OCC EXHIBIT 24

OHIO BELL TELEPHONE COMPANY

Case Nos. 93-487-TP-ALT &
93-576-TP-CSS

Rebuttal Testimony

of

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME.

A. My name is F. Ross Pultz.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN THESE PROCEEDINGS?

A. Yes. On February 4, 1994, I filed direct testimony in Case No. 93-576-TP-CSS, herein referred to as "initial direct testimony". On May 5, 1994, I also filed testimony labeled "Direct Testimony" in Case No. 93-487-TP-ALT and "Supplemental Direct Testimony" in Case No. 93-576-TP-CSS, herein referred to as "supplemental testimony". In the latter testimony I also incorporated by reference my initial direct testimony into Case No. 93-487-TP-ALT.

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. I am presenting testimony to rebut certain positions of Ameritech Ohio witness Roger G. Ibbotson in Case Nos. 93-487-TP-ALT and 93-576-TP-CSS. Unless otherwise indicated, references here are to Dr. Ibbotson's prefiled testimony, rather than his cross examination. I am also presenting rebuttal testimony to certain aspects of the testimony of Staff witness Stephen R. Chaney in Case No. 93-487-TP-ALT.

II. *REBUTTAL OF DR. IBBOTSON*

(A) TWO STAGE DCF

Q. DO YOU HAVE COMMENTS ON DR. IBBOTSON'S TWO-STAGE DCF?

A. Yes. Although, in principle, the use of a two-stage DCF can improve the accuracy of cost of equity estimates compared to a one-stage DCF, this will only occur if the growth estimate used for the second stage of the DCF is reasonable. The second stage of the two-stage DCF used by Dr. Ibbotson (discussed on pages 19-26 of Ameritech Ohio Ex. 32.0, Puco Case No. 93-487-TP-ALT [Dr. Ibbotson's Alt. Reg. testimony]) has two kinds of difficulties that make it an inappropriate estimate. First, by using an economy-wide growth estimate, that being the nominal growth in the Gross Domestic Product (GDP), Dr. Ibbotson makes no attempt to capture company-specific factors; and second, the projection for the nominal growth in the GDP used for the second-stage growth in his DCF is unrealistically high.

In his testimony Dr. Ibbotson indicated that after five years Ameritech will grow as fast as the midwest region and the U. S. economy. Dr. Ibbotson has given no support for his belief that Ameritech in its increasingly competitive environment will grow as fast as the economy.

Yet even if Ameritech's growth will track the economy, Dr. Ibbotson's analysis begs the question, crucial for the DCF, of how Ameritech will do on a per-share basis.

The company's overall growth could match the nation, but if additional shares are issued, the per share growth used in the DCF would be significantly lower, or if the company reacquires stock, the per share performance could exceed that of the economy. Dr. Ibbotson has neither explicitly nor implicitly considered these possibilities.

Dr. Ibbotson's two stage DCF uses the current dividend and price, the IBES earnings growth for the first five years, and then the nominal GDP growth in later years. This approach cannot distinguish between companies that pay out most of their earnings as dividends and have slow per share growth, perhaps raising substantial amounts of equity from stock issuances, and companies that reinvest most of their profits in the business, perhaps even repurchasing stock, in the second stage of the DCF. According to the DCF, these difference should produce material differences in per share growth and resulting differences in estimates of the cost of equity.

If Ameritech has a different payout ratio than average, and as a result, different resulting growth through

retained earnings, applying an economy-wide growth rate in the second stage will incorrectly estimate growth during that stage and produce an erroneous DCF result. As a result there is significant company-specific information suppressed by Dr. Ibbotson's use of a economy-wide measure for the second stage of his DCF. There is no way to determine whether this growth rate will apply to Ameritech on a per share basis even if Ameritech were to grow as fast as the economy as a whole. (If Dr. Ibbotson were obtaining an economy-wide average cost of equity for and he captured companies with a full range of dividend strategies as part of some academic study, the use of the economy-wide GDP as an estimate of second stage growth might be more acceptable. However, this does not make this approach proper for determining the cost of equity for a single company, with a potentially unique dividend policy.)

In fact, Value Line data and projections suggest that Ameritech does pay more profits as dividends and reinvest less in the business than the typical company, and will be doing so in the future. This is shown by a comparison of the Value Line estimate of the percent of all dividends to net profits for Ameritech, from the April 15, 1994 issue, and Value Line's "Industrial Composite," in the August 19, 1994 Value Line Selection and Opinion. Ameritech values are 1992 70%, 1993 69%, 1994 69%, 1995 67%, and projected

1997-99 70%. The comparable Industrial Composite numbers are 1992 59%, 1993 48%, 1994 44%, 1995 44%, and projected 1997-99 43%. There is a greater than 20% difference between the 69% average of Ameritech values and the 48% average of Industrial Composite values. The Industrial Composite consists of approximately 810 industrial, retail and transportation companies out of approximately 1700 companies covered by Value Line. It is not economy-wide, and some dividends included in the Value Line calculation are on preferred stock, but the difference in payouts is large enough to indicate that Ameritech can be expected to pay out more and retain less of its profits than the typical company. This fact alone would suggest that Ameritech's per share growth will be less than that of the economy as a whole. The higher dividend yield on Ameritech stock, listed as 5.2% on the indicated document compared to the Industrial Composite of 2.8%, is in line with this point.

For the second stage of his DCF, Dr. Ibbotson has used a nominal growth in the GDP obtained by projecting 1926-1993 factors into the future. To obtain his 7.8% nominal growth in the GDP, he has combined the 3.1% 1926-1993 real growth in the GDP with a 4.7% expected inflation rate. This expected inflation rate is obtained by subtracting 1926-1993 average realized real returns on 20-year U.S.

treasury bonds, 2.31%, from current yields to maturity on 20-year U.S. treasury bonds, 7.02%. Neither Dr. Ibbotson's 3.1% estimate for real GDP growth, nor his 4.7% estimate for inflation, is realistic.

The historical average rate of growth for 68 years of data from 1926-1993 is not necessarily helpful for predicting the future. Even if risk premia were relatively stable over time, there is no reason to believe that the economy will grow at a rate equal to growth in the past. The fact that some underlying sources of economic growth such as population and labor force growth are now projected to be lower, suggests that future growth will also be lower. (Schedule FRP-1R shows that the U.S. population, which grew at a compound annual rate of 1.18% over the period 1926-1992, is projected to grow .088% annually to 2005 and 0.70% annually to 2050 (it should be recalled that we are now closer to 2050 than to 1926). The Schedule also shows that the civilian labor force, which grew at an annual rate of 1.56% over the 1926-1992 period, is projected to grow at an annual rate of 1.33% to 2005. The fact that the recent annual rate of GDP growth has been lower than over the 1926-1993 period also suggests that past growth rates cannot be automatically projected into the future and that future growth may be slower than over the 1926-1993 period. (Schedule FRP-1R shows that real annual

growth in GDP has been 2.90% since 1960, 2.48% since 1970, and 2.23% since 1980.) These facts suggest that future growth in real GDP will be materially lower than the 3.1% used by Dr. Ibbotson.

Dr. Ibbotson's 4.7% estimate of expected inflation also has several difficulties. The way it is derived is unrealistically mechanistic, and the results are biased upward.

Since early 1994 there has been a substantial increase in interest rates, attributed in the financial press to attempts by the Federal Reserve to reduce the threat of future inflation. Applying Dr. Ibbotson's approach by subtracting historical realized real returns from current yields to maturity produces higher expected inflation due to the higher interest rates. The fact that tight money aimed at fighting inflation can, under Dr. Ibbotson's mechanistic approach, lead to a higher estimate of expected inflation, casts doubt on this method of measuring expected inflation.

As will be explained later in my testimony, the use of 1926-1993-based results to estimate future expected returns does not properly reflect the current environment, and real expected returns on long term government bonds

are now materially higher than the 2.3% used by Dr. Ibbotson. Since this is the quantity that is subtracted from recent long-term interest rates to obtain Dr. Ibbotson's estimate of expected inflation, an increase in the estimate of expected real returns on long-term government securities lowers the estimate of expected inflation that is combined with estimates of real GDP growth to obtain estimated growth in the economy. Had Dr. Ibbotson properly emphasized recent data he would have used an expected real return higher than his 2.3%, would have obtained a lower expected rate of inflation, and would have obtained a lower growth rate for the second stage of his DCF.

The above discussion shows that the methodology used by Dr. Ibbotson to develop the second stage of his two-stage DCF is flawed, and the 7.8% growth result is high.

I have performed alternate two-stage DCFs on Schedules FRP-2R and FRP-3R. (The first schedule uses the data set forth in my initial direct testimony; the second schedule uses data from my supplemental testimony.) In these schedules I have performed two-stage DCFs using Value Line's current and projected dividends for the first stage and a projected BxR for the second stage of my DCF. Projected BxR is a useful estimate of growth during the

second stage of a two-stage DCF for the same reason it is useful in a one-stage DCF. It is an estimate of sustainable growth. The approach incorporates Value Line's published estimates of dividend payments for the next five years and an estimate of sustainable growth after the five year period. (See pages 21-22 and 31-32 of my initial direct testimony for more on the BxR.) These results, 9.46% on Schedule FRP-2R and 11.63% on Schedule FRP-3R, are substantially lower than Dr. Ibbotson's results and are in line with or lower than the ranges for the cost of equity I recommended using single stage DCFs and the same data.

(B) QUARTERLY DIVIDEND DCF

Q. IS DR. IBBOTSON'S QUARTERLY DIVIDEND DCF NECESSARY FOR UTILITY RATEMAKING?

A. No. An approach such as Dr. Ibbotson's quarterly dividend version of the DCF (discussed on pages 27-29 of Dr. Ibbotson's Alt Reg testimony) is not necessary for use in setting a fair rate of return. It is true that dividends are normally paid quarterly rather than annually. Incorporation in the DCF of the fact that dividends are paid at the end of the quarter rather than at the end of the year means investors receive their return sooner and realize a higher return than produced by a DCF that assumes that the dividends are received at the end of the

year. This does not mean, however, that the quarterly DCF must be used in ratemaking in order to provide the utility with an opportunity to earn a fair rate of return.

The quarterly version of the DCF is not necessary because the utility will be able to obtain the same increase in return from reinvesting profits during the year that the quarterly DCF assumes investors can. A fuller understanding of the issues involved shows that the apparently higher results obtained by the quarterly DCF are in ways analogous to the difference between nominal and realized returns. A bank that pays 6% interest compounded quarterly is not providing a lower return than one paying 6.1% per year but without compounding. The 6% a year compounded quarterly produces an annual return of over 6.136%. The bank at 6% is really paying more than the other investment at 6.1%. The bank could lower its announced interest rate to around 5.9653% and still produce returns equal to the 6.1% a year without compounding.

A utility for which a return is set will not have to wait until the end of the year to receive its profits, but will be able to earn its profits throughout the year. During the year, the utility can invest in assets that will earn additional (compound) profits, can reduce debt and save on

interest expenses, or can reacquire stock. The utility's actual earned rate of return will be higher than the authorized rate of return, by the same logic that the investors' return in the quarterly dividend model is higher than in the yearly model, i.e., returns occur during the year rather than at the end of the year.

Schedule FRP-4R shows how this works in a very simplified example. Assume that a utility is expected to pay $4 in dividends during the upcoming year and has a price equal to the book value of $100 for a yield during the year of 4% (d(1)=4) and has growth of 8% (g=.08). The annual DCF result for this company is 12%. (While this schedule shows only the first year for the company, each future year can be assumed to work the same way but with values 8% higher each year.) Scenario 1, at the top of the schedule, shows that the effect of paying dividends quarterly produces an effective annual return of 12.1783%. Scenario 2, in the middle of the schedule, shows that if the utility can reinvest its profits that were not paid out as dividends in earlier quarters in the business, and earn the 12% authorized return on this investment and if the stock price rises as book value per share rises, then stockholders will receive an effective return of 12.5509%, well above the authorized return of 12%. Scenario 3 at the bottom of the schedule shows that if the authorized

return is approximately 11.65814%, a value substantially lower than the 12% produced by the annual DCF model, investors will receive the effective return produced in the quarterly dividend model in Scenario 1 above, that is 12.1783%. This 11.65814% is actually the same nominal return that if compounded quarterly produced an effective annual return of 12.1783%.

While the real world is more complicated than any of these simplified scenarios, in this model the utility did earn at least its "authorized" return on its average equity during the year. There is enough of a difference between the nominal return that is authorized and the effective return realized in these examples to offset such factors as somewhat lower returns on reinvested funds or a date certain rate base below the average investment. (This last factor is relevant because date certain rate base will not necessarily equal average investment.) In addition, if one wants to complicate matters as to the difference between average investment and date certain investment, there are many other aspects of the test year that must also be re-examined, e.g., which increases in expenses and revenues that occur during the test year are annualized.

The 0.1% adjustment that Dr. Ibbotson has made for the quarterly payment of dividends is relatively small in comparison to the difference between the general level of our recommendations, and isn't much more than "noise" or rounding error in some calculations. While it might seem plausible to ignore the effect because it is small, it always raises the results, so it is not random.

I believe that a fair rate of return can be obtained using the annual DCF. To avoid setting rates that provide the utility with a return that is more than its cost of equity, results obtained through quarterly versions of the DCF must be adjusted downward. This adjustment will roughly offset or more than offset any higher result produced by the quarterly application rather than the annual application of the DCF.

(C) RISK PREMIUM PERIOD

Q. DO YOU HAVE COMMENTS ON DR. IBBOTSON'S USE OF A RISK PREMIUM BASED UPON DIFFERENCES IN AVERAGE RETURNS OVER THE PERIOD 1926-1993?

A. Yes. Dr. Ibbotson's risk premium, like his expected real return on long-term government bonds used in determining the expected inflation rate, is derived from average differences in returns over the period 1926-1993. (Pages

36 and 43 of Dr. Ibbotson's Alt Reg testimony.) The risk premia used by Dr. Ibbotson weight each year's data equally, i.e. data from a year in the 1920's has as much weight as data from a year in the the 1990's.

I believe that economic conditions in the world, and in particular the financial markets, have changed substantially since the earlier years covered in Dr. Ibbotson's analysis. Differences in risk and required return between different types of assets are now not the same as they were during the early part of Dr. Ibbotson's study.

Some of the changes include: the passage of the Securities Exchange Act of 1934 and other legal changes that have increased the amount of financial disclosure and the protection of stockholders from risks associated with securities fraud; drastic increases in the flow of financial information and the amount and speed of financial analysis that equally drastically increased the amount of investment information available to most investors; changes in tax rates and tax laws that have affected the relative after-tax returns on different kinds of assets; the globalization of capital markets and increased international flow of capital that have reduced the ability of U.S. monetary authorities to control interest rates; the development of mutual funds (and no-load mutual

funds) that have dramatically lowered the cost of holding diversified portfolios; the deregulation of brokerage rates that have lowered the cost of many securities transactions; and so forth. These changes did not happen in a single year but are cumulative and are so substantial that it is hard to believe that market conditions and risk premia from the beginning of Dr. Ibbotson's study period have as much value in estimating today's risk premia as more recent data, if the earlier data have any value at all.

In the 1994 edition of Dr. Ibbotson's yearbook "Stocks, Bonds, Bills and Inflation, 1994 Yearbook," showing results for the period 1926-1993, there is evidence suggesting that the risk of stocks has decreased since the early years of the study, and that the risk of bonds has risen. This would mean that risk premia based upon realized returns from earlier years are unrepresentative of current conditions. Attachment D presents graphical evidence of these changes from the Ibbotson study. The study states (page 98):

> The stock market was tremendously volatile in the first few years studied, which were marked by the 1920's boom, the crash of 1929-1932, and the great Depression years. The market settled after World War II and provided much more stable returns in the postwar period. In the 1970s and 1980s, stock volatility increased, but not to the extreme levels of the 1920s and 1930s, with the exception of October 1987. In the 1990s to date, volatility has been moderate.

> Bonds present a mirror image. Long-term government bonds were extremely stable in the 1920s and remained so through the crisis years of the 1930s, providing shelter from the storms of the stock markets. Starting in the late 1960s and early 1970s, however, bond volatility soared; in the 1973-1974 stock market decline, bonds did not provide the shelter they once did. Bond pessimism (i.e. high yields) peaked in 1981 and subsequent returns were sharply positive. While the astronomical interest rates of the 1979-1981 period have passed, the volatility of the bond market remains high.

I have prepared two schedules to show the effects of eliminating or reducing the importance of old data. Schedule FRP-5R shows what happens to a number of risk premia as old data is eliminated and only more recent data, from increasingly short periods, is included in the average. Schedule FRP-6R shows what happens to the same risk premia as old data is weighted less.

In Schedule FRP-6R I have presented average results using different decay rates for old data. The results graphically shown at the extreme left of the graph and numerically shown at the top of the table are based on the assumption that all years of data are weighted equally. Other results are obtained using increasing rates of dropoff in weighting for old data. For example the 1% result assumes that data each year older has 1% less weight than data for the next year, and in the 5% result each year's result has 5% lower weighting than the succeeding year. While at this point I have not determined

that any one of these results is more meaningful than any other result, these results do show certain key facts about the underlying data.

The stocks, less t-bill equity risk premium, 8.4% when all years are weighted equally, falls as low as 7.0% with an 8% decay rate, before recovering to 7.8% with a very high 16% decay rate. With a conservative 2% decay rate that also produces a 7.8% risk premium, 1970 data has a weight around 63% of 1993's weight, 1950 has 42% as much weight, and 1930 has 28%.

The stock, less long-term government income returns that Dr. Ibbotson has used as the basis for his CAPM, is 6.9% when all years are weighted equally but also falls off as older years get less weight. Results fall as low as 5.2% before recovering very slightly to 5.5%. A two percent decay rate on old data produces an average of 6.3%. These results show that deemphasizing old data results in noticeably lower risk premia. (The 6.9% used here differs slightly from the 7.2% used by Dr. Ibbotson because I followed the pattern of Mr. Ibbotson's book and used geometric differences ((1+A)/(1+B))-1 rather than the arithmetic difference (A-B) which Dr. Ibbotson used in his testimony. The nature of the resultant analysis is the same.)

The stocks, less total return on long-term government bonds series, shows a much more dramatic drop in risk premia. The 7.1% obtained by weighting all years equally continues to drop dramatically as the old data's weight falls and goes down to 6.3% at the 2% decay rate and 1.7% at the 16% decay rate.

The stocks less t-bill risk premium I presented in a CAPM, and the stocks less long-bond income return premium used by Dr. Ibbotson in his CAPM both show a noticeable decline as old data is given decreasing weight. The stocks less long bond returns and the long bond return less-inflation results show even more dramatic influences from reducing the weight of older data.

The long-term government bond less inflation results that Dr. Ibbotson uses to determine his expected inflation rate shows an equally dramatic rise. The 2.3% obtained by weighting all years equally rises to 2.7% using a 2.0% decay rate and 8.4% using a 16% decay rates. (This value enters Dr. Ibbotson's calculations because he subtracts the 2.3% result here from 7.0% long term bond interest to obtain the expected inflation used in the second stage of his two stage DCF. The growth in this second stage is the combination of real growth in the GDP and expected inflation. Simply using the result for the 2% decay rate,

2.7%, rather than the 2.3% associated with a zero decay rate, lowers expected inflation and expected nominal growth in the GDP by 0.4%. Since this is the growth rate used in the second stage of Dr. Ibbotson's two stage DCF, using an expected real return based upon a 2% decay rate for old data lowers the second stage of growth in the DCF by 0.4%. Using a 3% decay rate lowers the second stage growth by 0.7%.)

Like reducing the weight of earlier years, using a shorter review period (eliminating earlier data) produces similar results. Schedule FRP-5R shows the results that are obtained if different years are used as the starting point for an analysis such as Dr. Ibbotson's. The results are basically the same: exclusion of the early years of Dr. Ibbotson's study reduces various risk premia and increases long-term government and t-bill real returns noticeably. Inclusion of only recent years produces widely varying results that are sometimes as high or higher than results for the entire period.

Stocks less t-bill premia, 8.4% using all years, drop to 4.4% using only data since 1987. Stocks less long-term government total returns premia, 7.1% using all years, drop as to as low as 2.4% using only data since 1969. Stocks less long-term bond income return, 6.9% using all

years, drops as low as 3.6%, using only data since 1966. Real returns on t-bills 0.6% using all years, rises to over 1% using almost every period since 1951 and to as high as 3% using 1981. Real returns on long-term U.S. government bonds, 2.3% using all years of data, falls as early years of data is dropped, getting as low as 1.0% using 1941 as the starting point, and then rises to over ten percent if only recent data is included.

These results show that the world has changed and that risk premia and expected returns derived from including all the data from Dr. Ibbotson's study and weighting it equally will give too much weight to data from times when conditions that affect the relative risk and required return on investments were dramatically different from today's conditions. Reducing or eliminating the weight of such old data produces lower measures of the risk premia. The measures of risk premia that Dr. Ibbotson has used are, therefore, not representative of today's conditions.

(D) ISSUANCE EXPENSES

Q. ***DO YOU HAVE ANY COMMENTS ON DR. IBBOTSON'S APPLICATION OF AN ISSUANCE EXPENSE ADJUSTMENT TO AMERITECH'S ENTIRE EQUITY?***

A. Dr. Ibbotson has incorrectly applied his 4% issuance expense adjustment to Ameritech's entire equity as a

flotation cost adjustment (pages 47-50 of Dr. Ibbotson's Alt. Reg. testimony). The proper adjustment applies just to equity that is obtained through external fundings. To demonstrate this I have prepared Schedule FRP-7R.

This schedule has three scenarios showing different treatments of issuance (or flotation) expenses. In Scenario A, there are no issuance expenses, and no adjustment to reflect them. In Scenario B, there are issuance expenses and an adjustment for issuance expenses is made to the entire amount of equity, as Dr. Ibbotson recommends. In Scenario, C an adjustment for issuance expenses is made just for externally raised funds, as the Staff and I recommend. Aside from these differences, other features are the same in the three scenarios. I have used the assumptions in the answer to question 59 on page 48 of Dr. Ibbotson's Alt. Reg. testimony in the Alt Reg case, that $10,000,000 is raised with a flotation cost of 4 percent and an expected return of 12 percent. In addition I have assumed that each year the company earns the indicated return on its year-beginning equity and that 60% of profits are paid out as dividends and 40% reinvested in the business.

In both Scenarios B and C, Dr. Ibbotson is correct that, during the first year when only $9,600,000 (after issuance

expenses) is invested in the business, investors will need to earn 12.5 percent on the investment after issuance expenses in order to earn 12 percent on their entire $10,000,000 investment. However, this does not mean that in later years the company will need to earn 12.5 percent on the reinvested profits. An examination of the three scenarios shows that applying an adjustment only to externally raised funds provides the appropriate return and that applying the adjustment to the entire equity provides an excess return.

In Scenario A it is assumed that there are no issuance expenses, so that if the company earns 12 percent on its year-beginning balance of equity, it earns as much as investors' expectations. During the twentieth year the company will earn $2,924,500, pay $1,754,700 in dividends and reinvest $1,169,800.

In Scenario B it is assumed that an adjustment for issuance expenses is made to the return on the company's entire equity and that the company always earns 12.5 percent on its entire year beginning common equity. In this scenario, during the twentieth year the company earns $3,932,300, pays $1,819,400 in dividends and reinvests $1,212,900. This is significantly more than the earnings that would have occurred if the company had had no issuance expenses and no adjustment for issuance expenses.

In Scenario C it is assumed that the original investment, $9,600,000 after issuance expenses, earns 12.5 percent to reflect an adjustment for issuance expenses, and that any reinvested profits earn 12 percent. In this scenario, during the twentieth year the company will earn a total of $2,924,500, pay dividends of $1,754,700, and reinvest $1,169,800 in the business. These are the same amounts as in scenario A where there were no issuance expenses.

The fact that profits, dividends and retained earnings in each year are the same under Scenario C (where the adjustment for issuance expenses applies only to externally raised funds), as the profits, dividends and retained earnings in Scenario A (where there are no issuance expenses and no adjustment for issuance expenses) demonstrates that the proper adjustment for issuance expenses should apply only to externally raised funds. The fact that profits, dividends and retained earnings are larger in Scenario B (where the adjustment is made to total equity) than the results in Scenarios A and C, demonstrates that the kind of adjustment suggested by Dr. Ibbotson provides the company with an opportunity to earn more than its cost of capital.

While this example uses specific assumptions and shows results for only the first twenty years, the basic result

does not depend upon these facts but holds in general. I have examined results running as long as 200 years, using different payout ratios and different levels of cost and issuance expenses.

More importantly, the logic of the situation shows that an adjustment need only apply to the externally raised funds. If there were no adjustment for issuance expenses, the actual shortfall in earnings would be only the return on the amount of issuance expenses, 12% of $400,000 (or $48,000) in my example. If this shortfall is made up by an adjustment for issuance expenses in the first year and each year after that, there is no reason for this amount to grow as earnings are reinvested in the business. An adequate adjustment can be made by raising the return from 12% to 12.5% and applying it to the $9,600,000 raised after issuance expenses. The half percent in additional return applied to $9,600,000 provides the $48,000 adjustment that is needed. No additional adjustment to retained earnings is needed.

III. *REBUTTAL OF STAFF*

Q. DO YOU HAVE ANY COMMENTS ON THE STAFF'S REJECTION OF AMERITECH-SPECIFIC DCF ANALYSIS?

A. The Staff's rejection of Ameritech-specific DCF analysis in light of the updated analysis in the Staff testimony

(page 7 of the Prepared Testimony of Stephen R. Chaney [Chaney's testimony]) is not well founded. An examination of the individual Ameritech values in the Staff testimony indicates that more of these values are reasonable than the equivalent value for the entire group of companies. The same finding is obtained by comparing Ameritech-specific results with the results presented in the recently released Staff Report for East Ohio Gas and River Gas in Case No. 93-2006-GA-AIR. In that case Staff based its recommendation upon a company-specific DCF for Consolidated Natural Gas, the parent of East Ohio Gas and River Gas. (Mr. Chaney signed off on the 93-2006-GA-AIR Staff Report rate of return section.)

Rejecting an Ameritech-specific DCF analysis based on a claim that many individual results seem unreasonable is not appropriate. There are as many problems with the results of the group of companies the Staff actually used in Ameritech's case. Further, staff was able to perform a company-specific DCF analysis in the East Ohio Gas case where there were as many or more problems with the data.

Table 1 below compares the current Staff's Ameritech-specific results with the Staff's current DCF results for the its telecommunications company group, and with results for Consolidated Natural Gas (the parent of

East Ohio Gas) from the East Ohio Gas Staff Report. Results between 10% and 15% are marked by an "x" to their right. Ameritech has seven such values, the Staff's industry group has only four and East Ohio Gas has only four.

TABLE 1

COMPARISON OF AMERITECH DCF RESULTS TO TELCO INDUSTRY & EAST OHIO GAS

	AMERITECH	TELEPHONE INDUSTRY	EAST OHIO
5BXR	0.10312 x	0.07243	0.011
VLDG	0.15224	0.09823	0.0971
VLEG	0.17449	0.15042	0.1345 x
IBES	0.11088 x	0.12036 x	0.1406 x
ZACKS	0.10879 x	0.12685 x	0.1375 x
VLBXR '98	0.10851 x	0.12425 x	0.0826
5D	0.10952 x	0.09695	0.0707
10D			
5E	0.08661	0.05638	0.0307
10E			
VL BOX EARN	0.13077 x	0.13232 x	0.1302 x
VL BOX DIV	0.13601 x	0.08795	0.0781
AVERAGE	0.12209	0.10662	0.0913

Mr. Chaney makes much of the fact that the most recently available Value Line results showed significant increases in growth. I agree that this is a serious concern. However, the Staff could have still performed an Ameritech-specific analysis deemphasizing the Value Line results. The average of Ameritech-specific results from

Table 1 is 12.21%. When the unreasonably high 17.45% Value Line earnings growth projection, VLEG, and the low 8.66%, 5 year historical earnings growth, 5E, are excluded, the average becomes 12.00%. Additional exclusion of the 15.22% Value Line Dividend growth projection, VLDG, makes the average Ameritech-specific result 11.54% While all of these results are higher than the 10.66% average of results listed on Table 1 for the staff's telephone industry, they are also below the midpoint of the Staff's range for the cost of equity.

Q. *HAS THE STAFF ADEQUATELY JUSTIFIED THE SCREENING CRITERIA USED IN SELECTION OF THE GROUP OF TELECOMMUNICATIONS COMPANIES USED IN ITS COST OF EQUITY DETERMINATION?*

A. No. An examination of the selection criteria listed on page 8, lines 17-25 of Chaney's testimony shows that the Staff would allow a company to be in the Staff's group when only a small part of its operations were in the local telephone business if that company met other criteria related to size, bond rating, and the local service revenues, total telephone revenues and toll revenues. Companies such as Cincinnati Bell Telephone and ALLTEL pass Staff's screening criteria but are not representative of telephone operations because they generate a significant share of their revenues from activities that are not tele-

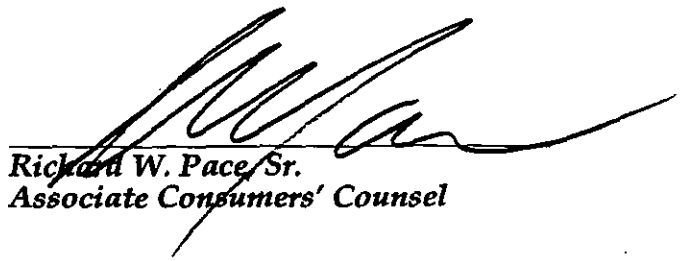
phone operations. While such companies may pass the Staff's screening this does not make them comparable as local telephone companies.

Q. *DOES THIS COMPLETE YOUR REBUTTAL TESTIMONY?*

A. Yes.

CERTIFICATE OF SERVICE

I hereby certify that copies of the Rebuttal Testimony of F. Ross Pultz, have been served by first class mail, postage prepaid, or hand-delivered to the following parties of record this 7th day of September, 1994.



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U.S POPULATION, LABOR FORCE AND GDP STATISTICS

YEAR	RESIDENT POPULATION (Thousands)	TOTAL LABOR FORCE	CIVILIAN LABOR FORCE	REAL GDP ($billion) ($1987)	GROWTH RATES FROM PAST YEARS TO 1992			
					POPULATION	LABOR FORCE TOTAL	LABOR FORCE CIVILIAN	GDP-REAL
1920	106,461 (1)	41,720 (2)	41,340 (2)		1.22%	1.58%	1.57%	
1926	117,397 (2)	45,885 (2)	45,629 (2)		1.18%	1.57%	1.56%	
1930	123,077 (1)			$748.9 (3)	1.18%			3.08%
1940	132,457 (1)	56,180 (2)	55,640 (2)	906.0 (1)	1.27%	1.60%	1.60%	3.31%
1950	152,271 (1)	63,377 (1)	62,208 (1)	1,418.5 (1)	1.24%	1.70%	1.71%	3.01%
1960	179,979 (1)	71,489 (1)	69,626 (1)	1,970.8 (1)	1.10%	1.85%	1.90%	2.90%
1970	203,984 (1)	84,889 (1)	82,771 (1)	2,873.9 (1)	1.02%	1.90%	1.96%	2.48%
1980	227,225 (1)	108,544 (1)	106,940 (1)	3,776.3 (1)	0.97%	1.42%	1.44%	2.23%
1990	249,391 (1)	126,424 (1)	124,787 (1)	4,877.5 (1)	1.13%	0.84%	0.88%	0.46%
1991	252,160 (1)	126,867 (1)	125,303 (1)	4,821.0 (1)	1.16%	1.33%	1.34%	2.11%
1992	255,082 (1)	128,548 (1)	126,982 (1)	4,922.6 (1)				

PROJECTIONS

				GROWTH RATES FROM 1992 TO FUTURE YEARS		
2000	273,646 (1)		142,900 (1)	0.88%		1.49%
2005	285,173 (1)		150,700 (1)	0.86%		1.33%
2010	296,907 (1)			0.85%		
2015	309,135 (1)			0.84%		
2020	321,395 (1)			0.83%		
2025	333,088 (1)			0.81%		
2030	343,913 (1)			0.79%		
2040	363,421 (1)			0.74%		
2050	381,750 (1)			0.70%		

SOURCES: (1) Statistical Abstract of the United States, 1993
(2) Historical Statistics of the United States, Colonial Times to 1970
(3) National Income and Product Accounts of the United States

TWO STAGE DCF - FROM SUPPLEMENTAL DIRECT TESTIMONY

ASSUMPTIONS

1) Price is average price (12 months ending December 1994)

2) Dividend Streams
   - 1994 and 1997 are from VALUE LINE
   - 1995 and 1996 grow from 1994 value at 1994-97 compound growth rate
   - Post 1997 grow at projected b x r rate

   1994-1997 = 9.834% 1998-2093 = 3.5%

3) Resultant DCF
   Using Lotus 1-2-3 @IRR function, finds return at which price equals present value of dividend stream. Trial calculations indicate that longer dividend streams raise result by approximately .01%.

   Price = $39.23 Resultant DCF = 9.46%

Year	Dividend	Year	Dividend	Year	Dividend
1994	$2.00	2028	$7.70	2062	$24.80
1995	2.20	2029	7.97	2063	25.66
1996	2.41	2030	8.25	2064	26.56
1997	2.65	2031	8.54	2065	27.49
1998	2.74	2032	8.83	2066	28.45
1999	2.84	2033	9.14	2067	29.45
2000	2.94	2034	9.46	2068	30.48
2001	3.04	2035	9.79	2069	31.55
2002	3.15	2036	10.14	2070	32.65
2003	3.26	2037	10.49	2071	33.79
2004	3.37	2038	10.86	2072	34.98
2005	3.49	2039	11.24	2073	36.20
2006	3.61	2040	11.63	2074	37.47
2007	3.74	2041	12.04	2075	38.78
2008	3.87	2042	12.46	2076	40.14
2009	4.00	2043	12.90	2077	41.54
2010	4.14	2044	13.35	2078	42.99
2011	4.29	2045	13.82	2079	44.50
2012	4.44	2046	14.30	2080	46.06
2013	4.60	2047	14.80	2081	47.67
2014	4.76	2048	15.32	2082	49.34
2015	4.92	2049	15.85	2083	51.06
2016	5.09	2050	16.41	2084	52.85
2017	5.27	2051	16.98	2085	54.70
2018	5.46	2052	17.58	2086	56.62
2019	5.65	2053	18.19	2087	58.60
2020	5.85	2054	18.83	2088	60.65
2021	6.05	2055	19.49	2089	62.77
2022	6.26	2056	20.17	2090	64.97
2023	6.48	2057	20.88	2091	67.24
2024	6.71	2058	21.61	2092	69.60
2025	6.94	2059	22.36	2093	72.03
2026	7.19	2060	23.15		
2027	7.44	2061	23.96		

TWO STAGE DCF - FROM SUPPLEMENTAL DIRECT TESTIMONY

ASSUMPTIONS

1) Price is average price (12 months ending March 1994)

2) Dividend Streams
   - 1994, 1995 and 1998 are from VALUE LINE
   - 1996 and 1997 grow from 1995 value at 1995-98 compound growth rate
   - Post 1998 grow at projected b x r rate

   1995-1998 = 8.827% 1999-2093 = 6.0%

3) Resultant DCF
   Using Lotus 1-2-3 @IRR function, finds return at which price equals present value of dividend stream. Trial calculations indicate that longer dividend streams raise result by approximately .01%.

   Price = $39.97 Resultant DCF = 11.63%

Year	Dividend	Year	Dividend	Year	Dividend
1994	$1.94	2028	$16.66	2062	$120.77
1995	2.25	2029	17.66	2063	128.02
1996	2.45	2030	18.71	2064	135.70
1997	2.66	2031	19.84	2065	143.84
1998	2.90	2032	21.03	2066	152.47
1999	3.07	2033	22.29	2067	161.62
2000	3.26	2034	23.63	2068	171.32
2001	3.45	2035	25.04	2069	181.60
2002	3.66	2036	26.55	2070	192.50
2003	3.88	2037	28.14	2071	204.05
2004	4.11	2038	29.83	2072	216.29
2005	4.36	2039	31.62	2073	229.27
2006	4.62	2040	33.52	2074	243.02
2007	4.90	2041	35.53	2075	257.60
2008	5.19	2042	37.66	2076	273.06
2009	5.51	2043	39.92	2077	289.44
2010	5.84	2044	42.31	2078	306.81
2011	6.19	2045	44.85	2079	325.22
2012	6.56	2046	47.54	2080	344.73
2013	6.95	2047	50.39	2081	365.41
2014	7.37	2048	53.42	2082	387.34
2015	7.81	2049	56.62	2083	410.58
2016	8.28	2050	60.02	2084	435.21
2017	8.77	2051	63.62	2085	461.33
2018	9.30	2052	67.44	2086	489.01
2019	9.86	2053	71.49	2087	518.35
2020	10.45	2054	75.78	2088	549.45
2021	11.08	2055	80.32	2089	582.41
2022	11.74	2056	85.14	2090	617.36
2023	12.45	2057	90.25	2091	654.40
2024	13.19	2058	95.66	2092	693.66
2025	13.98	2059	101.40	2093	735.28
2026	14.82	2060	107.49		
2027	15.71	2061	113.94		

I. SIMPLE QUARTERLY DCF IMPACTS

NOMINAL AUTHORIZED RETURN

12.00% ANNUAL
3.00% QUARTERLY

EFFECTIVE REALIZED RETURN

ANNUAL 12.18%
QUARTERLY 2.91%

	BEGINNING EQUITY	QUARTERLY EARNINGS	QUARTERLY DIVIDEND	ENDING EQUITY	CASH FLOW	
					−$100.00	(Stock Purchased)
1st Qtr.	$100.00	$3.00	$1.00	$102.00	$1.00	
2nd Qtr.	100.00	3.00	1.00	104.00	1.00	
3rd Qtr.	100.00	3.00	1.00	106.00	1.00	
End Of Year	100.00	3.00	1.00	108.00	109.00	(Stock Sold)

AVERAGE INVESTMENT	TOTAL EARNINGS	TOTAL DIVIDENDS
$100.00	$12.00	$4.00

12.00% RETURN ON AVERAGE INVESTMENT

II. EFFECTIVE RETURN ON 12%

NOMINAL AUTHORIZED RETURN

12.00% ANNUAL
3.00% QUARTERLY

EFFECTIVE REALIZED RETURN

ANNUAL 12.55%
QUARTERLY 3.00%

	BEGINNING EQUITY	QUARTERLY EARNINGS	QUARTERLY DIVIDEND	ENDING EQUITY	CASH FLOW	
					−$100.00	(Stock Purchased)
1st Qtr.	$100.00	$3.00	$1.00	$102.00	1.00	
2nd Qtr.	102.00	3.06	1.00	104.06	1.00	
3rd Qtr.	104.06	3.12	1.00	106.18	1.00	
End Of Year	106.18	3.18	1.00	108.37	109.37	(Stock Sold)

AVERAGE INVESTMENT	TOTAL EARNINGS	TOTAL DIVIDENDS
$103.06	$12.37	$4.00

12.00% RETURN ON AVERAGE INVESTMENT

III. EFFECTIVE RETURN NECESSARY FOR QUARTERLY DIVIDEND

NOMINAL AUTHORIZED RETURN

11.66% ANNUAL
2.91% QUARTERLY

EFFECTIVE REALIZED RETURN

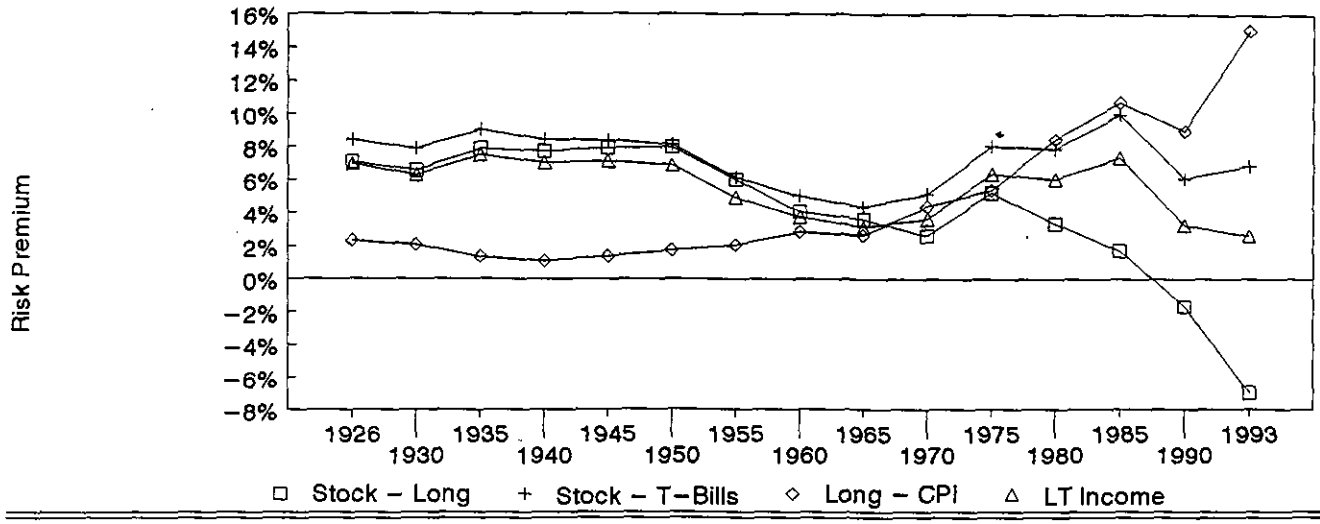
ANNUAL 12.18%
QUARTERLY 2.91%

	BEGINNING EQUITY	QUARTERLY EARNINGS	QUARTERLY DIVIDEND	ENDING EQUITY	CASH FLOW	
					−$100.00	(Stock Purchased)
1st Qtr.	$100.00	$2.91	$1.00	$101.91	1.00	
2nd Qtr.	101.91	2.97	1.00	103.89	1.00	
3rd Qtr.	103.89	3.03	1.00	105.91	1.00	
End Of Year	105.91	3.09	1.00	108.00	109.00	(Stock Sold)

AVERAGE INVESTMENT	TOTAL EARNINGS	TOTAL DIVIDENDS
$102.93	$12.00	$4.00

11.66% RETURN ON AVERAGE INVESTMENT

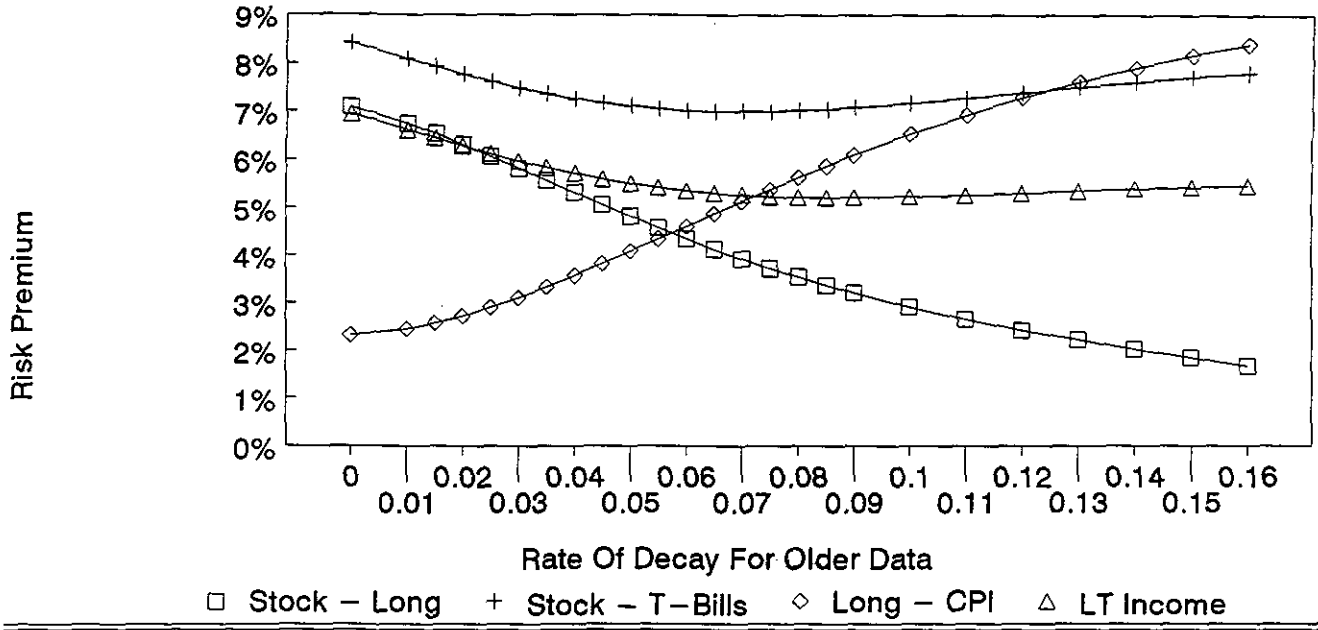
AVERAGE DIFFERENCES IN REALIZED RETURNS
USING DIFFERENT BEGINNING DATES FOR AVERAGE



Beginning Year	Stock – Long	Stock – T-Bills	Long – CPI	LT Income
1926	7.08%	8.41%	2.31%	6.94%
1927	7.13%	8.42%	2.20%	6.93%
1928	6.84%	8.04%	2.07%	6.53%
1929	6.28%	7.57%	2.08%	6.03%
1930	6.55%	7.88%	2.07%	6.30%
1931	7.11%	8.43%	1.92%	6.84%
1932	7.87%	9.27%	1.87%	7.68%
1933	8.35%	9.58%	1.41%	7.99%
1934	7.59%	8.84%	1.44%	7.30%
1935	7.89%	9.02%	1.33%	7.50%
1936	7.33%	8.36%	1.32%	6.88%
1937	7.02%	7.91%	1.24%	6.47%
1938	7.78%	8.68%	1.31%	7.24%
1939	7.48%	8.28%	1.18%	6.86%
1940	7.73%	8.44%	1.08%	7.04%
1941	8.16%	8.78%	1.00%	7.40%
1942	8.55%	9.17%	1.18%	7.79%
1943	8.39%	8.96%	1.31%	7.61%
1944	8.09%	8.63%	1.36%	7.30%
1945	7.92%	8.41%	1.37%	7.10%
1946	7.60%	7.84%	1.22%	6.56%
1947	7.94%	8.18%	1.58%	6.91%
1948	7.92%	8.25%	1.85%	6.98%
1949	8.05%	8.33%	1.87%	7.07%
1950	7.97%	8.12%	1.72%	6.86%
1951	7.42%	7.61%	1.89%	6.35%
1952	6.91%	7.26%	2.15%	6.00%
1953	6.66%	7.04%	2.20%	5.77%
1954	6.94%	7.28%	2.18%	6.01%
1955	6.03%	6.15%	2.04%	4.92%
1956	5.31%	5.53%	2.14%	4.31%
1957	5.11%	5.58%	2.42%	4.33%
1958	5.72%	6.10%	2.36%	4.83%
1959	4.38%	5.10%	2.65%	3.86%
1960	4.08%	5.00%	2.84%	3.75%
1961	4.56%	5.21%	2.56%	3.97%
1962	3.90%	4.62%	2.63%	3.40%
1963	4.49%	5.13%	2.53%	3.91%
1964	3.93%	4.66%	2.63%	3.43%
1965	3.64%	4.39%	2.64%	3.14%
1966	3.35%	4.25%	2.78%	2.97%
1967	3.96%	4.94%	2.87%	3.60%
1968	2.71%	4.40%	3.44%	3.02%
1969	2.37%	4.35%	3.76%	2.93%
1970	2.62%	5.12%	4.36%	3.62%
1971	3.04%	5.44%	4.28%	3.89%
1972	3.14%	5.26%	4.04%	3.73%
1973	2.69%	4.82%	4.12%	3.31%
1974	3.51%	6.07%	4.79%	4.47%
1975	5.25%	8.07%	5.41%	6.37%
1976	4.12%	6.86%	5.59%	5.22%
1977	4.00%	6.22%	5.25%	4.65%
1978	4.66%	7.34%	6.02%	5.78%
1979	4.45%	7.87%	7.04%	6.25%
1980	3.34%	7.91%	8.46%	6.07%
1981	0.69%	7.05%	10.23%	4.96%
1982	1.30%	9.06%	11.63%	6.60%
1983	2.64%	8.99%	9.49%	6.57%
1984	0.74%	8.63%	10.74%	6.13%
1985	1.70%	9.95%	10.70%	7.36%
1986	1.80%	8.36%	8.76%	5.93%
1987	2.76%	7.90%	6.71%	5.53%
1988	1.86%	9.25%	8.97%	6.86%
1989	0.92%	9.14%	9.75%	6.80%
1990	-1.68%	6.09%	8.98%	3.29%
1991	0.70%	11.51%	11.95%	7.88%
1992	-3.66%	5.45%	10.04%	1.51%
1993	-6.98%	6.89%	15.08%	2.63%
Average	**4.79%**	**7.29%**	**4.12%**	**5.62%**

SOURCE: Calculated from values in "Stocks, Bonds, Bills, and Inflation, 1994 Yearbook" – Ibbotson Associates

AVERAGE DIFFERENCES IN REALIZED RETURNS
WEIGHTING OLDER DATA LESS HEAVILY



Weighted Averages

Decay Rate	Stock – Long	Stock – T-Bills	Long – CPI	LT Income	1970 Weighting	1950 Weighting	1930 Weighting
0.000	7.08%	8.41%	2.31%	6.94%	1.000	1.000	1.000
0.010	6.74%	8.09%	2.44%	6.62%	0.794	0.649	0.531
0.015	6.54%	7.93%	2.56%	6.45%	0.706	0.522	0.386
0.020	6.32%	7.77%	2.71%	6.29%	0.628	0.419	0.280
0.025	6.08%	7.62%	2.89%	6.13%	0.559	0.337	0.203
0.030	5.83%	7.49%	3.10%	5.98%	0.496	0.270	0.147
0.035	5.58%	7.36%	3.32%	5.84%	0.441	0.216	0.106
0.040	5.32%	7.26%	3.57%	5.72%	0.391	0.173	0.076
0.045	5.07%	7.17%	3.82%	5.61%	0.347	0.138	0.055
0.050	4.82%	7.10%	4.08%	5.51%	0.307	0.110	0.039
0.055	4.58%	7.05%	4.35%	5.43%	0.272	0.088	0.028
0.060	4.35%	7.02%	4.61%	5.36%	0.241	0.070	0.020
0.065	4.13%	7.00%	4.88%	5.31%	0.213	0.056	0.014
0.070	3.92%	7.00%	5.14%	5.27%	0.188	0.044	0.010
0.075	3.73%	7.01%	5.39%	5.25%	0.166	0.035	0.007
0.080	3.54%	7.03%	5.64%	5.23%	0.147	0.028	0.005
0.085	3.37%	7.05%	5.88%	5.22%	0.130	0.022	0.004
0.090	3.21%	7.09%	6.11%	5.22%	0.114	0.017	0.003
0.100	2.91%	7.18%	6.54%	5.24%	0.089	0.011	0.001
0.110	2.65%	7.29%	6.94%	5.27%	0.069	0.007	0.001
0.120	2.42%	7.40%	7.29%	5.31%	0.053	0.004	0.000
0.130	2.21%	7.51%	7.62%	5.35%	0.041	0.003	0.000
0.140	2.02%	7.61%	7.91%	5.40%	0.031	0.002	0.000
0.150	1.84%	7.71%	8.17%	5.43%	0.024	0.001	0.000
0.160	1.67%	7.80%	8.40%	5.46%	0.018	0.001	0.000

SOURCE: Calculated from values in "Stocks, Bonds, Bills, and Inflation, 1994 Yearbook" – Ibbotson Associates

	SCENARIO A					SCENARIO B					SCENARIO C						
	NO ISSUANCE EXPENSES					ISSUANCE ADJUSTMENT OF ALL EQUITY					ISSUANCE ADJUSTMENT ON EXTERNAL FUNDS ONLY						
											...Equity by Source...		...Return on Equity...				
Year	Beginning Equity	ROE	Earned	Div Paid	Retained Earnings	Beginning Equity	ROE	Earned	Dividends Paid	Retained Earnings	External Funds	Retained Earnings	External Funds	Retained Earnings	Total Earnings	Dividends Paid	Retained Earnings
1	10.0000	12.0%	1.2000	0.7200	0.4800	9.6000	12.5%	1.2000	0.7200	0.4800	9.6000	0.0000	12.5%	12.0%	1.2000	0.7200	0.4800
2	10.4800	12.0%	1.2576	0.7546	0.5030	10.0800	12.5%	1.2600	0.7560	0.5040	9.6000	0.4800	12.5%	12.0%	1.2576	0.7546	0.5030
3	10.9830	12.0%	1.3180	0.7908	0.5272	10.5840	12.5%	1.3230	0.7938	0.5292	9.6000	0.9830	12.5%	12.0%	1.3180	0.7908	0.5272
4	11.5102	12.0%	1.3812	0.8287	0.5525	11.1132	12.5%	1.3891	0.8335	0.5557	9.6000	1.5102	12.5%	12.0%	1.3812	0.8287	0.5525
5	12.0627	12.0%	1.4475	0.8685	0.5790	11.6689	12.5%	1.4586	0.8752	0.5834	9.6000	2.0627	12.5%	12.0%	1.4475	0.8685	0.5790
6	12.6417	12.0%	1.5170	0.9102	0.6068	12.2523	12.5%	1.5315	0.9189	0.6126	9.6000	2.6417	12.5%	12.0%	1.5170	0.9102	0.6068
7	13.2485	12.0%	1.5898	0.9539	0.6359	12.8649	12.5%	1.6081	0.9649	0.6432	9.6000	3.2485	12.5%	12.0%	1.5898	0.9539	0.6359
8	13.8845	12.0%	1.6661	0.9997	0.6665	13.5082	12.5%	1.6885	1.0131	0.6754	9.6000	3.8845	12.5%	12.0%	1.6661	0.9997	0.6665
9	14.5509	12.0%	1.7461	1.0477	0.6984	14.1836	12.5%	1.7729	1.0638	0.7092	9.6000	4.5509	12.5%	12.0%	1.7461	1.0477	0.6984
10	15.2494	12.0%	1.8299	1.0980	0.7320	14.8928	12.5%	1.8616	1.1170	0.7446	9.6000	5.2494	12.5%	12.0%	1.8299	1.0980	0.7320
11	15.9813	12.0%	1.9178	1.1507	0.7671	15.6374	12.5%	1.9547	1.1728	0.7819	9.6000	5.9813	12.5%	12.0%	1.9178	1.1507	0.7671
12	16.7484	12.0%	2.0098	1.2059	0.8039	16.4193	12.5%	2.0524	1.2314	0.8210	9.6000	6.7484	12.5%	12.0%	2.0098	1.2059	0.8039
13	17.5524	12.0%	2.1063	1.2638	0.8425	17.2402	12.5%	2.1550	1.2930	0.8620	9.6000	7.5524	12.5%	12.0%	2.1063	1.2638	0.8425
14	18.3949	12.0%	2.2074	1.3244	0.8830	18.1022	12.5%	2.2628	1.3577	0.9051	9.6000	8.3949	12.5%	12.0%	2.2074	1.3244	0.8830
15	19.2778	12.0%	2.3133	1.3880	0.9253	19.0073	12.5%	2.3759	1.4256	0.9504	9.6000	9.2778	12.5%	12.0%	2.3133	1.3880	0.9253
16	20.2032	12.0%	2.4244	1.4546	0.9698	19.9577	12.5%	2.4947	1.4968	0.9979	9.6000	10.2032	12.5%	12.0%	2.4244	1.4546	0.9698
17	21.1729	12.0%	2.5407	1.5244	1.0163	20.9556	12.5%	2.6194	1.5717	1.0478	9.6000	11.1729	12.5%	12.0%	2.5407	1.5244	1.0163
18	22.1892	12.0%	2.6627	1.5976	1.0651	22.0034	12.5%	2.7504	1.6503	1.1002	9.6000	12.1892	12.5%	12.0%	2.6627	1.5976	1.0651
19	23.2543	12.0%	2.7905	1.6743	1.1162	23.1035	12.5%	2.8879	1.7328	1.1552	9.6000	13.2543	12.5%	12.0%	2.7905	1.6743	1.1162
20	24.3705	12.0%	2.9245	1.7547	1.1698	24.2587	12.5%	3.0323	1.8194	1.2129	9.6000	14.3705	12.5%	12.0%	2.9245	1.7547	1.1698

ASSUMPTIONS: $10 invested, 4% issuance expense, 12% cost of equity, 60% of profits paid out as dividends

STOCKS
BONDS
BILLS
AND
INFLATION

SBBI

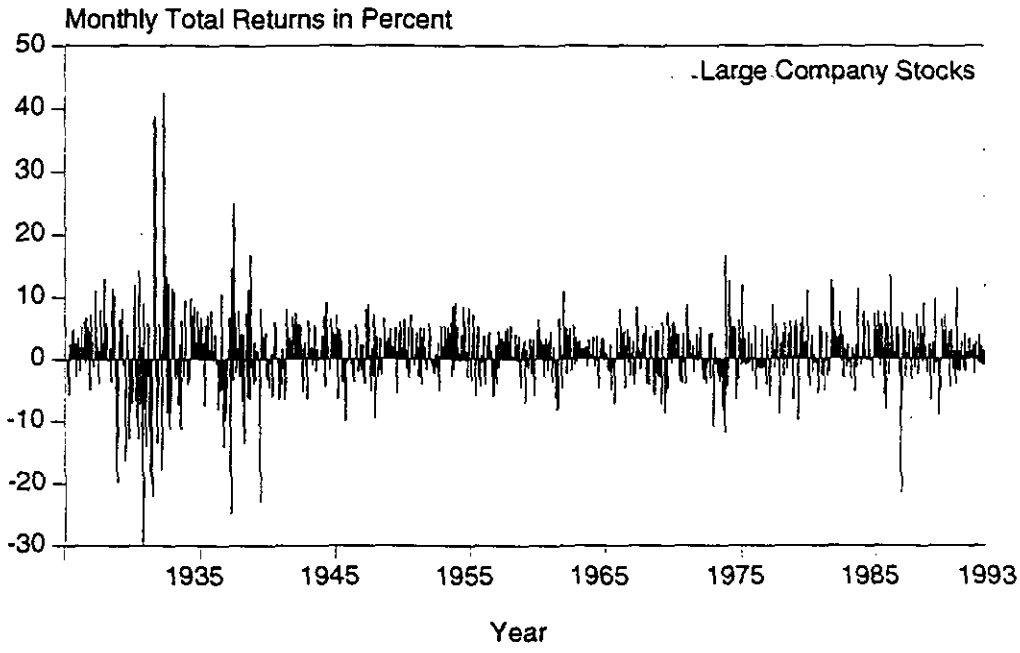
1994
YEARBOOK

MARKET
RESULTS
FOR
1926-1993

IBBOTSON
ASSOCIATES,
CHICAGO

Exhibit 41 **Month-by-Month Returns on Stocks and Bonds**

From 1926 to 1993



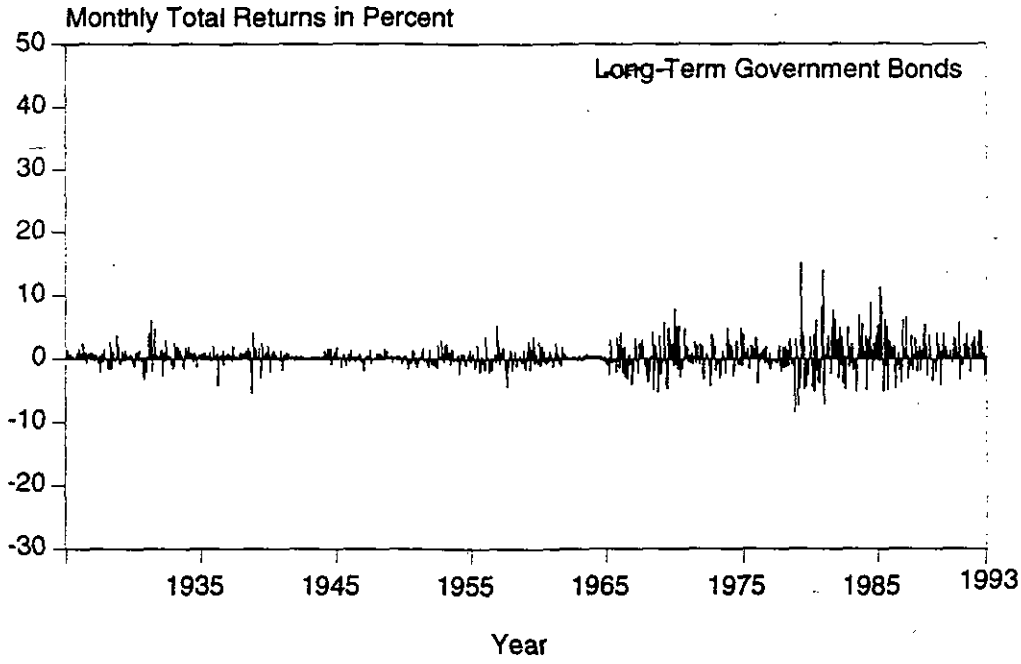


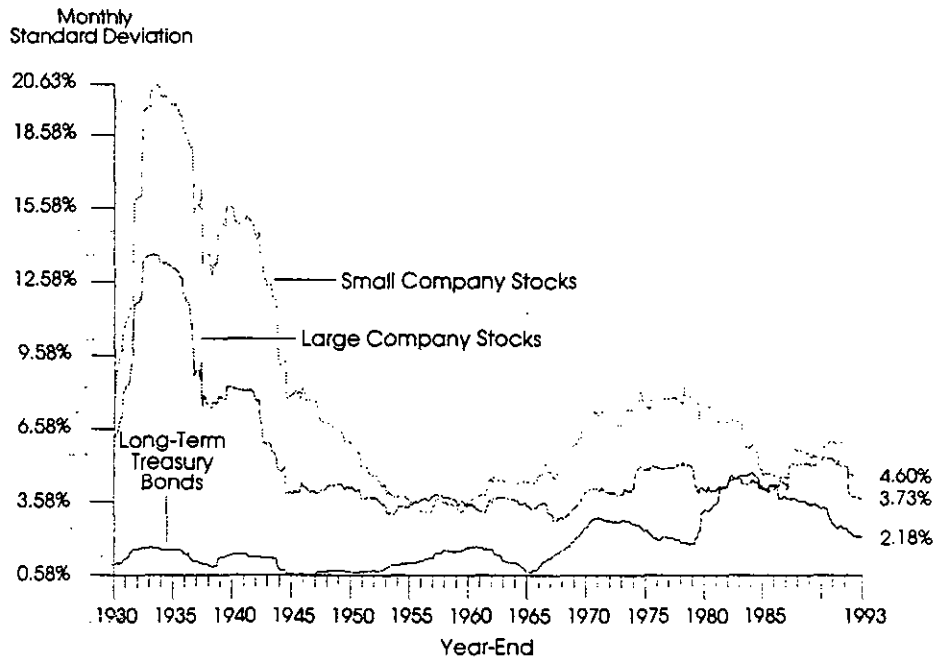
Exhibit 49

Rolling 60-Month Standard Deviation

Small Company Stocks
Large Company Stocks
Long-Term Government Bonds
Intermediate-Term Government Bonds
Treasury Bills

From January 1926–December 1930 to January 1989–December 1993

Small Company Stocks, Large Company Stock, Long-Term Government Bonds



Long-Term Govt Bonds, Intermediate-Term Govt Bonds, Treasury Bills