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PUBLIC UTILITIES COMMISSION

STATE OF OHIO

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In the Matter of the Application of Cincinnati Bell Telephone Company for Approval of a Retail Pricing Plan Which May Result in Future Rate Increases and for a New Alternative Regulation Plan.	Case No. 96-899-TP-ALT

- - -

Hearing Room 11-D
Borden Building
180 East Broad Street
Columbus, Ohio 43215
Tuesday, March 23, 1999

Met, pursuant to assignment, at 9:00 o'clock a.m.

BEFORE:

Dwight Nodes, Attorney-Examiner.

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VOLUME XII

- - -

00-0507

*** CONFIDENTIAL ***

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P R O C E E D I N G S

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Tuesday, March 23, 1999

Morning Session

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THE EXAMINER: Let's go on the record. Mr. Royer.

MR. ROYER: Thank you, your Honor. MCI and AT&T call John Hirshleifer.

THE EXAMINER: Good morning, Mr. Hirshleifer.

(Witness sworn.)

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Thereupon, MCI/AT&T Exhibit Nos. 3 and 4 were marked for purposes of identification.

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JOHN I. HIRSHLEIFER

of lawful age, being first duly placed under oath, as prescribed by law, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROYER:

Q. Would you state your name and business address for the record?

A. My name is John I. Hirshleifer, spelled H-i-r-s-h-l-e-i-f-e-r, the business address is Charles River Associates, 10877 Wilshire Boulevard, Suite 710, Los Angeles, California 90024.

Q. And by whom are you employed, Mr. Hirshleifer?

A. I'm employed by Charles River Associates.

Q. And is that a change from the information provided in your testimony?

A. Yes, it is.

Q. Could you briefly explain the nature of that change?

A. My employer, which was FinEcon, was acquired or merged into Charles River Associates, which is an economic consulting firm out of Boston as of the beginning of this month.

Q. And do you hold any position with Charles River Associates?

A. Yes, I'm a principal.

Q. Okay. And do you have before you a document that's been identified as MCI/AT&T Exhibit No. 3?

A. Yes.

Q. And could you identify that document for me?
A. That's my prefiled direct testimony in this case. Should I name the case number?
Q. That's close enough.
That's the testimony dated December 17, 1997?
A. Correct.
Q. Do you have any corrections to that testimony?
A. Yes, I do. On Page No. 2, Line 11, the reference to the case number is missing a number, so it should read Case No. 96-.
Q. So that the case number is 96-922?
A. That's correct.
Q. Okay.
A. And on Page No. 13, Line 20 there's a typographical error. The number "300,000" should say "500,000".
Q. And you described that as a typographical error. There was no substantive change in what you did between the time the testimony was filed and the present?
A. No.
Q. Proceed.
A. And then on Attachment JH-10, in the column that says "stock returns", each of the numbers have footnotes to them and there should be one additional footnote reference, so for each -- there's a total of eight of them, each of them should add the footnote reference 3, so it references the footnote No. 3 at the bottom.

Q. In addition to the footnote that's already referenced?
A. That's correct.
Q. Any other changes to your direct testimony?
A. No.
Q. Do you have before you a document which has been marked as MCI/AT&T Exhibit No. 4?
A. Yes.
Q. And would you identify that for us, please?
A. That's my prefiled supplemental testimony.
Q. And that bears the date of December 23rd, 1998?
A. Yes.
Q. And do you have changes to that testimony?
A. Yes. On Page 5, Line 16, the first two words currently read "the cost". It should say "the DCF cost...", and then on Line 17, which currently reads "based on a value weighted average of the equity cost of capital", it should read "the DCF equity cost of capital...".

Then on Page 6, Line 2, the first three words currently read "cost of capital". It should be changed to "DCF cost of equity".
Q. Striking "capital"?
A. Correct.
Q. Okay.
A. On Page 16, Line 12, the sentence currently reads "what would be the midpoint cost of capital". The word "midpoint"

should be struck.

On Page 28, Line 17, a minor deletion currently says have highlighted; remove the comma. And on Page 35, Line 6, it currently reads "20 years". It should read "19 years".

Then the last thing that I have is -- Well, two more things. On updated Attachment JH-10, again in the column that currently has the heading "stock returns", there are footnotes for each of the numbers appearing there, and there should be two additional footnote references, 3 and 4, for each of those numbers, so that they will cite to the Footnotes 3 and 4 below.

The last thing that I had was updated Attachment JH-4, and this actually is not a correction as it's an explanation because the JH-4 in my supplemental testimony has a different appearance than the JH-4 in my direct testimony; so I wanted to just explain why they appear differently.

The JH-4 adds two additional columns, and they are in the far right-hand portion of the table under "cost of equity" and what it adds is the weighted average excluding the company and the cost of equity calculation. The purpose for adding these two additional columns was to make it a little bit clearer as to what we were doing in terms of the one-quarter, three-quarter weighting, so whereas in the direct testimony JH-4, the one-quarter, three-quarter weighting is explained in the narrative, this actually shows the interim calculations to come up to the cost of equity.

So for example, if we look at Cincinnati Bell in updated Attachment JH-4, it shows the DCF cost of equity calculated for Cincinnati Bell alone of 8.95 percent. In Column B, which is the second to the last column, it shows the weighted average of all the other companies excluding CBI of 9.41 percent, and then the far right-hand column shows the DCF cost of equity calculation by weighting the 8.95 percent of Cincinnati Bell by one quarter and the 9.41 percent for all the other companies at three-quarters to come up with the 9.3 percent DCF cost of equity.

Q. And in Column B where the heading states "weighted average excluding company", the reference to company there is to the specific company in each line; is that correct?

A. That's correct, the subject company.

Q. Not to Cincinnati Bell in every instance?

A. That's correct.

Q. Just one other matter -- does that conclude your corrections?

A. Yes.

Q. Could I direct your attention to Page 18 and 19 of your supplemental testimony?

A. Okay.

Q. And at that point you discuss an FCC proceeding -- prescription proceeding for establishing a new default rate of return. Can you tell us what the status of that case is at this

time?
A. The status at this point in time is that the incumbent telephone companies have filed their direct testimony and then responders have filed their response and Professor Cornell and I filed an affidavit as part of AT&T's response.
Q. You have no further corrections at this time?
A. No.
Q. If I were to ask you the questions contained in MCI/AT&T Exhibit 3 and 4 at this time, would your answers be the same as set forth therein?
A. Yes.
MR. ROYER: With that, I would offer the witness for cross-examination and offer MCI/AT&T Exhibits 3 and 4 subject to cross and the proper motions.
THE EXAMINER: All right. Mr. Hart.
MR. HART: Thank you, your Honor.

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CROSS-EXAMINATION

BY MR. HART:
Q. Good morning, Mr. Hirshleifer.
A. Good morning.
Q. You indicated that your employer has changed since your testimony was written and you didn't note that there would be corrections to the testimony. Is that something that we also should do is change the addenda of your employer in the

testimony?
A. It's certainly something that we could do. Mr. Royer and I discussed that and we thought it might be more appropriate just to verbally explain the change, but it certainly could be made to the testimony.
Q. Okay. You're here on behalf of both AT&T and MCI?
A. Yes.
Q. I take it they share the cost of your work?
A. Yes.
Q. Is your rate still 370 an hour at the new firm?
A. My rate is 315 and I think it always was. At least at the time of my deposition, it was at 315.
Q. Okay. I may have written that down wrong then. That's stayed the same with the new firm?
A. Yes.
Q. I understand your approach to the cost of capital is something called the weighted average cost of capital method?
A. Well, certainly what I've done is I have calculated a weighted average cost of capital, yes.
Q. And that has a debt component and an equity component?
A. Yes.
Q. And within the equity component, you have used two approaches, the DCF model and the CAPM model?
A. Yes.
Q. And within the CAPM model, you've even used two approaches,

one with a short-term premium and one with a long-term premium?
A. Yes.
Q. Okay. If I could outline that on the board just so maybe when we talk about different things, we'll all understand where we are. And let me add another feature to that. When we talk about a weighted average cost of capital, does that mean that I take a weight percent times the cost of debt and I add that to a weight times the cost of equity?
A. Yes, a capital structure weight.
Q. Okay. And I could put a little sub D here under the weight by debt and one with an E by equity?
A. Yes.
Q. And weight of D plus the weight of E equals 1?
A. Yes.
Q. Okay. Now, you only did the cost of debt one way; is that right?
A. Yes.
Q. And that was yield to maturity?
A. Yes, of the outstanding debt securities of the sample companies that were reported in the Standard & Poor's bond guide.
Q. Didn't you use Cincinnati Bell by itself?
A. Well, I used the debt of Cincinnati Bell, yes.
Q. Okay. But you didn't look at the debt ratings of other companies, did you?

A. No, not for Cincinnati Bell's cost of capital, that's correct.
Q. Okay. So that's CBI and CBT?
A. Yes.
Q. Okay. Now, on the cost of equity, we have talked about a DCF and a CAPM. Did you average those?
A. Yes.
Q. Okay. So the average is what you used as the cost of equity in your weighted average?
A. Yes.
Q. And DCF, you used a three-stage model?
A. Yes.
Q. And your sample group was telecommunications companies?
A. No, not precisely. The sample was derived from wire line companies in the Standard & Poor's industry survey, so it was not as broad as telecommunications companies.
Q. Okay. So it's wire line telecommunications companies?
A. Yes.
Q. And you used a five-year growth plus 14-year trend and then the gross national product, right, for year 20 and above?
A. I used the long-term forecast derived from Ibbotson and from WEFA.
Q. All right.
A. In other words, for the final component.
Q. Before we get to where you got that, you agree you used

five-years' projected growth on the subject company, then you did a linear trend over a 14-year period down to the long-term gross national product?
A. Yes.
Q. Okay. And this, as you indicated, is an average of WEFA and Ibbotson, right?
A. Correct.
Q. On the CAPM side, you did a long-term and a short-term?
A. Yes, in the sense that it's based on the premium over the long-term security and the premium over the short-term risk-free security, correct.
Q. Okay. And the formula for the CAPM is the risk-free rate plus the beta times the premium, right?
A. Correct.
Q. And the premium for the long-term model would be the historical difference between stock market return and long-term treasury bond?
A. Well, in not all instances would it be historical, but that's one way to derive an estimate of the premium.
Q. Okay. But that's the data you had to work with was historical data on what that premium has been; is that right?
A. Yes, that's correct.
Q. And for the short-term you used a market premium which was the difference between stock returns and short-term treasury bills?

A. Yes.
Q. Okay. And you specifically used five-and-a-half over the long and seven-and-a-half over the short; is that right?
A. Yes.
Q. And for betas your source was Dow; is that right?
A. We used Dow Jones as the tool to run the beta, but Dow Jones I don't view as a source as much as it's a tool to run the regressions, so they were five-year betas based on 60-month monthly observations which we ran using the Dow Jones interface.
Q. I see. Where did you get the data?
A. The data Dow Jones has and that's why it's a convenient interface to do this calculation.
Q. And you didn't use for your main calculation, but as an alternative, am I correct, you used BARRA betas?
A. Yes.
Q. And those are projections, right?
A. BARRA-predicted betas are forecasted betas.
Q. And the Dow Jones are five-year historical?
A. Yes.
Q. Okay. Does that chart kind of capture the different variables we're going to be talking about?
A. I think generally so, yes.
Q. Okay. It's a little messy, but hopefully that will help us outline where we're talking.
Let's start with the cost of debt which is on the far left.

I believe you have a chart in your testimony, it's JH-3, is it?
A. Are you looking now at my direct or supplemental?
Q. Well, we're going to compare the two, so why don't you get them both out.
A. Okay.
Q. Do you have those handy?
A. Yes.
Q. In the original testimony you broke the bond yields out into two categories, one for Cincinnati Bell Telephone and another for Cincinnati Bell; is that correct?
A. Yes.
Q. And Cincinnati Bell Telephone had two debt issues outstanding?
A. Yes.
Q. At least that had a S&P debt rating?
A. Yes.
Q. Is that the totality of Cincinnati Bell's long-term debt?
A. That is the debt that's reported in the bond guide.
Q. Okay. Do you know whether that's all of Cincinnati Bell's long-term debt or not?
A. No, I don't know off the top of my head.
Q. Have you had a chance to look at Mr. Chaney's testimony, the staff testimony on cost of capital?
A. I've only had a chance to briefly review it, and I have not had a chance really to take a close look at his exhibits, which

Mr. Royer just got today.
Q. Okay. Well, there was an exhibit in the original testimony that showed the cost of debt, wasn't there?
A. Unfortunately, I don't recall.
Q. Okay. Do you know whether Mr. Chaney used a larger category of debts than you did?
A. No, I don't know.
Q. All right. Now, if we were to look on updated Attachment JH-3, are both of the Cincinnati Bell Telephone debt issues still identified there?
A. Yes.
Q. And then the Cincinnati Bell parent company debt, it appears as if the first one you had listed on original JH-3 has now matured; is that right?
A. Yes.
Q. So the two, one due in year 2000 and one due in year 2023 are still outstanding?
A. Yes.
Q. In updated Attachment JH-3, you didn't identify that those were CBI debt, did you?
A. No. We just took it as per the way it was reported in the bond guide.
Q. Now, if I took out the CBI debt on updated Attachment JH-3, would that cause the weighted average of Cincinnati Bell Telephone's outstanding debt to increase?

A. Yes, I believe it would.
Q. Because both the CBI debt issues are actually at a lower rate than your weighted average?
A. Yes.
Q. So, by definition, the average will increase if I exclude those?
A. Yes.
Q. Is the debt listed in the S&P bond guide the only information you have on CBT's debt?
A. We would also have the financial statements for CBT -- I'm sorry, you were asking with respect to CBT?
Q. Yes.
A. It's -- We do have the financial statements for CBI, so it's possible that there's further disclosure on the debt within the 10K.
Q. When you say "the financial statement", you mean the Annual Report?
A. I'm thinking in terms of the 10K.
Q. Okay. Which is the public accounting statement that's used to the trading public?
A. Yes.
Q. I take it you didn't use any information from that Annual Report to obtain debt information?
A. No, at least not in terms of calculating the cost of debt because there wasn't sufficient disclosure to determine what the

yield to maturity would be.

Q. Okay. Now, if Cincinnati Bell Telephone has additional debt that is not listed in the bond guides, should that still be considered for determining its cost of debt?

A. Yes, it should be considered, but I would say if you can determine what the yield to maturity is. If you can't determine the yield to maturity, then you don't have useful information that you can put into this type of calculation.

Q. Well, you can determine the interest expense currently on that debt, can't you?

A. You can determine what the current amount is if there's sufficient disclosure in the 10K.

Q. Or if you looked at other sources that might show the actual dollars?

A. Yes, potentially, if there are other sources.

Q. Okay. Now, to Cincinnati Bell Telephone, isn't its direct interest expense a cost of debt?

A. No, its interest expense for purposes of determining cost of capital would be its yield to maturity.

Q. But isn't interest expense a cost to the company?

A. It's a cost, yes, in the sense that it's a portion of the yield to maturity.

Q. And when you use the term "yield to maturity", am I correct that the only reason that would vary from the stated interest rate is if the traded value of the debt is different than the

face value?
A. Yes.
Q. And if the -- if the debt has an issuance price of a hundred, for example, and it's trading at a hundred, then its face value is the same as its yields?
A. Yes, its coupon rate, yes.
Q. So if the debt is trading below par value, its coupon rate actually understates the yield to maturity, right?
A. Yes.
Q. Let's go to the equity side. I want to ask you some general questions about your understanding of TELRIC.
Would you agree that TELRIC is attempting to mimic the prices that would occur in a competitive environment?
A. No, I wouldn't necessarily say that's the case.
Q. Let me read a sentence out of the FCC order, Paragraph 635, I don't know if you have that with you or not.
A. I don't have it with me.
Q. Okay. Let me read this to you. "First, such an approach simulates the prices for network elements that would result if there were a competitive market for the provision of such elements to other carriers". Do you disagree with that statement?
A. No, except to the extent that there are numerous other paragraphs in the FCC order which I think explain the way it should be implemented.

Q. But do you agree that the approach simulates the prices that would result if there were a competitive market?
A. I'm not sure if I agree or not.
Q. Well, we have spent a lot of time here the last several weeks talking about some of the inputs other than cost of capital. Are you aware of any other input in the TELRIC cost methodology that does not assume competition?
A. The answer is no because I'm not familiar with the inputs, so it's not an area that I have expertise in.
Q. Okay. Let me read another sentence to you out of Paragraph 679. "Adopting a pricing methodology based on forward-looking economic costs best replicates to the extent possible the conditions of a competitive market". Do you disagree with that statement?
A. Again, I'm not sure if I agree or disagree, but I think if you look further in Paragraph 679, it indicates that new users will get the benefits of the economies of scale and scope of the incumbent LECs so that they get the benefits both of competition and of scale and scope.
Q. Well, does TELRIC assume that we have competitors who also will potentially be building networks?
A. Yes.
Q. And if more than one company might be building a network, wouldn't the risk associated with the capital cost of the network be different than if only one company was building a

network?
A. The answer to that question actually is yes and no, depending on -- and we have discussed this before, depending on the theory that one subscribes to. According to the capital asset pricing market or the capital asset pricing theory, competition does not increase the cost of capital, and the reason is because it's a risk that can be diversified away if you hold a portfolio of securities.
So there are fundamentally two different views that I see out there. There's the view of capital market theory which says competition does not affect cost of capital, and I think there are others who believe that competition does affect the cost of capital.
Q. Let me read one more paragraph to you. Paragraph 738 says, "In this proceeding we are establishing pricing rules that should produce rates for monopoly elements and services that approximate what the incumbent LECs would be able to charge if there were a competitive market for such offerings". Do you agree with that?
A. Could you read to me the first part of it again, please?
Q. "In this proceeding we are establishing pricing rules that should produce rates for monopoly elements and services that approximate what the incumbent LECs would be able to charge if there were a competitive market for such offerings".
A. Yes, I think I do agree with it, again, with the caveat

that there are many explanatory paragraphs as to how that would be implemented, including they make it very clear in a number of sections that new competitors will get the benefit of scale and scope of the incumbents, which implies that the current benefits that they get today from their size and market power will be passed along. So it's not an assumption of full competition where all of those benefits have been bid away, essentially, or competed away.

Q. Well, doesn't it try to simulate something that may not really exist in actuality?

A. I think it is trying to simulate prices assuming that the benefits are passed along of both competition and market power to the new competitors.

Q. Now, if we have competitive networks, would you agree that there's also going to be an impact on the cost of capital to finance those networks?

A. And again, I think the answer to that is yes and no. It really depends which theory is the correct theory, if either, whether competitive risks matter or not to the cost of capital.

Q. Okay. Let's talk about the DCF theory first. As I understand it, that theory takes the market price of the stock, dividend and growth information and uses that to calculate a cost of capital; is that right -- cost of equity?

A. Yes.

Q. And that model relies upon the market being an efficient market?

A. Yes.

Q. In other words, it assumes that the market absorbs the available information and uses that to determine what the stock price is?

A. Yes.

Q. Now, if the -- your DCF, I take it, was based on actual market conditions?

A. Could you explain to me what you mean by "actual market conditions"?

Q. Well, you took actual stock prices at a given date?

A. Yes.

Q. And you took actual analyst estimates of growth and earnings, right?

A. Yes; although when you use the word "actual" in that context, it's clearly a forecast.

Q. It's an actual estimate, but it's an estimate based on conditions that the analyst expects to hold true?

A. Yes.

Q. Okay. Now, we don't have a -- Strike that.

The DCF analysis doesn't take into account a hypothetical situation, does it?

A. Tell me what you mean by "hypothetical".

Q. Well, would you agree that TELRIC calls for us to assume hypothetically that the incumbent LEC would be starting over

from scratch and building a new network?
A. No.
Q. It doesn't assume that?
A. No, I don't believe so.
Q. Tell me what your understanding is that's different from that.
A. Well, my understanding, and again it's explained in various paragraphs in the 1996 FCC order, is that it assumes that you take the wire centers in place of the incumbent LECs.
Q. Okay.
A. And then you use the most efficient available technology that can be used in conjunction with the wire centers.
Q. All right. Let me amend my question, then. Am I correct that TELRIC requires us to assume the existing wire centers, but otherwise we imagine as if we have rebuilt the network using the most efficient, cost effective technologies?
A. I'm not sure I would use the word "imagine". I think in terms of a forward-looking cost, it's assuming that you will use the most efficient available technology available.
Q. Okay. And it assumes that my network is most efficiently designed and I use the least cost design?
A. I'm not sure about that, again, because of the provision that it's based on wire centers in place.
Q. Well, with that proviso, it uses the most efficient and lowest cost technology, right?

A. Yes.

Q. And that isn't in reality what telephone companies have in their networks, is it?

A. Well, at least according to the FCC, it says the most efficient deployed, so I would say the answer is yes, when you factor in also the intentions of the phone companies which I would expect would be to use the best available technology since they have to be competitive.

Q. But what's in place in the ground right now is not a hundred percent that technology, is it?

A. Well, I would presume that the wire centers are not. The other technologies I'm sure there's a mixture where some of it's the best available and others are not the best available but what they intend ultimately to replace with the best available.

Q. Okay. So the market has taken into account what's really going on in the telephone business, but TELRIC calls for us to assume that going forward the network is going to be built differently than it has actually been built?

A. I'm not sure that's the case. And again, I think what the market looks at is what investment companies will make, and if you're telling me that the telephone companies will not actually make the most efficient technology as their future investments, then I do see a dichotomy there, but if they are going to do what I think most companies usually do to try to be competitive, they do try to buy the best available technology so that they can compete in the marketplace.

Q. But they will do that incrementally as opposed to all at once, won't they?

A. It depends. It's possible that it could be incremental and competitive forces may make it necessary to do it very quickly.

Q. But am I correct that TELRIC would assume that it's all originally built the most efficient way, keeping the wire centers where they are?

A. Yes, I believe in terms of the pricing of the various inputs, I think that's the case. I think in terms of the cost of capital, the various provisions have indicated that you will use a forward-looking, economic cost of capital.

Q. Okay. Now, when you did your discounted cash flow analysis, you chose a group of wire line telephone companies as your comparables, right?

A. Yes.

Q. And would you believe that those companies are closer to monopolies than they are fully competitive markets?

A. Yes, as of today.

Q. Okay. And would the market perceive those companies as being more like monopolies than fully competitive firms?

A. I think in terms of pricing the stock, the market would look at the current market position of the companies, but would also look into the future because they are trying to discount future cash flows, so they want to understand what is the

position of the company today and what is the position of the company going to be over time.
Q. Okay. Now, if the market didn't believe that the telephone business was going to become fully competitive in the short-term, the market price will be different than if the public believed that tomorrow we're going to have fully competitive telephone market, right?
A. Again, that's "yes" or "no", depending on whether competition is important to the cost of capital.
Q. Okay. Well, if competition makes a difference, then I would get different results, wouldn't I?
A. Yes.
Q. So if the investing public does not perceive the telephone business as fully competitive, the DCF analysis would not yield the same result than if they did?
A. Yes.
Q. And TELRIC calls for us to assume that the market is competitive, doesn't it?
A. No, I think in terms of the cost of capital it says that you should use the forward-looking economic cost of capital.
Q. But it says to assume that the telephone business is fully competitive, doesn't it?
A. No.
Q. Aren't we trying to replicate prices that would exist in this fully-competitive market?

A. Well, there are provisions that say that, but then there are other provisions which tell you how to implement it, and for example, if you look at Paragraph 688 in the FCC order, you'll see that the USTA proposed that we assume that the market is fully competitive, and the FCC said no, that's an unrealistic assumption, competition, in fact, is going to take place over time.

So clearly they are not requiring any assumption of full competition, and if you look at Paragraph 702, which is related to the cost of capital, there's nothing in there which says assume full competition, it, in fact, says that the incumbent LEC has the burden of proof to show what the risk adjusted cost of capital is and that either party can show that it's either higher or lower. If there was an assumption of full competition, you wouldn't need any of those provisions.

Q. So we should treat the cost of capital different than we treat other cost inputs into the TELRIC cost studies?

A. Well, I'm not familiar with how you should treat the other inputs because that's not within my particular area of expertise, but there are particular paragraphs in the 1996 FCC order which tell you how to implement the cost of capital.

Q. Okay. Would you agree with this, that building a brand-new telephone company, that it's going to take 15, 20, 25 years to recover the capital cost of that through depreciation?

A. I'm not sure I understand the question when you say through depreciation.

Q. You understand that the -- the investments in capital for a network are recovered by the company through depreciation charges?

A. Again, that may be on -- be beyond what I know. I would view the recovery of cost through the cash flows of the company.

Q. But on the income statement where I convert my capital into expenses over time, that's through depreciation charge, isn't it?

A. Well, that's a book charge, your actual recovery of cost the comes through the cash flows that you made.

Q. And in the TELRIC environment, those cash flows are the rates that are established for unbundled elements, right?

A. Yes.

Q. And the part of that rate that is recovering my capital investment is the depreciation charge?

A. Yes, to the extent it comes through an administrative type reimbursement.

Q. Would you agree that in this TELRIC environment, the recovery of those capital investments is going to take the period of time that is established as the depreciation lives?

A. Again, depreciation is not within my expertise, but that generally sounds correct.

Q. Okay. But we're looking at a fairly long-term proposition compared to a five-year cost study?

A. I wouldn't know how a five-year cost study works.
Q. Okay. We're not going to recover those capital investments in five years, are we?
A. Well, again, if you're talking in terms of a hypothetical, then I don't know.
Q. Okay. Now, if I look out over that period of time, the further we go, isn't it more likely that there are going to be alternatives to the incumbent's network?
A. Are you assuming that it's the incumbent's network as of today, or the incumbent's network as it evolves over time?
Q. Either one, I don't know if it makes a difference to you.
A. Well, if it evolves over time, it may be the best available alternative in the future. If it's static and never changes, then there could very well be better alternatives because we know that there's a lot of technological change in this business.
Q. And haven't some companies even announced that they intend to install some of their own facilities?
A. In general, in the whole country?
Q. Right.
A. Yes.
Q. And are you aware of the status of competition in Cincinnati?
A. I have reviewed the local competition report.
Q. Which report is that?

A. It's a document that was provided to me, and I may -- it may be a misnomer in the way I'm describing it, but it indicated the number of people who filed to be either resellers or facilities competitors in Ohio.
Q. Okay.
A. So not throughout Cincinnati Bell's territories.
Q. Do you know how many competitive switches have been installed in Cincinnati?
A. No.
Q. Would that be something that would impact the competitive risk of building a network?
A. It could.
Q. And I take it your analysis really didn't get into weighing the amount of competition in Cincinnati?
A. Well, no. I believe that it did in the sense that if you use the DCF cost of equity, which is based on the market price, it incorporates the market's assessments of all risks, so not just the risks of switching being installed, but any kind of risk that the market thinks are important to the valuation of a company's stock.
Q. And wouldn't that assume then that the public would have knowledge of what these alternative network plans were?
A. It would assume that the public has knowledge of all available information that has been publicly disclosed by various competitors.

Q. And if the competitors haven't publicly disclosed their plans for alternative networks, then the investing public couldn't take that information into account, could they?
A. No, that's not completely true, in that sophisticated investors can infer by past actions what competitors may do. So while they may not know which specific switches that another competitor might plan to put in, they may see what people are doing around the country and make inferences as to what's going to happen.
Q. Do you have any understanding as to the length of commitment that new entrants make to purchase unbundled elements?
A. No.
Q. Okay. Let me ask you a hypothetical question. If I was going to build a brand-new network, leaving my wire centers where I am -- where they are, I knew it was going to take 20 years to recover the cost of that network through depreciation charges, I knew that competitors are planning at least some alternative network facilities, and I know that the competitors aren't committing to buy anything beyond a month-to-month basis, is my risk of building that network a larger risk than if I have a monopoly?
A. The answer is I don't know, and the reason is, is that when you have new competitors in a marketplace, they have the effect not always, but very often of expanding the marketplace, so that

if you are no longer a monopolies provider providing the network elements solely to your own local exchange business, but you are now providing it to a vast array of different users, and if those users are actively expanding the marketplace, you may be able to actually get more wholesale business by having a variety of different users of your network out there. And again, I'm always caveating my answer by saying this is assuming that competition is important to the cost of capital which it may not be.

Q. And on the other hand, if the competitors expand the market but bring that new growth on to their own network, then that would decrease the use of Cincinnati Bell's network?

A. Yes.

Q. Now, the DCF analysis, am I correct that that really only works well with companies that pay dividends?

A. Yes.

Q. And the smaller the dividend yield that a company has, would you agree the less predictive that model is?

A. When you say "less predictive", it's my sense that as the dividends get low, the DCF model has the tendency to understate the DCF cost of equity.

Q. Because what DCF is doing is valuing a cash flow stream over time, right?

A. Yes.

Q. And if you don't have good information as to what the actual payout will be in the form of a dividend, the model is fairly speculative?

A. I don't know that it's -- I would use the word "speculative", but I think it understates the cost of equity.

Q. Now, the group of companies that you used, I believe is shown on JH-4; is that right?

A. The initial summaries of JH-2.

Q. Okay. JH-2 is identification of the companies, but -- Well, let's look at that, I guess. You've got the five regional Bell Companies, right?

A. Yes.

Q. Two of which, Ameritech and SBC, are presently attempting to merge, right?

A. Yes.

Q. And then you've got five large independents?

A. Yes.

Q. And one of those, GTE, is presently attempting to merge with Bell Atlantic?

A. Yes.

Q. And SNET, which you list here, has already merged into SBC?

A. Yes.

Q. So our ten companies may soon be seven?

A. Yes.

Q. Would you agree that with the exception of ALLTEL and Century, all of the companies you've used are at least 10, if not 20 or 30 times as large as Cincinnati Bell?

A. Yes.

Q. And when you did your DCF calculation on JH-4, I believe you did a market weight of those?

A. Yes.

Q. So that the companies with the largest market capitalization have the greatest influence on the overall average?

A. Yes.

Q. In fact, I think you pointed out that you've excluded from your sample group companies that had less than 500,000 access lines?

A. Yes.

Q. Okay. On JH-4, this is kind of a summary of the results for each company, right?

A. Yes.

Q. And this calculation is the 20-year, three-stage DCF we talked about earlier, isn't it?

A. Yes.

Q. Now, is there any -- Strike that.

You determined that you were going to use this 20-year model through your own judgment; is that right?

A. No, it was a model used by Professor Cornell in another matter, so we ended up using the same model that had been used previously.

Q. Okay. And so it's Professor Cornell's judgment?
A. Yes.
Q. And Professor Cornell is one of your partners, isn't he?
A. He's a colleague of mine.
Q. Is he at Charles River now, too?
A. He's a senior consultant to Charles River, so he's not an employee.
Q. Okay. He was with you at FinEcon?
A. Yes.
Q. Now, when we talk about a 20-year, three-stage DCF, the way you have implemented that is to have the 20th year actually be at the baseline growth rate?
A. The growth rate of the economy, yes.
Q. Okay. So you really only had 19 years that were based upon a particular company's growth rate?
A. Yes. And just to clarify, from year 6 through 19, it's interpolating downwards.
Q. So the first five years are an analyst's projections and then you did a straight line projection from year 5 to year 20, so that year 6 through 19 are somewhere in between?
A. Yes.
Q. Have you seen Mr. Chaney's three-stage model?
A. Only briefly.
Q. Do you understand he used a 25-year period?
A. Yes.

Q. And would it be a reasonable judgment for someone to use 25 years rather than 20?
A. I think that it's not unreasonable, although my sense is it's a little bit long.
Q. Okay. Now, the first year's dividend in your model, I understand you used a Value Line projections?
A. Yes.
Q. And those were projections to the end of the first year, right?
A. Yes.
Q. So you didn't assume quarterly dividends, you assumed the entire year's dividend would be paid December 31st?
A. Yes.
Q. And am I correct that you actually discounted that dividend back to day 1, the beginning of the year?
A. No, I don't believe so.
Q. Let me show you a document that was provided to Cincinnati Bell as an answer to its data request No. 2, and I don't have this identified as an exhibit, but do you recognize that as the calculation that you did for SNET?
A. Yes.
Q. And what do you show as the first year Value Line dividend?
A. 1.76.
Q. And what do you show in the column where you actually totalled the cash flows?

A. 1.61.
Q. And that's a discounted value of 1.76, isn't it?
A. Yes.
Q. So does that refresh your recollection that you actually did do a present value?
A. Yes, that's correct.
Q. Okay. So 1.76 would be the Value Line projection of the dividend for the first year payable at the end of the year?
A. Yes.
Q. And 1.61 is the present value of that on day one of the year?
A. Yes.
Q. And I take it for years after year 1, you applied the growth rate to the dividend to determine what it would be in that particular year?
A. Yes.
Q. And that growth rate changes over time, as we have discussed?
A. Correct.
Q. Now, the sustainable growth rate that appears in JH-4 is different in your original JH-4 and updated JH-4, isn't it?
A. Yes.
Q. And you've reduced that from 6.16 percent to 5.5 percent?
A. It is lower. When you use the word I reduced it, it is a lower number, but using the same inputs for the following year

and average of the two sources which is WEFA and Ibbotson.
Q. Okay. And in 1996 when you did your original -- actually it was based on 1996 data, the Ibbotson number was 7.5 percent?
A. Yes.
Q. And in 1997, Ibbotson's number dropped to 6.2 percent?
A. Yes.
Q. And you continued to average that with the WEFA number, right?
A. I averaged that with the new WEFA number.
Q. Okay. Now, when you used the WEFA number, let's first understand what that is, am I correct that what WEFA does is project out into the future what the growth rate of the economy will be?
A. Yes.
Q. And it uses historical data as well?
A. I don't know which data they use as inputs to their model, but I would presume that they use historical data as part of their input.
Q. Do you recall providing me with some WEFA data that showed quarterly GNP figures?
A. Yes.
Q. And it went back in time, I don't know, 40, 50 years?
A. Yes.
Q. And it went forward about 20 years?
A. Yes.

Q. Now, if we went -- if we picked today and looked historically at what the average growth in GNP has been in the past, would you agree with me it would be about 7-1/2 percent?
A. I don't know.
Q. Have you ever done that calculation?
A. No.
Q. It would be an easy calculation to do, wouldn't it?
A. Yes.
Q. And going forward, WEFA has projected something like 4.82 percent?
A. 4.82 as of the end of '96, and I think it's approximately 4.8 in the supplemental work.
Q. Okay. And in 1996, the Ibbotson number was around 7-1/2, right?
A. Yes.
Q. Which is fairly consistent with the past, is it?
A. I wouldn't know.
Q. Now, if I looked at the market as a whole, say the S&P 500, should the overall growth rate of those companies approach what you say is the sustainable growth rate of the economy?
A. No, not necessarily over the short run, so that if you looked at analyst's growth forecast, it could very well be above this sustainable rate.
Q. Well, what's the difference between that and the sustainable rate?

A. Well, it may be growth expectations that are expected to be greater than the market over a certain period of time, but over time will converge to the market itself.

Q. Well, I thought the S&P 500 was the market?

A. It's not the market, it's often used in financial calculations as proxies for the market, but again, the long-run -- even if it is a good proxy for the market, its long-run growth can be higher over the short run than it's going to be over the long run.

Q. Okay. Do you know what the current growth rate is of the S&P 500 as a whole?

A. No.

Q. Now, you used a listing of S&P 500 companies in some calculations in your CAPM model, right?

A. Yes.

Q. Do you know what the average growth rate was of that group of companies?

A. No, not off the top of my head.

Q. Is that something that could be calculated?

A. Yes.

Q. Would it surprise you if that average was in the range of 9 to 10 percent?

A. No.

Q. Which is four or five points above the sustainable growth rate?

A. No, that wouldn't surprise me.

Q. I may have asked this before, but are you aware that the Ohio Commission's rules generally call for a five-year cost study?

A. No.

Q. Okay. Well, let me ask you to assume that just for purposes of our discussion for a moment. If we were to do a -- a TELRIC cost study covering a five-year period, would we want to use the cost of capital that would be experienced in that same five-year period?

A. I don't know because I don't understand what the rules would be for a five-year cost study. I mean, to me, the cost of capital is the cost of capital, so whether I calculate it for a phone company or an unregulated company, the approach would be the same.

Q. But it changes over time, doesn't it?

A. It will change as the market evaluates new information, yes.

Q. And your three-stage DCF kind of implies that there's going to be change in the growth rate over time, doesn't it?

A. I'm not sure I understand the question.

Q. Well, by using a five-year growth and then diminishing the growth after that point, you're assuming that the financial condition of the company may change over time, right?

A. I'm not -- based on that specific example that you cited, I'm not necessarily assuming that the financial condition of the company changes, but the projected growth rates change.

Q. Okay. But the cost of capital would change with them, wouldn't it?

A. The answer is I don't know because you'd have to see what all the inputs are as you evaluate them at different points in time; so the growth rates could change, but other things could change as well which might or might not affect the cost of capital.

Q. Okay. But let's say I go to your year 20, where you're projecting that the growth rates will be the same as the economy. If I was going to do a DCF analysis at that point in time and if your projection held true, my cost of capital would be dramatically different in year 20 than if I calculated it today, wouldn't it?

A. Again, I'm not sure because it also depends on what the price and dividends are at that point in time.

Q. Now, in the near term, the next five years, the best estimate we have of growth rates are what the analysts say, isn't it?

A. Yes.

Q. And if we came back five years from now and did a new TELRIC study, we would have new analysts' projections that would cover year 6 through 10, wouldn't we?

A. Yes.

Q. So we could have an updated cost of capital at that time and more accurately have information about that period of time?
A. Yes, in the sense that if you want to figure out what the cost of capital is five years from now, you would want to do it five years from now.
Q. In fact, the cost of capital might be different next year than it is today?
A. Yes.
Q. In fact, if we accept your studies, the cost of capital has gone down since the end of '96 until the end of '97?
A. Yes; primarily because interest rates have gone down.
Q. And interest rates are about as low as they've been in a long time right now, aren't they?
A. Interest rates are low, yes.
Q. And in five years, you expect it's more likely interest rates will be higher than they are today or lower than they are today?
A. I couldn't say either way.
Q. Well, if they were to go up in the next five years, then the cost of capital that's determined today would be too low for that entire five-year period, wouldn't it?
A. Yes, assuming there isn't some counterbalancing affect with other inputs.
Q. Well, if we would happen to be on a trough right now on a graph of interest rates, we would set a cost of capital that

would be on the low end of the scale as well?
A. No. I wouldn't agree with that. If you want to determine the cost of capital as of today, which is the market's best estimate of what the cost of weighted average costs will be to finance a company, you should do it the way I've done it and that's the cost of capital as of today. There's no way of knowing what's going to happen in the future.
Q. Now, you argue in your testimony that you need to use this three-stage model because a single-stage model would result in a company becoming as large as the whole economy?
A. Yes.
Q. That would take hundreds of years for that to happen, wouldn't it?
A. Not necessarily. It really depends on the magnitude of the growth rate. Regardless of how many years it takes, it's really not a reasonable assumption. I wouldn't expect a company to become 50 percent of the economy either.
Q. Does the DCF model assume that there's different risk associated with competition?
A. The issue of competition is not explicit in the DCF model. So what the DCF model essential says is that if the market is efficient and you take the market price of the company's stock, that's going to impound all risks that the market as a whole in the aggregate anticipates for a company occurring over time. So the risk they face today and all the risks that the market

reasonably anticipates will occur into the future.

Q. Okay. Now, the CAPM model looks at risk a little differently, doesn't it?

A. Yes.

Q. CAPM model, the only measure of risk is beta?

A. Yes.

Q. And does that then mean that the higher a company's beta, the greater the market risk?

A. Yes. Meaning the greater it -- the more it fluctuates with fluctuations in the market as a whole.

Q. So under the CAPM model, companies with similar betas are expected to be of similar investment risk?

A. Yes. If, in fact, the -- the true betas are the same.

Q. Okay.

A. Meaning that there's not estimation error.

Q. Now, on Attachment JH-6, I believe you show betas for the same group of companies that you used for your DCF analysis?

A. Yes.

Q. And those betas on a levered basis range from .55 to 1.11.

A. Yes, on the updated attachment.

Q. On an underlevered basis, the range is just about as broad, it's from .48 to 1.04?

A. Yes.

Q. Would that indicate that if one believed in the CAPM model, that your group of ten wire line telephone companies have

dramatically different risks?
A. The answer to that question gets back to this issue of estimation error. So if you assume there was no estimation error in any of these unlevered betas, then yes, you would anticipate different risks for the different telephone holding companies.
Q. Okay. And wouldn't that --
MR. ROYER: Did you finish your answer?
BY MR. HART:
Q. I'm sorry, I thought you were done.
A. I'm sorry, I hesitated there. The only point I was going to make is my approach makes the assumptions that there is estimation there and that's why we averaged the unlevered betas.
Q. If you average them, you come up with .64?
A. Yes.
Q. Which means there's a fairly wide disbursal pattern amongst those betas?
A. Yes.
Q. Now, let's assume that the -- the betas that are measured here are relatively accurate for a moment. Wouldn't that indicate that your group of comparable companies that you used in your DCF model may not really be comparable to one another?
A. Yes. If you make that assumption.
Q. And it would be -- if we assume that the betas are accurately measured, wouldn't it be just as accurate to take a

group of companies in other industries that had similar betas to Cincinnati Bell?
A. It would if you make that assumption. However, that to me, is not a realistic assumption because I do believe that there is a great deal of estimation error in beta calculation.
Q. And the only way you've accounted for that is by averaging?
A. Yes.
Q. If we looked at a different industry, say Mr. Royer's favorite industry, the beer industry, and looked at betas there, would we find widespread there as well?
A. I don't know.
Q. Well, if we did, would you attribute that to measurement error or actual difference in risk between different companies?
A. I wouldn't be able to tell until I took a look at the companies. For example, if Anheuser-Busch was also operating a casino somewhere, I would want to know that. If all the beer companies are doing is brewing the hops and then bottling it, then I would probably think it's estimation error that makes the difference.
Q. All right. Now, when you -- going back to Exhibit JH-4, when you arrived at the individual DCF results for each company, I take it then you did some averaging?
A. Yes.
Q. And I think you've indicated that you took a weight of one-fourth of the subject company and three-fourths of the

remaining average?
A. Yes.
Q. Why wouldn't you just use the average of all companies?
A. The reason that we did not want to use the average of all the companies is that through -- in the DCF model you don't have any way to account for differences in leverage, and leverage affects the risk of the company. So financial leverage is separate and distinct from the operating risks of the company. So we felt this judgmental weighting helped both to reduce estimation error, but to give some less than its proportionate share weight to the subject company itself.
Q. Let me back you up and have you talk about financial risk. Is that due to different capital structure's different debt/equity ratios?
A. Yes.
Q. If you take these companies and looked at them individually, would you agree with me that they would have a fairly wide range of capital structures?
A. Yes, they could. I believe they do, but I'd have to look at the chart again.
Q. Okay. And the only way you can remove the impact of that capital structure is by averaging them?
A. In this instance, I'm not claiming that we're entirely removing that effect, but we're attempting to adjust for that. In other words, Cincinnati Bell's DCF probably gives the best

individual estimate, but it doesn't wash out any of the estimation error; so we've done this averaging as a judgmental process.

Q. Okay. So your three-fourths, one-fourths was judgment?

A. Yes.

Q. Now, when you did the unlevered betas for the CAPM model, that was straight averaging, wasn't it?

A. Yes.

Q. You didn't use one-fourth of the subject company's beta and three-fourths of the average?

A. That's correct. There was no need to do that because there's a formula to take out the financial leverage.

Q. We'll get to that in a little bit. Now, another thing you did in your DCF model was to assume that dividends were paid annually, correct?

A. Yes.

Q. And am I correct that most, if not all, of the companies that were in your study actually paid quarterly dividends?

A. Yes.

Q. And you're aware from Dr. Vande Weide's testimony that there is a formula that can be used to do a DCF on a quarterly basis?

A. Yes.

Q. And you disagree with that use, correct?

A. Yes.

Q. Now, from a company's perspective, doesn't it cost the company more to pay dividends on a quarterly basis than if it held its cash internally and paid that nominal amount at the end of the year?
A. Yes.
Q. And the quarterly model takes into account that difference between the quarterly payment and the annual payment?
A. Yes.
Q. Am I correct you also ignored issuance costs in your model?
A. Yes.
Q. Now, are you familiar with the concept in TELRIC that we're to determine long-run costs?
A. Yes.
Q. And that the concept of long run means that all costs, no matter what they are, are avoidable?
A. Yes.
Q. That would include capital, wouldn't it?
A. I'm not sure I understand when you refer to capital.
Q. Well, in a long-run analysis, don't you assume that you don't have any capital, I have to go raise capital?
A. I don't know.
Q. Well, let me ask you to assume that it would. If I was going to go to the market to raise equity capital, would you agree that there are issuance costs associated with that?
A. Yes.

Q. And if the long-run analysis requires me to assume I'm starting from scratch, wouldn't the company's yield from that public issuance be net of those issuance costs?
A. And what do you mean by the company's yield?
Q. Let's say the stock is going to be issued at a price of $50 and the company ends up paying $3 per share as expenses of the issuance; so it only gets $47. Isn't that company's cost of capital higher than if it received the entire $50?
A. Are you assuming that the price of the stock won't fall to cover those costs?
Q. Yes. Let's assume that the stock is going to continue to trade at 50.
A. Under that hypothetical, I would say yes.
Q. That the cost of capitals are a deduction from the yield to the company?
A. Well, no. I'm not sure that it's a cost of capital issue as it's just a decline. It's viewed as an expenditure in the marketplace. So I guess to clarify my answer is that it's a reduction of proceeds to the company, but it may very well be viewed as an expenditure, not a cost of capital issue.
Q. Well, let's look at it a different way. An investor who pays $50 is measuring his yield on the $50 he has invested, right?
A. Yes.
Q. But the company only has $47 to work with in order to

generate that yield?
A. Yes.
Q. So the company has to develop a higher return on the $47 than it would if it actually had $50 to work with?
A. Yes. Again, that's assuming that the price of the stock doesn't fall.
Q. Okay. So am I correct then the company would have to have a greater source of income from some source in order to earn enough to pay the same yield to the investor that the investor would be expecting on $50?
A. Yes.
Q. And in the TELRIC cost model, the only place that can come from is the cost of capital; is that right?
A. That I don't know.
Q. Okay.
MR. HART: Your Honor, it might be a good place for the morning break if you're so inclined.
THE EXAMINER: Okay. Very well. Let's take a ten-minute break.
(Short recess taken.)
THE EXAMINER: Okay. Back on the record. Mr. Hart.
MR. HART: Thank you, your Honor.
BY MR. HART:
Q. Mr. Hirshleifer, I would like to now turn to your CAPM analysis. If we could start with updated Attachment JH-6 Does

this demonstrate how you calculated the beta that you used in that model?
A. It reflects the results of the beta calculations. It doesn't show all the interim calculations.

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Thereupon, CBT Exhibit No. 16 was marked for purposes of identification.

\- - -

BY MR. HART:
Q. Okay. Let me hand you what I've marked as CBT Exhibit 16, which is a data request response that you gave us. Does this show some of the interim calculations?
A. Yes.
Q. Okay. First, let's talk about the theory. The difference between a levered beta and an unlevered beta is to remove the effect of the debt; is that right?
A. Yes.
Q. And that's because a company that has a large amount of fixed debt has a greater risk that they won't be able to earn enough to pay dividends to the equity shareholders?
A. Yes.
Q. So when we unlever, we take out the effect of that debt and look at what's supposedly a measure of the risk to the equity shareholder standing alone?
A. I -- Yes, except I would describe it as it's really the

risk of the asset; So it's an asset beta.
Q. And Exhibit 16 has a column on it for the debt/equity ratio that is not included in Attachment JH-6, is that right?
A. Yes.
Q. And that would be the variable that you used to calculate the unlevered beta?
A. Yes.
Q. And the formula is kind of complex, but basically what you do is divide the beta by a fraction that has as a part of it the debt/equity ratio?
A. Yes, generally.
Q. Okay. Now, on this particular analysis, am I correct that Cincinnati Bell has the highest levered beta?
A. Yes.
Q. And it also has the highest unlevered beta?
A. Yes.
Q. And then you took a market weighted average of the unlevered beta?
A. Yes.
Q. And is that market weighted average based on capitalization of these companies as well?
A. Yes.
Q. Similar to how you did on the DCF?
A. Correct.
Q. So that the largest companies have the greatest influence

on the average beta?
A. Yes.
Q. Now, when you went from the unlevered beta average, which is .64 on this chart, to the final column of a relevered beta, am I correct that you used the capital structure of each individual company?
A. Yes.
Q. Am I correct that a company that has a small amount of debt will have less difference between its levered and unlevered betas than a company with a large amount of debt?
A. Yes.
Q. For example, Cincinnati Bell which shows here has about ten percent debt, the beta went from 1.11 to 1.04?
A. Correct.
Q. But the company right above it, Century Telephone, which is 88 percent debt, went from 1.01 all the way down to .65?
A. Yes. And I just make a minor correction to your statement in that Century Telephone is not 88 percent debt, but the debt/equity ratio is 88 percent.
Q. So for every $88 of debt, there's $100 of equity?
A. Yes.
Q. And for Cincinnati Bell, there's $10 of debt for every $100 of equity?
A. Yes.
Q. But it is true that the greater the amount of debt, the

more variation you'll see between the levered beta and unlevered beta?

A. Yes.

Q. Now, when you arrived at a market weighted average of .64, is that intended to remove measurement error?

A. Yes.

Q. When we relever the betas, wouldn't we also want to use the market weighted average capital structure?

A. That would be another possible approach. We felt that the best way to do it was to use the capital structure of the company itself because we're trying to estimate the cost of capital of that particular holding company.

A. Well, we'll get to this in a little bit, but wouldn't you agree with me that the capital structure of a company, and that is the percentage of debt to equity, will vary according to the risk of the business that that company is engaged in.

A. The ability to take on debt will depend on the risk of the underlying operations.

Q. Okay. So a company that has a very low operational risk can afford to assume a greater debt than a company that has a high operational risk?

A. Yes.

Q. And for Cincinnati Bell individually, would a beta of 1.11 and a debt/equity ratio of 10 percent or 10.9 percent indicate that it had a higher operational risk than the other companies on this chart?

A. It could.

Q. Okay. Now, when we take a market weighted average beta of .64, is that intended to reflect a typical beta of a telephone company?

A. Yes. Primarily.

Q. Wouldn't a typical telephone company have a different debt/equity structure than Cincinnati Bell would?

A. Yes, it probably could.

Q. So if you're attempting to measure the risk of Cincinnati Bell's telephone operations, wouldn't it be more appropriate to use a target debt/equity ratio for a telephone company than the actual debt/equity ratio of the diversified Cincinnati Bell operation?

A. It would probably make more sense -- well, let me qualify that answer. The first part is yes, it would make sense to use the target market capital structure of a company solely in the business of telephone operations. And in particular, what we're trying to find are the network elements. What I'm doing here, which is a little bit different, is I'm developing a range. And the high side of my range is based on the cost of capital of the holding company itself, and to come up with the cost of capital for Cincinnati Bell, Inc. the holding company, I have to use Cincinnati Bell's capital structure.

Q. Well, this particular calculation is not for the capital

structure, but for the CAPM model, right?
A. Yes.
Q. And then you take that CAPM result and use that in the weighted average cost of capital formula, right?
A. Yes.
Q. So it's -- when we get to the top line, which is the weight of debt and the weight of equity where we should determine what the boundaries are, isn't it?
A. The upper and the lower bounds?
Q. Right.
A. Yes.
Q. When we're in the CAPM model, we ought to be attempting as closely as we can to model the company that we expect to be pricing here, isn't that right?
A. Well, the way I've done it actually is the other way around. Where I've come up with relevered beta of Cincinnati Bell based on its capital structure and then in the upper line, which you just referred to, I used the average across all of the companies.
Q. Okay. But if Cincinnati Bell were in the typical telephone business and had a beta of .64, you wouldn't expect it to have a capital structure with a ten percent debt/equity ratio, would you?
A. Probably not. I'd probably expect it to be the target market capital structure.

Q. Okay. And by using the individual company debt/equity structures, with an industry average beta, what you've done here is make the company with the highest individual beta have the lowest relevered beta; is that right?
A. I'm not sure my capital structure has done that.
Q. Well, I go from an unlevered beta of 1.04 to a relevered beta of .64, right?
A. Correct, but the .64 is through the averaging process.
Q. Well, every other company on this sheet results with a higher beta than Cincinnati Bell after you've relevered, doesn't it?
A. Yes.
Q. And when we started, every company's beta was less than Cincinnati Bell's?
A. Yes.
Q. And the reason that is is because you used a market weighted average beta, but you applied individual company capital structures?
A. Yes.
Q. Because if we used the market weighted capital structure, they all ought to come out the same, right?
A. Yes.

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Thereupon, CBT Exhibit No. 17 was marked for purposes of identification.

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BY MR. HART:

Q. Let me hand you what I've marked as Cincinnati Bell Exhibit 17, which is another data request response. Am I correct this shows how you performed the same exercise using BARRA projected betas?

A. Yes.

Q. It doesn't have intermediate steps, but the same theory was applied; is that right?

A. Yes.

Q. And here I guess the results are less dramatic, but would you agree that Cincinnati Bell begins with one of the highest betas and after unlevering and relevering results with the lowest beta?

A. Yes.

Q. Is that because of the same mechanics of the calculation?

A. It must be.

Q. You used the same capital structures here as you did for Exhibit 16?

A. Yes.

Q. Okay. Now, we briefly touched on this before, but am I correct that the BARRA beta is an attempt to project beta into the future?

A. Yes.

Q. Now, you did a sample of companies that earn dividend over

2 percent and did a DCF on those to try to arrive at a market capital return; is that right?

A. To arrive at a DCF in the market, correct.

Q. Was that intended to replicate what the market on average would be?

A. It was in an attempt to come up with an estimate of the market DCF cost of equity, yes.

Q. Okay. Was the beta of that group of companies one?

A. It should be, although, I don't know if we -- we specifically calculated it.

Q. If the beta of that group of companies was more like .9, would that understate the market return?

A. No. Because the S&P 500 is used as the proxy for the market, so I don't think so.

Q. But your group wasn't the entire S&P 500, was it?

A. No, that's correct.

Q. You screened out companies that didn't pay dividends yielding 2 percent?

A. That's correct, yes.

Q. And that screening process may have skewed the betas of your sample group, wouldn't it?

A. It would have -- it would have an effect on the beta, although I don't know what the effect would be.

Q. Wouldn't you expect that companies with high dividend yields would have a more stable stock price than companies that

don't pay dividends?
A. Probably in general, yes.
Q. Which instability of stock price is a measure that goes into beta?
A. Yes.
Q. Now, you calculated a risk-free rate for the CAPM model, right?
A. Yes.
Q. And that's demonstrated on JH-8, right?
A. Yes.
Q. Okay. And for the 20-year treasury bill or treasury bonds, you used a rate of 6.02 as the base rate?
A. Right.

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Thereupon, CBT Exhibit No. 18 was marked for purposes of identification.

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BY MR. HART:
Q. Let me hand you what I've marked as CBT Exhibit 18 and ask you if you can identify what that is?
A. This is an excerpt from Ibbotson Associates Cost of Capital Quarterly. It's the quarterly supplement for December of 1997.
Q. All right. And that shows a risk-free rate of 6.02 percent as well?
A. Yes.

Q. That matches what you have on JH-8, doesn't it?
A. Yes.
Q. Now, you, on JH-9, calculated I guess the difference between the long term and short term risk-free rate; is that right?
A. Yes.
Q. And you did that based on a historical analysis of what that difference had been?
A. Yes.

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Thereupon, CBT Exhibit No. 19 was marked for purposes of identification.

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BY MR. HART:
Q. Let me mark CBT 19, and ask if you can tell me what that is.
A. This is a printout from the Dimensional Fund Advisors database.
Q. And is this the data that you used to calculate the premium on Exhibit JH-9?
A. Yes.
Q. The 5.24 and the 3.75?
A. Yes.
Q. Now, on the bottom half of Exhibit JH-9, I take it you used the 6.02 percent that we saw in Exhibit 17 and subtracted what

you had calculated as the historic term premium?
A. Yes.
Q. And that's how you got the short term risk-free rate of 4.53?
A. Yes.
Q. Okay. And Exhibit 19 indicates that this data was developed over the period 1926 to 1997?
A. Yes.
Q. Okay. Now, if you could turn to JH-10, which is the next page. If you'd look at the -- the second of the four groupings there.
A. Okay.
Q. Is this the historical premium of stocks over treasury bills using the arithmetic average method?
A. The top portion is, yes.
Q. That's what I meant, the second of the four groups from top to bottom, there's four groups of numbers here, right?
A. Correct.
Q. Looking at the second group where it says period 1802 to 1997, the premium was 5.49?
A. Yes.
Q. Okay. I want you to look at the period 1926 through 1997, which is the same period as you used to calculate the long term to short term risk-free premium and tell me what the stock premium over treasury rates was?

A. The 9.15 percent.
Q. Is that the premium over the short term?
A. Yes. The arithmetic premium.
Q. And the 7.36 represents what?
A. That's the premium over the long-term bonds.
Q. Okay. And in your analysis, you used 7-1/2 and 5-1/2 rather than 9.15 and 7.36?
A. Yes.
Q. Now, could you pull out your original JH-10.
A. When you say "original", you mean in the direct testimony?
Q. Yes.
A. Okay.
Q. Now, is the difference between JH-10 in your direct testimony and updated JH-10 the addition of data for 1997?
A. Yes.
Q. And I think you noted during your direct that you wanted to correct this footnote to indicate that -- that column under stock returns referred to Footnotes 3 and 4?
A. Correct.
Q. Okay. Now, if we simply look at the column of stock returns, would you agree with me that the results that you have for 1997 as compared to the 1996 results, that the stock return is higher in every instance?
A. Yes.
Q. And if we focus on the period 1926 through 1997, whether we

look at the arithmetic average or the geometric average, would you agree that the premium of stock over treasury returns is higher in every instance in the 1997 data?

A. Yes.

Q. Now, you did not adjust your risk premium when you redid your testimony, did you?

A. No.

Q. But you did decrease the actual rate that you used as the risk-free premium -- risk-free rate, I mean?

A. Let me just check. Excuse me one second.

Q. Okay.

A. Yes, the projection of the short-term rate decreased because interest rates decreased. And the long-term rate decreased for the same reason.

Q. Okay. But you, rather than increasing the stock return, decreased it as well, right?

A. I'm sorry, what do you mean by decreasing the stock return?

Q. Let me ask you a different question. The difference between the stock return and the risk-free return changed between 1996 and 1997, didn't it?

A. Yes.

Q. But in your analysis, you left those the same?

A. Yes. That's correct.

Q. Okay. So you dropped the base, but didn't increase the differential between the two?

A. No. I don't think that's correct. Because what I've done here is I've used actual interest rates as an input into the model. In terms of the equity risk premium, which is a more debatable question, what we have essentially done is that we've looked at both the historical premium on a geometric risk and an arithmetic basis, but we've also looked at the DCF on the market that I believe -- I'd have to check, but I believe that went down and we chose a number that we felt was well in excess of the DCF in the market and reasonably within this range trying to consider all this information, plus all of the research that has been done on the equity risk premium. So, obviously, there's a great deal of judgment in choosing the risk premium.

Q. Okay. Now, would you agree with me that Ibbotson reports something called a size premium?

A. Yes.

Q. And if we looked at CBT Exhibit, is it, 17, the one that had the Ibbotson data? I'm sorry, it's probably 18. I didn't number mine, unfortunately.

A. I've got it right here.

Q. The one that looks like this?

A. Yes.

Q. That's 18. This indicates that the -- at the bottom a list of three different size premiums?

A. Yes.

Q. And above that is a chart that indicates what the

definition is of the different sizes of companies?
A. Yes.
Q. Would you agree with me that, under this definition, Cincinnati Bell would be a mid-cap?
A. No, I don't believe so.
Q. Do you know what the market capitalization of Cincinnati Bell is today?
A. I don't know as of today, but I know approximately as of 12-31-97 when I did this study.
Q. And you know on 12-31-97 that Cincinnati Bell essentially divided itself into two companies?
A. Yes, I do.
Q. And for purposes of this case, aren't we following the company that owns the telephone company?
A. Yes, clearly we are, but as of 12-31-97, the only data I had available on Cincinnati Bell was the consolidated company, which included both of them.
Q. I understand that, but do you know whether upon the division of Cincinnati Bell, the remaining company that owns the telephone company became a mid-cap?
A. It may be a mid-cap company, but even if you assumed that the size premiums are appropriate, which is not generally accepted that you do add size premium for the Capital Asset Pricing Model, you would clearly have to redo the whole analysis for as of today. You can't retroactive pick apart the whole

model, say, let's take out Convergys, but not change any of the variables that go into the model. Because, obviously, beta at the time of the Cincinnati Bell included the risk of Convergys, which I think is considered to be a much riskier business than the underlying telephone company.
Q. Okay. But the way you calculated market weighted beta wouldn't actually make Cincinnati Bell result in a higher beta today than what you calculated it?
A. I don't know if, based on the way I did it, it would result in a higher beta, but I suspect now that it doesn't have Convergys, it would have a much lower beta.
Q. As a stand-alone company, but I'm talking about when we -- if you calculate market beta then relever that with the company's capital structure, wouldn't the Cincinnati Bell of today result with a higher beta than when you calculated it?
A. The answer is I don't know because I don't know what the current inputs are including -- including the capital structure.
Q. Okay. Well, according to Exhibit 18, would you agree that this indicates a mid-size or mid-cap size premium is 1.04 percent?
A. Yes.
Q. If you subscribe to that theory, does that mean you would add that to the result of your CAPM model?
A. Yes.
Q. You didn't do that, did you?

A. No. There was no need to do that.
Q. Let's turn to the subject of debt/equity weights for the top line now. Would you agree with me that as a general proposition, that the forward-looking capital structure of a company would be calculated using market weights?
A. Yes. If what you want to do is figure out the forward-looking cost of capital for a specific line of business, then it would be the market weights to finance that particular business. So, in this instance, it would be the market weights for financing a network element company.
Q. Okay. But whatever company we're looking at, that particular company's capital structure, on a forward-looking basis, would be the market value?
A. I -- I'm not sure I heard the question there.
Q. Well, if we were going to look at the capital structure of a beer company, we would look at the market value of its debt and market value of the equity, right?
A. If you want to see what the capital structure was at any point in time.
Q. Right.
A. As of today. Yes, you could see what it is by looking at it this way.
Q. Now, in your analysis, we haven't put it on the board, but you did a low end and a high end, right?
A. Yes.

Q. And your high end was defined by the market weights of debt and equity?
A. Yes, in order to come up with a cost of capital for the holding company itself.
Q. And low end you did with a book value?
A. Yes.
Q. Where did you get your book values?
A. The book values just came from the companies' respective 10Ks.
Q. So you used the public financial statement balance sheet?
A. Yes.
Q. You didn't look at the regulated balance sheet?
A. No.
Q. Is there a difference between those two?
A. I believe there is, yes.
Q. Would the regulated balance sheet have more equity than the public balance sheet?
A. I think that they do, yes.
Q. And that's because there's a difference in depreciation technique?
A. I don't know the reasons for the differences.
Q. Is that one likely reason?
A. It may be, but I don't have any direct knowledge.
Q. Now, let's assume hypothetically that a company going forward would be required to use its regulated depreciation

rates. Would you agree with me that the regulated balance sheet would provide a better picture of that company's capital structure than the public financial statement that's not based on regulated depreciation?

A. I'm frankly not sure. I would need to look to see how the regulatory books are stated. I think for purposes of what we were trying to do is we were trying to make a qualitative adjustment to say how would this company be financed if it was solely in the network element leasing business and so the book value was intended to derive a low side of the range.

Q. Okay. What I'm asking you is whether the low side of the range would closer approximate the network leasing business if we used the same depreciation rules for our calculations as we did in our cost studies?

A. And I don't know because I -- I don't know the particular rules.

Q. Okay. Well, if the -- if the public financial statement has less equity than the regulated financial statement, would you agree with me that that would result in a lower overall cost of capital if we rely upon the public financial statement?

A. Yes, if you're assuming the same methodology that I used, except in place of the financial book value, you put in the regulated book value.

Q. Okay.

A. It would change the average.

Q. Wouldn't the same be true on market basis, that the high end will be higher using the regulated balance sheet than the public balance sheet?

A. I don't think so.

Q. Isn't there going to be more equity?

A. Perhaps I misunderstood the question. I -- To me, market value is market value; so I don't understand the use of the regulated.

Q. Now, to use book values as a -- as a low end, wouldn't it make a difference in what the book value is when the assets that are shown on the balance sheet were acquired?

A. I'm sorry, could you ask that question again, please?

Q. Let me -- It was kind of poorly phrased. If I have a company and it buys assets and they go on the books at actual cost, right?

A. Yes.

Q. And over time I don't restate that asset value to reflect its current market value, do I?

A. No. Only to the extent that they depreciate it per the books; so it's an approximation process.

Q. Okay. So wouldn't it make a difference to my book value capital structure how old the assets are?

A. The answer is yes to the extent you're taking depreciation reserves against those assets.

Q. Well, it also makes a difference as far as market values,

doesn't it?
A. No, the book values are totally unrelated to the market values.
Q. Let me try to ask it a little different way. If I acquired the asset ten years ago, versus acquiring it today, very same asset, would you expect the book value of those assets to be different?
A. It's a confusing hypothetical. Are you assuming that you're buying it at the same price when you bought it ten years ago and the one you're buying today at the same price?
Q. I'm not assuming the same price. What I'm asking you is wouldn't there potentially be different prices?
A. Potentially, yes.
Q. When I look at a book value balance sheet, the amounts that are recorded there were recorded in dollars as of the time that asset was acquired?
A. Yes. That's correct.
Q. So when we look at a book balance sheet, the results could vary wildly depending upon at what point in time the events that are recorded took place?
A. I don't know if they would vary wildly, but they will clearly vary based on historical information.
Q. Okay. Did you make any effort in looking at your booked capital structure to determine at what point in time the entries on that balance sheet had been made?

A. No. We simply used the book as a qualitative basis for making an adjustment. We did look at the midpoint capital structure. There's an implied capital structure which is based on your midpoint cost of capital. And that works out to about 60 percent equity and 40 percent debt. And that's a number that we felt comfortable with based on the time that the Bells were essentially divested by AT&T, and at that point in time they were involved in, much more so involved than the basic telephone business, than the many diverse businesses they're involved in today. And at that time, that is, with the market capital structure, 60 percent equity and -- yeah, 60 percent equity and 40 percent debt.

Q. Okay. Now, when you went back and applied the weighted cost of debt and equity, am I correct you used an average of your comparable firms?

A. In other words, to come up with debt/equity ratios?

Q. Right.

A. Or the proportion of debt and the proportion of equity. Yes, that's correct.

Q. Okay. And that's shown on Attachment JH-11, isn't it?

A. Yes.

Q. And if we just look at the line for Cincinnati Bell, its book value debt was 44 percent, but the weighted average of all these companies was 57 percent; is that right?

A. Yes.

Q. So when we get to the last equation and you take the cost of debt that you calculated and the cost of equity that you calculated, you weighted them 57 percent debt and 43 percent equity for purposes of the book value?
A. Yes.
Q. Had we used Cincinnati Bell's actual debt/equity ratio, you would have arrived at a higher overall number, wouldn't you?
A. Yes.
Q. Because we're going to use more of the higher cost equity than debt?
A. Yes.
Q. And isn't the same true based on market value, that you used 20 percent debt in your calculation and Cincinnati Bell actually only had ten percent?
A. Yes.
Q. So that would also cause the upper end of your range to be higher?
A. Yes.
Q. And since your recommended cost of capital is the average of those two, had you used Cincinnati Bell's capital structure for book and market, the average would have been higher than you calculated?
A. Yes.
Q. Now, you did some alternative calculations that follow. I believe one of them was to use the BARRA beta?

A. Yes.
Q. And when you use the BARRA beta as opposed to Dow Jones betas that you used, that results in a higher cost of capital as well, doesn't it?
A. Yes.
Q. And then you did on JH-13 a calculation using the 12-month average stock price similar to the staff's approach?
A. Yes.
Q. And that resulted in a higher cost of equity than your approach?
A. Yes.
Q. Or actually cost of capital overall, right?
A. Yes.
MR. HART: I think we're about done. I just want to look around here.
(Pause.)
MR. HART: What am I up to, 19 or 20?
THE EXAMINER: 20 will be your next exhibit.
MR. HART: 20.

- - -

Thereupon, CBT Exhibit No. 20 was marked for purposes of identification.

- - -

BY MR. HART:
Q. I'm going to hand you what I've marked as CBT Exhibit 20.

Do you recognize this as being a page from the Ibbotson Cost of Capital Yearbook?
A. Yes. Actually, just to correct that, it's the Cost of Capital Quarterly.
Q. Okay. And this represents 1997, right?
A. Yes.
Q. Would this be a variety of calculations that shows the cost of capital for companies in SIC Code 4813?
A. Yes.
Q. Which includes telecommunications companies?
A. Yes.
Q. And if I look at the bottom right-hand corner, there's a series of columns that have the heading "Weighted Average Cost of Capital"?
A. Yes.
Q. Are those the Ibbotson Associates calculations of cost of capital using those different methods identified?
A. Yes.
Q. Would you include -- I'm sorry, would you agree that one of the risks that Cincinnati Bell faces is a regulatory risk?
A. Yes.
Q. And that's the risk that the rates that are set for it will not allow it to adequately recover its costs?
A. I would say it's the risk that regulatory forces will determine how much Cincinnati Bell or any other ILEC can make.

Q. And that risk exists in this proceeding, doesn't it?
A. Yes.
Q. How does your cost of capital account for regulatory risk, if it does?
A. It accounts for it in two ways. If you look at the DCF cost of equity side, the market price of the stock, as I previously mentioned, incorporates all the risks that the market anticipates for a company. And one of the things that analysts clearly understand is that regulatory companies have regulatory risks.

On the CAPM side of the model, those risks are probably captured in the beta, the volatility of the stock relative to the market. And that's making a presumption that regulatory risks don't get diversified away. So that if they're a nondiversifiable risk, then they'll be incorporated there. If they're diversifiable, according to the Capital Asset Pricing Model, then they're irrelevant.

And, actually, there's a third, which I didn't think of initially, but the debt size. The lenders are clearly going to look at regulatory risk in evaluating how their debt is going to be repaid.
Q. Okay. Does that then assume that what's happening here right now today is influencing stock and bond prices?
A. Yes. But not in the sense that they have a microphone in the hearing room and are hearing exactly what we are saying, but

to the extent that people are smart and they anticipate what's happening, and they follow what's happening in various states, they see what this Commission has done in the past and, obviously, as soon as a ruling comes out, they read it very quickly to try to digest the impact on the stock price.

Q. The ticker is not going up and down as we speak depending on how good of an answer I get out of you, is it?

A. Well, it might be.

MR. HART: I think those are all the questions. Thank you.

THE EXAMINER: Miss Martin.

MS. MARTIN: Thank you, your Honor.

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CROSS-EXAMINATION

BY MS. MARTIN:

Q. Mr. Hirshleifer, I'm Judi Martin, and I represent the staff.

I'd like to refer you to Page 30 of your direct testimony. And up there on Line 3, you have two betas there. Can you tell me, are you assuming that the debt beta is zero?

A. Yes.

Q. Okay.

A. For large companies like phone companies, we assume that the debt beta is a zero.

MS. MARTIN: Okay. Your Honor, I think staff has no further questions.

THE EXAMINER: Okay. Mr. Royer, do you have any redirect?

MR. ROYER: Yes. Just a few, your Honor. Let's go in reverse order.

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REDIRECT EXAMINATION

BY MR. ROYER:

Q. Why do you make the assumption that in case of a large company, that the beta for debt is zero?

A. That's a good question. And it's been awhile since I looked at it; so I don't have a particularly articulate answer for it.

Q. Is it a convention in analyses of this type --

A. Yes.

Q. -- to use zero for beta of debt?

A. Yes. It's absolutely a convention for large, stable companies.

Q. Mr. Hart asked you some questions regarding the capital structure that you used, and you replied that the approximate midpoint of that -- or the approximate midpoint of your capital structure was 60 percent equity and 40 percent debt; is that correct?

A. Yes.

Q. And you compared that to capital structures from several

years ago for RBOCs, did I understand that correctly?
A. Yes, I believe right after the spin off, we looked at the market value of the capital structures at that time and it was approximately in that range.
Q. Have you also had an opportunity to compare the midpoint of your capital structure to the capital structure that Mr. Chaney recommends in this proceeding?
A. Yes, in rough fashion. I don't absolutely remember his numbers, but it appeared to me that they were fairly close.
Q. In that respect, do you recall Mr. Chaney's -- any circumstances under which Mr. Chaney's use of his use of market capital structure would be appropriate?
A. I'm sorry, Mr. Royer, I missed the first part of your question.
Q. I'm sorry. Given your finding, or given that relationship of the two -- of the midpoint of your capital structure to Mr. Chaney's capital structure, are there circumstances in which you would believe that staff's use of a nonmarket capital structure could be appropriate?
A. Well, I think it's certainly appropriate just based on the simple test that it appears to approximate my midpoint which I do believe is a reasonable implied capital structure.
If the staff's intent is to effectively come up with a capital structure that is a proxy for the market capital structure of Cincinnati Bell Telephone's business, which can't

be observed in the marketplace because there are no pure play companies in that business, then I think it's reasonable.

Q. Going back to the beginning. Mr. Hart asked you some questions about the FCC's TELRIC standards. Do you recall those -- that inquiry?

A. Yes.

Q. Is there anything -- any place in the first report -- in the FCC's 1996 First Report and Order which states that the cost of capital being used should reflect full competition?

A. No.

Q. Is there language that suggests that it should not?

A. Yes, there's language in several places, one which I already mentioned which is Paragraph 688 where they reject the suggestion that full competition should be assumed. But clearly if you look at Paragraph 702, which discusses how you should determine the cost of capital, everything in there indicates that there is a burden of proof on the LECs to show a higher cost of capital, and any party can come in and show either a higher or lower cost of capital, and there's just no reason for any of that language if, in fact, what they could have said in that paragraph would have been a one-line, assume full competition.

Q. I believe you had some discussions with Mr. Hart regarding Cincinnati Bell's size vis-a-vis the other companies in -- the other companies in your sample, in terms of whether it was a large-cap or mid-cap, do you recall that?

A. Yes.

Q. And just so we're clear, at the time you did your studies, you would -- under the Ibbotson reference points, Cincinnati Bell would have been a large-cap?

A. Yes, it would have had a market cap in the four billion range.

Q. Do you know where Cincinnati Bell ranks among all telephone companies?

A. It's the 11th largest.

Q. All right. And do you know what percentile it would be in among all companies, all S&P companies?

A. It would be in the top 20 percent of all NYSE companies.

Q. Okay. Now, I take it that there were some companies that you eliminated from your -- from your sample due to size?

A. Yes.

Q. Do you recall what any of those -- specifically at this time some of those companies that were eliminated?

A. The three that I recall were Alliant, Telephone and Data Systems, and Frontier.

Q. And did you do any comparison to determine whether Cincinnati Bell is more like the companies that were included or more like the companies that you excluded?

A. Well, it bore a lot of similarities to the excluded. Again, it's hard to generalize, but because about 50 percent of the company was in what is now Convergys, it has many high risk characteristics and high growth areas that are unlike the pure telephone business.

Q. Did you do any analysis to determine what the betas were of the companies that you excluded?

A. I've looked at the betas for those three companies. Alliant as of 12-31 -- all of these betas were as of 12-31-97, had a beta of .55, Telephone and Data Systems has a beta of .86, and Frontier had a beta of .58. Again, this is a five-year Dow Jones calculated beta.

Q. Now, you had some discussion with Mr. Hart regarding whether you discount the dividend -- for purposes of your DCF model, whether you had discounted the dividends back to the beginning of the year. Can you explain what that process was and why it's done that way?

A. That's really for a function of the model, because the way we have set up the model is we know we have the price and we know what the dividends are by applying the growth rate per year, but we don't know the cost of equity, so I had to set up an iterative program that would essentially solve for the cost of equity. The way it did it was it took each of the dividends in every year in the study and discounts it to the present to come up to the price. So if the price today is $50, it's going to take all future dividends, it's going to then put in the discount rates until it comes up with a right discount rate that ends up discounting all the future dividends to a present value of $50.

Q. Now, Mr. Hart asked you some questions regarding the impact of the application or meaning of the use of your five-year growth rate as a part of your determining the total growth rate to be used in your three-stage DCF, do you recall those questions?

A. Yes.

Q. And is there anything in the use of the -- anything inherent in the use of the five-year growth rate that suggests that the growth rate will, in fact, change at the end of five years?

A. No. I mean, the cost of capital is based on the inputs at any point in time, so that depending on any period of time that you look at it, you're going to derive the cost of capital based on the five-year forecasts at that point in time.

Q. And as I understand it, the reason you used the three-stage model in this case was to address the what we call maybe the cellular phenomenon; is that correct?

A. Less so the cellular -- well, yes, the cellular phenomena, although I hate to use that phrase, but it's to take into account the fact that the holding companies, the telephone holding companies have become involved in many businesses such as cellular, international telephone, Cincinnati Bell was involved in billing systems and telemarketing prior to the spin

off of Convergys, and those companies are growing at very high rates, and over time as their markets mature and saturate, they will not be able to maintain those high growth rates and eventually they converge to the growth rate of the market.
Q. So your use of the three-stage model and the projected trending down to the growth rate of the economy as a whole that occurs in the second phase is not a result of -- is not a result of a mechanical application of a model you used, but rather of your belief that this -- these growth rates cannot be maintained?
A. Yes, and it's not only my belief, I think if you read any analyst's reports or reports of the companies, themselves, you'll see that the high growth rates fall off or there's a belief that they are going to fall off as the markets are penetrated.
Q. Now, Mr. Hart also asked you some questions about the rates that would be set in this proceeding. Is it your understanding that the rates that are set in this proceeding would remain in effect for 25 years?
A. No.
Q. And the fact is, is it not, that the forward looking cost of capital changes daily; is that right?
A. Yes, based on the market's expectations and understanding of risks.
Q. So that forward-looking cost of capital that you might

determine tomorrow to be applicable in this proceeding would not -- might not necessarily be the same as what you would determine today, correct?

A. Right. Assuming hypothetically I had all the data available.

Q. And there is no way you can determine what the cost of capital will be in five years, correct?

A. No.

Q. And that's not the purpose of this exercise, is it?

A. Not that I understand.

Q. Now, you indicated that you had used the average of the companies on -- the average betas of the companies on Exhibit JH-6 to minimize an estimation error. Is there any other way you can minimize estimation error besides averaging, for betas?

A. Not that I can think of. That's the customary technique to basically wash out the highs and lows, which are idiosyncratic results or may be idiosyncratic.

Q. And again, I believe you mentioned this, but do you have an opinion as to why, of the companies listed, Cincinnati Bell, Inc. shows the highest beta?

A. I have an idea. I wouldn't necessarily say that it's conclusive, but as we have discussed, probably about 50 percent of Cincinnati Bell, Inc. was comprised of what is now Convergys, and if you read Convergys' -- or you read the 10K for 12-31-97, they indicate that Convergys, at least a large portion of it was in the business of providing billing services to the wireless industry, so that essentially it was tracking the growth of the wireless industry which I've indicated in here is a very high growth business, and in fact, they say that they expect that over time that growth rate would decline.

Q. And so sitting here today, which I know is not possible, but if you held all other things equal, would you expect if we did this comparison, or examine the beta for Cincinnati Bell, historical beta for Cincinnati Bell some two years hence, all else being equal, would you expect the beta to be more in line with the betas for the other companies identified on this exhibit?

A. Yes, I would. Now, Cincinnati Bell would still participate in certain high-growth businesses like ADSL and wireless, but my rough guess is that the proportion of those businesses may be more similar to the other telephone holding companies after Convergys has been spun off.

Q. Is there any -- has there been any other evidence that you can cite to that would suggest that this spin off has had a favorable impact in the eyes of the investment community or rating agencies on -- concerning Cincinnati Bell?

A. I did note that in October of 1998 the debt rating of at least one of Cincinnati Bell's securities went up.

Q. And Mr. Hart asked you some questions about the use of quarterly -- your rejection of the use of a quarterly DCF model,

do you recall that?
A. Yes.
Q. Why do you believe the use of the quarterly DCF model to be inappropriate?
A. That has to do with the sort of regulatory process. Keeping in mind that an investor looks at the cost of equity based on a quarterly compounding method if you assume the company pays dividends quarterly. My understanding is in this proceeding what we're trying to determine is a rate that is going to be paid not directly to the investor, but it's going to be paid to the telephone company, itself, so if you take the monies and you first compound it up quarterly and you pay it to the telephone company, the telephone company then takes those monies as revenues and itself invests it and gets monthly compounding, and I'm not sure if it's the case in -- for Cincinnati Bell, but I think most telephone companies actually receive their monies in advance for regular telephone service, so they get not only the benefit of quarterly compounding, but they -- I'm sorry, monthly compounding, but they get it paid in advance so they get that additional compounding benefit. So a regular company, which is not regulated, no one says well, we're going to pay the regular company on a quarterly compounded basis. If it gets monthly cash flows, it takes those monthly cash flows, it invests them monthly, and then if it's paying out quarterly dividends, it pays those dividends quarterly.

Q. So the impact of quarterly compounding and ignoring the monthly reinvestment of cash that's being reached, in effect, rewards the company twice?

A. I'm not sure if the factor is twice, but it gives them the benefit of both the monthly and quarterly compounding.

(Pause.)

MR. ROYER: I believe that's all I have. Thank you, your Honor.

THE EXAMINER: Mr. Hart.

MR. HART: Just a few things, your Honor.

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RECROSS-EXAMINATION

BY MR. HART:

Q. You mentioned that on the quarterly payment of dividends, that Cincinnati Bell gets the benefit of monthly compounding, right?

A. Yes.

Q. When it pays dividends quarterly, it gets less benefit of monthly compounding than if it paid them annually, doesn't it?

A. Yes.

Q. So if I earn money monthly and didn't pay it until the end of the year, I would have a lot more monthly compounding than if I paid dividends quarterly?

A. Yes.

Q. Now, you mentioned to Mr. Royer that cost of capital

changes daily, right?
A. Yes, based on the market's expectations of risk and forecasts, et cetera.
Q. And --
A. In theory.
Q. And in that nonregulated company has the ability to adjust its rates in order to increase its earnings, doesn't it?
A. And when you say adjust its rates, we're talking about the revenue side?
Q. Yes.
A. Yes.
Q. Cost of things that it says, it can raise its prices if it feels like it needs to do that to generate more revenue?
A. Yes, if market forces allow it to.
Q. Okay. But in the case of a regulated entity, it has no ability to change its prices beyond what the regulators allow it to do?
A. Yes, although let me qualify that, that I'm not sure what the rules and limitations are for pricing. So that would be my general understanding.
Q. Well, you understand that this proceeding we're in right now is intended to establish prices for unbundled elements?
A. Yes.
Q. And that once this hearing is over and those prices are set, they are going to be in place for some period of time?

A. I would presume so, yes.
Q. And if market conditions for the cost of capital should change after these rates are established, Cincinnati Bell doesn't have the flexibility of increasing its prices to cover that cost of capital?
A. It may not, although it may have the ability to apply for rate changes, again, that's a process that I don't know.
Q. So we get to do this all over again?
A. Yes.
Q. And that's what's known as regulatory risk, isn't it?
A. I would say that's a portion of regulatory risk.
Q. Okay. Now, Mr. Royer asked you about some other information you had to confirm a 60/40 equity and debt ratio?
A. Yes.
Q. Okay. If you would look at the exhibit which is Cincinnati Bell Data Request No. 6, and this is the one that shows how you unlevered and relevered the betas.
A. 16?
Q. Okay. Now, would you agree with me that the company on this list with the debt/equity ratio the closest to 60/40 is SNET?
A. Yes, it looks like it.
Q. And when we relevered the beta using that capital structure, we get a result of .8?
A. Yes.

Q. And when you did your CAPM model on your supplemental testimony Page 11 for Cincinnati Bell, you used a beta of .68; is that right?

A. Let me just catch up with you. Are you looking at Page 11 or JH-11?

Q. Page 11.

A. Yes. The primary run we did using the beta and then we did the alternative runs with the BARRA beta.

Q. But you didn't use any runs that went as high as .8?

A. That's correct.

Q. If you used .8 in the CAPM, that will increase the amount of the risk premium that Cincinnati Bell would expect to earn in the market?

A. Yes.

Q. And that, therefore, will change the average when we average DCF and CAPM together?

A. Yes.

Q. And then that will in turn increase the overall cost of capital when we weight debt and equity?

A. Yes.

MR. HART: That's all I have.

THE EXAMINER: All right. Thank you, Mr. Hirshleifer, you're excused.

(Witness was excused.)

THE EXAMINER: Any objection to the admission of

MCI/AT&T Exhibits 3 and 4? Those exhibits will be admitted.

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Thereupon, MCI/AT&T Exhibit Nos. 3 and 4 were received into evidence.

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THE EXAMINER: And you want to offer your exhibits as well.

MR. HART: Yes, I'd like to offer CBT 16 through 20.

MR. ROYER: No objection.

THE EXAMINER: All right, CBT Exhibits 16 through 20 will be admitted at this time as well.

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Thereupon, CBT Exhibit Nos. 16 through 20 were received into evidence.

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THE EXAMINER: Let's go off the record a moment.

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(Thereupon, the hearing was adjourned at 11:50 o'clock a.m. on Tuesday, March 23, 1999, to be reconvened at 9:00 o'clock a.m. on Wednesday, March 24, 1999.)

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C E R T I F I C A T E

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We, Valerie J. Grubaugh, Registered Merit Reporter, and Candace M. Hammond, Registered Professional Reporter, hereby certify that the foregoing is a true and correct transcript of the proceedings before the Public Utilities Commission, State of Ohio, on Tuesday, March 23, 1999, as reported in stenotype by us and transcribed by us or under our supervision.

Valerie J. Grubaugh, Registered
Merit Reporter

Candace M. Hammond, Registered
Professional Reporter

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