondents claiming that brand as their carrier who self-reported a race or ethnicity other than Non-Hispanic white. Values shown only represent branded customers, and do not include carriers' unlisted subsidiaries or customers of MVNOs that purchase wholesale network access from one of the facilities-based providers.

Finally, it is critical to note that prior to announcing its merger with Sprint, T-Mobile made public its plans to expand its retail footprint into the one-third of the U.S. that currently lack T-Mobile stores. During 2017, the company opened 1,500 new T-Mobile stores and 1,300 MetroPCS stores, many in "greenfield" areas that previously lacked any T-Mobile/MetroPCS retail presence. In March of this year, T-Mobile confirmed its plans to continue this expansion with "100 percent . . . in new greenfield markets."[121] Sprint also is in the process of a substantial retail expansion, which includes its own storefronts as well as a massive expansion inside Walmart stores.[122]

These retails expansions are important, because it is likely that each carriers' respective market shares are relatively low in these local "retail greenfield" areas, and thus they may not be flagged as CMAs where the transaction would violate the *Horizontal Merger Guidelines*. But competition in these markets would be negatively impacted by the merger, because T-Mobile was preparing to enter and capture share. Furthermore, the merger would eliminate the need for T-Mobile to build new retail presence in these greenfield areas, depriving workers in those areas of new job opportunities. Given T-Mobile's boasting about how people celebrate the opening of these greenfield stores and how much "pent-up demand" there is in these areas, it is clear that T-Mobile is ignoring the loss of these future benefits in the Application's calculus of supposed benefits.[123]

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[121] *See* Comments of J. Braxton Carter, Chief Financial Officer, Executive Vice President and Treasurer, T-Mobile US, Inc., European and Emerging Telecoms Conference (Mar. 20, 2018).

[122] *See* Claure Q3 2017 Earnings Call ("[W]e will continue to drive a smart distribution strategy with over 1,000 new stores opened year-to-date across our Sprint and Boost brands and several hundred more planned throughout next year."); *see also* statement of Marcelo Claure on Twitter.com (July 27, 2018) ("BIG news for @Sprint today as we're expanding into 700 @Walmart stores! Strategic partnerships like this help more people see why @Sprint is the best choice for #unlimited.").

[123] *See* Comments of J. Braxton Carter, Chief Financial Officer, Executive Vice President and Treasurer, T-Mobile US, Inc., Morgan Stanley Technology, Media & Telecom Conference (Feb. 28, 2018) ("A lot of our advertising is nationwide and it's much more efficient to buy it that way. You've got brand recognition and a lot of pent-up demand. When we're launching some of these smaller parts of the city, I mean, they bring the high school band out, the mayor is there cutting the ribbon and then we open the store and just tremendous excitement over this distribution.").

VI. Conclusion

The U.S. wireless market is already one with coordinated effects and rampant pricing power. It is a market with little true price competition, even though it has shown signs of non-price competition in recent years, thanks almost entirely to the competition between Sprint and T-Mobile for the market's value-conscious customers.

This merger would eliminate this "maverick" competitive pressure, exacerbating pre-existing coordination effects, resulting in substantial unilateral harms, and creating substantial unilateral pricing power in the wholesale market – which though important to resellers serving the most value-focused and credit-challenged customers has largely failed to exert competitive pressure on the nation's two most dominant retail carriers.

The last time the Commission and DOJ were faced with a similar national wireless market merger, they rejected it, and in doing so set off a period of pro-consumer market expansion and competition. This current merger poses similar issues, and comes with similar unrealistic promises of benefits, and similar overwrought predictions of doom if it is rejected. We urge the Commission to follow the evidence before it and also heed the lessons of the recent past, both of which indicate that the T-Mobile/Sprint merger would produce a clear net harm to competition and the public interest.

/s/ S. Derek Turner

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CERTIFICATE OF SERVICE

I, Matthew F. Wood, Policy Director for Free Press, certify that on this 27th day of August, 2018, I have caused true and correct copies of the REDACTED version of the foregoing Petition to Deny of Free Press to be served on the following individuals by electronic mail; and, only as indicated, that I have caused true and correct copies of the unredacted version of same to be served on specified parties by hand:

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APPENDIX

What Can The Stock Market Tell Us About How Investors View The Impact of the Potential Merger of T-Mobile and Sprint on AT&T and Verizon?

INTRODUCTION

One of the primary concerns about the potential merger between Sprint and T-Mobile is how the reduction in the number of national wireless carriers from four to three would impact the price of mobile telecommunications services. Antitrust authorities are of course concerned about the potential for a merger to confer additional unilateral pricing power on the merged firm. But these authorities also weigh the potential for a merger to confer pricing power on the other firms in the market. T-Mobile and Sprint claim the increased scale of the merged firm and its resulting size relative to the wireless market's current leaders – AT&T and Verizon – would lead to increased competition and lower prices.[1] This pleasing story ignores the classic concern about mergers like this one that substantially increase concentration in an already-highly concentrated market: the concern about coordinated effects.

According to the U.S. Department of Justice and Federal Trade Commission *Horizontal Merger Guidelines*:

> A merger may diminish competition by enabling or encouraging post-merger coordinated interaction among firms in the relevant market that harms customers. Coordinated interaction involves conduct by multiple firms that is profitable for each of them only as a result of the accommodating reactions of the others. These reactions can blunt a firm's incentive to offer customers better deals by undercutting the extent to which such a move would win business away from rivals. They also can enhance a firm's incentive to raise prices, by assuaging the fear that such a move would lose customers to rivals.[2]

The *Horizontal Merger Guidelines* state that such coordination need not involve *per se* illegal actions like explicit agreements between firms to fix prices:

> Coordinated interaction alternatively can involve parallel accommodating conduct not pursuant to a prior understanding. Parallel accommodating conduct includes situations in which each rival's response to competitive moves made by others is individually rational, and not motivated by retaliation or deterrence nor intended to sustain an agreed-upon market outcome, but nevertheless emboldens price increases and weakens competitive incentives to reduce prices or offer customers better terms.[3]

There are numerous examples in the literature of horizontal mergers resulting in consumer harm, and comparative market analysis that suggests likely harms resulting from the contraction of a wireless market

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[1] Application at i. It is worth noting that Applicants at times seem to imply that the merger would lower prices, but this appears to be short-hand for their actual claim that it would result in a lower price per gigabyte. This is however a completely unremarkable claim for an industry that is characterized by a Moore's-law type improvement in output capacity due to technological improvements and declining per-unit production costs.

[2] *Horizontal Merger Guidelines* at 24.

[3] *Id.* at 24-25.

from four to three national carriers.[4] There is also research suggesting that mergers in markets with structures that are already highly concentrated may not produce measurable price changes due to the existence of pre-merger coordinated effects (*i.e.*, the market's producers have already settled on a "monopoly" price and output).[5] The primary antitrust concern in such situations is the weakened incentives of firms to deviate from the existing coordinated behavior.

AT&T and Verizon have long held their positions at the top of the oligopolistic U.S. wireless market. However, in recent years each has been forced to respond to T-Mobile's and Sprint's competitive moves (actions that resulted primarily from T-Mobile's aggressive pricing and service changes first rolled out in the aftermath of the U.S. government's rejection of the AT&T/T-Mobile merger). While not quite the "price war" that media headlines implied, there is ample evidence that the U.S. wireless market has experienced a higher level of competitive behavior during the 2012-2018 period, and that this increased competitive action resulted in an overall decrease in the quality-adjusted prices paid by U.S. wireless customers.[6]

This recent history of competitive responses by the two carriers atop the wireless market, and the role that the four-carrier market structure played in it, are a primary reason to be concerned about the T-Mobile/Sprint merger. While it is theoretically possible that the merged "New" T-Mobile would continue its "uncarrier" behavior in an attempt to gain additional market share from the Twin Bells, there is no evidence that New T-Mobile's incentives would produce this outcome. Indeed, though the responses of the Twin Bells to the promotions by Sprint and T-Mobile are important, so too are the responses of T-Mobile to Sprint's promotions, and vice versa. The competition between Sprint and T-Mobile for more value-conscious customers ultimately impacts as well the actions of Verizon and AT&T.

Applicants claim that this horizontal merger would produce operational efficiencies (*e.g.*, reduction in capital requirements, reduction in operating costs from tower leases and maintenance, reduction in operating and capital costs from elimination of retail stores). Verifications and quantifications of these claims notwithstanding, if it were indeed the case, the important question for regulators would be whether the merged firm, operating as a rational actor in a highly concentrated market, would transfer these efficiency gains to consumers in the form of price reductions? (And if the only claim were output-adjusted price reductions per gigabyte, this claim should be measured against the "but-for" world without the merger). Or is it more likely that the merged firm would direct efficiency gains to shareholders, who are eager to see New T-Mobile rise to the level of profitability long-enjoyed by AT&T and Verizon? And how would the increase in

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[4] *See, e.g.*, Working Party on Communications Infrastructures and Policy, OECD, "Wireless Market Structures and Network Sharing," at 17 (Jan. 8, 2015) ("Competition in mobile markets benefits consumers by offering them better services, quality and price discipline. Particularly in countries with four or more mobile operators these benefits are visible through more competitive and more inclusive offers and services that are generally not available in countries with three mobile operators."); *see also* Price Waterhouse Coopers, "Grasping at differentiated straws: Commoditization in the wireless telecom industry" (Feb. 2018) (showing that markets with four or more carriers tend to have lower prices and exhibit behavior closer to a commoditized market, with low spreads in market share and ARPU; while markets with three carriers exhibit behaviors of a "comfortable" market, with high spreads in market share spread and ARPU).

[5] *See, e.g.*, Juan Jiménez González and Jordi Perdiguero, "Mergers and difference-in-difference estimator: why firms do not increase prices?" Research Institute of Applied Economics, at 25-26 (Working Paper, May 2012) ("The majority of articles that apply [difference-in-difference] methodology to analyze the effect on prices of concentration processes report significant price increases, the exception being the research conducted to date in the gasoline market . . . One reason for this result is the lack of competition in the markets. This means that, after the merger was completed, prices did not rise as they were already fixed at the joint maximum profit; i.e., perfect monopolistic equilibrium . . . If we analyze the Competition Authority's decision only from the standpoint of unilateral effects, the decision to accept the merger can be considered correct. Increasing market concentration was not detrimental to consumers. However, if we take multilateral effects into account, it seems that the Antitrust Authority should have examined in greater depth the impact of the disappearance of a competitor on the maintenance of a collusive agreement.").

[6] *Supra* Figure 3.

the likelihood of parallel accommodating conduct ultimately impact not only New T-Mobile's future actions, but the future actions of Verizon and Sprint?

These are complex questions that involve the uncertainty of prediction. We can however gain some confidence in the direction of our predictions by examining the perceptions that market actors have of the merger. Obviously, Sprint and T-Mobile view the merger as positive and accretive to their shareholders. The shareholders of each firm are also likely to collectively view the deal as positive (though this view depends on the specific financial structure of the deal, and one firm's shareholders may hold a view that is less strong than the other firm's shareholders because of this consideration).

But what about Verizon and AT&T, and their shareholders? Both Verizon and AT&T company representatives have publicly expressed neutral positions on the merger since it became an official proposal at the end of April 2018.[7] This neutrality is not indicative of very much at all, as dominant firms rarely speak against others' mergers, perhaps hoping to avoid having their arguments used against them in the future when they come to regulators seeking approval for their own acquisitions.

And so what about the AT&T and Verizon investors themselves. Do they have a collective view of the import of the T-Mobile/Sprint merger for the value of the Twin Bells' equity? Short of surveying individual investors, there's no definitive method for answering this question. We can however examine the movement in company share prices, and use this movement as an imperfect proxy for investors' collective view. Stock prices reflect a consensus valuation of a company's current value and its future growth potential (and reflect as well a company's financial structure, and whether or not it is a "growth" or "dividend" equity). Stock price movements are fundamentally a function of supply and demand. At any given time, if demand for a stock increases, the price will increase; if demand decreases, the price declines. These price fluctuations are an indicator of how supply and demand change over the short-term.

It is therefore possible to examine a stock's price movements during a short-term event, such as a breaking news story; compare that movement to shares not impacted by the news; and draw conclusions about how "the market" collectively viewed the impact of the news on demand for a company's stock. From this, it is possible to draw reasonable inferences about the collective view of "the market" on the future fortunes of the company in question. We stress that this of course should be a cautious inference, as short-term stock price movements can reflect in part speculation by some investors about how other investors will react in the short-term to the news.

Below we examine stock pricing data for a number of firms, seeking understanding about how investors view the potential impact of a T-Mobile/Sprint merger on the future economic fortunes of AT&T and Verizon.

METHODOLOGY & DATA

To investigate the collective response of "the market," in the short-term movements of a certain company's equity prices in response to news of the T-Mobile/Sprint merger, we first must identify relevant news moments. To do this, we searched S&P Global's news archive for the terms "Sprint" or "T-Mobile" appearing in articles that also contain the terms "merger" or "deal." Our search period encompassed 2012 through May 2018, the time between the collapse of the proposed AT&T/T-Mobile merger and formal announcement of this most recent T-Mobile and Sprint merger attempt. We then classified news about the possible merger into three categories: 1) days when news indicates the T-Mobile/Sprint merger is under consideration (or is happening); 2) days when news indicates the merger is highly likely to happen; 3) days

[7] *See, e.g.*, Matt Day and Rachel Lerman, "'We frankly don't care' if T-Mobile and Sprint merge, Verizon CEO says," *Seattle Times* (May 2, 2018); Monica Alleven, "AT&T's Donovan on T-Mobile/Sprint merger: We won't contest it," *FierceWireless* (May 15, 2018); Chris Mills, "Wow, I wonder why AT&T and Verizon aren't worried about that mammoth Sprint-T-Mobile merger," *BGR* (May 16, 2018).

when news indicates the merger is not likely to happen. These events are summarized in Figures A1 and A2 below.

Figure A1: Descriptive Statistics

Company	% Change - Day of Positive News for Merger (all news days)	% Change - Day of Positive News for Merger (major news days)	% Change - Day of Positive News for Merger (major news days; exclude Mon. 4/30/18 sell-off)	% Change - Day of Negative News for Merger
T-Mobile	1.75%	-0.04%	1.19%	-2.17%
Sprint	1.73%	2.10%	5.26%	-3.50%
AT&T	0.07%	0.23%	0.48%	-1.78%
Verizon	0.04%	0.19%	1.09%	-1.61%
CenturyLink	-0.22%	0.15%	0.52%	0.21%
Cincinatti Bell	0.35%	0.13%	0.16%	0.42%
Comcast	-0.25%	-0.75%	-0.64%	-0.89%
Charter	-0.81%	-1.73%	-2.68%	0.41%
S&P 500	0.08%	0.27%	0.49%	-0.17%
Russell 3000	0.07%	0.26%	0.47%	-0.20%

Figure A2: Key Dates and News Events

*Positive News Days (major positive news days in **bold**)*	
Friday, Dec. 13, 2013	WSJ: Sprint could place a bid for Tmo in "the first half of 2014."
Thursday, Dec. 19, 2013	WSJ: At least 6 banks are working on proposals to finance merger.
Wednesday, Dec 25, 2013	Nikkei Asian Review: Softbank is in "the final stages" of talks to buy DT's stake in T-Mobile.
Thursday, Jan 16, 2014	WSJ: Sprint mulls financing options for possible T-Mobile bid.
Sunday Jan 19, 2014	Bloomberg: Softbank, DT in direct talks on Sprint/T-Mobile deal.
Tuesday March 11, 2014	Son gives a speech at USCOC which sparked additional speculation the merger was real.
Thursday May 1, 2014	Bloomberg: Sprint approached 6 banks to arrange funds for a possible T-Mobile US Inc. bid in June or July.
Thursday May 29, 2014	Reuters: DT agreed to sell its majority stake in TMUS to Softbank.
Wednesday June 3, 2014	Reuters: Softbank has agreed to acquire TMUS for $32B. Source said other details not finalized.
Wednesday, May 10, 2017	FT reports Son saying in Softbank's earnings call that they're looking to merge Sprint with TMUS.
Thursday, May 11, 2017	Bloomberg reports DT CEO is weighing a potential merger for TMUS.
Friday, May 12, 2017	Bloomberg reports Sprint and TMUS have reinitiated talks to explore a merger.
Monday August 7, 2017	Bloomberg reports Sprint and TMUS are in talks again to merge, after the two-month Comcast/Charter window expired.
Tuesday, September 19, 2017	CNBC reports that TMUS and Sprint are engaged in active discussions to merge, but weeks away from finalizing terms.
Friday, September 22, 2017	Reuters reports T-Mobile US Inc. and Sprint Corp. are close to agreeing on the terms of a merger that could be announced next month.
Friday, October 6, 2017	Bloomberg reported Sprint and TMUS are working on the final details of a merger that may be announced before the end of October.
Sunday, October 15, 2017	Reuters reports Softbank and DT reached a broad agreement on the merger.
Thursday, November 2, 2017	WSJ reports TMUS made a revised offer to save the merger. Softbank is considering new terms.
Tuesday April 10, 2018	WSJ reports Sprint and TMUS have resumed merger talks.
Friday April 27, 2018	Reuters reports TMUS and Sprint could reach a deal by the first week of May.
Sunday, April 29, 2018	Merger officially announced.

Negative News Days	
Tuesday August 5, 2014	WSJ reports Sprint decided to abandon its bid for TMUS b/c of difficulty in obtaining regulatory approval, and that it would replace its CEO.
Thursday, June 27, 2017	WSJ Reports Sprint Chairman Masayoshi Son entered into an exclusive two-month negotiation period with Comcast Corp. and Charter Communications Inc.
Thursday, October 12, 2017	Reuters reports three sources saying US DOJ is expected to oppose a potential Sprint+TMUS merger.
Monday, October 30, 2017	Nikkei reported that Softbank is set to end merger talks after failing to agree on the ownership structure.
Wednesday November 1, 2017	Bloomberg reports merger talk on life support, but Softbank had not yet canceled talks, as it waits on a final proposal from DT.
Saturday November 4, 2017	Sprint and TMUS issue joint statement saying merger talks are over, no deal.

Our objective is to ascertain whether there were any significant changes in AT&T's and Verizon's stock prices in response to news of the possible T-Mobile/Sprint merger, or news of that potential merger's demise. Thus, we examine the stock prices of the following companies: T-Mobile, Sprint, AT&T, Verizon, CenturyLink, Cincinnati Bell, Comcast, and Charter. These companies can be grouped together as: T-Mobile and Sprint (the merging parties); AT&T and Verizon (Sprint's and T-Mobile's national wireless market competitors, who are also vertical into many other markets); CenturyLink and Cincinnati Bell (wired telephone companies that generally are not vertically integrated into other markets); and Comcast and Charter (cable companies with varying levels of vertical integration, both of which have ambitions of entering the wireless market, and both of which were engaged in formal merger/partner talks with Sprint).

We examine these specific non-wireless ISPs along with the four national wireless carriers for several reasons. First, they serve as controls (*i.e.*, they are firms not directly involved in the merger nor the direct national wireless market competitors of the merger candidates) beyond the broader market index funds (*e.g.*, S&P 500, Russell 3000). That is, they are proximate enough to the wireless ISP market as wired ISPs, and thus their equity values might change alongside those of the wireless carriers in response to news that impacts the telecom market but not other markets. But these firms are not all completely disinterested in the T-Mobile/Sprint merger. As grouped above, the two ILECs are the least impacted by the possible merger; the two cable companies were in a formal negotiation with Sprint about a possible acquisition or partnership (with Charter rumored to be a target of Sprint's parent company, SoftBank).[8]

Our expectations for short-term stock movement for each of these firms varies, but these groupings broadly capture the groups for which we expect certain results.

We would expect that Sprint's and T-Mobile's share prices would be most impacted by any merger rumors, and would rise in the short term on positive news while declining on negative news. One confounding factor, however, is the different impact on share prices depending on which firm is the acquiring party. For example, the spring 2014 rumors indicated that Sprint would acquire T-Mobile, while the final 2018 deal has T-Mobile as the surviving firm.

In a typical market – one characterized by robust competition and low entry barriers – we would expect the share prices of the market's top firms to move lower on news of consolidating rivals. And in such a market, we would expect the share prices of the top firms to move higher (or stay flat) upon news that such a potential merger was now off. This is because in a competitive market, the dominant firm(s) would be expected to have lower future earnings as a result of strengthened rivals, and would be expected to maintain or improve future earnings if the rivals were not permitted to merge. Yet the already highly concentrated wireless market is not typical. Shareholders in the wireless market generally view market consolidation as a positive for the fortunes of the remaining parties. And in an already highly-concentrated market, shareholders understand there's more to lose from increased competition following a rejected merger than there is to gain from approval of a merger in a market in which the market's top firms (in this case AT&T and Verizon) already enjoy substantial market power.

We would expect that the ILEC shares would not show any significant movement on the key news event days, as these firms do not compete with the merger candidates, nor would they stand to gain or lose material business if the merger were consummated or rejected.

Finally, we would expect to see little movement in cable company stocks on merger news days. However, because of the widely reported negotiations between Sprint and Comcast and Charter jointly, we would expect some minor disappointment from shareholders upon learning that those separate tie-ups would not happen (this is particularly true for Charter, which was rumored to be a direct merging partner for Sprint).

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[8] *See, e.g.*, Mari Silbey, "Rumor Mill: SoftBank Still Eyeing Charter," *LightReading* (Mar. 12, 2018). We note that <u>after</u> the Applicants filed their Public Interest Statement, there have been stories that mention, or uncritically accept Applicants' premise that 5G wireless services will be directly competitive with wireline broadband services, a market dominated by traditional cable distributors. However, this notion was largely non-existent prior to the merger's announcement. Nevertheless, even today, there is a high degree of skepticism about whether fixed 5G services will have a material impact on the businesses of wired ISPs, many of whom have already deployed networks capable of delivering multi-gigabit capacities to customers.

It is important to note the impact that prior expectations can have in blunting or accentuating the collective market's response to a news event. If investor's have "priced-in" the expectation of a merger, positive news of ongoing negotiations may not produce a significant increase in demand for a merging firm's stock because the price already contains the merger "premium." Conversely, if the market expects a merger to happen and news breaks that it will not, the price swing may be much more substantial. There are other potential complications to interpreting the meaning of stock price movements in response to merger news. If investors have purchased a stock with the expectation of a merger increasing that stock's short-term price, and news breaks confirming a likely merger, some of these investors may sell the equity in order to harvest profits, leading to a flat or declining stock price in the days following the news event.

A stock's price movements are a function of supply and demand of/for that stock, which is a function of investors' views about the current and future valuation of that stock. These views are influenced by the business fundamentals of the company in question, the fundamentals of the market in which it operates, and investors' collective temporal views about the broader economy. This last factor is particularly important, as a particular equity may rise or fall on a given day where nothing new about their company is revealed or discussed, but simply because the news of the day influenced investors' attitudes about the broader economy, triggering a general buying or selling mood. To account for this, in our second model we add the daily percentage change in the Russell 3000 index as a control variable in our model of a stock's daily percentage price change as a function of a news event. The two general model forms are thus:

$$y_{it} = \beta_0 + \beta_1(\boldsymbol{event_n}) + \varepsilon_{it} \qquad \text{(model 1)}$$

$$y_{it} = \beta_0 + \beta_1(\boldsymbol{event_n}) + \beta_2(\boldsymbol{broadmarket_t}) + \varepsilon_{it} \qquad \text{(model 2)}$$

Where

y_{it} is the percent change in firm *i*'s stock price over time period *t*

$\boldsymbol{event_n}$ is a dummy variable that has a value of 1 on certain news days and a value of 0 on the other days. There are three types of events, as described in more detail above.

$\boldsymbol{broadmarket_t}$ is the percent change in the value of the Russell 3000 index over time period *t*.

β_0 is the model's constant value.

β_1 is the coefficient for event days.

β_2 is the coefficient for the Russell index's change.

ε_{it} is the model error.

Finally, we run an alternative model that is identical to those described above for major positive news days, but excluding the values from the first trading day after the merger was made official (Monday, April 30, 2018) as a major positive news event. We did this because it is clear from the raw values and contemporaneous news events that there was a significant "sell-off" of Sprint shares on that Monday, likely from more expert traders who were seeking short-term profits from lay investors buying on the official news of the merger (the merger was largely confirmed by news from Friday, April 27, 2018, with the parties issuing a press release formally announcing the deal on Sunday, April 29, 2018).

RESULTS

The results of this analysis are shown below in Figures A3 (no broad market control) and A4 (Russell 3000 index included as a broad market control). The data shown are the marginal effects on each company's stock price, one trading day after the key news event categories.[9] Bolded values in shaded cells were those of firms whose 1-day stock price change was statistically significant at p<0.1 (all p-values are shown, and most of the significant changes had p-values below 0.05).

Figure A3: Marginal Effects (Model without broad market control)

Marginal Effect (No Broad Market Control; ISP's 1 Day % Change = β0 + β1*News Event Day + εi)

Company	% Change - Day of Positive News for Merger (all news days)	% Change - Day of Positive News for Merger (major news days)	% Change - Day of Positive News for Merger (major news days; exclude Mon. 4/30/18 sell-off)	% Change - Day of Negative News for Merger
T-Mobile	**1.75%**	-0.04%	1.19%	**-2.17%**
p-value	0.000	0.961	0.190	0.009
Sprint	**1.73%**	**2.10%**	**5.26%**	**-3.50%**
p-value	0.009	0.091	0.000	0.005
AT&T	0.07%	0.23%	0.48%	**-1.78%**
p-value	0.740	0.579	0.290	0.000
Verizon	0.04%	0.19%	**1.09%**	**-1.61%**
p-value	0.854	0.664	0.022	0.000
CenturyLink	-0.22%	0.15%	0.52%	0.21%
p-value	0.575	0.839	0.523	0.778
Cincinatti Bell	0.35%	0.13%	0.16%	0.42%
p-value	0.503	0.892	0.881	0.670
Comcast	-0.25%	-0.75%	-0.64%	-0.89%
p-value	0.373	0.145	0.259	0.084
Charter	**-0.81%**	**-1.73%**	**-2.68%**	0.41%
p-value	0.030	0.013	0.000	0.559

[9] If the news broke over the weekend, the price change measured is the change in the following Monday's closing price from the prior Friday. If the news broke over a weekday holiday, the price change measured is the change in the following trading day's closing price from the most-recent trading day's closing price.

Figure A4: Marginal Effects (Model with broad market control)

Marginal Effect (Russell 3000 Index Broad Market Control ; ISP's 1 Day % Change = $\beta 0$ + $\beta 1$*News Event Day + $\beta 2$*% Change Russel 3000 + εi))

Company	% Change - Day of Positive News for Merger (all news days)	% Change - Day of Positive News for Merger (major news days)	% Change - Day of Positive News for Merger (major news days; exclude Mon. 4/30/18 sell-off)	% Change - Day of Negative News for Merger
T-Mobile	**1.73%**	-0.25%	0.78%	**-1.93%**
p-value	0.000	0.746	0.357	0.012
Sprint	**1.71%**	1.86%	**4.78%**	**-3.21%**
p-value	0.007	0.117	0.000	0.007
AT&T	0.06%	0.10%	0.22%	**-1.62%**
p-value	0.761	0.786	0.586	0.000
Verizon	0.03%	0.05%	**0.81%**	**-1.45%**
p-value	0.893	0.895	0.051	0.000
CenturyLink	-0.24%	-0.04%	0.13%	0.43%
p-value	0.503	0.951	0.860	0.525
Cincinatti Bell	0.32%	-0.12%	-0.35%	0.71%
p-value	0.503	0.893	0.723	0.428
Comcast	-0.27%	**-0.95%**	**-1.04%**	-0.66%
p-value	0.231	0.023	0.024	0.114
Charter	**-0.83%**	**-1.92%**	**-3.07%**	0.63%
p-value	0.014	0.002	0.000	0.320

As Figures A3 and A4 indicate, this analysis largely reflects our prior expectations described above.

Sprint and T-Mobile share prices moved higher on days with news events that indicated the merger was possible (relative to all other days). Sprint and T-Mobile share prices declined on days with news events that indicated the merger was not likely to occur (relative to all other days). On negative news days for the merger, Sprint's shares showed larger declines than T-Mobile's, likely reflecting the market's general belief that Sprint needs the merger more than T-Mobile.

As expected, the share prices for ILECs CenturyLink and Cincinnati Bell did not show significant changes on the three groups of key news event days (relative to all other days).

Also as expected, the share prices for Comcast and Charter moved significantly lower on days where there were major news events indicating the merger between Sprint and T-Mobile was possible or likely (or confirmed), relative to all other days. Charter, as a long-rumored potential merging partner for Sprint, saw its shares significantly decline on all news days that indicated the merger was possible. Neither Comcast nor Charter shares saw significant changes relative to other days on the days when there was news indicating the T-Mobile/Sprint merger was unlikely. This perhaps reflects the tenuous nature of the rumors about any merger or partnership between these cable companies and Sprint, and the market's indifference to such a tie-up not happening.

Finally, we observe that AT&T and Verizon's stock prices saw significant declines on the days when news stories indicated that the T-Mobile/Sprint merger was not likely (significant relative to all other days in the study period). Only Verizon's shares saw significant increases on the "major" news event days when the news indicated the merger was likely – but only for the major positive news days that excluded the day the merger was confirmed.

The AT&T and Verizon results indicate that investors collectively view the continued independent operation of T-Mobile and Sprint as something that would reduce future earnings of both Twin Bells. The lack of movement of Verizon and AT&T shares on all positive news days could reflect the reality that the market is already operating in an oligopolistic state; in other words, the market may have the collective belief that while AT&T's and Verizon's future may not be substantially enhanced by a Sprint/T-Mobile merger, these future earnings would be harmed by the continued, heightened level of competition that would occur from independent T-Mobile and Sprint. The Verizon result on the major positive news days could reflect the market's belief that Verizon – as the highest-priced carrier, with a reputation for having the highest-quality network – could enjoy enhanced pricing power in a more consolidated market, while AT&T would be a closer competitor to New T-Mobile.

CONCLUSION

Our analysis of the single-day movement of AT&T and Verizon share prices on days following major news of a possible T-Mobile/Sprint merger possibly indicates that shareholders of these two mobile market leaders perceive standalone T-Mobile and Sprint as a threat to the Twin Bells' future earnings. While this analysis is in no way dispositive of the likelihood of future coordinated effects or parallel conduct, it does offer insight into how "the market" (which is largely comprised of professional investors) views the importance of standalone T-Mobile and Sprint to the abilities of AT&T and Verizon to leverage their market power. This analysis is yet another piece of evidence amongst a myriad of data that indicates the T-Mobile/Sprint merger, and its massive concentration of the wireless market, would certainly reduce competitive activity in the wireless market, harming the public interest.

DECLARATION OF O'NEIL PRYCE

1. I, O'neil Pryce, am the Special Assistant to the President and CEO at Free Press. I am also a member of the organization, located at 1025 Connecticut Ave. NW, Suite 1110, Washington, D.C. 20036.

2. I reside in Washington, D.C.

3. I am a T-Mobile customer. I regularly use my mobile device on T-Mobile's network – for voice, text and data services. I rely on these services for personal and work-related uses.

4. I believe that I and other customers like me would be harmed by T-Mobile's acquisition of Sprint because the decreased competition would result in higher prices for me and increase the risk of privacy invasions.

5. I believe the proposed merger would raise the price of the merged firm's mobile offerings. As Free Press wrote in its 2016 report *Digital Denied*, "despite the persistence of a digital divide for wired internet-access connections, the relatively higher levels of competition and choice in the mobile market have largely closed such divides in mobile internet and cellphone adoption." While both T-Mobile and Sprint have fewer customers and fewer advantages than their larger rivals, they still have a nationwide footprint and the motivation to recover their network investments. The resulting carrier would become more like AT&T and Verizon, with a position of market dominance, as the merger would relieve competitive pressures and allow the merged firm to raise prices.

6. Additionally, even if I were to decide to switch from the merged carrier in the future, the merger would force me to choose from among fewer carriers offering services at higher prices.

7. Furthermore, I am concerned that the merger would result in more invasive marketing and corporate surveillance, undermining my broader freedoms to connect and communicate. With the reversal of the Commission's strong Net Neutrality rules and legal underpinning for them, I no longer receive the benefit of the protections that were in place guaranteeing my rights to send and receive the digital information of my choosing without undue interference and discrimination from ISPs. If Sprint and T-Mobile were allowed to merge, I believe that with less competition it would be unlikely for either of these companies to position themselves as a privacy-protecting telecom alternative. Sprint and T-Mobile are already claiming that this deal would generate enough additional profits to let the newly merged colossus get into the "rapidly converging content and communications marketplace" — just like other big wired and wireless providers.

8. This Declaration has been prepared in support of the foregoing Petition to Deny. It is true to the best of my personal knowledge and belief, and is made under penalty of perjury of the laws of the United States of America.

O'neil Pryce

August 27, 2018

DECLARATION OF MATTHEW F. WOOD

1. I, Matthew F. Wood, am the Policy Director at Free Press. I am also a member of the organization, located at 1025 Connecticut Ave. NW, Suite 1110, Washington, D.C. 20036.

2. I reside in Washington, D.C.

3. I am a Sprint Corporation customer. I regularly use my mobile device on Sprint's network – for voice, text and data services. I rely on these services for personal and work-related uses.

4. I believe that I and other customers like me would be harmed by T-Mobile's acquisition of Sprint because the decreased competition would result in higher prices for me and increase the risk of privacy invasions.

5. I believe the proposed merger would raise the price of the merged firm's mobile offerings. As Free Press wrote in its 2016 report *Digital Denied*, "despite the persistence of a digital divide for wired internet-access connections, the relatively higher levels of competition and choice in the mobile market have largely closed such divides in mobile internet and cellphone adoption." While both Sprint and T-Mobile have fewer customers and fewer advantages than their larger rivals, they still have a nationwide footprint and the motivation to recover their network investments. The resulting carrier would become more like AT&T and Verizon, with a position of market dominance, as the merger would relieve competitive pressures and allow the merged firm to raise prices.

6. Additionally, even if I were to decide to switch from the merged carrier in the future, the merger would force me to choose from among fewer carriers offering services at higher prices.

7. Furthermore, I am concerned that the merger would result in more invasive marketing and corporate surveillance, undermining my broader freedoms to connect and communicate. With the reversal of the Commission's strong Net Neutrality rules and legal underpinning for them, I no longer receive the benefit of the protections that were in place guaranteeing my rights to send and receive the digital information of my choosing without undue interference and discrimination from ISPs. If Sprint and T-Mobile were allowed to merge, I believe that with less competition it would be unlikely for either of these companies to position themselves as a privacy-protecting telecom alternative. Sprint and T-Mobile are already claiming that this deal would generate enough additional profits to let the newly merged colossus get into the "rapidly converging content and communications marketplace" — just like other big wired and wireless providers.

8. This Declaration has been prepared in support of the foregoing Petition to Deny. It is true to the best of my personal knowledge and belief, and is made under penalty of perjury of the laws of the United States of America.

Matthew F. Wood

August 27, 2018