UNITED STATES OF AMERICA

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FEDERAL COMMUNICATIONS COMMISSION

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EN BANC HEARING

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MONDAY,
OCTOBER 7, 2002

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445 12th STREET, S.W.
WASHINGTON, D.C. 20554

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2:00 P.M.

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COMMISSIONERS:

MICHAEL K. POWELL, CHAIRMAN
KATHLEEN ABERNATHY
MICHAEL COPPS
KEVIN MARTIN

FCC SECRETARY:

MARLENE DORTCH

PANELISTS:

SIMON WILKIE
Chief Economist, FCC

ROB GENSLER
Portfolio Manager, T. Rowe Price

ROBERT KONEFAL
Managing Director, CFG, Moody's Investors Service

PANELISTS: (cont'd)

BARRY NALEBUFF
Professor, Yale University School of Management

HAL VARIAN
Dean of School of Information Management and Systems, University of California, Berkeley

KIM WALLACE
Managing Director and Chief Political Analyst, Lehman Brothers

LARA WARNER
Director, Credit Suisse First Boston

LARRY WHITE
Professor of Economics, NYU Stern School of Business

I-N-D-E-X

P-R-O-C-E-E-D-I-N-G-S

(2:02 p.m.)

CHAIRMAN POWELL: Good afternoon. It's my pleasure to welcome you to this very important hearing en banc on the state of the telecommunications industry.

But before we get to opening remarks and other remarks, I'd like to turn it over to the Secretary, who can give us an outline of today's program and perhaps an overview of the rules we're going to follow for today's program.

Madam Secretary?

SECRETARY DORTCH: Good afternoon, Mr. Chairman, Commissioners, and invited panelists. Following are the procedures for today's en banc hearing. We will utilize a timekeeping machine located in front of Chairman Powell to maintain time limits on each presentation.

The first two panelists will each have a total of 12 minutes to make their individual presentation. The green light will signal for the first 11 minutes of your remarks. When the yellow light signals, you have one additional minute to sum up your presentation and close your remarks.

The third panelist will have 10 minutes

to make your presentation. The green light will signal for the first nine minutes of your remarks, and when the yellow light signals you will have one additional minute to sum up and close your remarks.

Finally, the remaining panelists will each have seven minutes to present. The green light will signal for the first six minutes of your remarks. Again, when the yellow light signals, you have one additional minute to sum up your presentation and close your remarks.

For all panelists, the red light signals the end of your allotted time. Please conclude your remarks at that time.

Thank you.

CHAIRMAN POWELL: Thank you, Marlene.

Again, I want to thank everyone for joining us today, especially my colleagues who are here to discuss the financial state of the telecommunications sector, and, more importantly, steps that might be needed to try to restore its financial health. And I'd also like to thank in advance our distinguished panelists for joining us today, all of them eminent in their own fields, and we really look forward to the factual basis that they'll provide us to give us something to think about as we struggle through these difficult times.

As I've said, we find ourselves in the midst of some very difficult times in the telecom industry, yet at the same time we find ourselves at the point of great opportunity for the sector as well. One of the primary missions of the Commission in the short term is to do our part to get us from here, the challenging times, to there, harnessing that opportunity.

One of the primary impediments to the growth in this sector is the increasing difficulty all industry participants are having in attracting capital. Capital, of course, is the lifeblood of the telecommunications industry, or any industry for that matter, and without it the public interest is almost certain to be compromised.

Infrastructure providers need access to capital to operate networks, to maintain and improve the quality of service to the American telecommunications consumer. Competitive entrants need capital to fund business plans that will allow these companies to enter the market, differentiate service, become profitable, and provide long-term, sustainable competition in the marketplace.

Both need capital to fund network

upgrades and develop new services to bring them to the market and to themselves become profitable. But it's not only the service providers that suffer during these times. There is a whole substrata of industries that are dependent on its success.

Equipment vendors, for example, are finding it difficult to find buyers of their wares. Some of these vendors represent the very heart of our industries -- research and development efforts. Thus, the impact of a prolonged cash crunch could have long-lasting effects on the industry, and thereby the nation's productivity and competitive edge.

As I articulated in late July, I believe strongly that there are no less than six critical steps that the industry must take in order to return the flow of capital necessary for this industry to recover.

First, the Commission certainly must be guided in its objectives in protecting consumers in the face of a saddening number of bankruptcies. We will make every effort to ensure continuity of services as the industry goes through the pain of change and restructuring.

Second, we must, and industry

leadership must, root out corporate fraud. In order to restore confidence in corporate America, this must be done, and those responsible severely punished.

I have the pleasure of serving on the President's Corporate Fraud Task Force, and I echo his sentiments when I say that these abuses will be found, rooted out, discovered, and punished ruthlessly.

Third, the industry must dedicate itself to restoring its balance sheets. Firms must find a way to cut costs, pay down debt, and become more transparent and efficient, so that investors can fully appreciate the true risks associated with the investment that they urge.

Again, the best companies with the best leadership are those who are committed to restoring financial fundamentals. Those that are taking these actions should be rewarded; those that are not, abandoned.

Fourth, industry will have to undergo some prudent restructuring. Some consolidations and bankruptcy, both restructuring and liquidities, will be needed to address insufficient economic realities in some markets. This Commission will play an important role in this restructuring, and where consolidation is concerned will be vigilant in reviewing mergers on their merits, denying anti-competitive transactions and approving those that serve the public interest.

Fifth, carriers will have to develop and deploy new services and drive new sources of revenue for their long-term productivity and health. Today we see the promises on the horizon of those new services -- broadband internet access and the myriad applications and services that might be provided over such a rich platform.

We also see great potential in the areas of wireless services, such as ultra wide band, wi-fi, and traditional wireless voice services. Today's innovations will be tomorrow's profits and growth.

And, finally, federal and state regulators must engage in economic and regulatory foundational reform that takes into account the experience of the last six and a half years and apply them to the realities of today's marketplace.

Today, at this hearing, we will focus largely on the third, fourth, and fifth steps on this road to recovery. It is our hope to bring some of the knowledge I have gained in my own discussions with various aspects of the financial community over the last few months to the Commission staff and to give my colleagues an opportunity to engage in discussion with this group.

We will hear today about the economy in general, the telecommunications market, and how capital flows to fund operations. And we will hear from a distinguished panel on their thoughts where the industry has been, and, just as importantly, where it is going.

Again, I want to thank them for being here today. I believe all of us will find today's discussion both enlightening and extremely informative.

With that, I have the pleasure of turning it over to any of my colleagues for comments that they might have.

Commissioner Abernathy?

COMMISSIONER ABERNATHY: Thank you, Mr. Chairman.

First, I want to thank the Chairman for all of his efforts in pulling together today's en banc. I think it shows a very real appreciation of how significant this issue is for all of us.

And I want to thank all of the experts for coming to D.C. to share your insights and thoughts with us. As always, it's invaluable and critical to our analysis.

I also want to point out, though, that despite what many may believe, we are not magicians with the power to turn around the flagging economy. We are government regulators, however, and as such we have a profound responsibility to stay informed and to educate ourselves regarding the technology and the services that are offered by the companies that we regulate, because only then can we craft the regulations that best serve the public interest and that are consistent with the statutory obligations that are set forth by Congress.

To my mind, one of the most important things the FCC can do is to appreciate the sense of urgency that is surrounding our pending proceedings, and, specifically, those that are related to competition policy and broadband services.

We're asking fundamental questions about the way facilities and services are classified and how they are regulated. And the rules that are ultimately adopted will have a substantial impact on carriers' incentives to invest in infrastructure.

We must not shy away from these tough questions, but we also must appreciate that these proceedings create uncertainty in the market, and this uncertainty impedes the ability to develop long-term business strategies and may chill new investments. So we have to stay focused, and we have to move forward.

While we may not possess the magical powers to cure the industry's financial distress, our regulatory scheme is clearly a critical piece of the puzzle. So we also must ensure that our regulations and our policies are not creating impediments to investment and innovation, and that we remain focused on our public interest obligations.

Therefore, I look forward to hearing your ideas about how we can better do our part to stimulate growth and economic recovery for the telecom sector.

Thank you very much.

CHAIRMAN POWELL: Thank you,

Commissioner.

Mr. Copps?

COMMISSIONER COPPS: Thank you. I, too, want to commend the Chairman for scheduling this hearing. These en banc hearings I think are just an invaluable way for us to gain critical input on stakeholder issues. I think the one we had recently on equal employment opportunity was a wonderful learning experience for all of us. I know today's hearing will be, and I hope we will have future en banc hearings on the multiplicity of proceedings that are before this Commission.

Today affords us an opportunity, I think, to get some needed perspective on telecom's difficulties. We have had probably too many simplified explanations of why we are where we are and too many silver bullet suggestions for how to get out of the mess that we're presently in. The causes are, I imagine we will hear today, complex. The way out is equally challenging.

I don't think any of us should be thinking in terms of the hundred yard dash to recovery -- the quick, easy solution that's going to right a world gone amuck. Rather, it's the long, hard contest of endurance. And in a contest like that, every step along the way is important, none more so than the first step.

And I've been trying to impress upon all of the folks who have come by my office in recent weeks that we ought to be able to find some first and targeted and achievable and doable kind of steps and stop trying to remake the telecom world in one fell swoop on the theory that there is one little fix out there that can solve all of our problems and put us back on the road to prosperity forever.

But it's hard to get people to listen when the decibel level is so high, and I hope today we can, with your input, maybe lower the decibel level a little bit.

Let me just observe that so much is at stake here on how we proceed to deal with telecom's problems. Some of the sector's problems are no doubt internal and traceable to faulty business plans. But probably even more of the problems have been generated externally.

To name but a few possible causes of the distress -- the recession that stalks other sectors of the economy in addition to telecom, the hyper expectations the market placed on new and developing telecom businesses not so many years ago, the problems of the financial sector generally, corporate governance problems involving everything from too-clever-by-far accounting practices to a more generalized public reaction against obscene severance payments and retirement perks, uncertainty about future legislative and regulatory policies and programs, and perhaps even larger questions going to the protection of the public interest during the wild ride that we've been on.

I know that the public interest is not our designated subject for discussion today. I would ask our panelists only to be cognizant that we are not only addressing an economic problem but trying to do so within the context of the public interest, consumer benefits, serving all Americans no matter who they are and where they live, and making available to them the best and most advanced telecommunications system possible.

We are interested, mightily so, in all of the economic and commercial dimensions of telecom's woes and telecom's recovery. But in the final analysis, we always come back to that last ultimate question: does what is being proposed serve the public interest? It's a big order to fit all of this together, but in a recent article I read over the weekend George Sorose made a pretty good run at it.

And I won't try to synopsize that article here, but I commend it to you if you haven't seen it, to my colleagues, for its discussion of some of the failings he sees in the financial markets, some of the risks he sees in focusing too inclusively on the quick profit and on so-called economic efficiency, and some of the benefits he sees emanating from looking at these problems through a broader public interest lens.

Whether we agree or not with all that he says, we equip ourselves much better to deal with these issues by thinking about them in the broadest possible terms.

I'll just say for a second and tell you at the outset that I'm an optimist about the telecom sector. That is a minority view, of course, but I occasionally find myself in the minority --

(Laughter.)

-- around here. But my read right now is that although there has been a serious toll taking telecom's shakeout, this industry is going to come back, probably sooner rather than later, probably sooner than some of the pundits are thinking. The technologies are there, and they are only proliferating.

There is obviously an infrastructure need in this country tantamount to some of the other great infrastructure buildouts that we've encountered throughout the course of American history. And demand is growing, so if communications is not going to lead our economy out of its current troubles and into prosperity in the new century, then I don't know what sector is.

So I'm very much looking forward to this session and the perspectives of the distinguished presenters who will be -- we will be hearing from today. I thank you all for taking the time and trouble to be here with us, and we are very much looking forward to your input.

CHAIRMAN POWELL: Thank you, Commissioner.

Commissioner Martin?

COMMISSIONER MARTIN: Thank you, Mr. Chairman, and thank the panelists for spending the time with us this afternoon to give us their insights into what the Commission can try to do to help this particular sector of the economy.

The telecommunications sector is at a critical crossroads and a critical time for both the sector as a whole and -- I mean, for the sector and for the industry and the economy as a whole, and its impact it will have. We have all seen over the last year the dramatic downtown that has occurred. There has been half a million jobs lost, and there has been $2 trillion in value lost in the stock market of these companies.

But these are not statistics or paper losses. There are families all across the country that have experienced real pain resulting from this economic downturn. And many long-term employees have witnessed their life savings disappear with little or no severance pay and with their 401(k) retirement savings vanishing with the stock market slide.

And I don't believe that the Commission has a single silver bullet to this problem for the telecommunications sector. But as I've stated before, I do think we can contribute to its recovery by establishing a stable, reliable, and efficient regulatory environment.

Regulatory uncertainty and delay function as potential entry barriers in and of themselves, limiting investment and impeding deployment of new services. I support the Chairman's efforts and all of his recent comments about the importance of us acting quickly on all pending rulemakings and responding to, as Commissioner Abernathy talked about, the sense of urgency that is out there in the sector as a whole.

So I think that such prompt decisionmaking will be important, and that it will be something that we can contribute to in that stable environment going forward.

And so with that, I'll be anxious to hear what the panelists have to say about what actions and what direction we should be trying to take.

Thank you.

CHAIRMAN POWELL: Thank you, Commissioner.

We'd like to begin to provide some context for today's discussion by asking Dr. Simon Wilkie, the FCC's Chief Economist, to provide an overview of the U.S. economy in which these problems in the telecommunications sector are operating.

Professor Wilkie?

PROFESSOR WILKIE: Thanks, Mr. Chairman.

I'm going to talk about the overall macroeconomic perspective on the economy. I won't be focusing on the telecommunications industry per se, only to mention that, of course, it is a significant part of the economy and played a significant part in driving the previous economic expansion in the record-long 10-year expansion we had.

Next slide, please.

So, actually, just to give you an overview, of what we're going to do today, first I'll talk about the recession, then the current economic situation as it stands. We'll then talk about macroeconomic forecasts, supply and demand indicators as the economy currently stands and looking forward, potential problems on the macroeconomic horizon, how will the economy be affected by them, following problems and reasons to be cheerful, things that seem to be sound in the economy at the moment, and then I'll offer some brief conclusions.

Next slide.

So let's begin by talking about the recession. As you know, we had a significant recession. The NBER, the National Bureau of Economic Research, now dates the recession from March 2001. The recession actually lasted for three quarters technically, in the sense that in each quarter GDP, gross domestic product, contracted for the first three quarters of 2001. That's according to the Bureau of Economic Analysis.

Checking industrial production, we see that industrial production peaked in June of 2000, and it reached a trough -- the low point in terms of production of the recession was actually in December 2001, and we've had a 7.2 percent decline from peak to trough in industrial production, which is about average for a recession.

Real personal income, however, fell through 2001, household incomes. But it has risen significantly through 2002. In fact, an interesting point is that it's almost back to the levels that it was before the recession.

Next slide, please.

So that's the recession that we faced.

What about our current economic situation? Well, we seem to be going through a modest and somewhat wobbly recovery. The first quarter GDP grew five percent, which sounds -- on a per annum rate, which is quite significant. In the second quarter this year, GDP grew at 1.3 percent.

Let me just say that the five percent sounds impressive, but the initial bang coming out of the gate, as you come out of a recession, is always large as firms try to replace their depleted inventories. So that number is always biased upwards.

Unemployment, however, has remained stable in the current economic situation. Output, however, is rising faster than employment, so we still have overall productivity growth in the economy -- about 1.2 percent.

Corporate profits have recently, just recently, turned around overall with one notable exception. Profits are up 8.8 percent, if we analyze second quarter over second quarter from 2002 to 2001. So these indicators seem to suggest that we're actually going through a pretty healthy recovery, nothing exceptional, but pretty much average.

However, leading indicators, which economists sometimes use to predict what's going to happen into the future, have declined in the last three months. So some people fear that we might have a relapse into another recession because of this -- it's very unusual to have leading indicators decline for three consecutive months.

Okay. Next slide, please.

So looking forward, what are the economic forecasts? The CBO, Congressional Budget Office, estimates that for year 2002, annual year, we'll have -- calendar year -- we'll have a 2.3 percent GDP growth rate, which is of modest significance. Beyond that, looking into 2003, they estimate a three percent GDP growth rate.

Beyond that, in the 10-year time horizon for the 2002-2012 timeframe, the CBO estimates a 3.2 GDP growth rate. The BEA, by comparison, projects a growth rate of non-farm industrial production of 3.4 percent. So similar numbers.

So just to put that in historical perspective, during the boom years of the 1990s, GDP grew at a rate of 2.9 percent from '91 through to '95, and 3.8 percent from '96 to 2001.

Okay. Inflation has pretty much been vanquished. It's about 1.7 percent for this year and expected to be about 2.4 percent next year. So there are no significant concerns about inflation in the intermediate horizon.

Unemployment, as I mentioned, is projected to be 5.9 percent for 2002, and the same for 2003. So unemployment has risen from its all-time low that we had a few years ago when it actually touched four percent, but that is historically an unprecedented low number. Even though 5.9 percent is coming out a recession, as a historical average it's not too bad.

Okay. Next slide, please.

This slide covers some of what I just talked about in much more detail. You can see that nominal GDP -- that's in dollar terms, not taking out inflation -- in 2001, it was a tad over $10 trillion. Forecast for this year is $10.429 trillion and for next year $10.912, almost $11 trillion.

Forecasting out 10 years, the CBO projects that average over the 2008-2012 time horizon that GDP will up to $17 trillion a year. As I mentioned, the nominal GDP growth, which is in dollar terms, not taking out inflation, is for 2.6 percent this year -- sorry, 3.4 percent this year, 4.6 percent next year.

The unemployment rate is stable at 5.9 percent. If we look down at the bottom, we can see that the three-month Treasury bill rate is at 1.7 percent. That's forecast to be 2.9 percent next year.

It's interesting to note that the 10-year T-note rate is at 4.9 percent at the moment, so we've had a much steeper yield curve than we've had in the last couple of years. The flattening of the yield curve essentially meant investors became rather unworried about risk. That steepness of the yield curve is an indication that that's no longer the case.

Okay. Next slide, please.

This next slide puts it into a pictorial perspective. We can see where we've been and where we're projected to go in terms of real gross domestic product. If you look at the top left-hand chart, you'll see that in this last recession, though we had an overall -- we didn't actually get a year-over-year negative return on GDP. So even in 2001, there was still very small growth, .3 percent.

So the economy never actually contracted over a full year. So it was in that sense, for the economy overall, rather mild.

And, similarly, you see a similar description of the events in the unemployment rate and also in the treatment of interest rates in the other charts.

Next slide, please.

So let's try and disconnect supply from demand and analyze the relative importance of these two components in what's going on in the economy. So as I mentioned, real personal income has not fallen. It did briefly in 2001, but it's back where it was.

Consumer demand remains high. However, we have anemic business investment, and capacity utilization remains low. So if we look at the supply side of the equation -- next slide, please -- currently, industrial capacity, as of last August, is at 76 percent. It's been flat for the last three months. So even though the economy is growing, our use of capacity isn't really growing. A year ago we were at 76.4 percent, so we haven't really moved anywhere in a year.

Just to put these numbers in perspective, the long run average over the last 20 years of the industrial capacity has been at 81.9, 82 percent, so we're well below average. The all-time low was 71 percent in 1982 and 85.4 percent in 1988-'89.

Capacity overall is still growing in the economy. That means there's still investment in capacity. Last year it actually grew at one percent.

Okay. So that's on the supply side. Let's look at the demand side.

Next slide, please.

The next slide charts the real change in final demand in the economy. As you can see, it plummets in recessions. In the last recession, again, it plummeted, but it didn't actually go negative. Consumers have demand as being incredibly resilient. It has partially recovered, but it's not back to the gangbuster years as it was in the growing four percent, five percent consistently in the 1990s.

But it's interesting to note that it never actually went negative. We never actually had a shrinking of final demand.

Okay. So what's going on overall? Let's look at the sectors in a little bit more detail in the next slide, please.

So what's growing? Well, actually, the service sectors generally are growing in the economy at quite a rapid clip. So services are growing in particular health care; parts of the entertainment industry are growing. In addition, some areas of construction are growing, originally fueled by the housing boom and now more recently fueled by a government building boom. And, of course, the federal government is growing as a sector of the economy.

Next slide, please.

What are the significant lagging sectors? Well, notably, the telecommunications. Telecommunications has been suffering from extensive overcapacity, and it's so lagging the rest of the economy in terms of returning. In addition, information technology is also lagging. And in terms of production, high tech industrial production, the firms that make the inputs into the network is the area of production which has the lowest capacity utilization in the economy currently.

The financial sector is partially rebounding, but it hasn't been rebounding in terms of profitability. It lags the rest of the economy, the other industrial sectors.

Next slide, please.

So just quickly, what are the potential problems looking forward? Well, the big one is the wealth effect, that we've had this massive decline in the stock market, but it doesn't seem to have affected consumer behavior, which is quite an anomaly.

So if consumers ever decide to stop spending because of this massive decline in their personal wealth, that could lead to another recession. Things are recently more complicated by the dock worker strike on the west coast, which stops about $1 billion of trade a day. And as the economist Dennis Robinson said in the 1930s, "Trade is the engine of growth."

In addition to that, we have potential complications with the Mideast, which might affect the budget situation and the price of oil. Trade issues also loom on the horizon, steel tariffs, export tax policies, and agricultural subsidies, which have led to the possible threats of trade confrontations between Europe and the U.S., which would also be negative impact on growth.

So, finally, let's turn around. What are the reasons to be cheerful?

Next slide, please.

As I mentioned, the economy has actually been growing since third quarter 2002. And if we extrapolate from the start of this year, it's growing at an annual rate of about 3.8 percent, which is higher than expected.

Unemployment seems to be stable right at the moment at 5.8 percent, which is a bit lower than expected. Personal income is close to an all-time high, and consumer expenditures are resilient.

So, in conclusion, the recession was significant. There is a classic overcapacity situation, but personal income has remained stable. Non-financial sector profits are recovering, but the stock market decline and financial conditions create substantial uncertainty as to how robust the recovery is.

Thank you.

CHAIRMAN POWELL: Thank you very much, Simon.

I think now we'd like to turn to and

introduce Rob Gensler. Rob is the Vice President and Portfolio Manager for T. Rowe Price. He joined the firm in '93 with seven years of previous investment experience. Rob is President of the Media and Telecommunications Fund and Chairman of its Investment Advisory Committee.

Welcome, Rob.

Rob will give us an overview of financial industry basics.

MR. GENSLER: Right. Thank you, Kevin, Kathleen, Michael, and Michael. I'm somewhat struck. I'm flattered by the invitation, but I'm struck by some of your comments that we're supposedly the experts.

If you look at our results in the investment community, I would hardly call us experts where the average telecommunications fund is down over 50 percent year to date, and that's after being down 40 percent last year and down 35 percent the prior year. That makes a three-year run that's rather daunting.

So as the tallest of the munchkins, I'll speak for the industry. But I would never --

(Laughter.)

-- claim to be an expert so to speak.

It's interesting, though, that we do set the rules, not we the telecommunications investor, but really the portfolio managers that invest in diversified industries, both growth and value. Okay.

And the buy side, not the sell side, the buy side, the actual investors of people's money in mutual funds, in pension funds, in institutional funds, actually have the daunting task of investing. The sell side, Wall Street, is somewhat like the vendors in a shoe store trying to tell you whether to buy wing tips or penny loafers. We have to figure out which one and at what price we want to do that.

And the rules change all the time based on cashflows, based on indices that we're trying to keep up with. And, unfortunately, I'd have to say that we share in some of the blame of the bubble. It's not just regulators. It's not just industry. It's a bit of everything, and we're in there, too.

And we've changed the rules of engagement from one of hopes for growth and revenue growth, okay, to free cashflow, return on invested capital, earnings per share. The income statements matter. The balance sheets matter. And we keep moving down through the traditional financial metrics that somehow we left out and lost out in the late '90s.

The funds flow today is actually okay. Pension funds still get money into them from their employees by definition, whether defined benefit or defined contribution. Okay? And in the defined benefit they actually -- many companies will have to start putting money back into them again, because the overfunding status is going away.

The mutual fund industry still has money flows coming into it, although a very different nature of flows than a few years ago. The flows are more into value funds and less into growth funds. But overall, the flows are still modestly positive.

And in spite of times when the fixed income funds have gotten most of the money throughout the summer, we're back to the point where equity funds are actually getting modest money, although the high-yield funds, which were a great funder of the whole telecom bubble, have changed their attributes.

If you recall in high yield, over 30

percent of their new money was going into the telecommunications industry at its peak. But when we talk about reinvestment and investment in telecommunications, there's really two forms that one always has to remember. It's not just the buy side or the investment community. But it's really the rules we set for the industry, and, therefore, their reinvestment rate.

This is what percentage of revenues get reinvested into capital spending, what percentage of sales, and this could be true in any industry. It would be R&D or investment or CAPEX. And in traditional days in telecom, it was about 20 percent of revenues got reinvested, and it peaked in the high 30s in the United States, peaked in the high 20s to 30 percent elsewhere in the world.

And right now, with the lack of growth that we see, many investors, myself including, are demanding, almost imploring, managements to give the money back, pay higher dividends, buy back stock, pay down debt, etcetera. If we don't see prospects for growth, the money doesn't get reinvested.

So it's more this reinvestment rate, the percentage of sales spent on capital spending now, that is the problem, in terms of your question, about fostering investment.

Then, actually IPOs or secondaries or high yield, which may not come back for some time, but if the -- that investment rate is now below 20 percent of sales. It's looking like it's headed to 15 percent of sales. And, quite frankly, as the typical investor, I'd be happy if they didn't reinvest anything and if they gave it back. But that's another story. Okay.

If I move on -- and I apologize for this. This is not a slide I gave you, but it sort of strikes to your question, is: what is our investment process, and what do we look for, and how has this changed? And it's really not that different at other families than it is at T. Rowe Price.

We look at near-term fundamentals, long-term growth outlook, pricing power, margin outlook, structure of industry -- is it getting better or worse? Is it fractured? Product cycles -- are they mature, etcetera? Balance sheets, free cashflow, return on invested capital, and oh, by the way, valuation.

I can submit this slide later.

But the intriguing thing is if I go through each of these, many of them are areas that they are bleak or they are problematic, but there is nothing this Commission can do per se. You know, the near-term fundamentals are bleak because of the economy. Okay?

But the long-term growth outlook is troubling because unit demand is very good. Okay? Units of consumption in telecom are growing nicely, but there is no pricing power at all. There is rate regulation, both retail and wholesale rate regulation. So we get to a point where we have good unit growth but very little revenue growth, okay, in an industry.

And the margin outlook is actually negative for the industry. We have a product mix shift from fixed wire line to wireless and data. Okay? This is akin to transportation a hundred years ago where we migrated out of rails into airlines and trucking and autos and etcetera, and we need to do something where the core business is shrinking.

And we're regulating that core business as if it was the money for everything else and it was the, you know, monopoly. And we have new competitive businesses that are far lower in margin, and it causes a problem for the investment community of how to look at it.

Structure of industry has nothing to do with this Commission. It's more an antitrust issue, and it's more the companies and their social issues about whether or not they'd like to merge or not. But by luck of the draw in the United States, we have a fractured industry. In many other countries of the world, you have much more integrated providers who can get scale of scope, better margins, etcetera.

Product cycles are maturing. Nothing anyone can do about that. Balance sheets are actually getting better, which is at the heart of your issue of investment. We want better balance sheets. We want the money returned in terms of paying down debt, etcetera. It's a nice thing for the investors.

Free cashflow -- well, most of the industry hasn't had any but is getting modestly better. Return on invested capital is getting better as well, and valuations -- well, at least they're intriguing, but we don't know, because the whole public market, remember, has traded down to about 15 times earnings.

And value investors, which are the only investors that really want to touch any telecommunications funds -- stocks, are really, you know, looking at many, many names that are trading at eight to 12 times earnings. So in spite of the fact that we think these valuations are so low, and why wouldn't people invest, if I go to my diversified value managers, they say, "Well, I've got about 10 other names, or 20, or 50, or 100 names I could buy that have less regulatory issue, less margin issue, less pricing power issue, less structure of industry issue, less long-term growth issues, better trading at similar valuations."

Okay. So, again, I'm sorry I don't have that slide. I can submit it later.

We then move to the slides I do have, where -- I don't know how I get to a slide, but this was sort of the historic. You know, we had for four or five years the best of times. This is all old news, so I'm going to -- you know, but we thought it was easy. Investors as well. Okay. Companies, regulators, we all share in the sort of exuberance. I definitely will take part of that blame.

But if we move on to the perfect storm of '01-'02 -- next slide, okay -- and this is, again, all old news in a sense, but I'd like to try to focus on this in the next slide, of what we can do better. You know, we do have maturing product cycles. Nothing we can do. Weak economy -- nothing we can do, although that will get better hopefully sometime in my investment horizon.

Okay. Overcapacity due to the binges -- that will get better. Difficult regulation, which I'll talk about in the next couple of pages, pricing powers collapse, revenue growth disappears, margins decline, etcetera. One wonders why we have any money still left in telecom when I look at this.

But the intriguing thing is the structure of industry is getting better. And also intriguing, if you would split the telecommunications industry into wire line, wireless, and the cable industry, just to throw in for sort of another network infrastructure business, the cable industry is still investing. Wireless is still investing, although I would proffer to say that both the investment rates will go down in the next couple years.

But it's really the fixed wire line business that has cut its investment rate the sharpest. First, the CLECs went away, but then the incumbents have shut down their investing. And it's intriguing that that's the most rate regulated part of the three. The rate regulation in cable isn't there, and they are investing to try to get scale of scope.

In wireless, although it's fierce competition, the investment still goes on. And I just want to point out that it seems different in terms of the outcomes.

If we go to the next page, the -- yes, this page. Just to say that the telecom equipment problem which you're talking about, will CAPEX -- that's the capital spending -- minus 15 percent in '01, minus 30 percent in '02, minus another 10 or 15 in '03, much of this is because we're demanding free cashflow and better returns on investment. Much of this is the investment community demanding results, because we don't get growth and we're not getting any pricing power. So we want the money back.

It's poor balance sheets getting better. Wireless has no profits, and cable has negative free cashflow. So the wireless and cable that I said are better investors today probably directionally are only a year or two behind.

If we go to the next slide, sort of continuing issues for investment -- and some of these I want to talk about and think how they're different in other places of the world. Okay?

The first, the fixed voice product migration to wireless and data is true everywhere. This is just a fact of life in the industry, and it's actually a good thing. We're getting new products. We're getting new competition. But we can't ignore it when we think about regulation. Okay?

And we have a fractured structure of the industry. We have three or four long distance. We have four geographic local providers. We have six wireless. We have five technologies in wireless. So it's a bit of a mess, I'm sorry to say.

It's a lot better in a lot of other countries, and we who move money around the world are actually investing more in telecommunications internationally than we are domestically. Okay? Because although it suffers from .1, low growth and product migration, but we have more stable industry structures that at least foster reasonable returns on capital.

We also have intermodal competition. That's the new modes of data and wireless competing with wire line, and even cable competing and then cable modems. But we have a structure of regulation that's predicated on intramodal regulation -- UNE-P trying to foster a competitive environment in fixed wire line, okay, and many other areas where we're looking at these as if they were silos as opposed to areas competing with each other.

Okay. We have deregulated competitive growing product lines, wireless. Even broadband is somewhat deregulated, although the terms of regulation are slightly different. But we have a declining core business, the fixed line/wire line business, that's heavily regulated. And maybe that's the money that we need, the profits from that, that would go into the new product lines.

You know, we had a social contract in this country, the local with somewhat lower rates and everything else had higher rates, and there was an implicit cross-subsidy that went on. But the new -- the higher rates in long distance and all these other areas have come down due to competition, but that implicit social contract, which might be made more at the state PUCs than at the Fed, hasn't really been reexamined or changed.

So we also, with the states, have retail rate regulation, as well as wholesale rate regulation. I'm not sure you can -- I mean, I'm not smart enough to get them right. I'm not sure anybody is in terms of the interplay of new competitors picking off incumbents predicated on where they just pick and choose to, you know, hit on the existing regulation.

And, obviously, this is not your problem. It's just a fact of life. We've got state PUCs versus FCC. I don't have any advice on what you do with that. That's a third rail I don't want to touch.

Thank you.

CHAIRMAN POWELL: Thank you, Rob. That was an outstanding overview, very insightful.

I'd like to move now to Robert Konefal, who is from Moody's Investors Service. He's the Director in the Corporate Finance Group at Moody's. He directly manages the ratings group that covers investment grade telecommunications, media and technology companies in the United States, Canada, and Central and South America, since April 1998.

Welcome.

MR. KONEFAL: Thank you. Good afternoon, Mr. Chairman and Commissioners. On behalf of Moody's, I am pleased to appear before you today regarding steps toward recovery in the telecommunications industry.

We appreciate the opportunity to share our views with the Commission regarding the current state of the industry and the near-term outlook under the existing framework. As a rating agency, we do not take opinions on particular policy issues, but, instead, we analyze the current and long-term ability of companies to service their debt.

With respect to our assessment of the ability of telecommunications companies to meet their debt obligations, we believe that a distinction should be made between the long distance, local, and wireless subsectors, because there are notable differences in the credit quality and outlook.

Let me start by discussing Moody's and

its role in the financial markets, and then provide our views on the outlook for ratings of telecommunications companies for the next 12 to 18 months.

Moody's is the oldest rating agency in the world. Our roots can be traced to 1900 when John Moody & Company first published Moody's Investor Service focused on rating railroad bonds. As early as 1924, Moody's was rating nearly every bond in the U.S. bond market.

Although Moody's rates a wide range of debt obligations, the heart of our service lies in rating long-term bonds, for which we have nine primary debt rating categories. Investment grade ratings range from a high of Aaa down to a low of Baa. Speculative grade ratings range from Ba to C. Overall, Moody's ratings are designed to provide a relative measure of risk, with the likelihood of credit loss increasing as the rating decreases. And over time our default studies have shown that ratings effectively distinguish bonds with higher credit risk from bonds with lower credit risk.

It's equally important to note what our work at Moody's does not include. A rating is neither a buy nor a sell recommendation, nor is it a seal of approval. Rather, our ratings reflect Moody's opinion of the relative creditworthiness of a fixed income security. Furthermore, just as we do not insure the bonds we rate, we do not audit the financial information provided to us.

Now let me turn to Moody's analysis of the telecommunications industry. It will likely not surprise the Commission that our outlook for the next 12 to 18 months for all segments is negative. However, we see the degree of negative pressure as most severe for long distance carriers and more modest for local exchange carriers and wireless companies.

The question hanging over this hearing is: what steps can the Commission take to put the telecom sector on the path to recovery? That is an important topic, and I'm confident that others will have specific, although perhaps conflicting, policy recommendations to accomplish that goal.

But it is important to realize that a number of forces acted together to put the industry in its current state. Beyond the government regulation, other factors include new competitors, technological advances, and the larger forces at work in the economy. We believe that all of these forces will play a role in the future of the telecom industry.

Moody's notes a number of current concerns for the sector. Capital markets are weak, making debt refinancing more challenging. Expectations for strong growth, particularly in wireless and data, have fallen short. Competition is fierce, not only within segments but across them, as wireless substitution is becoming an increasing factor affecting local long distance service. Massive overinvestment has led to a glut of capacity and overextended balance sheets.

Finally, free cashflow generation is marginal in relation to debt loads, and in some cases still negative.

In the past year, we have downgraded companies with large long distance businesses -- AT&T, WorldCom, Sprint, and Qwest -- by multiple notches. AT&T and Sprint are now rated low investment grade, Qwest is rated speculative grade, and WorldCom, of course, defaulted.

Looking at the local carriers, we recently placed the Bell Companies -- SBC, Verizon, and BellSouth -- under review for downgrade. However, the magnitude of the downgrades will likely be very modest. As for wireless, most of the large operators carry negative outlooks but are not currently under review. Near term, we expect the Bell Companies and the other ILECs to remain the highest rated companies in the sector by a significant margin.

Before I address each of the telecommunications industry segments, I want to underscore our role in the financial markets. Moody's does not advocate policy positions, nor does it have a preference on the outcome of a rating, a particular regulatory issue, or a marketplace event.

Our job is simply to evaluate a company as best we can with available information, and, if that information materially changes, to reevaluate the company for a possible rating change. With that caveat in mind, I will now address specific industry sectors.

Looking first at the long distance sector, the future is not bright. We expect further declines in revenues and operating income. The market share losses by the big three long distance carriers will continue to decline due to Bell entry and increased wireless substitution.

The weakness in the debt and equity markets is most pronounced for long distance companies. After a period of large scale investment, carriers are cutting back investment in infrastructure dramatically. The impact of the WorldCom bankruptcy is also unclear. WorldCom customers may move their business and benefit stronger carriers like AT&T and Sprint.

Pricing, after years of sharp decline, may stabilize. But we expect RBOC entry to keep the pressure on the long distance industry.

Finally, the prospect for consolidation among long distance carriers we believe is low. With so much excess long haul capacity, a horizontal merger does not make sense. A long distance local combination makes more sense if it was to be permitted, but the performance and debt problems of long distance carriers may prove to be a deterrent.

Next we turn to the ILECs. Our outlook for this sector is brighter, but still one that we rate as modestly negative. ILECs remain dominant in their markets despite access line losses. The key development is that UNE-P resale, cable competition, and wireless substitution collectively are now having a notable impact on the RBOCs' performance.

Looking out over the next 12 to 18 months, we expect a continued flat trend in revenues, operating income, and free cashflow. We believe the ILECs will continue to suffer further decline in market share to AT&T and possibly CLECs coming out of bankruptcy. We also expect the ILECs will continue to invest heavily in new facilities, focusing on DSL and long distance.

As Section 271 approvals are granted, we expect the Bells to achieve a significant share of the consumer long distance market and a smaller but meaningful share of the business market.

Next to the last, I will return to potential competitors in the local market, the CLECs and the cable operators. It is perhaps telling on the state of the CLECs that Moody's has withdrawn coverage of many of them because they have defaulted, filed for bankruptcy, and are not any longer issuing debt. But questions remain as to what happens when CLECs emerge from bankruptcy with their debt loads dramatically reduced. CLECs will still need new capital, which will be very difficult to obtain.

However, some CLECs built substantial facilities-based networks and could still be a legitimate threat in certain cities.

Another competitive force is the cable industry. To date, cable companies have focused on upgrading their networks to offer digital video and high-speed internet access and are winning the battle against the ILECs' DSL product, a lead we expect cable to maintain for some time.

Longer term, we believe cable represents a threat to the ILECs in voice telephony. Only AT&T broadband and Cox are actively offering it now, but others may do so as IP technology improves.

Finally, turning to wireless, the outlook for this sector is also modestly negative. In their favor, subscriber growth is still strong, although it is decelerating and is resulting in solid revenue and operating income growth. Most operators, however, still have negative free cashflow because the investment needs remain so high.

While average revenue per user has been relatively stable, pricing plans are granting subscribers more and more minutes, which affects network and spectrum usage, and ultimately capital expenditure.

As the Commission is well aware, wireless operators spent heavily to build digital 2G networks. These investments have not yet generated a positive return on the invested capital. Now we find them investing heavily in 2.5 and 3G platforms, which limits their ability to generate positive free cashflow in the near term.

In our view, CDMA operators have the less expensive, less complicated migration path, while TDMA operators face a more challenging and expensive migration path that requires an overlay of GSM technology.

Furthermore, the success of 3G services is far from assured. In the long run, we do not believe that markets can support six operators and would anticipate either consolidation, if that was permitted, or attrition.

In conclusion, we respect that the Commission is well aware of the state of the industry, and we thank you for allowing us to share our views on the various industry subsectors. As the environment affecting the industry changes in a material way, we will review all available data regarding ratings of debt instruments to determine whether any changes are warranted.

Thank you, Mr. Chairman, and Commissioners.

CHAIRMAN POWELL: Thank you, Robert.

I'd now like to introduce Barry Nalebuff, the Milton Steinbach Professor of Yale School of Management. He's a co-author of the book Co-Opetician. His first book Thinking Strategically: The Competitive Edge in Business, Politics and Everyday Life is a popular business school text. It has been translated into seven languages and was a best seller in Japan.

A consultant, as well as a scholar, Mr. Nalebuff applies game theory to his work with Fortune 500 clients and in antitrust litigation.

We welcome you, Professor.

PROFESSOR NALEBUFF: Thank you, Mr. Chairman, fellow Commissioners.

I'm an outsider to this business. I worked on the first spectrum auction, but since then I haven't advised any companies in this industry. Therefore, allow me to apologize in advance for my bluntness. It's partly my nature, and it's also the fact that I don't know where the minefields are.

Could we have the slides? Thank you.

What I intend to talk about today is, first, what to do about broadband, then what to do about local competition, or lack thereof, and, finally, come up with a few recommendations.

Next slide, please.

The problem with broadband is simply there aren't any good killer applications. We had one. It was called Napster, and it was unfortunately illegal. There are some other ones that have come in place, whether it be Morpheus or Linewire, but in general we don't have any application that everybody thinks they must own.

Korea has had some success. They have, of course, population density where 40 percent of people live in high rises, and the big application that has worked there is online video games. Boy, that's something we need more of in the United States.

(Laughter.)

So we don't have any existing ones, nor is it clear that there are any obvious applications coming up in the future. I read a report from Brookings which said there would be $500 billion in productivity gains from broadband. I think if you believe that, I have dot com stocks to sell you.

(Laughter.)

They talked about, in a Department of Commerce report, Biotech as a source of future. Well, they said that Merck has four terrabytes of data that you could perhaps want to download, not at home. I don't think you're going to even want to download that at your office.

And more than that, it's not that you're going to take this four terrabytes of data and use it, you're going to ask some computer somewhere to do something with it. Very little instructions you're going to be sending back and forth.

They talked -- and also, of course, the people that are using this are academics or in business. They are already on broadband.

Health -- they talked about online assessments of cholesterol and enzyme levels. Again, you don't have to send a whole lot of information back and forth. Phone lines will work for that.

Robotic surgery -- yes, I doubt this will be done from home.

(Laughter.)

And hospitals, they already have access.

Homeland security doing biometric information at airports -- well, one, that technology isn't ready. But, two, it's not as if airports aren't already wired for high-speed access.

And then, my personal favorite, under the new hopes and new possibilities, they talked about video e-mail helping millions of illiterate Americans challenged by instant messaging. Can I respectfully suggest that it would be better to teach these people how to read rather than getting them to do videoconferencing with high-speed broadband?

So I think that there is no prognosis that we have some great application that's about to happen that we should be all excited about, and that's okay.

Next slide, please.

Remember, we do not have a chicken and egg problem. The fact is there are 24 million people who have access to it at home, plus countless millions more who have access to it at work or at school. And so if there is some great application that's ready to go, people can find it. That's a big enough market out there for people to make the applications for.

Moreover, we don't have any urgency. Seventy-five percent of people say they're happy currently with their dial-up. When it was given away in Georgia, only 29 percent of the people signed up for broadband. So it's not as if you have a screaming demand for this.

Now, I do actually have some suggestions for industry here, if they actually want to make this happen. Guess what? Get some content. Murdock figured this out with Sky TV. He went and got sports. Nintendo got Super Mario. Sega got Sonic the Blue Hedgehog. What you need is good content, and the content that people want is obviously movies and music.

And guess what? Only a billion CDs were sold last year and a billion movie tickets. So you could buy all of the movie tickets and the CDs and give them away at a cost of about $5 billion. And if you think it's $5 billion to justify $100 million of investment to get demand, this is pretty cheap.

You could even start a little cheaper by buying old TV shows and old movies, and that would probably cost less than a billion. So to put this in context, if you're looking for a killer app, we kind of know what it is. It's movies and music, and it's not that expensive. And it doesn't need to be subsidized. The industry can do it all on their own.

We had a Field of Dreams strategy where people built it hoping the demand would come, and they were wrong. They were way wrong. That's okay. It's there. It's not going anywhere. And when the demand comes up, we'll have the capacity.

Now, that leads me to respectfully disagree with the conclusions from the Department of Commerce Office of Technology Policy, which they say, "Actions to accelerate demand are justified and valuable." I don't think so. I think they're neither justified, nor valuable. We have all we need to make demand happen today.

Next slide.

Turning to the lack of competition, local competition, I think it's an obvious statement but bears repetition that incumbents dislike competition. Nobody likes competition except consumers. And we see that they don't like competing with themselves. Every time you put out a DSL line, you're probably losing a second phone line, so the marginal revenue is relatively low.

My best example of that is Pagoo and Callwave, two companies that came up with a clever idea that if you're online and your phone is busy, they have your message delivered to them, which is then e-mailed to you. And so you can get a message while you're online saying that somebody is actually trying to speak to you on the phone.

This is a great application. It actually allows you to be online without having to have a second phone line. And, of course, the phone companies don't like that. And so, therefore, they did nothing.

Now, this is the type of customer service application that we should have the Bell Companies inventing. It's sort of embarrassing that it takes small startups to come up with these type of services.

It's also important to recognize that the benefits of competition don't go to the competitor. For the most part, entering into long distance is not going to make you a lot of money.

The benefits go to the customers. We've seen the status quo actually is not impressive.

In a report I read by Bob Hall and Professor Lehr, local prices are up nine percent, while long distance prices are down nine percent. So recognize that there isn't a lot of gain from entry in competitive market, and the more competitive the market is the less gain there is for entering. It's kind of one of those paradoxes. So if you succeed in making the market competitive, don't expect a lot of entry.

There is a question of whether or not adding competition will lead to more investment. I think I come down on the view that it does because that's the only way to protect yourself. But whether it does or it doesn't to me is secondary.

The important point is that there will be gains to consumers who will get lower prices, and there's plenty of investment that's already taken place. Meanwhile, the consumers have not gained enough from competition.

One possibility is that wireless is our hope. But here I'm not impressed either. Basically, pricing is just a disaster. Most of the money that's made is done by fooling people. The majority of people are on the wrong plan. Does anybody in this room have an idea how much they pay per minute for wireless? I venture the answer is no.

And the reason is is because you can't take how much you spend per month versus -- divided by minutes. I know I pay between five and 10 cents a minute for long distance. Nobody has an idea for wireless.

If you talk more and you go over your minutes, it's 35 cents. So initially it's 10, and then up to 35. We have incredibly complicated wireless pricing, and that's one of the things that's cutting it back from being more competition. So let me turn to my conclusions.

One more slide, please.

The Energy Star program was a terrific program to help people understand how to do refrigerators. Basically, you could understand what you would pay in electricity, and, therefore, know it's worth paying extra money for a high efficiency refrigerator.

We should have the same type of voluntary Energy Star pricing for wireless, where all phone companies are required to report the average amount paid by customers on each plan per minute and how much they pay per plan. Just because you are on a $39 plan doesn't mean on average people pay $39. So giving information stickers telling people how much they pay.

Secondly was you put more pressure, not less pressure, in terms of opening up local markets. No reason to relax antitrust, and we should find ways to reward entrants, because they are actually not going to be the big beneficiaries.

And, finally, the biggest productivity enhancer of our communication structure these days is e-mail, and e-mail is drowning in spam. And this is a simple solution that I believe exists, which is to put small postage on e-mail. And, in essence, that postage can be denied when people actually are happy to have gotten that message. You can have open gates to anybody who is a non-spammer, a dot edu, an AOL.

But, basically, figuring out how to make the things that we have today work better is, I believe, where our priorities should be.

Thank you so much.

CHAIRMAN POWELL: Thank you, Professor.

Now I'd like to introduce Professor Hal

Varian, who is the Dean of the School of Information Management and Systems at the University of California, Berkeley. He is also a professor in the Haas School of Business, professor in the Department of Economics, and holds the class of 1944 professorship.

Professor Varian has published numerous papers in economic theory, industrial organization, financial economics, econometrics, and information economics. He authored two major economics textbooks. His recent work has been concerned with the economics of information technology, the information economy, co-author of the best-selling book on business strategy Information Rules -- a terrific book, by the way.

We're happy to have you with us.

PROFESSOR VARIAN: Thank you. So I'm going to give a fairly quick talk, because some of the points have already been mentioned. I want to -- first slide, please.

I want to talk about the problem, the current situation, some possible resolutions, and then conclude.

Next slide.

Well, there's two dimensions to the

problem. One is the supply side. We've heard about that. Excessive investments during the late 1990s, there were new entrants, it's just as cheap to put in 266 strands of fiber as 24. Some people say this was dumb. It wasn't so dumb. It was just that the incremental cost was very low, and each individual company has certainly found it in its interest to add this capacity.

At the same time, we saw dramatic increases in switching speed, and wavelength division multiplexing came along, which increased the supply of existing bandwidth, and we've ended up with this glut in long haul fiber. Although it's important to emphasize that there are some other areas of the network that are still poorly served. For example, there are many customers complaining about not being able to get access to sufficient metro level fiber capacity.

Next slide.

Meanwhile, on the demand side, we saw much less demand than forecast. CEOs were going around telling us that internet traffic was doubling every 90 days. Well, if you think about it, that means 16 times a year, that means 256 times in two years. It just doesn't compute.

There's a nice paper by Andrew Lisko at the University of Minnesota, who has tried to track down the source of this urban legend.

Although it was true that for many years -- in fact, even this year it's likely true the internet traffic is doubling every year.

But video on demand, dramatic takeoff of broadband of the home, ubiquitous teleconferencing, and other promised applications never materialized.

Next slide, please.

So the result, of course, is that for many firms in the industry that total cost, including that sunk cost, exceed the revenue. That's not viable. So we have to find out some way to increase revenue or decrease cost.

Next slide.

Well, what about the revenue side?

Next slide, please. Thank you.

There are some unattractive options. We could have price supports. There is a long and sordid history of that in regulated industries. I don't think it will fly today. We could change merger guidelines to allow sufficient oligopoly power to push prices up. I know there are some in the industry that are arguing this point. I don't think it's a very attractive solution.

The attractive option, of course, is to try to encourage new services that can cross-subsidize those losses on legacy investment. So there's no silver bullet, as we heard before, but there may be a lot of little BBs.

And I mention one here -- camera equipped cell phones. This year, 37 percent of the cell phones sold in Japan have cameras. It's the big fad. Docomo charges 40 cents a photo to host a photo on their web server, and people can have a lot of fun taking pictures of each other and sending them back and forth. And I saw some numbers that said the average user of a cell phone -- of a photo equipped cell phone spends $11 more a month on service than other users. So it is a revenue source that's attractive.

I'm going to mention another such source in the next slide. Residential broadband won't bail us out. We just heard Barry's view, and I agree completely with everything he said. We ran a project called INDEX, Internet Demand Experiment, back in 1998, and we -- that was the only controlled experiment of how much people were willing to pay for broadband.

At that time it was 128 kilobits per second service. We had about 100 users. They were university people, prime -- early adopters of technology. We found that there was a very small willingness to pay for broadband with the applications then available, and the one exception was we did find that home office workers and telecommuters had a high -- much higher willingness to pay.

And one of the things I urged the ISPs to do was to put together a home office package with some virtual private networking, a deal with Kinko's, a deal with FedEx, do some market segmentation, and charge a premium price for the users that had a higher willingness to pay -- straight MBA 101 stuff.

Now that was pre-Napster, pre-KaZaA, but the point still holds. Those are not viable services on which to build an industry, and there is some demand for broadband, of course, but it saturates at about 15 percent. And it should say internet households there -- 15 percent of households currently use the internet at current prices.

Next slide.

So what you need are compelling applications. Copyright violations are the killer app, but they're getting killered.

(Laughter.)

You need a lower price. Twenty-five dollars is a great price point. There is substantial demand at that point, but something significantly more than $30 just doesn't work.

If you look at Korea, we all know that's the most broadband intensive country in the world, but why is that? Well, they sell DSL light at $23 a month. So, of course, the price point is there, and it's much more attractive from a cost point of view.

And if you look at prices in the U.S., they're going the wrong direction. They're going up. Last year price -- average price of residential broadband has gone up from $50 to $55.

Next slide.

What about reduced costs? Well, you could try to reduce operating cost. That's great. But how do you do it? You could reduce fixed cost, and what that really means is mark those fixed assets to market. That's the polite way of saying it. That's what economists say. But, of course, the more popular term is bankruptcy.

Shareholders lose, bondholders lose, but the public gets cheap telecom. And Larry White is going to say more about this, so I will defer further discussion until he gets to it.

Next point. There is one caveat I want to raise about bankruptcy, and that is the possibility of competitive bankruptcy, and the idea there is that if competitors cut costs by doing bankrupt, then I want to as well.

People have compared the telecom glut of the 1990s and 2000 with the railroad glut in the 1890s, and competitive bankruptcy was endemic at that time. There were more miles of track laid in 1880 than in any other decade in U.S. history, and in 1890 there were more miles in bankruptcy.

We already heard Robert Konefal talk about the CLECs. When they go bankrupt but the capacity is still there, it gives them a cost advantage when they come back. And so if you happen to be a surviving CLEC, it's in your interest to go bankrupt.

This could be an interaction with corporate organization, bundle losers into a subsidiary, and then put it into bankruptcy. So these are not reasons not to engage in financial reorganization, but I think it's important to recognize you will probably get more of it than you expect.

Last slide. What can the FCC do? Try to reduce transactions costs of financial organization. Give clear guidelines for asset transfer. Perhaps you can explicate the process in some way. We've got some of the world's experts on options working for the FCC.

But be warned about this point -- that there will probably be more financial reorganization than you might anticipate, just looking at the numbers, if it confers a competitive advantage. And it's better to recognize those losses sooner rather than later.

So we can skip the summary. I've already said it. Thank you.

CHAIRMAN POWELL: Thank you, Hal.

Now I want to introduce Kim Wallace, who is the Chief Political Analyst and Managing Director, who joined Lehman Brothers in May of 1994. As Lehman Brothers' chief political analyst, Mr. Wallace directs the firm's Equity Research U.S.

political analysis group responsible for analyzing legislative and regulatory events important to investors. He focuses on macroeconomic policy, telecommunications, antitrust, trade policy, and the financial services industry.

Welcome, Kim.

MR. WALLACE: Thank you. Good to see you again, Michael, Commissioners.

I have a prepared text that you have before you. I won't read from that. It'll save us some time and some considerable redundancy. The colleagues before me have done a good job of covering the landscape.

My group and I live on that third rail that Rob was talking about -- policy analysis. Staying away from what ought to be done is, unfortunately, not something that we have a luxury to do. Obviously, we aren't advocates. We merely look at what the policy process may issue, and then help institutional investors think through what might be their position afterward.

As such, I'll speak from the three slides that I've prepared, and if you could put up the first one.

You know, looking back may help us

understand a little bit of why we got there and where we may need to go in the future. If you look at the three drivers of the telecom boom in the late half of the last decade, they were tied to three phenomena -- capital formation, 1995 through 1999 was the last leg of a 20-year bull market.

Technology developments in the 1990s were spurred by both productivity developments and then capital formation, giving more money to some of those good ideas, and some of that money to very bad ideas.

And then lastly, and I think as importantly, were the rules changes. From 1995 through 1997, the European Union, the United States, and the WTO, all of those rulemaking bodies changed their rules and telecommunications policies -- one sector, other sectors, but especially telecommunications -- in order to spur competition and to increase choice, not just within their sovereign areas but across the world.

Those drivers are still at work today. Obviously, they have gone to other places in some regards, particularly when it comes to capital formation. But when the return comes to the telecommunications industry, those three drivers will still be there.

Investors talk about certainty constantly. Those of us in the capital markets look for certainty. That's the best way to put a value on any asset, if you know what certainty is going to go around it, whether it's event risk or risks that are endemic to that asset.

However, when it comes to telecommunications policy, that becomes difficult because of strategic defensive maneuvers made by the several players in the marketplace. So that certainty coming off the desk of the FCC isn't really certainty anymore until it comes off the desks of some justice somewhere.

As much as we would like certainty, it's very difficult to drive down to that level as long as that system is still in place. And I don't see that system going away any time soon.

The bottom half of the slide has been covered by my colleagues before me. I won't go into it. But there are several contributors to the industry's decline. One could argue I think reasonably that policymaking isn't one of them.

Certainly, people who are in a bad way right now from a balance sheet perspective can point to any number of policies or policymakers that they would like to have difference with, but understandably there are macroeconomic and microeconomic forces in telecommunications that are in line before you all, in my view.

Next slide.

Because there are so many players, and most of those players are well funded at least when it comes to the policymaking process, they all have access to you and to the policymakers on Capitol Hill, and for that matter the judicial system.

It is highly unlikely that the legislature -- Congress -- is going to be able to make new law anytime soon to significantly affect policymaking, which means the job will fall on you, your brothers and sisters at the state level, and, of course, the ever-present courts.

That's not to say that the legislature didn't have its day. The 1990s were very active, and we'll go through some of that in a minute with the 1992 Cable Act, the '96 Telecommunications Act, and then, of course, the 1999 Satellite Home Viewers Act.

The legislature put its stamp on the telecommunications industry, and, as I said before, here in the U.S. it was consistent with what we saw around the world, or at least in the Western world -- that is, competition, or at least pro-competitive policies, and then choice for consumers.

Competition and choice will likely continue to dominate your decisions, because those models obviously are the best. The difficulty, of course, for a participant in the industry is that as you all search for perfect competition, if you will, that since the drive down the value of the commodities of the people in the marketplace sell. There is going to be a give there. It's hard to tell what that is sitting here today.

The last point on this slide that I'd make is that as terrible as the situation is for a lot of the players in the telecommunications market, it's very likely, as many people have said before me, to change significantly until the macroeconomic conditions of the country and the world do, and that includes the investment decisions of both businesses and individuals. It doesn't look like we are there yet. Certainly, it does look like policymakers have taken some steps to move that forward.

Next slide, please.

One of the things we attempt to do with institutional investors is to take policies made and put them on a map, if you will, so that we can build a road sign for people as to the signals you all and others are sending about investment opportunities, and, for that matter, risks.

If you look at some of the points on this slide -- and, obviously, this is selective. There were several other actions taken by the Commission, taken by the legislatures at the state level, and by Congress that aren't on here.

But if you look at these five or six acts that were taken in the two decisions by the Supreme Court, it's very clear this trend toward competition and consumer choice has been decided upon by the three branches of the government and is very unlikely to change. Those signals have been sent throughout the markets. And although on a temporary basis people would blame some of those signals for bad decisions made, as many have said before me, some of those decisions came because perceptions were unrealistic about the signals that had been sent.

I would just close by saying the

lessons learned, or at least the desired result, for robust facilities-based competition, you end up with a platform whereby there is wireless performers, obviously there will be wire line performers, and those wire line performers will operate off of a telephony network, as well as the cable network.

It's hard to see how it could get much better than that if your end goal is competition and consumer choice.

I'll stop there.

CHAIRMAN POWELL: Thank you very much, Kim.

I'd now like to welcome Lara Warner. She's a director at Credit Suisse First Boston in the Equity Research Department. She joined the firm in April of 2002. Ms. Warner covers the cable television industry. She was ranked the top up-and-comer analyst by her clients for coverage of the cable industry by institutional investors in 2001.

Welcome, Lara.

MS. WARNER: Thanks very much.

Just to put it in perspective, I'm the shoe salesman selling the wing tips to Rob down at the end of the table.

(Laughter.)

I'd go for the penny loafers, Rob, just to be clear.

Thank you very much for having me here today, and I have lived on many sides of this debate. Prior to covering cable, I actually was in the telecommunications industry, both at a corporate level as well as on the Wall Street side, and have watched this process now for many, many years, and would just like to give my perspective, most of which has been mentioned by my colleagues, but with particular focus I think on the consumer side of this debate.

We've talked a lot about the overinvestment, much of which had to do with the business telecommunications industry. So as I go through, I'll try and point out more of a consumer perspective.

I would agree, obviously, that the capital markets played a very large role in terms of overfinancing this industry, and I would argue that, really, very little of it had to do with the fault of any policymakers. I recall that, you know, we used to use the term "Build it and they will come," and I think many networks were constructed in anticipation of facilities-based competition, although much of that was for the business market.

On the consumer side, I think you saw a fairly rational buildout of the wireless networks based on demand, and cable networks were, in essence, built out: a) because they anticipated competition, but b) because we also had fairly easy access to capital.

I would summarize and say that we, as a capital market structure, no longer assessed risk appropriately, and that was really our main issue. We've talked a lot here today about the fact that we were very good on the supply side. We were not very good on the demand side.

We assumed the pie was dramatically expanding, but we actually did some work that suggested that on the consumer side, even though we had significant adoption of narrow band, wireless, and broadband, much of that was fueled by the dramatic reductions we saw in the last five to seven years on the long distance side of the business.

And if you look at the way consumers

spend across all services and communications on a monthly basis, they've been pretty consistent in terms of how much they've been willing to spend every year. So that market was not expanding as dramatically as we thought.

So today the stocks are down at lows for both telecom and cable, and I think what you see is the market anticipating more and more head-to-head competition, with probably a more critical assessment of risk and maybe overassessment of the risk.

Cable stocks are down due to satellite competition. RBOCs are down due to impending cable, wireless, and IXC competition, and so on and so forth.

And I think it's fair to ask what has changed. My view is that, you know, obviously these threats of competition existed before. The difference is our mentality as a capital market structure.

Number one, I think this is very key. The market is really unwilling to believe in future cashflows from new services until they appear. When companies talk, even particularly on the cable side, about opportunities for new services using existing broadband capacity, I think generally the response by markets has been lukewarm at best, because we don't believe anymore in things like videoconferencing and other new applications until we see how consumers literally adopt those services.

I think, therefore, we believe there is little to no expansion right now of the industry pie. And, consequently, given all players in the industry are incumbents right now, they all have something to lose. So, consequently, I think many people believe that competition is viewed as a zero sum game broadly across the industry today.

So how can you, as the FCC, improve the situation? I think, first of all, in terms of the stock prices, it's important to recognize that your goal of introducing competition, I would argue, runs contrary to market wishes.

If we're totally honest, the market does not like competition introduced into a regulated industry -- I think we touched on this earlier -- because it does threaten returns in the short term, and so I would caution you to take our reactions and at least sift through them a little bit given that fact.

I think also that the lack of certainty has only exacerbated the situation, and this is probably an area where you can help. As we listen and, frankly, are buffeted by the rhetoric on both sides of the fence, whether it's from the incumbent long distance players, the cable operators, or the RBOCs, they all have their unique position as to who wins, who is right, and we are not able to assess it in the abstract and independent eye of the market in terms of competition.

So one certainty is very important, and as soon as possible I think would also be something I'd underscore.

Secondly, in terms of the balance sheets, I would argue there is very little you can do here as well. The industry has stalled the investment cycle, as we have heard repeatedly, and I would say we've put the industry on a proverbial diet.

I think the challenge is right now that basically what's left for these companies to do is make very hard decisions around their business, cut back capital spending, sell off non-performing businesses, generate free cashflow, pay down debt, and at that point I think you'll see the markets much more open to incremental investment by the industry. But, again, very little I think that you can do in terms of that process today.

That leads me, really, to the third question, which is, how do you encourage investment and return us to a growth industry?

And I would argue that while the markets don't like it, history seems to say that competition is the only really factor that drives investment over time. We saw it in the cable industry as they upgraded their networks, the RBOCs deploying DSL, and you may one day have a cable industry that is spurring on the RBOCs to think about how they may run their consumer business on a more efficient basis.

And, obviously, the UNE-P debate has hit a nerve in this area. I just want to make a couple of comments on this topic, and I think this is a really large challenge for all of you, which is whether your goal is competition today or facilities-based competition down the road.

I can say, I don't know which one makes sense from your perspective, but the timing, I believe, is going to be very different. In my opinion, the market will be reticent to fund any additional capital for facilities-based competition, because if you look at the slides we've been seeing, we did fund quite a bit of facilities in the marketplace on both the business and consumer side.

As it relates to cable, which is something we've been pretty focused on, I think while telephony is an opportunity that cable will not turn away from, because it, frankly, is their largest opportunity for growth, they face the similar challenge of needing to pay down debt in the near term to really give themselves the flexibility to fuel incremental investment.

I would also point out that while that process may take several years, they are being, frankly, threatened by a competitor in their core business -- the video business. And so as a cable operator, I think the challenge in three to four years when you do have incremental capital is: where will you deploy it, and in what size and scope? Particularly if your core business remains under threat as it represents the vast majority of your revenues.

We are also waiting for IP telephony, which I think is clearly a technology path that has taken a lot longer than anyone thought, and that's something we continue to wait for, frankly, before investing incrementally.

So, in summary, I would say what the market needs is certainty, the ability to see resulting competition proceed in the market, and let us judge the results versus being buffeted by the rhetoric and projections of all the companies that are involved today. So your challenge, I think, is, again, provide certainty, let the companies compete, and let the markets determine which management teams innovate and, therefore, survive.

Thanks.

CHAIRMAN POWELL: Thank you very much.

Finally, I'd like to introduce Larry White, who is the Arthur Imperatore -- did I pronounce it right? Professor of Economics at New York University Stern School of Business.

During 1986 to 1989, he was on leave to serve as board member, Federal Home Loan Bank Board. And during 1982 to '83, he was on leave to serve as Director of the Economic Policy Office of the Antitrust Division, U.S. Department of Justice.

Welcome, Larry.

PROFESSOR WHITE: Thank you. Thank you, Mr. Chairman, Commissioners of the FCC.

When you're the last person on an impressive panel like this, you often worry there are no good lines left. Well, I'll try just to at least leave a few.

Next slide. Oh, okay.

We've already heard the basic reasons for why we're here today -- a large expansion of capacity, a lot of investment, technological change compounding this, much slower growth than was expected, the slowing of the economy that Dr. Wilkie talked about earlier, and then, on top of that, the corporate governance and accounting revelations.

There are no magical, painless solutions. As Commissioner Copps said earlier, there is no silver bullet. But I think there are three important principles that the private sector and the public sector should adhere to.

Next slide, please.

The first is acknowledge and recognize the losses and the pain, and then move on.

Second, follow good antitrust principles.

Third, do not delay efficiency-increasing developments in spectrum allocation and usage.

Next slide, please.

Those losses are there. They have to be absorbed by someone -- the owners/shareholders, first, then the lenders/creditors. And that's the way it should be. Sooner and faster is better. That way companies and markets can then recognize true prospective marginal costs, and we can get the lower prices, expanded demand, greater utilization, greater economic efficiency.

Next slide, please.

Delay is going to stretch out the pain, but not avoid it. Let's all remember: investors do not deserve a return. They make risky investments. Often they succeed. Sometimes they lose, and that's the way it ought to be in a market economy.

And to prop up losing investors is to privatize the gains, socialize the losses, and this is a recipe for inefficient decisions and inequitable outcomes.

Next slide, please.

Sizeable bankruptcies already exist.

There are possibly more to come. But it's important to remember they do not mean the shuttering of a company, so long as the company has prospective value.

I read in The Wall Street Journal last week that I believe 360 Networks looks like it's going to be emerging from bankruptcy as a going concern. And bankruptcies provide resolution for people, for companies, for customers, for suppliers, and then everyone can move on.

Now, I know it's not a lot of fun, and it's not a perfect process. There can be glitches, but it does provide resolution.

Now, just so you don't think we're all just one big happy family here, I want to take a little bit of issue with what Hal Varian -- not what he said, but what he wrote down on one of his slides about the problem with bankruptcy, about competitive bankruptcy.

I don't think you need -- you want to look at it as a problem. It's simply there. And I think the really important point here is simply that the logic of marginal cost pricing is going to will out in any kind of competitive process. And that's really what's going on.

Bankruptcy allows that marginal cost pricing to happen a little bit faster, but it's going to happen anyway. And, again, sooner is better than later.

Next slide, please.

How did talk about the 19th -- oh, can we get the next slide? There we go.

The 19th century railroads -- he's right on the mark there. There was overbuilding, and not as much demand as was expected, bankruptcies. We had surviving railroads, and the railroad industry went on for the next half century to be the center of transportation for passengers, for freight, and even today 100 years -- over 100 years later is central to freight transportation.

Next slide, please.

A more recent example that I lived through, and my back side is plenty scarred from the experience, the savings and loan debacle. We now recognize that it was excessive commercial real estate investments and inadequate safety and soundness regulation in the early 1980s that brought on the crisis, resulting in overbuilt, overpriced commercial real estate. See-through office buildings were a common phrase in sunbelt cities as of the mid-1980s. And we had many hundreds of insolvent savings and loans.

Next slide, please.

There was a lot of political pressure at the time to go slow, give time the opportunity to let conditions turn around. And there were fears that selling commercial real estate would only depress prices further.

But markets weren't going to be fooled. They already knew there was the real estate overhang, and that that was going to have a negative effect on prices, and delay would have allowed more risk-taking by insolvent savings and loans and a continued overhang of real estate.

Next slide, please.

The cleanup of insolvent savings and loans took too long. But when it did finally get underway, it proceeded expeditiously.

The Resolution Trust Corporation, the RTC, did move expeditiously to dispose of commercial real estate that it inherited from the insolvent S&Ls. And rapid actions allowed both sectors -- the S&Ls and commercial real estate -- to emerge stronger and sooner.

A current example -- next slide. There

we go. The Japanese banks. After the Japanese stock market and real estate market bubbles popped in the early 1990s, the government of Japan should have forced banks to acknowledge losses, should have dealt expeditiously with insolvent banks, and should have found new owners for insolvent banks. And then the Japanese banks could have resumed their proper lending role to the Japanese economy.

Next slide.

Unfortunately, instead, the Japanese government dithered. When actions have been taken, they have been too little and too late. Japanese banks remain saddled even today with bad loans on which they have not yet fully recognized losses. The banks remained moribund and reluctant to lend, and the Japanese economy remains stagnant. And this is not a pattern to be followed.

Just at least once a week, sometimes twice a week, we see headlines in The Wall Street Journal, The New York Times, about the stagnant Japanese economy, the stagnant Japanese banks. Now they're going to do something, and they don't do it, and they're paying a large price for that.

Next slide, please. Next slide. Oh, okay. Yes. There we go. Okay.

My second major point -- follow good antitrust principles. As the Chairman indicated earlier, some consolidation is warranted, but financial difficulties are not a good excuse to abandon sound antitrust principles. The Department of Justice-FTC, horizontal merger guidelines, provide sensible guidance to permit efficient combinations and to avoid the creation of market power.

Slack antitrust standards, by comparison, for other regulated industries -- for example, the railroad and airline industries -- mergers there with slack standards have had unfortunate outcomes.

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My last point. Don't delay efficiency-increasing developments for spectrum. Substantial improvements continue to be possible. They can come about through improved technologies and through improved regulation and deregulation. And don't delay them because of feared effects on fiber-optic cable, because the efficiency advantages are important to have regardless.

Spectrum auctions carried out by this Commission for the last decade are a good start.

But they're only a start. They don't go nearly far enough, because they don't apply to nearly enough spectrum.

The right way to proceed is to think of spectrum as property to propertyze the spectrum, to deal with the public aspects in a property system just the way we deal with the public aspects of real estate. There is room for government. There is room for the private sector in real estate. The same is true for the spectrum.

And so last slide, please. Next slide. Yes.

Again, my three major points. Acknowledge and recognize the losses and the pain and move on. Follow good antitrust principles. And do not delay the efficiency-increasing developments in spectrum allocation and usage.

Thank you very much, Mr. Chairman, Commissioners.

CHAIRMAN POWELL: Thank you very much, Professor White.

I'd like to note a monumental achievement. We finished exactly on time. That's what you get when you've got a panel committed to efficiency and productivity, I guess.

We now will have a period in which we'll hopefully have a productive dialogue. And I would suggest to my colleagues that, rather than just going in order that the floor is available to anyone who might have a question, and just feel free to jump in at any moment that it moves you.

Does anybody have a question they'd like to start with?

COMMISSIONER ABERNATHY: Actually, I have a question based on all of the discussion that we had today. And my experience in this industry, it's always been that the telecom industry was capital-intensive, and this was driven by investment in new technology and new capacity.

And yet now, according to a number of you, there is really no growth expected for any of the industry, whether you look at local or long distance or broadband. And this is due, apparently, to lack of access to capital and the level of competition and no expansion of the pie.

So, then, my question would be: if there's no more infrastructure investment, at least in the near future as you see it, does that mean that regardless of what we do with pricing, we're not going to see infrastructure investment for at least -- it won't stimulate that? And if it won't, maybe we should do it anyway, because it's the right thing to do.

But what else is there? Does that mean that in order to stimulate it, maybe we shouldn't even be thinking about infrastructure investment? Maybe we should be thinking more along the lines of mergers. But then, what does that do to the competitive environment?

So those are my questions.

MR. GENSLER: Can we just answer or --

COMMISSIONER ABERNATHY: Yes.

MR. GENSLER: I would actually differ with one of your premises. I think there is good unit growth and unit consumption in many areas. I mean, fixed wire line is shrinking, but everything else is growing. I think pricing gets to the heart of it. And without proper pricing, the returns on capital aren't good enough.

And, you know, the system of wholesale pricing on UNE-P gets at part of the issue, but even rate rebalancing, which in many parts of the world they let happen.

Now, we have this issue with state PUCs where no one would get reelected at that level if they ever let a rate rebalance happen. But separate from that issue, many parts of the world find ways to get around this and give, you know, price cap regimes with rate rebalancing, and you get investment if the prices get closer to, you know, what would be needed for proper reinvestment rates.

COMMISSIONER ABERNATHY: But I thought you had said that the goal, really, what you were pushing for right now was you want them to decrease debt and get more of the revenues back out into the economy, into the investment community. But that seems to be inconsistent with the decision to invest in infrastructure.

MR. GENSLER: Absolutely. But what we have is, you know, you have a product migration from a very heavily regulated but shrinking fixed wire line to competitive wireless data, etcetera. And you have a mix shift going to lower margin, lower returns on capital.

That's just a natural product migration, but then we sit and we sort of treat the corpus, which is shrinking, as if it can pay for everything else, and we give it low rates that aren't allowed to change and wholesale rates that make it even harder. It makes it hard for those companies to think about having enough capital to reinvest in the new product lines.

PROFESSOR VARIAN: To answer your question a bit more peripherally, I would say that if you've got an excess of pie, then invest in ice cream. There are still a lot of complementary services that could be very valuable, particularly if there is very cheap telecommunication services.

I mentioned there is still something of a shortage in some places of metropolitan fiber service. But if the long haul network is there, and very competitively priced, I think the investment funds will be forthcoming to pay for that. What you really want to look at, on a going-forward basis, will the money be there for the complementary services that can really utilize this inexpensive telecommunication? I think they will be.

PROFESSOR WHITE: I would second that.

COMMISSIONER COPPS: Let me ask a question, if I could. I was both hugely fascinated and hugely frustrated by the discussion on competition. I think a couple of the speakers at the outset said nobody likes competition.

Certainly, the market doesn't like competition. Least of all does it like the facilities-based kind of competition to which a number of us would like to see an evolution toward.

Yet as Mr. Wallace pointed out, and as the rather clear commitment of the country as expressed by three branches of government, that we are going to have competition in the United States. So I don't know quite where that leaves us. It's kind of the irresistible force meeting the immovable object.

But I would certainly appreciate having some little guidance on how we might extract ourselves from a dilemma of this magnitude. And, really, is it unrealistic investor expectations that's the culprit here as much as anything else? Are those expectations at historically unprecedented levels? Is that a problem that we're dealing with? Or feel free to --

MS. WARNER: I'll just take a first stab. I'm sure there will be others. I mean, my personal view is we are, I think, at somewhat of a stalling point in terms of how to resolve this. Part of the issue is, obviously, that the incumbent businesses in telecommunications appear to be to many investors the only place in which there is an opportunity for return.

And so I would say that while markets generally -- markets don't like competition, and, frankly, if competition occurs slowly in this market, we all have an opportunity to make, you know, better returns or at least more manageable returns over the next few years as competition arrives.

I think the challenge is for facilities-based competition that we believe that a lot of the capital we invested in the last five years was facilities-based competition, and that's why we are sitting here with, you know, several networks, many of which are in bankruptcy.

So in terms of spurring on incremental facilities-based competition, you know, it's not clear to me that the market will tolerate that. I think we'd prefer to see how the existing structure works out. And maybe to Commissioner Abernathy's question, maybe it is a matter of structural solutions first, given we've got facilities and capacity out there before, you know, we really can move on in terms of incremental investment.

PROFESSOR WHITE: Let me -- I'd like to

address that as well. And I think here is where leadership by the Commission and by all branches of government are really important. I say this as a former chief economist at the Antitrust Division. I know the Chairman, as a fellow alum of the Antitrust Division, I truly believe would share this.

The markets may not like it, but that's the market's problem. And the public good, the public interest in greater competition, really ought to trump anything else. And that's what leadership ought to be all about.

CHAIRMAN POWELL: Let me just exercise a privilege and throw a gloss on this. I think it's wrong to say markets don't like competition. Markets like winners, and markets function very effectively in many very competitive markets. I think that is too gloomy as sort of a binary choice.

I mean, I think that the greater concern here is people are struggling to find winners and struggling to see paths for different classes of companies in different markets to find a path to success or victory.

I mean, money flows all the time into

people who are entering competitive markets, if they think they have an advantage, a competitive advantage, a differentiated product, something that will allow it to gain market share. So let's not -- I'd like to sort of take issue a little bit at the idea.

You know, competitors don't like competition all the time. But I think markets are fairly agnostic. As long as there's an opportunity to get a return on that investment, they'll take it, even in a competitive market. I just thought I'd --

MR. WALLACE: And recent history bears it out. If you look at the financial services industry and the telecommunications media industry broadly from 1994 through 1995, highly competitive in new ways that people didn't understand, and yet returns across the board were good for many, and the winners really won.

In terms of the leadership and the structure for regulation, Justice Kennedy probably hit it on the head in the 1994 and 1997 decisions in FCC v. Turner. If there's a bottleneck created by one entity in terms of distribution, content, or their ability to control prices in that market disproportionately, that's something that ought to be regulated. If you don't have the bottleneck, market forces are probably taking care of it for you.

PROFESSOR VARIAN: I have one brief comment on your phrase "historically unprecedented." I don't think there's anything that's historically unprecedented. We've seen, of course, booms and busts continually -- the railroads in the 1840s and 1880s, the radio boom in the 1920s.

There was at the time the famous euphoria of 1923, which compares almost exactly to the internet euphoria of 2000, PC software in the 1980s. 1907 to 1910 there were over 300 companies that entered the automobile industry, and then they were winnowed out in the first part of that decade.

So continually, whenever you have booms in technology, you'll see something that captures the public imagination, a big investment boom, and not a bit of an overhang. And I think the lesson that Larry raised was the most important thing to remember, that typically it's better to recognize those losses sooner rather than later. Don't drag it out, don't try to pretend they aren't there, and move on. That's what has worked in the past, and I think that's what's going to work now.

CHAIRMAN POWELL: One of the things that I think is always missing in this kind of discussion is, you know, competition is not some infinite concept. Markets try to find a point of equilibrium on the right number of competitors and the right space, so that producers continue to produce and consumers continue to purchase.

We all cite to historical examples from tulips to railroads to airlines. But there has been a growing sort of recognition that there is an aspect of network industries that just tends to scale in scope, that just has to be accounted for as a matter of effective policy.

You know, people cite the railroads, but then -- let's say, how many of them are there. Let's cite the airlines. Now let's talk about how many of them there are still not turning profits. You know, let's cite the telegraph and its experience from 80 to one, and then to telephones, which produced a government embracing of one.

Can any of you -- I know, you know, how you've written about this. Others -- is there some additional qualification because of the necessary nature of a networked industry?

PROFESSOR VARIAN: Well, I would say the important characteristics are to look at the scale economies on the supply side and the demand side. So if you have an industry where there are large scale economies, cost advantages in production, you are going to see a relatively small number of competitors. And, of course, we saw that in the automobile industry.

If you have an industry where there is very large demand side economies of scale, so that there is -- more valuable to connect to the largest player, then you'd expect to see a relatively small number of players there.

I think there absolutely will be continued consolidation in the telecommunication industry, but -- and, in fact, it's possible that market forces alone would take you all the way to a monopoly player. But I think that there is a role for policy in stopping somewhat short of that purely competitive outcome, in my opinion. The --

CHAIRMAN POWELL: How do you know where it is?

PROFESSOR VARIAN: How do you know where it is? Well, I think economists generally would agree that one and two are too small, and three is getting there, and five looks pretty good.

(Laughter.)

PROFESSOR NALEBUFF: Let me add to that. I think it's the case that, in particular for telecom, they have done a very bad job with product differentiation, that for the most part I don't have any idea what network I'm using, how it's -- what's traveling over where, and that it actually doesn't have to be that way.

In fact, my discussion about the lack of transparency in wireless pricing I think is one of the reasons why we have incredibly high churn in the United States, that basically people don't like their wireless carriers because they constantly find their bills to be higher than they expect them to be, and they don't understand it.

So my view is that the lack of service innovations is actually remarkably little. Think about how much better computers are 20 years -- today compared to 20 years ago versus how much better telecommunications is. So they have the curse of low marginal cost and high excess capacity, which is a recipe for losing money.

But at the same time, the antidote to

that, some product differentiation and some customer loyalty, is something they've failed to achieve. And that's their own problem.

MR. KONEFAL: I would offer a couple more thoughts on it. I guess, first off, telecom is, by definition, a very capital-intensive industry. It requires very patient capital. It takes a long, long time for that return to be earned.

And in those markets that are very well developed, there is already an incumbent. And in the more nascent markets, like wireless -- and I'm sort of using time horizon rather liberally here -- but the wireless area or the data area, where there isn't really a front runner, the opportunity for success at least has more realistic teeth to it than in areas where there's already a very dominant incumbent.

COMMISSIONER COPPS: Is patient capital an oxymoron?

(Laughter.)

MR. KONEFAL: Excuse me?

COMMISSIONER COPPS: Is patient capital an oxymoron?

MR. KONEFAL: It is these days.

(Laughter.)

COMMISSIONER MARTIN: I wanted to ask -- I seem to sense a tension between some, I thought, of the panelists. And I just want to be sure I understand. There was a lot of talk about not giving up on competition on the one hand, but I think that, really, the distinction or the challenge for us is the degree to which we recognize the intermodal competitions occurring and how that impacts our intramodal regulations.

And that's -- so I think we can all agree on the competition principles. But I think that we have another level in our questions of what we're -- what issues we're facing and the challenges that we're dealing with.

And I heard Rob talking about, for example, some of the concerns he had with the wholesale pricing market and the potential wrong signals that I think it was sending. I think I heard Rob say it.

But then I also heard Lara and Larry at the end talking about the importance of continuing to focus on intramodal competition because of their doubts about facilities-based competition because of the investment that has already occurred there.

And so I'm wondering, is there unanimity on that question? And where should our focus be? Because that's where I think the real challenge is for us is that when everyone talks about don't give up on competition, or that's going to be ultimately what drives additional resources, infrastructure, and services, but the degree to which we recognize the intermodal platform to platform competition that's occurring, or whether we continue to have as a point of emphasis the intramodal, that I think for me is the real question. And I was wondering if each of you could comment on which direction and how much of a degree do you think we need to recognize that going forward.

MR. GENSLER: I may as well start, since I brought it up. My biases are clear -- is that intermodal competition is a wonderful thing, and it's here to stay and it's actually one of the great things that has happened in telecom in the last 10 or so years.

And if we continue to think of it as if they are just individual silos, and there's not cross-correlations and cross-subsidies and cross-effects, it gets to Michael's question about networks and how we regulate networks.

Well, a network business inherently has cross-subsidies and cross-costs that are just very hard to capture in any one business product line. And if we ignore the intermodal, it's at our peril when we're trying to incent some small market share player in an intramodal way as if it's the only competition. And we ought to embrace the fact there's intermodal, that there's broadband, there's wireless, there's fixed line, and work -- use that to work to our advantage and competition would be a great thing in that way. If we try to niche each mode to death with little policies, you just drive investment away.

CHAIRMAN POWELL: If anybody else has any --

MR. KONEFAL: I guess I would say that intermodal is actually critical in the sense that for each of the companies that are feeling pressure on their core businesses, their opportunity to perform their way out is through entering into, if not developing rather aggressively, other modes of business.

PROFESSOR NALEBUFF: I'd like to challenge the question in the sense of I don't care if there's less investment. We've had too much investment. Our problem is not getting more investment. Actually, the goal of competition is to bring down prices, and that's actually something that needs to happen and hasn't happened.

And so if it increases investment, that's great. But if it doesn't, I can live with that for a while. We've had plenty of that.

MS. WARNER: I guess I'll answer, and I'll answer this from my cable perspective at the moment. Cable obviously spent over $80 billion in the last six years building out networks, although now they're finding themselves with somewhat of a constrained capital environment themselves.

One way you might want to think about this is: what if cable had access to existing networks? What would that do? And I think you can look at it two ways. One is, from my perspective, you would probably view that as positive.

You'd have an opportunity for the cable industry to get into the telephony business, for example, without putting capital up front, proving they could actually scale in that business, and then putting capital behind it.

And I do believe over time companies

are incented to put capital behind it, particularly the cable industry. The bad thing is that they would clearly stop facilities-based competition. I would argue they don't have a lot of luxury to do that in the near term, but clearly they would stop facilities-based competition.

So it depends on what your ultimate goals are, but I would say, as an investor, as cable investors would probably, you know, look positively on that opportunity, but they are the market attacker. You know, they are not the incumbent.

And I think you can't have this discussion without recognizing that, you know, there is a significant part of this that is wrapped around the fact that a large amount of market cap in the industry is in the incumbents.

PROFESSOR WHITE: Let me jump in here, and I think you ought to do both, that you just can't think of it as a dichotomy. You've got to do both. To use I think a good analogy, to think about transportation. Yes, trucks versus rail is important, but also rail versus rail and trucks versus trucks is also important. And just you have to do both the inter and the intra, and you can't just focus on one or the other.

PROFESSOR VARIAN: I think if you went back to 1995 and told Congress that if you vote for this bill, this 1996 bill, by 2002 almost every household in the U.S. will have access to cable, wireless, and copper for local telephone service, and satellite will be competing intensely with cable, and fixed wireless will begin to be deployed, they would say, "Fantastic. That's what we want to vote for."

So, actually, in my opinion, the current situation has been much more successful than one might have thought it would have been five years ago. And somehow the cost of that success is the fact that you're seeing a lot of incumbents facing profit problems. That's the nature of competition.

MR. WALLACE: And that success will become more evident, again, when macroeconomic conditions change. But, you know, unfortunately for you all, you don't have the luxury of waiting, nor do you have the luxury of choosing which one to get behind, because intermodal is here. The assets are there. It's unlikely they're going to be ripped out of the sky or the ground anytime soon.

Someone will use them.

And intramodal is a rule that you're stuck with. Until some level of competition exists that meets the '96 Act level, or threshold, you've got to provide both. I don't see that it's an either/or.

COMMISSIONER COPPS: One of the mandates we operate under here is to encourage the delivery of comparable telecom services at comparable prices in both urban and rural America, and to all consumers in America. And I don't know how you would define the place of rural America in the business plans of some of the companies that you deal with.

But I'd like to ask a question that I ask a lot of the business people that come through my office, and I guess a wealth of diversity in the response. Do you think that without incentives and without stronger universal service commitments on the part of the government, that market forces on their own are capable of leading to this kind of comparable telecom service at comparable prices across both rural and urban America?

PROFESSOR VARIAN: I believe it would not. I believe that the cost would reflect prices under a market system, and I think that if it's more expensive to serve a given area, it's going to be more costly to consume that service. I actually grew up on a farm. I'm one of the few people around who can say that these days. But we paid a lot less for parking on the farm --

(Laughter.)

-- than I do now, and the fact that we might have to pay more for cable or for telephone service doesn't seem to me to be unreasonable.

COMMISSIONER COPPS: Well, this is another one of those areas where we have a legislative mandate and the irresistible force meeting an immovable object that I talked about.

CHAIRMAN POWELL: I'd like to ask a question, but I can't resist being a little cantankerous about a couple of points.

(Laughter.)

Professor Nalebuff, I don't think I agree that investment is irrelevant, for no other reason than I don't think competition drives prices down. I think competition drives prices to their economically efficient levels. And if those are below -- if those are below that mark, it will drive prices up.

And that will be just as logical in an economic system as the -- the reason I say this is because this is an important part of the problem we have in the telecommunications sector, because as long as we have, to carry on from Commissioner Copps' point, a major political and public policy mandate about universal service, and as long as we have massive amounts of public funds used to subsidize those rates, the competition question is not a simple matter of, you know, free reign.

And trying to continue to encourage investment is critical to continue to maintain the viability of a network that is priced at retail, below its costs on average. I think that makes an important public policy problem.

I guess I also think it's an important public policy problem from another universal service standpoint, which is certainly the country would allow companies to fail. But at some level, it wouldn't tolerate it. At some level of critical services and critical infrastructure, we would insist on carrier of last resorts or a reference to the social contract that I think Rob talked about.

And one of the biggest public policy problems for decades in telecom is to somehow continue to stimulate investment to maintain the quality of the network at a level of reliability, because 911 or something is not fungible.

But I wanted to kind of change the discussion a little bit to pick up on some of the themes I heard. One of them was about technology, and in some ways I don't know that we talked enough about that.

I remember being at a conference -- indeed, I think one sponsored by Haas -- in which I heard a very chilling thing which I think has now come home to roost by a major CEO of a major information company. He says, "I have a major problem that I've never seen before, and I don't know how to deal with. If I don't tell my engineers and physicists to do anything, they're going to show up in my office in a year and tell me, 'Guess what, boss. I just tripled your capacity and cut your price in half.'"

And he said, "You don't understand. From a business point, that means I have only two options. One, I have to cut prices 50 percent for what I'm delivering, or I've got to come up with 50 percent more value to do with the same network I did before, and neither of them is an attractive proposition to me."

He said, "And what scares me, this looks like forever." And that as long as the technology curve keeps disrupting that equation, you know, he says, "The products I sell I can't ask Ford Motor Company to throw everything out every year and start over." And that's a real challenge.

To me, this is a real serious secular component that I think is part of the story about what happened. I don't remember -- one of you said I don't think they made a really bad mistake and made some rationality in the number of strands they were -- I think Hal said investing. But what they really didn't count on is the degree to which technology would disrupt that choice.

But even though the market is down and grade magazines like the industry standard aren't reminding us of the Technology Modifications every week, even while we sit here, the microprocessor chip is still doubling. Even while we sit here, the prices and capacity of memory continue to be cut. The capacity increase is cut.

But technology is really not interested in this discussion and continues to be this sort of massive secular and disruptive change that I think policymakers are going to have to struggle with, businesses are going to struggle with, and I'd even be willing to challenge industry to struggle with, because I'm not so sure that traditional measures of supply and demand and projections are going to hold up in a market of this sort of unpredictive disruptions, and that we're all sort of in this soup of, how do you deal with dynamism forever.

John Chambers often says you've got to get used to being a declining cost business for the rest of your life. This is not a comfortable place for a CEO. I would submit it's not a comfortable place for regulators either who tend to hope for stable assumptions. And I'm not so sure I think investors now are waking up to the cold fear of that.

Does anybody -- I mean, this is a very open-ended question, but I think it's important one -- have any sense of the degree to which that technology, that secular component, is a part of the fear of the investment equation? And is there any sense of how the money and the markets will grapple with it on a going-forward basis?

Rob, do you want to start or -- or Robert?

MR. GENSLER: I'll start. You know, this is something -- I've covered the industry eight years, and we've always known about as a declining cost. But what makes it even more troubling, because this is just a fact of life, is when you deal with TELRIC pricing, by definition you are always giving new entrants the ability to lease the incumbent's network at forward-looking, best practice type costs, which is wonderful policy in its abstract, but in reality of this declining cost you will always definitionally have stranded costs.

And TELRIC, combined with UNE-P, it's sort of scary, you know, as opposed to, yes, it's declining costs, and I've got enough -- remember, if I have enough scale and scope that I have a market share advantage, the little nitchy player only has an advantage if they can load their network. This is the great fallacy of a lot of the big networks that were built. They were unloaded, so their efficiencies were terrible.

Okay. But if they can load them and resell everyone else's at a forward-looking, declining cost that the incumbent actually by definition can't have because they have their stranded plant, it's very disturbing.

MR. KONEFAL: I mean, without question, the telecom vendors are on their backs suffering even more so than the service firms are. Practically speaking, not all telecom investment is running to zero. It is differential. It is probably most dramatically cut back in the long haul, where the overcapacity issue is the greatest.

It is less so in the metro and the local networks, as well as the wireless networks. I mean, the vendors, at least for now, are riding a couple trends. One is that there is still a fairly substantial investment need there, and the other is that while revenues are unquestionably under pressure, traffic is continuing to grow. And at some point you absorb the capacity.

So it's not a -- sort of a ready-quick answer, but at some point there's going to need to be investment in plant. And, furthermore, we would -- we also seem to be talking about investment in the offensive sense of the term. There really is, in some respects, a defensive need to invest.

If the cable industry, for example, did not invest as much as it had over the past five years, it might be a different ball game with DBS.

But they were prompted to invest by that competitive threat. They have invested heavily there.

CHAIRMAN POWELL: We are over time, and I don't want to risk, if anybody particularly has flights or something -- if you can stay, I would propose just 10 more minutes to make sure we haven't -- we have certainly exhausted questions. Is that agreeable to you all? If you need to go, just let us know and we'll -- but that's only 10 more minutes, seven more minutes from now.

Kevin, did you --

COMMISSIONER MARTIN: Well, I wanted to follow up on the questions that -- or the issue that Hal Varian had brought up on the competitive bankruptcy. And I notice that you talked about it and highlighted that as a concern. There was some discussion as to whether or not it should be a concern, but I also wanted to ask -- even if it was, I didn't notice you highlighted anything we could do about it.

And so that was -- was it just you were flagging an issue that that could be a real problem? But I didn't know if there was any suggestions that anybody had. Even if we agreed it was a concern, is there anything we could do? And I know others thought maybe we shouldn't even be worried about it, but I didn't know if there was anything you thought.

PROFESSOR VARIAN: Well, I mean, it's a concern only in the sense I think you should be aware of it. It's not that there is some magic cure that will eliminate that possibility.

But if it -- if the bankruptcy is seen as the solution, which I think it is certainly part of the solution, and financial organization has to be undertaken, I think you will see more weak companies than you can forecast now, because there will be an advantage to seeking that particular route.

I don't think that that's something that we should say that's not a reason to allow that movement, as Larry indicated. But I think it's just a fact of life. We've seen it before, historically. And it's something we have to be aware of when we go into this.

PROFESSOR WHITE: Let me just follow up. Again, it is not a problem. If you think it's -- there is a problem, it is the fact that we have low marginal costs and high fixed costs. That's the issue. But competitive markets are going to drive prices to marginal or close to marginal costs in any event.

This issue of the bankruptcy of one company causing other companies to perceive conditions as unfair, as Hal just mentioned, that goes back at least a century. The railroads complained that one company's bankruptcy made problems for them. A decade ago airlines were complaining that one company's bankruptcy created problems for them.

But that's all driven by this low marginal cost phenomenon, and that's just a fact of life. We all have to live with it. You have to live with it. But that's why you're paid such handsome salaries.

(Laughter.)

COMMISSIONER ABERNATHY: Yes. One area that we've touched on briefly but not in great detail is spectrum, and the fact that we do a lot of spectrum allocation here. And how should the current market conditions, if at all, affect how we put spectrum up for auction? Which is the preferred method these days of licensing spectrum.

MR. WALLACE: I think the first rule is

to be certain of what you're auctioning and the delivery. And that, you know, said directly is to have a lot more certainty around the process and the timing of the end of the process.

COMMISSIONER ABERNATHY: Okay. Anybody else?

COMMISSIONER COPPS: Let me ask, Mr. Konefal, I think you made some comments about 271 applications and business activity and competition coming out of that. We hear a lot from the companies, the regional Bells, about loss of competitive lines and all of that.

How do financial analysts look at it -- if it's a tradeoff, if you will, the ability to go into a section with 271 and offer long distance vis-a-vis the losing of the lines to competitive carriers, or to wherever? Do you -- from the standpoint of the financial viability of the RBOCs, how do you assess that?

MR. KONEFAL: I guess, first off, I'll highlight that the RBOCs are quite strong companies in their own right. I think you frame it accurately. There's a tradeoff here. They are definitely feeling some of the impact of, you know, losing lines to competition. But the long distance opportunity is a meaningful one. I think Lara was saying, or someone else on the panel was saying, that it is a huge opportunity.

And the tradeoff is rather difficult to scale right now, but it is certainly a meaningful opportunity on the part of the regional Bells to pick up long distance. So there's going to be an offset, and it's probably a significant one.

COMMISSIONER COPPS: You also mentioned -- and I thin one of the other panelists did, too -- about the competitive local exchange carriers who will survive. Do you have any judgment on how many of them are going to survive?

MR. KONEFAL: It's not clear what form it's going to take. It's -- under the current construct where you have, you know, the bifurcation still of local from long distance, as I mentioned in my remarks, the long distance carriers are feeling the pain the most.

And so in that respect, it's a bit more difficult to make the call on that segment of the market. Whereas, if, you know, the segmentation if you will of the wire line side of the market was to remain in place, the regional Bells and the other independent LECs are pretty solid companies.

They're all rated in the single A or Baa categories. And so that, in our mind, is a pretty strong view that they are among the ones that will be the long-term survivors.

MR. GENSLER: Commissioner Copps, if I could answer sort of both questions. I don't know how many will survive, but I know what type. Okay. And it's to your 271 question. The reason it's so important for the RBOCs is so that they can have a bundled service offering. Okay? Because they all have network costs and SG&A costs that are -- and many times the serving of a customer is more than just the network cost.

And if you can't have a scale of scope in your product offering, you lose. And whatever CLECs come out of the ashes, I'm convinced they will be companies that have a full scope of product. We made the mistake in the late '90s of thinking there would be a disaggregation of the network, a disaggregation of the product offerings. And we even had companies spin off their wireless companies, which in hindsight I think was very foolhardy.

We will return to a day where you have scale of scope and product as well as network and offerings, and it's those companies that will have the better returns.

MS. WARNER: Can I just make a comment that maybe gets to the Chairman's question earlier, which is scale and how many players. I think it's important also to recognize a couple of things Rob just said.

Number one, network costs many times are dwindled by the costs of SG&A, selling, provisioning, billing, and caring for these customers, particularly on the consumer side over time. And I think that, you know, as it relates to how many players, while certainly new competitors can come in and offer bundled services, etcetera, it takes them significant amounts of fixed capital to put in place things like care centers, billing capability.

You know, AT&T, at its best, is 20 percent SG&A. On a very scaled company, it's been proven I think that building a network and not having the capital to, in essence, care for that customer doesn't work.

So certainly I agree that scalability on both sides is going to be important, but I also believe that, you know, there is a very large number of customers that you have to have before you can really generate returns on both the network side as well as on the, you know, day-to-day care, particularly of the consumer customer.

CHAIRMAN POWELL: Well, thank you. I'm not going to hold you all any longer. I think it's been an extremely productive discussion, and I appreciate you all joining us for this.

I would simply like to emphasize that I heard some themes that I think this Commission has often pointed to and will continue to be guided by, a lot of questions about acting quickly to help with the question of regulatory certainty.

One way or the other, whatever the judgments to make them, make them boldly and make them quickly, and the market will adjust to whatever they are. At least they will digest it as a positive if it's a clear direction, well signaled, and well written, and it will be guided by that.

I think we also hear that competition is still an imperative. It always has been. I don't think there's been any suggestion -- I think in the regulatory world -- of abandoning competition. I think that Commissioner Martin sort of hit on it.

It's a continuing struggle for what the balanced environment for that is -- that is, healthy and productive and long term and sustainable -- and I think that's -- we've always underestimated how difficult a question that is, particularly in an attempt to create it regulatorily, with all the kinds of things that have existed in the monopoly system.

And I think we've heard some long-term prospects for new technologies. It's always important to be guided by making sure that those have breathing spaces and opportunities for new revenues that offer new sources of cross-subsidization for a high fixed cost network.

So I think we learned something, or certainly emphasized points, and I appreciate it.

And with that, I'd like to adjourn the meeting and thank everyone for their participation. Thank you.

(Whereupon, at 4:17 p.m., the proceedings in the foregoing matter were adjourned.)