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The FCC's Net Neutrality Decision and Stock Prices

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Abstract More than a year after a court invalidated its "net neutrality" rules on broadband Internet service providers (ISPs), the Federal Communications Commission (FCC) decided to extend public-utility (Title II) regulation on broadband services. This paper uses traditional event analysis of the movements in the values of major communications and media companies' equities at key moments in the FCC's path to this decision to estimate the financial market's assessment of the likely effects of regulation on ISPs, traditional media companies, and new digital media companies. The results are surprising: the markets penalized only three large cable companies to any extent, and even these effects appear to have been short-lived. The media companies, arguably the intended beneficiaries of the regulations, were unaffected.

Keywords Economic regulation · Internet · Telecommunications

A great deal of ink has been spilled over the Federal Communications Commission's (FCC's) decision to "roll back the clock" and impose public-utility styled (Title II) regulation on broadband Internet services. Two weeks after its 3-2 vote on February 26, 2015, the FCC published its "net neutrality" decision, which included the final rules for this new regulatory regime for fixed-wire and wireless broadband.[1] Unfortunately, given the complexity of the constantly-changing

[1] Federal Communications Commission, In the Matter of Protecting and Promoting the Open Internet, *Report and Order on Remand, Declaratory Ruling, and Order, GN* Docket No. 14-28, March 12, 2015, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf (Hereafter, FCC Net Neutrality Order).

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Internet, this 313-page document provides only the vaguest of hints of how the FCC will proceed, and this uncertainty has created concern about the return to formal telecom regulation that many thought had been confined to the dustbin of history.

This paper looks back on the FCC's journey to establishing this new regulatory policy on broadband communications and attempts to assay its likely impacts. Given that only 18 months have passed since the February 2015 decision and that no new regulations to implement the policy have been promulgated, it is impossible at this date to estimate its effects—favorable or unfavorable—directly. It is possible, however, to determine how investors in the common equities of the publicly traded companies that are affected by the ruling responded to discrete events along the way to the imposition of Title II. These market responses could provide an indication of how the new policy will affect the various companies in broadband communications, or at least of how the equity markets estimated such effects at the time. The results, or lack thereof, may be surprising—particularly, given the strong reactions that the new rules provoked.[2]

1 Regulatory Politics

The process of developing the new net neutrality rules was driven in large part by political considerations. For more than a decade, the FCC had pursued a policy of regulatory forbearance towards broadband Internet services; the Commission chose to rely on platform competition between (fixed) telecom carriers, cable companies, and—more recently—wireless carriers. In this largely unregulated environment, telecommunications and cable television companies invested heavily in facilities that delivered ever-faster speeds over copper wires, coaxial cable, and the spectrum (through wireless devices).

But as the cable and telecom industries consolidated, a political concern arose that the large cable and telecom companies—the internet service providers (ISPs)—might begin to exercise market power by denying access or providing inferior access to content providers, particularly if the ISPs themselves owned competing content.[3] This concern was not buttressed with any empirical analyses that demonstrated such discrimination or denial of access.

Until 2010, the FCC relied on a simple "Internet Policy Statement" to promote an open Internet. However, in June 2010 the Commission moved a step closer to formal regulation by issuing an "Open Internet Order" that formalized the Policy Statement's goals of no blocking of content, no unreasonable discrimination, and full transparency for ISPs; but the Order stopped short of imposing full common carrier regulation under Title II of the Communications Act.

Subsequently, Verizon challenged the Commission's Order and won a pyrrhic victory at the U.S. Court of Appeals in 2014.[4] The Court found that the FCC could not impose anti-blocking and non-discrimination rules on ISPs because the ISPs had

[2] For a sample of early reactions see Zagrzewski and Wilhelm (2015).

[3] See, for example, Crawford (2013).

[4] *Verizon Communications, Inc. v. Federal Communications Commission*, 740 F.3d 623 (D.C. Cir. 2014).

not been categorized as common carriers. However, the Court appeared to be sympathetic with these policy goals and even suggested how the FCC might implement them in a manner that was consistent with the requirements of the Communications Act. The FCC then issued a new Notice of Proposed Rulemaking, outlining various potential approaches to implementing a policy of net neutrality.[5]

Over the next few months, the Commission and Chairman Tom Wheeler weighed whether to move towards formal regulation under Title II of the Federal Communications Act or simply utilize the Section 706 "forbearance" process to deal with various complaints about unfair practices by ISPs. At the same time, substantial political pressures began to weigh on the Commission, as advocates launched extensive and intensive lobbying campaigns.

As the Commission approached its final decision, President Obama weighed in. On November 10, 2014, the President unexpectedly intervened in this regulatory process by issuing a statement that urged Chairman Wheeler and the "independent" FCC to use Title II to regulate broadband ISPs.[6] The President's surprising statement spawned a barrage of new comments in the FCC's rulemaking process, which gave Chairman Wheeler sufficient support to follow the President's recommendation three and one-half months later.

It is not unusual for an independent regulatory commission to be influenced by political pressures—particularly when the stakes are large. And the stakes were very large in this case. The delivery of a variety of content over the Internet threatens to wreak havoc in the media, cable television, and telecommunications industries. As an increasing volume of video content is made available for "streaming" over high-speed broadband connections, the traditional linear model of distributing television programming over cable television, telephone-company fiber-optic networks, or high powered satellites is facing a major challenge. The companies that are involved in this process—including newcomers such as Amazon, Apple, and Google—are among the largest companies in the U.S. economy.

Traditional media companies—such as Disney, Time Warner, 21st Century Fox, CBS and Viacom—had a combined enterprise value approaching $500 billion at the beginning of 2015. The ISPs—cable companies, erstwhile "telephone" companies, and satellite carriers—had combined enterprise values of at least $700 billion. And the new media companies—such as Facebook, Google, Netflix, and many others—had a combined value of at least $700 billion. Surely, one has to add Apple's $700 billion market value to this mix, given its interest in media content, its nascent Apple TV service, and the importance of the iPhone in the wireless broadband sector.

Thus, in the aggregate the companies that were affected in a major way by the FCC's lurch back to regulation had a value that approached $2 trillion, or about one-twelfth of the value of all listed stocks in the United States. A major regulatory decision in this environment—particularly one that reverses more than a decade of

[5] Federal Communications Commission, *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, *Notice of Proposed Rulemaking*, 29 FCC Rcd 5561, May 15, 2014.

[6] https://www.whitehouse.gov/blog/2014/11/10/president-obama-urges-fcc-implement-stronger-net-neutrality-rules.

regulatory forbearance—would surely attract notice and likely reverberate through the capital markets.

2 The Likely Impact of Net Neutrality Regulation: Initial Observations

The FCC's final rules require that ISPs not engage in: (i) "blocking," (ii) "throttling," (iii) "paid prioritization," or (iv) "unreasonable interference or disadvantaging" of end users or content providers. Conduct must be reasonable—surely, a reasonable mandate! But their meaning will be fleshed out only as antagonists and protagonists flood the Commission with complaints and pleadings. Indeed, the rules allocate more space to the pleading and complaint process than to the formal regulations.

Thus far, the new rules have spawned very little formal regulatory activity. The wireless carriers have begun to adopt various forms of "zero rating" of selected digital content—i.e., allowing users to download selected content that will not count against the users' data cap—but the FCC has yet to address this issue directly under the new rules.[7] Otherwise, there has been little activity in imposing the new rules.

As a result, it is far too early to attempt to estimate the effects of the FCC's decision to regulate broadband Internet services. But given the likely impacts of any new regulation on this very large sector of the economy, it should be possible at least to discern the capital market's initial assessments of these impacts from movements in the prices of the equities of the major companies that were affected by the rules.

The direct burden of net neutrality regulation, however large or small, is most likely to be borne by ISPs: principally, cable companies and telecommunications carriers. These carriers are prohibited from discriminating in the carriage of content or to reduce selectively the quality ("throttle") of broadband connections. In addition, they cannot charge content owners for improvements in connections ("paid priority"); in fact, it appears that they will not be able to collect any payments from these media companies. Therefore, it is reasonable to expect that major events along the road to the February 2015 decision that signaled an increase in the probability of strict net neutrality regulation would result in some downward movement in cable television and telecommunications carrier equities.[8] Conversely, events that signaled a reduction in this probability should have led to some upward movements in these equities.

The effect of net neutrality regulation on media stocks is difficult to predict. None of these companies is subject to the jurisdiction of the FCC's telecommunications regulation.[9] Nevertheless, each is likely to be affected by the FCC's

[7] For a discussion of this issue, see Gattuso (2016).

[8] Scott Wallsten has suggested that this deleterious effect might be offset by a favorable, if anticompetitive, effect of suppressing network investment by the carriers if the equity markets look unfavorably upon such investments by these cable and telecommunications companies.

[9] Several—such as Disney, CBS, and 21st Century Fox—are subject to broadcast regulation.

decision to regulate broadband because media companies are increasingly using broadband streaming to reach the final consumer.

The larger media companies distribute their films and television series over cable television and over the Internet. They typically do not distribute these products to final consumers over the Internet themselves,[10] but rather through Netflix, Starz, Amazon and others. If net neutrality bans direct payments between the latter companies and the ISPs, those companies' direct costs of distribution may be reduced, but they may suffer from lower-quality connections or network congestion. Netflix, for example, was initially an advocate of net neutrality regulation, but seems to have backed away from that position.

The major traditional media companies have largely been silent on the issue. However, if net neutrality provides a better environment for *new* media ventures, these nascent firms could be expected to benefit, perhaps at the expense of the traditional media companies. Unfortunately, nascent firms are rarely, if ever, public companies. Therefore, it is difficult to estimate the effects of any policy on them. As a result, this study must confine its attention to the effects on traditional media firms and the new, public digital media companies.

One possible outcome of net neutrality regulation is that consumers will bear more of the direct cost of broadband distribution because the ISPs are forbidden to charge content suppliers. The two-sided broadband distribution market may be reduced by the FCC essentially to a one-sided market with limited direct financial consequences for any of the market participants other than a potential increase in network congestion.

3 The Movement Toward Net Neutrality Regulation and Communication-Company Equity Prices

To estimate how investors have assessed the likely impacts of the new rules, one may look at the effect of exogenous events during the regulatory process that led to the rules on the equities of firms affected by the rules. There are three such events that likely were not fully anticipated by the financial markets: (1) The U.S. Court of Appeals for the District of Columbia's January 14, 2014, ruling in *Verizon v. FCC* that invalidated the FCC's earlier "Open Internet Order" that imposed net neutrality rules on ISPs[11]; (2) the February 23, 2014, announcement of a Netflix-Comcast carriage agreement, which involved paid prioritization, that added to the political momentum for the FCC to consider using Title II to regulate broadband; and (3) the President's unanticipated and astonishingly bold entry into the net neutrality debate on November 10, 2014, that likely pushed the Democratic majority on the FCC across the finish line to Title II regulation.

[10] On occasion, Hollywood studios have formed joint ventures to distribute their products over the internet. The most prominent of these ventures is Hulu, owned by Universal (Comcast), Disney, and Fox.

[11] *Verizon Communications, Inc. v. Federal Communications Commission*, 740 F.3d 623 (D.C. Cir. 2014).

In addition, it is possible, but less likely, that the FCC's publication of the Final Rules on March 12, 2015, could have surprised investors because the February 26 vote to approve these rules was accompanied by only a vague description of the nature of the rulemaking. Therefore, the FCC's issuance of the final rules is included as a fourth event in this analysis, although one would not expect it to have much effect on the markets.

This paper uses conventional stock-market "event analysis" techniques to estimate how the equity markets viewed the differential effects of prospective internet regulation on major internet service providers, traditional media companies, and the newer digital-media companies in each of these four events. However, it is useful to begin by looking at the price movements of the major communications sector equities from the end of 2013, when Title II regulation of broadband was not thought to be likely, through the end of 2015, when such regulation was in place.

Figures 1 and 2 show the behavior of separate market-cap-weighted indexes of the daily prices of the equities of: the two largest telecom companies (AT&T and Verizon); the four largest publicly-traded cable companies (Comcast, Time Warner Cable, Cablevision, and Charter); the five largest traditional media companies (Walt Disney, Time Warner, Viacom, CBS, and 21st Century Fox)[12]; five "new media companies" (Starz, Facebook, Twitter, AOL, and Yahoo!)[13]; and the equity price of Netflix. The S&P500 index is included for comparison purposes. The dates of the three major events that eventually led to the imposition of Title II are marked in each figure.

Figure 1 shows that the price of Netflix shares was much more volatile than the weighted indexes of telecom, cable, and media company shares.[14] But it appears that Netflix's equity initially responded positively to the reversal of the earlier FCC net neutrality rules and fell after the Obama statement, which is surely not what would be expected by proponents of a policy of net neutrality. Moreover, Netflix stock began falling a week or so after the Netflix-Comcast deal was announced. It is notable that, despite Netflix's relatively high "equity beta," it did not generally outperform the rising stock market over most of the 2014–2015 period shown, but it soared after April 15, 2015. Given that the FCC's decision on net neutrality was announced in February, this rise cannot be attributed to the announcement of a new net neutrality policy.

The other media companies, traditional and "new", clearly outperformed the S&P 500 through the middle of 2015. Both declined after a lag in the wake of the Netflix-Comcast deal. The traditional media companies outperformed the S&P500 after the Obama statement that supported strict broadband regulation, but new media companies did not; again, this is surely not the expected result of the

[12] Another traditional "Big Media" company is Sony, but audio and video entertainment comprises a minor share of its sales. As a result, it is not included in the index, although it is included in the detailed stock-price analyses below.

[13] AOL is dropped from the "New Media" index in May 2015 because it was acquired by Verizon and was therefore no longer an independent company.

[14] The weighted indexes are less volatile than their components. Nevertheless, Netflix's equity is more volatile than any of the other media stocks. This volatility affects the analysis below because of its effect on the statistical significance of the observed changes in the price of Netflix's equity shares.

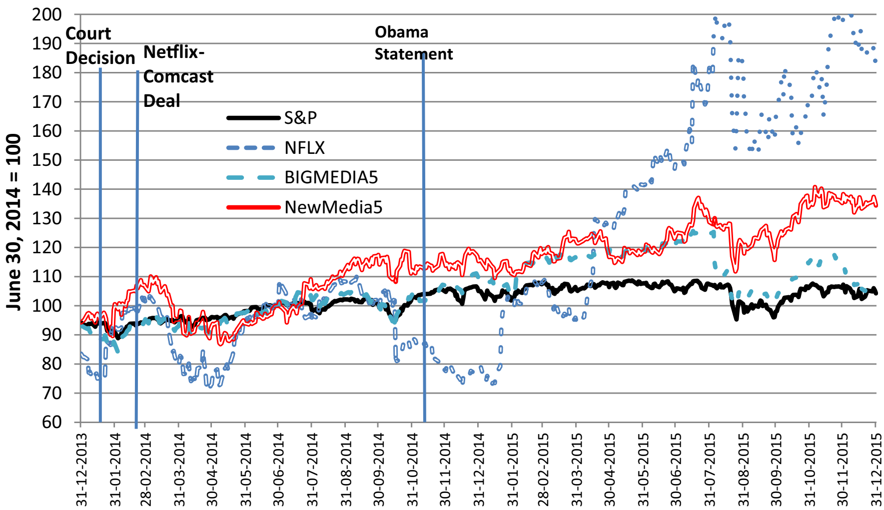

Fig. 1 Media company and Netflix stock prices 2014–2015. *Source*: Yahoo Finance

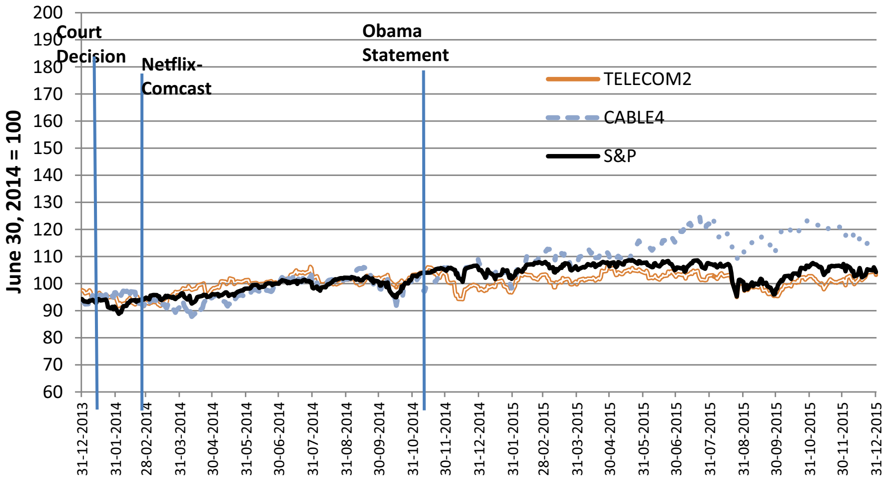

Fig. 2 ISP stock prices 2014–2015. *Source*: Yahoo Finance

President's message. More recently, the traditional large media companies' equities have declined due to a fear of the effects of video streaming on traditional cable bundles,[15] but the new media companies' equities have continued to rise relative to the S&P.

[15] The decline began shortly after Robert Iger, the CEO of Walt Disney, speculated openly on CNBC in late July 2015 that video streaming and the consequent narrowing of the cable bundle might adversely affect even ESPN, the most valuable of all cable network franchises.

As Fig. 2 shows, the cable companies' stock prices appear to have fallen somewhat in the weeks that followed the announcement of the Netflix-Comcast deal. After a sharp decline following the President's November 10, 2014, message, they recovered and outperformed the S&P through June 2015. The equities of two major telecom carriers generally tracked the S&P 500 after the announcement of the Netflix-Comcast deal, but fell after the Obama statement. Through most of 2015, the cable companies' equities generally outperformed the S&P 500, but the telecommunications companies' equities generally underperformed the S&P500; this is a result that suggests that other forces were dominating the movements in these indexes, given that both groups should have been affected similarly by the regulatory vicissitudes that surrounded net neutrality during this period.

Thus, the overall performance of the equities in this sector during this uncertain period of movement towards a new, stricter regulatory regime for broadband Internet services suggests that media companies and cable companies generally outperformed the overall stock market, while the major telecom carriers did not. Netflix underperformed until April 2015, but then rose sharply; this is a result that would be difficult to attribute to the market's reaction to the FCC's net neutrality rules. The apparent response of these equities to each of the major events cannot be clearly discerned from these two figures; hence, we now turn to a closer look at the immediate market response of each company's equity in an attempt to clarify this issue.

4 The Response of Equity Prices to Each Event: A Closer Look

To look more closely at the effects of the four major events on individual communications-sector equity prices, and to determine if they are statistically significant, the excess returns on each firm's equity price during the period that surrounded each event were estimated in two ways. Each relied on the conventional capital-asset pricing model to estimate how the price of each firm's equity would have performed over the relevant period. These analyses were performed on a sample of the daily stock prices of the most important publicly-traded ISPs, wireless carriers, satellite carriers, and media companies.[16] The companies were grouped into: wired telecommunications carriers (that also offer wireless services); wireless carriers; cable television companies; traditional media companies; and new media companies. The last of these three groups were generally most active in seeking strong FCC-mandated protections from the first group.

The first approach used daily stock prices from December 31, 2013 through May 4, 2015, to estimate econometrically the conventional capital-asset pricing model using a set of four dummy variables to capture each of the events above:

[16] The sample includes six telecommunications companies, four cable companies, two satellite carriers, six major media companies, and nine new digital media companies. See Table 1 and the "Appendix" for the identities of these companies. All data are from www.finance.yahoo.com.

Table 1 Summary of statistically-significant excess equity returns from four net-neutrality-related events: 1-day and 3-day windows (%)

Stock	*Verizon v.* FCC ruling	Netflix-Comcast deal	Obama statement	FCC rules released
Internet service providers				
AT&T				
1 Day	N	N	N	N
3 Day	N	−1.07**	N	N
Verizon				
1 Day	N	−2.49***	N	1.35*
3 Day	N	−1.39***	N	0.82*
Frontier				
1 Day	N	N	N	N
3 Day	N	2.07**	N	N
CenturyLink	N	N	N	N
Sprint	N	N	N	N
T-Mobile (USA)	N	N	N	N
Comcast				
1 Day	N	N	−4.32***	N
3 Day	N	N	−1.64***	N
Time Warner Cable				
1 Day	N	N	−5.17***	N
3 Day	N	N	−2.91***	N
Cablevision	N	N	N	N
Charter				
1 Day	N	N	−6.50***	4.62***
3 Day	N	−2.94***	−2.76***	1.52 *
DirecTV	N	N	N	N
DISH	N	N	N	N
Media companies				
Walt Disney				
1 Day	N	N	N	2.74***
3 Day	N	N	−0.96**	0.85*
CBS				
1 Day	N	N	N	2.05*
3 Day	−1.15*	N	N	N
Time Warner	N	N	N	N
21st Century Fox	N	N	N	N
Sony				
1 Day	N	N	4.02**	N
3 Day	N	N	N	N
Viacom	N	N	N	N
Netflix	N	N	N	N

Table 1 continued

Stock	*Verizon v.* FCC ruling	Netflix-Comcast deal	Obama statement	FCC rules released
Starz				
1 Day	N	4.96***	N	N
3 Day	N	2.37***	N	N
Yahoo!	N	N	N	N
Twitter	N	N	N	N
Amazon	N	N	N	N
Facebook	N	N	N	N
Apple				
1 Day	N	N	N	N
3 Day	1.26*	N	N	N
AOL				
1 Day	5.33**	N	4.67**	N
3 Day	2.13 *	N	2.22 *	N
Google	N	N	N	N

N no significant coefficient (s)

* Statistically significant at the 10% confidence level

** Statistically significant at the 5% confidence level

*** Statistically significant at 1% confidence level

$$\rho_{it} = \alpha_i + \beta_i M_t + \Sigma\gamma_j D_{jt} + u_t, \tag{1}$$

where ρ_{it} is the daily return on the ith equity on day t; M_t is the return on the overall market (the S&P500 Index) on day t; D_{jt} are four dummy variables that take the value of unity during the window that surrounds each of the four major events[17] and zero otherwise; and u_t is a normally-distributed error term.

All results were estimated for the day of the event (a "1-day window), a 3-day symmetrical window, and a 5-day symmetrical window; but Table 1 shows only the 1-day and 3-day results because even the relatively modest effects that are recorded in the 1- and 3-day windows are severely attenuated when the period is stretched to 5 days. A summary of the results is shown in Table 1. Detailed results—including the estimated betas from these regressions—may be found in "Appendix Tables 2, 3 and 4".[18]

The second approach used beta coefficients for each stock published by Yahoo! Finance multiplied by the performance of the S&P 500 index to calculate predicted returns for each major event shown above. The "excess return" was then calculated

[17] A fifth event—the collapse of the Comcast-Time Warner Cable proposed merger—was also included; its estimated coefficients will be reported separately below for reasons that will become clear after the discussion of the coefficient estimates of the four net-neutrality event variables.

[18] Each equation was estimated using the Cochrane–Orcutt correction for potential serial correlation. The estimated coefficients are reproduced in the Appendix, but—given the number of equations estimated—the goodness of fit and Durbin Watson ratios are not reported there. They may be obtained from the author.

as the actual return less this predicted return. This calculation was performed for: the day that the news event occurred; a 3-trading-day window that is centered on this date; and a 5-trading-day window that is centered on the date. Because the results of this exercise were very similar to those obtained from the econometric estimates of (1), they will not be discussed in the text but are detailed in four tables in the "Appendix".[19]

4.1 The *Verizon v. FCC* Decision (1/14/2014)

Arguably, the DC Circuit Court's invalidation of the original FCC net neutrality rules should have been beneficial to the telecom and cable companies: the ISPs to which the rules applied. But the opinion in this case, originally brought by Verizon, offered the FCC a clear roadmap to net neutrality regulation that would pass the Court's muster. As a result, many market participants viewed the court decision as a mixed blessing: It invalidated the FCC's regulations, but nevertheless opened the door wide for future regulation.

As Fig. 3 shows, the telecom and cable carriers' stock prices rose very little relative to the overall market, which is reflected by the S&P 500 index, in the first few days after the court decision. The media companies' stocks evidenced a similarly mild downward movement on the second and third days after the court ruling, and Netflix had a very small downward move on the first day. Overall, this court decision seems to have had a very limited immediate effect. In the ensuing two weeks, the cable and telecom stocks outperformed the S&P500, the traditional media companies tracked the S&P500, and Netflix and the other new digital media companies jumped up sharply, albeit at different dates and presumably in response to some other news.

A summary of the statistical analyses of each company's returns around the date of the announcement of the appellate court's decision are shown in Table 1 and more completely in the "Appendix". The results may be summarized succinctly: The court decision appears to be associated in a statistically-significant manner with movements in only one of the 27 equities. AOL had a statistically significant move in the days following the January 14 release of the court decision[20]; but the large magnitude of this movement and the lack of any corresponding movement in other new media equities suggest that it was related to AOL's announcement that it was jettisoning Patch (a large money loser) in response to dissident shareholder complaints. The lack of any significant response of any of the other equities to the court's ruling allows us to conclude that this decision apparently had no effect on investors' view of the relevant markets.

[19] The Yahoo! Finance betas are shown in "Appendix Table 9".

[20] In addition, a positive coefficient for Apple in the 3-day window is statistically significant only at the 10% level of confidence.

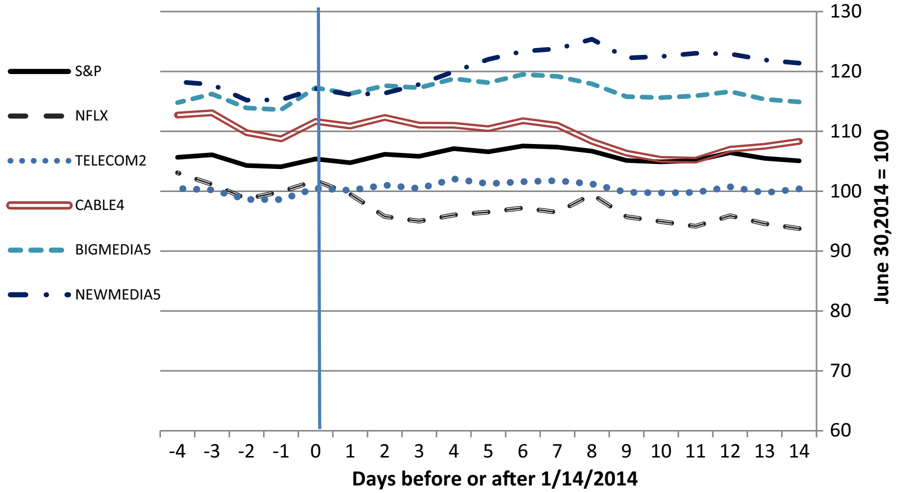

Fig. 3 ISP, media company, and Netflix stock prices before and after 2014 court decision invalidating FCC net neutrality rules. *Source*: Yahoo Finance

4.2 The Netflix-Comcast Carriage Deal (2/23/2014)

The second event was likely much more important because it ignited a furor over "paid prioritization"—the direct payment by content providers to ISPs for high-quality connections—which eventually led to political pressure to impose Title II regulation. Though the details of this agreement are not in the public domain, it is clear that Netflix committed to pay Comcast for improved delivery of its data-intensive video services that consumers download over the Internet.

The movement of the various companies' equities in the period around the announcement of the Netflix-Comcast paid-prioritization deal on February 24 is shown in Fig. 4. The most important impression created by Fig. 4 is that, of all of the equities shown, only Netflix's and other new media companies' stock prices rose immediately in the aftermath of the announcement the Netflix-Comcast agreement! The ISP equities—cable and telecom companies—declined very slightly relative to the S&P500, and the traditional media companies' equities rose almost imperceptibly.

The econometric analyses of this event summarized in Table 1 and reproduced in the "Appendix" provide support for the conclusion that some ISPs' equities were affected negatively and that one new media company's equity rose significantly around the time of the Netflix-Comcast announcement. These results show a significantly adverse effect on Verizon's share price in the 1- and 3-day windows, a similarly significant negative effect for AT&T in the 3-day window, and a negative effect for Charter in the 3-day window. But the other cable companies' stock prices did not decline, and there were even positive excess returns for Frontier, a smaller wired telecommunications carrier.

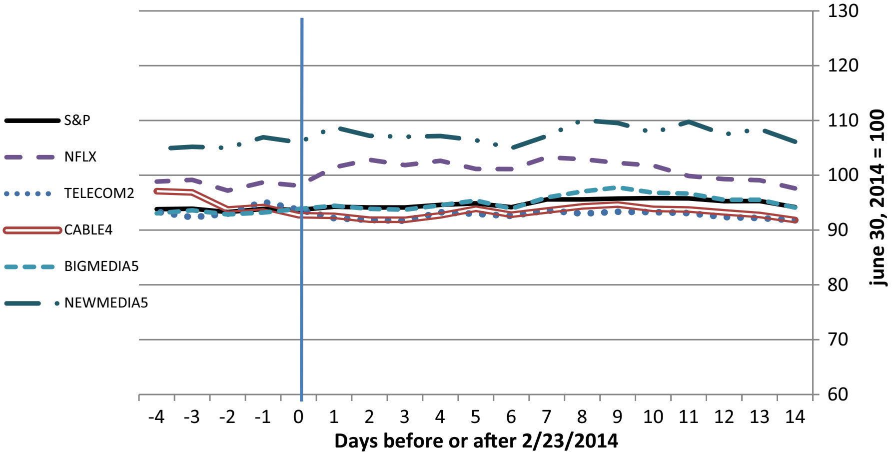

Fig. 4 ISP, media company, and Netflix stock prices before and after Netflix-Comcast agreement announcement. *Source*: Yahoo Finance

In the media-company regressions, only Starz showed a significant response during the period around the announcement of the Netflix-Comcast deal, but its positive response was undoubtedly due to the strong 2014 results that it reported on the previous Friday evening.[21] All of the other media companies' stocks, including that of Netflix, failed to respond to this apparently important event.[22]

Overall, except for the negative response of Verizon, AT&T, and Charter shares, there was little to suggest that the Netflix carriage agreement with Comcast had much effect on the financial market's view of broadband-related stocks. Moreover, it is difficult to understand why this precedent in media-company payment for carriage over a cable-system ISP would redound badly on telecom-company ISPs and even another cable company, Charter, given that these ISPs could negotiate similar carriage agreements. But the most important conclusion that emerges from this analysis is that investors did not view this seemingly major change in the way that Netflix and, presumably, other media companies would arrange for carriage of their video services as one that would have an economic effect on media companies—new or old.

4.3 President Obama's Message (11/10/2014)

In the months preceding the FCC's February 26 decision, perhaps no event had a bigger impact on the ultimate FCC outcome than the President's dramatic, and largely unprecedented, decision to provide detailed recommendations to the FCC in support of Title II regulation. Moreover, it was entirely unexpected. As a result, we

21 See Jannarone (2014).

22 As Fig. 4 shows, Netflix's stock rose after the announcement, but this increase was not statistically significant.

should be able to observe the financial markets' assessment of the likely initial effects of net neutrality regulation on the various companies in the days that followed the President's November 10 video pronouncement. Figure 5 provides a snapshot of these effects.

Clearly, the biggest surprise in Fig. 5 is that the cable company stocks responded adversely while the other communications stocks did not respond much at all. Why would investors view the President's message as being bad for cable television companies, but not for the two major telecommunications carriers? And if cable companies were predicted to suffer from the now more-likely prospective Title II regulations, why would Netflix and the other new media companies not reap a corresponding benefit?

It is also interesting to note that the decline in cable stocks was short-lived. Fourteen trading days later, these equities had recovered fully while the telecom carriers' stocks had fallen very slightly. But Netflix shares began to fall substantially in the second week after the President's aggressive support for Title II, while the traditional media companies' shares rose steadily and substantially after the first 3 days that followed the November 10 Presidential announcement.

The more intensive econometric analysis of excess returns around this event, shown in Table 1 and the "Appendix", indicates that three of the four cable companies' equities—Comcast, Time Warner Cable, and Charter—declined significantly and sharply—as much as 4 to 6 percent—relative to the market in the first day. No other cable or telecom company had a significant excess return over these periods around the Obama message even though these companies would presumably be affected as much as the three major cable companies by any movement towards net neutrality regulation.

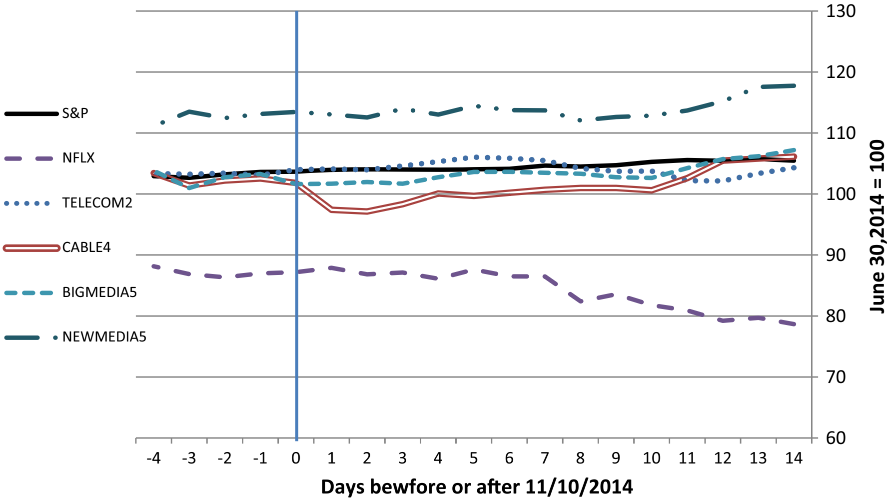

Fig. 5 ISP, media, and Netflix stock prices before and after president Obama's net neutrality message. *Source*: Yahoo Finance

Of the new digital media companies' shares, only AOL had statistically significant (and positive) excess returns. Of the large traditional media companies, only one—Sony—evidenced positive excess returns, and Disney's shares showed a significantly negative response. The telecom companies' and all other media companies' shares appeared to ignore this major development. Thus, the major impact appears to have been a negative reaction for three cable company stocks and mixed results for only three of the 15 media company stocks. If the President's message was associated with such a large negative effect on three of the four major cable company equities, why were there no corresponding upward movements in most media stocks, particularly if the prospect of net neutrality regulation was to assure these media companies with low-cost nondiscriminatory connections to the ISPs' networks?

4.4 The FCC Final Rules (3/12/2015)

The FCC's February 26, 2015, vote to impose net neutrality rules through Title II of the Telecommunications Act was not accompanied by any formal release of the text of the decision or of the rules. The vote itself was no surprise. As widely anticipated in the press after the Obama statement, the FCC voted 3-2, along political-party lines, to impose Title II on broadband services. The publication of the decision and the final rules occurred two weeks later, and the actual language of the decision could have been a source of surprise to the financial markets, especially given the lack of specificity in the FCC announcement on February 26. However, it would be difficult to know how these formal rules differed from the market's expectations. The results shown in Fig. 6, Table 1, and the "Appendix" suggest that the formal publication contained few surprises.

Of the 27 communications-company equities in the CAP model analysis, only Charter and Disney evidenced a statistically significant movement around the March12 FCC release of the rules; but both companies had major news events that were totally unrelated to the FCC rules on this date: Charter was revealed to be in talks to buy one of the largest privately-held cable companies: BrightHouse; and Disney announced at its annual shareholders' meeting on March 12 that it would be producing a sequel to its highly successful film, *Frozen*, and provided details on its plans to revive its *Star Wars* franchise. Other than these two moves, the only other equity to show a minor move was Verizon, which had a rise that was significant at only the 10 percent confidence level.

The conclusion from these four events is that a change in the likelihood of Title II regulation or a clarification of it had little immediate effect on most communications-related equities. The most notable effects were the highly-significant declines in the equities of three cable television companies—Comcast, Time Warner Cable, and Charter (but not Cablevision)—in the days that surrounded President Obama's surprise statement that promoted Title II regulation. The emergence of paid prioritization in the Comcast-Netflix deal had little or no effect on media stocks, including that of Netflix. The only stocks that were affected were those of AT&T and Verizon, and this effect was negative; this is a curious result unless the Netflix-

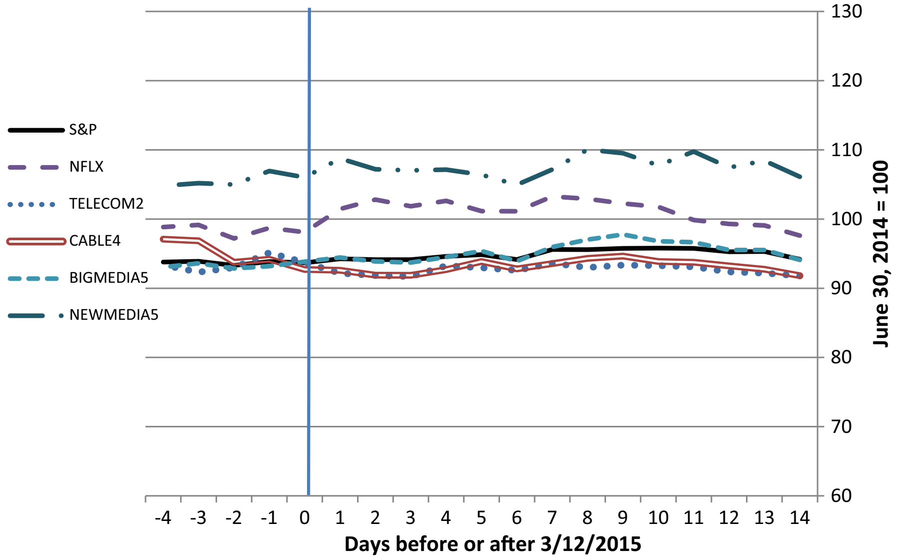

Fig. 6 ISP, media company, and Netflix stock prices before and after FCC release of final rules imposing Title II regulation. *Source*: Yahoo Finance

Comcast deal was thought to be a driving force on the road to Title II regulation. And if it were, why would the cable stocks not respond similarly?

5 The Effect on Comcast, Time Warner Cable, and Charter

The event analyses shown above lead to some unexpected conclusions: First, for the most part, equity markets did not respond to unforeseen events that led to the re-imposition of public-utility style regulation on a sector of the economy that had been essentially deregulated over the past two decades. Second, this march towards public utility regulation was supposed to benefit content suppliers by constraining the allegedly powerful ISPs in dealing with them, but there is virtually no evidence that the equities of media companies—new or old—responded positively to events that signaled the approach of stronger regulation. Finally, the event that had the most impact on equity prices—President Obama's November 10, 2014, declaration—had severe impacts on the equities of Comcast, Time Warner Cable, and Charter, but not on the telecom companies, the satellite TV companies, or even the other major cable company, Cablevision.

The obvious inference to be drawn for this combination of results is that investors did not anticipate that net neutrality regulation will have much effect on market outcomes—at least, not yet. But another possible conclusion is that the equity markets read President Obama's message to the FCC as a signal that it should lean heavily against cable consolidation. Comcast had agreed to buy Time Warner Cable for $45 billion in February 2014. Subsequently, it agreed to spin off a number of cable systems to Charter, thus avoiding crossing the FCC's threshold of 30 percent of total national subscribers. Time Warner Cable and Charter were likely the major beneficiaries of this transaction, were it to be approved by antitrust authorities and the FCC.

It is reasonable to infer that President Obama's November 10 statement presaged that his Administration would not look kindly on the merger. Much of the animus against ISPs was focused on cable-television companies, particularly Comcast, after it acquired NBC-Universal.[23] As a result, the equities of Time Warner Cable and Charter fell immediately by 5 to 6 percent relative to the market (see Table 1). Comcast's stock suffered a smaller loss, and Cablevision, which was not a party to the merger, was largely unaffected. Nor were the large telecommunications companies who compete with the cable companies.

On April 17, 2015, Comcast announced that it had failed to persuade the FCC and antitrust authorities to approve the merger, and it therefore dropped its plans to acquire Time Warner Cable. Because of this result, another "event" was included in all of the econometric estimates of Eq. (1): Comcast's April 17 decision to abandon the merger. Surprisingly, the only equity that was affected by this decision was that of Time Warner Cable (see "Appendix Tables 2 and 3"). Apparently, the equity markets had already discounted any effect on Comcast and Charter on November 10, 2014, the date of President Obama's message, but they punished Time Warner Cable again on April 17. It is worth noting that Comcast had not agreed to pay a break-up fee to Time Warner if the merger failed, and thus Comcast avoided a potentially major cost of a failed acquisition.

6 The Longer-Term Impact

It is much more difficult to link the disruptive effect of President Obama's surprising intervention in November 2014 to equity returns over the next year or more. But it is nevertheless interesting to examine equity returns over a longer period to see how investors have responded to the events that have unfolded in the wake of the FCC's decision. The results through the end of 2015 are shown in Figs. 1 and 2 above. Surprisingly, the cable companies' equities have generally fared well since the November 10, 2014 bombshell that arguably led the FCC to its net neutrality decision; these equities rose by 17 percent more than the S&P500 through mid-2015, but receded somewhat thereafter. On the other hand, the two large telcos suffered a small 1 percent loss in equity value relative to the S&P 500. Overall, the Internet service providers' equities have slightly outperformed the market.

The largest traditional media companies' equities have also had somewhat mixed results. Disney's equity substantially outperformed the S&P 500 through 2015, but

[23] Susan Crawford, in particular, had been leading the charge against "monopoly power" in an industry characterized by competition among cable companies, wired telecommunications carriers, and mobile carriers and the dangers of vertical integration between ISPs and Media companies. See Crawford (2013). In 2009, she worked in the Obama White House.

the other large media companies have substantially underperformed the S&P due to their downturn in late 2015 when investors began to fret over the narrowing of cable bundles due to the growth of video streaming by companies such as Netflix. It is possible that the new net neutrality rules created a slightly better environment for video streaming, but surely Netflix's performance before and after the Obama statement or the FCC February 2015 rulemaking suggests that such streaming would develop with or without the rules.

For the new, digital media companies, eleven months are a very long time. For a variety of reasons, Netflix and Facebook equities enjoyed substantial excess returns while Twitter and Yahoo! underperformed over this period. Through June 2015, however, the weighted average of the five large traditional media stocks rose by about twice as much as the weighted average of the five "new" digital media stocks displayed in Fig. 1, above. Thus, for several months the capital markets reacted more favorably to older, large media companies than to the new media companies. Net neutrality regulation was supposed to accomplish the opposite result! After June 2015, the large media companies' equities declined in response to concerns about the impact of video streaming, which were likely only tangentially related to net neutrality regulation.[24]

7 A Concluding Assessment

Much has been written about the devastating impact of public-utility style regulation of the Internet. A large share of the commentary predicts that the imposition of Title II on broadband providers will reduce capital expenditures, and thereby created more congestion as the demand for bandwidth inexorably increases.[25]

Clearly, the equity markets have not been much impressed by the development of paid prioritization nor by the President's inveighing against it. It seems unlikely, but it is possible that the markets anticipated the imposition of stricter net neutrality regulation all along. Under this theory, they would not have been surprised by the Obama announcement or the FCC's reaction to it. On the other hand, the markets may have expected that any effect of the new rules would be delayed because of lengthy court appeals and changes in the leadership of the FCC.[26]

Whatever the explanation, the equity markets reacted much more modestly than have the proponents and opponents of the rules over the months since President Obama intervened.

Acknowledgements The author thanks Tom Lenard, Scott Wallsten, and the editor of this journal for helpful comments. Any remaining errors are the author's responsibility.

[24] See footnote 10, above.

[25] It is obviously too early to estimate the effect of the FCC's decision on capital expenditures, but at least one study claims that it can detect a negative effect in the first half of 2015. See Singer (2015).

[26] On June 14, 2016, a three-judge panel of the U.S. Court of Appeals for the District of Columbia rejected a legal challenge to the FCC Rules (*U.S. Telecommunications Association, et.al., v. the Federal Communications Commission,* #15-1063).

Appendix

Table 2 Econometric estimates of major net neutrality events on communications/media company stock prices: 1-day window (SE in parentheses)

Stock	*Verizon v. FCC* ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Internet service providers						
AT&T	−0.17	−1.18	0.38	0.91	−0.03	0.61***
	(0.79)	(0.79)	(0.79)	(0.79)	(0.79)	(0.06)
Verizon	−0.66	−2.49***	−0.54	1.35*	−0.09	0.62***
	(0.79)	(0.79)	(0.79)	(0.79)	(0.79)	(0.06)
Frontier	0.27	−0.20	0.75	−1.18	−1.29	0.88***
	(1.76)	(1.76)	(1.75)	(1.76)	(1.76)	(0.13)
CenturyLink	−1.31	−0.09	0.79	−1.05	−1.03	0.62***
	(1.16)	(1.15)	(1.15)	(1.16)	(1.16)	(0.09)
Sprint	−0.07	0.92	3.34	0.01	1.52	1.00***
	(2.83)	(2.82)	(2.82)	(2.83)	(2.83)	(0.21)
T-Mobile (USA)	0.35	0.24	1.35	−1.04	1.21	0.94***
	(1.72)	(1.72)	(1.72)	(1.73)	(1.72)	(0.13)
Comcast	0.10	−0.43	−4.32***	0.88	−0.93	1.03***
	(0.89)	(0.88)	(0.88)	(0.89)	(0.89)	(0.07)
Time Warner Cable	1.58	−1.62	−5.17***	1.33	−4.27***	1.04***
	(1.06)	(1.06)	(1.05)	(1.06)	(1.06)	(0.08)
Cablevision	0.07	1.15	−1.99	1.11	0.96	1.13***
	(1.37)	(1.37)	(1.37)	(1.37)	(1.37)	(0.10)
Charter	1.33	−1.41	−6.50***	4.62***	−0.71	0.98***
	(1.39)	(1.39)	(1.39)	(1.39)	(1.39)	(0.10)
DirecTV	−0.23	−0.33	−0.52	−0.46	−0.34	0.60***
	(0.97)	(0.97)	(0.97)	(0.97)	(0.97)	(0.07)
DISH	−0.91	−1.69	−0.43	0.66	0.45	1.10***
	(1.45)	(!.44)	(1.44)	(1.45)	(1.45)	(0.11)
Traditional media companies						
Walt Disney	0.42	0.02	−0.62	2.74***	−0.18	1.07***
	(0.83)	(0.83)	(0.83)	(0.84)	(0.84)	(0.06)
CBS	−1.67	−0.05	1.31	2.05*	−0.44	1.15**
	(1.20)	(1.20)	(1.20)	(1.20)	(1.20)	(0.09)
Time Warner	−1.29	−0.18	0.04	0.68	−0.32	1.00***
	(1.53)	(1.53)	(1.52)	(1.53)	(1.53)	(0.11)

Table 2 continued

Stock	*Verizon v. FCC* ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
21st Century Fox	−1.28	0.17	0.04	−0.14	−0.44	1.01***
	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(0.09)
Sony	−1.41	0.83	4.02**	−0.37	−2.49	1.02***
	(1.85)	(1.85)	(1.85)	(1.86)	(1.85)	(0.14)
Viacom	−0.93	−0.28	−1.08	−0.68	1.00	1.19***
	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.07)
New digital media						
Netflix	−1.07	2.45	0.48	0.23	1.09	1.23***
	(2.69)	(2.68)	(2.68)	(2.69)	(2.69)	(0.20)
Starz	−1.63	4.92***	−0.42	0.19	1.14	0.97***
	(1.64)	(1.64)	(1.64)	(1.65)	(1.65)	(0.12)
Yahoo!	1.59	−0.38	1.40	−0.49	−1.47	1.24***
	(1.68)	(1.67)	(1.67)	(1.68)	(1.68)	(0.13)
Twitter	0.11	−0.77	−1.98	0.74	−1.37	0.92***
	(3.66)	(3.65)	(3.65)	(3.66)	(3.66)	(0.27)
Amazon	0.33	0.65	1.32	0.57	−1.30	1.28***
	(1.98)	(1.97)	(1.97)	(1.98)	(1.98)	(0.15)
Facebook	1.75	2.34	−1.29	−0.17	−0.29	1.48***
	(1.76)	(1.76)	(1.76)	(1.76)	(1.76)	(0.13)
Apple	1.00	−0.31	−0.54	0.49	−0.20	0.90***
	(1.29)	(1.28)	(1.28)	(1.29)	(1.29)	(0.10)
AOL	5.33**	−0.79	4.67**	−2.17	1.69	1.18***
	(2.20)	(2.19)	(2.19)	(2.20)	(2.20)	(0.16)
Google	1.16	0.04	0.84	−0.37	−0.70	1.14***
	(1.06)	(1.06)	(1.06)	(1.06)	(1.06)	(0.08)

Table 3 Econometric estimates of major net neutrality events on communications/media company stock prices: 3-day window (SE in parentheses)

Stock	*Verizon v. FCC* Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Internet service providers						
AT&T	0.08	−1.07**	0.27	−0.12	0.003	0.61***
	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)	(0.06)
Verizon	0.30	−1.39***	0.14	0.82*	0.06	0.61***
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.06)

Table 3 continued

Stock	*Verizon v. FCC* Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Frontier	0.21	2.07**	0.59	−0.36	−1.04	0.87***
	(0.91)	(0.91)	(0.91)	(0.91)	(0.91)	(0.13)
CenturyLink	−0.65	−0.08	0.72	−0.82	−0.92	0.61***
	(0.68)	(0.68)	(0.68)	(0.68)	(0.68)	(0.08)
Sprint	−1.22	0.16	1.49	0.55	0.02	1.00***
	(1.61)	(1.61)	(1.61)	(1.61)	(1.61)	(0.21)
T-Mobile (USA)	−0.58	−1.19	0.31	−0.47	0.83	0.94***
	(0.98)	(0.98)	(0.98)	(0.98)	(0.98)	(0.13)
Comcast	0.20	−0.78	−1.64***	0.02	−0.74	1.04***
	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.07)
Time Warner Cable	0.26	−0.97	−2.91***	−0.16	−1.67***	1.07***
	(0.63)	(0.63)	(0.63)	(0.63)	(0.63)	(0.08)
Cablevision	−0.37	0.46	−0.49	0.04	0.28	1.13***
	(0.76)	(0.76)	(0.76)	(0.76)	(0.76)	(0.10)
Charter	−0.31	−2.94***	−2.76***	1.52*	−1.09	1.01***
	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.10)
DirecTV	0.05	−0.05	−0.37	−0.55	−0.10	0.60***
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.07)
DISH	−0.46	0.10	−0.10	0.05	−0.22	1.09***
	(0.85)	(0.85)	(0.85)	(0.85)	(0.85)	(0.11)
Traditional media companies						
Walt Disney	−0.67	0.25	−0.96**	0.85*	0.42	1.10***
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.06)
CBS	−1.15*	−0.16	−0.31	0.71	−0.10	1.16***
	(0.70)	(0.70)	(0.70)	(0.70)	(0.70)	(0.09)
Time Warner	−0.66	−0.27	0.15	0.06	−0.30	1.00***
	(0.94)	(0.94)	(0.94)	(0.94)	(0.94)	(0.11)
21st Century Fox	−0.93	0.43	−0.45	−0.38	0.02	1.01***
	(0.69)	(0.69)	(0.69)	(0.69)	(0.69)	(0.09)
Sony	−1.05	−0.04	1.39	−0.38	−1.51	1.03***
	(1.05)	(1.05)	(1.05)	(1.05)	(1.05)	(0.14)
Viacom	−0.26	−0.03	−0.70	−0.69	0.08	1.19***
	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)	(0.07)
New digital media						
Netflix	−0.26	1.17	−0.33	0.28	6.72***	1.23***
	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(0.19)

Table 3 continued

Stock	*Verizon v. FCC* Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Starz	−0.58	2.37***	−0.51	0.33	0.33	0.96***
	(0.89)	(0.89)	(0.89)	(0.89)	(0.89)	(0.12)
Yahoo!	−0.23	−0.58	0.61	−0.03	−0.64	1.26***
	(0.97)	(0.97)	(0.97)	(0.97)	(0.97)	(0.12)
Twitter	2.63	−0.88	−0.91	0.58	0.31	0.93***
	(2.06)	(2.06)	(2.06)	(2.06)	(2.06)	(0.27)
Amazon	−0.24	0.73	1.56	−0.05	0.73	1.30***
	(1.15)	(1.15)	(1.15)	(1.15)	(1.15)	(0.15)
Facebook	−0.43	−0.13	−0.56	−0.05	0.27	1.50***
	(1.05)	(1.05)	(1.05)	(1.05)	(1.05)	(0.13)
Apple	1.26*	−0.81	0.07	−0.49	0.18	0.91***
	(0.72)	(0.72)	(0.72)	(0.72)	(0.72)	(0.09)
AOL	2.13*	−0.62	2.22*	−1.00	0.48	1.19***
	(1.15)	(1.15)	(1.15)	(1.15)	(1.15)	(0.16)
Google	0.46	0.39	0.48	−0.52	0.41	1.15***
	(0.62)	(0.62)	(0.62)	(0.62)	(0.62)	(0.08)

Table 4 Econometric estimates of major net neutrality events on communications/media company stock prices: 5-day window (SD in parentheses)

Stock	*Verizon v.* FCC Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Internet service providers						
AT&T	0.26	−0.62	0.16	−0.17	−0.02	0.62***
	(0.39)	(0.39)	(0.39)	(0.39)	(0.39)	(0.06)
Verizon	0.43	−0.17	0.10	0.42	−0.02	0.61***
	(0.39)	(0.39)	(0.39)	(0.39)	(0.39)	(0.06)
Frontier	0.60	1.08	0.49	−0.33	−0.84	0.88***
	(0.69)	(0.69)	(0.69)	(0.69)	(0.69)	(0.13)
CenturyLink	−0.40	−0.24	−0.68	−0.49	0.31	0.62***
	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.09)
Sprint	−0.74	0.61	0.42	−0.48	0.17	1.00***
	(1.24)	(1.24)	(1.24)	(1.24)	(1.24)	(0.21)
T-Mobile (USA)	−0.34	−0.72	−0.25	−0.34	0.92	0.94***
	(0.75)	(0.75)	(0.75)	(0.75)	(0.75)	(0.13)

Table 4 continued

Stock	*Verizon v.* FCC Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Comcast	0.14	−0.55	−0.71*	−0.31	−0.08	1.04***
	(0.41)	(0.41)	(0.41)	(0.41)	(0.41)	(0.07)
Time Warner Cable	0.16	−0.59	−1.55***	−0.23	−0.63	1.08***
	(0.51)	(0.51)	(0.51)	(0.51)	(0.51)	(0.08)
Cablevision	−0.71	1.12*	−0.49	−0.09	0.28	1.13***
	(0.58)	(0.58)	(0.58)	(0.58)	(0.58)	(0.10)
Charter	−0.35	−1.71**	−1.54**	0.67	−0.53	1.02***
	(0.67)	(0.67)	(0.67)	(0.67)	(0.67)	(0.11)
DirecTV	0.30	0.39	−0.25	−0.48	−0.11	0.59***
	(0.38)	(0.38)	(0.38)	(0.38)	(0.38)	(0.07)
DISH	−0.51	0.07	0.06	−0.72	−0.05	1.09***
	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.11)
Traditional media companies						
Walt Disney	−0.35	0.03	−0.48	0.32	0.10	1.10***
	(0.38)	(0.38)	(0.38)	(0.38)	(0.38)	(0.06)
CBS	−0.61	−0.26	−0.49	0.53	0.01	1.16***
	(0.54)	(0.54)	(0.54)	(0.54)	(0.54)	(0.09)
Time Warner	−0.53	−0.13	−0.42	−0.06	−0.15	1.00***
	(0.74)	(0.74)	(0.74)	(0.74)	(0.74)	(0.11)
21st Century Fox	−0.72	−0.10	−0.20	−0.22	−0.08	1.01***
	(0.53)	(0.53)	(0.53)	(0.53)	(0.53)	(0.09)
Sony	−1.27	−0.02	0.14	−1.26	−0.33	1.03***
	(0.82)	(0.82)	(0.82)	(0.82)	(0.82)	(0.14)
Viacom	−0.26	−0.05	−0.34	−0.38	0.27	1.18***
	(0.43)	(0.43)	(0.43)	(0.43)	(0.43)	(0.07)
New digital media						
Netflix	−0.47	0.65	0.01	−1.18	3.17**	1.22***
	(1.30)	(1.30)	(1.30)	(1.30)	(1.30)	(0.20)
Starz	0.08	1.62**	−0.29	0.04	0.35	0.96***
	(0.69)	(0.69)	(0.69)	(0.69)	(0.69)	(0.12)
Yahoo!	−0.35	−0.30	1.14	0.25	−0.45	1.26***
	(0.76)	(0.76)	(0.76)	(0.76)	(0.76)	(0.12)
Twitter	1.36	0.11	1.06	−0.27	0.22	0.93***
	(1.60)	(1.60)	(1.60)	(1.60)	(1.60)	(0.27)
Amazon	−0.34	0.51	0.84	−0.24	0.35	1.29***
	(0.90)	(0.90)	(0.90)	(0.90)	(0.90)	(0.15)

Table 4 continued

Stock	*Verizon v.* FCC Ruling (1/14/2014) %	Netflix-Comcast deal (2/23/2014) %	Obama statement (11/10/2014) %	FCC rules released (3/12/2015) %	Comcast–Time Warner Merger fails (4/17/2015) %	Beta (S&P500)
Facebook	−0.16	0.02	−0.29	−0.46	−0.08	1.49***
	(0.82)	(0.82)	(0.82)	(0.82)	(0.82)	(0.13)
Apple	0.44	−1.05*	0.26	−0.48	−0.04	0.91***
	(0.56)	(0.56)	(0.56)	(0.56)	(0.56)	(0.09)
AOL	2.75***	0.07	1.00	−0.60	0.73	1.18***
	(0.88)	(0.88)	(0.88)	(0.88)	(0.88)	(0.16)
Google	0.41	0.14	−0.03	−0.40	0.16	1.15***
	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)	(0.08)

Table 5 Average daily excess returns of communications company equities after the January 14, 2014, court reversal of the FCC's 2010 net neutrality order (%, SD in parentheses)

Period	AT&T	Verizon	Comcast	Cable-vision	Time Warner Cable	Charter	DirecTV	DISH
Internet service providers								
1-day window	0.18	−0.27	−0.30	−0.10	1.66	1.39	−0.90	−0.90
	(0.82)	(0.83)	(0.91)	(1.39)	(1.12)	(1.46)	(1.11)	(1.43)
3-day window	−0.16	−0.48	−0.66	0.14	1.23	−0.08	−0.55	−1.30
	(1.08)	(1.05)	(1.15)	(1.67)	(1.42)	(1.90)	(1.26)	(1.80)
5-day window	0.24	0.48	0.61	−1.68	0.91	−0.20	1.50	−0.45
	(1.31)	(1.21)	(1.39)	(2.01)	(1.67)	(2.26)	(1.51)	(2.15)

	Walt Disney	CBS	Viacom	Time Warner	21st Century Fox
Traditional media companies					
1-day window	0.42	−2.32*	−0.66	−1.52	−1.64
	(0.84)	(1.26)	(1.02)	(1.53)	(1.25)
3-day window	−1.42	−2.75*	−0.75	−0.86	−2.60*
	(1.04)	(1.58)	(1.17)	(2.00)	(1.51)
5-day window	−0.82	−2.01	−1.13	−1.38	−2.64
	(1.21)	(1.84)	(1.28)	(2.37)	(1.78)

	Netflix	Facebook	Apple	Google	Starz	Yahoo!	AOL	Amazon
"New Media" companies								
1-day window	−1.34	2.43	0.96	1.41	−1.72	1.51	6.56***	0.15
	(2.70)	(1.82)	(1.27)	(1.07)	(1.67)	(1.66)	(2.39)	(1.95)
3-day window	−1.46	−1.19	2.91*	1.22	−1.16	−0.73	3.16	−0.19
	(3.67)	(2.28)	(1.56)	(1.35)	(1.98)	(2.09)	(2.77)	(2.44)

Table 5 continued

	Netflix	Facebook	Apple	Google	Starz	Yahoo!	AOL	Amazon
5-day window	−1.03	0.06	1.60	0.96	1.58	−0.46	3.97	−1.42
	(4.62)	(2.61)	(1.80)	(1.57)	(2.31)	(2.50)	(3.10)	(2.89)

Excess returns based on estimates of Beta from www.finance.yahoo.com. SD are calculated for the period December 31, 2013–May 4, 2015

Table 6 Average daily excess returns of communications company equities after the February 23, 2014, Netflix-Comcast agreement announcement (%; SD in parentheses)

Period	AT&T	Verizon	Comcast	Cable-vision	Time Warner Cable	Charter	DirecTV	DISH
Internet service providers								
1-day					Window	−1.20		
						(0.82)		
−2.41***	−0.35	1.04	−1.58	−1.73	−0.63	−1.63		
(0.83)	(0.91)	(1.39)	(1.12)	(1.46)	(1.11)	(1.43)		
3-day					Window	−2.16**		
						(1.08)		
−3.23***	−1.65	−0.41	−1.81		−6.60***	−0.26	0.69	
(1.05)	(1.15)	(1.67)	(1.42)		(1.90)	(1.26)	(1.80)	
5-day					Window	−1.24	0.41	−1.62
						(1.31)	(1.21)	(1.39)
1.66	−1.72	−5.12**	1.94	0.76				
(2.01)	(1.67)	(2.26)	(1.51)	(2.15)				

	Walt Disney	CBS	Viacom	Time Warner	21st Century Fox
Traditional media companies					
1-day window	0.07	−0.44	−0.17	−0.30	−0.14
	(0.84)	(1.26)	(1.02)	(1.53)	(1.25)
3-day window	1.27	−0.02	0.26	−0.43	1.06
	(1.04)	(1.58)	(1.17)	(2.00)	(1.51)
5-day window	0.67	−1.11	0.16	−0.49	−0.46
	(1.21)	(1.84)	(1.28)	(2.37)	(1.78)

	Netflix	Facebook	Apple	Google	Starz	Yahoo!	AOL	Amazon
"New Media" companies								
1-day window	2.46	2.71	−0.16	0.19	4.66***	−0.43	0.06	0.58
	(2.70)	(1.82)	(1.27)	(1.07)	(1.67)	(1.66)	(2.39)	(1.95)
3-day window	1.83	0.02	−1.34	0.51	7.78***	−1.45	−2.45	0.46
	(3.67)	(2.28)	(1.56)	(1.35)	(1.98)	(2.09)	(2.77)	(2.44)
5-day window	2.31	1.70	−3.10*	0.15	6.44***	−1.85	1.32	0.62
	(4.62)	(2.61)	(1.80)	(1.57)	(2.31)	(2.50)	(3.10)	(2.89)

Excess returns based on estimates of Beta from www.finance.yahoo.com. SD are calculated for the period December 31, 2013–May 4, 2015

Table 7 Average daily excess returns of communications company equities after the November 10, 2014, Obama Statement on Network Neutrality (%; SD in parentheses)

Period	AT&T	Verizon	Comcast	Cable-vision	Time Warner Cable	Charter	DirecTV	DISH
Internet service providers								
1-day window	0.51	−0.39	−4.26***	−2.09	−5.25***	−6.50***	−0.53	−0.41
	(0.82)	(0.83)	(0.91)	(1.39)	(1.12)	(1.46)	(1.11)	(1.43)
3-day window	0.86	0.81	−3.29***	1.23	−5.78***	−5.71***	−0.65	−0.19
	(1.08)	(1.05)	(1.15)	(1.67)	(1.42)	(1.90)	(1.26)	(1.80)
5-day window	0.17	043	−2.50*	−1.13	−5.12***	−5.45**	−1.35	0.41
	(1.31)	(1.21)	(1.39)	(2.01)	(1.67)	(2.26)	(1.51)	(2.15)

	Walt Disney	CBS	Viacom	Time Warner	21st Century Fox
Traditional media companies					
1-day window	−0.59	1.08	−1.00	0.05	−0.05
	(0.84)	(1.26)	(1.02)	(1.53)	(1.25)
3-day window	−2.56**	−1.17	−1.24	−0.20	−1.93
	(1.04)	(1.58)	(1.17)	(2.00)	(1.51)
5-day window	−1.41	−2.36	−0.82	−1.38	−0.82
	(1.21)	(1.84)	(1.28)	(2.37)	(1.78)

	Netflix	Facebook	Apple	Google	Starz	Yahoo!	AOL	Amazon
"New Media" companies								
1-day window	0.33	−1.04	−0.47	0.89	−0.29	1.38	4.56*	1.31
	(2.70)	(1.82)	(1.27)	(1.07)	(1.67)	(1.66)	(2.39)	(1.95)
3-day window	−0.06	−0.46	0.19	0.75	−1.47	1.90	4.59*	2.67
	(3.67)	(2.28)	(1.56)	(1.35)	(1.98)	(2.09)	(2.77)	(2.44)
5-day window	0.07	−0.20	0.44	−0.47	−1.52	2.71	0.51	2.01
	(4.62)	(2.61)	(1.80)	(1.57)	(2.31)	(2.50)	(3.10)	(2.89)

Excess returns based on estimates of Beta from www.finance.yahoo.com. Standard deviations are calculated for the period December 31, 2013–May 4, 2015

Table 8 Average daily excess returns of major communications company equities after the March 12, 2015, release of FCC rules (%; standard deviations in parentheses)

Period	AT&T	Verizon	Comcast	Cable-vision	Time Warner Cable	Charter	DirecTV	DISH
Internet service providers								
1-day window	1.15	1.76**	1.08	0.90	1.38	4.86***	−0.97	0.66
	(0.82)	(0.83)	(0.91)	(1.39)	(1.12)	(1.46)	(1.11)	(1.43)
3-day window	0.03	1.75*	−0.20	−0.21	−0.40	3.88**	−1.11	0.29
	(1.08)	(1.05)	(1.15)	(1.67)	(1.42)	(1.90)	(1.26)	(1.80)

Table 8 continued

Period	AT&T	Verizon	Comcast	Cable-vision	Time Warner Cable	Charter	DirecTV	DISH
5-day window	−1.08	074	1.68	−0.54	−1.61	3.08	−0.42	−1.89
	(1.31)	(1.21)	(1.39)	(2.01)	(1.67)	(2.26)	(1.51)	(2.15)

	Walt Disney	CBS	Viacom	Time Warner	21st Century Fox
Traditional media companies					
1-day window	2.76***	1.31	−0.25	0.44	−0.59
	(0.84)	(1.26)	(1.02)	(1.53)	(1.25)
3-day window	1.85*	1.42	−0.98	0.05	−0.68
	(1.04)	(1.58)	(1.17)	(2.00)	(1.51)
5-day window	1.32	2.21	−1.58	−0.002	0.23
	(1.21)	(1.84)	(1.28)	(2.37)	(1.78)

	Netflix	Facebook	Apple	Google	Starz	Yahoo!	AOL	Amazon
"New Media" companies								
1-day window	−0.11	0.77	0.60	−0.11	−0.07	−0.53	−0.81	0.37
	(2.70)	(1.82)	(1.27)	(1.07)	(1.67)	(1.66)	(2.39)	(1.95)
3-day window	0.98	0.47	−1.29	−0.96	0.49	−0.34	−0.73	−0.38
	(3.67)	(2.28)	(1.56)	(1.35)	(1.98)	(2.09)	(2.77)	(2.44)
5-day window	−0.31	−0.93	−1.47	−1.82	0.55	1.18	−2.60	−0.50
	(4.62)	(2.61)	(1.80)	(1.57)	(2.31)	(2.50)	(3.10)	(2.89)

Excess returns based on estimates of Beta from www.finance.yahoo.com. Standard deviations are calculated for the period December 31, 2013–May 4, 2015

Table 9 Comparison of estimated betas with betas downloaded from Yahoo! Finance on March 14, 2015

Company	Median estimated beta	Beta from Yahoo! Finance
AT&T	0.61	0.33
Verizon	0.61	0.35
Comcast	1.04	0.88
Time Warner Cable	1.07	1.36
Cablevision	1.13	0.98
Charter	1.01	0.86
DirecTV	0.60	1.24
DISH	1.10	1.10
Disney	1.10	1.11
CBS	1.16	1.70
Viacom	1.19	0.84
Time Warner	1.10	1.21
21st Century Fox	1.01	1.37
Netflix	1.23	1.55

Table 9 continued

Company	Median estimated beta	Beta from Yahoo! Finance
Facebook	1.49	0.78
Apple	0.91	0.96
Google	1.15	0.87
Starz	0.96	1.13
Yahoo!	1.26	0.12
AOL	1.18	1.26
Amazon	1.29	1.41

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