

The U.S. Cable Television Industry, 1948-1995: Managerial Capitalism in Eclipse.

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Thomas R. Eisenmann

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Alfred D. Chandler, Jr., observed that under managerial capitalism, salaried managers tended to pursue policies that promoted the long-term stability and growth of their enterprises. The U.S. cable television industry provides a case study of how managers responded when stability and growth were mutually consistent objectives, and when they were mutually exclusive. From the late 1950s through the early 1980s, agent-led newspaper publishers and television broadcasters invested aggressively in the cable business. Beginning in the mid-1980s, however, investing in cable implied a tradeoff between stability and growth objectives. As a wave of mergers swept the cable industry, agent-led companies avoided acquisitions that might dilute earnings and depress stock prices. Confronting an increasingly turbulent competitive environment during the first half of the 1990s, agent-led companies were much more likely to divest cable assets than owner-managed firms.

In agent-led companies, managers believed that their cable units would require massive capital investments, and they were reluctant to "bet the company" on a business facing so much competitive, technological, and regulatory uncertainty. Owner-managers, emotionally attached to the cable industry and to the firms they had built, and often harboring dynastic ambitions, were more reluctant to sell: they were willing to gamble on growth.

Joseph Schumpeter would have loved the U.S. cable television business: twice in its short history, the industry has been the instrument of creative destruction. First, cable programming services took considerable audience share from television broadcasting stations. By 1995, in the 64 percent of U.S. households that subscribed to cable services, cable programming had captured 46 percent of total television viewing hours; the balance went to local broadcasters. [1] Second, cable TV companies had begun offering local telephone service during the early 1990s, challenging incumbents that had monopolized that market for one hundred years. The task required the deployment of leading-edge technologies, and had provoked retaliatory entry by phone companies into cable companies' lucrative video entertainment business.

Very different types of organizations unleashed this Schumpeterian gale. The first U.S. cable systems were built in the late 1940s by entrepreneurs. By the 1960s, however, these owner-managed firms that were focused exclusively on cable shared control of the industry with companies that had diversified into cable from the newspaper and television broadcasting businesses. Like the entrepreneurial startups, many of these diversified media companies were run by owner-managers--often second or third generation members of the founder's family. In other cases, the founding family had yielded control to professional managers. In these agent-led diversified media companies, family trusts sometimes remained the dominant shareholders. Usually, however, the trusts' equity had been sold or diluted, resulting in dispersed ownership. Thus, in the U.S. cable television business, we see the coexistence of three of the organizational types in Alfred D. Chandler, Jr.'s taxonomy: entrepreneurial capitalism, family capitalism, and managerial capitalism. [2]

Through its history, the cable industry has been extremely capital intensive: its managers regularly have

confronted decisions regarding large, irreversible investments with long payback horizons. Confidence regarding prospective returns on these investments has varied over time. At points, cable companies have faced high levels of uncertainty regarding customer demand, technology, competition, and regulation; at other times, uncertainty over such factors has ebbed. This paper examines the influence of two aspects of organizational form on firms' responses to changing levels of risk in the cable industry: the firms' degree of diversification and their governance arrangements, specifically, the extent of their CEOs' equity ownership. Theorists have presented conflicting arguments regarding the impact of governance on risk taking behavior, but past empirical work generally has indicated that management equity ownership and risk taking co-vary positively. [3] Likewise, theorists have disputed the impact of diversification on strategic risk taking behavior. Only two empirical studies have previously explored this question; both found a negative relationship between diversification and risk taking. [4]

The research presented in this paper on the influence of organizational form on risk taking behavior is broadly consistent with past empirical findings. In brief, following a decline in uncertainty about returns on cable industry investments during the second half of the 1970s, agent-led diversified companies expanded their collective share of cable industry customers. However, following a sharp increase in uncertainty about technology, regulation, and competition during the first half of the 1990s, agent-led diversified companies were likely to divest cable assets; in aggregate, they lost considerable market share to owner-managed firms focused exclusively on cable. Thus, Chandler's observation that entrepreneurial capitalism tends to give way to managerial capitalism has not yet been validated in the U.S. cable television business. The industry's recent history has seen managerial capitalism in eclipse.

The Television of Abundance: 1948--1969 [5]

John Walson launched the first commercial cable television system in Mahanoy City Pennsylvania, an Appalachian town eighty-six miles from Philadelphia. [6] Walson worked as a lineman for Pennsylvania Power & Light and also owned a local appliance store, which held an inventory of unsold TV sets. To demonstrate the sets, he secured informal permission from his employer to string an electrical wire from a local hilltop to serve as an antenna for the reception of signals from Philadelphia stations. When customers who purchased TV sets asked to be connected to Walson's antenna, he recognized a business opportunity. Walson charged two dollars a month for this service, and by the middle of 1948 had 727 customers. He and other entrepreneurs soon began setting up similar "Community Antenna Television" systems in rural areas where television reception was poor. By 1955, there were about 400 such systems with a total of 150,000 subscribers. Thus, cable TV was born of necessity very shortly after the mass market for television broadcasting began to grow. [7]

The first CATV systems carried only three channels, which matched or exceeded the number of TV stations locally available in the rural areas where cable got started. By the end of the 1950s, however, cable technology had improved to the point where 12-channel systems were commonplace. [8] Cable entrepreneurs used these additional channels along with microwave relay systems to import broadcast signals from distant markets. By expanding program choice in this manner, cable operators were able to increase prices and attract more customers. Cable entrepreneurs also saw an opportunity to create "cable-only" channels by acquiring programming rights from movie studios and sports franchises. Cable operators then could charge customers a premium for access to these "pay TV" channels, above the monthly subscription charge for what came to be known as the "basic tier" of broadcast channels.

The first forays into pay TV were vigorously opposed by movie theater owners and by advertising-supported television broadcasters. Movie studios, afraid of alienating theater owners and broadcasters, their largest customers, generally were unwilling to provide pay TV operators with programming. The Federal Communications Commission (FCC), concerned that pay TV would divert viewers and thereby undermine ad-supported broadcasting stations, promulgated a series of regulations that retarded the growth of pay TV. As a result, early efforts to develop pay TV were unsuccessful. [9]

The FCC'S opposition to pay TV was consistent with a broad reversal of its policy toward cable television that began during the late 1950s. Through most of that decade, the Commission had adopted a laissezfaire stance toward cable, on the grounds that it lacked jurisdiction over the industry, and that, in any case, extending the reach of broadcast signals served the public interest. [10] By the late 1950s, however, it was impossible for the FCC to ignore the enmity that cable TV was generating from

broadcasters. TV station owners asserted that cable operators' importation of distant signals reduced their audiences. Stations whose signals were imported complained that cable operators profited from their programming without paying for it. The FCC, committed to developing a robust local broadcasting industry, first intervened to restrict a cable operator's actions in the Carter Mountain case of 1959, when it denied the Riverton, Wyoming cable company permission to import distant broadcasters' signals. [11] After the Carter Mountain decision survived court challenges, the FCC formalized its policies concerning the importation of broadcast signals. In 1966, the Commission required cable operators operating in the 100 largest television markets (where 87 percent of the U.S. population then lived) to obtain formal permission--which almost never was granted--before importing distant signals. [12]

The FCC'S restrictions may have slowed cable's expansion into urban markets, but the overall rate of growth for the industry actually accelerated during the late 1960s. The total number of homes subscribing to cable grew at a compound annual rate of 30 percent between 1966 and 1970, and reached 4.5 million at the end of that period (Exhibit 1). By contrast, the compound annual growth rate in subscribers for the 1961 to 1965 period was 15 percent, and for 1955 to 1960 was 21 percent. Cable's rapid growth during the late 1960s was spurred by high profits. Typical cable systems outside the top 100 markets earned rates of return on net investment. (before taxes and interest expense) over 40 percent. [13]

Wired Cities: 1970-1975 [14]

With industry growth surging through the 1960s, cable began to draw attention from policy makers and academics who looked beyond its economic impact on the broadcasting business, and saw a potentially revolutionary communications medium. These policy makers and academics were influenced by the ideas of Marshall McLuhan and by a Zeitgeist concerned with social change. [15] In their view, with its abundant channel capacity, cable could become the savior of American television, which had become a "vast wasteland" in the hands of greedy capitalists. [16] In "wired cities," citizens could produce their own programming and distribute it on channels that cable operators would provide to municipalities free of charge, as a condition of franchise approval. "Narrowcasting" would supplement broadcasting with an array of arts and educational programming. Jeffersonian democracy would bloom as cable subscribers used "two-way," interactive cable technology to cast votes in public referenda. [17]

By the early 1970s, with organizations like the RAND Corporation, the Brookings Institution, and the Sloan Commission all calling for more supportive regulation of cable, pressure for change was building. [18] The Nixon Administration, beleaguered by the broadcast networks, encouraged cable's growth, under the theory that "the enemy of my enemy is my friend." FCC Chairman Nicholas Johnson, an ardent supporter of the wired cities concept, championed a series of FCC actions helpful to the cable industry. [19] For example, the Commission sought to rescind its restrictions on the carriage of distant signals into the top 100 markets. After much debate, in 1972 the FCC issued standards for the number of broadcast station signals that should be available in a community. Cable operators were allowed to import distant signals up to the point where the standards were met. In 1972, the FCC also limited the franchise fees that municipalities could charge cable operators to three percent of revenue, and fixed the length of franchise agreements at fifteen years, reducing uncertainty for cable operators when bidding for new franchises or renegotiating the renewal of existing franchises. [20]

With new rules in place improving their access to programming and capping franchise fees, cable operators rushed to develop urban markets. They encountered a chaotic and sometimes corrupt process as they negotiated for franchises. [21] In addition to the aggressive demands of city officials, cable operators encountered higher than expected construction costs as they entered urban markets. It proved difficult to lay cable under busy city streets while avoiding disruption to existing power, phone, water and sewer lines. [22] Penetration also developed more slowly than expected, because city dwellers tended to have access to more over-the-air broadcast signals than subscribers in rural areas; reception of these over-the-air signals usually was good; and the urban population was more transient, which implied higher subscriber attrition rates and thus increased marketing and field service expenses.

With low penetration and high capital and operating expenses, cable operators experienced significant losses in most urban systems. Hence, in 1975, the industry was not very profitable. Based on financial data for seven public companies predominantly engaged in operating cable systems, the sample

companies' weighted average pretax income was only 3.1 percent of revenues. [23] This low profit margin reflected the interest expense associated with an average debt-to-equity ratio for the sample companies in excess of 2-to-1. The two largest cable companies, TelePrompTer and TCI, nearly went bankrupt during the early 1970s due to excessive debt leverage. [24]

The cash drain from building and operating cable franchises encouraged industry consolidation. Despite the fact that over three thousand separate franchises had been awarded by cities and towns across the United States, by 1975, the 50 largest multiple systems operators (MSOs) served 72 percent of the industry's total subscribers (Exhibit 2). [25] Of the 7.1 million subscribers in systems operated by the top 50 MSOs, 25.7 percent were customers of seventeen owner-managed focused firms; 24.3 percent were customers of seventeen owner-managed diversified companies; 11.5 percent were customers of three agent-led focused firms; and 38.5 percent were customers of thirteen agent-led diversified companies (Exhibit 3). [26]

Through the 1970s, both owner-managed and agent-led focused firms typically were still run by their founders. [27] However, in the case of the agent-led focused firms, the entrepreneurs' ownership stakes had been diluted by issuing new equity to fund expansion. Owner-managed focused firms also financed their growth by issuing additional stock, but in many of these firms the founder preserved control of a majority of shareholder votes by creating a separate class of equity with superior voting rights. Also, in owner-managed focused firms, the founders frequently avoided dilution of their ownership stake by relying more heavily on debt to fund expansion than their counterparts in agent-led focused firms.

In 1975, thirty of the fifty largest MSOs were subsidiaries of diversified companies. Seventeen of these thirty diversified companies were led by owner-managers--usually the firm's founder, but sometimes a second- or third-generation family member, as with Cox Communications and the Providence Journal. Most of the thirteen agent-led diversified firms had widely dispersed equity ownership; however, in a few companies, like Times Mirror and King Broadcasting, members of firms' founding families owned the majority of shares. Among these thirty MSOs owned by diversified corporations, eight, including Cox, Times Mirror, and Newhouse, had corporate parents that owned both newspapers and broadcasting properties. Another thirteen were owned by parents that owned TV and/or radio stations, but no newspapers. This group included many smaller companies, like Gill Industries, which owned a TV station in San Jose, along with giants like General Electric, Westinghouse, and General Tire. [28]

Expanding into cable TV--either by applying for franchises or by acquiring established cable companies--was a natural strategy for broadcasters and newspaper companies for three reasons. [29] First, in securing cable franchises, media company managers could leverage their knowledge of local communities and their political processes. However, some companies avoided franchising: their executives worried that the need to influence city officials might put the company's reputation at risk. Second, managers in many diversified media companies viewed entry into cable as a hedge: they believed that their newspaper readership and broadcasting audiences might decline over time due to competition with cable, and wanted to reduce their dependence on advertising revenues, which fluctuated with growth in the economy and thus engendered earnings volatility.

Finally, cable provided an outlet for cash flow generated by diversified media companies. During the 1960s, television broadcasting had grown into a very profitable business. [30] At the same time, margins were rising in the newspaper business as publishers converted from hot- to cold-type printing technologies, and captured the labor cost savings afforded by new techniques. Nieva de Figueiredo, in her study of the post-war U.S. newspaper industry, explains that the demands of managing technological change and labor strife had proved overwhelming for many newspaper companies still run by second- and third-generation family members, so they turned to professional management. [31] According to Nieva de Figueiredo, these agent CEOs realized they had only modest opportunities for wealth accumulation in private companies. They encouraged owners to take their companies public, and to grant stock options to management. Once public, stock valuations depended on Wall Street's perceptions that the company would sustain strong growth. At first, newspaper chains met growth targets by acquiring independent, family-owned newspapers. Eventually, the pool of such properties was exhausted, so the chains turned their attention to broadcasting and cable during the 1960s and 1970s.

Turning Copper into Gold: 1976-1983

Although pay television startups had experienced poor results during the 1960s, by the mid-1970s, cable operators were eager to develop unique programming to boost penetration rates in their struggling urban systems. They secured such programming when Time Inc. launched its Home Box Office (HBO) pay TV service in November of 1972. [32] Initially, HBO relayed programming to cable systems in the Northeast via microwave. However, the capital cost of adding additional systems using microwave equipment was high, and Time Inc.'s managers reckoned they could reduce HBO's distribution costs by leasing satellite transponders instead. [33] Soon after HBO became the first satellite-delivered cable programming service in 1975, MSOs reported strong demand for the service: consumers who previously had declined to subscribe to cable were calling to get access to HBO. Russell Karp, TelePrompTer's president, said that pay TV could finally make the company's systems in upper Manhattan and in Los Angeles profitable. [34]

Anticipating strong revenue growth from pay TV, MSOs bid aggressively for big-city franchises, often "sweetening" their bids with interactive technology. [35] The cable division of Warner Communications was especially aggressive in pursuing two-way interactive services. Warner Cable first launched such services, branded as "QUBE," in its Columbus, Ohio system in 1977. In addition to basic and pay TV services, QUBE subscribers were able to use hand-held consoles to obtain stock reports, reserve theater tickets, vote in "electronic town hall" debates, and order pay-per-view movies and sports events. [36] Warner subsequently deployed QUBE in Pittsburgh, Cincinnati, Dallas, and Houston. However, QUBE turned out to be expensive to install and operate, and incremental spending by consumers never was great enough to justify its costs. After Warner-Amex Cable incurred pretax operating losses exceeding \$250 million in the early 1980s, it abandoned QUBE. [37] Other MSOs followed suit, negotiating with cities for permission to scrap or defer plans to introduce interactive services.

Cable operators had deployed interactive technologies not only to secure franchises, but also to differentiate their services from those of emerging competitors. Starting in the late 1970s, competition came from an alphabet soup of new technologies: subscription television (STV); microwave distribution systems (MDS); [38] satellite master antenna television (SMATV); [39] direct broadcast satellites (DBS); and videocassette recorders (VCRs). [40] Subscription television posed the greatest near-term threat to cable. STV employed an over-the-air broadcasting station to deliver a single channel of scrambled programming--typically first-run movies, sports events, and pornography. Subscribers paid roughly \$20 per month and used a special set-top converter to descramble this channel. With a large, fixed investment in a broadcast station license and transmitter, profit margins for STV operators were sensitive to penetration rates. Penetration, in turn, depended on whether the STV operator already faced competition from cable.

When cable arrived in a city ahead of STV, STV fared poorly, because it only delivered a single channel for roughly the same price that the cable operator charged for 20 or 30 channels. However, when STV preempted cable in a market, it quickly could achieve penetration rates in excess of ten percent of homes. [41] By 1983, the STV industry had 1.5 million customers (compared to 31 million for cable), but its threat to cable was receding. [42] STV might linger as a competitor once cable arrived in a community, limiting the cable operator's pricing flexibility and depressing penetration rates by a few percentage points. Eventually, however, the STV operator would be driven from the market. [43]

Direct broadcast satellites (DBS) presented a medium-term threat to cable operators. [44] In 1982, the FCC had approved COMSAT'S application to launch a DBS service, and was reviewing applications from other companies, including RCA and CBS. Also, General Instruments, the leading manufacturer of cable equipment, had announced a joint venture with Prudential Insurance to use a Canadian satellite to begin DBS operations late in 1983. As envisioned in the early 1980s, DBS systems would employ high-powered satellites to deliver three to five channels directly to small rooftop antennas. Stronger signals and smaller dishes would allow DBS operators to reduce the cost of home reception equipment to about \$400. DBS operators planned to target the ten million U.S. homes in rural areas that were too sparsely populated to be wired for cable, as well as urban markets where cable had not yet been built. DBS was a risky proposition: launching high-powered satellites would cost a DBS operator at least \$500 million. Also, access to programming was by no means guaranteed, since at the time all of the pay movie services and several leading ad-supported cable programming services (e.g., MTV, Nickelodeon, USA Network) were owned in whole or in part by vertically-integrated cable operators.

Competition had little impact on cable subscriber growth rates between 1975 and 1983: over that period,

the number of homes subscribing to basic cable service increased at a 14 percent compound annual growth rate, matching the pace for the first half of the 1970s (Exhibit 1). With the success of pay TV, growth in cable operators' revenues exceeded subscriber gains, and cable industry profit margins improved for a few years starting in 1975 (Exhibit 4). However, margins eroded somewhat beginning in the late 1970s, reflecting the costs associated with the over-heated bidding for urban franchises.

At the end of 1983, the top fifty MSOs controlled 72 percent of the industry's subscribers, exactly the same percentage they had controlled in 1975 (Exhibit 2). While concentration levels varied little, the share of subscribers controlled by different organization types did change (Exhibit 3). In 1983, of the 22.3 million subscribers in systems operated the fifty largest MSOs, 46.4 percent were customers of fourteen agent-led diversified companies, up from 38.5 percent in 1975. Some of this share gain was related to franchising activity: diversified companies with strong reputations, healthy balance sheets, and aggressive plans for deploying new technology like Time Inc., Times Mirror, and Warner-Amex Cable fared especially well in the competition for big city franchises. However, most of the share gain for agent-led diversified companies was explained by a few large acquisitions. In 1977, Time Inc., in the wake of its success with HBO, paid \$282 million for ATC, which had been the fourth largest MSO in 1975. The following year, Times Mirror substantially expanded its cable holdings by spending \$140 million to acquire Communications Properties, which had been the eighth largest MSO in 1975. Finally, in 1980, Westinghouse spent \$796 million to acquire the largest MSO, TelePrompTer. [45]

The Big '80s: 1984-1989 [46]

Through the latter half of the 1970s, first the Ford administration and then the Carter administration pushed for deregulation in a range of industries, notably transportation and banking. Cable TV seemed like a candidate for similar treatment. [47] In this context, the FCC's authority to regulate the cable industry was challenged by other executive agencies, by Congressional committees, and by the judiciary. [48] By the early 1980s, pressure was building for Congressional action to resolve jurisdictional issues, and to address friction between cities and cable operators. Cable executives felt that city officials were unreasonable in their demands for expensive and sometimes frivolous concessions in the franchising process, for example, dedicated two-way video communications lines between city offices. Cable executives also felt that they lacked an ability to raise basic rates, given the power of approval held by most franchising authorities. For their part, city officials felt they lacked the power to enforce franchise commitments, which MSOs sometimes ignored. [49] City officials also were disgruntled about the three percent cap on franchise fees imposed by the FCC.

In October of 1984, after protracted negotiations with interested parties, Congress passed the Cable Communications Act. Briefly, the Act: 1) freed cable operators from local rate regulation, effective in 1986; 2) granted automatic renewal of franchises for cable operators who met the terms of their franchise agreements; 3) raised the franchise fee cap to five percent (from three percent), as a concession to the cities; and 4) maintained a prohibition against telephone company ownership of cable systems within the phone companies' local service territories. The legislation was considered a major victory for the cable industry. Cable operators took advantage of the pricing flexibility they gained: they increased basic rates at a compound annual rate of 11.0 percent between 1984 and 1989 period, substantially faster than the 3.7 percent average annual increase in the consumer price index. [50] Notwithstanding these rate hikes, basic service penetration of homes passed by cable plant increased from 56.5 percent in 1984 to 59.5 percent in 1989, due in part to improvements in the quality of cable programming. Construction of franchises that had been awarded earlier in the decade also contributed to industry expansion. With strong growth in construction, penetration, and pricing, cable operators' revenues increased at an average annual rate of 15.1 percent between 1984 and 1989. [51]

Leveraging cable's fixed cost structure, growth in operating cash flow more than kept pace with revenue growth during the second half of the 1980s. As indicated in Exhibit 4, operating cash flow increased from 40.2 percent of revenue in 1984 to 42.9 percent of revenue in 1988. [52] The industry's financial health improved cable companies' access to equity and debt markets, which in turn encouraged a wave of mergers and acquisitions. Exhibit 5 shows that in aggregate, franchises in which cable operators passed 68.4 million homes changed ownership between 1984 and 1989. Since cable operators passed a total of 60.5 million homes in 1984, this was roughly equivalent to the entire industry changing hands. Consistent with this strong merger market and healthy cash flow growth, system values surged between

1984 and 1989. The average value per home passed for systems traded in 1984 was \$520; by 1989, value per home passed had grown at a 20 percent compound annual rate to \$1,277. This rapid increase in cable system valuations encouraged many operators to sell, thereby realizing a huge gain on their investments. Buyers took the sudden increase in value as a validation of the assumptions upon which they had predicated their expansion strategies. These were, indeed, the big 80s!

In the wake of these mergers, industry concentration levels increased. By 1989, the fifty largest MSOs controlled 89 percent of total cable industry subscribers, up from 72 percent in 1983 (Exhibit 2). Owner-managed focused firms drove this consolidation: they increased their share of subscribers controlled by the fifty largest MSOs from 27.7 percent in 1983 to 50.4 percent in 1989 (Exhibit 3). By contrast, between 1984 and 1989, agent-led diversified firms reduced their share of the subscribers from 46.4 percent to 28.4 percent. [53]

The failure of most agent-led diversified firms to sustain their expansion rates typically was not due to a reluctance on the part of their cable division managers to propose acquisitions. By the late 1980s, acquiring established cable systems--which cost about three times as much per household as building cable plant in newly awarded franchises--was the only available option for achieving rapid growth, because by then most cities had granted franchises. However, acquisitions proposals made by cable division managers frequently were rejected by corporate executives, for three reasons related to the parent companies' ownership and governance structure, and for two reasons related to the characteristics of resource allocation processes in diversified firms. [54] With respect to ownership structure, first, many diversified companies with publicly-traded equity preferred to avoid the earnings-per-share dilution that inevitably followed cable acquisitions, because they felt dilution would put downward pressure on their stock price. [55] For example, to keep its cable investments off balance sheet and thereby avoid dilution, Knight-Ridder formed a 50/50 joint venture with TCI in 1981. At agent-led companies with widely-dispersed ownership that were vulnerable to hostile takeovers, like Time Inc., concerns about the dilutive impact of cable acquisitions were especially salient.

Second, many diversified companies faced capital constraints that discouraged cable acquisitions during the second half of the 1980s. For example, at the Providence Journal, cable expansion was fettered as the company simultaneously expanded in broadcasting and cellular telephony, struggled to turn around its commercial printing business, and faced requests for increased dividends from some family trusts that were major shareholders. As cable divisions grew, competition for capital sometimes engendered political conflict within these diversified companies. To a greater extent than owner-managers, who could dictate strategy because they owned enough shares to elect supportive Board members, agent CEOs in diversified firms were forced to contend with divisional managers who could challenge their authority by lobbying a more independent Board. For example, at Scripps Howard, Burleigh said that during the 1980s his predecessor, Lawrence Leser, had "struggled mightily with the medieval fiefdoms [in the company's Broadcasting and Newspaper Divisions] that criticized his investments and never understood his long term vision." [56] Likewise, at Time Inc., cable acquisitions were vigorously opposed by division manager Arthur Temple, who joined Time Inc.'s board after that company acquired his pulp and paper company, Temple-Inland, in 1973. [57]

Third, even when they had enough capital to undertake acquisitions, conservative debt-to-equity ratios in some agent-led media companies made it difficult to support a winning bid in cable system auctions. For example, at Scripps, Chief Financial Officer Daniel Castellini said that his company maintained lower debt leverage than owner-managed focused firms that were aggressively pursuing cable acquisitions, due to the risk preferences of the Scripps family trust. As a result, he said such focused firms had a weighted average cost of capital averaging about eight percent during the late 1980s, compared to eleven percent for E. W. Scripps. With a higher capital cost, Scripps's managers would generate lower cable system valuations than other bidders, assuming equivalent cash flow projections.

The nature of the resource allocation processes in diversified firms also contributed to corporate executives' reluctance to approve cable division acquisition proposals in two ways. First, corporate executives typically required extensive analytical support when evaluating such proposals. However, in the hyperactive cable merger market of the 1980s, there was little time to undertake such analysis. As Leonard Tow said, "In the mid-1980s, you bought systems over the phone. A call came in from a broker. You asked a few questions, then asked, 'What do you think you can get it for?' He'd say, 'Ten and a half

times cash flow.' You'd say, 'OK, do it.' There was never a deal book. By the time you got your hands on a book, the system would have traded hands three times." [58]

Second, in some diversified firms, expansion proposals were rejected when the cash flow projections presented by cable division management were questioned by corporate executives. The credibility of cable division managers had become an issue within these firms during the first half of the 1980s, when construction costs for urban franchises exceeded estimates, and cable divisions failed to achieve their budgets. [59] Later in the decade, when cable division managers proposed acquisitions, their credibility was further undermined because escalating cable values cast doubt on the rigor of their past projections. Corporate executives responded to acquisition proposals along the following lines: "It's hard to understand why the value of this business has increased by 50 percent in just two years. Can we really believe your numbers?"

Life After Television: 1990-1995 [60]

The 1990s began with turmoil in high yield debt markets that left banks skittish about extending credit to the cable industry. In October of 1989, as high yield debt markets deteriorated and what came to be known as the savings and loan crisis came to light, federal banking regulators defined "highly leveraged transactions" (HLTs) to include any transaction that resulted in a leverage ratio (debt as a percent of total capital) higher than 75 percent. A large share of cable acquisitions fit this criterion. Hurlock and Sahlman noted that, "While the HLT definition was not followed by any regulatory measures, it sent a chill through the lending community by raising the prospect that regulatory action would be taken, or that it might be used by rating agencies." [61] With new bank debt largely unavailable, and many nervous financial institutions seeking to shed their existing HLT loans, sales of cable systems slowed markedly. In 1990, systems passing 871,000 homes were sold in 105 deals, down from 10.9 million homes passed in 379 deals the previous year (Exhibit 5). Highly leveraged cable operators that relied on revolving credit to meet their interest payments scrambled to avoid default, and a few mid-sized MSOs were forced to restructure their balance sheets.

At the same time credit markets tightened, pressure to reregulate cable pricing grew in response to public complaints about price gouging and poor levels of customer service. Legislation to reregulate cable stalled in Congress in 1990 and 1991. By October of 1992, however, frustration with the industry was high, and Congress passed the Cable Television Consumer Protection and Competition Act. Two provisions of the bill were particularly damaging to the cable industry. First, the Act instructed the FCC to establish guidelines for basic service rates, which resulted in a 17 percent rate rollback over the following two years. [62] Second, vertically-integrated cable operators, who controlled a significant share of the most popular cable programming, were required to make their programming available to competing providers of multichannel television service on reasonable terms. [63] This provision of the 1992 Act was a blow to the cable industry, because it removed a barrier to entry by phone companies and DBS operators.

DBS emerged as a serious threat to cable operators during the early 1990s. In the 1980s, DBS ventures had been financial failures. United Satellite Communications, a project backed by General Instruments and Prudential Insurance, was terminated in 1984 after it lost \$70 million. COMSAT also abandoned its DBS plans in 1984, and took write-downs of \$145 million after it ordered (but never launched) two satellites from RCA. [64] The prospect of DBS competition, which had faded after these failures, became credible again in February of 1990 when News Corporation, Hughes Communications, NBC, and NBC'S cable programming partner, Cablevision Systems announced a joint venture to launch "Sky Cable." A high-powered DBS satellite, Sky Cable would use digital compression technology to deliver 108 channels to 18-inch dishes. [65] Reception equipment would cost consumers less than \$500.

The announcement was alarming: compared to a typical cable operator, Sky Cable proposed to deliver twice as many channels at a lower total infrastructure cost per subscriber. [66] With backing from General Motors and General Electric, the corporate parents of Hughes and NBC, respectively, the venture could finance startup costs then estimated to be about \$1 billion. The joint venture also would have access to the entertainment, news, and sports programming of News Corporation's Twentieth Century-Fox Studio and the NBC Television Network. However, in June 1991, the Sky Cable partnership collapsed. News Corporation's balance sheet had been overextended by huge losses incurred in starting its direct-

to-home satellite broadcasting service in the United Kingdom. NBC and Cablevision also withdrew from the venture, but Hughes remained firmly committed, despite the loss of partners that could share the cost of the project and provide programming. Hughes' programming problems were solved in 1992, when the Cable Act required vertically integrated cable companies to make their programming available to prospective competitors. Hughes found other partners and in 1994 launched its DBS service, called DirecTV. [67] Consumer demand for DirecTV exceeded analysts' forecasts: by early 1996, DirecTV had 1.2 million customers. [68]

In addition to the threat from DBS, in the early 1990s, cable operators were concerned about competition from telephone companies. Both cable and phone companies were planning to build "integrated broadband networks" (IBNs) that simultaneously carried high volumes of voice, video, and data communications traffic. [69] These IBNs would have point-to-point switching capabilities similar to those of existing "narrowband" telecommunications networks, facilitating the development of two-way, multimedia services like interactive home shopping and video telephony. Rapid innovation in three technologies had made IBNs feasible. First, by the late 1980s, both telephone and cable networks were deploying fiber optics lines, which had vastly greater transmission capacity than the copper lines they replaced. Second, digital compression technologies, which became affordable in consumer applications as the performance of semiconductors improved, reduced the bandwidth required for transmission of voice, video, and data signals. Finally, improvements in semiconductor performance also reduced the cost of broadband servers, computers that were used to store digital content and modulate that content onto fiber lines upon user request.

Although these building blocks for IBNs were under development, many questions remained about the technology and consumer demand for the services it would enable. As of late 1993, seventeen IBN trials were planned or underway by telephone and cable companies to address these questions. [70] By 1995, however; most of these trials were experiencing expensive delays and serious technological setbacks, and the explosive growth of the Internet had rendered many companies' plans obsolete. In response, cable companies abandoned plans to develop interactive multimedia services that would be viewed on a television set; instead, they began to deploy cable modems, providing personal computer users with high speed access to the Internet. [71]

The Cable Act of 1992 had left many issues regarding the terms of telephone and cable company competition unresolved. Most notably, it did not address phone company demands that they be allowed to own the video programming services delivered over their IBNs, instead of being limited to the role of common carriers, transmitting third-party services for a fixed tariff. In December of 1995, after intense lobbying by industry participants, House and Senate conferees and the Clinton White House reached agreement on an overhaul of telecommunications regulation. With respect to cable, the resulting Communications Act of 1996 deregulated basic service rates, effective in 1999; eliminated the ban on phone companies' ownership of video programming services; retained prohibitions on the cross ownership of cable and phone companies within a phone company's service territory; and removed remaining state and local regulatory barriers to cable entry into telephony. [72]

Cable operators generally were pleased with the legislation, which would allow them to accelerate their entry into the telephone business. Many MSOs already had been moving aggressively in that direction. [73] For example, in 1992, Cox Communications, the sixth largest MSO, had demonstrated that cable could be adapted to deliver Personal Communications Service (PCS), a new technology which would compete with cellular phones. In 1993, TCI, Time Warner, Continental, and Comcast, the four largest MSOs, joined Cox as investors in Teleport Communications Group (TCG). TCG was the leading "competitive access provider" (CAP) in the United States. CAPs employed fiber lines to provide telecommunications service to large business customers, bypassing the incumbent local telephone company. In October of 1994, TCI, Comcast, and Cox announced a joint venture to develop telecommunications services with Sprint, a \$12 billion provider of long distance, local, and cellular telephone services. Early in 1995, the venture, called Sprint Spectrum, successfully bid \$2.1 billion in FCC auctions to secure PCS licenses.

While cable companies were entering the phone business, telephone companies were counter-attacking by pursuing video entertainment markets. By 1993, all of the Regional Bell Operating Companies (RBOCs) had announced ambitious plans to deploy IBNs within their service territories. That year, several

RBOCs also announced plans to acquire equity in cable systems outside of their telephone service territories, positioning them to compete with their Bell siblings. Southwestern Bell became the first RBOC to acquire U.S. cable systems when it purchased Hauser Cable, an MSO with 200,000 subscribers in suburban Maryland. Soon afterward, US WEST invested \$2.5 billion for a 25 percent stake in Time Warner's cable and studio properties. In October of 1993, Bell Atlantic announced it would spend \$33 billion to acquire TCI, the largest U.S. MSO--the highest valuation to date for a U.S. corporate merger. Southwestern Bell soon followed with the news that it was investing \$5 billion in a merger with Cox Communications.

The TCI merger was seen as providing Bell Atlantic with an out-of-territory base for expansion, plus cable programming and TCI's entrepreneurial drive. TCI, in turn, would benefit from the RBOC's capital, engineering know-how, and political clout. Notwithstanding these benefits, the merger was scuttled early in 1994, as was the merger of Cox and Southwestern Bell. TCI CEO John Malone explained that the merger failed because Bell Atlantic's stock price had declined by over 20 percent in the wake of the merger announcement, principally due to shareholders' concerns that Bell Atlantic would be forced to cut its dividend to fund the deployment of IBNs. An unexpected announcement by the FCC that it would mandate further reductions in basic cable rates also hurt the companies' stock prices. [74] In response, all of the other RBOCs except for US WEST shelved their plans to expand by acquiring cable systems outside of their service territories. By the end of 1995, several of the RBOCs also had deferred plans to over build cable systems with new IBNs within their telephone service territories. [75] Based on their market trials, these companies were concerned about high construction costs for such ventures, as well as the prospect that head-to-head competition would lead to escalating marketing costs and severe price erosion in both voice and video markets. [76]

Notwithstanding rate reregulation and increasing competition, the cable industry's financial performance remained solid during the first half of the 1990s. Industry revenues grew at a 10.2 percent compound annual rate between 1991 and 1995, despite basic rate rollbacks. However, operating cash flow as a percent of revenue declined from a 1992 peak of 45.2 percent to 40.1 percent in 1995 (Exhibit 4). Rates of return on assets also declined somewhat, reflecting the goodwill added to companies' balance sheets in the wake of another wave of industry mergers in 1994 and 1995. The merger market for cable systems was revived after Federal banking regulators relaxed their attitudes toward highly leveraged transactions in 1992. As indicated in Exhibit 5, systems passing 30 million homes changed ownership during 1994 and 1995. Following these mergers, industry concentration levels increased: the fifty largest cable operators served 95 percent of total industry subscribers in 1995, up from 89 percent in late 1989 (Exhibit 2). The five largest cable companies were especially acquisitive: based on each company's total number of subscribers as of the beginning of 1994, their median increase in scale due to acquisitions completed during 1994 and 1995 was 34 percent. [77] MSOs ranked below the top five were much less inclined to expand through acquisition: for the next twenty largest MSOs still active at the end of 1995, the median percentage increase in scale due to 1994 and 1995 acquisitions was zero.

Why did the five largest MSOs all expand aggressively in 1994 and 1995? Senior executives in these firms offered consistent descriptions of the factors that motivated their decisions. [78] They agreed that cable companies would fare well in an increasingly competitive environment. Specifically, they believed that: 1) compared to telephone companies, cable operators would have cost and timing advantages in upgrading their plant to deliver digital video, voice, and data traffic; 2) the upside in telephony would more than compensate cable companies for any share loss in their traditional video business; 3) interactive data services would offer attractive growth potential; and 4) in a dynamic industry environment, cable operators' entrepreneurial management style would offer advantages in competition with bureaucratic telephone companies. To succeed against telephone company and satellite competition, managers of these large MSOs were convinced they would need both local and national scale. Controlling the dominant share of the cable customers in a given metropolitan area (i.e., "clustering") would provide economies in launching new services, for example, by spreading marketing expenses or the capital costs of telecommunications switching equipment over a larger local customer base. With greater national scale, cable operators could absorb the division-level overhead required to develop new services, and could exchange carriage commitments for equity in new programming and technology ventures.

During 1994 and 1995, there was less consensus among executives in medium-sized MSOs about the nature of the phone company threat and the need for national scale. [79] Differences of opinion could be

explained in part by the balance of big city versus small town systems in the MSOs' portfolios. Given the local scale economies in introducing new technologies, competition was widely expected to emerge more quickly in major markets. Managers in MSOs that had a large share of their subscribers in such markets saw a more pressing need to prepare for competition, and thought they needed national scale in excess of three million subscribers to amortize the associated costs. By contrast, operators with a larger share of their customers in small town systems were more sanguine about their competitive prospects, and tended to dismiss the need for national scale. For example, Leonard Tow of Century Communications, said, "If you're a telco, why pursue video? It's only a \$20 billion business [compared to \$100 billion from local phone service], and the upgrade costs are enormous! Anyway, they're unable to get their organizations under control. It'll take them ten years to change their cultures." He added, "The biggest part of programming and equipment [procurement] discounts are available once you reach 1 million subscribers, .so you can count yourself a survivor at that scale." [80]

Econometric analysis reported elsewhere by the author confirms that national scale and concentration of systems in urban markets were statistically significant predictors of an MSO's propensity to acquire or divest assets. [81] Based on a review of acquisitions and divestitures between 1987 and 1995 by 201 MSOs--a sample accounting for over 98 percent of all U.S. cable subscribers throughout the period--national scale co-varied positively with cable system acquisitions, and negatively with divestitures. An MSO's percentage of subscribers in large systems--a proxy for a concentration of assets in major metropolitan areas--was negatively correlated with acquisitions, and positively with divestitures.

After controlling for these effects related to MSOs' scale and geographic location, the econometric analysis also indicated that CEO equity ownership and parent company diversification each were statistically significant predictors of MSOs' acquisition and divestiture decisions, both through their main effects and through their respective interactions with a measure of environmental turbulence. Specifically, owner-managed firms were more likely than agent-led companies to expand through acquisition, and less likely to exit the cable industry--tendencies that became stronger as the level of environmental turbulence facing cable operators increased between 1987 and 1995. In the face of rising turbulence, diversified corporations were more likely than focused firms to both expand horizontally through cable acquisitions and to exit the cable industry; they were less likely to idle.

These econometric results may be explained in part by the impact of firms' ownership structure and diversification on their ability and willingness to secure capital for further expansion in cable. With respect to ownership structure, in agent-led companies where family trusts owned a majority of the equity, these dominant shareholders sometimes were reluctant to issue new equity that would dilute their holdings. Likewise, family trusts typically lacked portfolio diversification, and consequently were often unwilling to increase debt leverage. Finally, in some companies where family trusts were the dominant shareholders, trustees expressed a preference for secure, near-term dividends instead of long-term, risky capital gains from cable expansion.

Diversification had a more complex influence on senior managers' perceptions regarding the availability of capital for cable expansion. Many diversified media companies produced significant free cash flow. Some, like the Providence Journal and the Washington Post, used the internally generated cash flow from their newspaper and broadcasting divisions to fund cable expansion during the first half of the 1990s, when raising external capital for cable acquisitions was expensive due to restrictions on bank lending for highly leveraged transactions and due to institutional investors' concerns about the emerging threat to cable from telephone companies. However, in many diversified companies, corporate executives worried that cable acquisitions and plant upgrades would divert capital from other divisions. In companies that had diversified into cable from a publishing base, newspapers often were viewed as the "heart and soul" of the institution: the newspapers never would be sold, and they would receive priority for reinvestment if capital ever was rationed. This was clear from remarks made by Alan Spoon, the President of the Washington Post Company, about the decision to buy or sell cable assets:

This is strictly a financial decision, relative to our other choices. Like everyone else running a diversified media company, I'm looking for wonderful opportunities to absorb a lot of capital. If we saw a great opportunity in a business, we'd unbalance our portfolio. But not if that meant starving the newspaper or Newsweek. Making cable a huge part of our portfolio would force your hand in other businesses. So, I guess there are natural limits to our growth in cable. [82]

At The Providence Journal Company, a privately-held company largely owned by family trusts, CEO Stephen Hamblett expressed a similar commitment to that company's newspaper. He also explained that some of the trusts were frustrated because they could not generate cash by selling their illiquid shares, and thus had long pressured management for bigger dividends. According to Hamblett, after expanding in cable during the early 1990s, the decision to reverse course in 1995 and divest Colony Communications, the Providence Journal's cable division, addressed several concerns:

With huge capital requirements staring us in the face, the Board became receptive to the idea of selling cable ... Our Board had four clear objectives. Selling Colony to Continental was consistent with all of them. First, we wanted growth. Investing heavily in Colony might have compromised our ability to expand in other areas. Second, we wanted to resolve the liquidity issue, which was a concern for many of our shareholders. Third, we wanted to ensure that the newspaper was positioned to survive and prosper in a rapidly evolving environment. Reducing our debt gave us breathing room against that goal. Fourth, in achieving objectives one through three, we wanted to maintain our institutional commitment to quality. With the sale of Colony, our owners became shareholders in Continental--arguably the best run company in the cable industry, and a company that was well positioned [by virtue of its scale] to meet competitive challenges. [83]

The capital constraints faced by agent-led firms owned by family trusts and by diversified media companies deeply committed to their newspapers' survival help explain why owner-managed focused firms continued to gain share in cable between 1989 and 1995. At the end of 1995, owner-managed focused firms controlled 66 percent of the customers served by the fifty largest operators, up from 51 percent in 1989 (Exhibit 3). This share gain was linked to the exit by the end of 1995 of nearly all of the agent-led firms that had been on the top 50 list in 1989, including the sole agent-led focused firm; all five of the agent-led diversified firms with family trusts as dominant owners; and seven of the nine agent-led diversified firms with dispersed ownership. Of the two survivors in the last group, Time Warner sold a large equity stake in its cable systems in 1993 (giving the buyer, US WEST, shared governance rights over those assets), and Knight-Ridder eventually exited in 1996. By contrast, six of the twelve owner-managed diversified firms on the top fifty list in 1989 had sold their cable systems by the end of 1995, and only seven of the twenty-three owner-managed focused firms had exited.

In addition to the factors cited above related to the availability of capital for expansion, cable industry consolidation patterns can be explained by owner-managers' personal priorities, and by their latitude to act on these priorities. When a focused firm was acquired by a company that already owned cable systems, the seller's assets would be integrated with those of the buyer, and the selling firm typically would lose its identity as a separate organization. Many owner-managers, emotionally attached to the focused firms they had built, were reluctant to consider selling: exit implied organizational extinction. Jeffrey Marcus, the CEO of Marcus Cable, said:

This company is called Marcus Cable. It makes a difference when your name is on the door! You take things personally and get them right. I sold my company once, dispersed all those people. It was tough. People say you can't fail in love with the bricks and mortar of a business. I think that's true, and you must make rational decisions. But in a way, most cable entrepreneurs are like the corner shopkeeper. This is what we do! [84]

The desire to preserve institutional independence was especially strong at owner-managed focused firms in which the founders' children had moved into senior management positions. Of the twenty-three owner-managed focused firms ranked among the fifty largest MSOs in 1989, seven were family dynasties, none of which had been sold as of the end of 1995.

Because they controlled enough equity to ensure the election of a supportive Board, owner-managers typically had great discretion in formulating strategy, even when their decisions were at odds with the preferences of minority investors. Gerry Lenfest and Brian Roberts, the President of Comcast Communications, explained:

Our strategic decision making is unfettered by committee. I've been a one-man band. We can be more creative in how we approach acquisitions, because we can move quickly, and because I can step up and pay a full price without anyone second-guessing me. In a big company run by professional managers,

who really wants to make the decision? Who wants to be held accountable if the deal doesn't work? We don't feel the need to call [TCI, Lenfest's equity partner in] Denver before we make strategy decisions. We've never even had board meetings!

If the Street doesn't like our strategy, that's very, very unfortunate. But control stock [with superior voting rights] allows you to make the right long term decision. If you have the stomach for it. And my father [Ralph Roberts, Comcast's Chairman] always had the stomach! [85]

In contrast to these owner-managers, who could act on their intuition and felt little compulsion to justify their decisions, agent CEOs had less personal discretion in formulating strategy. Board members, investors, and other members of the senior management team (in some cases, rivals for the CEO's job) all expected an agent CEO to be able to clearly and forcefully articulate a strategy. If the CEO could not do so, his or her reputation would suffer. Nick Nicholas, Time Warner's agent co-CEO during the early 1990s, contrasted these pressures to the situation facing his counterparts during the 1960s or 1970s: "It was a wonderful age. If you were managing a public company, you didn't have to explain anything to anybody. People from that time have no idea what it is like today." [86] Nicholas's successor, Gerry Levin, expressed similar sentiments. Frustrated by the difficulty of explaining the company's strategy to institutional investors who did not understand the media business, Levin said that he was trying to reduce their collective ownership share by issuing new stock to merger partners:

"I'm radically changing the shareholding base of Time Warner to be more media-oriented, and I think it's very healthy. You'll have 35 percent of the company owned by people with one thing in common--they understand the media industry and the powerful nature of where it's going. It's a surrogate for when the Luces owned Time Inc. or when the Warner Brothers owned that company. If you're a major shareholder, it's not that you'll automatically agree with me, but you'll understand the context. I'd be out in a minute if I'm not delivering." [87]

By the mid 1990s, it was difficult for any CEO--agent or owner-manager--to explain clearly how additional investments in cable would pay off: markets, technologies, and regulation all were evolving at a rapid pace. At many diversified media companies, the CEO never had direct line responsibility for the cable business earlier in his or her career, so his or her challenge in understanding the dynamic forces at work was particularly acute. Faced with this challenge, agent CEOs saw that their companies could realize attractive capital gains by selling cable assets that had been acquired years earlier and thus had a low cost basis. Furthermore, Wall Street, which recently had discovered the virtues of corporate focus, seemed pleased with other diversified media companies' cable divestitures. For an agent CEO, entrusted with the responsible use of resources owned by others, it was easy to justify the decision to sell cable.

Conclusion

It is common and natural to assume that a hired manager; dealing with resources which belong to others will be less careful in their use than an owner. The view shows little insight into human nature and does not square with observed facts. The real trouble with bureaucracies is not that they are rash, but the opposite. When not actually rotten with dishonesty and corruption they universally show a tendency to "play safe" and become hopelessly conservative.

Frank Knight, *Risk, Uncertainty and Profit*, 1921 [88]

Chandler observed that in many American industries, managerial capitalism, characterized by dispersed owners lacking the influence and experience to challenge salaried managers' strategies, had replaced entrepreneurial and family capitalism. The U.S. cable television industry followed this pattern through the early 1980s: agent-led firms expanded aggressively, and controlled half of the subscribers served by the fifty largest cable companies in 1983. Consistent with propositions advanced by Chandler, this expansion was motivated by salaried managers' desire to promote their companies' long-term stability and growth, and their preference to reinvest profits rather than pay dividends. [89] By diversifying into cable, companies that owned broadcasting stations and newspapers increased their long-term stability, because cable threatened to cannibalize these businesses. Likewise, expansion into cable was a logical growth strategy for cash-rich media companies: they could leverage their political connections and strong balance sheets in competing for cable franchises.

Starting in the mid-1980s, however, the twin goals of promoting stability and growth were less clearly compatible. By that time, franchising opportunities were largely exhausted, so acquisition was the only route for expansion in cable. [90] Growth through acquisitions--which became expensive after passage of the Cable Act of 1984--threatened the stability valued by salaried managers in two ways. First, the earnings-per-share dilution that almost always followed cable acquisitions was perceived to put downward pressure on a company's stock price, which could increase the odds of a hostile takeover. Second, to a greater extent than owner-managers, who could dictate strategy because they had unequivocal support from their hand-picked Boards, agent CEOs in diversified companies were wary of disruptive internal conflict that could erupt over competing divisional claims for rationed capital. So, faced with a tradeoff between stability and growth objectives, agent-led companies with dispersed ownership tended to reduce their rates of expansion during the second half of the 1980s.

During the first half of the 1990s, simultaneously achieving stability and growth objectives became even more difficult. In many firms, managers believed that to prosper in an increasingly competitive environment, their cable divisions would require a "critical mass" of at least three million subscribers, and would need to upgrade their plant to deploy integrated broadband networks. But pursuing an ambitious growth strategy at the divisional level could engender instability at the corporate level. Acquiring, say, an additional two million cable subscribers at a cost of \$4 billion, then spending another \$3 billion to upgrade the plant serving a total of three million subscribers would have seriously strained the balance sheets of most diversified media companies. Funding such expansion would have forced corporate executives to choose between risky debt, dilutive equity, and the contentious diversion of capital from other divisions. Furthermore, given the rapid pace of industry developments, executives in these firms did not have much confidence in arguments supporting a "bet the company" strategy. Thus, many agent CEOs in diversified corporations owning medium-sized MSOs perceived a Hobson's choice in cable. Growth was too risky; so was idling. Consequently, they saw exit as their only viable option.

By contrast, the owner-managers of medium-sized cable companies were emotionally attached to the cable industry and to their firms, and often harbored dynastic ambitions. These owner-managers had the power to pursue their personal priorities, and were able to rationalize away the concerns held by their salaried counterparts. Specifically, they maintained that in a fast-moving environment, flexible entrepreneurs could out-manuever bureaucratic phone companies: they would be mammals at the feet of dinosaurs. If they needed scale to compete, they could create joint ventures. Finally, owner-managers had an abiding faith in the cable industry's resiliency: they had struggled through troubled times before, like the early 1970s, and believed they could do so again. Although critics could marshal counter-arguments, these optimistic beliefs were difficult to refute, given the complex, rapidly changing, and ultimately ambiguous state of affairs confronting cable operators. In any case, compared to agent CEOs, owner-managers faced less need to justify their decisions to board members, investors, and employees.

Hence, the 1990s saw managerial capitalism in eclipse in the U.S. cable television industry, as the vast majority of agent-led diversified companies exited and most of the owner-managed focused firms redoubled their commitment to the business. But eclipses, however portentous, are temporary. Was it possible that the share gains of owner-managed firms would be reversed as founders without family dynasties retired and passed the reins to salaried managers or sold their companies? Perhaps, but the buyers for such companies increasingly were "second-generation" owner-managers: in 1995, three of the 20 largest MSOs had been founded during the 1990s by former managers from established MSOs, and many similar startups had been organized. It seemed possible that owner-managers could continue to control a large share of cable industry customers for many years.

So, in the cable business, we find some support for Knight's assertion that hired managers are conservative. When confronted with a tradeoff between stability and growth, agent CEOs tended to opt for stability, whereas owner-managers were more willing to gamble on growth. But can we generalize beyond the case of cable, and expect to see owner-managed firms gaining share in other sectors of the economy where investment risk is rising? What follows should be viewed as speculation, but there is evidence suggesting such a relationship. First, D'Aveni and other scholars have argued that over the past two decades, product market turbulence has been increasing throughout the U.S. economy. [91] D'Aveni cited a list of factors contributing to turbulence, including advances in information technology, deregulation, the "demassification" of society, and the rapid globalization of many markets. While D'Aveni's data is mostly anecdotal, some recent research supports his position. [92] Furthermore, the

notion that investment risk has been rising in service industries that have experienced sweeping deregulation and rapid technological change--including financial services, health care, and communications--seems less controversial. Second, recent work by Holderness, Kroszner and Sheehan indicates that management equity ownership has increased significantly in U.S. public companies over the past fifty years. [93] In 1935, managers and directors owned an average of 13 percent of their companies; in 1995, they owned 21 percent. Consistent with the hypothesis advanced above, the greatest percentage gains in management equity ownership were observed in service industries.

While this data superficially seems to contradict Chandler's observations about the rise of managerial capitalism, if one accepts the view that a Third Industrial Revolution is underway, then the data are consistent with Chandler's ideas about how industries evolve, [94] Chandler noted that it was not salaried managers, but rather "entrepreneurs that established the first modern industrial enterprises in the new industries of the Second Industrial Revolution.,, [95] If the Third Industrial Revolution follows the same rhythms as the Second, then we should see entrepreneurs once again at the vanguard. First movers cannot afford a time-consuming process that builds political support for risky initiatives; they cannot trade growth for stability.

Thomas R. Eisenmann is an assistant professor in the Entrepreneurial Management/Service Management Unit at Harvard Business School. His current research explores the returns to Internet businesses from accelerated growth strategies, i.e., from massive upfront investment in brand building and customer acquisition. He teaches "Managing Marketspace Businesses," a course in Harvard's MBA elective curriculum on the strategic and organizational challenges facing Internet startups and established companies moving online. He is author of "Governance and Risk Taking in the U.S. Cable Television Industry" in the Academy of Management Annual Proceedings, 1998.

(1.) Nielsen ratings data cited by the Cabletelevision Advertising Bureau in Cable TV Facts, 1Q85 through 1996.

(2.) Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass., 1977), 9-10.

(3.) Drawing on agency economics, theorists have offered two reasons why companies run by owner-managers may be more inclined toward risk taking than agent-led firms. First, according to Yakov Amihud and Baruch Lev ("Risk Reduction as a Managerial Motive for Conglomerate Mergers," *Bell Journal of Economics* [1981]: 605-617), in contrast to owner-managers, who are secure in their positions by virtue of their direct control of a majority of shareholder votes, agent CEOs face a risk of termination by their Boards if they sponsor risky strategies that subsequently fail. Assuming that both agent CEOs and owner-managers are risk averse with respect to corporate investment decisions that may affect their personal wealth, Amihud and Lev expected that agent CEOs, facing greater levels of human capital risk, would be more likely than owner-managers to support conservative strategies. Second, Harold Demsetz and Kenneth Lehn ("The Structure of Corporate Ownership: Causes and Consequences," *Journal of Political Economy* [1985]: 1155-1177) argued that in turbulent environments, it is more difficult for outside shareholders to assess the merits of their agents' investment decisions, so agents can more easily abuse their authority by approving projects that advance their personal interests at shareholders' expense. Concentrating governance rights in an owner-manager, whose personal interests should be better aligned with those of other shareholders, serves to reduce such agency costs; consequently, owner-managed firms might have an advantage in raising capital for risky strategies. Contrary to these predictions, Eugene Fama and Michael Jensen ("Separation of Ownership and Control," *Journal of Law and Economics* [1983]: 301-324) asserted that companies run by owner-managers might pursue more conservative strategies than agent-led firms, because owner-managers' investments in their firms' equity frequently represent a large share of their personal wealth. Empirical researchers have fairly consistently found a positive relationship between management equity ownership and risk taking. See Amihud and Lev; Anup Agrawal and Cershon Mandelker, "Managerial Incentives and Corporate Investment and Financing Decisions," *Journal of Finance* (1987): 823-837; Charles Hill and Scott Snell, "External Control, Corporate Strategy, and Firm Performance in Research-Intensive Industries," *Strategic Management Journal* (1988): 605-621; Shaker Zahra, "Governance, Ownership, and Corporate Entrepreneurship: The Moderating Impact of Industry Technological Opportunities," *Academy of Management Journal* (1996): 1713-1735; and Benjamin Esty, "Organizational Form and Risk Taking in the Savings and Loan Industry,"

(4.) Many scholars have argued that division managers in diversified companies are more likely to exhibit risk aversion than their counterparts in firms focused on a single line of business; for a summary of this view, see Robert Hoskisson and Michael Hitt, "Strategic Control Systems and Relative R&D Investment in Large Multiproduct Firms," *Strategic Management Journal* (1988): 605-621. According to Hoskisson and Hitt, corporate executives in diversified firms, lacking deep knowledge of the strategic issues facing individual divisions, rely on short-term financial measures such as return on investment to allocate resources and evaluate division managers' performance. To improve the odds that they will meet their performance targets, division managers are seen as being more likely to pursue conservative strategies, for example, avoiding risky investments in research and development. In contrast, Oliver Williamson's theories imply a positive relationship between diversification and strategic risk taking behavior (see Chapter 8 in *Markets and Hierarchies: Analysis and Antitrust implications*, New York, 1975). Williamson asserted that the internal capital market within a multidivisional corporation might allocate resources more effectively than the external capital market, because its senior executives should be better able to gather information from business units and thereby avoid problems of moral hazard. Because they cannot reallocate cash flows between divisions, single line-of-business firms are more dependent on external capital than diversified companies, and may face constraints in funding risky investments. Two empirical studies (Hoskisson and Hitt; Barry Baysinger and Robert Hoskisson, "Diversification Strategy and R&D Intensity in Multiproduct Firms," *Academy of Management Journal* [1989]: 310-332) have found a negative relationship between diversification and risk taking.

(5.) *On the Cable: The Television of Abundance* (New York, 1971) was the title of the report prepared by the Sloan Foundation's Commission on Cable Communications. The Commission was chaired by Edward Mason, the Dean Emeritus of Harvard's Graduate School of Public Administration. Among its other members were the former mayors of Atlanta and Boston; IBM's chief scientist; Professor James Q. Wilson of Harvard; and the presidents of The Brookings Institution, The Urban Institute, The University of Chicago, The Rockefeller University, MIT, and the RAND Corporation. After reviewing the technological potential and social implications of cable television, the Commission concluded that federal regulation should be changed to encourage the industry's growth.

(6.) This account is drawn from the first installment of a three-part series on the cable TV business, published by Thomas Whiteside in the *New Yorker* (20 May, 27 May, and 3 June 1985). Simon Applebaum, "The Great Cable Controversy: Who Launched First?" *Cablevision*, 4 May 1998, 16, described an ongoing dispute over which of four entrepreneurs (including Walson) actually launched the first cable system. Additional information on the early history of the U.S. cable industry is available in "Cable Television: The First Fifty Years," a series of monthly supplements to the 1998 editions of *Cable World*, and from a website (<http://www.cablecenter.org/>) maintained by the National Cable Television Center and Museum (NCTC&M).

(7.) Although RCA's National Broadcasting Company (NBC) began broadcasting television signals in New York in 1939, diversion of electronic components for military use limited the industry's growth until after World War II. See Sally Bedell Smith, *In All His Glory: The Life of William S. Paley* (New York, 1990), Ch. 17, and Erik Barnouw, *A History of Broadcasting in the United States*, published in three volumes (New York, 1966, 1966 and 1970).

(8.) Cable channels originate from a "headend," where over-the-air signals are captured by antennas, then modulated (assigned a channel number) onto coaxial copper lines. The basic principles of cable TV technology are described in Walter S. Ciciora, *An overview of Cable Television in the United States* (Boulder, Colorado, 1990), published by CableLabs, the cable industry's research and development consortium.

(9.) John R. Barrington, "Pay Cable--An Old Idea Whose Time Has Come," in *The Cable Communications Book: 1977-1978*, ed. Mary L. Hollowell, (Washington, D.C., 1977) described these early efforts. Whiteside (I, 48-58) also related an account of the most ambitious project, Subscription Television Inc., which launched a cable-delivered pay TV service in California in 1964. The venture, backed by Dun & Bradstreet and by the electronics firm Lear Siegler, obtained broadcast rights for the Los Angeles Dodgers and San Francisco Giants baseball games. However, the service had problems contracting for

Hollywood films, and theater owners in California sponsored a successful referendum banning pay TV in that state. Subscription Television Inc. went bankrupt after five months of operation.

(10.) This section draws on George H. Shapiro, "Federal Regulation of Cable TV-History and Outlook," in Hollowell. Other sources offering summaries of cable TV's regulatory history include Willis Emmons and David Grossman, Note on Cable Television Regulation, Harvard Business School case 9-391-022, 1993; Whiteside, I, 46-60; Paul W. MacAvoy, ed., *Deregulation of Cable Television* (Washington, D.C., 1977), 5-9 and 25-33; and Kas Kalba, *Cable Meets the City: A Case Study in Technological Innovation and Community Decision-Making* (Cambridge, Mass., 1975), 52-57.

(11.) The FCC had long considered localism and diversity of programming to be priorities when shaping broadcast regulation. The Commission was particularly concerned about network domination of TV broadcasting. To check the networks' power, the FCC authorized a large number of new television stations, mostly in the UHF band (channels 14-83), which is more prone to interference than the VHF band (channels 2-13). Congress passed FCC-sponsored legislation in 1962 requiring TV set manufacturers to add UHF tuners to new sets. Having invested political capital in an integrated set of policies to promote local broadcasting (see Barnouw, II), the Commission was sympathetic to protests about the impact of cable TV.

(12.) Shapiro, 6.

(13.) Roger G. Noll, Morton J. Peck, and John J. McGowan, *Economic Aspects of Television Regulation* (Washington, D.C., 1973), 158-159. According to these Brookings Institution searchers, investment in cable plant was largely fixed, so profits were sensitive to penetration rates. Penetration was defined as the number of homes subscribing to the basic tier of cable service divided by the total number of homes "passed" by cable lines on their street. Penetration rates were determined by the quality of off-air reception (which was related to distance from station transmitters, transmitter strength, and interference from hills or large buildings); the number of over-the-air broadcast signals available locally; the number of distant signals imported; pricing; the quality of the cable operator's marketing and service efforts; and community demographics. At 75 percent penetration--a typical figure outside of the top 100 markets--a system could earn a 46 percent pretax return on the average book value of its assets. Given the fixed nature of cable plant investment, an otherwise identical system with 45 percent penetration would earn returns in the low 20 percent range.

(15.) Stuart M. DeLuca, *Television's Transformation: The Next 25 Years* (San Diego, 1980), 191-193, offered a brief history of the ideas that influenced a group he called the "media freaks," and chronicled their rising power within the FCC and the broader policy arena during the early 1970s. McLuhan was famous for observing that "the medium is the message," and speculating that electronic media would transform human societies into a "global village" so which computer technology would someday render human language obsolete. See Gary Wolf, "The Wisdom of Saint Marshall, the Holy Fool," *Wired*, Jan. 1996.

(16.) According to the NCTC&M website, several technological developments boosted the channel capacity of cable systems in the 1960s, including the use of solid state electronics in amplifiers and the introduction of set-top converters that processed signals in frequencies above the 12 channel VHF band. By the early 1970s, 35-channel systems were the industry standard, and 100-channel systems seemed feasible. Data on changes in cable system channel capacity are provided in Walter S. Baer, "Telephone and Cable Companies: Rivals or Partners in Video Distribution?" in *Video Media Competition*, ed. Eli Noam (New York, 1984). "The Vast Wasteland" was the title of a speech delivered by FCC Commissioner Newton Minow to the National Association of Broadcasters on 9 May 1961. Minow said, "There are many people in this country, and you must serve all of us. You will get no argument from me if you say that, given a choice between a Western and a symphony, more people will watch the Western. I like Westerns and private eyes too--but a steady diet for the whole country is obviously not in the public interest." Cited in Noll, Peck, and McGowan, 2.

(17.) Two-way cable allowed customers to push a button on a hand-held remote control, sending an electronic signal back to the cable system headend. With two-way technology, customers could register a preference in a referendum; authorize delivery of "pay-per-view" programming; or purchase

merchandise from home shopping services. "On-demand" services were envisioned as an extension of two-way technology: such services would deliver unique information and entertainment programming to individual households upon request, operating much as the Internet does today. James D. Scott, Bringing Premium Entertainment into the Home via Pay Cable TV, Michigan Business Reports #61 (University of Michigan Graduate School of Business Administration, 1977), 5, noted that as of June 1972, 16 cable systems had tests of two-way services underway.

(18.) The RAND Corporation prepared two reports on cable TV in 1970: The Future of Cable Television Souse Problems of Federal Regulation, RM-6199-FF, Jan. 1970; and Richard A. Posner, Cable Television: The Problem of Local Monopoly, RM-6309-FF, May 1970.

(19.) DeLuca, 193. During this period, Nixon's Justice Department also prohibited equity participation by ABC, CBS, and NBC in the production of primetime entertainment programs. Shapiro, 9-14 documented the FCC actions described in the balance of this paragraph.

(20.) Prior to the FCC'S 1972 action, franchise fees typically ranged between 1 to 6 percent of the cable operator's revenue, according to Shapiro, 10. Leonard Tow, CEO of Century Communications, said that cities and towns sometimes negotiated franchise fees as high as 35 percent, leaving the cable operator little or no profit margin (personal conversation, 25 Aug. 1995). The terms of franchise agreements tended to range between 10 and 35 years, according to Posner, 6.

(21.) Whiteside, II, gave an account of the franchising process in Milwaukee, where several cable companies offered unseemly investment opportunities to prominent citizens to secure their support. Kalba presented a case study of the franchising process in Cincinnati, Ohio, which began in 1972. He described how conflicting community interests led to shifting priorities and indecision. At the end of 1974, when Kalba finished his study, it still was unclear when Cincinnati would award its cable franchise. In the appendix to "Franchise Bidding for a Natural Monopoly," Ch. 13 of The Economic Institutions of Capitalism (New York, 1985), Oliver E. Williamson described how the terms of the Oakland franchise had to be renegotiated during the early 1970s to resolve the franchisee's economic problems. Williamson's objective was to refute proposals made by University of Chicago economists, who had suggested that with a natural monopoly like cable TV, franchises should be awarded to the party offering the largest lump sum or the lowest price to consumers. Using the Oakland case study, Williamson showed that in a turbulent environment, it was difficult to draft complete contracts that specified each party's rights and obligations under all possible contingencies. Williamson concluded that regulation, while problematic, was superior to rigid franchise bidding.

(22.) According to Scott, 4. in rural areas, the cost per mile for aerial construction of cable plant (i.e., attachment to telephone poles) was about \$3,500. In urban areas, where congested city streets slowed construction, aerial construction averaged \$10,000 per mile. Underground construction, frequently required in urban areas where utility lines were buried in conduits, could cost \$75,000 per mile.

(23.) Warburg, Paribas Becker data reprinted in Exhibits 1 and 2 of "Cable Cross-Section," Cablevision, 30 Aug. 1976.

(24.) Personal conversation with John C. Malone, TCI's CEO, 25 Sept. 1996.

(25.) The "Cable Developments" section of the National Cable Television Association website (<http://www.ncta.com/>) presents data on the number of cable systems.

(26.) In owner-managed firms, the CEO'S shareholdings are large enough to: one, align his or her personal financial interests with those of other shareholders, and two, ensure the selection of supportive directors, allowing the CEO to sponsor strategies free from concern that he or she could be terminated if the strategies were to fail. Following Randall Morck, Andrei Schleifer, and Robert W. Vishny, "Management Ownership and Market Valuation," Journal of Financial Economics 20 (1988): 293-315, who asserted that control of 20 to 30 percent of a firm's equity typically is sufficient to thwart a hostile takeover bid, CEOs were defined in this study as owner-managers when they owned 20 percent or more of the equity in a firm with a single class of stock. In firms with a "B" class of stock with superior voting rights, CEOs were defined as owner-managers when their shareholdings entitled them to at least five percent of dividends and to elect a majority of directors. Finally, the CEOs of limited partnerships were defined as

owner-managers, because they typically had a "carried interest" that entitled them to a share-- often 20 percent--of any distributions paid by the partnership, and could only be removed by a majority vote of the limited partners. In firms separating the positions of Chairman and CEO, a Chairman's equity was added to the CEO's in determining whether the firm was owner-managed, provided the Chairman's job represented his or her principal occupation. Equivalent to "dominant" firms in Rumelt's classification (Strategy, Structure and Economic Performance, [Boston, 1974]), "focused firms" were defined in this study as earning at least 70 percent of their revenues from cable system operations and cable programming services.

(27.) This paragraph is based largely on face-to-face conversations with eight senior executives of seven owner-managed focused firms, and two attorneys who both had specialized in cable transactions since the 1970s. Interviewees included Leonard Baxt, a senior partner at the law firm Dow, Lohnes & Albertson (23 Apr. 1997 and 3 June 1997); Julian Brodsky, Vice-Chairman of Comcast (10 Oct. 1997); Amos Hostetter, CEO of Continental Cablevision (3 May 1995 and 14 Feb. 1997); Glenn Jones, CEO of Jones Intercable (18 Feb. 1997); Jerry Kern, a senior attorney at the law firm Baker & Botts, and a Director of TCI (18 Feb. 1996 and 4 June 1996); Gerry Lenfest, CEO of Lenfest Group (25 Sept. 1996); John Malone, CEO of TCI (25 Sept. 1996 and 18 Feb. 1997); Fred Nichols, President and COO of TCA Cable (24 Sept. 1996); Brian Roberts, President of Comcast (13 Feb. 1997); and Leonard Tow, CEO of Century Communications (25 Aug. 1995). The NCTC&M website also provides information on the motives and methods of early cable entrepreneurs (see "Oral Histories" within the "Library" section, and "Hall of Fame," "Legends," and "Pioneers" within the "Museum" section).

(28.) Two of the MSOs on the top 50 list were owned by small newspaper companies that held no broadcasting interests. Five of the remaining seven diversified firms, including Time Inc. and Warner Communications, owned other types of media properties.

(29.) In addition to the Nieva de Figueiredo study cited below, this section is based on personal conversations (face-to-face unless noted) with fourteen senior executives of eight diversified companies that owned cable systems and with Leonard Baxt (cited above). Interviewees included Frank Batten, Chairman of Landmark Communications and TeleCable (telephone conversation 26 June 1997); Glenn Britt, EVP of Time Warner Cable (telephone conversation 5 Aug. 1997); William Burleigh, CEO of E. W. Scripps (12 Aug. 1996); Daniel Castellini, CFO of E. W. Scripps (12 Aug. 1996); Jack Fontaine, President and COO of Knight-Ridder (23 Jan. 1997); Stephen Hamblett, CEO of Providence Journal (18 Dec. 1996 and 3 Oct. 1997); Gerald Levin, CEO of Time Warner (9 Jan. 1997); Robert Miron, CEO of Newhouse Broadcasting (telephone conversation 13 Nov. 1996); Tsygve Mybren, President and COO of Providence Journal, and formerly CEO of ATC, Time Inc.'s cable subsidiary (17 Feb. 1997); Anthony Ridder, CEO of Knight-Ridder (23 Jan. 1997); James Whitson, EVP and COO of Sammons Enterprises (25 Feb. 1997); Al Ritter, CFO of TeleCable (12 Dec. 1996); Dick Roberts, CEO of TeleCable (12 Dec. 1996); Alan Spoon, President and COO of Washington Post (27 Jan. 1997). Also, Whiteside, "Cable - I," 60-69, offered an account of Time Inc.'s early vacillations in the cable business, and Connie Bruck, *Mester of the Game: Steve Ross and the Creation of Time Warner* (New York, 1994), 67-69, described factors that motivated Warner Communication's entry into cable.

(30.) In 1969, the television broadcasting industry in aggregate, earned a 20 percent pretax operating return on revenues, and had a pretax return on tangible book value of 73 percent, according to Noll, Peck, and McGowan, 16.

(31.) Elizabeth MacIver Nieva de Figueiredo, *Pressing Change: The Consolidation of the American Newspaper Industry, 1955-1985* (Ph.D. Diss., Harvard University, 1994).

(32.) Pay TV provided one source of unique programming for cable operators; ad-supported "basic cable" networks, included in the "basic tier" of broadcast channels, eventually would provide another. In addition to advertising, most of the popular basic cable networks received payments directly from the cable operator, which accounted for roughly one-third of the revenues earned by established basic cable programming services. Several ad-supported services were launched between 1976 and 1983, including Getty Oil's ESPN; USA Network, a joint venture of Paramount, MCA, and Time Inc.; and Warner-Amex's MTV and Nickelodeon. See David Waterman and Andrew A. Weiss, *Vertical Integration in Cable Television* (Cambridge, Mass., 1997), Table 3-1 for cable network launch dates.

(33.) According to Whiteside, I, 63-64, Time Inc.'s decision was a gamble: RCA charged \$6.5 million for a five year transponder lease. Furthermore, prospective affiliates would need to spend about \$100,000 for earth stations to receive signals from the satellite. However, technological advances and changes in FCC regulations soon drove the cost of earth stations down to \$20,000, affording considerable cost savings, compared to microwave distribution.

(34.) Scott, 22-33.

(35.) The franchising gold rush peaked in Boston in 1982. According to Dennis Leibowitz, cable Industry Viewpoint, Donaldson, Lufkin & Jenrette, Oct. 1982, 26, Cablevision Systems' winning bid promised basic cable service for \$2 per month. Unlike past "lowball" bids, which had included only local broadcast stations in a limited basic tier, Cablevision's \$2 tier contained 52 channels, including most of the popular ad-supported cable networks. Cablevision's bid for the Boston franchise had two other unique provisions. First, Cablevision set aside five percent of revenues to fund "public access" programming to be produced by Boston residents and not-for-profit institutions, in addition to the normal three percent franchise fee. Second, Cablevision offered all Boston residents the right to purchase \$25,000 worth of bonds paying a guaranteed interest rate of 16 percent.

(36.) This paragraph is based on Whiteside, I, 70, and III, 101, except as noted.

(37.) In 1979, American Express became Warner's partner in the cable business, contributing \$175 million in capital for 50 percent of the business, according to Bruck, 217-222.

(38.) MDS employed microwave frequencies to deliver a single channel of programming. Microwave reception required a clear line of sight between the transmitter and the subscriber's rooftop antenna, so MDS faced handicaps where the terrain was hilly. In 1983, the MDS industry had only 600,000 customers nationwide. However, analysts expected that the modest threat to cable from MDS could escalate if the FCC approved MDS operators' requests to employ additional frequencies, permitting them to deliver several channels of programming. See John Cooney, "Cable's Costly Trip to the Big Cities," *Fortune*, 18 Apr. 1983, 87.

(39.) SMATV used a satellite dish on top of an apartment building or hotel to deliver roughly the same package of satellite-delivered programming services as a cable operator. Such dishes cost about \$5,000 in the early 1980s, so SMATV was cost effective only for large complexes. In 1983, the SMATV industry served several hundred thousand homes, and was growing rapidly. See Cooney, 87.

(40.) Videocassette recorders were introduced in the United States by Sony in 1975, according to Harold Vogel, *Entertainment Industry Economics* (Cambridge, U.K., 1990, 2nd ed.), 82-83; they were in 9 million American homes by 1983 (Richard Bilotti, Jr., Drew Hanson, Richard J. MacDonald, *The Cable Television Industry; New Technologies, New Opportunities and New Competition*, vol. 1, Industry Review and Outlook, Wasserstein Perella Securities, Inc., March 8, 1993, exhibit 10). As with over-the-air broadcasting, cable's economic relationship with the VCR was a complex blend of substitute and complement. Since VCRs allowed their owners to "time-shift" programming and view it at their convenience, VCRs served as a complement to cable's wide range of program offerings. But the rental of videocassettes also posed a substitution threat to cable's high margin pay TV business.

(41.) Victoria Gits, "Cablevision Interviews: Paul Bortz," in the PLUS supplement to *Cablevision*, 14 June 1982, 5.

(42.) Cooney, 85.

(43.) Leibowitz, 54-55, and Gits, 6. According to Leibowitz, only one STV operator earned high profit margins: Oak Industries' station in Los Angeles, which had 400,000 subscribers. Other STV operators broke even or lost money, in part because the FCC had licensed two or more STV stations in several cities.

(44.) This section is based on Leibowitz, 63-65.

(45.) Since TelePrompTer and Westinghouse both were agent-led diversified companies, their transaction

had no impact on the market shares cited above. Purchase dates and prices are from an unpublished 1996 Lehman Brothers document titled, "Selected Cable System Sales."

(46.) The cable network VH-1 regularly aired music videos from the 1980s under the banner, "The Big 80s." Promotions for these videos featured images of Wall Street deal-makers and Reagan Administration figures. The subtitle seems apt for the cable industry in this era, when radical deregulation and junk bond financing helped nearly triple the value of cable systems.

(47.) Except as noted, this section is drawn from Emmons and Grossman, 9-16.

(48.) See, for example, Cable Television: Promise versus Regulatory Performance, by the staff of the Subcommittee on Communications of the House Committee on Interstate and Foreign Commerce, Jan. 1976, reprinted in Cablevision, 29 Mar. 1976, 60- 105.

(49.) Williamson, 362-363, points out that it was politically risky for a city to terminate or transfer a franchise. Such action might reflect poorly on the bureaucrats who had made the award in the first place; was bound to involve protracted and expensive litigation; and might disrupt a service valued by city residents.

(50.) CPI data are from Exhibit 2 in Emmons and Grossman, 19.

(51.) Raymond L. Katz, Cable Television in Transition: A Tale of Two Wires, Lehman Brothers, 22 Sept. 1993, 6.

(52.) Cable operators focused on operating cash flow (earnings before interest, taxes, depreciation and amortization, or EBITDA) rather than operating income (EBIT), because the opportunity to "write-up" the cost basis of assets (to current replacement value) acquired through an acquisition made firm-to-firm comparisons of depreciation levels difficult. Related to this point, cable operators' rates of return on assets typically were reduced by the good-will added to their balance sheets through acquisitions. Hence, as the industry consolidated, operating cash flow as a percentage of total assets declined steadily.

(53.) These share changes were not skewed by the moves of a few large companies. Of the 20 owner-managed focused firms on the 1983 top 50 List, nine firms more than doubled their subscribers between 1984 and 1989 (45 percent). By contrast, of the 27 diversified firms-both owner-managed and agent-led--only three doubled their subscribers (11 percent). Among the owner-managed focused firms, 20 percent exited the cable industry between 1984 and 1989, compared to 37 percent for the owner-managed and agent-led diversified firms. The fact that diversified firms were less likely to expand aggressively than owner-managed focused firms between 1984 and 1989 represented a marked departure in behavior, compared to the 1975-1983 period. Seventeen of the 30 diversified firms (57 percent) on the 1975 list of the top 50 MSOs had doubled their subscribers from 1975 to 1983; five had exited (29 percent). Among the seventeen owner-managed focused firms on the 1975 top 50 list, seven had doubled their subscribers (41 percent), and two had exited (29 percent).

(54) This section is based on the personal conversations cited in footnotes 27 and 29, and on numerous articles from the trade publication Cablevision (e.g., "Wheeling and Dealing in the Hot Cable Market," 3 Feb. 1986, 38-46; "Acquisition of Cable Systems Remains Growth Focus for Cable Operators," 24 March, 1986, 37-40; "Lenders Look at Driving Forces in the Acquisition Market," 1 Sept. 1986, 52-58; "Valuing the Cable Industry: Many Factors, Many Views," 15 Sept. 1986, 66-71). Quotes are from the conversations cited above.

(55.) A simple illustration shows why most cable acquisitions were dilutive. Say a company acquired cable assets for cash, paying times their operating cash flow of \$180 per subscriber, or \$2,000 per subscriber (a typical purchase price during the late 1980s). After writing up the book value of the assets to their replacement cost of \$1,000 per subscriber, depreciation (straight-line over 15 years) would be \$67 per subscriber. The remaining \$1,000 would be amortized over 40 years as goodwill, resulting in amortization charges of \$25 per subscriber. Assuming 100 percent debt financing and a 10 percent interest rate, interest expenses would be \$200 per subscriber. Thus, the acquired assets would generate a pre-tax loss of \$112 per subscriber, even though the acquisition might well have had a positive net present value, based on projected cash flows. According to interviewees, "pure-play" cable companies

were not subject to downward pressure on their stock prices due to EPS dilution, because they almost never had positive book earnings to begin with. Instead, Wall Street analysts valued pure-play cable companies on their operating cash flow.

(56.) Jack Howard, who ran Scripps Howard's Broadcasting Division, was especially vocal in his challenge, and as a member of one of the company's founding families was well placed to register his disapproval with trustees.

(57.) Fortune magazine reported ("The Inside Story of Time Warner," 20 Nov. 1989): "Temple-Inland was a voracious consumer of capital, as was cable TV, and the two branches competed for the company's cash."

(58.) Personal conversation with Leonard Tow, 25 Aug. 1995.

(59.) Vogel, 186, noted that cable system construction costs, which averaged \$7,000 per mile from 1975 through 1978, escalated rapidly in the late 1970s, and averaged \$16,000 per mile from 1979 through 1983.

(60.) In *Life After Television: The Coming Transformation Of Media And American Life* (Knoxville, 1990), George Gilder concluded that the convergence of television and computers would promote grass-roots democracy. He argued that convergence only would be realized if the government encourages local telephone companies to rapidly deploy high bandwidth fiber optic technology. Gilder saw cable as a barrier to this outcome, and stated, "The cable industry, beset on the one side by the power of fiber and on the other by the growing efficiency of direct-broadcast satellite, will survive only if the politicians continue to protect it" (78).

(61.) This discussion of the impact of HLTs is based on Burton C. Hurlock and William A. Sahlman, Star Cablevision Group, Harvard Business School case 9-293-037. The quote is from page 1 of the case.

(62.) According to Leland L. Johnson, *Toward Competition in Cable Television* (Cambridge, Mass., 1994), 6-11, basic service was defined in the Act in a manner that included popular ad-supported cable networks, such as ESPN, CNN and MTV. This provision of the Act came as a surprise to the industry: it had expected regulation only for a limited tier containing local broadcast channels.

(63.) Waterman and Weiss, Ch. 3, provided data on programming network ownership. They noted that MSOs had acquired their programming interests by launching programming ventures themselves, as Time, Inc., had done with HBO; securing equity from startup networks like QVC and Discovery Channel, when those networks were launched in a channel capacity constrained environment; and collectively bailing out Turner Broadcasting in the mid 1980s when that company overextended its balance sheet in acquiring MGM's film library.

(64.) Johnson, 113.

(65.) Digital compression involved three steps. First, a digital signal was processed using algorithms that discarded duplicated information in successive intervals of the signal. Second, the compressed signal was transmitted in digital form, allowing the delivery of as many as ten digital channels over the bandwidth normally required for a single analog channel. Finally, the digital signal was decompressed (essentially, running the algorithms in reverse), and the digital signal was converted to analog format for playback.

(66.) According to Johnson, 19, the replacement cost for cable plant during the early 1990s was about \$700 per basic subscriber, and many operators had purchased established franchises for values as high as \$2,500 per subscriber. DBS infrastructure costs per subscriber were sensitive to penetration rates, due to the fixed costs of satellites. According to Johnson, 122-125, assuming 5 million customers, capital expenditures for satellites would equal \$200 per subscriber. With mass production, reception equipment was expected to decline in cost to \$300 to \$400 per home.

(67.) According to Katz, 35, Hughes sold five transponders for \$120 million to United States Satellite Broadcasting, owned by Hubbard Broadcasting, a family-run broadcasting group. Hughes also sold exclusive marketing rights in rural areas for \$250 million to the National Rural Telecommunications

Cooperative, which represented a group of utilities.

(68.) See Bilotti, Hanson, and MacDonald, 37, and Katz, 37-38 for pre-launch projections.

(69.) This section on IBN technology, regulation, and economics is based on Stuart N. Brotman, ed., Telephone Company and Cable Television Competition: Key Technical, Economic, Legal and Policy Issues (Boston, 1990); John Hagel and Thomas Eisenmann, "Navigating the Multimedia Landscape," The McKinsey Quarterly (1994): 3; Katz; Johnson; and Richard P. Simon, Barry A. Kaplan, et al., "Communicopia: A Digital Communication Bounty," Coldman Sachs Investment Research, July 1992.

(70.) The most ambitious cable trials were Time Warner's Orlando project; TCI's movies-on-demand experiment in Denver with US WEST and AT&T; and Viacom and AT&T's Castro Valley, California project. For a list of trials, see Peter Krasilovsky, "Interactive Television Testbeds," Benton Foundation, Communications Policy Working Paper #7, 1993.

(71.) Lucien Rhodes, "The Race for More Bandwidth," Wired, Jan. 1996.

(72.) The provisions of the 1996 Act and its implications for cable operators are described in Chris Nolan, "A Box of Chocolates," Cablevision, 14 Mar. 1996, 18-27.

(73.) Except as noted, the source for data on joint ventures, proposed acquisitions, and upgrade plans cited in this section is the "Cable History" section of the NCTC&M website.

(74.) Personal conversation, 25 Sept. 1996. See also David Kline's Wired magazine interviews with Malone and Bell Atlantic CEO Ray Smith, "Infobahn Warrior," July 1994 and "Align and Conquer," Feb. 1995, respectively.

(75.) Only Ameritech and Bell South were proceeding aggressively with overbuilds. The NCTC&M website notes that by 1996, Ameritech had permission to build cable systems in 27 municipalities, and was offering service in the Chicago, Cleveland, Columbus, and Detroit areas. Bell South had secured permission to build in 11 markets, and was offering cable service in the Atlanta area.

(76.) Raymond L. Katz and Robert C. Routh, Cable Calculus, Bear Stearns Equity Research, 4 Apr. 1996, 62-66.

(77.) The five largest MSOs, TCI, Time Warner, Continental, Comcast, and Cox, completed acquisitions in 1994 and 1995 that equaled 21, 34, 33, 39, and 64 percent, respectively, of their total subscribers at the beginning of 1994. The source for data on acquisitions cited in this paragraph was an unpublished 1996 Lehman Brothers document, "Cable Television Systems Sold."

(78.) In addition to the personal conversations cited in footnotes 27 and 29 with executives at Comcast, Continental, Time Warner, and TCI--four of the five largest MSOs, this section is based on numerous published interviews and accounts of the companies' strategies, including, for Comcast, "Interview with Brian Roberts," Broadcasting and Cable, 2 Aug. 1993, 28-32, and Geraldine Fabrikant, "At Comcast, a Father and Son Head Off in All Directions," New York Times, 3 July 1994; for Continental, Michael Oneal, "Unfamous Amos No Longer," Business Week, 14 Nov. 1994, 95 and "Interview with Amos Hostetter," Broadcasting and Cable, 8 Apr. 1995, 32-40; for Time Warner, Laura Landro and Johnnie L. Roberts, "Time Warner's Levin Tries to Rise Above the Takeover Talk," Wall Street Journal, 25 Mar. 1994, 1, Robert Lenzner and Esther Wachs Book, "The Testing of Gerald Levin," Forbes, 27 Feb. 1995, 88-94, and Connie Bruck, "Jerry's Deal," The New Yorker, 19 Feb. 1996, 55-69; and for TCI, Johnnie L. Roberts and Laura Landro, "King of Cable," Wall Street Journal, 27 Sept. 1993, Ken Auletta, "John Malone: Flying Solo," The New Yorker, 7 Feb. 1994, 55-67, and "Interview with John Malone," Broadcasting and Cable, 28 Nov. 1994, 34-49.

(79.) In addition to the personal conversations cited in footnotes 27 and 29, this section is based on face-to-face conversations with Leo Hindery, Jr., CEO of InterMedia Partners (25 Sept. 1996), and Jeffrey Marcus, CEO of Marcus Cable (25 Feb. 1997), and on numerous published articles on companies' strategies, including, for Landmark/TeleCable, "A Big Cable Outfit Finds it Just Isn't Big Enough," The Virginia Pilot, 14 Aug. 1994, D1; for Marcus, Tom Kerver, "Big Man in Big D," Cablevision, 8 Apr. 1995,

57-67; and for Providence Journal, "Interview with Trygve Myhren," Broadcasting and Cable, 14 Nov. 1994, 38-46. Except as noted, quotes in this section are from the personal conversations cited above.

(80.) Personal conversation with Leonard Tow, 25 Aug. 1995.

(81.) Thomas Eisenmann, "Organizational Form and Risk Taking in the U.S. Cable Television Industry," Harvard Business School Working Paper; 1998: #99-004. The author's unpublished doctoral dissertation, Structure and Strategy: Explaining Consolidation Patterns in the U.S. Cable Television industry, Harvard Business School, 1997, provides additional interview data and analysis. of the. factors motivating expansion and exit decisions for a sample of eighteen MSOs.

(82.) Personal conversation with Alan Spoon, 27 Jan. 1997.

(83.) Personal conversation with Stephen Hamblett, 18 Dec. 1996 and 3 Oct. 1997.

(84.) Personal conversation with Jeffrey Marcus, 25 Feb. 1997.

(85.) Personal conversations with Gerry Lenfest, 25 Sept. 1996, and Brian Roberts, 13 Feb. 1997.

(86.) Bruck, 256. Nicholas served as co-CEO with Steve Ross.

(87.) "I'm Perfectly Willing to be Run Out of Town," Business Week, 9 Oct. 1995, 38.

(88.) Frank Knight, Risk, Uncertainty and Profit (New York, 1921), 361.

(89.) Chandler, 10.

(90.) Leibowitz, 20, estimated that in 1982, only ten percent of U.S. households were in communities that had not yet awarded a cable franchise.

(91.) Richard D'Aveni, Hypercompetition: Managing the Dynamics of Strategic Maneuvering (New York, 1994).

(92.) See L. G. Thomas, "The Two Faces of Competition: Dynamic Resourcefulness and the Hypercompetition Shift," Organization Science 7 (1997): 221-242.

(93.) Clifford G. Holderness, Randall S. Kroszner, and Dennis T. Sheehan, "Were the Good Old Days That Good? Changes in Managerial Equity Ownership Since the Great Depression," Journal of Finance, forthcoming.

(94.) See, for example, Thomas K. McGraw, ed., Creating Modern Capitalism: How Entrepreneurs, Companies, and Countries Triumphed in Three Industrial Revolutions (Cambridge, Mass., 1998).

(95.) Alfred D. Chandler, Jr., Scale and Scope: The Dynamics of Industrial Capitalism (Cambridge, Mass., 1990), 597.

Number of Firms on Top 50 List by
Organization Type and Year

Organization Type	1975	1983	1989	1995
Owner-Managed Focused	17	20	23	30
Owner-Managed Diversified	17	13	12	14
Agent-Led Focused	3	3	1	0
Agent-Led Diversified	13	14	14	6

Share of Subscribers and Number of Firms among Top 50 MSOs by Organization Type, 1975--1995. Source: For sources for lists of fifty largest MSOs, see Exhibit 2; for public companies, ownership data was from proxy statements filed with the SEC; for private companies, ownership data was from annual editions of Warren Publishing, TV & Cable Factbook; diversification status for public companies was from 10K statements filed with the SEC; diversification status for private companies was from various annual editions of Dons Marketing Service, Million Dollar Directory.

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