Preliminary

Financing of Publicly-Traded "New Economy" Firms in the United States

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Abstract

This paper provides information on recent trends in corporate financing of investment from financial markets, internally generated funds, and financial institutions for four industries identified as "new economy": (1) telecommunications service providers, (2) telecommunications equipment manufacturers, (3) internet-related firms, and (4) computer hardware manufacturers, software developers, semiconductor manufacturers. These particular hi-tech sectors are split between investment-grade and speculative-grade publicly-traded firms and compared to the U.S. nonfinancial corporate business sector as a whole. The paper also describes current developments in the risk profile of these publicly-traded U.S. "new economy" firms.

1. Introduction

The second half of the 1990s in the United States was characterized by strong growth in output associated with a sharp pickup in productivity. This development is believed to have been influenced by major improvements in information and telecommunications technology that spread through all sectors of the U.S. economy starting with producers and providers of this technology (new economy firms) to users (old economy firms).

Financing likely has played an important role in the development and implementation of new technology. Some sources of financing are well suited for the considerable risk that accompanies the desire to be on the forefront of technological development, while other sources may be better suited for more established producers in the tech sector and for users of new technology.

Pinpointing the amount of investment in information and communications equipment by old economy firms is extremely difficult, let alone identifying the type of financing for the new technology. However, information on investment outlays and total debt financing of new economy firms is available from company reports filed with the Securities and Exchange Commission and compiled by Compustat.

This paper examines broad financing patterns of firms in the following industries: telecom service providers, telecom equipment manufacturers, computer hardware and software producers (including semiconductor and high-tech equipment manufacturers), and a collection of Internet-related firms. Compustat data allow us to identify total borrowing, which can be combined with other data sources on net bond finance to separate out "other net borrowing". We believe bank loans, particularly for speculative-grade new economy firms, to be the dominant source of funding in the "other net borrowing" category. Certain other available balance sheet and income items, such as liquid assets and cash flow, are helpful for analyzing financing patterns. Capital expenditures on Compustat, however, exclude outlays on software. This treatment differs from capital expenditures reported in the U.S. National Income and Product Accounts (NIPA), which includes software expenditures. As a result, new economy firms' capital spending from Compustat is less comprehensive than aggregate spending by nonfinancial corporations in NIPA.

As shown on table 1, new economy firms in the United States have raised an increasing amount of funds over the past few years, rising from $20 billion in 1995 to a peak of $102 billion in the first half of 2000 (line 1). Even when scaled by total net funds raised by all nonfinancial corporations, the share that went to new economy firms rose from 11 percent to 18 percent in 2000:H1. Much of the increase in funding to new economy firms over the past five years has come from the bond market (line 3). In the first half of 2000, net bond issuance of new economy firms totaled almost 40 percent of total net bond issuance in the nonfinancial corporate business sector, up from only 12 percent in 1995. This share fell to 29 percent in the second half as investor sentiment regarding new economy firms cooled. Other borrowing (line 4), which we believe to be primarily bank loans, was a notably smaller source of funding to new economy firms. The bulk of such loans appears to have been lent to telecom service providers. This

finding is consistent with concerns registered by banks regarding the extent of their exposure to the telecom sector over this period.[1]

At least through the first half of 2000, new economy firms, especially speculative-grade firms, appeared to have little difficulty accessing the public equity and bond markets in the United States. This phenomenon was driven largely by investors' optimism about the growth prospects of these firms, which turned sour in the second half of 2000 amid disappointing news on the earnings front. At the same time, banks increased their spreads on loans to speculative-grade firms and reported an ongoing tightening of underwriting standards for business loans.[2]

Even without software purchases, capital spending by new economy firms has been a notable part of the growth in the U.S. economy over the past five years, rising from $83 billion in 1995 to $177 in 2000 for the year as a whole. As a proportion of total capital expenditures by nonfinancial corporations, spending by new economy firms accounted for an 18 percent share in 2000, up from 13 percent in 1995. More importantly, perhaps, the tremendous growth in capital spending by new economy firms represents 23 percent of the increase in total capital spending since 1995.

The remainder of the paper is organized as follows. The financing trends and most recent financial conditions of each of the four classifications of new economy firms are discussed in a separate section. Within the telecom service providers and the computer etc. groupings, we have split the firms by credit rating. We believe that investment-grade or established firms fund themselves differently than their speculative-grade or startup counterparts. Each section provides a table that shows external sources of funding, as well as, some other items of interest. A detailed description of the sources of data and adjustments for each line item on the table is provided in Appendix A.

2. Telecommunications Service Providers[3]

2.1 Overview

Conditions in the telecommunications service provider industry have been changing rapidly in the past few years. Deregulation, the push to enter new markets, and competing technologies has fostered an environment of intense competition and the notion that only the biggest companies with the most widely-used and advanced technology will be left standing at the end. Telecom service providers, both established and newcomers, reacted by ramping up their capital expenditures and creating a merger mania that pushed giants as well as smaller firms to join forces.

Telecom service providers have been able to fund a large part of these activities by borrowing heavily in the bond markets and from financial institutions (mainly banks). However, failure of the expected spectacular growth in earnings to materialize has pushed several large speculative-grade telecom service providers into bankruptcy. As a result, investors have understandably

[1] Loan Pricing Corporation's Sixth Annual Corporate Finance Conference; September 21, 2000
[2] Pro rata leverage loan spread from Loan Pricing Corporation; *Gold Sheets.*
[3] Consists of firms with SIC codes of 4812 through 4822 and 4899 on Compustat.

become more cautious in lending to lower-rated firms. Investment-grade telecom service providers, on the other hand, appear to have been able to continue to raise funds.

2.2 Investment-grade

As shown on table 3, investment-grade telecom service providers have raised a substantial amount of funds in the past couple years (line 1). With the exception of the first half of 2000, the bulk of the funding has been provided by the bond market.[4] Net bond issuance (line 3) has averaged around $21 billion in the past three years—roughly 10 percent of total net bond issuance in the U.S. nonfinancial corporate business sector. Similar to investment-grade, non-high-tech firms, investment-grade telecom service providers do not raise funds, on net, in the public equity markets (line 2). They return part of their positive operating cash flow back to shareholders through aggressive share repurchase programs.[5] Investment-grade telecomm service providers also appear to have borrowed from financial institutions, which based on anecdotal reports we assume to be mainly banks (line 4). However, these figures should be interpreted a bit cautiously; as of yet, we have not fully separated commercial paper borrowing from other net borrowing to obtain a cleaner estimate of the extent of bank lending to these firms.

Much of the borrowing likely has financed capital spending on network buildouts and upgrades. Capital expenditures by investment-grade telecom service providers (line 5) surged to $82 billion in 2000; this is up 29 percent from 1999 and far outpaced the12 percent increase for the nonfinancial corporate business sector as a whole. Indeed, capital spending by investment-grade telecom service providers accounted for 18 percent of the increase in total capital expenditures in the nonfinancial corporate business sector in 2000.

One question is whether firms can maintain this pace of investment, particularly as they race to incorporate the next generation of technology, in the face of weakened earnings prospects and already heavy debt loads. As shown on the upper left panel of exhibit 1, investment-grade telecom service providers—facing fierce competition in the long distance telephone markets—saw reported earnings plummet in the second half of 2000 from a year earlier. And, based on analysts expectations from IBES, earnings are forecast to contract around 20 percent in the first half of 2001 from year ago levels. Although these firms hold little in the way of cash and cash equivalents—about $6 billion at the end of 2000—they can cut dividends and/or reduce share repurchases to cover shortfalls in earnings.

Based on asset valuations at the end of last year, these investment-grade telecom service providers do not appear to have an elevated aggregate leverage ratio. The ratio of debt to assets (upper right panel, exhibit 1) has hovered around 31 percent for the past several years. However,

[4] About two-thirds of the increase in other net borrowing in 2000:H1 is due to AT&T ramping up their commercial paper program to pay for their cash purchase of MediaOne.

[5] The net public equity figures shown here also include cash payments to target shareholders in mergers. Most of the mergers that have involved these particular investment-grade firms have been stock swaps. However, a notable few were sizable, such as the $3.2 billion cash payment in the 1995 AT&T/LIN Broadcasting merger, the $9 billion cash payment in the 1998 WorldCom/MCI merger, and the $25.5 billion cash payment in the AT&T/MediaOne deal in 2000:H1.

this ratio could rise quickly in the near future. Many of these investment-grade telecom service providers have equity investments or stakes in telecom and internet startups that could sour, forcing write-downs of assets and a rise in the debt-to-asset ratio. Indeed, this pattern may have already started. In the last quarter of 2000, the debt-to-asset ratio rose a full percentage point as debt continued to expand rapidly, but the value of assets remained steady despite strong net capital spending.

The aggregate debt burden of investment-grade telecom service providers (bottom left panel, exhibit 3)—measured as gross interest payments relative to operating cash flow—has also risen over the past several years, averaging 14-1/2 percent for 2000 as a whole, but still remains well below the peak reached in 1991. Certainly, if the dismal earnings forecasts for these firms are realized, debt burdens could quickly become onerous.

The market value of equity for these firms took a beating in 2000 (bottom right panel, exhibit 1), dropping about 20 percent, almost twice the decline in the U.S. based Wilshire 5000 index. Since equity shares had been heavily used as currency for merger and acquisitions, announcements of new takeovers have slowed markedly since the third quarter of 2000, likely reflecting target shareholders reluctance to accept equity as payment.

2.3 Speculative-grade[6]

Until the second half of 2000, speculative-grade telecom service providers had benefited from investors' strong demand for their debt and equity securities. As shown on table 4, these lower-rated firms raised nearly $45 billion at an annual rate, on net, in the first half of 2000, up from only $4 billion in 1995. The composition of net funding during this time was tilted a bit more towards bond financing (line 3), but the public equity markets and banks at times contributed substantial funds as well. Net bond issuance of speculative-grade telecom service providers rose from $2 billion in 1995 to over $18 billion in the first half of 2000. Also, while other speculative-grade firms struggled to obtain funding in the bond market after the Russian default in 1998, issues by speculative-grade telecom service providers were well-received.

Other net borrowing (line 4), which we believe is more representative of bank lending because these lower-rated firms would not have commercial paper programs, was also a significant source funding. Banks and, to a lesser extent, finance companies appear to have lent speculative-grade telecom service providers almost $10 billion at an annual rate in the first half of 2000, up from only $2 billion in 1995.

In contrast to their investment-grade counterparts, speculative-grade telecom firms have raised funds, on net, in the public equity market (line 2). In 1999 and the first half of 2000, these firms took advantage of the investor enthusiasm for initial public offerings and the opportunity to raise additional funds at sky high equity prices, pulling in $14 billion on average, well up from only $664 million in 1995.

However, as defaults of speculative-grade telecom service providers, such as Iridium and ICG Communications, began to mount last year, investor sentiment turned cautious. As shown on

[6] Firms with an S&P senior debt rating BB+ or below. Also, includes firms with unrated debt or no debt.

table 2, telecom service providers accounted for 20 percent of total defaulted debt in 2000 (line 2). While this figure seems high, telecom bonds make up nearly a quarter of total high-yield bonds outstanding.

Spreads on high-yield telecom bonds (upper left panel of exhibit 2) soared in 2000:H2, reaching 1200 basis points in November 2000, up 687 basis points from a year earlier. Spreads had temporarily come off these highs early this year, but have since moved up into record high territory again, perhaps reflecting the spate of defaults in telecom service providers in March and the prospect of even more down the road. In particular, RSL Communications defaulted on $1.6 billion in debt in March and several others, such as WinStar and Teligent, are expected to miss payments on upcoming obligations.[7]

Given wide spreads, speculative-grade service providers raised only $7 billion, on net, in bond financing in 2000:H2, down 60 percent from the first half of the year. Equity financing also dried up as share prices plummeted. As shown on the upper right panel of exhibit 2, the market value of speculative-grade telecom service providers shrunk 50 percent in 2000. Anecdotal reports indicate that banks were reluctant to increase their exposure to these firms in the second half of 2000, and the contraction in other net borrowing (table 4, line 4) appears consistent with these stories.

The financial picture has turned quite negative for speculative-grade telecom service providers. Because the vast majority of these firms have negative reported earnings (exhibit 2, bottom left panel), many firms had funded operating losses though borrowing and equity infusions. They also were able to accumulate significant liquid assets, at least through the first half of 2000 (lines 6 and 8, table 3). However, as external funding all but disappeared in the second half of 2000, firms had to drawdown liquid assets to maintain capital spending and fund operating losses. With substantial losses expected over the first half of 2001, and investors more selective and concerned about credit quality, these firms will likely have to continue to liquidate assets. In a worst case scenario, they could burn through the remainder of their cash in about two quarters at the current pace of spending and no change in capital market conditions.

Speculative-grade telecom service providers have made significant capital expenditures, spending around $33 billion in 2000, up 50 percent from 1999. Although these firms were only 3 percent of total fixed investment spending in the U.S. nonfinancial corporate sector last year, they accounted for 11 percent of the increase in total capital spending from 1999 to 2000.

The price of building out networks with state of the art technology has been steep. High levels of debt are putting upward pressure on gross interest expense (exhibit 2, bottom right panel). We cannot calculate a debt burden for these firms because their operating cash flows, which add back depreciation charges, are negative in the aggregate. Moreover, interest expenses are expected to increase further as a glut of zero coupon bonds issued in 1997 and 1999 begin to become cash-pay bonds in 2003.[8] If the capital markets and financial institutions continue to

[7] RSL Communications is domiciled in Bermuda and is not included in the default figures shown on table 2, but its default no doubt affected yield spreads shown in the top left panel of exhibit 2.
[8] Moody's Credit Perspecives: March 5, 2001.

downgrade their assessments of these firms' future prospects, many speculative-grade telecom service providers could face bankruptcy.

3. Telecommunications Equipment Manufacturers[9]

Telecommunications equipment production in the United States is dominated by two huge players: Lucent Technologies and Motorola. Their combined assets make up 60 percent of the industry's assets according to Compustat.[10] Because Lucent appears to be trading as a defacto speculative-grade firm in investors' eyes, we did not believe it would be useful to split the industry by credit rating.

In the second half of 2000, when other new economy sectors saw external sources of funding wane, telecom equipment manufacturers were able to raise funds in both the equity and bond markets at the same, if not increased, pace of the first half of the year (lines 2 and 3). Certainly, some of this development can be attributed to analysts who indicated that they believed that the troubles at Lucent were not indicative of the overall health of the telecom equipment industry. Telecom equipment manufacturers used the funding opportunity to build up their coffers, accumulating cash at an annual rate of $10 billion in the second half (line 6).

As of last year, the aggregate financial position of telecom equipment manufacturers seemed to be in relatively good shape, even with Lucent's troubles. As shown on the top left panel of exhibit 3, the ratio of debt to assets inched up in 2000, despite Motorola's write-off of their investment in Iridium. Gross interest payments to cash flow moved up somewhat for the year as a whole (upper right panel, exhibit 3), as relatively strong earnings in the first half outweighed weak earnings in the second half (exhibit 3, bottom left panel). The market value of equity also held up somewhat better than for other new economy segments, falling only 11 percent, as capital losses in Lucent and Motorola were offset somewhat by capital gains in other firms.

However, there may be a bit of false comfort in this picture. More recent developments suggest that conditions in the telecom equipment industry have deteriorated. Motorola recently reported a loss for the first quarter of 2001, its first in fifteen years, and warned that the second quarter could be worse. Corvis Corp, which floated a $1.1 billion stock offering in July of last year, was reported to be in trouble. Also, Nortel Networks, which is not included in these figures because it is headquartered in Canada, warned of lower sales and earnings growth for the remainder of the year.

Defaults on vendor financing extended to startup telecom service providers has put some downward pressure on earnings of telecom equipment manufacturers. Aggregate figures on the amount of equipment and services that have been "lent out" are not available. However, based on its year-end financial statement, Lucent, reportedly one of the biggest lenders, could have at most about $5.5 billion in vendor financing commitments, about of which $2 billion has been lent out. Over the past nine months ending in June 2001, Lucent wrote off about $700 million in vendor financing.

[9] Consists of firms with SIC codes from 3661 through 3669 on Compustat.
[10] Cisco Systems is coded as a computer hardware manufacturer in Compustat.

4. Computers, Semiconductors, and Other High-tech Electronics[11]

4.1 Investment-grade

In this study, we defined investment-grade computer and semiconductor firms a bit broader than simply using a debt rating issued by a rating agency. Some large computer companies that have been in the industry for a while have little or no debt, substantial assets and significant positive cash flows. Not only would such firms have an investment-grade rating were they to issue debt, their financing patterns are very different from startups. We chose to keep these firms out of the speculative-grade grouping where they would otherwise fall if we sorted based on debt rating alone. The investment-grade criterion we used for computer and semiconductor firms with unrated or no debt was a minimum of $2 billion in assets, less than $75 million in debt, and positive cash flow. This moved firms such as Cisco Systems, DST Systems, Gateway, Intuit, JDS Uniphase, Novell, and Sun Microsystems into the investment-grade category.

As shown on Table 6, investment-grade computer and semiconductor firms do not raise funds, on net, (line 1) in the capital markets or from financial institutions. In fact, as their earnings have grown (exhibit 4, upper left panel), they have been able to return substantial funds back to shareholders through share repurchase programs. Few of these investment-grade firms have issued equity in the public market in the past five years. As a result, the amount of equity that they have retired, on net (line 2), has grown from $7 billion in 1995 to $39 billion in the first half of 2000. Although the data are preliminary, share repurchases appear to have fallen off in the second half of the year, as firms likely sought to conserve cash in the face of the tech spending slowdown in the U.S.

Investment-grade computer and semiconductor firms have increasingly tapped the bond market for funds over the past five years. Net bond issuance (line 3) has risen from $2 billion in 1995 to close to $13 billion in the second half of 2000. Some of these funds have likely been used to pay down shorter-term debt, such as commercial paper and bank loans (line 4). Despite the relatively rapid increase in the level of debt (line 7), the aggregate debt-to-asset ratio for this industry has declined steadily since 1992 (exhibit 4, upper right panel). The debt burden (bottom left panel) has also fallen in part due to firms, such as Microsoft and Cisco that have no debt and rising cash flows. At the end of 2000, the market value of equity of investment-grade computer and semiconductor firms was essentially unchanged from its 1999 year-end level. However, as shown in the inset, market value continued to rise in the first half of 2000 and then retraced all of the gain in the second half.

Until the second half of 2000, capital spending by investment-grade computer and semiconductor firms had held fairly steady at around a $21 billion pace since 1997 (table 6, line 5). About half of the jump in spending in the second half of 2000 was due to Intel, which aggressively expanded its manufacturing facilities. Cisco also stepped up its capital spending.

[11] Consists of firms with SIC codes from 3570 through 3577 and 3670 through 3679 and 7370 through 7375 on Compustat.

4.2 Speculative-grade

Over the past five years, speculative-grade computer and semiconductor firms have raised a rapidly growing amount of funds, on net, increasing from $8 billion in 1995 to $59 billion in the first half of 2000 (table 7, line 1). Much of the funding has been weighted toward public equity financing (line 2), which is likely better suited to the higher risk of these firms. Speculative-grade computer and semiconductor firms received an eyepopping $44 billion (annual rate) in net public equity in the first half of 2000, before dropping to $13 billion in the second half (most of which was floated in the third quarter).

One surprising result is the increased role of bond financing of speculative-grade computer and semiconductor firms (line 3). Net bond issuance rose from only $713 million in 1995 to $13 billion in the first of half of 2000, and although falling to $5 billion in the second half of the year, it was still larger than in both 1998 and 1999. Also, bond financing appears to have displaced bank loans (line 4) to some extent.

Similar to their investment-grade counterparts, speculative-grade computer and semiconductor firms also significantly raised their capital spending in 2000, up to around $20 billion from $15 billion in the previous four years.

Financial conditions of speculative-grade computer and semiconductor firms were a bit precarious at the end of 2000, but analysts are expecting some improvement. As shown in the upper left panel of exhibit 5, earnings had fallen sharply over the second half of 2000, but are expected to turn around somewhat in the first half of this year. Despite higher debt levels in 2000, the debt to asset ratio remained steady at about 16 percent in 2000 (upper right panel). Nevertheless, the hit to earnings in the second half of 2000, pushed the ratio of gross interest payment to operating cash flow to over 50 percent in 2000 (bottom left panel). Meanwhile, the market value of equity (bottom right panel) fell 25 percent from year-end 1999 to year-end 2000.

5. Sample of Internet-related Firms

The internet sector epitomizes the optimism investors had about new technology generating rapid gains in productivity. Both firms and households would increase their efficiency from the ability to manage their purchasing, inventories, and finances at the click of a button. Until a year ago, the potential seemed limitless, and investors were willing to increasingly fund "dot coms" despite weak business plans or ongoing operating losses.

Our sample of thirty-five internet firms consists of e-retailers, internet brokers, internet service providers, internet content, and internet software developers.[12] As shown on table 8, these particular internet firms had increasing access to both the public equity market and the bond market over the past five years; net funds raised grew from a mere $422 million in 1995 to a peak of over $10 billion in 1999.

[12] A complete list of firms is provided id Appendix B. These firms are not counted in any of the other new economy industries already discussed. For example, the firm, Netmanage, which would normally be included in the Computers etc. category, was moved from that category to the Internet sample. Also, by the end of 2000, the sample consisted of thirty-one firms due to mergers.

In the aggregate, bond financing appears to have played a larger role in the composition of funding than public equity. In 1999 through the first half of 2000, these internet firms raised about $6 billion at an annual rate in the bond market versus $3 billion in the public equity market. However, the results are a bit skewed by two firms, Amazon.com and PSINet, which were big borrowers in the bond market. Moreover, many of these firms also received private infusions of cash from both new economy and old economy firms. While we have not been able to compile specific dollar amounts, these investment stakes appear to have been fairly substantial based on information gleaned from footnotes to quarterly financial reports. Bank financing (line 4) appears to have played a minimal role in funding these internet startups. Internet firms used the funds to accumulate liquid assets (line 6), pay for rising capital expenditures (line 5) and cover current operating losses, which mounted to nearly $9 billion in 2000.

As investors came to realize last year that profitability still matters, even for internet firms, and that this sector was not delivering hoped-for earnings, asset prices plunged. Total market capitalization of our sample fell from $415 billion at year-end 1999 to $235 billion at year-end 2000, a decline of 43 percent. Equity prices of these firms have fallen even further in the first quarter of 2001, with several trading at just cents on the dollar. As a result, the opportunity for internet firms to come back into the equity market to raise additional funds evaporated. Indeed, not one of the internet firms in our sample floated a public equity issue in the second half of 2000.

Investors in the bond market have also turned a cold shoulder to dot coms. Veritas Software paid down maturing bonds with cash in the fourth quarter of 2000 rather than roll them over by issuing new bonds at higher rates. With no sources of external funding and no positive cash flow, our sample of internet firms drew heavily on their liquid assets to keep themselves afloat in the second half of 2000.

So far, there has been only one small official junk bond default of an internet-related firm (table 2, line 7)—E-toys defaulted on a $150 million obligation in March 2001. But, a recent announcement by PSINet that a bankruptcy filing is imminent could mean that actual default is not far behind. PSINet has only $520 million in cash and $3.6 billion in debt, and it is widely believed that the sale of PSINet's assets will not be enough to cover its debts as of the first quarter of 2001. Also, some analysts have questioned how long Amazon.com can continue to operate at a loss and still cover interest payments on $2.1 billion in debt
.

Appendix A

1. Net funds raised: the sum of net public equity, net bonds, and other net borrowing.

2. Net public equity: gross equity issuance from Securities Data Company less share repurchases from Compustat and equity retired through domestic cash takeovers with a deal value of $1 billion or more from Securities Data Company. Equity retirements include cash payments to target shareholders of firms that may be out of the sample, otherwise net funds raised for the sample could be overstated as firms often raise debt to fund a cash takeover. Unfortunately, these figures do not include private equity financing. Venture capital financing of "new economy" firms will be addressed in a forthcoming paper by Nellie Liang.

3. Net bond issuance: gross issuance in the public, 144(a), and private placement markets from Securities Data Company less retirements from Bloomberg.

4. Other net borrowing: derived as a residual from the difference in the level of outstanding debt from Compustat less net bonds. The figures are largely free from distortions from ratings migrations and domestic and foreign takeovers. We only track mergers with a deal value of $1 billion or more by name, so there is still some distortion from smaller deals present in the figures; however, we believe it is relatively minor.

5. Capital expenditures: cash outflows for additions to the company's property, plant, and equipment, including capital leases, funds for construction, lease back transactions from Compustat. The figures from Compustat are downward biased when compared to fixed investment reported in the U.S. National Income and Product Accounts because Compustat does not include software expenditures in its figures for capital expenditures.

6. Change in liquid assets: derived as the difference in the level of outstanding cash and cash equivalents from Compustat. The figures have also been adjusted for ratings migrations and domestic and foreign takeovers.

7. Total debt outstanding: sum of short-term and long-term debt outstanding from Compustat. The level is not adjusted for ratings migrations or takeovers.

8. Liquid assets: the level of cash and cash equivalents, including short-term investments from Compustat. The level is not adjusted for ratings migrations or takeovers.

9. Equity at book value: level of shareholders' equity from Compustat.

Appendix B

List of Internet Companies in Sample

Company name	Line of business	Data begin	Data end
1. Amazon.com	E-commerce	1996:Q1	2000:Q3
2. America Online	Internet service provider	1991:Q1	2000:Q3
3. Ameritrade	Internet broker	1996:Q1	2000:Q3
4. At Home	Internet service provider	1996:Q1	2000:Q3
5. Beyond.com	E-commerce	1997:Q1	2000:Q3
6. CDNow	E-commerce	1996:Q1	2000:Q2
7. CMGI	Internet content	1995:Q1	2000:Q3
8. CNET Networks	Internet content	1995:Q1	2000:Q3
9. CyberCash	Internet software	1995:Q1	2000:Q3
10. Cyberian Outpost	E-commerce	1996:Q1	2000:Q3
11. DoubleClick	Internet content	1997:Q1	2000:Q3
12. E*Trade Group	Internet broker	1995:Q1	2000:Q3
13. Earthlink	Internet service provider	1995:Q1	2000:Q3
14. Earthweb	Internet content	1997:Q1	2000:Q3
15. EBay	E-commerce	1996:Q1	2000:Q3
16. Egghead.com	E-commerce	1997:Q1	2000:Q3
17. Exodus Comm.	Internet software	1996:Q1	2000:Q3
18. Go2Net	Internet content	1997:Q1	2000:Q2
19. Infospace	Internet content	1997:Q1	2000:Q3
20. Inktomi	Internet software	1997:Q1	2000:Q3
21. iVillage	Internet content	1998:Q1	2000:Q3
22. Lycos	Internet service provider	1996:Q1	2000:Q2
23. MarketWatch.com	Internet content	1998:Q1	2000:Q3
24. Netmanage	Network software	1992:Q3	2000:Q3
25. Open Market	Internet software	1995:Q1	2000:Q3
26. Prodigy Comm.	Internet service provider	1998:Q1	2000:Q3
27. PSInet	Internet software	1994:Q1	2000:Q3
28. RealNetworks	Internet software	1996:Q3	2000:Q3
29. Sportsline.com	Internet content	1997:Q1	2000:Q3

List of Internet Companies in Sample

Company name	Line of business	Data begin	Data end
30. theglobe.com	Internet content	1997:Q1	2000:Q3
31. TMP Worldwide	Advertising services	1996:Q1	2000:Q3
32. Veritas Software	Computers--memory devices	1992:Q1	2000:Q3
33. Verity	Web hosting/publishing	1994:Q1	2000:Q3
34. Yahoo	Internet service provider	1995:Q3	2000:Q3
35. Ziff-Davis (ZDNet)	Internet content	1997:Q1	2000:Q2

Table 1
Funding and Capital Expenditures of New Economy Corporations in the United States[1]
(Billions of dollars)

	1995	1996	1997	1998	1999	2000 H1	2000 H2
New Economy Corporations[2]							
1. Funds raised (net)	26	25	40	56	129	157	96
2. Equity issuance[3] (net)	4	11	0	-14	55	48	40
3. Bond issuance (net)	11	15	21	52	53	68	52
4. Other borrowing[4] (net)	11	-0	19	19	21	41	4
5. Capital expenditures[5]	83	88	110	117	131	161	193
6. Total assets	848	942	1,061	1,233	1,617	1,989	2,170
7. Market value of equity	869	1,080	1,585	2,479	4,733	5,469	4,119
All Nonfinancial Corporations[6]							
8. Funds raised (net)	185	104	180	285	472	565	328
9. Equity issuance[3] (net)	-42	-45	-87	-134	-10	28	-29
10. Bond issuance (net)	84	120	169	213	221	174	186
11. Other borrowing[4] (net)	143	29	98	206	261	363	171
12. Capital expenditures[5]	564	619	700	750	784	848	883
13. Total assets	11,646	12,444	13,397	14,473	15,617	16,306	16,918
14. Market value of equity[7]	5,195	6,215	7,993	9,743	13,096	12,912	11,544

1. Telecom service providers, telecom equipment manufacturers, computer hardware manufacturers, computer software firms, semiconductor manufacturers, other high-tech electronic manufacturers, and internet-related firms.
2. Source: Compustat.
3. Excludes equity retired from foreign takeovers of U.S. firms; includes venture capital.
4. Includes bank loans, commercial paper, finance company loans, medium term notes, loans from outside the United States, and commercial mortgages.
5. Excludes expenditures on software.
6. Source: Flow of Funds Accounts, table F.102 and table B.102.
7. Publicly traded domestic firms on U.S. exchanges.

Table 2
Junk Bond Defaults of New Economy Corporations in the United States

	1998	1999	2000	2001*
Telecom service providers				
1. Amount of defaulted debt ($ millions)	407	1,965	5,835	14,563
2. Percent of total U.S. defaulted debt	4	9	21	23
Telecom equipment manufacturers				
3. Amount of defaulted debt ($ millions)	0	0	170	326
4. Percent of total U.S. defaulted debt	0	0	<1	<1
Computers & semiconductors[1]				
5. Amount of defaulted debt ($ millions)	0	240	917	0
6. Percent of total U.S. defaulted debt	0	1	3	0
Internet-related				
7. Amount of defaulted debt ($ millions)	0	0	0	5,223
8. Percent of total U.S. defaulted debt	0	0	0	8

* Through May 2001 at an annual rate.

1. Consists of computer equipment manufacturers, computer software firms, semiconductor manufacturers, and other related high-tech electronic manufacturers.

Table 3
Net Sources of External Financing for Investment-grade Telecom Service Providers
(Millions of dollars)

						2000	
	1995	1996	1997	1998	1999	H1[1]	H2[1]
1. Funds raised (net)	6,625	-10,915	13,296	11,968	18,147	19,212	21,108
2. Public equity[2] (net)	-4,267	-3,790	-3,085	-15,900	-11,051	-36,756	-12,102
3. Bonds (net)	5,654	2,555	3,471	20,776	20,936	20,928	22,392
4. Other borrowing[3,4] (net)	5,238	-9,680	12,910	7,092	8,262	35,040	10,818
Memo items:							
5. Capital expenditures	39,431	43,889	54,005	59,322	63,334	74,060	89,940
6. Change in liquid assets[4]	-964	163	592	4,627	-4,203	-1,866	-756
7. Total debt outstanding	127,762	121,363	138,299	157,857	199,536	233,979	263,446
8. Liquid assets	5,749	5,559	6,336	11,482	7,705	6,772	6,016
9. Equity at book value	103,704	136,933	144,764	184,215	239,255	338,509	339,198

1. Annual rate.
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through bank loans, commercial paper, medium term notes, and finance company loans; excludes accounts payable.
4. Adjusted for ratings migration and domestic and foreign takeovers with deal value of $1 billion or more.

Table 4
Net Sources of External Financing for Speculative-grade Telecom Service Providers
(Millions of dollars)

	1995	1996	1997	1998	1999	2000 H1[1]	2000 H2[1,p]
1. Funds raised (net)	4,287	13,620	15,823	28,178	34,939	44,649	2,224
2. Public equity[2] (net)	664	3,728	1,239	657	12,435	16,076	1,062
3. Bonds (net)	1,882	5,068	8,194	18,347	15,669	18,698	7,382
4. Other borrowing[3,4] (net)	1,741	4,824	6,390	9,174	6,835	9,875	-6,220
Memo items:							
5. Capital expenditures	7,669	10,051	12,761	14,394	22,321	32,954	34,152
6. Change in liquid assets[4]	190	2,660	3,367	8,022	15,267	12,050	-16,462
7. Total debt outstanding	27,205	36,370	50,401	69,756	91,874	115,510	116,091
8. Liquid assets	3,542	7,267	10,190	17,694	32,943	38,968	30,737
9. Equity at book value	18,021	19,221	19,706	16,795	37,297	70,474	59,670

p–preliminary
1. Annual rate.
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through bank loans and finance company loans; excludes accounts payable.
4. Adjusted for ratings migration and domestic and foreign takeovers with deal value of $1 billion or more.

Table 5
Net Sources of External Financing Telecom Equipment Manufacturers
(Millions of dollars)

	1995	1996	1997	1998	1999	2000 H1[1]	2000 H2[1]
1. Funds raised (net)	3,856	4,383	2,732	4,148	4,237	6,249	14,061
2. Public equity[2] (net)	1,686	3,642	717	415	2,272	5,636	5,882
3. Bonds (net)	996	1,843	937	2,457	1,607	390	5,186
4. Other borrowing[3,4] (net)	1,174	-1,102	1,078	1,276	358	223	2,993
Memo items:							
5. Capital expenditures	7,193	6,420	6,836	7,023	6,672	7,962	8,768
6. Change in liquid assets[4]	1,921	2,368	1,057	-382	7,443	2,226	10,190
7. Total debt outstanding	11,558	12,299	14,314	18,047	20,013	20,276	24,015
8. Liquid assets	6,881	9,248	10,305	9,923	17,366	18,479	23,548
9. Equity at book value	28,216	33,375	37,459	39,213	56,067	69,951	81,907

1. Annual rate.
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through commercial paper, medium term notes, bank loans, and finance company loans; excludes accounts payable.
4. Adjusted for domestic and foreign takeovers with deal value of $1 billion or more.

Table 6
Net Sources of External Financing of Investment-grade Computer and Semiconductor Firms
(Millions of dollars)

	1995	1996	1997	1998	1999	2000 H1[1]	2000 H2[1]
1. Funds raised (net)	-3,243	-3,748	-14,093	-23,334	-21,648	-34,468	-4,827
2. Public equity[2] (net)	-7,197	-9,726	-17,055	-23,704	-26,880	-39,088	-17,397
3. Bonds (net)	1,878	4,556	3,786	4,092	5,768	8,448	12,906
4. Other borrowing[3,4] (net)	2,076	1,422	-824	-3,722	-536	-3,828	-336
Memo items:							
5. Capital expenditures	16,063	19,170	21,178	21,012	21,257	22,142	34,272
6. Change in liquid assets[4]	2,438	17,288	7,334	6,971	19,489	-6,774	2,958
7. Total debt outstanding	34,111	39,373	42,510	45,484	51,314	53,624	59,909
8. Liquid assets	29,423	45,859	53,106	62,906	83,249	80,427	81,906
9. Equity at book value	87,558	102,872	117,298	149,338	212,079	230,881	244,729

1. Annual rate.
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through bank loans, commercial paper, medium term notes, and finance company loans; excludes accounts payable.
4. Adjusted for domestic and foreign takeovers with deal value of $1 billion or more.

Table 7
Net Sources of External Financing of Speculative-grade Computer and Semiconductor Firms
(Millions of dollars)

						2000	
	1995	1996	1997	1998	1999	H1[1]	H2[1,p]
1. Funds raised (net)	8,010	10,306	4,422	10,492	23,788	59,376	15,038
2. Public equity[2] (net)	6,547	5,538	1,122	96	16,385	44,148	13,470
3. Bonds (net)	713	691	3,728	4,402	3,367	13,294	5,144
4. Other borrowing[3,4] (net)	750	4,077	-428	5,994	4,036	1,934	-3,576
Memo items:							
5. Capital expenditures	12,325	14,495	14,494	14,727	15,008	19,987	21,564
6. Change in liquid assets[4]	8,017	4,319	13,888	996	33,557	49,616	4,261
7. Total debt outstanding	20,600	26,085	29,210	36,690	42,489	50,103	50,887
8. Liquid assets	33,694	38,865	52,840	50,995	82,545	106,729	108,859
9. Equity at book value	74,392	85,663	104,819	102,780	148,448	240,004	254,279

p–preliminary
1. Annual rate.
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through bank loans and finance company loans; excludes accounts payable.
4. Adjusted for domestic and foreign takeovers with deal value of $1 billion or more.

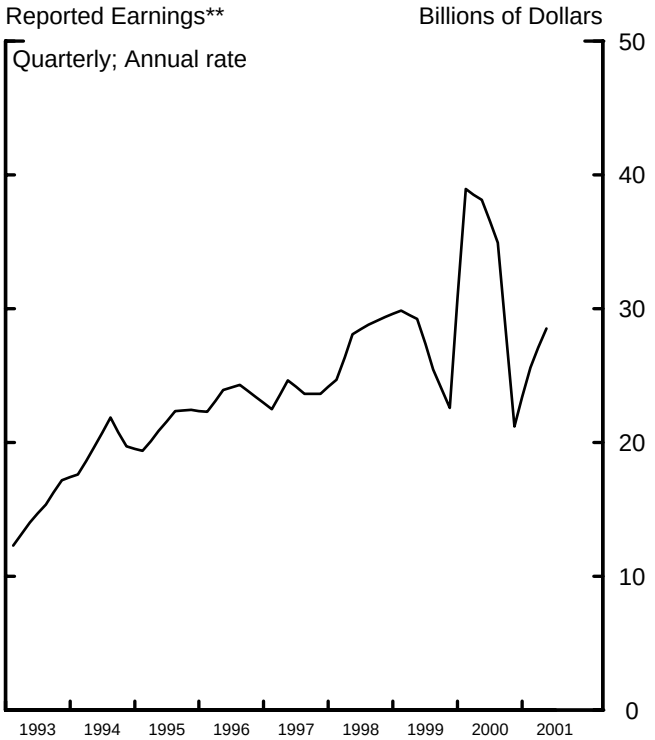
Table 8
Net Sources of External Financing of Sample of Internet-related Firms
(Millions of dollars)

	1995	1996	1997	1998	1999	2000 H1[1]	2000 H2[1,p]
1. Funds raised (net)	422	350	1,128	2,648	10,516	6,717	-796
2. Public equity[2] (net)	269	333	546	1,604	3,088	3,208	-96
3. Bonds (net)	0	0	450	1,678	5,438	5,901	-950
4. Other borrowing[3,4] (net)	153	17	132	-634	1,990	-2,392	250
Memo items:							
5. Capital expenditures	110	149	317	738	2,187	4,349	4,326
6. Change in liquid assets[4]	371	497	830	4,399	10,791	1,860	-7,684
7. Total debt outstanding	170	187	881	2,787	11,762	13,516	13,166
8. Liquid assets	524	1,022	1,882	6,281	17,072	18,002	14,160
9. Equity at book value	658	1,362	1,845	4,641	26,120	35,962	28,004

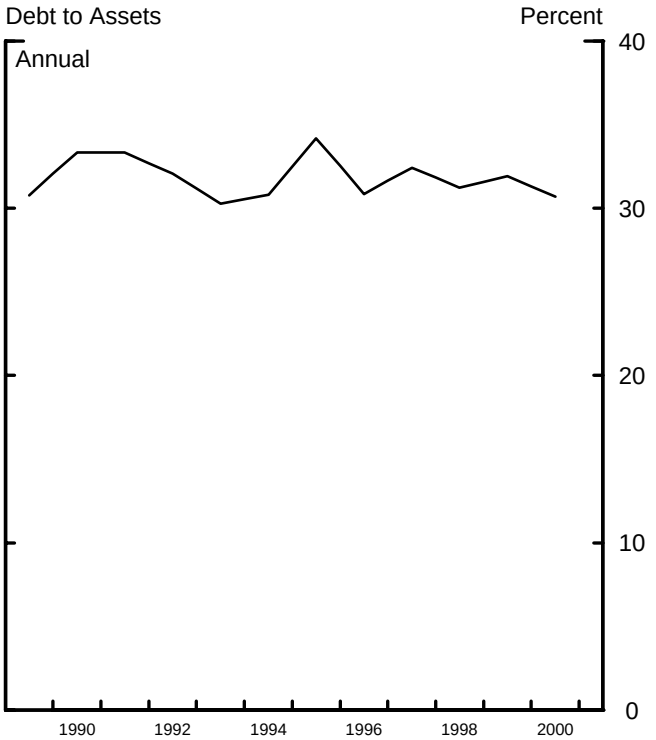
p–preliminary
1. Annual rate
2. Gross public issuance less share repurchases and equity retired through domestic cash takeovers; excludes equity retired from foreign takeovers.
3. Other net borrowing may include funds raised through bank loans and finance company loans; excludes accounts payable.
4. Adjusted for domestic and foreign takeovers with deal value of $1 billion or more.

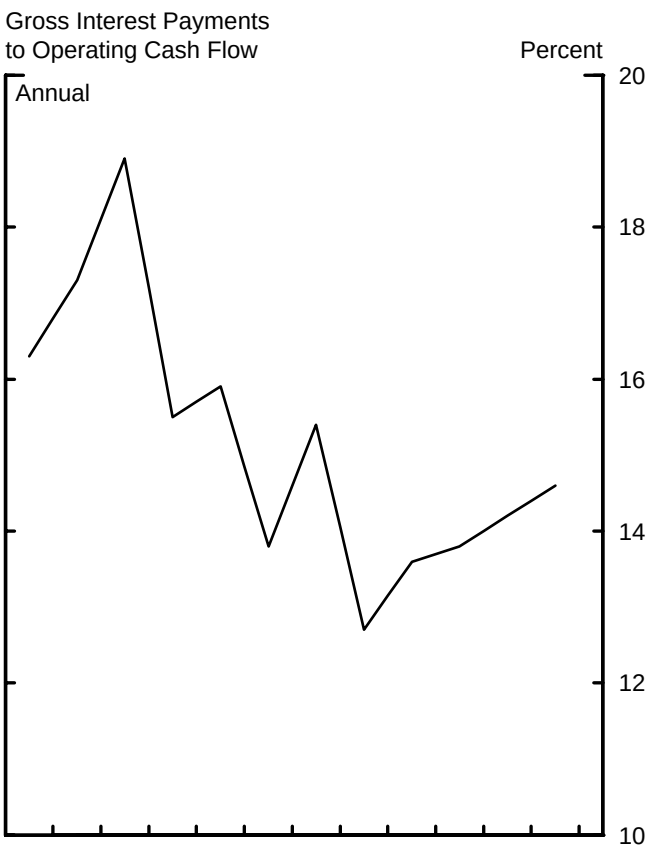
Exhibit 1

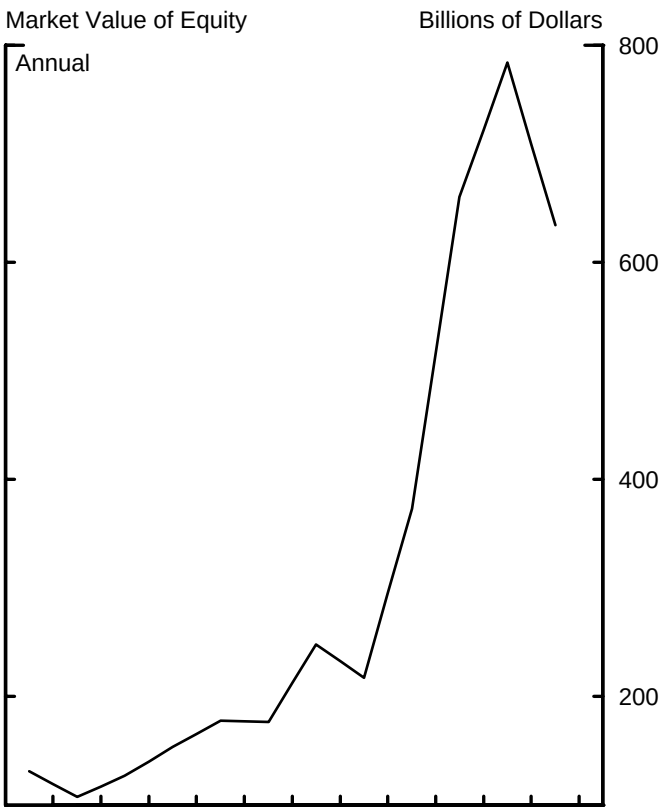
Financial Conditions of Investment-Grade Telecomm Service Providers*



**Analysts expectations of earnings for 2001:Q2 and 2001:Q2 from IBES



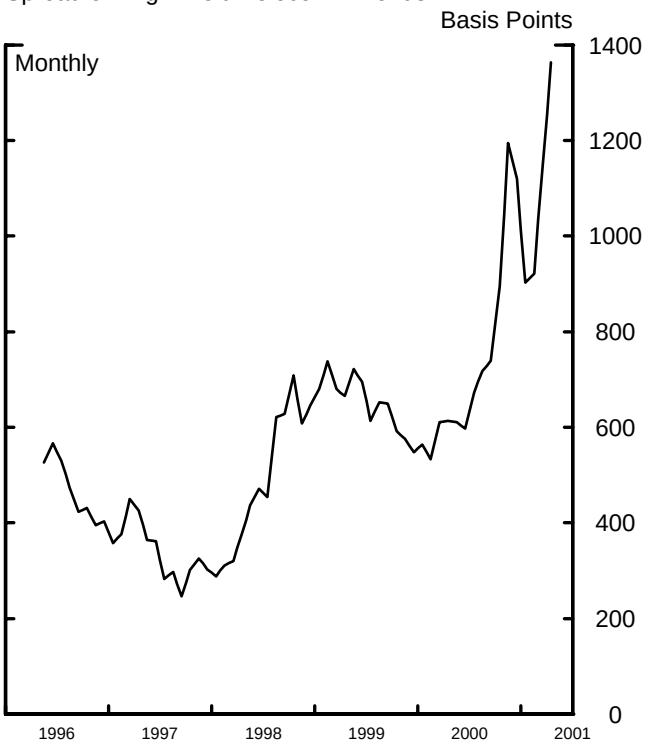




* Source: Compustat.
04/06/01

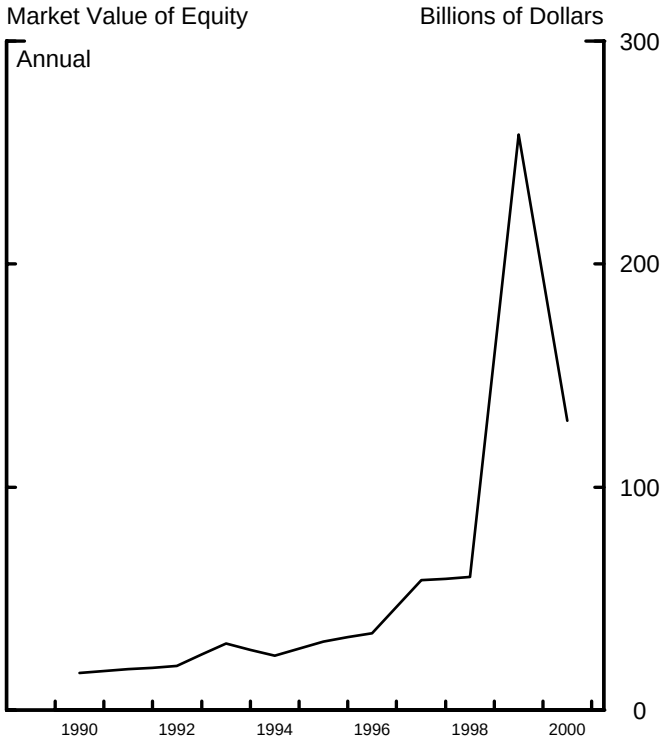
Exhibit 2
Financial Conditions of Speculative-Grade Telecomm Service Providers*

Spread on High-Yield Telecomm Bonds*

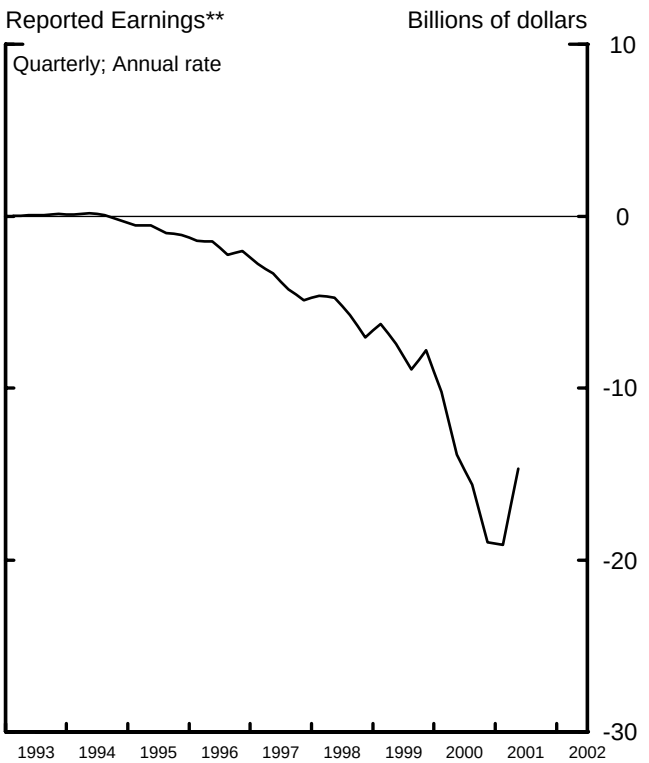


*Yield on Merrill Lynch high-yield telecomm index less yield on 7-year Treasury

Market Value of Equity



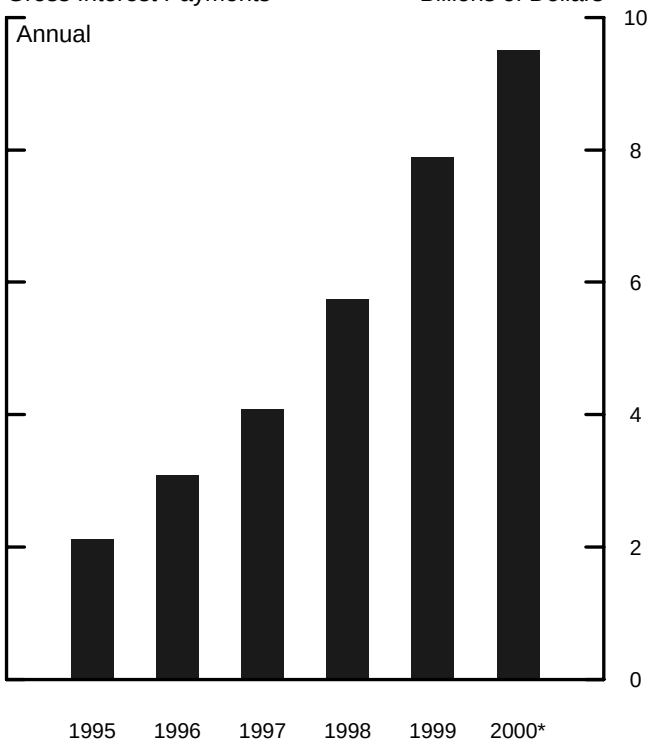
Reported Earnings**



**Analysts expectations of earnings for 2001:Q1 and 2001:Q2 from IBES

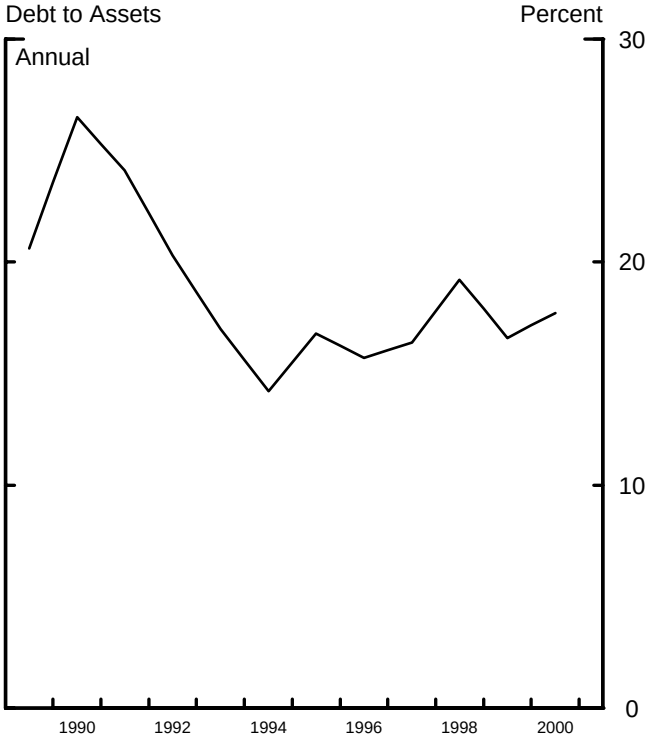
* Source: Compustat.
04/06/01

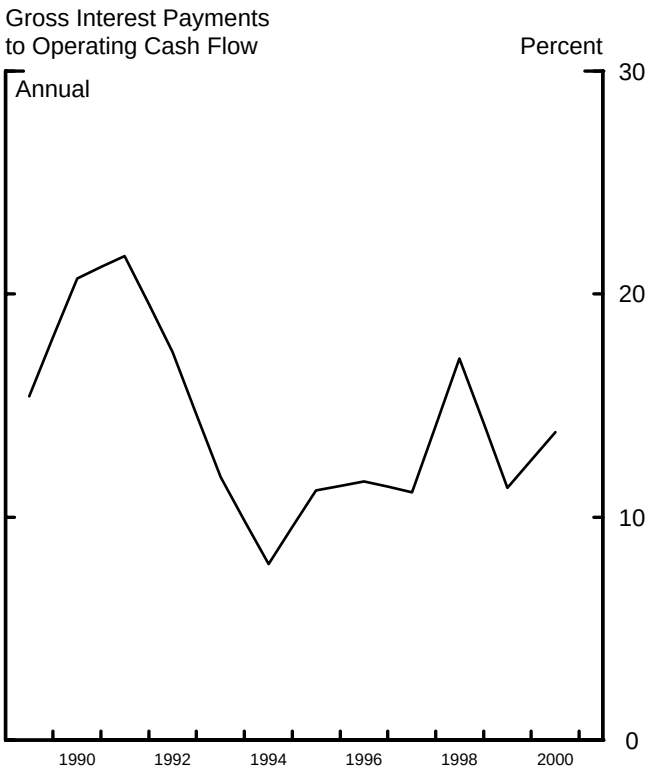
Gross Interest Payments

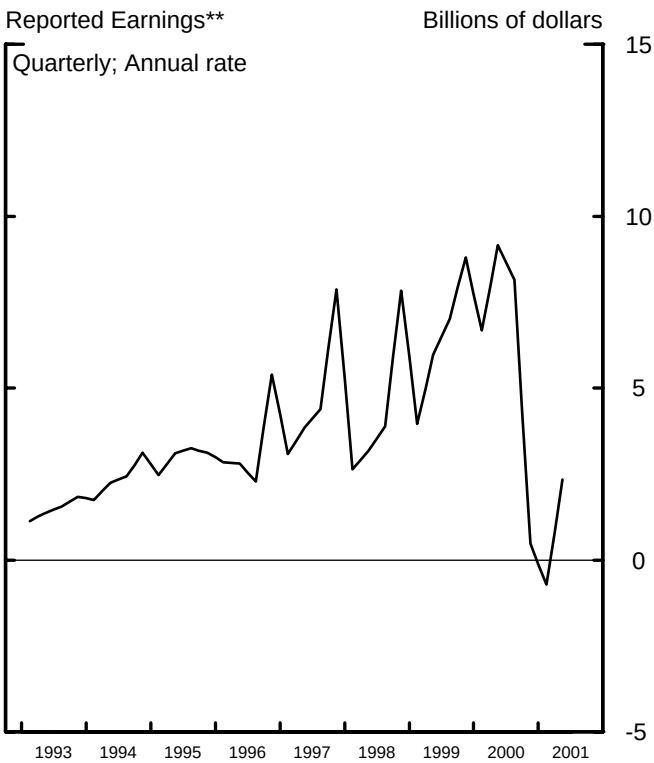


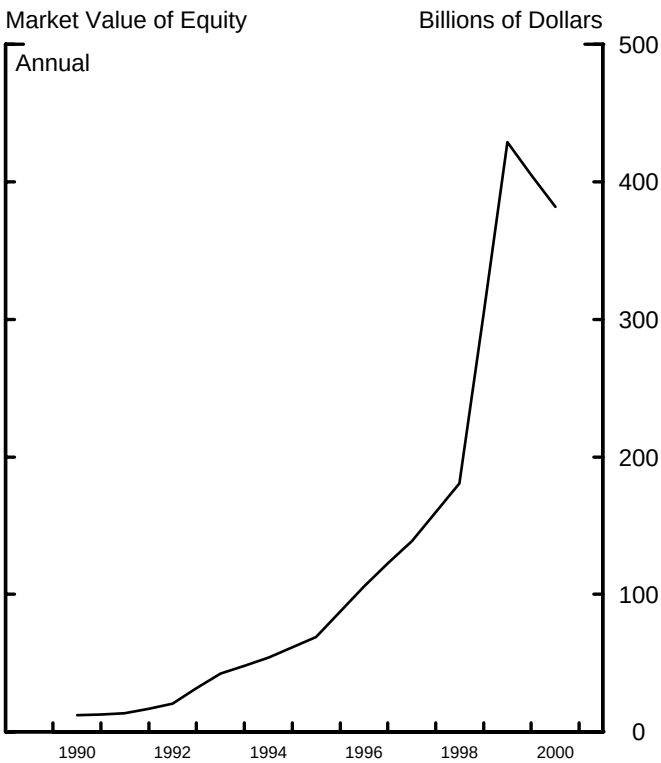
*Estimated annual rate.

Exhibit 3
Financial Conditions of Telecomm Equipment Manufacturers*







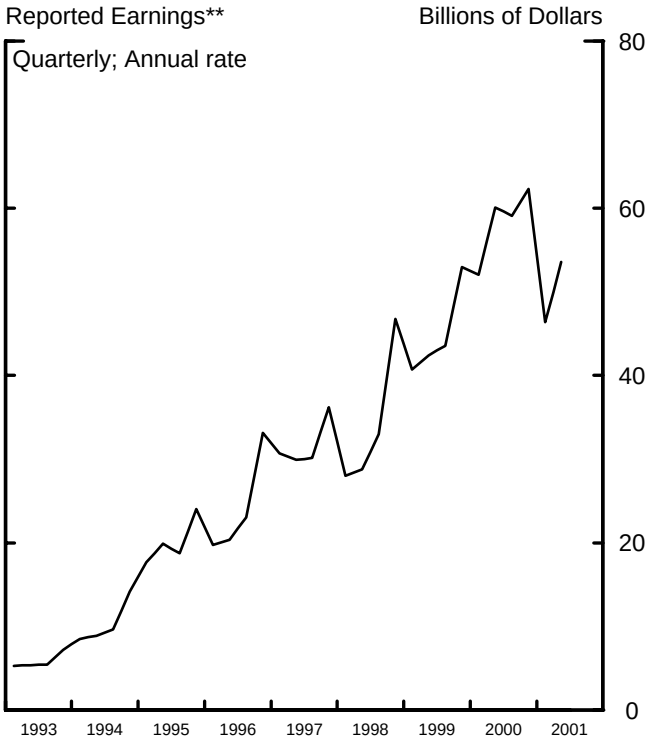


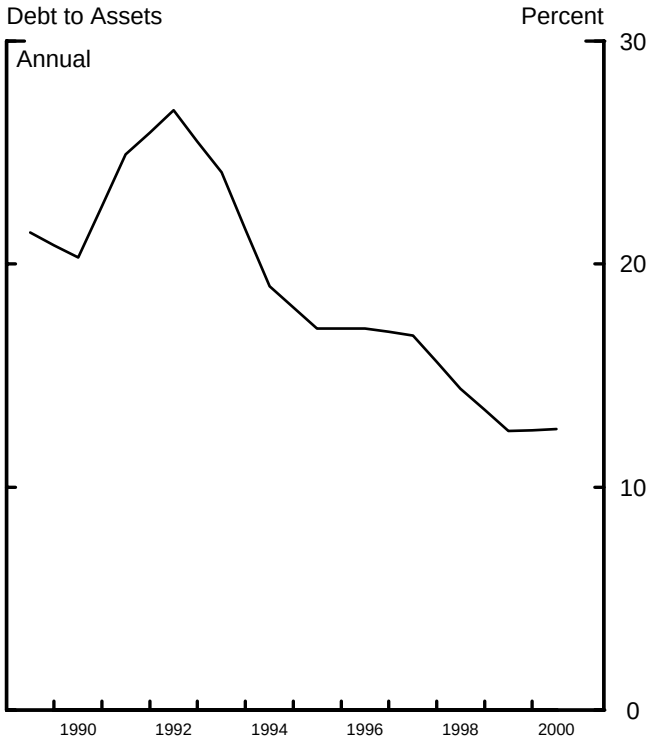
**Analysts expectations of earnings for 2001:Q1 and 2001:Q2 from IBES

* Source: Compustat.
04/06/01

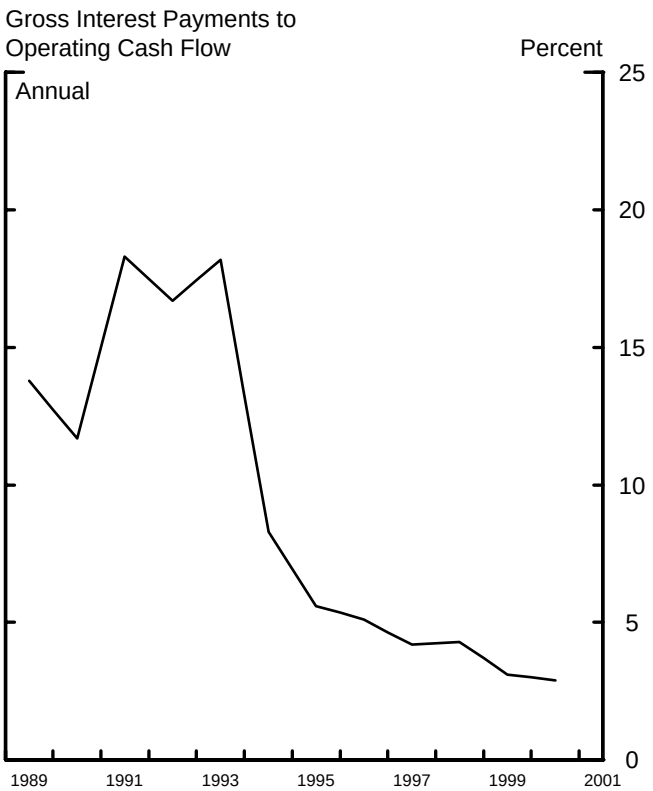
Exhibit 4

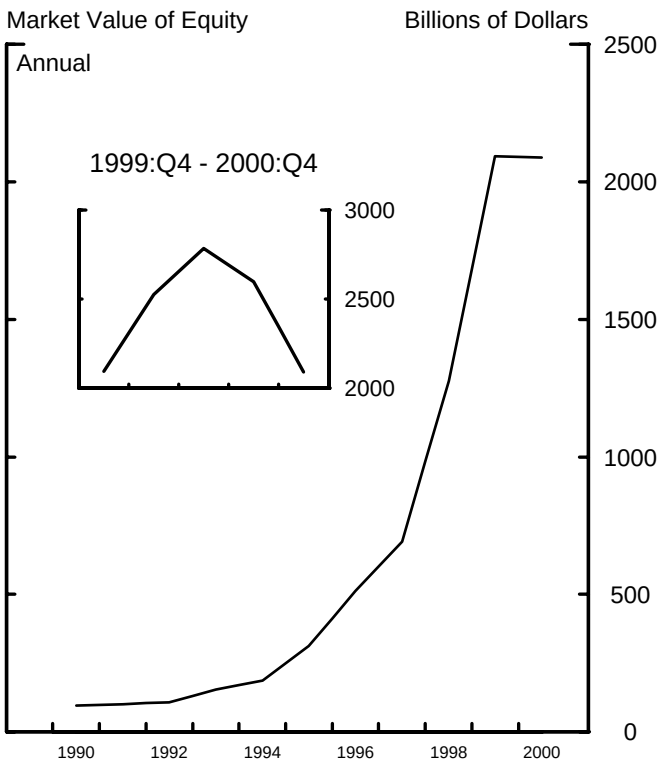
Financial Conditions of Investment-Grade Computer & Semiconducter Firms*





**Analysts expectations of earnings
for 2001:Q2 and 2001:Q2 from IBES

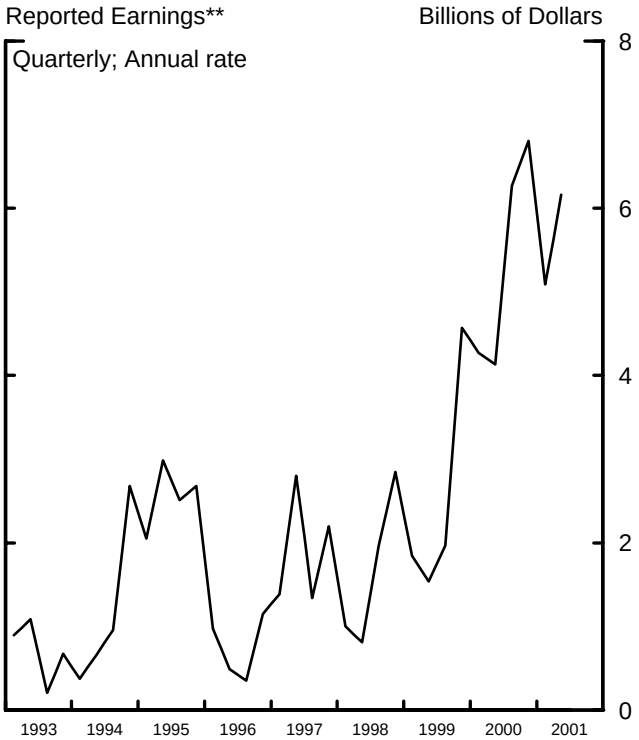


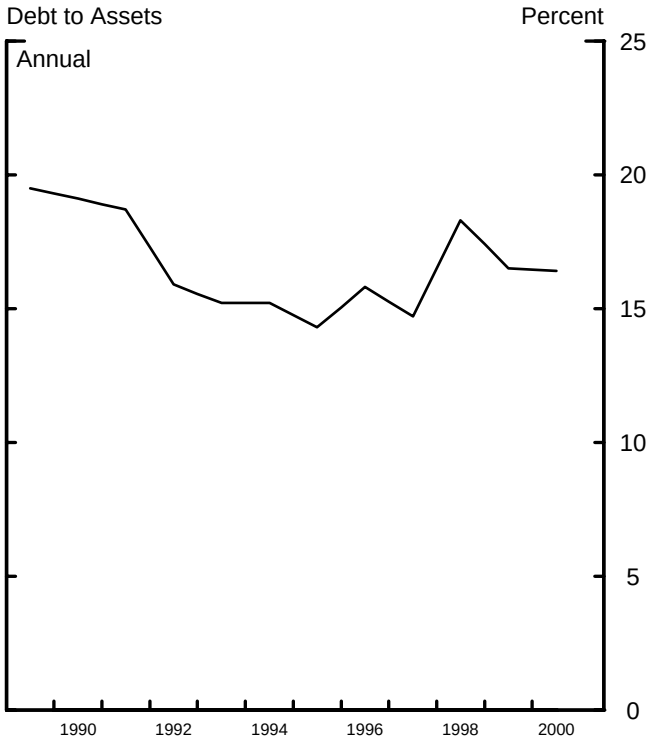


* Source: Compustat.
04/06/01

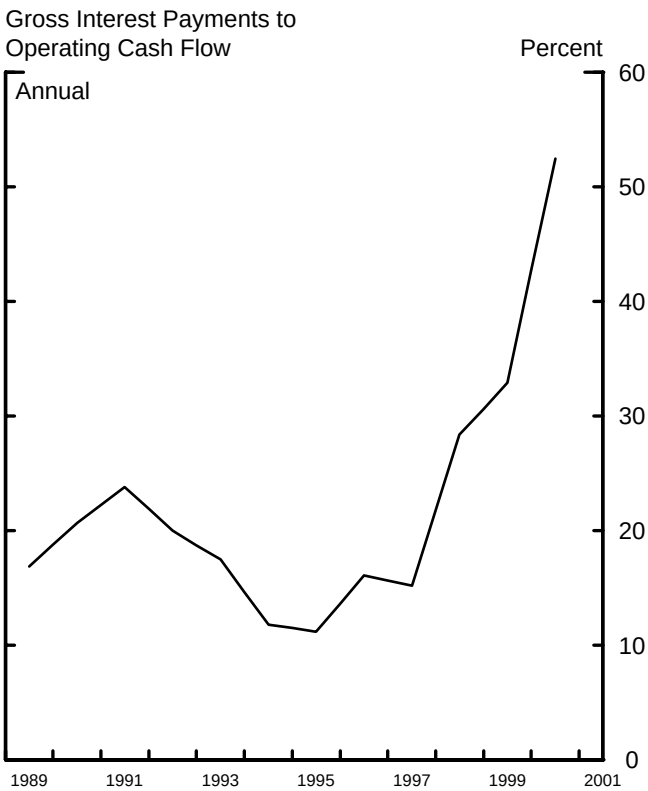
Exhibit 5

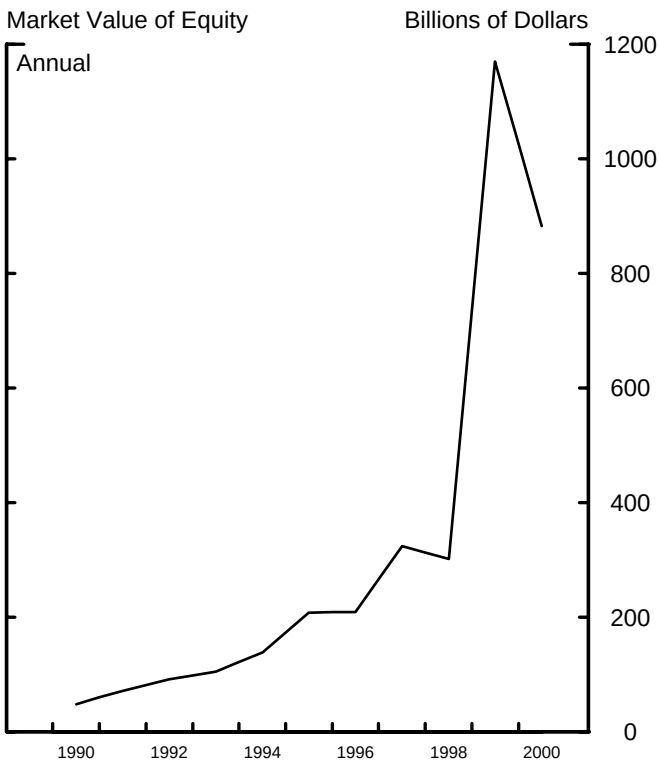
Financial Conditions of Speculative-Grade Computer & Semiconducter Firms*





**Analysts expectations of earnings
for 2001:Q1 and 2001:Q2 from IBES





* Source: Compustat.
04/06/01