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Monetizing the Hidden Value in TV Spectrum

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EXECUTIVE SUMMARY

*Bishop Cheen
(704) 383-0473
(800) 528-4580
Eric J. Selle*

- Soaring bandwidth demand for streaming media content and commerce could make the digital TV (DTV) broadcast spectrum a valuable untapped commodity.
- DTV homes in the United States could top 14 million by 2005 versus 18 million satellite homes, 24 million digital cable homes, 25 million cable modem homes and 15 million digital subscriber line (DSL) homes.
- TV broadcasters are looking at partitioning 16%–36% of their 6-megahertz (MHz) digital channel for lease to third-party MediaCasters.
- The hidden value of the untapped DTV spectrum could add 13% to the total enterprise value (TEV) of an average TV broadcast company and 40% to the average TV stock.
- An upcoming spectrum auction in the United States could set a new comparable value per population (POP) and TV home/MHz that clarifies the \$4.29 POP/MHz set in the United Kingdom in April.
- Aside from the seven mainstream broadcast TV networks, four new spectrum aggregators are vying to lock up DTV spectrum for various MediaCasting services.
- Confirming the hidden value in DTV broadcasters may take years, but investors are speculating on the impact DTV could have on the value of their holdings in the sagging TV sector.
- *We reiterate our buy recommendation on the bonds and preferred stock of The Ackerley Group, Inc., Emmis Communications Corp. and Paxson Communications Corp. and the high-coupon issues of Sinclair Broadcast Group, Inc., and Young Broadcasting Corp.*

*The watchword for
the digital age is
bandwidth, and TV
broadcasters have a
mother lode to market.*

TV SECTOR'S DIGITAL UPSIDE

Television broadcasters have been in a funk lately as the average TV bond in our relative value group (Table 7, page 13) has backed up 100 bps year to date on a spread-to-Treasurys (STT) basis (from 350 bps to 450 bps) and 79 bps on a yield-to-worst basis (from 9.91% to 10.70%). In contrast, the 10-year Treasury has widened only 40 bps year to date. Meanwhile, the average TV broadcast stock is down 10.8% this year versus only a 3.2% decline in the NASDAQ and a 9.6% drop in the Dow Jones Industrial Average during the same period. TV's weakness can be attributed to lingering concerns surrounding the perceived cost of digitizing the broadcast spectrum and the fate of network compensation. Add to these twin clouds the long shadow of radio's growth star and TV investors have not had much to shine about lately.

*Year to date, the
average TV bond has
backed up 100 bps,
whereas the average
TV stock is off 10.8%.*

**This report is available
on fusiresearch.com.**

Although ad spending is up this election/Olympic year, the TV sector remains out of favor.

TV broadcasters are preparing their assets for an expensive transition into digital broadcasting that could unleash significant hidden value in their DTV spectrum.

A portion of the DTV channel can be partitioned to provide new MediaCasting services that should create value for TV broadcasters.

Bandwidth demand is at an all-time high by streaming media and commerce content providers.

Despite all the new bandwidth options being deployed, a looming capacity gap could create an unprecedented opportunity for DTV broadcasters.

Clearly, both factors have taken their toll on a fundamentally sound sector. In 1999, TV ad spending increased 6%, whereas the broadcast networks and program syndicators enjoyed double-digit growth. The scene was set for a strong 2000 as the TV sector was expected to benefit from the Olympic Games and political ad spending plus new millennium advertisements. Market pundits continue to project double-digit sales growth at the networks and 7%-9% top-line expansion at the station level. Against this backdrop, we believe the high-yield and equity markets have failed to focus on TV's hidden value that remains untapped in television broadcasting's newfound digital spectrum.

- **The digital mandate.** By 2006, under current Federal Communications Commission (FCC) regulations, TV broadcasters need to convert existing analog operations into new 6-MHz channels, abandon the old analog spectrum and simply return that channel capacity to the FCC, which will reallocate the spectrum to various fixed and mobile spectrum users. A time line based on market size has been established by the FCC for TV broadcasters to complete their transition to DTV. Many critics of the current plan, however, believe the transition will be difficult for capital-strapped, smaller-market TV station operators. Many observers do not believe the industry will be ready to turn in its current analog channels by 2006 due to the complexity and expense inherent to the digital conversion. In today's dollars, it costs \$2 million-\$8 million per station to convert to digital operation, depending on if the station only provides pass-through digital broadcasting or is equipped for full digital production capabilities.
- **The MediaCasting option.** To help stations recover at least some of the high cost of digital conversion, the FCC will allow DTV broadcasters to partition part of their 6-MHz signal to provide various digital services, which are best described as MediaCasting. The DTV broadcaster, however, must broadcast a traditional programming channel to its local community. Currently, out of approximately 1,250 commercial TV stations in the United States, 130 stations reaching 63% of the nation's nearly 100 million TV households (TVHH) have at least digitized their pass-through signal and are operating in dual mode— analog and digital.

THE COMPETITIVE FIELD FOR BROADBAND APPLICATIONS

The explosive growth of the Internet in the past six years has underscored the bandwidth challenge many leading Internet services face. Aside from capacity constraints, the cost for high-speed service over fixed telephony lines has become onerous. America Online, Inc., spent more than \$1.3 billion on line carriage and connection fees last year. In short, the demand for high-speed Internet connectivity far outstrips supply, even with the rollout of high-speed cable modems and higher-capacity T1 and DSL telephony connections. Broadband services are beginning to use new high-capacity networks via new competitive local or regional exchange carriers (CLECs or RLECs) that are rapidly deploying fiber backbones capable of handling voice, data and video applications. The thinking on Wall Street is these new networks are the first viable competitive overbuilds the cable TV industry has faced since its inception five decades ago.

- **Bandwidth challenge.** Despite the rush to rewire and unwire America with new high-speed capacity, conventional wisdom suggests there will still be a capacity gap ahead. According to recent research by media consultants The Strategis Group, Inc., BIA Financial Network and Paul Kagan Associates, Inc., 84% of small businesses in the United States rely solely on dial-up Internet access, yet wireless broadband penetration is currently only at 5% and is not expected to reach 50% until 2003. For home users, capacity may be more constrained. Approximately 89% of U.S. homes are limited to narrowband dial-up Internet access. Broadband penetration to home consumers is currently 4% and is not projected to reach 33% until 2003.

- **The race for subscribers.** Among the most competitive broadband service providers, we believe cable, which currently has the lead in digital cable and broadband connection homes, will continue to be the leader in 2005 with nearly 24 million and 25 million homes, respectively. Using the mid-range DTV projections, we estimate home DTV use will grow exponentially by year-end to perhaps 370,000, up from approximately 60,000 homes at the end of last year, and to more than 14.4 million homes in 2005 (Table 1). Embedded in our projections are personal computer (PC) homes that will be able to receive DTV signals. Obviously, much of DTV's projected gain will depend on the reliability of the DTV standard and the proliferation of compelling services.

Cable, satellite, telco and DTV providers will all be vying for broadband subscribers.

Table 1: U.S. Broadband Penetration: The Race for Subscribers

(million)	1999	2000E	2005E	CAGR 1999–2000E	CAGR 1999–2005E
Satellite Homes	11.83	14.36	18.00	21.4%	8.8%
Digital Cable Homes	3.62	7.00	23.60	93.4%	45.5%
DTV Homes ¹	0.06	0.37	14.44	481.3%	NA
DSL Subscribers ²	0.43	1.70	14.80	295.3%	102.9%
Digital Cable Modem Subscribers ³	1.65	5.83	24.50	253.3%	71.5%
Total	17.59	29.26	95.34	66.3%	40.2%

CAGR: Compound annual growth rate; DSL: Digital subscriber line; DTV: Digital television.

1. Includes households with personal computers equipped to receive DTV signals.

2. There were an estimated 639,000 DSL subscribers as of March 31, 2000, growing approximately 17,500 per week according to Digital Technology Consulting.

3. There were an estimated 3.1 million cable modem subscribers as of March 31, 2000, growing at a rate of 66,260 per week according to Digital Technology Consulting.

Source: Various and First Union Securities, Inc.'s estimates.

- **Digital players.** To fill the capacity gap void, a plethora of broadband service providers are scrambling to launch high-speed services to home and business users, including cable, satellite, telephony, Internet and new wireless service providers. Each service is differentiated by its competitive advantages and disadvantages that tend to revolve around penetration, reliability and return-path issues (Table 2).

DTV providers are at a competitive disadvantage currently due to a lack of digital TV receivers.

Table 2: Broadband Service Providers

Service Provider	Advantages	Disadvantages
Cable	Carrier Penetration Two-Way Capability Closed System Tiered Pricing	Service and Box Penetration
Satellite	Growing Penetration Remote Penetration Two-Way Capability Closed System Tiered Pricing	Interference Return-Path Questions
DTV	Coverage	No Embedded Return-Path Service and Box Penetration
DSL	Growing Penetration	PC End-User Only Remote Penetration
Wireless	Buildout Cost Remote Penetration	Limited Coverage Return-Path Issues
Dial-Up	Highest Penetration	Low-Speed Data Rate

DSL: Digital subscriber line; DTV: Digital television; PC: Personal computer.

Source: BIA Financial Network and First Union Securities, Inc.

Applications abound for DTV MediaCasters to serve corporate, ISP, financial, educational, government and consumer markets.

- **DTV's hurdles.** For would-be DTV providers, the advantage is broad penetration of the existing station base. The key disadvantage, however, is the lack of an embedded return path and the current lack of existing services and encoder-box penetration. Beyond that, for services that would be improved with the enhanced graphic and video presentation inherent to digital monitors or high-definition TV (HDTV) sets, the current lack of affordable digital receivers puts the broad entrenched base of millions of analog TV sets at a serious competitive disadvantage to the PC-based services that currently reach 60 million households in the United States. At the end of March, approximately 180,000 HDTV sets had been sold in the United States.
- **An application in every pot.** The potential applications for DTV delivery appear to be mushrooming every day in a niche environment. Clearly, the Internet has been extremely adept at defining niche markets for a rich array of video/text/data/audio/software information and media services targeted at corporate, commercial, financial, educational, government and consumer communities. The challenge for DTV providers will be to redefine these markets, develop compelling services and establish competitive business models for serving the various users and communities (see the discussion of costs and rates on page 6). Table 3 gives an overview of applications and markets that could be served by DTV providers. All of these applications are already being served in various ways by Internet service providers (ISPs) that are likely to be bandwidth constrained from meeting the demand of their markets.

Table 3: MediaCasting Applications

Market	Application
Corporate and ISP	Video to Desktop Meter Reading Multimedia Kiosk Feeds Software Updates Service Manual Updates Database Management Marketing/Promotions
Financial	Quotes Video Streaming Back-Room Management
Educational	Distant Learning Student/Faculty Records
Government	News/Information Video Streaming
Consumer	Webcasting Gaming Media Downloading Media Streaming Pay-per-View/Listen Software Updates Coupons

ISP: Internet service provider.

Source: BIA Financial Network and First Union Securities, Inc.

SPECTRUM ISSUES

While TV broadcasters are grappling with how to best use their spectrum and aggregators are competing to lock up station partners and the heretofore uncooperative big broadcast networks, a number of unresolved technical and legal issues may further stall the digital revolution in broadcast TV. Most revolve around broader issues of operability, flexibility and compatibility. Among the key issues are

- **Digital TV standards.** Although the FCC and the Grand Alliance on DTV decided in 1996 on a digital standard called 8VSB (8-level vestigial sideband), opposition to the use of 8VSB has risen among TV broadcasters. The fight has been led by Sinclair, following numerous field tests of 8VSB. Sinclair favors switching to a European standard known as COFDM (coded orthogonal frequency division multiplexing). COFDM proponents claim 8VSB, as applied to the current National Television System Committee (NTSC) analog signal, is subject to interference problems without the installation of an outdoor antenna. Proponents of 8VSB, including many consumer electronics companies that have a vested interest in going forward with 8VSB, claim the problems can be corrected over time and that switching to COFDM would subject the rollout of DTV in the United States to a long and expensive delay. Supporters of 8VSB also claim the adoption of COFDM would result in less coverage of DTV signals within a market and require more transmission repeaters to support the DTV signal.
- **Collecting/preparing content.** TV broadcasters will have to scale the learning curve on how to control digital content for transmission, including how the content should be best conveyed. For example, synchronizing Web content to program content in real time has inherent problems.
- **Storing content.** There are many different ways to store and deliver digital content that may not be compatible with the current standards for NTSC and DTV delivery.
- **Bit management.** This is possibly the biggest challenge for DTV broadcasters. Within the 19.4 megabit per second (Mbps) signal, broadcasters need to manage, in real time, the mix of MediaCasting content with that of the main program signal. Depending on the broadcast, MediaCasting content may require more or less of a bit-intensive robust signal, which varies greatly in real time.
- **Scheduling/processing events.** There are numerous ways to convey digital content that are specific to the server and the end user, including LANs (local area networks), WANs (wide area networks), WAPs (wireless application protocols) and embedded digital content in the signal (i.e., vertical blanking delivery). Beyond transmission variances, preparing the digital content can vary greatly depending on the method of packet encoding and compression processing. For example, today's technical standards differ widely for the storage and delivery of media versus interactive content and software.
- **Must carry.** DTV broadcasters want their various digital channels to be carried by cable systems within their local markets. This issue is most relevant for broadcasters that decide to multicast the 6-MHz digital channel into numerous programming services rather than dedicate part of the 6-MHz signal for leasing to spectrum aggregators. Cable systems, however, claim they will lack the capacity to carry potentially hundreds of new channels in their current channel-constrained systems and even in their upgraded digital mega-channel systems. The FCC will likely study the issue for years before making a ruling. The FCC has said, however, in a specific ruling, if a TV broadcast channel is digitally encoded, then a digital cable system must carry the signal if the DTV signal is targeted at the local market.

Aside from competitive and cost issues, a bevy of technical and economic challenges will have to be solved for MediaCasting to evolve as a viable business.

The immediate dilemma revolves around the trade-off of fixing the existing 8VSB digital standard or risking a DTV rollout delay by switching to a new standard.

Bit management will be an important new skill set in the digital marketplace.

Must-carry issues are more complicated than ever.

Serving fixed, mobile or nomadic needs require widely different solutions and strategies.

MediaCasting hardware adoption rates could vary significantly from established price-point/penetration curves set by traditional consumer media electronics rollouts.

Cost-per-point and cost-per-thousand rate-card strategies will likely give way to cost-per-POP, click-through, page-view and cost-per-bit economics.

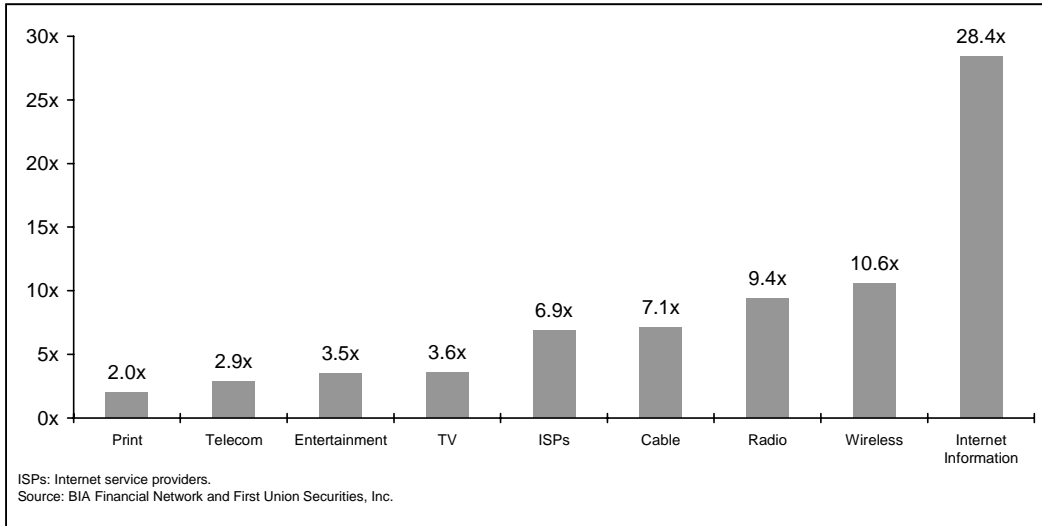
- **Channel mapping.** MediaCasters will need to have an accountable way to measure and track where the content goes when transmitted across various channels, servers and markets.
- **Fixed, mobile or nomadic markets.** MediaCasting will serve numerous applications that may not be compatible with the delivery system. For example, most hand-held digital devices are inherently more nomadic than mobile. At 60 miles per hour, a DTV signal may not be robust enough to effectively deliver content the way that cellular and personal communications system (PCS) signals can. Beyond that, must-carry issues become moot if a MediaCast channel is being used for mobile applications as opposed to in-home applications.
- **Costs.** Equipping a TV broadcast station for multicasting applications costs \$50,000–\$75,000 per channel. COFDM proponents claim the cost for COFDM would be only \$20,000 per channel, not including additional transmission repeaters. Today, a digital terminal or decoding box for DTV signals costs approximately \$400. Geocast Network Systems, Inc., is readying system-specific boxes for the home computer priced at \$300. If history repeats itself in consumer electronics, penetration versus price-point adoption rates suggest the price of the box could be cut in half within one year of the rollout of DTV services. Granted, the adoption/price curve in consumer electronics is based on simpler hardware/software rollouts such as portable radio/cassette/CD players, VHS video players, DVD players and dedicated video game machines.
- **Rate cards.** DTV broadcasters need to experiment with various rate structures for the content to be MediaCast. Standard cable rate structures of pay-per-view and subscription may work well for similar downloading, video on demand (VOD), streaming or near-video-on-demand (NVOD) programming applications. Internet rate structures based on page views, click-throughs and pay-per-view could work for other applications. For half a century, TV broadcasting rate structures have been driven based on the number of TV households covered (rating) or tuned in (share). Yet many other broadband telecom applications are based on the population reached and the time used. Still other applications, such as downloading, may be based on a cost-per-bit basis. In short, the evolution of MediaCasting services may be a combination of all of the above structured as a hybrid of a cost-plus utility model and an added-value consumer model.

MEDIA VALUE IS A MULTIPLE CHOICE

Until an economic track record is established among DTV hopefuls—and that could take years—there is much uncertainty as to the inherent value of the DTV spectrum. The upside for TV broadcasters may best be defined by examining the value gap versus the sector's peers and by measuring the hidden value yet to be harvested in its new digital spectrum.

- **The value scale.** Based on current valuations on Wall Street in the TV sector, we do not believe any value is currently being ascribed to TV broadcasters for their DTV spectrum. In fact, the valuation of an array of old and new media sectors confirms the investment community is fixated these days on the potential for growth in new markets and companies that have established a critical mass of services and meaningful penetration of users (Chart 1, page 7). We have valued the industries with the lowest common denominator—revenue multiples—because many of the sectors cannot be quantified in the more relevant investor metrics of operating cash flow or EBITDA.

Chart 1: Revenue Multiples of Media/Communications Companies by Industry



TV broadcasters remain at the low end of the value scale in the shadow of radio, wireless and Internet valuations.

Chart 1 helps to explain why TV broadcasters today are valued at only 3.6x revenue, whereas the multiple of the more hybrid old/new media of cable is valued at nearly double that number. We note TV's close cousin, radio, is valued on Wall Street today at a lofty 9.4x revenue because of radio's long-standing high-growth track record and its active transaction market. Although there are plans to convert existing analog spectrum into a digital in-band standard, most of radio's new media efforts focus on using the Internet for brand-name extensions via audio streaming and for promotion and commerce-related applications.

- **The value gap.** The highest bar in the scale—Internet information companies such as Yahoo! Inc.—highlights the extreme of investor infatuation with companies engaged in vertical markets and multiple revenue streams. This is the end we believe DTV providers should focus on as a goal for developing economic upside from raw, unharvested spectrum. Granted, we are not suggesting once various DTV services are rolled out, TV broadcasters will enjoy anywhere near such lofty revenue multiples, but the mere demonstration by undervalued TV broadcasters of the ability to reach new markets and develop new revenue streams will likely be rewarded with higher valuations than the sector is able to command presently.
- **The value upside.** Just the fact that advertising has been and is expected to be a key economic driver of Internet services suggests TV broadcasters are uniquely positioned to benefit from extending their platform and skill set. By 2005, online advertising expenditures could soar to \$28 billion from expectations of \$6 billion this year and just \$3.5 billion in 1999, according to an online consulting firm, Jupiter Communications, Inc.

Closing the value gap should be a driving force ahead for the operating strategies of DTV players.

If online advertising spending reaches \$28 billion in 2005, what is the upside for DTV?

HOW MUCH IS SPECTRUM REALLY WORTH?

DTV broadcasters will be entering a new paradigm when they harness their digital spectrum for MediaCasting. For five decades, TV broadcasters have been valuing their service based on the well-established ad-driven metrics of TVHH reached, cost per rating point or even the older print metric of cost per thousand (CPM). With the unharvested DTV spectrum, however, other more appropriate metrics may drive the value, such as TVHH reached or POP reached. In cellular and PCS phone deals, spectrum is often measured on a value-per-POP basis.

Like its cable and cellular ancestors, DTV valuations may be defined at first by the potential homes MediaCasters can reach.

The 3G auction in the United Kingdom set a benchmark of U.S.\$4.29/POP/MHz. What will a POP/MHz really be worth in the United States?

Our exclusive study of 13 TV broadcasters suggests their untapped DTV spectrum could add nearly 13% to their enterprise value and nearly 40% to the value of their stock.

POP/MHz valuations will likely scale by market size the same way ad rates do.

- **DTV partitioning.** The 6-MHz digital signal TV broadcasters have been given uses a data rate, or frame rate, of approximately 19.4 Mbps. At a moderately robust 720p standard for broadcasting the main digital program channel, approximately 13.4 Mbps will be used. A more robust HDTV standard, such as 1080i, could require a higher frame rate than 13.4 Mbps. Conversely, a less robust program format, such as 480p, would require a lower frame rate than 13.4 Mbps. Thus, at 720p, a DTV broadcaster would have around 6 Mbps to devote to MediaCasting. This equates to approximately 31% of its signal, or 1.86 MHz of its 6-MHz bandwidth. If a DTV broadcaster partitioned only 4 Mbps for MediaCasting, it would equate to approximately 21% of its 6-MHz bandwidth, or 1.26 MHz.
- **Comparable values.** There are currently few value-per-POP comparables to use for valuing the DTV spectrum. One recent, albeit imperfect, one was established in April in the United Kingdom when the government auctioned off 140 MHz of two-way spectrum in the 3-gigahertz (GHz) band—perhaps more valuable than the one-way spectrum DTV broadcasters have. The 3G auction fetched U.S.\$35.5 billion, thus valuing the spectrum at \$4.29/POP/MHz based on the approximately 59 million in population the spectrum reached. Another recent auction in the United States was valued at \$2.09/POP/MHz when Nextel Communications, Inc., bid \$8.3 billion for one-way telephony spectrum from Nextwave.

In the near term, the next event that could quantify this hidden value will be the first round of the FCC's auction of 36 MHz of broadcast spectrum in the 700-MHz band—Channels 60–69—scheduled for Sept. 6. This is the first chance we may get to see what TV bandwidth in the United States is worth. Although this auction is to non-TV broadcasting companies and therefore represents an imperfect metric for valuing this spectrum, it offers a gauge to ascertain the worth of this hidden asset. Price talk on the auction has been as low as \$2 billion and as high as \$20 billion for this particular spectrum that would reach approximately 240 million in population. On completion of the auction, the FCC is encouraging the approximately 100 incumbent TV stations that currently occupy the to-be-auctioned spectrum to vacate the space as soon as possible (certainly before the 2006 deadline) by negotiating an exit fee to be paid to the stations by the auction winners.

- **Spec-ulation.** Using the U.K.'s \$4.29/POP/MHz as a benchmark, we looked at a sample of 13 U.S. TV broadcasters to value their DTV spectrum in a MediaCasting situation. The sample was a mix of large- and small-cap companies, pure-play TV broadcasters and media hybrids. We assumed at a moderately robust programming standard of 720p that 6 Mbps could be partitioned off for MediaCasting services. Thus, if a broadcaster reached 10 million POPs, the value of the MediaCasting spectrum might be \$79.8 million, or 10 million POPs multiplied by \$4.29/POP multiplied by 1.86 MHz. Applying the same estimation approach to our sample of 13 TV broadcasters valued their potential MediaCasting spectrum at \$3.93 billion based on 492.4 million aggregate POP reached. That implies an average \$21.35/TVHH. More important, it also suggests a 12.7% weighted-average premium to the group's aggregate total enterprise value (TEV) and a whopping 39.5% weighted-average premium to the TV group's recent stock price (Table 4, page 11).

We also valued the sample using a 25% discount and a 50% discount to the U.K.-implied \$4.29/POP/MHz—or \$3.22/POP/MHz and \$2.15/POP/MHz, respectively (Table 5, page 11)—to value the group's MediaCasting spectrum, value per TVHH and premiums to each company's TEV and stock price. Clearly, this valuation exercise is not meant to be a rate card for leasing spectrum to DTV aggregators or for charging end-users for services provided by the spectrum. It is merely a starting point for modeling the hidden value of the spectrum. On a per POP/MHz basis, we suspect the values will scale by market size in the same way cost per points and CPMs do in ad-driven media. Beyond that, the spectrum may derive a wide array of values depending on the application for which the spectrum is used.

SPECTRUM AGGREGATORS

Four recently formed digital aggregators could serve as a looking glass into the hidden value of TV broadcast spectrum. All are focused on aggregating as much DTV broadcast spectrum as they can in order to program it or lease it to various MediaCasters that will deliver their own digital networks to business users and consumers. Aside from the four new aggregators, the seven broadcast networks—ABC, CBS, NBC, Fox, WB, UPN and Paxson—are looking to control the spectrum of their owned-and-operated stations plus those of their affiliates to provide a variety of DTV services that will support mainstream programming or provide new services and streamed content. All of the aggregators aim to harness megabits of their aggregate members' new digital real estate to create new revenue streams and value via partnerships, portals, platforms and, perhaps, auctions of some of the spectrum to strategic third parties. Following is a brief profile of each of the four nonnetwork aggregators (Table 6 on page 12 offers a detailed profile of members and company contacts).

- **Geocast Network Systems, Inc.**, is a privately held software/hardware company that has been building a new network that leverages the DTV spectrum to use for custom netcasts directly to PCs. Using Geocast and its proprietary decoding box, PC users will be able to personalize local and national information and entertainment offerings plus e-commerce catalogs from national brands. The Menlo Park, Calif.-based company is backed by a strategic group of broadcast TV, hardware and venture capital partners. Currently, Geocast's committed TV broadcast partners own or operate stations that reach 36% of U.S. TV homes in 42 markets, including 14 of the top 25 markets and 33 of the top 50 markets. Participating stations reportedly have committed approximately 6 Mbps to Geocast in multiyear contracts. Geocast's desktop box is initially expected to sell for around \$300 and will contain substantial hard-drive capacity to store content for on-demand access. There will be no monthly service fee for basic service. Geocast is headed by James Ramo.
- **iBlast Networks** announced on March 7, 2000, the formation of 12 major TV broadcast companies to deliver a national network that will use these companies' dedicated portion of the digital spectrum to deliver a variety of high-speed broadband digital content and services to consumers. iBlast is lining up content partners for a wide array of streaming content in moving picture experts group (MPEG) files that will be downloadable to PCs or seen directly on digital TV receivers that are equipped with iBlast receptors. Members reportedly invested an aggregate \$35 million in iBlast. The company is said to be asking for a commitment of 7 MHz for seven years from its TV broadcast participants. iBlast was founded by Michael Lambert, a former TV program executive for Fox, and Oliver Lockett, a former executive at telecom company Qwest Communications Corp.
- The **Broadcasters' Digital Cooperative (BDC)** was formed in March as a consortium of DTV broadcasters that will contribute portions of their spectrum to a pool to be leased out via a private auction. Currently, the BDC has 18 group TV owners, representing approximately 200 TV stations that have committed at least approximately 4 Mbps of spectrum per station. The BDC plans to hire an investment bank this summer to seek bids for the group's pooled spectrum. The BDC is headed by Stuart Beck, the president of TV group owner, Granite Broadcasting.
- **SpectraRep**, the latest aggregator, uses a business model familiar to TV broadcasters—a representative or Rep, as it is known in the advertising industry. The company will aggregate commitments for variable bandwidth—beginning with a minimum of 3 Mbps per station—and pool it into a national platform initially targeted at business-to-business datacasting companies. Participating stations can vary the bandwidth commitment just as they vary their commercial spot commitment to national advertising reps. Via nonexclusive agreements with SpectraRep, stations will earn revenue based on the amount of spectrum contributed to the pool. Client

Four new spectrum aggregators are competing with each other and the mainstream broadcast networks for spectrum commitments from America's TV stations.

Geocast is relying on a proprietary hardware and software solution to MediaCasting.

iBlast's strategic partner base is on the verge of expanding while its crucial content partners are still being developed.

The BDC is looking to pool critical mass for a spectrum auction to third-party MediaCasters.

SpectraRep is the newest aggregator looking to appeal to DTV broadcasters with a flexible agent approach.

Fundamentals still drive investor appeal for analogue TV broadcasters on the threshold of a new digital era.

Paxson reaches more POPs than any other TV broadcasters with its owned-and-operated station base.

It may take the rest of this year for the bond market to credit any hidden spectrum cache to the value of their investments in the TV sector.

stations can build equity in SpectraRep after a vesting period. SpectraRep is headed by Richard Ducey, a former senior executive at the National Association of Broadcasters. The company is a subsidiary of BIA Financial Network, a veteran financial consulting and publishing firm that has served the broadcast industry for 17 years.

OUTLOOK AND RECOMMENDATION

Given the TV sector's dynamics via fundamentals and digital upside, we continue to believe in the relative value offered by certain companies. We have a standing buy recommendation on the bonds and preferred stock of Ackerley, Emmis, Sinclair (10% senior subordinated notes and 11.625% HYTOPS only), Paxson and Young's 10.125% and 11.75% senior subordinated notes only and a hold recommendation on Young's low-coupon bonds and all of Granite's bonds for the following reasons:

- **Ackerley** has moved up the digital learning curve through its effort in digital central casting linking, which will bind all Ackerley stations for maximum efficiency and lower costs (see our May 18, 2000, *Morning Meeting Notes*).
- **Emmis** is currently a radio/TV hybrid that is about to be split in two. We expect Emmis' bonds to stay with the pure-play, more modestly leveraged radio company. Although it is not yet clear how Emmis' planned TV company will be capitalized, we believe Emmis has the talent and the assets to generate higher growth from its TV group than most TV broadcasters have achieved lately.
- **Sinclair**, which has yet to declare a digital network affiliation, also has experience in digital broadcasting through its effort to develop the best digital standard for consumers. The company has achieved critical mass in terms of its 58 TV stations that serve 38 markets (see our Dec. 28, 1999, report, *Best Picks for 2000*).
- **Paxson** is a long-standing buy for all of the reasons noted above and for its strategic financial and operational relationships with NBC (see our Dec. 30, 1999, report, *Paxson Communications Corp.*).
- **Young** owns two valuable and high-performance stations in Los Angeles and San Francisco, serving the dual meccas of entertainment content and digital new media. The value of these more than cover Young's bank and bond debt.

Our hold recommendations on Young's low-coupon bonds and all of Granite's bonds are based on the uncertainty surrounding the future capitalization and leverage ratios of these companies. Both have recently taken on more balance-sheet burdens to fund strategic large-market acquisitions.

- **Granite**, a member of BDC, owns two important stations in the San Jose and San Francisco area, the virtual heart of Silicon Valley. Granite, however, may have a particularly steep financial challenge ahead given its newfound expense for NBC programming.
- **Young** (see discussion above)

We may be early to the party, but we believe lots of extra value exists in TV land. We suspect it may take the market the rest of this year to begin recognizing the value of the digital frontier. That is when we anticipate the market could be swayed by robust year-over-year earnings results. One wild card in the swing of sentiment could be the station deal market, where as many as 100 stations are still reported to be on the block. Although we expected the previously solid double-digit multiples to contract due to the supply/demand imbalance, there is no empirical evidence at this time that station values have significantly changed in the private deal market. Granted, there have been few deals so far this year on which to base a meaningful metric. This may mean would-be sellers are not willing to hit a discount bid despite their desire to lock in profits and avoid the expense of preparing for a digital future.

Table 4: Hidden Value of Digital Spectrum in TV Broadcasters—If Spectrum Equals U.K. Auction Value of \$4.29/POP/MHz

	TEV ¹ (\$million)	POPs ² (million)	TVHH ² (million)	Total Spectrum Value ³ (\$million)	Spectrum Premium to TEV	Spectrum Value per TVHH (\$)	Shares Out. ⁴ (million)	Recent Price (\$)	Spectrum Value/ Share (\$)	Spectrum Premium to Stock
Paxson Communications Corp.	1,974.6	164.6	62.0	1,313.4	66.5%	21.18	66.2	7.81	19.84	254.0%
ACME Communications, Inc.	486.0	14.8	5.4	118.1	24.3%	21.87	17.2	16.75	6.87	41.0%
Granite Broadcasting Corp.	631.8	15.3	6.9	122.1	19.3%	17.69	19.0	6.38	6.43	100.7%
Sinclair Broadcast Group, Inc.	2,901.9	60.3	22.8	481.2	16.6%	21.10	96.7	9.13	4.98	54.5%
Young Broadcasting Inc.	1,618.1	33.1	11.5	264.1	16.3%	22.97	18.1	22.06	14.59	66.1%
Benedek Broadcasting Corp.	624.0	10.9	4.1	87.0	13.9%	21.21	NA	NA	NA	NA
The Ackerley Group, Inc.	843.5	13.3	5.1	106.1	12.6%	20.81	35.1	11.25	3.02	26.9%
Allbritton Communications Co.	948.0	13.1	4.9	104.6	11.0%	21.41	NA	NA	NA	NA
Hearst-Argyle Television, Inc.	3,134.2	41.6	15.6	331.9	10.6%	21.28	93.0	20.00	3.57	17.8%
Gray Communications Systems, Inc.	574.7	6.8	2.5	54.3	9.4%	21.70	15.4	11.38	3.52	30.9%
LIN Holdings Corp.	1,571.0	13.1	4.9	104.5	6.7%	21.33	NA	NA	NA	NA
USA Networks, Inc.	12,404.8	86.3	31.2	688.6	5.6%	22.07	722.7	22.63	0.95	4.2%
Emmis Communications Corp.	3,252.0	19.2	7.1	153.2	4.7%	21.58	48.0	42.19	3.19	7.6%
Total	30,964.6	492.4	184.0	3,929.1	217.5%	276.22	1,131.4	169.58	66.95	603.8%
Average	2,381.9	37.9	14.2	302.2	16.7%	21.25	113.1	16.96	6.70	60.4%
Weighted Average	2,381.9	37.9	14.2	302.2	12.7%	21.36	113.1	16.96	3.47	39.5%

POPs: Populations; Mbps: Megabits per second; MHz: Megahertz; TEV: Total enterprise value; TVHH: TV households.

Note: Model assumes 6 Mbps or 31% of the 19.39 Mbps digital spectrum will be available for MediaCasting at an average 720p format.

1. Total enterprise value, or total equity, plus debt and preferred stock, less cash and equivalents.

2. Does not include stand-alone local marketing agreement markets. TVHH and POP estimates of BIA Data Management, Inc., and First Union Securities, Inc.

3. Spectrum value based on an estimated value/POP/MHz times 1.86 MHz, or 31% of the 6-MHz spectrum to be dedicated to MediaCasting. Spectrum value is not adjusted for 5% tax on datacasting revenue to be imposed by the Federal Communications Commission.

4. Fully diluted shares outstanding.

Source: Company reports and First Union Securities Inc.'s estimates.

Table 5: Hidden Value of Digital Spectrum in TV Broadcasters—Under Various Values per POP/MHz

(\$million)	@ \$4.29 per POP				@ 25% POP Discount			@ 50% POP Discount		
	TEV ¹	Total Spectrum Value ²	Spectrum Premium to TEV	Spectrum Premium to Stock	Total Spectrum Value ²	Spectrum Premium to TEV	Spectrum Premium to Stock	Total Spectrum Value ²	Spectrum Premium to TEV	Spectrum Premium to Stock
Paxson Communications Corp.	1,974.6	1,313.4	66.5%	254.0%	985.1	49.9%	190.5%	656.7	33.3%	127.0%
ACME Communications, Inc.	486.0	118.1	24.3%	41.0%	88.6	18.2%	30.7%	59.0	12.1%	20.5%
Granite Broadcasting Corp.	631.8	122.1	19.3%	100.7%	91.6	14.5%	75.5%	61.0	9.7%	50.4%
Sinclair Broadcast Group, Inc.	2,901.9	481.2	16.6%	54.5%	360.9	12.4%	40.9%	240.6	8.3%	27.2%
Young Broadcasting Inc.	1,618.1	264.1	16.3%	66.1%	198.1	12.2%	49.6%	132.1	8.2%	33.1%
Benedek Broadcasting Corp.	624.0	87.0	13.9%	NA	65.2	10.5%	NA	43.5	7.0%	NA
The Ackerley Group, Inc.	843.5	106.1	12.6%	26.9%	79.6	9.4%	20.2%	53.1	6.3%	13.4%
Allbritton Communications Co.	948.0	104.6	11.0%	NA	78.4	8.3%	NA	52.3	5.5%	NA
Hearst-Argyle Television, Inc.	3,134.2	331.9	10.6%	17.8%	249.0	7.9%	13.4%	166.0	5.3%	8.9%
Gray Communications Systems, Inc.	574.7	54.3	9.4%	30.9%	40.7	7.1%	23.2%	27.1	4.7%	15.5%
LIN Holdings Corp.	1,571.0	104.5	6.7%	NA	78.4	5.0%	NA	52.3	3.3%	NA
USA Networks, Inc.	12,404.8	688.6	5.6%	4.2%	516.5	4.2%	3.2%	344.3	2.8%	2.1%
Emmis Comm. Corp.	3,252.0	153.2	4.7%	7.6%	114.9	3.5%	5.7%	76.6	2.4%	3.8%
Total	30,964.6	3,929.1	217.5%	603.8%	2,946.8	163.2%	452.8%	1,964.6	108.8%	301.9%
Average	2,381.9	302.2	16.7%	60.4%	226.7	12.6%	45.3%	151.1	8.4%	30.2%
Weighted Average	2,381.9	302.2	12.7%	39.5%	226.7	9.5%	29.6%	151.1	6.3%	19.7%

POP: Population; Mbps: Megabits per second; MHz: Megahertz; TEV: Total enterprise value; TVHH: TV households.

Note: Model assumes 6 Mbps or 31% of the 19.39 Mbps digital spectrum will be available for MediaCasting at an average 720p format.

1. Total enterprise value, or total equity, plus debt and preferred stock, less cash and equivalents.

2. Spectrum value based on an estimated value/POP/MHz times 1.86 MHz, or 31% of the 6-MHz spectrum to be dedicated to MediaCasting. Spectrum value is not adjusted for 5% tax on datacasting revenue to be imposed by the Federal Communications Commission.

Source: Company reports and First Union Securities Inc.'s estimates.

Table 6: Digital Aggregators

	iBlast Networks	Broadcasters' Digital Cooperative	Geocast Network Systems, Inc.	SpectraRep
Reach	80% of U.S. TV Homes 102 Markets All Top 25 Markets	85% of U.S. TV Homes 130 Markets All Top 50 Markets	36% of U.S. TV Homes 42 Markets 14 of Top 25, 33 of Top 50	Recently launched, the company recently began seeking station commitments.
Members	Tribune Co. Gannett Co., Inc. Cox Broadcasting Corp. The Washington Post Co. Scripps Broadcasting Co. Meredith Corp. Media General, Inc. Lee Enterprises, Inc. The New York Times Co. McGraw-Hill Cos., Inc. Smith Broadcasting Group Northwest Broadcasters	Associated Christian System Benedek Broadcasting Co. Capitol Broadcasting Co. Citadel Communications Co. Clear Channel Television, Inc. Granite Broadcasting Corp. Gray Comm. Systems, Inc. LAMCO Communications, Inc. Morgan Murphy Stations Nexstar Broadcasting Group Pappas Telecasting Cos. Paxson Communications Corp. Pegasus Comm. Corp. Sunbelt Communications Co. WRNN-TV Associates, LP KCNN-TV Eddy, Texas	Allbritton Communications Co. Belo Corp. Granite Broadcasting Corp.* Hearst Argyle Television	Nonstation Partners BIA Financial Network SPACECONNECTION, Inc.
Contact	Ken Solomon (310) 551-4081	Stuart Beck (212) 826-2530	James Ramo (650) 566-8111	Richard Ducey (730) 818-2425

*Granite is a Geocast partner in San Francisco only.

Source: Compiled from various sources by First Union Securities, Inc.

Table 7: Television Sector Relative Value Analysis

6/30/2000

Bishop Cheen (704) 383-0473/(800) 528-4580/Eric J. Selle

First Union Securities, Inc.

Issue Data			Current Market Data								Summary Credit Data							
Coupon	Issue	Maturity	Ratings	Amt. (\$mm)	Bid Price (\$)	Current Yield	YTW	YTW Spread	YTW Date	Next Call Date	Next Call Price (\$)	EBITDA (\$mm)	EBITDA Margin	EBITDA/ Int. Exp.	EBITDA – Capex/ Int. Exp.	Total Debt/ EBITDA	Net Debt/ EBITDA	TEV/ EBITDA
Granite Broadcasting Corp. (GBTVK)												<i>LTM 3/31/00</i>						
8.875%	Sr. Sub. Notes	5/15/08	B3/CCC+	115	86.50	10.26%	11.53%	545	5/15/08	5/15/03	104.44	45.6	30.6%	1.2x	0.8x	6.4x	6.3x	9.1x
9.375%	Sr. Sub. Notes	12/01/05	B3/CCC+	39	91.00	10.30%	11.66%	548	12/01/05	12/01/00	104.69	<i>Debt + preferred</i>						
10.375%	Sr. Sub. Notes	5/15/05	B3/CCC+	132	96.00	10.81%	11.47%	529	5/15/05	5/15/00	105.19	45.6	30.6%	1.2x	0.8x	10.9x	9.7x	13.9x
12.75%	PIK Cum. Exch.	4/01/09	B3/CCC+	215	NA	NA	NA	NA	4/01/02	4/01/02	106.38							
Notes:																		
Young Broadcasting Corp. (YBTVA)												<i>Pro forma FY 12/31/99</i>						
8.75%	Sr. Sub. Notes	6/15/07	B2/B	200	92.50	9.46%	10.29%	417	6/15/07	6/15/02	104.38	111.2	41.4%	1.8x	1.6x	5.8x	5.6x	8.5x
9%	Sr. Sub. Notes	1/15/06	B2/B	125	93.00	9.68%	10.71%	456	1/15/06	1/15/01	104.50	<i>Pro forma for the acquisition of KRON-TV, FY 12/31/99</i>						
10.125%	Sr. Sub. Notes	2/15/05	B2/B	125	97.00	10.44%	10.97%	479	2/15/05	2/15/00	105.06	182.0	45.6%	1.5x	1.4x	7.1x	7.0x	9.2x
11.75%	Sr. Sub. Notes	11/15/04	B2/B	120	101.25	11.60%	11.12%	478	11/15/99	11/15/99	104.41							
Notes: FY 12/31/99 assumes the \$25 million sale of WKBT-TV in La Crosse, Wisc., at 14x broadcast flow (BCF).																		
LIN Holdings Corp. (LNTV)												<i>Pro forma LTM 12/31/99</i>						
8.375%	Sr. Sub. Notes	3/01/08	B2/B-	300	89.50	9.36%	10.40%	432	3/01/08	3/01/03	104.19	102.9	40.2%	2.0x	1.6x	6.0x	5.8x	NA
0/10%	Sr. Disc. Notes	3/01/08	B3/B-	325	65.00	NA	12.72%	663	3/01/08	3/01/03	105.00	<i>Pro forma LTM 12/31/99 at the holding company</i>						
				Accreted Value:	245													
Notes: Pro forma includes the operations of WOOD-TV, WOTV-TV and APA-TV and excludes KXTX-TV and KXAS-TV.												101.2	37.2%	1.3x	1.1x	8.5x	8.3x	NA
The Ackerley Group, Inc. (AK)												<i>Pro forma LTM 12/31/00E</i>						
9%	Sr. Sub. Notes	1/15/09	B2/B	200	91.25	9.86%	10.58%	454	1/15/09	1/15/04	104.50	49.5	17.9%	1.5x	0.0x	8.2x	8.1x	16.1x
Notes: Pro forma for the sale of its Florida outdoor assets to CCU for \$300 million in cash (\$200 million after tax) announced on Oct. 26, 1999.																		
Benedek Broadcasting Corp. (BENEDK)												<i>Pro forma LTM 12/31/99 for the operating company</i>						
0/13.25%	Sr. Disc. Notes	5/15/06	B3/CCC+	170	70.00	NA	19.04%	1289	5/15/06	5/15/01	106.63	51.9	37.3%	2.5x	2.0x	5.4x	5.2x	Private
				Accreted Value:	148													
11.5%	PIK Pfd.	5/15/08	Caa/CCC+	100	NA	NA	NA	NA	5/15/03	5/15/03	1057.50	51.9	37.3%	1.3x	1.1x	8.1x	7.9x	Private
Notes:												<i>Pro forma LTM 12/31/99 debt + preferred</i>						
												51.9	37.3%	1.0x	0.8x	10.4x	10.3x	Private
Allbritton Communications Co. (ALLBRI)												<i>LTM 3/31/00</i>						
8.875%	Sr. Sub. Notes	2/01/08	B3/B-	150	92.00	9.65%	10.43%	435	2/01/08	2/01/03	104.44	78.8	40.2%	1.8x	1.6x	5.4x	5.4x	Private
9.75%	Sr. Sub. Notes	11/30/07	B3/B-	271	96.00	10.16%	10.54%	443	11/30/07	11/30/02	103.90							
Notes:																		
STC Broadcasting Inc. (STCBRD)												<i>Pro forma LTM 3/31/00</i>						
11%	Sr. Sub. Notes	3/15/07	NR/B-	100	98.88	11.13%	11.24%	513	3/15/07	3/15/02	105.50	33.1	39.9%	1.6x	1.3x	6.9x	6.9x	Private
Notes: Pro forma figures do not include the three pending acquisitions from Sinclair for \$87.0 million.																		
Gray Communications Systems, Inc. (GCS)												<i>Pro forma LTM 3/31/00</i>						
10.625%	Sr. Sub. Notes	10/01/06	B3/B-	160	99.50	10.68%	10.74%	459	10/01/06	10/01/01	105.31	55.2	33.7%	1.4x	1.2x	6.8x	6.8x	10.2x
Notes: Pro forma figures include the acquisition of Goshen New and Busse Broadcasting, as well as the disposition of the Albany, Ga., NBC affiliate.																		
Acme Television, LLC (ACMETE)												<i>LTM 3/31/00</i>						
0/10.875%	Sr. Disc. Notes	9/30/04	B3/B-	175	95.50	NA	11.51%	528	9/30/04	9/30/01	105.44	11.7	18.0%	0.4x	0.2x	19.0x	17.2x	41.5x
				Accreted Value:	167													
Notes:																		
Sinclair Broadcasting Group, Inc. (SBGI)												<i>Pro forma LTM 12/31/99</i>						
8.75%	Sr. Sub. Notes	12/15/07	B2/B	250	86.50	10.12%	11.49%	538	12/15/07	12/15/02	104.38	319.0	46.6%	2.1x	2.0x	5.4x	5.4x	NA
9%	Sr. Sub. Notes	7/15/07	B2/B	200	88.25	10.20%	11.48%	537	7/15/07	7/15/02	104.50							
10%	Sr. Sub. Notes	9/30/05	B2/B	300	95.00	10.53%	11.29%	511	9/30/05	9/30/00	105.00	<i>Pro forma LTM 12/31/99 for the HYTOPS + preferred</i>						
11.625%	HYTOPS	3/15/09	B2/B-	200	NA	NA	NA	NA	3/15/02	3/15/02	105.81	319.0	46.6%	1.7x	1.6x	6.6x	6.6x	9.4x
Notes: Pro forma for the sell-off of all core assets including owned-and-operated TV stations and the St. Louis radio stations.																		

Table 7: Television Sector Relative Value Analysis

6/30/2000

Bishop Cheen (704) 383-0473/(800) 528-4580/Eric J. Selle

First Union Securities, Inc.

Issue Data					Current Market Data							Summary Credit Data									
					Bid	Current	YTW	YTW	Next Call	EBITDA	EBITDA	EBITDA/	EBITDA – Capex/	Total Debt/	Net Debt/	TEV/					
Coupon	Issue	Maturity	Ratings	Amt. (\$mm)	Price (\$)	Yield	YTW	Spread	Date	Date	Price (\$)	(\$mm)	Margin	Int. Exp.	Int. Exp.	EBITDA	EBITDA	EBITDA			
Telemundo Group, Inc. (TLMD)					<i>Pro forma LTM 12/99</i>																
0/11.5%	Sr. Disc. Notes	8/15/08	Caa1/CCC+	219	68.00	NA	12.07%	600	8/15/08	8/15/03	105.75	57.0	37.0%	1.3x	1.2x	7.2x	6.8x	Private			
Notes:					Accreted Value: 151																
Paxson Communication Corp. (PAX)					<i>Pro forma FY 12/31/01</i>																
11.625%	Sr. Sub. Notes	10/01/02	B3/B-	230	102.63	11.33%	8.44%	263	10/01/00	10/01/99	104.00	100.2	20.9%	2.4x	1.5x	4.0x	2.4x	18.7x			
12.5%	PIK Exch. Pfd.	10/31/06	Caa/CCC+	150	100.50	12.44%	12.84%	674	10/31/04	10/31/01	106.25	<i>Debt + preferred</i>									
13.25%	PIK Exch. Pfd.	11/15/06	Caa/CCC+	200	NA	NA	NA	NA	11/15/06	5/15/03	106.63	100.2	20.9%	2.1x	1.3x	10.3x	8.7x	NA			
Notes:																					
Fox/Liberty Networks LLC. (FOXLIB)					<i>Pro forma FY 12/99</i>																
8.875%	Sr. Notes	8/15/07	Ba1/BBB-	500	99.00	8.96%	9.07%	296	8/15/07	8/15/02	104.44	125.0	15.6%	1.3x	1.1x	9.1x	9.0x	Private			
0/9.75%	Sr. Disc. Notes	8/15/07	Ba1/BBB-	405	79.50	NA	10.24%	413	8/15/07	8/15/02	104.88	<i>Pro forma FY 12/99 at the holding company</i>									
Notes:					Accreted Value: 324																
Fox Family Worldwide Inc. (FOXKID)					<i>LTM 3/31/00</i>																
9.25%	Sr. Notes	11/01/07	B1/B	475	86.00	10.76%	12.19%	608	11/01/07	11/01/02	104.63	162.5	25.6%	0.9x	0.9x	10.5x	9.9x	Private			
0/10.25%	Sr. Disc. Notes	11/01/07	B1/B	619	61.00	NA	14.67%	857	11/01/07	11/01/02	105.13										
Notes:					Accreted Value: 480																
Pegasus Communications Corp. (PGTV)					<i>Pro forma FY 12/31/99</i>																
9.625%	Sr. Notes	10/15/05	B3/CCC+	115	96.50	9.97%	10.50%	432	10/15/05	10/15/01	104.82	99.8	29.1%	1.6x	1.4x	6.1x	5.9x	NA			
9.75%	Sr. Notes	12/01/06	B3/CCC+	100	96.50	10.10%	10.51%	437	12/01/06	12/01/02	104.88	<i>Debt + preferred</i>									
12.5%	Notes	7/01/05	B2/B-	85	104.00	12.02%	10.90%	461	#NUM!	7/01/00	106.25	99.8	29.1%	1.2x	1.1x	7.6x	7.3x	18.9x			
12.75%	PIK Cum. Exch.	1/01/07	Caa/B-	100	NA	NA	NA	NA	1/01/05	1/01/02	106.38										
Notes:					12.5 TK (PEGMED); credit multiples are based on pre-subscriber acquisition cost (SAC) cash flow (EBITDA + SAC costs).																
Median					93.00	10.26%	11.12%	479					35.3%	1.4x	1.2x	7.2x	12.0x				
Weighted Average*					4,292	93.80	10.18%	10.70%	458					35.4%	1.7x	1.4x	6.5x	11.8x			
Weighted Average—June 16, 2000					4,292	93.74	10.19%	10.73%	450					35.2%	1.8x	1.5x	6.2x	11.5x			

*Weighted averages do not include zero coupons, preferreds, Fox Liberty and Fox Family.

Source: Company reports and First Union Securities, Inc.

First Union Securities, Inc.

High Yield Research (800) 528-4580

Gary M. Palmer	Managing Director, Head of Research	Business Services, Healthcare	(704) 383-8474	gary.palmer@funb.com
Bishop Cheen	Director	Media, Entertainment	(704) 383-0473	bishop.cheen@funb.com
Jeffrey S. Stewart, CFA	Director	Automotive, Textiles & Apparel	(704) 383-9073	jeff.stewart@funb.com
Lee D. Brading	Vice President	Building Products, Food, Beverage & Bottling	(704) 383-6491	lee.brading@funb.com
S. Ross Payne, CFA	Vice President	Industrials, Energy	(704) 383-3619	ross.payne@funb.com
Dimitri Triantafyllides, CFA	Vice President	Cable TV, Telecom	(704) 374-2307	dimitri.triantafyllides@funb.com
David M. Maura, CFA	Vice President	Consumer Products/Services, Retail	(704) 383-3620	david.maura@funb.com
Andy Green	Vice President	Defense, Aerospace & Technical Services	(704) 383-6606	andy.green@funb.com
Eric J. Selle	Associate	Generalist	(704) 383-4086	eric.selle@funb.com
M. Grant Jordan	Analyst	Generalist	(704) 715-1239	grant.jordan@funb.com
Michael D. Layden	Analyst	Generalist	(704) 383-4030	mike.layden@funb.com
Donna L. Amos		Administrative	(704) 383-6203	donna.amos@funb.com

High Yield Sales (800) 528-4580/(704) 383-1928

Neil P. Giardino Director	Thad Sharrett Director	Marilee A. James Vice President	Daniel J. Dunn, Jr. Associate N.Y. (212) 891-5050	Terri L. Burcham Sales Assistant
Kathryn E. Emling Director Atlanta (800) 515-8650	Randy Keatley Director	Stephen T. Dodd Vice President	Brian N. Krasnigor Vice President	Mark Aqui Sales Assistant Atlanta

High Yield Trading (800) 528-4580/(704) 383-6263

Benjamin T. May Managing Director, Head of Sales and Trading	Timothy R. Dowling Managing Director	Robert P. Haley, CFA Director	Jeffrey N. Rogers Associate	Tom Giardi Analyst
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Fixed Income Research (704) 383-6381

Brian M. Doyle	Managing Director, Head of Fixed Income Research
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Editorial Group

Murray T. Jackson III Senior Editor, (704) 383-8192	Michael D. Evans Senior Editor, (704) 374-6545	Dawn M. Dixon-Cotter Editor, (704) 383-6788	Leigh P. Stevens Editor, (704) 383-6479
Jeanne M. Deitz Graphic Design, (704) 715-1557	Sharon Glass Web Site Administrator, (704) 715-1142		

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First Union Securities, Inc.
301 South College Street, One First Union Center, DC8, Charlotte, NC 28288-0602
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