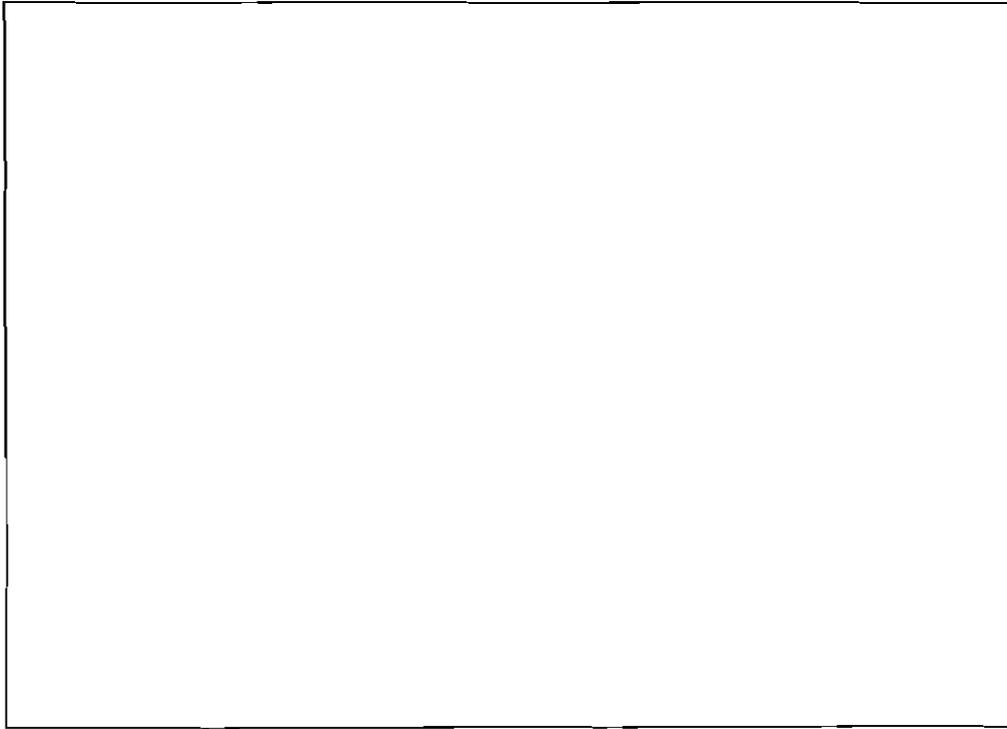


[[REDACTED]



[[REDACTED]

[[REDACTED]]



Table 10: Comcast Channel Positions for Top DMAs

	N. New Jersey	Chicago	Phila-delphia	San Francisco	Boston	Washington DC	Atlanta	Detroit	Houston	Seattle
Placement relative to CNBC	Union Cty (60% of subs)		Lenfest W (34% of subs)		Mass Burbs (70% of subs)	Washington DC-MD (47% of subs)		Detroit (45% of subs)		
-10	<b>MSNBC</b>	VERSUS	TNT	BRAVO	LIFE	A&E	CMATL21	ESPN	GOLF	TRAVEL
-9	LIFETIME	GOV ACC	ESPN	AMC	A&E	HISTORY	TVG	ESPN2	TNT	HISTORY
-8	FOOD	<b>OPEN</b>	ESPN2	TLC	TLC	DI Health	LOCAL	FSN DET	FSN	TLC
-7	HGTV	<b>OPEN</b>	SPEED	ANIMAL	DISC	DISC	LOCAL	SPEED	<b>FNC</b>	FAMILY
-6	NICK	BIG TEN	VERSUS	ABC FAM	TRUTV	AMIMAL	<b>CSPAN</b>	FX	TCM	NICK
-5	SYFY	<b>OPEN</b>	CSNPHL	NICK	<b>FNC</b>	TLC	<b>OPEN</b>	TNT	LIFE	DISNEY
-4	TCM	NICK	GOLF	CARTOON	<b>CNN</b>	DISNEY	TWC	AMC	DISNEY	CARTOON
-3	DISC	DISNEY	<b>FNC</b>	DISNEY	<b>HLN</b>	ABC FAM	TLC	A&E	ANIMAL	ANIMAL
-2	ABC FAM	CARTOON	<b>CNN</b>	<b>CNN</b>	<b>CSPAN</b>	CARTOON	<b>CNN</b>	E	NICK	<b>CNN</b>
-1	TNT	<b>CNN</b>	<b>HLN</b>	<b>HLN</b>	<b>CSPAN2</b>	NICK	<b>HLN</b>	<b>MSNBC</b>	E	<b>HLN</b>
	<b>Ch 47 CNBC</b>	<b>Ch 58 CNBC</b>	<b>Ch 43 CNBC</b>	<b>Ch 58 CNBC</b>	<b>Ch 46 CNBC</b>	<b>Ch 60 CNBC</b>	<b>Ch 36 CNBC</b>	<b>Ch 38 CNBC</b>	<b>Ch 45 CNBC</b>	<b>Ch 46 CNBC</b>
+1	USA	<b>MSNBC</b>	<b>MSNBC</b>	<b>FNC</b>	TWC	<b>MSNBC</b>	<b>FNC</b>	<b>CNN</b>	BET	<b>MSNBC</b>
+2	COMEDY	<b>FNC</b>	DISC	<b>MSNBC</b>	ABC FAM	<b>CNN</b>	A&E	<b>HLN</b>	HGTV	<b>FNC</b>
+3	STYLE	<b>HLN</b>	TLC	TWC	ESPN	<b>HLN</b>	TBS	TWC	SPIKE	TRUTV
+4	<b>OPEN</b>	<b>OPEN</b>	HISTORY	HISTORY	ESPN2	TRUTV	DISC	ANIMAL	VERSUS	OXYGEN
+5	<b>OPEN</b>	HGTV	ANIMAL	COMEDY	NESN	LIFE	TNT	TRAVEL	GALA	LIFETIME
+6	MTV	A&E	<b>OPEN</b>	EDUC	CSNNE	HGTV	USA	DISNEY	TBS	A&E
+7	ANIMAL	HISTORY	FOOD	TRUTV	<b>MSNBC</b>	<b>OPEN</b>	FX	NICK	FOOD	FX
+8	TLC	OXYGEN	HGTV	HALL	RAI	BRAVO	VERSUS	CARTOON	KAZH	TNT
+9	BET	<b>OPEN</b>	<b>OPEN</b>	HGTV	SPIKE	COMEDY	CSS	FAMILY	WGN	TBS
+10	HISTORY	<b>OPEN</b>	TWC	<b>OPEN</b>	<b>OPEN</b>	TCM	ESPN	USA	KTBU	BET
Open Channels +/- 10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
BTV Channel	103	128	103	128	246	103	207	178	235	128
FBN Channel	106	106	NA	130	284	106	106	106	234	130

Data regarding channels located +/- ten channel positions of CNBC and market share data for Northern New Jersey were provided by James Cofer, Head of US Distribution, Bloomberg TV. Other market share data are from Kagan.

Source: Bloomberg-provided data.

**Table 11: Viewership of Business News by Cable versus Satellite, 2005-2008**

	Cable and Satellite Combined	Cable Subscribers	Satellite Subscribers	t-Statistic for Difference between Cable and Satellite
	% of Resp. or Hours	% of Resp. or Hours	% of Resp. or Hours	
Any business news viewing	22.7	24.0	18.7	15.71
Any Bloomberg TV viewing	2.2	2.0	2.9	-7.87
Any CNBC viewing	21.8	23.2	17.3	17.99
Bloomberg TV only*	0.9	0.8	1.4	-8.80
CNBC only**	20.4	22.0	15.8	19.22
Hours watching Business News (among watchers)	2.62	2.60	2.70	-1.61
Hours watching Bloomberg TV (among watchers)	2.21	2.18	2.28	-0.73
Hours watching CNBC (among watchers)	2.51	2.50	2.53	-0.63

\*Respondents watching Bloomberg TV but not CNBC

\*\*Respondents watching CNBC but not Bloomberg TV

Source: MRI Data

**Table 12: Regression Analysis for Neighborhood Effects on Bloomberg TV and CNBC Viewership**

VARIABLES	(1) Any Bloomberg TV Viewing (0 or 1) (avg. = 1.89%)	(2) Hours per week watching Bloomberg TV (avg. = 0.042)	(3) Any CNBC Viewing (0 or 1) (avg. = 21.7% )	(4) Hours per week watching CNBC (avg. = 0.539)
<b>Distributor</b>				
Cablevision	0.013*** (0.004)	0.017 (0.015)	0.053*** (0.012)	0.222*** (0.053)
Charter	-0.008* (0.004)	-0.029** (0.014)	-0.015 (0.012)	-0.030 (0.052)
Comcast	-0.007** (0.004)	-0.029** (0.013)	0.007 (0.011)	0.033 (0.047)
Cox	0.001 (0.004)	-0.020 (0.015)	0.038*** (0.012)	0.088* (0.053)
Time Warner	-0.002 (0.004)	-0.022 (0.013)	0.024** (0.011)	0.085* (0.048)
Other MSO	-0.006 (0.004)	-0.026* (0.015)	0.010 (0.012)	0.067 (0.052)
DirecTV	-0.007 (0.006)	-0.035 (0.022)	-0.014 (0.019)	0.032 (0.080)
Dish Network	-0.009** (0.004)	-0.034** (0.014)	-0.063*** (0.012)	-0.120** (0.050)
<b>Other variables</b>				
Bloomberg available <sup>§</sup>	0.017*** (0.001)	0.038*** (0.004)	0.021*** (0.004)	0.050*** (0.016)
CNBC available <sup>§</sup>	-0.002 (0.002)	-0.008 (0.009)	0.026*** (0.007)	-0.009 (0.032)
Bloomberg/CNBC Neighborhood <sup>§</sup>	0.0124** (0.005)	0.040** (0.018)	-0.048*** (0.015)	-0.152** (0.065)
Constant	0.015*** (0.004)	0.050*** (0.014)	0.186*** (0.011)	0.509*** (0.049)
Observations	76217	76217	76217	76217
R-squared	0.007	0.003	0.006	0.002

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: <sup>§</sup> Bloomberg available indicates subscriber selected a package including Bloomberg TV (similarly CNBC). Bloomberg/CNBC Neighborhood indicates a subscriber selected a package including both Bloomberg and CNBC and in that package Bloomberg TV was within a five-channel neighborhood (+/- 5 channels) of CNBC.

Source: MRI Data, 2007 TMS Data

- 1) The first two columns of the regression output above report regressions with the following two dependent variables: whether or not a subscriber watched Bloomberg TV and the hours per week watching Bloomberg TV. The key explanatory variables in these regressions are (1) MVPD

dummies, (2) whether or not Bloomberg TV and/or CNBC is offered, and, (3) whether they are in the same channel neighborhood with one another (defined as plus or minus 5 channels from each other) when they both are offered.

- 2) Examining first the impact of neighborhood effects on whether a subscriber watches Bloomberg TV, we see that there is a significant, positive effect of 0.0124, or 1.24 percentage points. Thus, relative to the average, not being in the same neighborhood with CNBC is associated with a 65.8% ( $=1.24/1.89$ ) lower probability that a subscriber watches Bloomberg TV. In addition, the aggregate effect on number of total hours watched is significant. Not being in the channel neighborhood with CNBC is associated with a decrease of 0.04 hours watched per week, which is a decrease of 95.2% relative to the average hours watched.
- 3) As might be expected, being in the same neighborhood as Bloomberg TV has the opposite effect on viewing for CNBC. Columns 3-4 report similar regressions of subscribers watching CNBC and hours of CNBC viewing. Being in the same channel neighborhood with Bloomberg TV (while both are offered) is associated with a 0.048, or 4.8 percentage point, decrease in the probability a subscriber watches CNBC (a decline of 22.0% relative to the average) and a 0.152 decrease in the hours watched (a decline of 28.2% relative to the average), both statistically significant.

**Table 13: Application of the Commission Staff Model of Foreclosure Effects to Analyze Downstream Foreclosure**

- 1) Consider whether as a result of the Transaction Comcast would refuse to carry Bloomberg TV. Using the notation of Israel and Katz (2010a),<sup>26</sup> the short-run cost to Comcast of refusing to carry Bloomberg TV is the profit lost because of subscriber switching,  $(a+d)*MVPDProfit*ComcastSubs$ , where  $a$  is the proportion of subscribers that drop subscription to any MVPD and  $d$  is the proportion of subscribers that switch to a different MVPD, such as DBS.  $MVPDProfit$  is the per-subscriber profit to an MVPD, and  $ComcastSubs$  is the number of subscribers to Comcast systems.
  
- 2) The short-run benefit to Comcast-NBCU has multiple components. The most direct component is increased viewing, and hence advertising revenue, for CNBC on Comcast systems as CNBC would no longer have Bloomberg TV as a competitor for business news viewing on Comcast systems.<sup>27</sup> In order to begin with a simple, conservative case, I initially focus only on this effect, writing the benefit as  $v'*r'-v*r$ , where  $v$  and  $v'$  are CNBC viewership on Comcast before and after, respectively, the elimination of Bloomberg TV from carriage on Comcast, and  $r$  and  $r'$  are the corresponding advertising prices per viewer. Thus, the benefit can be written as  $(1 + ChangeInCNBCViewership)*(1 + CPMAadjustmentFactor*ChangeInCNBCViewership)*CNBCAdRevOnComcast - CNBCAdRevOnComcast$ , where  $CNBCAdRevOnComcast = ComcastShareOfCNBCViewers*CNBCAdRev$  and where the  $CPMAadjustmentFactor$  indicates the percentage change in advertising revenue per viewer for a 1% increase in the number of viewers.<sup>28</sup> Assuming that Bloomberg TV viewers that do not drop MVPD service or switch to a different MVPD (share  $1-a-d$  of Comcast subscribers) shift their business news viewership to CNBC, it follows that  $ChangeInCNBCViewership = (1-a-d)*BTVViewership/CNBCViewership$ .

<sup>26</sup> Israel, M. and M. L. Katz (2010a). "Application of the Commission Staff Model of Vertical Foreclosure to the Proposed Comcast-NBCU Transaction," Comments in FCC MB Docket No. 10-56, filed March 5, 2010.

<sup>27</sup> As other possible effects, the loss of Bloomberg TV as a venue for reaching affluent adult male viewers might result in an increase in advertising rates on CNBC and other networks reaching the demographic, such as Comcast's The Golf Channel. To the extent that Bloomberg TV's loss of advertising revenue from Comcast systems reduces its value to other MVPDs and to subscribers of other MVPDs, there might be an increase in license fees for CNBC on non-Comcast systems and an increase in viewership, and hence advertising revenue, for CNBC on non-Comcast systems.

<sup>28</sup> As stated in Israel and Katz (2010a, p.41), "Economic literature also supports the conclusion that, as television shows deliver a smaller number (or share) of viewers, the advertising price they receive per viewer falls." They cite the estimate of Brown, K. and R. Cavazos (2005), "Why is This Show so Dumb? Advertising Revenue and Program Content of Network Television," *Review of Industrial Organization* 27, 17-34, that "a 1% decrease in the share of a broadcast network program is associated with a 0.39% reduction in the advertising price per viewer." (Israel and Katz, 2010a, p.41)

- 3) The cost of refusal accrues to Comcast, but the benefit accrues to the Joint Venture, in which Comcast will initially have a 51% share. However, as noted in Israel and Katz (2010a, p.26), the Joint Venture Agreement contains many mechanisms through which Comcast can become the sole owner of the Joint Venture within seven years of the Transaction. This suggests two possible values, 51% and 100%, for the weight *ProgWeight* that Comcast places on the benefit from refusing carriage to Bloomberg TV. For conservativeness, I use 51%.
- 4) As in Table 5, I assume *MVPDProfit* of \$19.51 ( $p*m = \$49.65*39.3\% = \$19.51$ ). I assume *ComcastSubs* of 23.5 million.<sup>29</sup> Based on the viewership results in Table 11, I assume *ComcastShareOfCNBCViewers* = 26%.<sup>30</sup> Based on the viewership results in Table 11 for cable, I assume *BTVViewership* = 2.0%, *CNBCViewership* = 23.2%.<sup>31</sup> I assume annual advertising revenue for CNBC of \$245 million,<sup>32</sup> so converting to monthly values, *CNBCAdRev* = \$245 million/12 = \$20.42 million. I assume *CPMAdjustmentFactor* = 0.39 based on Brown and Cavazos (2005) (see footnote 28). Israel and Katz (2010a, p.42) also provide a CPM adjustment factor (redacted) that can be substituted here.
- 5) Based on these assumptions, comparing the cost and benefit to Comcast of denying carriage to Bloomberg TV, a conservative estimate is that foreclosure would be profitable in the short run if fewer than 3.5% of Bloomberg TV viewers switch or drop MVPD service.<sup>33</sup> If Bloomberg TV-only viewers (subscribers who watch Bloomberg TV but not CNBC) are the relevant set of potential set of switchers, which would be the case if Bloomberg TV viewers who also watch CNBC would not find the loss of Bloomberg TV sufficient to induce them to switch or drop MVPD service, then foreclosure would be profitable in the short run if fewer than 8.8% of Bloomberg TV-only viewers switch or drop MVPD service.<sup>34</sup>

<sup>29</sup> Comcast Corporate Overview, available at <http://www.comcast.com/corporate/about/pressroom/corporateoverview/corporateoverview.html>, accessed May 11, 2010.

<sup>30</sup> Using the viewership for CNBC from Table 11, which shows 23.2% viewership for CNBC on cable and 17.3% viewership for CNBC on DBS, using Comcast's (cable plus DBS) market share from Table 1 of 23.78%, and using the FCC's estimates of 65.2 million cable subscribers and 27.97 million DBS subscribers (FCC (2009a) at paragraphs 10 and 75), I calculate Comcast's share of CNBC viewers as:  $ComcastShareOfCNBCViewers = \frac{CNBCCableViewership * ComcastMktShare * (CableSubs + DBSSubs)}{(CNBCCableViewership * CableSubs + CNBCDBSViewership * DBSSubs)} = 26\%$ .

<sup>31</sup> Using the viewership for cable and satellite combined produces slightly higher threshold switching shares, so for the short-term analysis, which involves changes only on Comcast systems, I use cable viewership for conservativeness.

<sup>32</sup> CNBC's net advertising revenue for 2009 as reported by SNL Kagan TV Network Profiles and Economics, 2010.

<sup>33</sup> The threshold value of  $a+d$  for the short-run profitability of denial of carriage is  $a+d = 0.07\%$ . As shown in Table 11, 2.0% of cable subscribers are Bloomberg TV viewers. If  $ProgWeight = 100\%$ , then the threshold is  $a+d = 0.14\%$ , which corresponds to 7.0% of cable Bloomberg TV viewers. The formula for the threshold value of  $a+d$  is:  

$$\frac{(CNBCViewership^2 * ComcastSubs * MVPDProfit + 2 * BTVViewership^2 * CNBCAdRevOnComcast * CPMAdjustmentFactor * ProgWeight + BTVViewership * CNBCAdRevOnComcast * CNBCViewership * (1 + CPMAdjustmentFactor) * ProgWeight - \sqrt{CNBCViewership^2 * (CNBCViewership^2 * ComcastSubs^2 * MVPDProfit^2 + 2 * BTVViewership * CNBCAdRevOnComcast * CNBCViewership * ComcastSubs * (1 + CPMAdjustmentFactor) * MVPDProfit * ProgWeight + BTVViewership^2 * CNBCAdRevOnComcast * ProgWeight * (4 * ComcastSubs * CPMAdjustmentFactor * MVPDProfit + CNBCAdRevOnComcast * (1 + CPMAdjustmentFactor)^2 * ProgWeight)})}}{(2 * BTVViewership^2 * CNBCAdRevOnComcast * CPMAdjustmentFactor * ProgWeight)}$$

<sup>34</sup> As shown in Table 11, 0.8% of subscribers are cable Bloomberg TV-only viewers. If  $ProgWeight = 100\%$ , then the threshold

- 6) I now consider a somewhat longer-term analysis by assuming that Comcast’s refusal to carry Bloomberg TV reduces Bloomberg TV’s ability to compete with CNBC for viewers, and hence advertising revenue, on non-Comcast systems in addition to Comcast systems. I continue to take a conservative approach (understating the benefit to CNBC) by ignoring possible license fee increases for CNBC and possible advertising price increases for Comcast networks serving a similar demographic. I further understate the benefit to CNBC by assuming that the fraction  $d$  of Comcast subscribers that switch to another MVPD do not watch CNBC on that other MVPD. On the cost side, I also continue to take a conservative approach by ignoring the possibility that some of the subscribers that initially switched away from Comcast might flow back. Thus, I overstate the cost to Comcast. Finally, I continue to assume Comcast’s decision making is based on 51% share of CNBC profits.
  
- 7) In the longer-term scenario, the cost to Comcast associated with refusing carriage to Bloomberg TV is the same as above. However, the benefit is increased advertising revenue across all systems, rather than just Comcast systems, which is given by the same expression as above, but with  $CNBCAdRevOnComcast$  replaced by  $CNBCAdRev$  and with the values for viewership for Bloomberg TV and CNBC replaced by their combined cable and satellite values, *i.e.*,  $BTVViewership = 2.2\%$ ,  $CNBCViewership = 21.8\%$ . Making this substitution, the threshold to make foreclosure profitable in the longer run is that fewer than 15.0% of Bloomberg TV viewers, or fewer than 36.7% of Bloomberg TV-only viewers, switch or drop MVPD service.<sup>35</sup>
  
- 8) I summarize these results in the table below.

**Thresholds for Denial of Carriage to Bloomberg TV by Comcast**

As a share of	Weight on programming profit ( <i>ProgWeight</i> )	Threshold number of switchers below which foreclosure of Bloomberg TV is profitable	
		Short term	Longer term

is 17.5% of Bloomberg TV-only viewers.

<sup>35</sup> The threshold value of  $a+d$  for the longer-run profitability of denial of carriage is  $a+d = 0.33\%$ . If  $ProgWeight = 100\%$ , then the threshold is  $a+d = 0.64\%$ , which corresponds to 29.1% of Bloomberg TV viewers and 71.1% of Bloomberg TV-only viewers.

Bloomberg TV viewers	51%	3.5%	15.0%
Bloomberg TV-only viewers	51%	8.8%	36.7%
Bloomberg TV viewers	100%	7.0%	29.1%
Bloomberg TV-only viewers	100%	17.5%	71.1%

- 9) It seems highly unlikely that level of switching would exceed the short-term thresholds, and virtually impossible that the level of switching would exceed the longer-term thresholds. In fact, the analysis of Crawford and Yurukoglu (2009) implies that only 2.5% of CNBC viewers would switch or drop MVPD service if a typical cable provider dropped CNBC (their data does not allow a direct calculation for Bloomberg TV).<sup>36</sup> If Bloomberg TV viewers are similar to CNBC viewers in that 2.5% would drop MVPD service if their cable provided dropped Bloomberg TV, then switching rates would be sufficiently low that foreclosure would be profitable for Comcast even in the most conservative case considered. Thus, it is likely that the denial of carriage would be profitable in the short term and even more likely in the longer term.
- 10) These results can also be viewed in terms of the share of Bloomberg TV viewing associated with the thresholds. Because CNBC provides a substitute to Bloomberg TV for subscribers, the wide availability of CNBC will blunt incentives for Bloomberg TV viewers to switch or drop MVPD service when Bloomberg TV is eliminated, relative to the thresholds considered in Table 5, where I considered the elimination of all business news networks. For example, the 2.5% of Bloomberg TV viewers with the greatest viewing share corresponds to subscribers who spend 29% or more of their viewing time watching Bloomberg TV.<sup>37</sup> This suggests that only subscribers who spend between one-quarter and one-third of their viewing time watching Bloomberg TV would switch. This is in contrast to the smaller viewing share I expect would be required to induce switching as a result of the loss of all business news. In order for denial of carriage to be unprofitable in the short term, Bloomberg TV viewers with a viewership share as low as 25% would have to switch.<sup>38</sup> In order for denial of carriage to be unprofitable in the longer term, Bloomberg TV viewers spending as little as

<sup>36</sup> Crawford and Yurukoglu (2009) build a model of demand and supply for bundles of cable television channels for the purpose of evaluating the effects of a la carte pricing of those channels. They first estimate demand for each of over 50 individual cable channels (including CNBC but not Bloomberg TV) using Nielsen ratings data by DMA and year and Warren Factbook market share, price, and bundle composition data by cable system and year. The ratings data identify relative tastes for channels and the bundle purchase data translate that into willingness-to-pay/demand. They estimate marginal costs for each channel-MVPD combination using observed prices, national aggregate SNL Kagan estimates of average affiliate fees by channel and year, and the assumption that cable systems optimally set prices given market demand and satellite MVPD offerings. From this, they can simulate outcomes of counterfactual experiments such as a la carte pricing of cable channels. For this report, I asked them to predict the share of subscribers to an average cable system that would either drop their cable service or switch to one of two national satellite operators (modelled after DirecTV and Dish) if that system elected not to offer CNBC. To do so, they first calculated the share of households that would subscribe to a cable service that offered a single bundle of roughly 50 channels in competition with the two satellite providers offering the same bundle. They then calculated how many of those customers would switch away from cable if the cable operator elected not to carry CNBC, allowing each provider to optimally choose prices in this case.

<sup>37</sup> Source: MRI Data. The corresponding number for cable Bloomberg TV viewers is similar at 28%.

<sup>38</sup> Source: MRI Data. MRI Data show that the top 3.5% of Bloomberg TV viewers spend 25% or more of their viewing time watching Bloomberg TV (same for cable Bloomberg TV viewers), and the top 8.8% of Bloomberg TV-only viewers spend 20% or more of their viewing time watching Bloomberg TV (21% for cable Bloomberg TV viewers).

10% of their viewing time watching Bloomberg TV would have to switch.<sup>39</sup> Thus, in the long term especially, switching by Bloomberg TV viewers is unlikely to be sufficient to make a foreclosure strategy unprofitable.

- 11) To the extent that Comcast can increase CNBC viewership by placing Bloomberg TV on a disadvantageous tier rather than denying carriage, a similar analysis would apply, with the conclusion that disadvantageous tiering for Bloomberg TV is likely to be profitable for Comcast. In addition, to the extent that Comcast can induce other MVPDs not to carry Bloomberg TV or to carry Bloomberg TV on less advantageous terms, Comcast obtains the benefit associated with increased viewership of CNBC on that MVPD's systems without incurring the cost of lost subscribers. Thus, the Transaction increases Comcast's incentive to offer such inducements.

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<sup>39</sup> Source: MRI Data. MRI Data show that the top 15.0% of Bloomberg TV viewers spend 10% or more of their viewing time watching Bloomberg TV (same for cable Bloomberg TV viewers), and the top 36.7% of Bloomberg TV-only viewers spend 7% or more of their viewing time watching Bloomberg TV (same for cable Bloomberg TV viewers).

**Table 14: Top Online Video Brands Ranked by Total Video Streams (US)**

	April 2008	January 2010
1.	YouTube (4,052,984)	YouTube (6,622,374)
2.	Fox Interactive Media (328,974)	Hulu (635,546)
3.	Yahoo! (221,600)	Yahoo! (221,355)
4.	Nickelodeon Kids And Family Network (151,828)	MSN/Windows Live/BING (179,741)
5.	Msn/Windows Live/Bing (149,684)	Turner Sports Entertainment Digital Network (137,311)
6.	ESPN Digital Network (125,327)	MTV Networks Music (131,077)
7.	Disney Online (93,694)	ABC Television (128,510)
8.	CNN Digital Network (84,782)	Fox Interactive Media (124,513)
9.	Turner Entertainment New Media (81,586)	Nickelodeon Kids And Family Network (117,057)
10.	Hulu (63,228)	Megavideo (115,089)

Source: The Nielsen Company<sup>40</sup>

<sup>40</sup> For January 2010: [http://blog.nielsen.com/nielsenwire/online\\_mobile/total-viewers-of-online-video-increased-5-year-over-year/](http://blog.nielsen.com/nielsenwire/online_mobile/total-viewers-of-online-video-increased-5-year-over-year/), accessed May 11, 2010; for April 2008: [http://www.nielsen-online.com/pr/pr\\_080609.pdf](http://www.nielsen-online.com/pr/pr_080609.pdf), accessed June 10, 2010.

**Table 15: Regression Analysis of Carriage Bundling**

- 1) I conduct regression analyses to analyze the effects of carriage bundling based on 129 English-language networks for which I have annual subscriber and ownership information over the period 1980-2009.<sup>41</sup> The sample includes networks currently in existence as well as networks no longer in existence. Each observation represents a network in a particular year. The dependent variable is the number of subscribers in millions. The first regression includes variables for the major multi-network owners.<sup>42</sup> These ownership variables are defined as 1 if that owner has a majority ownership share in the network (>50%) in that year and zero otherwise.<sup>43</sup> The second regression contains the same ownership share variables, plus it contains variables for the size of the channel bundle in which a network is included. These bundle-size variables are defined to be the number of majority-owned networks held by a given majority-owned network's owner in that year. The regressions also include dummy variables for the network, calendar year, and age of the network.<sup>44</sup> The network dummy variables control for network-specific effects, such as the quality of the network.
  
- 2) The coefficients shown in the first regression of the table below can be interpreted as the incremental number of subscribers reached by a network above its network-specific, age-adjusted average as a result of being majority owned by a major multi-network owner. The second regression of the table

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<sup>41</sup> I include all English-language networks for which I have a complete a subscriber and ownership history. Networks included are: A&E, ABC Family, AMC, American Life (ALN), Animal Planet, BBC America, BET, BET Gospel, BET Hip Hop, Big Ten Network, Biography, Black Family Channel, Bloomberg TV, Boomerang, Bravo, Cartoon Network, CBS College Sports, Centric, Chiller, CMT, CMT Pure Country, CNBC, CNBC World, CNN, CNN/SI, CNNfn, Comedy Central, Crime & Investigation Network, Current, Discovery, Discovery Health, Discovery Kids, Disney XD, DTY, E!, ESPN, ESPN Classic, ESPN2, ESPNNews, ESPNU, Fine Living, Fit TV, FNN, Food Network, FOX Business Network, Fox College Sports, Fox Movie Channel (FMC), Fox News Channel, Fox Soccer, Fuel, Fuse, FX, G4, GAC, Gol TV, Golf Channel, Gospel Music Channel, GSN, Hallmark, Hallmark Movies, HD Theater, HDNet, HGTV, History Channel, History International, IFC, Inspiration, Investigation Discovery, Lifetime, Lifetime Real Women, Lime, LMN (Lifetime Movie Network), Logo, Military Channel, Military History Channel, MLB Network, MSNBC, MTV, MTV Hits, MTV Jams, MTV Tr3s, MTV2, mun2, National Geographic, National Geographic Wild, NBA TV, NFL Network, NHL Network, Nick Jr, Nickelodeon, NickToons, Outdoor Channel, Ovation, Oxygen, PBS Kids Sprout, Planet Green, ReelzChannel, Science Channel, Si TV, Sleuth, Sncak Prevue, Soap Net, Speed Channel, Spike TV, Sportsman Channel, Style, Sundance, Syfy, TBS, TCM, TechTV, Teen Nick, Tennis Channel, TLC, TNT, Travel Channel, truTV, TV Guide Channel, TV Land, TV One, Universal HD, USA, Versus, Vh1, Vh1 Classic, WE, Wealth TV, Weather Channel, and WGN America.

<sup>42</sup> According to SNL Kagan's Economics of Basic Cable Networks, 2009, "Cable Networks Owned, By Number Owned: April 2009," the multi-network owners with five or more networks are: Viacom, Walt Disney, NBC Universal, Hearst, Time Warner, Discovery Communications, News Corp., Comcast, Scripps, and Cablevision. I include these multi-network owners, with the exception of Hearst, which unlike the others does not have a majority share in any network, and with Discovery represented by Liberty Media and Cox.

<sup>43</sup> The owner "Time Warner" is defined to be Time Warner Inc. starting in 2009.

<sup>44</sup> The year coefficients show a fairly steady increase in annual subscribers, with a slow down during the recession of the early 1990s. The cumulative effect of age has the general "S" shape one would expect.

breaks the ownership effect into an owner-specific effect and an effect related to the size of that owner’s bundle of networks.

**Regression Analysis of Bundling and Ownership Effects**

VARIABLES	Network Subscribers (M)	Network Subscribers (M)
Cablevision	0.359 (2.148)	2.273 (5.111)
Comcast	14.446*** (2.306)	0.149 (5.559)
Cox	18.695*** (4.859)	19.465*** (4.754)
Liberty Media	1.834 (1.586)	-3.182 (8.554)
NBC Universal	8.800*** (1.724)	17.651*** (3.162)
News Corp.	7.285*** (2.694)	1.276 (3.865)
Scripps	3.710 (4.304)	-34.405*** (6.508)
Time Warner	3.896*** (1.467)	-4.810 (4.521)
Viacom	2.745** (1.332)	3.062 (1.937)
Walt Disney	3.808* (2.014)	-7.062* (4.2)
Bundle Size Cablevision		-0.214 (1.108)
Bundle Size Comcast		3.059*** (1.097)
Bundle Size Cox		omitted
Bundle Size Liberty Media		0.552 (0.789)
Bundle Size NBC Universal		-0.877*** (0.312)
Bundle Size News Corp.		0.954** (0.421)
Bundle Size Scripps		7.932*** (1.023)
Bundle Size Time Warner		1.462** (0.696)

Bundle Size Viacom		0.018 (0.095)
Bundle Size Walt Disney		1.696*** (0.570)
Observations	1780	1780
R-squared	0.9426	0.9457

Other explanatory variables not reported include: year dummies (1980-2009, 1980 omitted), channel dummies (129 networks, ABC Family omitted), age dummies (1-34, 34 omitted), and a constant.

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: SNL Kagan 2010, "TV Networks: Peer Analysis" for subscribers for existing networks for years 1989-2009. SNL Kagan's Economics of Basic Cable Networks, various years, for subscribers for years 1980-1988, for subscribers for all years for networks no longer in existence, and for ownership information. I include all English-language networks for which I have a complete subscriber and ownership history. See footnote 41 for the list of networks.

- 3) Focusing on the first regression, the effect of ownership by a major multi-network owner is positive for all the major multi-network owners and is statistically significant for all except Cablevision, Liberty Media, and Scripps. The regression results imply that if an independent network were purchased by Comcast, all else equal, the network could expect an increase in its reach of 14.446 million subscribers, with a 95% confidence interval of 9.923 to 18.968 million subscribers.
- 4) Focusing on the second regression, the coefficients for bundle size are positive for all except Cablevision (not statistically significant) and NBCU (statistically significant), and they are positive and statistically significant for Comcast, News Corp., Scripps, Time Warner, and Walt Disney. For example, the bundle size coefficient for Comcast implies that the incremental subscribers that result from majority ownership by Comcast increases by 3.059 million, with a 95% confidence interval of 0.907 to 5.212, if the number of networks that are majority owned by Comcast increases by 1. Thus, not only is ownership by a major multi-network owner valuable in terms of increasing a network's subscribers, but that ownership tends to be even more valuable the greater is the number of networks owned by the multi-network owner.
- 5) As a result of the Transaction, Comcast will become the majority owner of NBCU networks: Bravo, CNBC, CNBC World, MSNBC, Mun2, Oxygen, Sleuth, SyFy, USA, and Universal HD.<sup>45</sup> Based on the results in the table above, this will have two effects. First, the ownership coefficients indicate that the change in majority owner from NBCU to Comcast will result in an increase in carriage for the NBCU networks.<sup>46</sup> Second, the large positive and statistically significant bundle-size coefficient for

<sup>45</sup> See SNL Kagan's 2009 Economics of Basic Cable Networks, Cable Network Ownership: April 2009, showing NBCU owns 100% of the networks listed, other than MSNBC and Universal HD. For MSNBC and Universal HD, see GE and Comcast's "Applications and Public Interest Statement," January 26, 2010, p.30, available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=7020394237>, accessed May 11, 2010. Regarding MSNBC see also "Microsoft Quits MSNBC TV, but Web Partnership Remains," *New York Times*, December 24, 2005, available at <http://www.nytimes.com/2005/12/24/business/media/24msnbc.html>, accessed June 20, 2010.

<sup>46</sup> Although one must be cautious in interpreting out-of-sample predictions based on this type of regression, some calculations are

Comcast suggests that the increase in the number of channels controlled by Comcast will lead to further increases in carriage for the NBCU networks as well as increases in carriage for Comcast networks.

- 6) These results support the conclusion that the Transaction will produce significant subscriber increases for NBCU and Comcast networks. We have to expect that at least some of the large increase in subscribers for Comcast-NBCU networks will come at the expense of other networks. The networks most likely to be crowded out are those that are substitutes for networks in the Comcast-NBCU bundle and that do not have similar leverage. Both Bloomberg TV and Fox Business Network offer substitutes to the Comcast-NBCU networks CNBC and CNBC World, but Fox Business Network is the only one with leverage associated with having a multi-network owner. If we view the coefficients in the above table as a measure of this leverage, then the leverage of News Corp. (Fox Entertainment) is of similar magnitude to that of NBCU. Thus, Bloomberg TV is especially vulnerable to the carriage bundling effects produced by the Transaction.
- 7) Calculations as to how many subscribers the Transaction would cause Bloomberg TV to lose as a result of carriage bundling are difficult. Subscriber losses could be in the form of Bloomberg TV being dropped from systems where it is currently carried or Bloomberg TV not being added to systems where it would have been added in the absence of the Transaction. The level of subscriber losses depends on the total subscriber increases for all Comcast-NBCU networks and the carriage increases for CNBC and CNBC World in particular, and it depends on the characteristics of systems on which the subscriber gains for Comcast-NBCU occur. That said, the probit analysis reported in Table 4 shows statistically significant effects of CNBC and CNBC World on the carriage of Bloomberg TV. [[

[REDACTED]

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This highlights the potentially significant effect that the Transaction could have on networks such as Bloomberg TV through the Transaction's effect on the leverage Comcast-NBCU will have in carriage negotiations.

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potentially informative. Based on the first regression, the point estimate for the effect of the Transaction on these networks is *Comcast-NBCU* = 5.6 million subscribers. Capping a network's total subscribers at 104 million (SNL Kagan's estimate for total number of MVPD households for 2010 is 104 million (SNL Kagan Economics of Basic Cable Networks, 2009, "Cable Network Television Household Growth, 1997-2010 (mil.)"), this suggests increases of 4.8 million for USA and 5.6 million for the remaining nine networks. Thus, the point estimate for the predicted subscriber increases for CNBC and CNBC World as a result of the Transaction is 5.6 million each, and the point estimated for the predicted subscriber increase for all NBCU networks as a result of the Transaction is  $4.8+9*5.6 = 55.2$  million subscribers.

<sup>47</sup> {{ [REDACTED] }}

Table 16: Distribution of Number of Channels

1. The figure below shows that 90% of households passed by cable receive between 44 and 80 channels on their basic plus expanded basic tiers. It also shows that most households receive 71 or more channels, while only 5% receive more than 80. This suggests a relatively firm channel capacity constraint around 80 channels for basic plus expanded basic tiers.

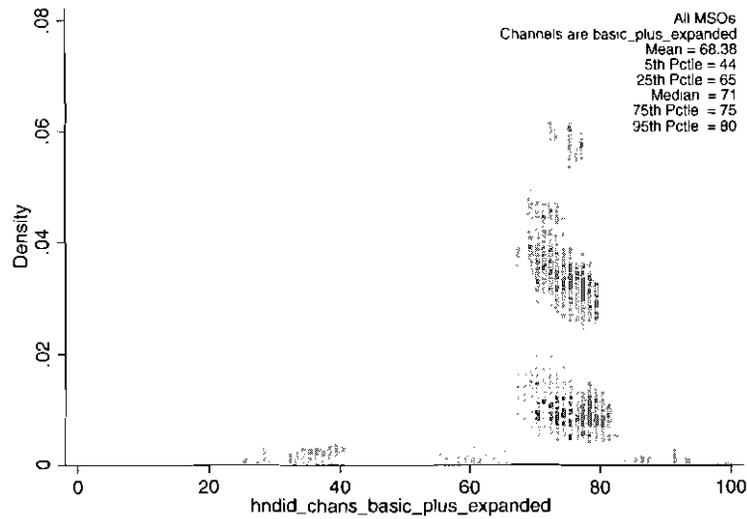


Figure: Distribution of the Number of Basic and Expanded Basic Channels

Source: 2007 TMS Data

2. However, as shown in the figure below, there is significantly more capacity for digital basic, with more variation in the number of channels offered.

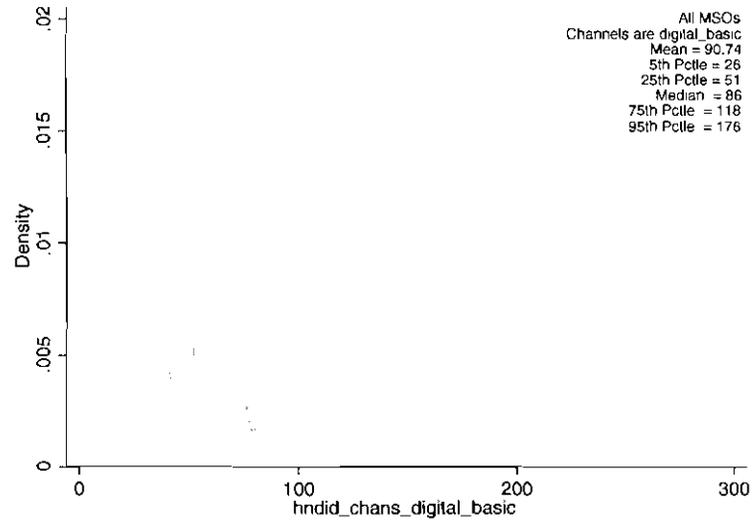


Figure: Distribution of the Number of Digital Basic Channels

Source: 2007 TMS Data

**Table 17: MSO Carriage of Owned Networks**

1. One measure of the extent of channel capacity constraints is the extent to which MVPDs fail to distribute all of their affiliated networks to all of their households. As shown below, by this measure of capacity constraints, at least 17% of headend-households (25.5 million headend-households) are capacity constrained.<sup>48</sup> Each of the 25.5 million headend-households identified below is associated with major MSOs, suggesting capacity constraints are an issue for major MSOs as well as, presumably, smaller MSOs and non-MSOs, particularly those with analog systems.

**Channel Capacity Constraints for MSOs Owning Multiple Networks**

MSO	Networks considered	MSO's households not receiving all networks (any tier)	MSO's total headend-households (M)	Estimated number of capacity constrained headend-households (M)
Cablevision	AMC, Fuse, IFC, WE	26.8%	4.6	1.2
Comcast	AZN, E!, G4, Golf, Style, Versus	37.6%	40.4	15.2
Cox (Discovery)	Animal Planet, Discovery, Discovery Health, Discovery Kids, Discovery Times, Fit, Military Channel, TLC	0.8%	7.9	0.1
Time Warner	Boomerang, Cartoon Network, CNN, CNN Headline, Court TV, TBS, TNT, TCM	38.2%	23.7	9.0
Other cable			70.2	
<b>Total</b>			<b>146.8</b>	<b>25.5 (17.38%)</b>

Source: 2007 TMS Data

<sup>48</sup> Each household served by a particular cable headend is a headend-household. Thus, if one household is passed by two cable providers, that is counted as two headend-households, one for each cable provider passing that household.

**Table 18: Shapiro Test for Bundling of Carriage**

*Question:* 1. Is there an incentive to bundle? a. Under what circumstances does the combined firm earn higher profits through a bundled pricing strategy? b. Did either firm have an opportunity to bundle prior to the combination? If so, is there evidence that bundling is a common practice in this industry? i. If we see bundling, then what is the marginal impact of increasing the potential scope of the bundle? ii. If we do not see bundling, then how do the opportunities created by this combination create a different incentive to bundle?

*Answer:* 1.a. Comcast earns higher profits through bundling if bundling increases carriage of its networks, results in the short-run or long-run exclusion of rival programming (including Bloomberg TV), or reduces transaction costs or facilitates price discrimination. Evidence for the incentive to bundle is provided by the first regression in Table 15, which shows that a network’s carriage increases as a result of having a multi-network owner. In addition, both Comcast and NBCU have high-value programming which could be included in the bundle.<sup>49</sup> 1.b. Comcast and NBCU both had opportunities to bundle prior to the combination. The American Cable Association (ACA) argues in comments to the FCC that NBCU did bundle networks for carriage and that bundling is a common practice in the industry.<sup>50</sup> 1.b.i. The Transaction will increase the number of networks that are majority owned by Comcast and that could be bundled together. The second regression in Table 15 provides evidence that, at least for Comcast, increasing the size of the bundle increases the marginal impact of bundling

*Question:* 2. What is the immediate gain to consumers from lower prices? a. How much do we expect prices to fall due to bundling?

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<sup>49</sup> The FCC views Comcast’s Regional Sports Programming as “must-have” programming in its Memorandum Opinion and Order in the Adelphia transaction, stating, “We conclude that there is substantial evidence that a large number of consumers will refuse to purchase DBS service if the provider cannot offer an RSN. ... Because the failure to carry an RSN can have a significant impact on the profitability of an MVPD facing direct competition, competing MVPDs will be willing to pay a high price in order to ensure that they obtain RSN programming.” (FCC (2006), “In the Matter of Applications for Consent to the Assignment and/or Transfer of Control of Licenses Adelphia Communications Corporation (and subsidiaries, debtors-in-possession), Assignors, to Time Warner Cable et al.,” Memorandum Opinion and Order, MB Docket No. 05-192, Adopted July 13, 2006, Released July 21, 2006, at paragraph 151)

<sup>50</sup> See, for example, the comments by the American Cable Association filed with the FCC in MB Docket No. 07-198 on January 3, 2008, arguing that “programmers and broadcasters routinely require carriage of affiliated channels through tying and bundling” (p.5) and reporting channel tying and bundling arrangements by NBCU (see Table 1) and stating that “On average, 30% of the channels carried on expanded basic and 45% of the channels carried on digital tiers are carried under tying or bundling arrangements imposed as conditions of access to desired channels.” (p.10)

*Answer:* 2.a. It is not clear that prices would fall due to bundling as presumed in the question. The ACA argues in comments to the FCC that “One hundred percent of ACA members surveyed said that wholesale tying and bundling raise the cost of their expanded basic tiers and digital tiers. Not only must ACA members distribute many additional channels as conditions of access to desired channels, but they must also pay monthly per-subscriber license fees or retransmission consent fees for each additional channel. In many cases, tying and bundling adds several dollars per subscriber per month to the wholesale cost of basic, expanded basic and digital tiers, all for channels the cable operator might otherwise not want to carry. As the Commission has repeatedly recognized, these programming and retransmission consent costs are ultimately borne by consumers.”<sup>51</sup>

*Question:* 3. What will be the impact on competitors? a. How much will competitors’ price fall? b. What will be the shift in share?

*Answer:* 3.a. {{

[REDACTED]

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*Question:* 4. How long do we expect these lower prices to persist? a. How long do we expect the rivals will be able to hold out? b. Are rivals sufficiently close to exiting the market that this will tip the scales? c. Are there large customers with market power that have an incentive to keep multiple firms in the market?

*Answer:* 4.a. To the extent that Comcast-NBCU can exclude rivals such as Bloomberg TV simply by crowding them out of the channel lineup in the most demanded tier by bundling less prominent networks with “must-have” programming without substantially reducing prices, it is less relevant how long rivals can “hold out” because Comcast-NBCU can sustain the strategy without significant cost.

4.b. {{

[REDACTED]

<sup>51</sup> Comments by the American Cable Association filed with the FCC in MB Docket No. 07-198 on January 3, 2008, p.12.

<sup>52</sup> {{ [REDACTED] }}

<sup>53</sup> {{ [REDACTED] }}

<sup>54</sup> These calculations consider only the displacement of Bloomberg TV by CNBC and CNBC World and not the displacement of Bloomberg TV that may result from the increase in carriage for other Comcast-NBCU networks.

}}<sup>55</sup> At inception Bloomberg TV was viewed as an important marketing tool for the Bloomberg brand, so profitability was not a critical goal, but the more recent vision for Bloomberg TV requires that it stand alone as a profitable component of the overall business.<sup>56</sup> 4.c. There are other large customers in the market, such as Time Warner Cable, Cablevision, Charter, and Cox; however, I find it unlikely that they would have an incentive to do much to sustain rival business news networks such as Bloomberg TV in order to prevent an increase in license fees for CNBC because that increase in fees for CNBC would be a small fraction of their total programming costs.

*Question:* 5. If the rivals exit, what is the expected harm? a. Will other firms be able to enter the market? b. Will large buyers be able to hold prices down? c. Or, if prices rise, what is the expected damage?

*Answer:* 5.a. As discussed in this report, the barriers to entry are substantial and the time to profitability long in TV business news programming. Thus, I would not expect entry into a market dominated by CNBC. Even if CNBC commands large license fees and advertising rates, that does not mean an entrant could charge similar prices in the short run or in the long run. In the short run, an entrant's lack of reputation would limit its license fees and a limited subscriber base would limit its advertising revenue. CNBC can easily lower its license fees and advertising rates to prevent a new entrant from ever gaining a foothold. (See the discussion above of CNN's pricing in response to the threat of entry by Satellite News Channel.<sup>57</sup>) In the long run, if entry was successful, I would expect competition from CNBC to drive prices down. Thus, I expect entry to be difficult and unlikely to be timely. 5.b. Given the "must-have" programming held by Comcast and NBCU, it will be difficult for even large buyers to hold prices down. As an example of programmer bargaining power, as discussed above, CNN more than tripled its license fees within a month of Satellite News Network's exit. 5.c. Higher prices would presumably be passed along to consumers in the form of higher subscription prices for MVPD service.<sup>58</sup> In addition, the elimination or diminishment of rival business news networks such as Bloomberg TV would reduce the diversity of information sources for business news made available by MVPDs.

Thus, overall, in response to Professor Shapiro's question 1, I conclude that there is an incentive to bundle. In response to question 2, I do not expect consumers to gain in terms of lower prices as a result of bundling by Comcast-NBCU. For question 3, I think the relevant impact is the possibility

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<sup>55</sup>{ { [REDACTED] } }

<sup>56</sup> James Cofer, Head of US Distribution, Bloomberg TV, interview, April 12, 2010.

<sup>57</sup> It appears a similar strategy was pursued by MTV, which would reduce license fees in response to competitive threats. (See Waterman, David and Andrew A. Weiss (1997), *Vertical Integration in Cable Television*, Cambridge, MA: MIT Press, p.69, and references therein.)

<sup>58</sup> This is supported by the economics literature, including Ford and Jackson (1997), and recognized by the FCC, which stated the News Corp. Order that "If News Corp. can secure carriage of more cable networks and charge higher fees for such carriage, these fees are unlikely to be absorbed solely by the MVPDs, but would be passed on to consumers in the form of higher rates." (FCC (2004), "In the Matter of General Motors Corporation and Hughes Electronic Corporation, Transferors, and The News Corporation Limited, Transferee. For Authority to Transfer Control," Memorandum Opinion and Order, 19 FCC Rcd. 473, paragraph 209)

that rival business news networks such as Bloomberg TV are excluded from MVPD distribution. For question 4, I think bundling by Comcast-NBCU can be sustained sufficiently long to have a significant impact on Bloomberg TV. Finally, for question 5, the expected harm to consumers is an increase in consumer prices for MVPD services and a reduction in the diversity of information sources for business news made available by MVPDs.

**Table 19: Model of Bundled Advertising**

1) Suppose there are 6 possible advertising slots: CNBC1, CNBC2, Golf, BB1, BB2, and BBspot. There are 4 advertisers, each with an advertising budget. Each only wants 1 slot on CNBC or BB, but each values CNBC1 more than CNBC2 and BB1 more than BB2. Also, because CNBC has greater subscribership, slots on CNBC are valued more highly than those on BB. Slots on Golf are not as perfect a match for the advertisers and so are valued lower. BBspot does not involve as much ad time as the BB1 and BB2 slots and so is valued lower.

2) Suppose the values for the slots are as follows:

	CNBC1	CNBC2	Golf	BB1	BB2	BBspot
Bidder 1 (budget = 14)	10	9	4	8	7	4
Bidder 2 (budget = 9)	8	7	3	6	5	3
Bidder 3	6	5	1	4	3	2
Bidder 4	5	4	1	3	2	1

3) Suppose ad slots are allocated by a sequence of second-price auctions, and assume that the bidders do not bid strategically. Consider the sequence of auctions CNBC1, BB1, CNBC2, BB2, Golf, BBspot.

4) In this case, bidder 1 wins CNBC1 at a price of 8 and BB1 at a price of 6. This uses up bidder 1’s budget. Then bidder 2 wins CNBC2 at a price of 5, BB2 at a price of 3, and Golf at a price of 1. This uses up bidder 2’s budget. Then bidder 3 wins the BBspot at a price of 1. All ad slots are then sold.

5) If Comcast receives the revenue from the BBspot ads and if Comcast receives share  $a$  of the revenue from Golf and CNBC,<sup>59</sup> then Comcast’s revenue is:  $8a+5a+1a+1=14a+1$  and BB’s revenue is  $6+3=9$ . Total surplus generated is:  $10+7+3+8+5+2 = 35$ .

6) Now suppose that after the auction for CNBC1, which bidder 1 wins at a price of 8. Comcast approaches the winner, bidder 1, and offers an epsilon reduction in price if it agrees to take Golf for 3 and BB spot for 3. This gives bidder 1 greater surplus than continuing to bid (non-strategically) at the auctions, so it accepts. Bidder 1’s budget is then used up. Following this, at the BB1 auction, bidder 2 wins at a price of 4. At the CNBC2 auction, bidder 2 wins at a price of 5. This uses up bidder 1’s budget. Then bidder 3 wins BB2 at a price of 2. All ad slots are then sold.

<sup>59</sup> One can think of  $a$  as being 51%, but the precise value does not affect the conclusions of this section.

- 7) Comcast has revenue:  $8a+5a+3a+3-\epsilon = 16a+3-\epsilon$ . BB has revenue of  $4+2=6$ . Total surplus generated is:  $10+7+4+6+3+4 = 34$ . (BB2 is held by bidder 3 instead of bidder 2, but Golf is held by bidder 1 instead of bidder 2.)
- 8) In this example, bundling advertising increases Comcast's ad revenue at the expense of BB's advertising revenue.<sup>60</sup> It shifts all of the high-valuing advertiser's purchases onto Comcast's networks, and it reduces overall surplus.
- 9) In the simple stylized example, buyer 1 is indifferent between CNBC1 and BB1 on the one hand and CNBC1 and a collection of lower-valued slots (Golf and BBspot) on the other. However, the distributions of values for the lower-valued slots are more compressed, so diverting the high-valuing advertiser from BB1 and onto Golf and BBspot reduces welfare. There is a larger drop down to the next highest valuing advertiser on BB1 than on Golf and BBspot. So bundling reduces the size of the pie and allows the bundler to take a larger share.

10) {{

[REDACTED]

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<sup>60</sup> It also increases GE's revenue from CNBC and Golf from  $14(1-a)$  to  $16(1-a)$ .