

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 86/2

148 SCOMM 9: HOUSE SPEC. COMM. ON PERMANENT FUND 1977-78

Certain companies may have one or more classes of common stock differing in their claims on income and as to voting power. One class of stock may have no voting privilege but be entitled to a prior claim on dividends while another may have voting power but a junior claim on dividends. The use of various classes of common stock is generally adopted when it is desired to concentrate the voting control of the company in a single group.

Occasionally, a common stock has preemptive rights. A preemptive right entitles a shareholder to maintain his proportional ownership interest in the company by giving him the first opportunity to purchase, on a pro-rata basis, any new common stock or convertible securities being sold to the public.

Preferred Stock

Preferred stock is a hybrid type of security, combining certain features of both debt and common stock. Like debt holders, holders of preferred stock do not participate in the residual earnings of the issuer and their rate of return is limited to the specified dividend of the preferred stock. Unlike interest payments on debt issues, however, preferred dividends can be omitted without resulting in the insolvency of the company. When preferred dividends are omitted, holders of preferred shares are usually entitled to elect a certain number of directors; otherwise, preferred shareholders do not participate in the management of the issuing company. Most preferred dividends are cumulative and if they are omitted, all arrearages must be made up before common dividends can be resumed. Preferred dividends are a contractual obligation, and are senior in right of payment to common dividends.

Preferred stock, like common stock, has no specified maturity. However, preferred stock is rarely viewed as a permanent means of financing and provisions are usually made for an issue's orderly retirement via a sinking or purchase fund. A preferred stock sinking fund operates in the same manner as a bond sinking fund. A purchase fund requires the issuer to expend a certain sum each year to acquire and retire the outstanding shares, but this requirement is usually limited by restricting the price which can be paid for the shares to par value. If the market price is above par, no purchases will be made for the purchase fund.

Practically all preferred stocks have call provisions similar to those of corporate bonds. Certain preferred stocks are convertible into the common shares of the issuer. Other preferred stock issues are participating and share in the residual earnings of the issuer according to certain formulae, usually based on common dividends.

Differences Between a Public and a Private Securities Issues

A securities issue which has been registered with the Securities and Exchange Commission and sold in an underwritten offering by a syndicate of investment banking firms is referred to as a public issue. Such issues, whether listed on a major stock exchange or traded between dealers, are freely transferable between holders and consequently offer an investor a high degree of liquidity.

A securities issue which has been sold directly by an issuer to an institutional investor (such as an insurance company) without registration with the Securities and Exchange Commission is referred to as a private issue. Because they are not registered, private issues are not freely transferable and their marketability is consequently very limited. To compensate an investor for this lack of liquidity, private debt issues usually carry higher interest coupons and more restrictive covenants than similar public debt issues. Similarly, private equity issues generally cannot be sold at as advantageous prices as public equity issues.

INVESTMENTS

Long Term Government Securities

The direct obligations of the U. S. government and its agencies, together with securities bearing the full faith and credit guarantee of the government, constitute the highest quality debt securities in the U. S. Although certain of such securities, principally Treasury bills, are issued for very short maturities, a substantial amount is issued for maturities ranging from three to thirty years. Short term government securities are considered in the following section on Money Market Instruments.

The principal long term direct obligations of the U. S. government are Treasury notes and bonds which are usually issued for maturities of up to ten and thirty years, respectively. Such bonds and notes are sold periodically directly by the Treasury and a substantial amount is outstanding at all times; secondary market trading is very active.

Along with the direct obligations of the Treasury, the government also raises funds through its agencies which issue both short and long term securities either guaranteed by the government directly or backed by the agencies, which are themselves instrumentalities of the government. Many government agencies issue such securities, but principal among these are the Federal Home Loan Banks, the Federal National Mortgage Association, the Federal Land Bank and the Bank for Cooperatives. Issues of these borrowers are generally sold through public offerings underwritten by banks and investment firms.

Through Acts of Congress, the government has also authorized certain quasi-government entities to issue securities bearing its full faith and credit guarantee including the Export Import Bank of the U. S. and Private Export Funding Corporation. Congress has also authorized the application of its guarantee to securities of private corporate issuers for specific purposes, including bonds issued to finance the construction of U. S. flag ships under the provisions of Title XI of the Maritime Act. Such bonds have recently begun to be issued in significant amounts and are generally referred to as Title XI bonds.

Exhibit VI

INVESTMENTS

Money Market Instruments

Money market instruments are short-term, high grade debt instruments that carry a minimum amount of risk and which can readily be turned into cash without material loss. Because of their relatively short maturity, generally no more than twelve to twenty-four months, money market instruments have a readily stable market value at all times. The principal types of money market securities are Treasury bills, notes and bonds, securities guaranteed by the government or issued by its agencies, municipal securities, bank certificates of deposit, bankers acceptances and corporate commercial paper. These securities are frequently purchased by investors seeking a temporary investment for surplus cash resources.

Treasury Securities

The Treasury securities which are most often referred to as money market instruments are Treasury bills and Treasury notes and bonds maturing within two years. Treasury bills, issued at auction each week and maturing in periods from three months to one year, are the backbone of the money market. Because of the large volume of Treasury bills outstanding and their continual issuance, a short term investor can normally find an issue with a maturity on or close to the date when his surplus funds will be required for their intended purpose.

Treasury bills are issued in bearer form and on a discount basis. The holder receives the full face value of the security at maturity in lieu of interim interest payments.

Treasury notes and bonds are government securities which have original maturities of over one year. Both are issued in bearer form and interest is payable upon presentation of a coupon. Treasury notes by law may not have a maturity in excess of ten years while Treasury bonds generally mature in more than ten years. As either Treasury bonds or notes move into the under two-year money market maturity range, they become attractive investments for investors who wish to invest for longer maturities than offered by Treasury bills.

Other Government Securities

A large number of government agencies also issue securities which are either guaranteed directly by the government or fully backed by the agencies themselves which are conservatively run entities chartered by Congress and supervised and/or owned by the government. Among such issuers are the Federal National Mortgage Association, the Federal Home Loan Banks, the Federal Land Banks, the Government National Mortgage Association, the Federal Intermediate Credit Banks and the Banks for Cooperatives. Securities of these issuers are sold on both a coupon and a discount basis and for various maturities from three months to twenty years. Most issues are relatively short-term, however, and fall either directly into the money market or are drawn in as their maturity date approaches.

The attraction of these securities to money market investors is that their yields are somewhat higher than those of Treasury securities in light of the fact that they are indirect rather than direct obligations of the government.

Municipal Securities

Municipal securities possess two characteristics that are important prerequisites for a money market instrument: a large outstanding supply of obligations of various types and maturities and an active secondary market. The principal types of municipal securities traded in the money market are short term notes and long term bonds, drawn into the money market as their maturity approaches. Municipal securities are attractive to investors because of their tax-exempt yields.

Certificates of Deposit

A Certificate of Deposit is a negotiable instrument representing an interest bearing time deposit in a commercial bank. Certificates of deposit (CD's) began to be issued by commercial banks in 1961 and are ideal instruments for the investment of short term idle cash because a purchaser (lender) can negotiate with the bank seller (borrower) to tailor a CD to his exact maturity needs. Moreover, there is a very substantial amount of CD's outstanding and the secondary market is extremely active; if unforeseen circumstances arise an investor can sell his CD's in the marketplace. The interest rate on CD's is higher than that for either Treasury or agency securities of the same maturity.

Banker's Acceptances

A banker's acceptance is created when a commercial bank "accepts" (endorses) a draft drawn on it for the account of one of its customers for payment on a specified future date. Time drafts are usually associated with the payment for goods shipped in international trade. By accepting a time draft, a bank substitutes its credit for that of its customer and an accepted draft thus becomes similar to a security of the bank itself. Because of the very short maturity of most banker's acceptances, usually not more than ninety days, they are readily sold in the money market.

Commercial Paper

Commercial Paper is an unsecured promissory note of relatively short maturity issued by a well known corporation with good credit ratings to finance short term borrowing needs. Commercial Paper, because of Securities and Exchange Commission requirements, may not be issued for maturities longer than 270 days. All commercial paper is sold in bearer form at a discount with rates running slightly higher than Treasury bills. Because of their short maturity and high liquidity, commercial paper is an ideal money market instrument.

Exhibit VII

INVESTMENT COUNSEL ASSOCIATION OF AMERICA

STANDARDS OF MEASUREMENT AND USE FOR INVESTMENT PERFORMANCE DATA

INTRODUCTION

In recent years, the measurement of investment performance has become a topic of widespread interest. The techniques employed and the uses of the results have been varied and remain in a considerable state of change. Consequently, it is often impossible to gain perspective through comparisons of different investment records measured with different calculation methods. The principal problem is that there are no minimum, uniform standards for measurement and use guiding all organizations providing investment management services.

This report will formulate standards to provide the Investment Counsel Association of America membership with some guidelines and background information for compiling and using portfolio performance data. The problems associated with measuring investment results are complex and make it extremely difficult to arrive at a satisfactory and still simple solution to them. The central problem is that rarely, if ever, do two distinct portfolios have identical characteristics and investment objectives. Therefore, an attempt to compare the success of different investment programs solely on the basis of quantitative, statistical results without regard to the qualitative, individual, subjective circumstances must have limited value. However, despite the imperfect character of purely numerical measurements, the Investment Counsel Association of America does endorse certain standards of measurement and use. The recommendations are not intended to deal with

every facet of performance measurement. Some areas are intentionally treated in a general way in order to provide scope for adapting the subject to varying circumstances and also because being too specific on some subjects would result in having to establish more "rules" to deal with exceptions than seems practical. Therefore, this report is confined primarily to recommendations of minimum standards on how to calculate performance data and how best to use this information. Moreover, while performance measurement of specific portfolios for manager or client use has unquestioned individual value, this report is written with the objective of facilitating performance comparisons between portfolios and the recommendations are stated accordingly.

No firm is required to adopt these recommendations unless it wishes to make the statement regarding the presentation of investment performance figures that: "All Representations are in Accordance with Standards Approved by the Investment Counsel Association of America."

There are many purposes served through comparisons of different portfolio performance records. Perhaps the purpose which is the most controversial is the presentation of a performance record in an effort to demonstrate to prospective clients the abilities of an investment manager. It is very difficult to construct a sample of data which is an accurate picture or is representative of a manager's work. The difficulties of data construction and interpretation exist whether the data sample is one account, ten accounts, or all of a manager's accounts, either of a certain class (by account type, size, performance rank, etc.) or in total. A major goal of the recommendations in this report is to provide a systematic approach to this problem. The solution, and the concept of this report, is that the following recommendations are not

isolated from each other but stand together as flexible parts of a unified filtering process. In most instances, the recommendations act as guides and are not narrowly restrictive. They encompass many filtering alternatives and the only general restrictions are disclosure and willingness to substantiate representations if requested.

Performance figures might be selected for presentation including (1) total portfolios of (2) all (3) corporate pension funds (4) managed continuously (5) during a five-year period and (6) with assets at the end of the period in excess of \$1 million. The rates of return would be (a) calculated and displayed along the lines of the techniques described in this report, (b) captioned and/or footnoted to disclose that they include accounts filtered or selected with the six above criteria and (c) substantiated, upon request, as being representative, for example, if a median statistic, one account or ten accounts were used to represent all accounts. Within these same conditions, one account with a very favorable rate of return could be held out as an example of a firm's work so long as (a) the return calculations are appropriate, (b) it is disclosed that the account was selected and has one of the best rates of return of all accounts managed and (c) it is substantiated that it is only representative of itself and no other account managed by the firm.

RECOMMENDATIONS:

I Standards of Measurement

1. Total Return: Investment results should be computed on a total return basis.
2. Rates of Return: Investment results should be computed as "time weighted" rates of return for use in making comparisons with market indices and results of other portfolios.
3. Total Portfolio and Various Portfolio Segments: Investment results should be computed on the total portfolio and, where useful to demonstrate the ingredients of the total results or specific areas of investing, on the portfolio's various segments.
4. Definitions within Portfolio Segments: Investment results for portfolio segments should be based on comparable characteristics such as types, marketability and size of holdings.
5. Total Time Period Shown: Investment results quoted to third parties should include at least five years' experience where possible.
6. Time Intervals Used: Investment results should indicate the total rate of return on an annual basis and on a compound annual basis for multiple time periods.
7. Variability of Return: Investment results should be characterized not only by the magnitude attained but also by the degree of variability experienced in reaching the return.

II Standards of Use

1. Management Discretion: Investment results should be used to reflect the manager's performance only if he operated with effective discretion.
2. Number of Results Shown: Investment results should be shown for all portfolios within the designated category. Adequate disclosure should be made regarding the description of the sample shown. If requested, substantiation should be provided of representations made.

3. Tax-Exempt Portfolios: Because of the differences in impact on investment results of various tax brackets, some common base should be used when comparing rates of return. Tax-exempt portfolios automatically solve this problem and are preferred for use.
4. Similarity of Investment Objectives: Comparisons of investment results should be made only for portfolios with similar objectives.
5. Size: Comparisons of investment results should be made only for portfolios within reasonable categories of size.
6. Relevance to Third Parties: The selection of investment results shown should relate in some logical way to the circumstances of those receiving the information.
7. Comparative Format: Investment results should be shown in a way to facilitate comparisons.
8. Distribution of Information: The distribution of investment results is regulated under the Investment Advisers Act of 1940 and care should be taken to comply with these regulations.

DISCUSSION

I Standards of Measurement

Total Return

The investment results of a portfolio should be measured in terms of all the results produced. This includes the income generated as well as capital gains and losses both realized and unrealized. These are the three ingredients of performance and, even though a portfolio might not be managed on a "total return" concept, the only proper approach is to measure all of the portfolio's output. There is a considerable body of disagreement on this, particularly regarding the accounting for unrealized capital gains. We recommend that investment results be measured on an accrual accounting basis from period to period and not on a cash accounting basis that might require that the capital gains be realized or income (e.g., bond interest income paid out semi-annually) be received before being credited to portfolio performance. An acceptable procedure to account for income accruals is to estimate income by using the indicated annual rate of income at the beginning of the period. In each quarterly performance computation, this amount would be divided by four.

Rates of Return

Rates of return are of two general types: dollar weighted (or internal) and time weighted. The dollar weighted rate of return has specific value in measuring a given portfolio's results and this is the most appropriate figure for comparison with actuarial assumptions for corporate pension funds. However, when comparing investment results between portfolios, the differences

in size and timing of cash flows can create considerable distortions. It can be argued that a dollar weighted rate of return is appropriate for use when measuring only the common stock portion of a portfolio because the investment manager has control over the timing and amounts of cash flows into and out of equities within the portfolio. However, whereas this is true to some extent, these judgments are often influenced by cash flows into and out of the total portfolio. We have concluded that the time weighted rate of return is appropriate for use in making comparisons between total portfolios as well as various segments of portfolios and, also, with market indices which are by default time weighted because there are no cash flows.

It is difficult for many organizations to provide an exact time weighted rate of return measurement because of the necessity to revalue the entire portfolio whenever significant cash contributions or distributions are made. Therefore, we believe that an approximate time weighted rate of return is satisfactory in most cases and recommend the following principles be observed:

1. The portfolio be valued at least quarterly.
2. A formula should be used to minimize the impact of cash flows on performance results within a measurement period. One such formula is:

$$R = \frac{V^2 - V^1 - C + I}{V^1 + 1/2C}$$

Where V_1^1 = beginning market value = \$1,000,000.
 V_2^2 = ending market value = \$1,200,000.
(including reinvested income)
C = net cash flow = \$ 100,000.
(from any source including reinvested income)
I = total measurement = \$ 10,000.
period income
R = rate of return

$$R = \frac{\$1,200,000. - \$1,000,000. - \$100,000. + \$10,000.}{\$1,000,000. + 1/2(\$100,000.)}$$

$$R = \frac{\$ 110,000.}{\$1,050,000.} = 10.5\%$$

The formula states that the total rate of return for the time period is equal to what was earned in both price change and income (the numerator) as a percentage of the capital at work (the denominator). The amount earned is the difference between the beginning and the ending market values, adjusted for the net of all capital additions and withdrawals because they are not part of the return, and adjusted again for income because it is part of the total return. The capital at work is the beginning market value plus one-half of the net of all capital additions and withdrawals. The one-half is used because no effort is being made to identify the dates of cash flows. They are being netted together and the assumption is being made that they all took place at the mid-point of the time period. So, rather than saying the entire cash flow was at work for half the time, the formula says one-half the cash flow was at work the entire time. When the contribution C is very large relative to the beginning market value V_1^1 (e.g., over 10%) it may be necessary to modify the use of the above formula or value the portfolio as of the date of the cash flow to remove possible distortions by eliminating any sub-period containing an overly large cash flow.

3. A linked index should be used in keeping a record of this performance data over time and provides a means of developing annual figures from separate quarterly calculations. Such an index would be as follows:

	<u>% Change</u>	<u>Index</u>
Beginning Value	-----	100.0
Period 1	+5.0	105.0
Period 2	-3.6	101.2
Period 3	+1.8	103.0
Period 4	+6.2	109.4
Overall Return	+9.4%	

Total Portfolio and Various Portfolio Segments

The most appropriate comparison between portfolios is to show the results of the total portfolio investments. An extra dimension is given when the total portfolio returns are supplemented by percentage figures showing the proportions held in various portfolio segments. It is often useful to demonstrate bond management or stock management using the bond and stock segments of a total portfolio balanced between bonds and stocks. Therefore, it is also recommended that segments of different portfolios be used for comparisons to measure selection and also the impacts of timing of shifts between portfolio segments. The procedure described above for calculating rates of return on total portfolios is the same used for portfolio segments such as common stocks. When computing the performance of an equities only segment, however, it is necessary to compute the net cash flow as equal to the difference between the total of all common stock purchases and the total of all common stock sales during the period.

Definitions within Portfolio Segments

When comparing segments of portfolios such as the common stock segment of one portfolio with the common stock segment of another portfolio, it is important that the segments have comparable characteristics. It would not, for example, be appropriate to compare the common stock portfolio of a corporate pension fund which was 25% invested in the company's own stock with the common stock portfolio of another pension fund which had no such distortion. Managers inherit portfolios from a variety of sources which might hold concentrations in poorly marketable securities which would take time to

work out of successfully. The manager should not be charged with the distortions produced, good or bad, during a prolonged period of liquidation. There are also differences in treatment of types of holdings. In the case of convertible securities, some treat them as part of the portfolio's bond holdings, some treat them as common stocks and some divide them between those convertible issues selling near their base investment value as a straight bond and those convertible issues selling more on a common stock equivalent basis. Finally, it is not appropriate to compare results for diversified and undiversified portfolios. For example, "bond performance" should not be compared on the basis of one portfolio which has 30% invested in bonds including a diversified list of issues and another portfolio which might be of equal total dollar size but have a much smaller percentage of the total portfolio devoted to bonds and, perhaps, use only one or two issues.

Total Time Period Shown

The five-year time period for investment results is designed to be long enough to cover most business and market cycles. The minimum objective should be a length of time encompassing at least one market cycle containing rising market and declining market periods in order to permit an assessment of investment performance during both types of markets. Depending on the timing of market cycles and the fact that they do not usually open and close in consonance with the calendar, there will inevitably be occasions when a total time period of less than five years will be more appropriate.

Time Intervals Used

Within the total time period shown, the time interval recommended is one year with some indication of results for multiple time periods on a compound annual basis. An example of this type of presentation is illustrated below:

	<u>Annual Rates of Return</u>					<u>Compound Annual Rates of Return</u>			
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>2 years '72-'73</u>	<u>3 years '71-'73</u>	<u>4 years '70-'73</u>	<u>5 years '69-'73</u>
Fund 1	-5.2	8.3	12.8	19.0	-15.5	0.3	4.3	5.3	3.1

(All figures are hypothetical)

Variability of Return

It is not sufficient to know that a certain magnitude of return was attained. It is also valuable to know the degree of variability experienced in reaching the return. An appropriate way to express this variability is through the use of some statistical measure of dispersion of the sub-period rates of return around their average rate of return. The standard deviation is recommended as a means of quantifying dispersion. It is a widely used measure and, although there are a number of other techniques to measure dispersion, it is appropriate as a minimum supplement to rate of return figures.

The standard deviation indicates the limits within which the sub-period returns vary in producing an average return for a total time period. In normal distributions of a series of returns, plus or minus one standard deviation from the average would encompass approximately 68% of the returns. Plus or minus two standard deviations from the average would encompass 95% and plus or minus three standard deviations would encompass 99%. The task, then, is to calculate one standard deviation as the basic unit.

It is suggested that the sub-period returns be quarterly figures. The standard deviation of the quarterly rates is found by:

- (1) obtaining the arithmetic average
- (2) calculating the deviations of each rate from the average
- (3) squaring each individual deviation
- (4) taking the average of these squares
- (5) extracting the square root of this average

Since these calculations produce the standard deviation of the quarterly rates, it is necessary to make a conversion so the standard deviation can be used as a supplement to rate of return figures expressed as compound annual rates. This is accomplished by multiplying the standard deviation of the quarterly rates by 2, the square root of the number of quarters in one year.

NOTE: See calculations at end of report.

II Standards of Use

Management Discretion

A primary purpose for generating performance figures is to provide a quantitative basis for evaluating the job done by the portfolio manager. It is only fair, then, for the results to reflect truly the manager's performance without an undue overlay imposed by others. This overlay may take the form of policy constraints (e.g., a current income requirement, ceilings on percentage to be invested in common stocks, restrictions as to the types of securities to be purchased, etc.) or approval mechanisms involving rejection of proposed investments. The investment results should reflect the portfolio manager's decision process. Although we recognize that the effective discretion of a portfolio manager might not be within the legal

definition of "discretionary," we believe a portfolio should be presumed to be discretionary if the portfolio manager can arrange purchases and sales of securities of his selection (within reasonable limits) and vary the portfolio mix between stocks, bonds, or cash equivalents without undue restrictions on his own best professional judgment.

Number of Results Shown

Selection criteria for a statistical sample of any size must be accurately disclosed to identify what the sample includes. The criteria might be complex (e.g., common stocks only of accounts which are fully discretionary, tax-exempt, managed by a firm's New York office for five years, etc.) or simple (e.g., "our best account" or "our three largest accounts") but they must be disclosed. Whatever the basis for selection of investment results to be shown, all accounts described by the selection criteria must be included. Although the quantity of accounts shown can be controlled by the specifics of categorization filters, the account sample must be complete as described.

A broad sample is desirable because the record of one portfolio or several portfolios is not statistically significant as the record of a portfolio manager or an entire firm of portfolio managers managing many portfolios. One account cannot be presumed to be representative of an individual's or firm's work unless the individual or firm so states and is prepared to substantiate. Therefore, it would not usually be appropriate to compare two firms of portfolio managers by comparing one account

of one firm with one account of another firm. This is true for any type of portfolio, including mutual funds or any other commingled funds. The use of one account may be appropriate in representing itself when it is desirable to show the results of specific types of investing such as with a high risk mutual fund, a mutual fund of international securities or a mutual fund whose policy it is to keep pace with general market averages. Furthermore, a single portfolio, pension fund, mutual fund or otherwise, should not be used by any firm as representative of another firm unless that firm has so stated and substantiated. It is not one firm's realm to present another firm's record. A firm's responsibility is to represent itself and not others.

In presenting investment performance results, it is appropriate to use summary statistical techniques such as averages, medians, etc., as long as they are representative of a broad sample of similar portfolios. Statistical and graphic representations should be specifically footnoted to disclose what they represent and a firm using them should be prepared to substantiate the representations by standing ready to describe the details of the underlying calculations. This substantiation should at a minimum contain the data presented in the attached worksheets.

Tax-Exempt Portfolios

The purpose of showing investment results of existing clients to third parties is to provide an illustration of what has been achieved under varying conditions. Due to differences in impact on investment results of various tax brackets, it is difficult to compare the results of different taxable portfolios. In order to demonstrate the investment process, the

common base of tax-exempt portfolios can be used with both tax-exempt and taxable third parties.

Similarity of Investment Objectives

No two portfolios are exactly the same. Inevitably, there is some variation between different portfolios and their objectives. However, comparisons of investment results should be made only for portfolios with generally similar objectives and involving acceptance of the total return approach.

Size

Size is an important consideration and effort should be made to compare portfolios only within reasonable categories of size. It is inappropriate to compare the investment results of very small portfolios with very large portfolios due to the great differences in operational flexibility. The use of a size threshold is suggested such as including only portfolios over \$1 million.

Relevance to Third Parties

The selection of investment results to be shown should have some relationship to the circumstances of those receiving the information. For example, it is logical to show investment results which include a number of employee benefit funds in response to an inquiry from an employee benefit fund.

Mutual fund performance data are often used because they are a "public record." We conclude that this general use relates more to the integrity of an audited public statement rather than to the relevance of this record

and recommend that specifically selected investment results be used which have as close as possible a relationship to the third party viewing them.

Comparative Format

There are three general comparisons which might be drawn by those receiving a statement of investment results and the statement format should facilitate such comparisons.

1. The investor should be interested in the absolute level of accomplishment compared to his own goals. This does not speak to the realism of these goals whether they be achieving an actuarial assumption or some other pre-stated quantitative objective. He wants to assess the accomplishment relative to his own special standard.
2. The investor should be interested in the relative level of accomplishment within various market environments.
3. The investor should be interested in the relative level of accomplishment compared to some general representation of how others fared during the same time.

The first comparison uses the investor's own calculations and standards.

The second comparison requires some representation of the market environment. The widely used market averages involve a variety of calculation methods so that the results vary depending on market circumstances. This means a given index is not necessarily consistent in its reflection of the environment. The most appropriate answer (although not entirely satisfactory) is to review records of several market indices on a total return basis and assess the flow of experience over a sufficient period of time.

The third comparison requires the selection of representative universes of other managed money. This type of information has not been available for

many years but there are available universes of pension funds, mutual funds, bank commingled funds, insurance company separate accounts, etc. The integrity of the information has been high to date and provides a valuable means of comparison.

Distribution of Information

Care should be taken that any information provided third parties regarding portfolio investment results is in compliance with the Investment Advisers Act of 1940 and other guideposts, statutes, rules and court cases. In certain states, for example, any registered investment adviser must file new business materials. The judicial definitions of so-called federal "anti-fraud rules" are continually expanding to include prospect and client communications.

Outlined below are guidelines of what is deemed permissible and not permissible within the context of this report in distributing portfolio investment results.

Permissible:

Investment performance data may generally be shown which are:

1. clear disclosures of all relevant facts,
2. accurate,
3. for objectively justifiable time periods, and
4. for generally recognized categories within portfolios (e.g., total portfolio, total bonds, total common stocks) and for overall categories of portfolios (e.g., large pension funds, all tax-exempt institutional accounts).

Not Permissible:

Investment performance data may not be shown which are:

1. unclear, untrue or otherwise false or misleading and/or,
2. in the case of advertisements as defined under the Investment Advisers Act of 1940, in violation of the rules relating to advertisements.

In the Investment Advisers Act of 1940, a specific guideline is found in Rule 206(4)-1. This rule concerns "advertisements" by investment advisers and, in relation to the subject matter of this report, the most important provisions of the rule define the conditions under which distribution of an "advertisement" may constitute fraud or deception. For these purposes, "advertisement" is defined broadly as any written communication sent to more than one person (The term "person" is defined to include any organized group or persons, so that, for example, a corporate pension fund would be one person, even though it may have four people on its Finance Committee.) or any other notice or announcement in any publication or on radio or television which offers any investment advisory service with regard to securities.

One noteworthy example of circumstances under which an "advertisement" may not be distributed involves any situation where reference is made to past specific recommendations of the investment adviser which were or would have been profitable to anyone, unless the advertisement sets out or offers to furnish a list of all recommendations made by the investment adviser for the immediately preceding period of not less than one year -- a list which must contain specified, detailed information. The list must also contain

language in large type stating "IT SHOULD NOT BE ASSUMED THAT RECOMMENDATIONS MADE IN THE FUTURE WILL BE PROFITABLE OR WILL EQUAL THE PERFORMANCE OF THE SECURITIES ON THIS LIST."

Calculation Worksheet

The attached calculation worksheet utilizes quarterly rates of return derived from the formula described on Pages 7 and 8. The quarterly rates are used to develop:

1. Annual Rates - calculated by linking the quarterly rates geometrically through multiplication (not the same as the arithmetic average).
2. Compound Annual Rates - calculated by linking the annual rates for the specified time period and, then, reference to compound interest tables.
3. Standard Deviation of the Five-Year Quarterly Rates - calculated as indicated (also refer to Page 11 of report).

NOTE: The calculations described are basic to the production of investment performance figures. Of course, in large volume applications, appropriately programmed computers perform these tasks and the calculation worksheet is unnecessary.

Sample Report Format

The attached sample report format embodies the recommendations contained in this report. It is an example of how the recommendations can be used. There are a variety of alternatives and display methods which involve the use of the return figures or graphic representations of the rates of return. This example provides a basic standard for presentation or is appropriate substantiation of statistical or graphic representations. The two pages are companion pieces and the recommendations on Pages 4-5 of this report should be used as a checklist for completeness.

CALCULATION WORKSHEET *
FUND 1

<u>Quarterly Periods</u>	<u>Quarterly Rates</u>	<u>Annual Index</u>	<u>Annual Rates</u>	<u>Compound Annual Rates</u>	<u>Deviation** from Average</u>	<u>Deviations Squar. 1</u>
		100.0				
1.	- 3.3	96.7			6.3	39.69
2.	14.0	110.2			11.0	121.00
3.	2.2	112.7			0.8	0.64
4.	1.5	114.4	14.4	11.4 (5 years)	1.5	2.25
		100.0				
5.	- 2.5	97.5			5.5	30.25
6.	- 2.3	95.3			5.3	28.09
7.	- 0.4	94.9			3.4	11.56
8.	4.5	99.1	- 0.9	10.7 (4 years)	1.5	2.25
		100.0				
9.	- 2.1	97.9			5.1	26.01
10.	-18.0	80.3			21.0	441.00
11.	14.6	92.0			11.6	134.56
12.	9.8	101.0	1.0	14.9 (3 years)	6.8	46.24
		100.0				
13.	8.4	108.4			5.4	29.16
14.	- 1.5	106.8			4.5	20.25
15.	0.9	107.7			2.1	4.41
16.	9.2	117.6	17.6	22.5 (2 years)	6.2	38.44
		100.0				
17.	8.4	108.4			5.4	29.16
18.	4.6	113.4			1.6	2.56
19.	5.6	119.7			2.6	6.76
20.	6.6	127.6	27.6	27.6 (1 year)	3.6	12.90
Total	60.2					1,027.18
Average	3.0					51.36
					Standard Deviation	7.2
					(Conversion Factor to annualize)	x 2
					5 Year Variability	<u>14.4</u>

*squares, square roots and compound rates are readily available in standard statistical tables
 **squaring deviations makes them all positive so minus signs can be ignored

SAMPLE REPORT FORMAT
(Hypothetical Figures Used Below)

COMPARATIVE PERFORMANCE
(All figures are total return including price change plus income)

	<u>Annual Rates of Return</u>					<u>Compound Annual Rates of Return</u>				<u>5 Year Variability</u>
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>2 years '72-'73</u>	<u>3 years '71-'73</u>	<u>4 years '70-'73</u>	<u>5 years '69-'73</u>	
ABC INVESTMENT COUNSEL, INC.										
<u>Equity Performance of Selected Tax-Exempt Portfolios</u>										
Fund 1	- 7.6	7.2	12.4	14.2	- 6.8	4.6	8.2	7.1	4.8	8.5
Fund 2	- 5.2	2.8	12.4	22.2	-11.0	3.3	4.1	3.7	2.2	7.9
Fund 3	1.2	- 1.5	19.0	25.6	-10.0	6.7	6.6	5.1	4.5	9.4
Fund 4	3.5	- 2.6	13.9	19.5	-14.4	2.4	8.7	3.6	4.6	8.1
Fund 5	2.0	2.6	15.0	22.6	-17.4	2.1	8.6	5.0	3.0	8.8
Fund 6										
Fund 7										
Fund 8	----- ETC. -----									
Fund 9										
Fund 10										
Fund 11										
Fund 12										
Fund 13	----- ETC. -----									
Fund 14										
Fund 15										
<u>Equity Market Averages</u>										
Dow Jones	-11.8	9.3	9.9	18.5	-13.3	1.4	4.1	5.4	1.7	8.6
S & P 500	- 8.5	3.9	14.3	19.0	-14.9	0.7	5.0	4.7	2.0	7.5
<u>Mutual Fund Averages*</u>										
Growth Funds	-15.6	-16.0	19.8	8.5	-27.8	-11.5	- 2.1	- 5.8	- 7.8	15.2

*Lipper Analytical Services

ALL REPRESENTATIONS IN ACCORDANCE WITH STANDARDS APPROVED BY THE INVESTMENT COUNSEL ASSOCIATION OF AMERICA

SAMPLE REPORT FORMAT

KEY TO EQUITY PERFORMANCE*

	<u>TYPE</u>	<u>SIZE</u> <u>12/31/73</u>
Fund 1	Corporate Pension Fund	\$10.5 million
Fund 2	Corporate Profit Sharing Fund	\$ 6.8 million
Fund 3	College Endowment	\$12.6 million
Fund 4	Charitable Foundation	\$18.4 million
Fund 5	Religious Institution	\$ 5.4 million
Fund 6		
Fund 7		
Fund 8	----- ETC. -----	
Fund 9		
Fund 10		
Fund 11		
Fund 12		
Fund 13	----- ETC. -----	
Fund 14		
Fund 15		

*Discretionary Management

Exhibit VIII

Selection of Discretionary Fund Managers

Studies: We have found no single investment manager or investment method with exceptional performance in all market environments.

It is, therefore, necessary to set forth the philosophy of the investment organizations, their approaches to the investment of discretionary funds and the resources they bring to bear on this part of their business.

The first priority should be to identify those characteristics felt to be most important to the fund. The more information one has about managers, the better the chances are of selecting a manager that has the characteristics the fund feels are important.

The following items are important areas of inquiry by the fund in discussions with prospective investment managers.

Organization: An understanding of the business base of the organization and its parent (if any), its current status and any conflicts with the parent's business, and the nature of ownership and capital give an indication of whether the investment management organization is likely to remain structured as it presently is or whether change is likely. The important points to review with the manager may be the importance of the investment entity's profits to the whole, the nature of its client base, how potential conflicts of interest within the management organization are resolved, and what motivation for the staff the form of ownership may provide.

Staff: Staff must be sufficient to support the investment philosophy, system, research capabilities and assets under management. In conjunction with biographies, interviews may provide the basis to assess the experience, maturity and capability of key staff members and portfolio managers, make certain the fund would receive the level of attention it deserves, and determine whether the investment philosophy is accepted throughout the organization.

Assets Under Management: The relative emphasis is on the types of accounts under management at one point in time. It may be important to know whether this reflects the organization's direction for the future. The fund should compare the mix of stock, bond and cash reserve assets to the philosophy, consider the number of stock and bond accounts, and find out how these may differ from the past.

Philosophy: The fund must discern the investment organization's central philosophy and method of implementation to determine whether such organization suits the fund requirements, especially with respect to asset mix, flexibility in

the use of cash reserves, and diversification of securities and issues within a portfolio. The fund must be certain that there is sufficient staff and a defined system in order to implement the philosophy. The fund should also know whether the philosophy is new or relatively long-standing and how it may be affected by extreme market conditions.

System: For a fund to be able to have confidence in a manager, the system must be understandable. It must fit the manager's organization, philosophy and personnel. From biographies or interviews the fund should discern whether key people are performing the most important functions in the system. Along with an understanding of how the system functions should come a sense of how ideas are generated, the main sources of input and the importance of the individual portfolio manager to the process. The account load per manager should also be considered at this point.

Research: This function may not be equally important for all investment philosophies and systems, but its importance and depth should be understood.

Fees: These are very often negotiable and flexible; so the fund should inquire specifically as to fees in relation to the size of the fund and special services required.

Performance: Performance reflects the results of the past and is not a prediction for the future. The performance of most investment organizations is dependent in great measure on general market conditions and must be viewed in relation to market conditions during the specific time period covered. It is important to understand the reason for the organization's performance results in the past (staff, philosophy, style, issue selection or industry weightings, among others).

Types of Money Management Organizations -

- Banks
- Insurance Companies
- Investment Management Firms
- Internal Staff

The great bulk of monies are still managed by banks. A major portion of this money is managed in individual accounts, and the treatment of those funds is very much like that provided by independent investment management companies. The banks have also established pooled investment trusts for funds. These are vehicles that serve a variety of purposes. For small funds they provide a way of getting intensive management in a way that is not practical if they were to be individually handled. For larger funds they offer a way of providing specialized investment opportunities, either in risky securities or in specialized holdings such as short-term investments where it is desirable to get a spread of holdings rather than concentrating in a limited number of issues.

Over the years, banks have emphasized their fiduciary responsibility for the monies under their supervision, and that has been a major selling point with them.

Insurance companies have become increasingly competitive in recent years in offering investment services. The great bulk of the monies which they handle for such funds are held in their general accounts. These are portfolios largely invested in bonds and mortgages but which also include stocks, real estate and various miscellaneous investments. These are massive pools of capital, and the insurance companies are able to offer guarantees with respect to contracts they offer based on their general accounts. Some of those contracts involve one-shot guarantees on a lump-sum deposit made at a specific time, and others provide a guarantee over some period of years.

In addition, insurance companies offer a broad range of separate account investments which are very similar to the pooled trust vehicles offered by banks. They include equity investment, separate accounts, bond investment, short-term investment accounts and, in the case of a few companies, real estate accounts.

The third major category of organizations offering services to funds are investment management firms. These include independent ones and those that are affiliated with brokerage houses or other financial institutions. These organizations typically offer services in the form of managing an individual account and tying the investment management of those funds to the particular needs and circumstances of their fund clients. Some of these organizations are specialists focusing on particular types of securities.

Finally, there are some funds, generally the very largest ones, who use internal staff for management of their assets. That is a possibility that is worth consideration if you are confident that you can hire and retain competent professionals who will be able to work with the trustees of the fund in establishing policies and procedures that will meet their particular needs.

Conclusion: It is clear that there is a very broad menu to choose from in the investment advisory field. A systematic procedure for considering the various characteristics of the different organizations in light of your particular fund's requirements, can substantially increase the likelihood that you are going to be able to satisfy your long-term investment needs.

Exhibit IX

EXHIBIT 3
 BASIC SERIES
 INVESTMENT TOTAL ANNUAL RETURNS
 1926 - 1976

Series	Geometric Mean	Arithmetic Mean	Standard Deviation	Distribution
Common Stocks	9.2%	11.6%	22.4%	
Long Term Corporate Bonds	4.1%	4.2%	5.6%	
Long Term Government Bonds	3.4%	3.5%	5.8%	
U.S. Treasury Bills	2.4%	2.4%	2.1%	
Inflation	2.3%	2.4%	4.8%	

-50% 0% +50%

10

EXHIBIT 31

COMMON STOCKS
Simulated Total Return Distributions
For the Period 1977-2000
Geometric Average Annual Rates

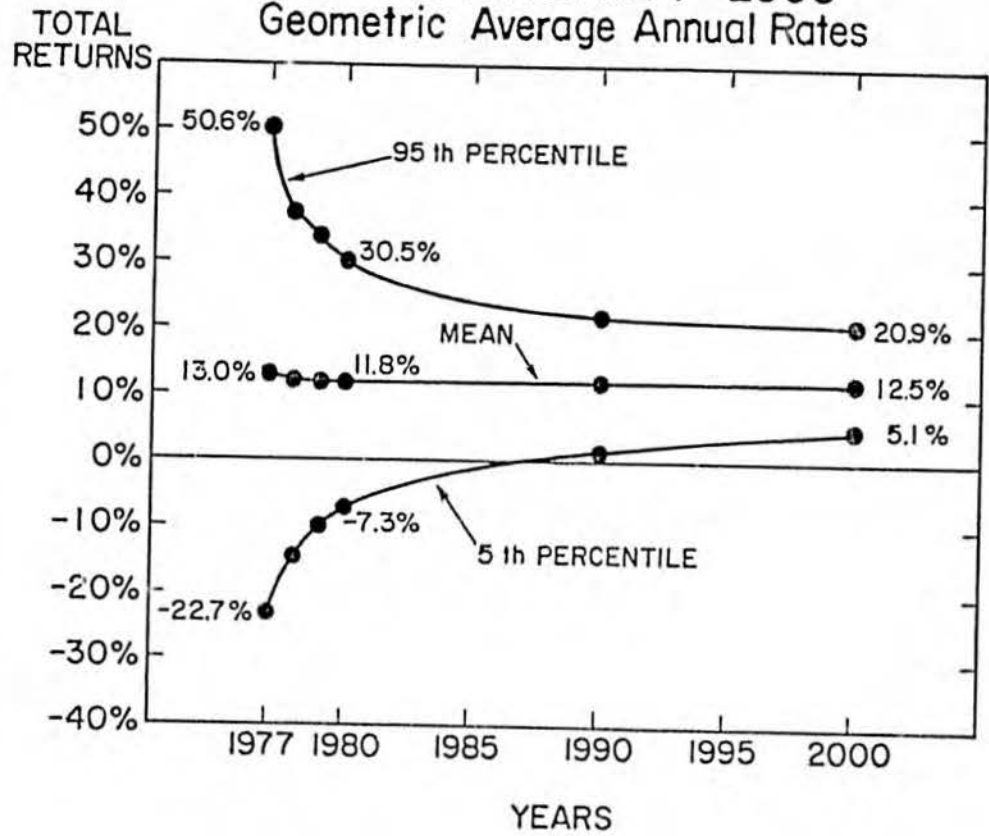


EXHIBIT 33

LONG TERM CORPORATE BONDS
Simulated Total Return Distributions
For the Period 1977-2000
Geometric Average Annual Rates

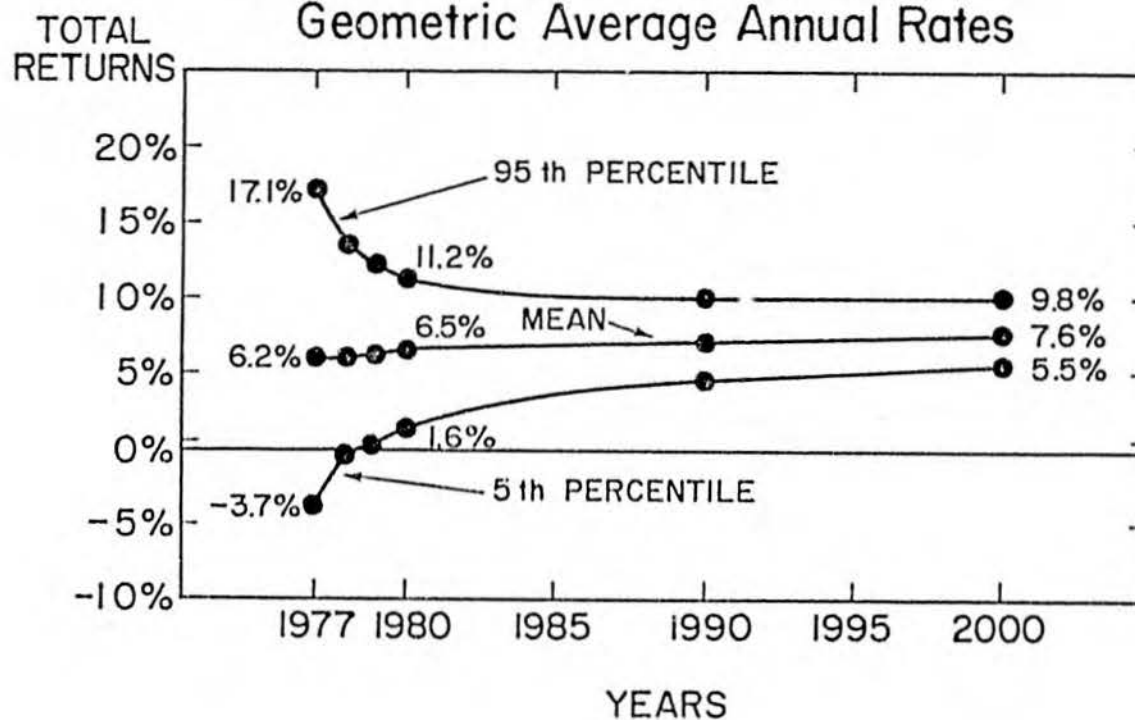


EXHIBIT 35
INFLATION

Simulated Rate Distributions
For the Period 1977-2000
Geometric Average Annual Rates

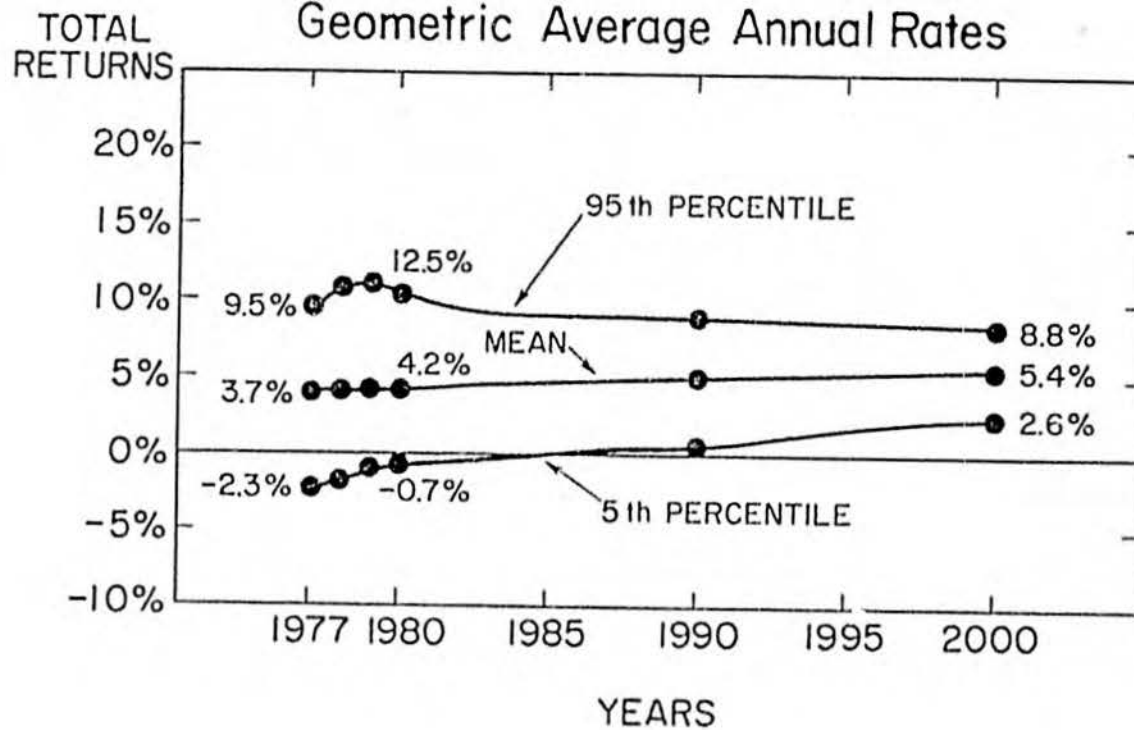
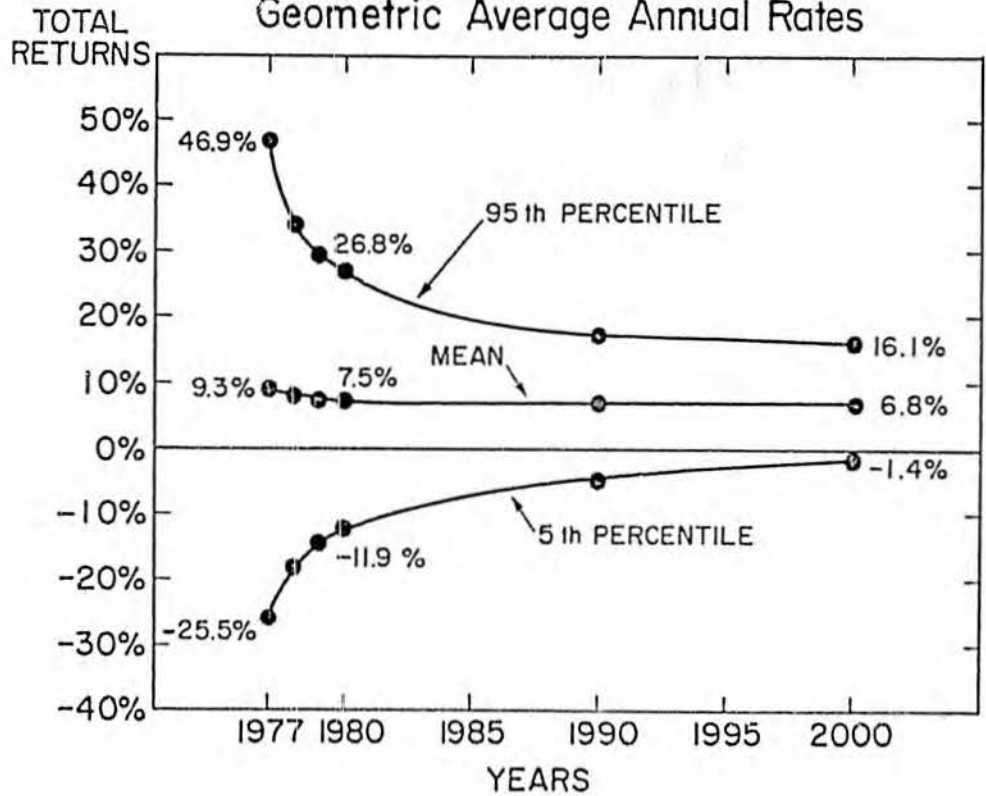


EXHIBIT 37

COMMON STOCKS, INFLATION ADJUSTED
Simulated Total Return Distributions
For the Period 1977-2000
Geometric Average Annual Rates



RESEARCH

Energy and Economics

State of Alaska

RESEARCH

Energy and Economics

State of Alaska

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Mesa Petroleum Co (MSA)	January 19, 1977
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Investment Policy	March 18, 1977
SRC Market Averages Wall Chart	
White, Weld & Co. Incorporated - Annual	

White, Weld & Co. Incorporated

Energy Stocks

April 13, 1977

ENERGY GROUP

A. HAGER BRYANT 3rd (212) 285-2696
 RICHARD L. DAVISSON, JR. (617) 482-7767
 PHILIP L. DODGE (212) 285-2043
 JOHN H. HAYWARD, JR. (212) 285-2032
 JOHN L. KALMBACH (212) 285-2065
 WILLIAM N. WALLING, JR. (212) 285-2438

Energy stocks have been buffeted recently by uncertainties about the forthcoming April 20 address to Congress by President Carter. At the risk of oversimplifying a complex matter, we foresee the following profit implications. Because of efforts to hold down gasoline and fuel oil consumption, refining profitability may not reach a level which would have materialized ex conservation, and even modest industry expansion could lead to a currently unanticipated surplus by the end of the decade. Coal profits, although under considerable pressure this year due to abnormal labor disruptions, should benefit significantly beginning in 1978 from Administration efforts to shift electric power plant boiler fuel to coal from oil and gas. Finally, profit margins on U.S. crude oil and natural gas production should rise further as a result of Administration efforts over time to close the gap between U.S. and world prices.

These prospects, which should be at least partially clarified in the April 20 energy message, argue for investments in companies which (1) already have relatively large reserves of crude oil, natural gas, and coal; (2) have their production in energy consuming countries; and (3) have more upstream earnings than downstream. Moreover, upstream (production) earnings improvement is likely to continue over a period of several years, in part ironically because of price controls and other political constraints which thus far have held earnings of oil and gas producers to artificially low levels. We believe the direction of the Administration's program has been sufficiently outlined to give us confidence that the earnings of many companies will be enhanced. Consequently, we believe a number of energy stocks should be purchased in advance of the energy message when the outlook will become clearer.

Our feelings on the various classifications of energy stocks are as follows.

1. **Domestic oils** should be chosen from those which have relatively large reserves and above average outlooks for non-OPEC production.
2. **International oils** should be avoided, except where income is critical, because of historically high relative P/E ratios and margin pressures overseas.
3. **Natural gas pipelines** remain attractive for a possible combination of earnings, dividend, and P/E increases.
4. **Service companies** are available at multiples lower than those generally prevailing in recent years, and we believe that earnings growth in services related to drilling, both onshore and offshore, will be particularly strong over the next several years.
5. **Coal demand** should be stimulated by Carter Administration energy programs, and we favor broad representation in this group despite temporary pressures on earnings. We anticipate significant earnings recovery beginning in 1978 and higher multiples on current profits as the long-term demand outlook becomes better defined.
6. **Exploration-production firms** have sold off from early 1977 highs and now appear to be in a more attractive buying range.

PORTFOLIO WEIGHTING

S&P 500: 17.4%

White, Weld & Co.: 5.0%

Internationals Underweighted

SELECTED STOCKS

Market Value: Over \$1 Billion			\$800-\$900 Million	\$400-\$500 Million	\$100-\$25 Million
British Petroleum	Occidental Petroleum	Schlumberger	Baker International	Cooper Industries	Falcon Seaboard
*Continental Oil	*Pannzoil	*Standard Oil of Indiana	Eastern Gas & Fuel	Transco	*Florida Gas
*Getty Oil	Phillips Petroleum	*Standard Oil of Ohio	*Panhandle Eastern		*Helmerich & Payne
Halliburton	Pittston		*Southland Royalty		*Noble Affiliates
*Marathon Oil			Texas Oil & Gas		*Southern Union Production
		*Currently Favored Stocks			

COMPANY STATISTICS

Company	FY	Price 4/7/77 \$	1977 Price Range \$	Total Market Value \$ Mil.	Past 5 Yr. Growth		5 Yr. Avg. Equity Plow- Back %	Earnings Per Share				P/E Multiples		Indicated	
					Sales Per Share %	Earns. Per Share %		1975 \$	1976 \$	1977E \$	Change %	1976 X	1977E X	Div. \$	Yld. %
OIL & GAS DOMESTIC (Dodge)															
Ashland Oil	(9)	33	37- 32	846	17.0	27.9	14.9	3.85	4.40	4.75	8	7.5	6.9	1.90	5.8 OPT
Atlantic Richfield		54	58- 50	5,606	16.2	11.1	7.5	3.08	5.04	5.25	4	10.7	10.3	1.60	3.0 OPT
Cities Service Co.		61	62- 57	1,659	14.6	4.6	4.8	5.12	7.98	8.75	10	7.6	7.0	3.00	4.9
Continental Oil		35	38- 34	3,745	20.0	16.3	9.4	3.25	4.38	4.75	8	8.0	7.4	1.20	3.4 OPT
Getty Oil		186	212-181	3,820	20.1	21.4	9.0	13.71	13.81	17.00	23	13.5	10.9	2.80	1.5
Marathon Oil		52	59- 52	1,564	23.2	8.6	8.1	4.28	6.52	7.00	7	8.0	7.4	2.20	4.2
Occidental Petroleum		26	28- 23	1,465	16.1	-1.6	19.2	2.20	2.27	3.25	43	11.5	8.0	1.00	3.8 OPT
Phillips Petroleum		56	66- 55	4,281	17.0	23.3	7.9	4.50	5.39	6.85	27	10.4	8.2	2.00	3.6 OPT
Shell Oil		72	80- 68	5,088	17.8	22.7	9.0	7.59	10.11	11.50	14	7.1	6.3	3.20	4.4
Standard Oil Indiana		53	60- 50	7,779	20.2	18.7	9.2	5.36	6.09	7.15	17	8.7	7.4	2.60	4.9 OPT
Standard Oil Ohio		83	86- 74	2,454	10.9	13.9	3.8	3.42	3.55	5.50	55	23.4	15.1	1.36	1.6
Sun		45	49- 40	1,973	16.9	12.4	14.4	3.63	5.29	6.40	9	7.7	7.0	2.00	4.4 OPT
Union Oil of California		50	59- 54	2,002	17.1	16.4	9.8	5.67	6.55	7.50	15	8.4	7.3	2.10	3.8 OPT
OIL & GAS INTERNATIONAL (Dodge)															
British Petroleum		14	16- 13	5,405	29.2	4.6	8.2	0.75	0.79	1.60	103	17.7	8.8	0.33	2.4
Exxon Corp.		51	55- 50	22,831	22.1	13.6	9.3	5.60	5.90	6.40	8	8.6	8.0	3.00	5.9 OPT
Gulf Oil Corp.		28	31- 28	5,456	23.0	6.3	7.9	3.60	4.19	4.50	7	6.7	6.2	1.80	6.4 OPT
Mobil		66	71- 62	6,993	22.2	10.8	8.4	7.95	9.08	10.00	10	7.3	6.6	3.80	5.8 OPT
Royal Dutch Petroleum		55	56- 51	7,371	22.0	17.4	9.8	8.79	10.90	10.00	-8	5.0	5.5	3.58	6.5
Standard Oil California		40	44- 38	6,794	32.0	11.2	8.0	4.55	5.18	5.75	11	7.7	7.0	2.20	5.5 OPT
Texaco		27	30- 26	7,329	30.9	0.3	7.9	3.06	3.20	3.75	17	8.4	7.2	2.00	7.4 OPT
GAS PIPELINES (D Bryant)															
El Paso Co.		15	17- 14	584	0.3	4.5	6.3	1.96	1.74	1.75	1	8.6	8.6	1.10	7.3 OPT
Florida Gas		23	24- 20	146	3.0	7.1	8.6	2.31	2.50	2.75	5	9.2	8.4	1.20	5.2
Northern Natural Gas		46	48- 44	1,014	15.9	22.3	8.3	5.80	6.40	6.75	7	7.2	6.8	2.08	4.5
Panhandle Eastern Pipeline		42	49- 42	609	7.5	9.0	7.3	4.83	5.70	6.40	15	7.4	6.6	2.30	5.5
Southern Natural		53	59- 51	533	14.1	14.1	2.6	6.82	7.38	7.50	2	7.2	7.1	1.85	3.5
Texas Eastern Corp.		41	42- 38	997	10.5	10.2	8.7	4.06	4.55	5.00	14	9.0	8.2	1.85	4.5
Texas Gas Transmission		43	49- 42	391	3.1	9.5	8.9	4.43	5.65	6.50	14	7.6	6.6	2.00	4.7
Transco Cos.		18	20- 17	405	8.4	2.5	5.5	2.01	2.35	2.55	15	7.7	7.1	1.00	5.6
United Energy Resources		27	31- 26	302	NA	NA	12.9	3.48	4.58	5.10	11	5.9	5.3	1.72	6.4
OIL SERVICE & EQUIPMENT (Hayward)															
Baker International	(9)	46	48- 43	643	20.9	32.7	15.7	3.43	3.52	4.25	21	13.1	10.8	0.46	1.0
Chicago Bridge		50	62- 46	488	11.9	23.5	12.8	4.20	5.73	5.75	1	8.7	8.7	2.00	4.0
Dresser Industries	(10)	40	43- 37	1,573	5.6	22.5	14.5	1.77	4.19	4.70	12	9.5	8.5	0.80	2.0 OPT
Fluor Corp.	(10)	34	38- 33	520	14.7	24.0	18.0	2.85	3.88	4.25	10	8.8	8.0	1.00	2.9 OPT
Foster Wheeler		24	24- 20	194	13.1	17.5	9.5	3.57	4.75	5.00	5	5.1	4.8	0.75	3.1
Halliburton Co.		56	65- 55	3,280	28.6	33.8	15.5	3.84	5.22	5.85	12	10.7	9.6	1.24	2.2 OPT
Hughes Tool Co.		37	43- 34	376	NA	NA	14.5	3.41	2.98	3.60	21	12.4	10.3	0.50	1.4 OPT

McDermott	(3)	54	54- 43	847	31.8	80.9	16.1	9.76	12.00	9.00	-25	4.5	6.0	1.60	3.0	OPT
Ocean Drilling		30	36- 23	339	36.0	32.5	14.8	3.24	3.40	2.50	-26	8.8	12.0	0.20	0.7	
Oceaneering International	(10)	7	12- 5	43	65.3	96.8	34.8	1.35	0.65	0.80	23	10.8	8.8	0.10	1.4	
Offshore Logistics	(6)	14	18- 8	28	36.7	37.2	15.4	1.73	2.91	2.70	-19	4.8	6.0	0.28	2.0	
Santa Fe International		47	53- 21	457	13.1	26.6	12.0	3.01	4.54	5.00	10	10.4	9.4	0.30	0.8	OPT
Schlumberger		60	69- 47	5,266	19.8	33.1	16.3	2.61	3.41	6.00	17	17.6	15.0	0.80	1.3	OPT
Sedco	(6)	35	36- 22	345	25.9	29.1	15.9	3.69	4.34	5.00	15	8.1	9.4	0.30	0.9	

COAL (Walling)

Continental Oil		35	38- 34	3,745	20.0	16.3	9.4	3.25	4.38	4.75	8	8.0	7.4	1.20	3.4	OPT
Eastern Gas & Fuel		27	28- 16	603	17.6	24.8	13.8	2.73	3.01	3.65	3	9.0	8.7	0.80	3.0	OPT
Falcon Seaboard		43	41- 14	159	9.2	NA	37.3	3.60	4.16	4.75	8	10.3	9.6	00	2.3	
Mapco Inc.		25	45- 33	834	24.6	39.9	19.6	2.64	3.00	3.70	23	15.0	12.2	1 10	2.4	
North American Coal		52	52- 33	87	33.7	32.3	8.9	4.71	4.37	4.50	3	11.9	11.6	0.90	1.7	
Occidental Petroleum		26	28- 23	1,465	16.1	-1.6	19.2	2.20	2.27	3.25	43	11.5	8.0	1.00	3.8	OPT
Pittston Co.		34	47- 30	1,218	24.0	41.6	23.8	5.36	3.92	5.00	-4	8.7	9.1	1.25	3.7	OPT
Westmoreland Coal		50	66- 39	344	22.3	43.0	21.9	8.82	7.07	7.00	-29	7.1	10.0	1.70	3.4	

DIVERSIFIED ENERGY (Kalmbach)

Cooper Industries		43	43- 23	482	10.0	17.1	13.2	2.80	3.66	4.25	16	11.7	13.2	1.08	2.5	
Houston Natural Gas	(7)	31	37- 24	1,033	28.5	36.4	17.5	2.00	2.74	3.15	24	11.3	9.1	0.70	2.3	
Pennzoil		31	35- 19	1,016	-2.8	7.1	11.9	2.96	3.70	4.50	22	8.4	6.9	1.40	4.5	OPT
Tenneco, Inc.		32	37- 26	2,726	11.6	14.7	9.4	3.63	--	RESTRICTED --	--	--	--	1.88	5.9	OPT

EXPLORATION & PRODUCTION (Davisson)

Apache Corp.		18	22- 10	83	6.7	11.6	11.0	1.73	2.33	2.00	-40	7.7	9.0	0.50	2.8	
C. & K. Petroleum		34	32- 9	75	25.0	34.0	NA	1.53	1.26	1.85	29	27.0	17.0	0.20	0.6	
Husky Oil		24	23- 16	234	20.9	42.2	13.4	3.29	2.71	4.00	21	8.9	6.0	0.80	3.3	
Mountain Fuel Supply		40	46- 31	239	12.8	13.2	5.8	2.74	3.77	4.75	11	10.6	8.7	2.00	5.0	
Natomas		37	43- 22	246	139.1	238.5	15.6	2.65	8.45	9.00	12	4.4	3.9	1.40	3.8	
Rainbow Resources	(7)	23	19- 6	51	NA	60.0	NA	0.42	0.67	1.00	49	34.3	23.0	0.0	0.0	

(Dodge)

American Quasar		22	27- 8	98	60.0	NA	NA	0.60	0.40	1.00	150	55.0	22.0	0.0	0.0	
Louisiana Land		27	31- 22	1,004	21.1	10.6	16.0	2.42	2.67	3.10	15	10.1	9.2	1.20	4.9	OPT
Mesa Petroleum		34	38- 19	437	-10.1	9.3	23.7	1.25	1.92	2.25	17	17.7	13.1	0.10	0.3	OPT
Sabine		25	59- 35	154	39.6	33.5	16.3	1.77	2.08	2.50	20	12.0	10.1	0.50	2.0	
Southland Royalty		40	47- 20	475	30.3	32.8	14.4	1.76	2.28	2.75	20	17.5	14.5	0.68	1.7	

(Kalmbach)

Belco Petroleum		24	29- 14	180	21.5	9.9	14.8	2.83	4.15	6.00	50	5.8	4.0	1.00	4.2	
Helmerich & Payne	(9)	34	34- 30	196	3.0	26.8	13.8	2.37	2.60	3.10	19	13.1	11.0	0.28	0.8	
Houston Oil & Mineral		40	61- 11	659	68.3	NA	43.7	1.00	1.95	4.00	105	20.5	10.0	0.80	2.0	OPT
Noble Affiliates		25	30- 12	99	NA	NA	NA	2.06	2.38	2.80	18	10.5	8.9	0.27	1.1	
Pennzoil Offshore		13	17- 11	492	NA	NA	NA	1.01	0.77	1.70	121	16.7	7.6	0.0	0.0	
Southern Union Production		39	45- 23	213	NA	NA	NA	2.55	3.02	4.00	33	12.9	9.7	0.40	1.0	
Texas Oil & Gas		26	30- 13	520	55.8	36.3	20.2	2.05	2.46	3.00	22	10.6	8.7	0.20	0.8	
Tom Brown	(3)	36	35- 17	138	20.0	36.6	32.4	1.50	1.30	2.80	47	18.9	12.9	0.0	0.0	

Weekly Group Price Index 10-Week Moving Average 30-Week Moving Average Performance Ratio Group vs. S&P 500

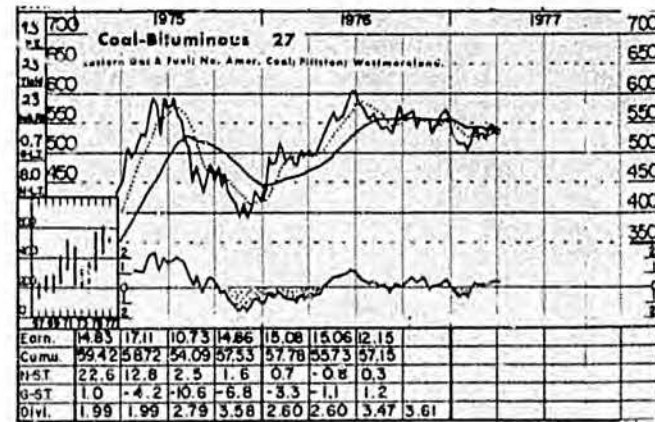
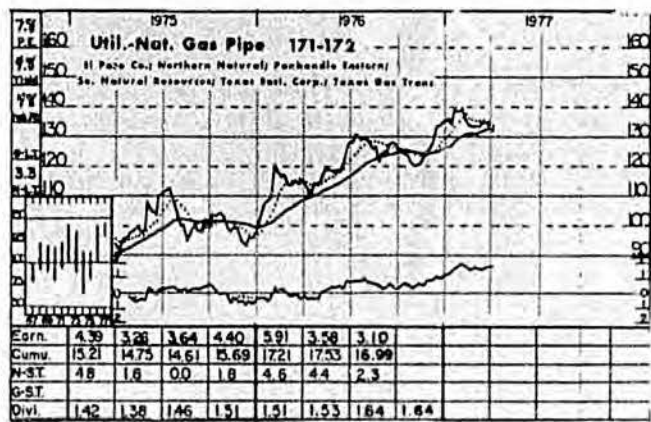
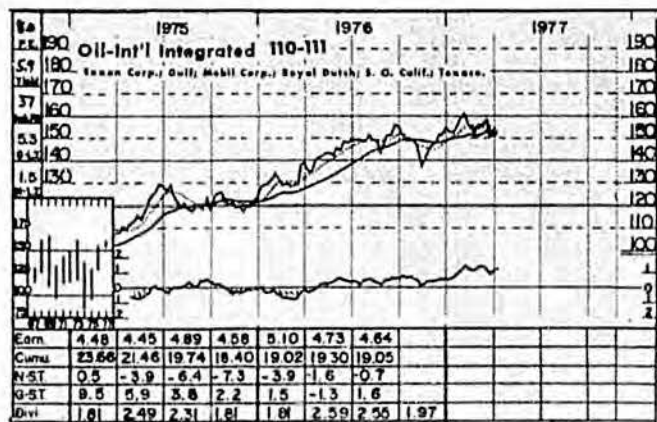
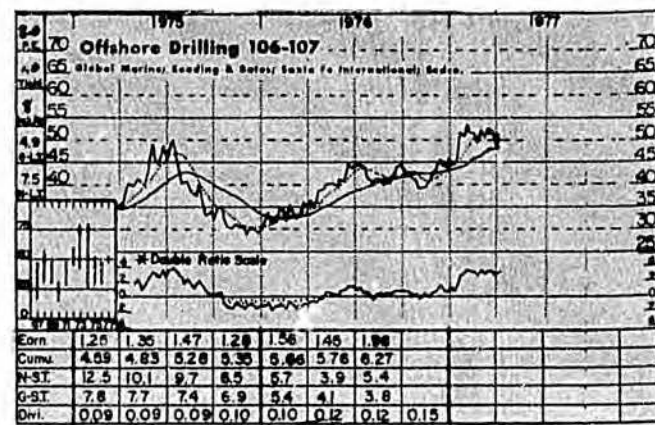
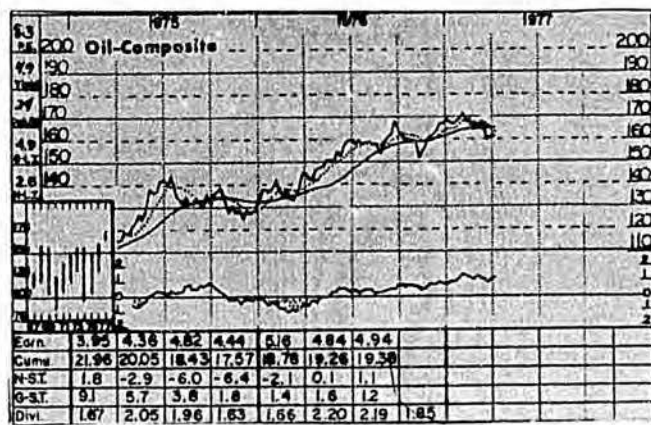
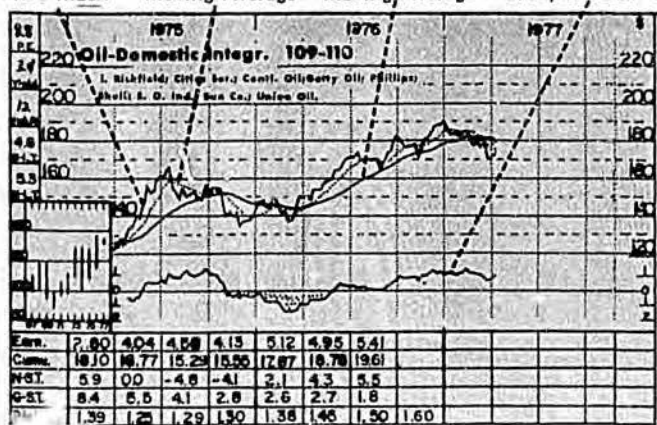


Chart courtesy of Mansfield Stock Chart Service.

RR-77-64

-Research Department-

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April 4, 1977

APRIL 20, 1977

WILL THERE BE AN ENERGY POLICY AT LAST?

President Carter will address Congress on April 20, an eagerly awaited message on the state of U.S. energy. Uncertainties concerning the direction of Carter Administration energy goals have had a disruptive effect on common stock prices over the past several weeks. Although we believe that Administration programs will be generally favorable for energy investors, the whole cloth of Carter policy is unlikely to emerge as early as April 20. And, Congressional consideration of Administration proposals will inevitably be a lengthy process despite some restructuring. In this setting, important questions will not be resolved as soon as investors would prefer.

April 20 is a difficult deadline for presentation of a comprehensive package due to the sheer complexity of energy matters. The Administration would apparently also prefer to establish the proposed Department of Energy before addressing all particulars. This organizational step is desirable to delineate lines of authority and, from a more practical standpoint, to provide officials for extensive Congressional hearings. At the same time, President Carter will probably speak with considerable substance on April 20, partly because expectations are high and partly because politically unpopular moves are more tolerable early in the four year term.

The Administration has avowedly abandoned the earlier goal of U.S. energy self-sufficiency (Project Independence), reflecting less policy than reality. Nevertheless, the objective will be to narrow the present gap between national supply and demand. Probable Administration proposals can usefully be divided into three categories: (1) those that will reduce demand; (2) those that will shift demand from one fuel to another; and (3) those that will increase supply. Even in these general terms, a significant change in emphasis is evident. In recent years, Congressional actions, either consciously or inadvertently, have resulted in constraints on supply, for example, elimination of percentage depletion on petroleum in March 1975, extension of price controls on crude oil in December 1975, and majority opposition (in the House of Representatives) to removal of price ceilings on new natural gas in February 1976.

Proposals to Reduce Demand

These proposals will focus on transportation and space heating, energy markets in which other fuels cannot be readily substituted for oil and natural gas. The major target will be gasoline, a product which alone accounts for about 20% of total U.S. energy con-

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sumption. Under consideration and a probability is a combination Federal sales tax/credit on automobiles graduated in proportion to gasoline consumption related to mileage standards that are already legislated by the 1975 Energy Policy and Conservation Act. The President may also recommend a rising Federal excise tax on gasoline above the current 4¢ a gallon figure either initially, or later if taxes/credits related to mileage standards prove inadequate. The message will probably contain proposals to grant tax credits, loan guarantees, or low interest rate loans for money spent on insulation of buildings. The Administration may also address the complex question of electric utility rate structures which now apply lower unit rates for greater use. Finally, and perhaps least likely, the Administration could favor mandatory limits on industrial consumption of oil and gas. For instance, airlines might be constrained to a base period fuel use level.

Proposals to Shift Demands

The message will almost certainly contain measures to shift electric utility boiler fuel to coal from oil and gas. Coal currently provides energy for roughly 45% of electric power output, and oil and gas each slightly over 15%. Although coal is about 50% less expensive than oil and 20% cheaper than natural gas, utilities have not moved rapidly to convert existing facilities, partly due to conflicts with existing air quality standards. The Federal Energy Administration has issued construction orders requiring the use of coal at 142 power units entailing future annual consumption of 221 million tons. However, most or all of these new sites would have used coal anyway.

We believe the Administration will adopt an approach similar to legislation (S977 Coal Utilization Act of 1977) introduced by Senator Henry Jackson of Washington, which would require new power plants and other major installations to burn coal or another fuel rather than oil or natural gas. Under S977, conversions from natural gas at existing facilities would be mandatory by January 1979 and from oil by January 1990. Moreover, to expedite conversions, President Carter is likely to propose a stiff tax on the use of natural gas, and maybe oil, in power plant and other industrial markets. To expedite this objective, additional investment tax credits may be introduced for both plant conversion and installation of stack gas scrubbers. However, we doubt that modification of current air quality standards will be requested, thus perpetuating the root dilemma of excessive sulphur content in most available coals.

Proposals to Increase Supply

The Administration is considering higher prices for domestic crude oil and natural gas. It has already recommended continuation of the 10% annual rate of increase in the crude oil price composite, as legislated in August 1976. In addition, President Carter will probably propose higher prices for natural gas from new discoveries in the April 20 message and higher prices for crude oil from new discoveries either on April 20 or later. We expect that prices for these new categories of production will eventually be related to landed values of imported fuels. Rather than unbuttoned decontrol, however, increases to parity with world levels may be recommended over two or three years, partly to attract broader Congressional support. Nonetheless, initial figures should be significantly above presently authorized levels for new production of \$1.45 a thousand cubic feet for gas and \$11.00 a barrel on average for oil.

To qualify, output would reportedly have to be from geologically separate finds rather than infill wells in existing reservoirs.

Regarding coal supply, the Administration has previously indicated support for the Surface Mining & Reclamation Act (HR 2, S7), and this proposed legislation, which would impede strip mining, will probably pass the current session of Congress. Even so, present surplus coal mining capacity is on the order of 100 million tons annually, and the obvious problem to be addressed first is demand not supply.

We doubt that the President on April 20 will advocate rapid development of nuclear power because of inhibitions expressed in the past concerning safety. However, Congress will apparently consider several aspects of nuclear development including standardization of reactors and disposal of waste.

After April 20, the Administration can be expected to present basic energy proposals in greater detail, and new aspects of recommended energy policy may be added to the original message. All, sooner or later, must undergo Congressional scrutiny. Options for administrative energy action have become limited in recent years, as Congress has increasingly required advice and consent. Despite recent changes, Congress is not particularly well organized for expeditious review of energy proposals. The new Senate Energy Committee under Senator Jackson may move more rapidly than was possible under the past rather fragmented committee structure. On the surface, the House should also be more immediately responsive through an Ad Hoc Committee established by Speaker O'Neill specifically to hear Administration energy proposals. However, our present understanding is that each existing committee will later hold hearings on specific aspects of the proposed program, e.g., Ways & Means on tax matters. Allowing for recesses, legislation this year may largely be limited to bills related to strip mining, outer continental shelf procedures, and others that are already in process.

In summary, we would emphasize the following points:

1. The April 20 message may not be completely comprehensive because of time limitations.
2. It will stress conservation of oil and natural gas, substitution of coal for oil and gas, and higher prices for oil and gas.
3. Further Administration proposals are likely over the balance of the year.
4. Congress will move slowly, but a program will evolve.
5. Therefore (points 3 and 4), political uncertainties will continue after April 20.

Despite the negative element of uncertainty, we believe that energy investors will benefit from Carter Administration policy as it materializes. More selectively, however, profit prospects appear far better for energy extractors than for refiners and marketers, particularly if conservation efforts prove more effective than those in the past. The case appears stronger

than ever for companies which have relatively large reserves of crude oil, natural gas, and coal in the United States and other non-OPEC areas. Our current recommendations are **British Petroleum (BP-14)**, **Continental Oil (CLL-35)**, **Getty Oil (GET-183)**, **Marathon Oil (MRO-53)**, **Occidental Petroleum (OXY-26)**, **Phillips Petroleum (P-55)**, **Standard Oil of Indiana (SN-52)**, and **Sohio (SOH-80)**. We also recommend purchase of several companies which are primarily engaged in U.S. oil and gas exploration including **American Quasar (AQAS-23)**, **Helmerich-Payne (HP-32)**, **Mesa Petroleum (MSA-31)**, **Noble Affiliates (NOBL-25)**, **Southern Union Production (SUPC-38)**, **Southland Royalty (SRO-39)**, and **Texas Oil Gas (TXO-27)**.

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-Research Department-

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February 23, 1977

**QUARTERLY REVIEW OF OIL MARKETS
DEMAND, SUPPLY, AND PRICES**

This statistical report is part of a continuing quarterly review of oil demand, supply, and price trends. Previous information was published in 1976 on July 22, September 2, and November 30.

TABLE 1, OIL CONSUMPTION

World oil consumption (ex Russia, China, and Eastern Europe) rose 5.2% last year, including an unusually sizable 6.5% in the United States, and 4.5% overseas. U.S. demand was particularly strong in the fourth quarter when chill temperatures stimulated use of heating oil. Inadequate reporting of heavy fuel imports in early 1976 has required some quarterly estimating, and appropriate revisions will be made as actual figures become available. Overseas, slack economic activity in the United Kingdom was responsible for an 11% decline in heavy fuel oil consumption and a 2% drop overall. In Italy, high government taxes on gasoline appear to have dampened demand as the year progressed, resulting in a slip of 4% from 1975. France and West Germany were strong across the product spectrum, both up 8% in total. Japan was tempered to 3% improvement by sluggish use of heavy fuel oil. Assuming a further expansion in economic activity, we currently estimate that 1977 consumption in the U.S. will rise 4-5% and overseas 3-5%, or some 4% overall. The U.S. is up about 10% so far due to frigid weather. Carter Administration conservation efforts, as yet undefined, are unlikely to have a meaningful impact until future years.

Table 1
OIL CONSUMPTION
(000 Barrels Daily)

	1974	1975					1976					Increase/(Decrease) 1975-1976				
		1Q	2Q	3Q	4Q	Year	1Q	2Q	3Q	4Q	Year	1Q	2Q	3Q	4Q	Year
United Kingdom																
Motor Gasoline	382	339	384	398	373	374	354	401	413	394	390	4%	4%	4%	6%	4%
Distillates	453	518	410	310	507	436	549	401	307	498	435	6	(2)	(1)	(2)	0
Heavy Fuel Oil	677	710	512	379	594	550	618	436	376	530	492	(13)	(16)	(1)	(11)	(11)
All Products	2,007	1,979	1,685	1,466	1,865	1,747	1,920	1,655	1,491	1,807	1,717	(3)	(2)	2	(3)	(2)
France																
Motor Gasoline	355	322	379	419	364	371	345	403	443	372	390	7%	6%	6%	2%	5%
Distillates	795	887	692	509	937	757	1,125	591	527	919	791	27	(16)	4	(2)	4
Heavy Fuel Oil	661	665	508	371	655	551	691	574	513	700	617	4	13	38	7	12
All Products	2,309	2,294	2,019	1,720	2,112	2,111	2,640	2,041	1,956	2,477	2,279	15	1	14	3	8
Italy																
Motor Gasoline	242	229	261	289	257	259	242	248	284	226	250	6%	(5)%	(2)%	(12)%	(4)%
Distillates	416	493	312	355	500	419	562	297	361	482	440	14	(5)	2	(4)	5
Heavy Fuel Oil	738	845	608	544	785	723	760	594	634	754	726	(10)	(2)	17	(4)	0
All Products	1,896	1,836	1,611	1,603	1,961	1,799	2,024	1,576	1,702	1,863	1,830	2	(2)	6	(5)	2
West Germany																
Motor Gasoline	436	428	497	483	493	475	435	508	509	505	495	2%	2%	5%	3%	4%
Distillates	1,126	1,194	1,080	1,158	1,112	1,133	1,315	1,077	1,249	1,223	1,222	10	0	8	11	8
Heavy Fuel Oil	450	396	386	365	484	408	436	396	439	504	443	10	3	20	4	9
All Products	2,554	2,429	2,404	2,461	2,568	2,466	2,614	2,476	2,722	2,735	2,666	8	3	11	1	8
Europe - Four-Country Subtotal																
Motor Gasoline	1,415	1,318	1,521	1,589	1,487	1,479	1,376	1,559	1,649	1,497	1,525	4%	2%	4%	1%	3%
Distillates	2,790	3,092	2,494	2,332	3,056	2,738	3,551	2,366	2,444	3,122	2,888	15	(5)	5	2	5
Heavy Fuel Oil	2,526	2,616	2,014	1,659	2,518	2,182	2,505	2,000	1,962	2,488	2,278	(4)	(1)	19	(1)	4
All Products	8,766	8,538	7,719	7,250	8,875	8,115	9,198	7,748	7,871	8,882	8,492	8	0	9	0	5

Table 1 (Continued)

OIL CONSUMPTION
(000 Barrels Daily)

	1974	1975					1976					Increase/(Decrease) 1975-1976				
		1Q	2Q	3Q	4Q	Year	1Q	2Q	3Q	4Q	Year	1Q	2Q	3Q	4Q	Year
Japan																
Motor Gasoline	454	461	469	487	521	485	491	507	499	547	512	7%	8%	3%	5%	6%
Distillates	981	1,331	807	703	1,109	962	1,279	865	754	1,242	1,032	4	7	7	12	7
Heavy Fuel Oil	2,194	2,119	1,803	2,054	2,033	1,997	2,132	1,823	2,012	2,116	2,009	1	1	(2)	4	1
All Products	5,141	5,271	4,456	4,636	5,133	4,872	5,445	4,648	4,701	5,410	5,000	3	4	1	5	3
Free World Foreign																
Motor Gasoline	4,158	4,073	4,413	4,562	4,426	4,370	4,264	4,589	4,735	4,585	4,549	5%	4%	4%	4%	4%
Distillates	6,912	7,719	6,488	6,073	7,659	6,991	8,530	6,494	6,395	8,080	7,396	11	0	5	6	6
Heavy Fuel Oil	7,814	8,000	6,749	6,646	7,769	7,318	8,000	6,897	7,125	8,095	7,553	0	2	7	4	3
All Products	27,745	28,179	25,940	23,672	28,640	27,080	29,616	26,692	24,974	29,700E	28,300E	5	3	6	4	5
United States																
Motor Gasoline	6,585	6,251	6,927	6,974	6,698	6,711	6,617	7,209	7,224	7,013	7,002	6%	4%	4%	5%	4%
Distillates	2,942	3,891	2,705	2,259	3,189	3,013	3,919	2,656	2,501	3,923	3,276	1	(2)	11	23	9
Heavy Fuel Oil	2,638	2,936	2,161	2,244	2,455	2,449	3,150R	2,370R	2,338	3,039	2,775	7	10	4	24	13
All Products	16,862	17,371	15,803	15,978	16,902	16,515	18,625R	16,680R	16,498	18,700	17,581	7	6	3	11	7
Free World																
Motor Gasoline	10,743	10,324	11,340	11,536	11,124	11,081	10,881	11,798	11,959	11,598	11,551	5%	4%	4%	4%	4%
Distillates	9,854	11,610	9,193	8,332	10,848	10,004	12,449	9,150	8,896	12,003	10,672	7	0	7	11	7
Heavy Fuel Oil	10,452	10,936	8,910	8,890	10,224	9,769	11,150R	9,267R	9,463	11,134	10,328	2	4	6	9	6
All Products	44,607	45,550	41,743	39,650	45,542	43,595	47,792	42,923	41,472	48,400E	45,881E	5	3	5	6E	5E

R = Revised
E = Estimated

TABLE 2, OPEC PRODUCTION

OPEC production rose 12% in 1976, ballooning toward the end of the year because of pre-January 1 price increase demand. The OPEC surplus capacity, much ogled in the past as a portent of lower crude oil prices, was down to only 4,000,000 million barrels a day (10%) in December 1976, of which some 60% was in Saudi Arabia alone. OPEC Persian Gulf production rose to a record level of 21,226,000 barrels a day last year as African and other OPEC members were increasingly faced with capacity limitations. In 1977, we estimate that OPEC production will average 31,500,000 barrels a day, up 3%, although the first quarter will probably be under 30,000,000 barrels a day as earlier accumulated inventories are drawn down (note January numbers). We look for OPEC prices to average about 7 1/2% (\$.90 a barrel) higher for the year.

Table 2
OPEC PRODUCTION
(000 Barrels Daily)

	1972	1973	1974	1975	1976	Dec. 1976	Jan. 1977
Saudi Arabia	6,015	7,600	8,479	7,077	8,580	9,188	8,283
Iran	5,015	5,860	6,021	5,350	5,883	6,630	5,059
Iraq	1,455	1,966	1,871	2,248	2,184	3,000	NA
Kuwait	3,287	3,022	2,547	2,054	2,150	3,333	NA
United Arab Emirates	1,208	1,523	1,679	1,695	1,942	2,009	1,937
Qatar	482	570	519	439	487	500	455
Subtotal Persian Gulf	17,462	20,541	21,116	18,863	21,226	24,660	NA
Nigeria	1,817	2,055	2,254	1,787	2,068	2,200	2,150
Libya	2,215	2,185	1,521	1,510	1,914	2,050	2,022
Algeria	1,064	1,090	1,021	946	1,050	1,100	1,100
Gabon	126	151	180	199	220	225	220
Subtotal Africa	5,222	5,481	4,976	4,442	5,252	5,575	5,492
Venezuela	3,220	3,366	2,976	2,346	2,294	2,388	2,360
Indonesia	1,060	1,339	1,392	1,313	1,504	1,583	1,628
Ecuador	79	218	155	158	186	207	217
Total	27,043	30,945	30,615	27,122	30,462	34,413	NA

NA—Not available.

TABLE 3, U.S. CRUDE OIL PRICES

The average wellhead price of U.S. crude oil rose to about \$8.15 a barrel last year from \$7.67 a barrel in 1975. We forecast approximately \$8.85 a barrel this year, up \$0.70 or 9%. Our estimate excludes North Slope oil which will be treated separately under government price controls. We have assumed that the portion of lower tier crude to total production will decline about 1 1/2 percentage points per quarter, consistent with recent trends, and that the present Federal Energy Administration freeze on upper and lower tier prices will be lifted by mid-year.

Table 3
U.S. CRUDE OIL PRICES
(\$ Per Barrel)

	Composition			Weighted Average Price	
	Lower Tier	Upper Tier	Stripper	Amount	Year-to-Year Increase
1975					
1st Quarter	60%	28%	12%	\$7.55	\$0.69
2nd Quarter	62	25	13	7.52	0.69
3rd Quarter	63	23	14	7.74	1.00
4th Quarter	63	23	14	7.85	0.84
Year	62%	25%	13%	\$7.67	\$0.80
1976					
1st Quarter	56%	30%	14%	\$8.10	\$0.55
2nd Quarter	57	29	14	7.91	0.39
3rd Quarter	55	31	14	8.15	0.41
4th Quarter E	52	35	13	8.47	0.62
Year E	55%	31%	14%	\$8.15	\$0.48
1977					
1st Quarter E	51%	36%	13%	\$8.60	\$0.50
2nd Quarter E	49	38	13	8.68	0.77
3rd Quarter E	48	39	13	8.90	0.75
4th Quarter E	46	41	13	9.18	0.63
Year E	48%	39%	13%	\$8.84	\$0.69

E = Estimated

TABLE 4, U.S. NATURAL GAS PRICES

The average wellhead price of U.S. natural gas rose to an estimated 58¢ per thousand cubic feet last year from 44¢ in 1975. Second half 1976 figures may understate actual realizations because some companies have not made figures available to reflect benefits of Federal Power Commission Order 770-A. The average domestic gas price should rise to 70-75¢ per MCF this year due mainly to a full year impact of 770-A and the effect of higher priced emergency sales on both interstate and intrastate prices. If price controls are removed on new gas, the figure would probably be higher.

Table 4
U.S. NATURAL GAS PRICES
(Cents Per MCF)

	Price at <u>Wellhead</u>	<u>Year-to-Year Increase</u>	
		<u>Cents Per MCF</u>	<u>Percent</u>
1975			
1st Quarter	38¢	13¢	52%
2nd Quarter	41	13	46
3rd Quarter	45	12	36
4th Quarter	<u>47</u>	<u>16</u>	<u>44</u>
Year	44¢	14¢	46%
1976			
1st Quarter	54¢	16¢	42%
2nd Quarter	56	15	37
3rd Quarter	59	14	21
4th Quarter	<u>63 E</u>	<u>11</u>	<u>21</u>
Year	58¢ E	14¢	32%

E = Estimated

TABLE 5, SELECTED U.S. OIL PRODUCT PRICES

Using normally meaningful Oil & Gas Journal spot quotations, average U.S. gasoline prices rose about 10% last year, distillates also 10%, and heavy fuel oil 3%. Platt's Oilgram, which compiles monthly figures on gasoline prices, showed a 9% year-to-year increase at the dealer tank wagon level, reflective of oil company experience, and a 4% gain at service stations. Dealers tolerated about a 1¢ a gallon decline in margins during 1976. Confirming these comparisons one major company had a 9% (3.2¢ a gallon) year-to-year increase in gasoline and an 11% (3.1¢ a gallon) increase in distillates. Further price improvement toward the upper end of a 5-10% range appears likely in 1977. The fuel oils are thus far benefitting from heavy usage brought about by cold weather. And, gasoline has recently shown contra-seasonal improvement, a quirk in price controls which focuses higher prices in periods immediate following crude oil price increases.

Table 5
SELECTED U.S. OIL PRODUCT PRICES
(Cents Per Gallon)

	Oil & Gas Journal			Platt's Oilgram	
	Average		N.Y. Harbor Barge (0.3%) Heavy Fuel Oil	Regular Gasoline	
	Mid-Continent Spot	Distillate		Dealer Tank Wagon	Station Price
1975					
1st Quarter	29.9¢	26.3¢	31.4¢	32.3¢	54.0¢
2nd Quarter	30.4	25.6	30.7	34.4	55.6
3rd Quarter	35.3	26.7	30.6	38.0	59.6
4th Quarter	<u>35.4</u>	<u>29.8</u>	<u>30.9</u>	<u>38.4</u>	<u>59.6</u>
Year	32.7¢	27.1¢	30.9¢	35.8¢	57.2¢
1976					
1st Quarter	34.9¢	30.0¢	32.0¢	37.2¢	58.0¢
2nd Quarter	35.1	28.9	30.6	37.8	58.3
3rd Quarter	37.5	29.6	31.3	40.5	60.5
4th Quarter	<u>37.0</u>	<u>31.0</u>	<u>32.7</u>	<u>40.5</u>	<u>60.8</u>
Year	36.1¢	29.9¢	31.7¢	39.0¢	59.4¢
% 1975-1976 Incr.					
1st Quarter	17%	14%	2%	15%	7%
2nd Quarter	15	13	0	10	5
3rd Quarter	6	11	2	7	2
4th Quarter	<u>5</u>	<u>4</u>	<u>6</u>	<u>5</u>	<u>2</u>
Year	10%	10%	3%	9%	4%
1977					
Recent	37.0¢	33.8¢	38.3¢	40.4¢	60.7¢
% 1976-1977 Incr.					
Recent vs. 1st Qtr.	6%	11%	20%	9%	5%

TABLE 6, ESTIMATED U.S. REFINING MARGINS

Domestic refining margins improved by an estimated pretax \$0.60-0.65 a barrel last year, a development which was dramatically apparent in the profitability of many domestic oil companies. However, year-to-year improvement diminished toward the end of 1976. Our price column reflects weekly mid-continent figures published by the *Oil & Gas Journal*, these being weighted to reflect seasonal changes in refinery yields. Average crude oil costs are compiled by the Federal Energy Administration and bear the burden of a considerable time lag. This year is starting out with a *normal* 1976 indicated margin. Domestic refinery utilization at around 90% is high enough to support generally favorable cost recovery experience. We doubt nevertheless that margins will improve significantly in 1977 as they did last year.

Table 6
ESTIMATED U.S. REFINING MARGINS
(\$ Per Barrel)

	Weighted Mid-Continent Prices	Average Crude Costs	Indicated Margin
1975			
1st Quarter	\$11.83	\$ 9.83	\$2.00
2nd Quarter	11.90	9.98	1.92
3rd Quarter	13.29	10.72	2.57
4th Quarter	<u>13.64</u>	<u>10.96</u>	<u>2.68</u>
Year	\$12.67	\$10.38	\$2.29
1976			
1st Quarter	\$13.50	\$10.58	\$2.92
2nd Quarter	13.50	10.68	2.82
3rd Quarter	14.22	10.94	3.28
4th Quarter	<u>14.20</u>	<u>11.50E</u>	<u>2.70E</u>
Year	\$13.85	\$10.93E	\$2.92E
Incr./(Decr.)			
1975-1976			
1st Quarter	\$ 1.67	\$ 0.75	\$0.92
2nd Quarter	1.60	0.70	0.90
3rd Quarter	0.93	0.22	0.71
4th Quarter	<u>0.56</u>	<u>0.54E</u>	<u>0.02E</u>
Year	\$ 1.18	\$ 0.55E	\$0.63E
1977			
Recent	\$14.69	\$11.75E	\$2.94 E
Incr./(Decr.)			
1976-1977			
Recent vs. 1st Qtr.	\$1.19	\$ 1.17	\$0.02 E

E = Estimated.

TABLE 7, ROTTERDAM CARGO QUOTATIONS

Prices in the volatile Rotterdam cargo market, often a harbinger of international oil company price experience, rose 7-15% in 1976, but individual products exhibited contrasting trends. Gasoline, a buoyant item in early 1976, turned weak, and heavy fuel oil recovered sharply but has leveled. These adjustments at least temporarily mitigate the yield imbalance problem faced by European refiners during 1975 and much of last year. Previously, refiners could not supply an adequate amount of gasoline without making too much fuel oil. Demand trends for gasoline and heavy fuel oil are now more closely in tandem. Major company European realizations followed slightly different patterns. One firm experienced a 2% year-to-year increase in gasoline and 6% in gasoil, a decrease of 2% in heavy fuel oil, and a 2% increase overall. However, heavy fuel was up 15% in the fourth quarter and gasoline only 4%. In view of surplus refinery capacity approaching 30% in Europe and 25% in Japan, we believe it will be difficult for the industry to maintain refinery margins during 1977 in face of an assumed 7 1/2% OPEC crude price increase.

Table 7
ROTTERDAM CARGO QUOTATIONS
(\$ Per Metric Ton)

	<u>Regular Gasoline</u>	<u>Gasoil</u>	<u>Higher Sulphur Fuel Oil</u>
1975			
1st Quarter	\$110	\$ 84	\$70
2nd Quarter	124	96	65
3rd Quarter	120	108	57
4th Quarter	<u>125</u>	<u>110</u>	<u>55</u>
Year	\$120	\$100	\$62
1976			
1st Quarter	\$132	\$104	\$66
2nd Quarter	142	106	65
3rd Quarter	141	108	67
4th Quarter	<u>137</u>	<u>110</u>	<u>74</u>
Year	\$138	\$107	\$68
Incr./Decr.)			
1975-1976			
1st Quarter	20%	23%	(6)%
2nd Quarter	14	10	0
3rd Quarter	18	0	18
4th Quarter	<u>10</u>	<u>0</u>	<u>35</u>
Year	15%	7%	10%
1977			
Recent	\$131	\$121	\$78
Incr./Decr.)			
1976-1977			
Recent vs. 1st Qtr.	(1)%	16%	18%

TABLE 8, LANDED PRICES OF CRUDE OIL IMPORTS IN SELECTED COUNTRIES

Landed prices of imported crude oil are estimated to have risen 5% in Europe and 7% in Japan during 1976. The European 5% increase was greater than the 2% previously mentioned improvement in realizations of one representative firm, and overseas margin pressure was evident in international oil company results last year. At that, the landed crude oil price increases were partly tempered by a decline in ocean freight costs, as illustrated by Table 8.

Table 8

**LANDED PRICES OF CRUDE OIL
IMPORTS IN SELECTED COUNTRIES
(\$ Per Barrel)**

	<u>Western Europe</u>					<u>Japan</u>
	<u>France</u>	<u>Italy</u>	<u>U.K.</u>	<u>W. Germany</u>	<u>Average</u>	
1975	\$12.42	\$11.90	\$11.73	\$12.42	\$12.12	\$11.86
1976						
1st Quarter	\$12.92	\$11.38	\$12.68	\$13.41	\$12.60	\$12.67
2nd Quarter	12.85	12.47	12.19	13.14	12.66	12.62
3rd Quarter	12.73	12.65E	12.66	13.37	12.85	12.69
4th Quarter	<u>12.90E</u>	<u>12.80E</u>	<u>12.65E</u>	<u>13.50E</u>	<u>12.96E</u>	<u>12.75E</u>
Year	\$12.85	\$12.35	\$12.55E	\$13.35E	\$12.75E	\$12.70E
1975-1976						
Increase	3%	4%	7%	7%	5%	7%

E = Estimated

TABLE 9, AVERAGE FREIGHT RATE ASSESSMENTS

These figures reflect average transportation costs, rather than the far more volatile and currently lower spot market. Averages have declined rather consistently since late 1975. The 1975-1976 decline of 7-8 percentage points is equivalent to about \$0.15 a barrel between the Persian Gulf and Northwest Europe. We expect average tanker rates to slip somewhat further in the present environment of chronic surplus.

Table 9
AVERAGE FREIGHT RATE ASSESSMENTS
(% of Worldscale)

	Persian Gulf -West		
	Large 1 (45,000-79,900 dwt)	Large 2 (80,000-159,900 dwt)	Large 3 (160,000 dwt+)
1975			
1st Quarter	81	62	55
2nd Quarter	82	63	57
3rd Quarter	85	63	58
4th Quarter	<u>85</u>	<u>62</u>	<u>58</u>
Year	84	63	57
1976			
1st Quarter	78	58	52
2nd Quarter	76	58	51
3rd Quarter	78	57	50
4th Quarter	<u>76</u>	<u>55</u>	<u>48</u>
Year	77	57	50
1977			
Recent	75	54	47

RR-77-32

-Research Department-

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CLAYTON, MO	LOS ANGELES	PHILADELPHIA	TROY, MI	CARACAS	ZURICH

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RESEARCH WIRE

February 16, 1977

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Natural Gas Delivery Curtailments Which Industries May Suffer?

Now that virtually all gas storage facilities are depleted, natural gas deliveries to homes, small commercial establishments and industries for plant protection only are being maintained by curtailing deliveries to large commercial customers (such as schools) and industrial users.

The nation's entire economy will suffer from the curtailed deliveries but certain industries using large volumes of gas will suffer from reduced production more than others. The American Gas Association tabulates sales by its member companies to standard industry classifications. We have summarized this data in the following table so investors can better pinpoint possible areas of weakness in their portfolios.

Types of Establishment	Standard Industrial Classification	1975 sales (Trillions of BTU)	
		1975	% of total
Agriculture, forestry and fisheries	01-09	50	0.7%
Petroleum and natural gas production and mining	10-14	133	2.0%
Electric Generation	491, 493	1,685	25.2%
Other transport, communic. and pub. util. (excluding resale)	40-49	96	1.4%
Hotels, rooming houses, camps	70	78	1.2%
Laundries, cleaning and dyeing	721	24	0.4%
Other services	722-899	237	3.5%
Other non-manufacturing	15-17, 50-67	188	2.8%
Food and kindred products (processing, canning, etc.)	20	339	5.1%
Textile Products, apparel, fabrics, etc.	22, 23	55	0.8%
Furniture, lumber and other products	24, 25	61	0.9%
Paper and allied products	26	268	4.0%
Carbon black and lamp black	2895	38	0.6%
Chemicals and allied products (excluding Carbon black & Lamp black)	28	887	13.3%
Petroleum refining	291	515	7.7%
Rubber products	30	45	0.8%
Glass products	321-323	174	2.6%
Cement	324	158	2.4%
Clay products, pottery, etc.	325-326	110	1.6%
Other stone products and miscellaneous	327-329	97	1.5%
Primary Iron and steel ind. (ingots, sheets, rods, etc.)	331, 332, 3391	556	8.3%
Primary non-ferrous ind. (ingots, sheets, rods, etc.)	333-339	276	4.1%
Fabricated metal products, mach., equip. and supplies	34-36	277	4.1%
Transportation equipment	37	140	2.1%
Other manufacturing (excluding line 17)	21, 27, 29, 31, 38, 39	122	1.8%
Public Administration	91-97	72	1.1%
TOTAL		6,678	100.0%

Source: American Gas Association

Lrd./01/31

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The Federal Power Commission has prescribed the following priority-of-service categories for use by pipeline companies during periods of curtailed deliveries.

- Priority i) Residential, small commercial (less than 50 MCF on a peak day).
- ii) Large commercial requirements (50 MCF or more on a peak day), firm industrial requirements for plant protection, feedstock and process needs, and pipeline customer storage injection requirements.
 - iii) All industrial requirements not specified in (ii), (iv), (v), (vi), (vii), (viii), or (ix).
 - iv) Firm industrial requirements for boiler fuel use at less than 3,000 MCF per day, but more than 1,500 MCF per day, where alternate fuel capabilities can meet such requirements.
 - v) Firm industrial requirements for large volume (3,000 MCF or more per day) boiler fuel use where alternate fuel capabilities can meet such requirements.
 - vi) Interruptible requirements of more than 300 MCF per day, but less than 1,500 MCF per day, where alternate fuel capabilities can meet such requirements.
 - vii) Interruptible requirements of intermediate volumes (from 1,500 MCF per day through 3,000 MCF per day), where alternate fuel capabilities can meet such requirements.
 - viii) Interruptible requirements of more than 3,000 MCF per day, but less than 10,000 MCF per day, where alternate fuel capabilities can meet such requirements.
 - ix) Interruptible requirements of more than 10,000 MCF per day, where alternate fuel capabilities can meet such requirements.

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Basic Report

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March 4, 1977

STANDARD OIL OF OHIO (SOH)

Price (NYSE)	Dividend	EPS (December)	P/E
Current: 83	Rate: \$1.36	1977E: \$5.70	14.6X
Range (1976-1977): 85-61	Yield: 1.6%	1976: \$3.55	23.4X
		1975: \$3.42	24.3X
Average Shares Outstanding:	38.5 million	Return on Average 1976 Equity:	9.1%
Market Value:	\$3,196 million	Book Value Per Share (12/31/76):	\$37.76

OPINION

If Alaskan North Slope oil production from Prudhoe Bay proceeds on schedule, Standard Oil of Ohio will undergo a metamorphosis in 1977, becoming the second largest U.S. crude oil producer, almost from scratch. As a result, earnings per share should rise rapidly over the next several years to an estimated \$14.50-15.00 in 1978 and \$16.00-17.00 in 1981, from \$3.55 in 1976, the best rate of growth that we anticipate for any major oil company. Although Alaskan tax policy remains aggressive, the profit margin on Prudhoe Bay oil production should hold over time in a \$1.75-2.50 a barrel range, or even improve somewhat with rising world crude prices and better logistics. In this respect, the situation may be analogous to the North Sea where the size of the pie has increased faster than governmental slices. With initial Prudhoe Bay production imminent after much uncertainty, we now recommend purchase of Sohio, a change from earlier caution reflecting concern over future state taxation.

PRUDHOE BAY PRODUCTION

Production of crude oil from the Prudhoe Bay field should begin this summer. Natural gas deliveries will be delayed for several years pending complex transportation routing decisions and actual construction of the pipeline. Prior to production, gas will be reinjected to maintain pressure.

Completion Of The Trans Alaskan Pipeline

The Trans Alaska Pipeline System (TAPS) is virtually complete. Of the original five contractors, two (Associated-Green and Alaska International Construction) have been retained to work primarily on restoration and rehabilitation of land adjoining TAPS. About 160 miles of the 800 mile line remain to be hydrostatically tested, mostly in the northern

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portion. This procedure involves filling a section of the line with water at 125% of maximum operating pressure (or 750 p.p.s.i. if greater) for a period of 24 hours. In addition, about 45 miles in the middle part of the line must be insulated, and 36 of an originally questionable 3,955 pipeline welds still may need repair. All of these mop-up tasks can be completed by spring. The U.S. Interior Department must then rule whether the pipeline complies with specifications. In this regard, it has commissioned Lester Witte Co., a Chicago accounting firm, to review previous audits for the purpose of determining if a radiographic film exists for each weld. Approval of startup must also be granted by the state of Alaska, which will concern itself with both safety and tariff.

Assuming that these steps occur in orderly sequence, which we consider probable, oil production into the pipeline will begin during July at a rate of 600,000 barrels a day. When full, the line will contain some 10 million barrels of crude oil, and initial shipments from the southern terminus of the system at Valdez will begin about Labor Day or later in September. With the addition of three pump stations to the original five, pipeline throughput will be raised to 1,200,000 barrels a day by the end of 1977.

TAPS consists of undivided interests held by Sohio at 33.34%, British Petroleum 15.84%, Atlantic Richfield 21%, Exxon 20%, Mobil 5%, Union Oil and Phillips Petroleum each 1.66%, and Amerada Hess 1.5%. Under the TAPS agreement, any participant may propose raising design capacity of the line to 2,000,000 barrels a day from 1,200,000 barrels a day currently. Any intermediate volume would require an amendment to the TAPS agreement. Sohio believes that the main Prudhoe Bay reservoir can sustain production of 1,500,000 million barrels a day for 6-8 years before declining. Accordingly, we believe an intermediate level will be opted, but timing is uncertain, partly due to limited U.S. flag tanker capacity to transport Alaskan oil beyond West Coast destinations. Oil has also been tested from the deeper Lisburne zone on the eastern side of Prudhoe Bay and both upper and lower Cretaceous zones on the western side. Development of these prospects could later support expansion of the line to 2,000,000 barrels a day.

North Slope Oil Volume

Although a unitization agreement still has not been reached, Sohio believes it will have 53-54% of the oil from the main Prudhoe Bay Pool. Its estimated share of natural gas reserves is a lesser 26%. Sohio will be entitled to all of 53-54% of main reservoir Prudhoe Bay production up to a gross rate of 686,000 barrels a day. Above this level it has 25% of the increment, the other 75% accruing to British Petroleum. Accordingly, Sohio's share at various levels of output would be as follows.

600,000 Barrels a Day

Sohio's Share = 321,000 BD (117 million barrels annually)

1,200,000 Barrels a Day

Sohio's Share = 642,000 BD (234 million barrels annually)

1,500,000 Barrels a Day

Sohio's Share = 686,000 BD

+ 25% of 117,000 BD = 29,000 BD
715,000 BD (261 million barrels annually)

MARKETING OF PRUDHOE BAY OIL

Exports of Prudhoe Bay oil are prohibited by the Trans Alaska Pipeline Authorization Act. With this constraint, marketing the oil presents major logistical problems, particularly for Sohio which has no West Coast refineries. If imports were displaced, the West Coast could absorb up to 1,200,000+ barrels a day of North Slope oil. However, Prudhoe Bay oil has quality characteristics of 26° API gravity and 1.2% sulphur which are not suitable for refining in many West Coast plants.

Present refining capacity for West Coast states included in Petroleum Administration District V is listed by the American Petroleum Institute at 2,702,000 barrels per day, and utilization has recently been about 2,265,000 BD, of which roughly 1,100,000 BD is produced in the United States and the balance imported. A breakdown of crude by principal sources is shown in the table below, along with our projection of supply-demand balance through 1980. We have assumed that refinery input will grow 4% annually after 1976.

WEST COAST SUPPLY - DEMAND
(Thousand Barrels Daily)

	1975	1976	1977	Estimated		
				1978	1979	1980
Refinery Input	1,974	2,080	2,165	2,250	2,340	2,435
U.S. Crude Oil	1,085	1,065	1,095	1,130	1,165	1,205
California	885	885	835	985	1,035	1,085
Southern Alaska	191	170	150	135	120	110
Other	9	10	10	10	10	10
Imported Crude Oil	852	980	885	480	435	400
Indonesia	295	365	375	375	375	375
Saudi Arabia	96	175	195	40	30	25
Iran	106	100	55	0	0	0
Canada	164	90	60	40	20	0
U.A.E.	50	85	75	0	0	0
Other	141	165	125	25	0	0
Other	37	35	35	35	35	35
Balance for North Slope	0	0	150	605	705	795
Estimated North Slope Availability	0	0	150	1,200	1,200	1,500
North Slope Oil Surplus to West Coast	0	0	0	595	495	705

Sohio will be unable to sell all, or even a major portion, of its Prudhoe Bay oil on the West Coast during 1978. Assuming gross output of 1,200,000 barrels a day, the company will be marketing about 642,000 BD, as calculated earlier. Atlantic Richfield has West Coast refinery capability for its 20% offtake of 240,000 BD, Exxon for 75,000 - 100,000 BD, and others for their combined 75,000 BD share. Accordingly, if the West Coast can absorb 600,000 - 700,000 BD in total, Sohio would be constrained to about 200,000 - 300,000 BD in District V, with the balance to move elsewhere. There are several possibilities.

- (1) **Through the Panama Canal to the Gulf Coast.** Here, the limitation is U.S. flag tanker capacity, an irony considering the world tanker glut. The Merchant Marine Act of 1920 requires the use of U.S. flag vessels for shipments between domestic ports. By mid-1978, Sohio will have 1,896,000 deadweight tons of U.S. flag tankers available, unless further arrangements can be made. About 650,000 dwt of this fleet would be required to move 300,000 BD to the West Coast, leaving 1,250,000 dwt for the Panama Canal run. Such capacity could accommodate about 200,000 BD on this longer route. Sohio would be left to dispose of an additional 140,000 - 145,000 barrels a day.
- (2) **West Coast - Midcontinent Pipeline System.** Sohio has been working since May 1975 on a proposal to transport North Slope oil from Long Beach, California to Midland, Texas. Under this plan an El Paso Company natural gas line from Jal, New Mexico to the California border and a Pacific Lighting gas line from the California border to a point 80 miles east of Long Beach would both be reversed and converted to oil. "Abandonment" of the El Paso portion has not yet been approved by the Federal Power Commission. However, the principal obstacle is opposition by the California Air Resources Board on the basis of impact on air quality. This matter is complex and may take some time to resolve. In addition, environmental impact statements are being completed by the U.S. Department of Interior and the state of California, and these must withstand possible court challenges. The Long Beach - Midland line could commence operations at 350,000 barrels a day 12 - 14 months after approval and could be expanded to 500,000 barrels a day 5 months later. It therefore seems unlikely that this system will be available in 1978 or that it can be counted on at all to move North Slope oil during early years of production.
- (3) **Exchange Alaskan Oil with Japan.** This alternative is presently precluded by the Trans Alaska Pipeline Authorization Act. However, Presidential recommendation and Congressional approval could change this situation. Such action may be politically preferable to surplus Alaskan producing capacity.

PROFITABILITY OF ALASKAN OPERATIONS

Sohio's Alaskan production should average about 320,000 barrels a day during the final 5-6 months of 1977, totaling about 55 million barrels. Because of volume required to fill the pipeline, however, actual sales are likely to be a lesser 35 million barrels. Sales will be recorded when the oil is loaded on tankers at Valdez. In 1978, we expect Sohio to produce and sell approximately 640,000 barrels a day, or 235 million barrels. Timing of pipeline expansion to

some higher level is conjectural at this stage, but we will assume that volume reaches 1,500,000 barrels a day in 1980 or 1981, with Sohio's share 715,000 barrels a day or 260 million barrels.

Landed Price

The Energy Policy and Conservation Act of December 1975 provides that the President will set the price of North Slope oil by April 15, 1977 subject to Congressional review, the only proviso being that it not exceed the price of any other significant classification of U.S. crude. With stripper crude currently selling at about \$14.00 a barrel, the EPCA requirement will not be a constraining factor. Rather, Prudhoe Bay crude will probably be sold on the West Coast at parity with imported oil of similar quality, if it is treated similarly for entitlement purposes. We believe this figure will be about \$12.75 a barrel. In view of Saudi Arabian influence over the world price structure, we expect the North Slope landed price to rise in the future at a rate which would at least offset cost inflation. This conjecture could of course be altered by Federally administered pricing.

Ocean Freight

Transportation of North Slope oil from Valdez in southern Alaska to the West Coast will cost \$0.65-0.85 a barrel, depending on tanker size and precise destination. For oil that moves through the Panama Canal to the Gulf Coast, ocean freight will be an estimated \$2.50 a barrel.

TAPS Tariff

Sohio's 33.34% share of the cost of the Trans Alaska Pipeline is about \$3,100 million including \$500 million of capitalized interest. The tariff will be based on net income at roughly 6-7% of investment plus actual costs. We have assumed 6% in 1978-1979 and 7% in 1980-1981. The Interstate Commerce Commission, which will have jurisdiction over the tariff, requires that tax benefits from accelerated depreciation and investment tax credits be flowed through. TAPS will generate an investment tax credit of approximately \$260 million for Sohio (10% of \$2,600 million). For tariff purposes, Sohio will be allowed to spread this benefit over five years. We assume that TAPS will be expanded to 1,500,000-1,600,000 BD by 1981 at an additional cost to Sohio of about \$270 million assuming that it maintains a 33.34% interest. Interest costs are estimated at 10% of debt, and depreciation is over 30 years. For tax purposes, however, accelerated depreciation under sum of digits retires 6½% in the first year and 5¼% in the third. Ad valorem taxes are 2% of pipeline value. Sohio's share of the throughput for tariff purposes is 67.8% (32.2% accountable to British Petroleum) of the 53-54% Sohio-BP portion of total.

CALCULATION OF SOHIO'S TAPS TARIFF
(\$ Millions)

	<u>1978-1979</u>	<u>1980-1981</u>
Net Income at 5-6%	180	210
Federal Taxes	166	194
State Taxes	36	42
Interest	260	285
Depreciation	75	83
Amortization of Capitalized Interest	25	27
Ad Valorem Taxes	52	57
Operating Costs	<u>25</u>	<u>30</u>
Unadjusted Revenues	819	928
Less		
Tax Benefit of Accelerated Depreciation	(49)	(47)
I.T.C.	<u>(52)</u>	<u>(52)</u>
Revenue for Tariff Purposes	718	829
Gross Throughput	1,200,000 BD	1,500,000 BD
Sohio's Share for Tariff Purposes	435,000 BD	545,000 BD
Annual	159 million	199 million
Tariff Per Barrel	\$4.52	\$4.17

Trans Alaska Pipeline Liability Fund

A fee of 5¢ a barrel is collected at Valdez.

Depreciation of Production Investment

Investment in production facilities is estimated at \$1,780 million. Sohio-BP crude reserves are approximately 4,925 million barrels. On a unit of production basis, depreciation would be \$0.36 a barrel. Amortization of capitalized interest should be about \$0.10 a barrel.

Lifting Costs

Present estimates are that lifting costs will be \$0.30 a barrel.

Interest Expense

Borrowings related to production facilities entail annual interest expense of about \$75 million. Unit cost would be \$0.30-0.35 in 1978. We assume that much of this debt will be retired by 1981, and interest expense will drop then to about \$0.10 a barrel.

Alaskan Levies

The state of Alaska collects a 12% royalty on the wellhead, a severance tax after royalty that is currently proposed to rise to 12.25% from 7.77% on per well output of 10,000 BD typical of Prudhoe crude, and a proposed 9.36% value tax. The Alaskan legislature is currently considering a severance tax increase as follows.

<u>Per Well Output (BD)</u>	<u>Present Tax</u>	<u>Proposed Tax</u>
0- 100	5%	0%
101- 300	5	4
301-1,000	6	6
1,001-1,500	8	9
1,501-3,500	8	11
3,501 and above	8	14
Weight average on 10,000 BD Well	7.77%	12.25%

The proposed value (franchise) tax would replace a state income tax nominally for the same amount but subject to reduction for out of state expenses. We assume that both measures will pass. The controversial "excess value" tax, tabled last year, is not before the current session.

Estimated Alaskan Unit Production Profits

The profit forecasts are derived from major assumptions discussed above. Estimates are in two categories, one for oil sold on the West Coast and the other for oil moved through the Panama Canal. Unless exchanges with Japan are allowed, we expect that about one-third of the oil will move to the West Coast, and the balance through the Panama Canal. We have assumed landed prices of \$12.75 a barrel in 1978 and 1979, and \$14.50 in 1980 and 1981, both figures possibly conservative.

	<u>West Coast</u>		<u>Gulf Coast via Panama Canal</u>	
	<u>Per Barrel</u>			
	<u>1978-79</u>	<u>1980-81</u>	<u>1978-79</u>	<u>1980-81</u>
Landed Price	12.75	14.50	12.75	14.50
Ocean Freight	0.75	0.90	2.50	3.00
Pipeline Tariff	4.52	4.17	4.52	4.17
Valdez Fee	0.05	0.05	0.05	0.05
Wellhead Price	7.43	9.38	5.68	7.28
Royalty	0.93	1.17	0.71	0.91
Severance Tax	0.80	1.01	0.61	0.78
Lifting Costs	0.30	0.40	0.30	0.40
Depreciation	0.36	0.36	0.36	0.36
Amortization of Capitalized Interest	0.10	0.10	0.10	0.10
Pre-Interest and Tax	4.94	6.34	3.60	4.73
Interest	0.32	0.10	0.32	0.10
Pre-tax	4.62	6.24	3.28	4.63
State Income Tax	0.43	0.58	0.31	0.43
Federal Income Tax	2.01	2.72	1.43	1.02
Net Income	2.18	2.94	1.54	2.18

PROSPECTS FOR NON-ALASKAN OPERATIONS

A profile of Sohio's present petroleum, chemical, and coal operations is shown below.

DIVISIONAL EARNINGS (\$ in Thousands)

	<u>1975</u>	<u>1976</u>	<u>1977E</u>
Petroleum	84.2	155.6	175.0
U.S.	62.1	142.3	160.3
Foreign	22.1	13.3	15.0
Chemicals & Plastics	54.2	46.9	50.0
Coal	52.1	32.4	35.0
Royalties	21.0	1.9	20.0
Other	(2.7)	(1.0)	5.0
Unallocated Corporate	(2.0)	0.2	--
Total Operating Profit	206.8	235.4	285.0
Net Interest Expense	19.8	42.5	
Income Tax	60.4	56.0	
Net Income	126.6	136.9	

U.S. Petroleum (60% of 1976 Total)

Petroleum profits recovered sharply in 1976 and should rise moderately further this year. In 1975, domestic refining and marketing was essentially on a break-even basis, with production providing virtually all of the \$62 million in operating profits (including a \$6 million capital gain). Although production profits were up slightly last year as a result of higher crude oil and natural gas prices, refining-marketing accounted for virtually all of the \$80 million increase in U.S. petroleum operating profits. Product sales rose to 404,000 barrels a day from 351,000 barrels a day, and crude runs to refineries to 405,000 BD from 364,000 BD. Refinery utilization was 94% versus 84%. Operating income also benefited last year by \$6 million from lower inventories on a LIFO accounting basis.

We anticipate that operating profits in this segment will improve \$15-20 million in 1977 despite the absence of the \$6 million inventory gain. Although relatively small in aggregate, natural gas operating results should rise by \$5-10 million this year as a result of 5-6 million CFD new production from the Madden field in Wyoming and higher average prices. Increasing prices could also contribute about \$5 million from modest company crude oil output. Refining-marketing profitability could, as always, swing over a wide possible range. However, current conditions are unusually stable, reflecting above average refinery utilization East of the Rockies. We consequently look for moderate downstream improvement this year. Volume should be up about 5% and margins at least as good as 1976.

Foreign Petroleum (5%)

The operating profit of \$13.3 million in 1976 consists almost entirely of taxes paid to

the Iranian government. Contribution of Iranian oil to net income was less than \$1 million. We expect no particular change.

Chemicals and Plastics (20%)

This segment is a composite of anhydrous ammonia and mixed fertilizer, acrylonitrile and related catalysts, and fabricated plastics. Fertilizer contributed operating profits of roughly \$35 million in 1975 and \$20 million in 1976; chemicals, \$17 million in 1975 and \$27 million in 1976. Fertilizer was hurt last year by lower ammonia prices. Acrylo operations benefitted in 1976 from plant utilization of 90% compared with 72% in the previous year. Although prices have recovered recently, fertilizer operations are hampered by inability to get adequate natural gas as raw material for ammonia, and we look for 1977 profits to be about the same as last year. Chemical volumes should continue to improve, and earnings are likely to be up 10-15%.

Coal (14%)

Sohio's coal operations suffered in 1976 from lower prices. Operating profits and margins over the past several years are shown below (figures in thousands).

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Operating Income	\$12,722	\$11,577	\$12,373	\$31,546	\$52,083	\$32,363
Tonnage	10,483	11,236	11,461	9,450	9,200	9,100
Operating Income Per Ton	\$1.21	\$1.03	\$1.08	\$3.33	\$5.66	\$3.56

Coal margins have been hurt partly by sales since late 1975 from a new surface mine in Indiana. Long-term contractual terms for this output had been arranged before the post-1973 surge in coal prices, and unit profitability, while not disclosed, is understood to be lower than present norms. Moreover, the 1975-1976 comparison was adversely affected by a sharp decline in the price of high volatile metallurgical coal which is exported to Japan from a mine in Virginia. The company's total coal production could rise to 12 million tons this year, including 3 million tons from the Indiana mine and initial shipments from a new underground facility in Illinois which is scheduled to reach capacity of 4.5 million tons in 1981. However, we believe that actual 1977 production will be a lesser 10.5 million tons due to probabilities of labor disruptions during the United Mine Workers election in June and a strike following termination of the present three year UMW contract in December. Considering these particularly unsettled labor conditions, we expect that 1977 coal operating profits will come out at the lower end of a possible \$35-45 million range. Results in 1978 should improve significantly.

Royalties (1%)

Royalty income is primarily on a paid up basis for licensing of the company's patented acrylonitrile process. In recent years, licensing fees have swung sharply from a high of \$41 million in 1974 to a low of \$2 million last year. First quarter 1977 results have already benefitted from a single payment license of \$7 million, and full year income could be in a wide spread of \$15-30 million. We are assuming \$20 million in 1977. Earlier hopes for large scale usage of acrylonitrile based resins in the plastic soft drink container market have not materialized.

Other

This category was helped last year by improvement in 49%-owned affiliate Hospitality Motor Inns. A more meaningful gain in the "Other" segment should occur this year from sales of uranium concentrate out of a 50% interest mill near Albuquerque, New Mexico. Sohio's share of concentrate output should be 500,000-700,000 pounds in 1977.

FIVE YEAR EARNINGS OUTLOOK

The following projections summarize profit prospects by major areas of activity, as each was discussed earlier. As indicated, earnings per share should jump to a \$13.00-17.00 a share range during 1978-1981, compared with the recent \$3.50 a share general level. During 1977 we assume that Sohio will sell 35 million barrels of Alaskan crude. However, the pipeline will make a very modest contribution until throughput reaches 1,200,000 barrels a day towards year end. Early in Alaskan production, net profits will benefit from substantial investment tax credits which could not be used previously due to the 50% of tax liability limitation. For this reason, actual i.t.c.s could vary from estimates. However, crude oil transportation costs are also likely to be the highest during this initial phase, as an offsetting factor. The myriad marketing possibilities for North Slope crude complicate the task of profit forecasting. For working purposes, we have assumed that one-third of Sohio's crude will find a home on the West Coast and the balance will move through the Panama Canal, clearly somewhat arbitrary. If exchanges with Japan are permitted and/or the West Coast/Midcontinent pipeline materializes, unit profitability would improve. In this respect, our estimates are probably conservative. On the other hand, we have not allowed for harsher Alaskan tax legislation beyond what is already being considered by the state legislature. And, our price assumptions will need periodic review. Thus, present estimates may require changes in either direction as time goes on. Common shares increase because of British Petroleum's growing interest in Sohio as Prudhoe Bay production rises.

	Actual 1976	1977	1978	1979	1980	1981
	----- \$ Millions -----					
Operating Profit						
Alaskan Oil	--	165	950	950	1,370	1,370
TAPS	--	50	640	640	730	730
Other Petroleum	156	160	175	190	175	180
Chemicals & Plastics	47	50	55	55	60	65
Coal	32	35	45	50	55	60
Royalties	2	20	15	15	15	15
Miscellaneous	(2)	5	5	5	5	5
Total	235	485	1,885	1,905	2,410	2,425
Interest	42	150	415	400	385	370
Pretax	193	335	1,470	1,505	2,025	2,055
Alaskan Tax	--	15	140	145	190	195
Federal Tax	92	150	640	650	880	890
Investment Tax Credit	(36)	(75)	(200)	(75)	(25)	(50)
Net Income	137	245	890	785	980	1,020
Average Shares	38.5	43.0	60.0	60.0	61.0	61.0
Earnings Per Share	\$3.55	\$5.70	\$14.80	\$13.05	\$16.05	\$16.75
Alaskan Oil	--	1.35	6.80	6.80	10.30	10.30
TAPS	--	0.10	3.00	3.00	3.45	3.45
Other Operations	2.60	2.50	1.65	2.00	1.90	2.20
I.T.C.	0.95	1.75	3.35	1.25	0.40	0.80

White, Weld & Co.

Incorporated

The table on this page of the March 4 Standard Oil of Ohio report contained an inadvertent over-estimate of Trans Alaska Pipeline profits.

Please substitute this corrected version.

Philip L. Dodge

Other

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	Actual 1976	1977	1978	1979	1980	1981
	----- \$ Millions -----					
Operating Profit						
Alaskan Oil	--	165	950	950	1,370	1,370
TAPS	--	50	540	540	630	630
Other Petroleum	156	160	175	190	175	180
Chemicals & Plastics	47	50	55	55	60	65
Coal	32	35	45	50	55	60
Royalties	2	20	15	15	15	15
Miscellaneous	(2)	5	5	5	5	5
Total	<u>235</u>	<u>485</u>	<u>1,785</u>	<u>1,805</u>	<u>2,310</u>	<u>2,325</u>
Interest	42	150	415	400	385	370
Pretax	193	325	1,370	1,405	1,925	1,955
Alaskan Tax	--	15	130	130	180	185
Federal Tax	92	150	595	610	840	850
Investment Tax Credit	(36)	(75)	(200)	(75)	(25)	(50)
Net Income	137	245	845	740	930	970
Average Shares	38.5	43.0	60.0	60.0	61.0	61.0
Earnings Per Share	<u>\$3.55</u>	<u>\$5.70</u>	<u>\$14.10</u>	<u>\$12.35</u>	<u>\$15.25</u>	<u>\$15.95</u>
Alaskan Oil	--	1.35	6.80	6.80	10.30	10.30
TAPS	--	0.10	2.30	2.30	2.65	2.65
Other Operations	2.60	2.50	1.65	2.00	1.90	2.20
I.T.C.	0.95	1.75	3.35	1.25	0.40	0.80

Sohio's Alaskan oil profits will be extremely sensitive to the Prudhoe Bay wellhead price. Every \$1.00 a barrel change is equivalent to earnings per share of \$1.35 when gross production from Prudhoe Bay is 1,200,000 barrels a day and \$1.55 at 1,500,000 barrels a day. In our estimates, we have assumed that two-thirds of Sohio's Alaskan oil would move through the Panama Canal at an additional cost of \$1.75 a barrel. Placing this crude on the West Coast or completing the Long Beach-Midland pipeline would alone add about \$1.15 a barrel to the average wellhead price. Moreover, the West Coast landed price may rise more rapidly than we have anticipated. Saudi Arabia is currently taking a moderate approach on crude oil prices in expectation of a quid pro quo from the United States regarding Middle East policy. If the U.S. does not respond, the Saudis are likely to raise prices at a more rapid rate.

FUTURE ALASKAN TAX POLICY

State taxation of Prudhoe Bay oil is a major political issue in Alaska and will probably remain so. Alaskan officials are concerned with both financing higher levels of public spending, and, perhaps more important, establishing a fund with proceeds of North Slope oil to be available after the oil is depleted. Tax proposals submitted to the 1976 session of the Alaskan Legislature would have reduced unit profitability by about 35%. With the intervention of Governor Hammond, these measures were tabled and a committee was appointed to consider the tax situation greater length. As Chairman of the committee, Senator Croft has introduced proposals in the 1977 session of the legislature to raise the severance tax effective July 1, 1977 and modify the state income tax to eliminate out of state deductions effective January 1, 1978. The state Internal Revenue Commissioner Sterling Gallagher has also recently completed a major tax study. His recommendations are similar. The state would assess a higher severance tax with safeguards as to minimum levels. And, the 9.36% state levy on taxable income would be made inviolate.

More difficult to assess is the persistency of pressure for higher state taxes in the future. Past relationship between governmental jurisdictions and oil operations are replete with instances of governments taking higher profit shares, particularly the case since oil prices have risen so sharply in recent years. As presently constituted, the Alaskan legislature is controlled by Democrats, but power in the Senate is held by a coalition of Republicans and conservative Democrats. As long as this alignment prevails, unduly harsh tax measures seem unlikely. If oil prices continue to rise, higher taxable income from Prudhoe Bay will present an appealing target from which to extract greater state revenues. This risk should be recognized but is perhaps not intolerable. The situation may be similar to the North Sea, where governments have taken increasing percentages, but unit profits on oil have nevertheless risen. In the unlikely event that oil prices were to fall, Alaska would almost surely act to stabilize per barrel income.

ALASKAN NATURAL GAS

Prudhoe Bay natural gas reserves include an estimated 16.9 trillion cubic feet in the gas cap and 8.5 trillion cubic feet in solution with crude oil. Sohio's share is estimated to be 17% from the gas cap or 2.5 trillion cubic feet and roughly 53% from the oil rim or 4.5 trillion cubic feet for a total of 7.0 trillion cubic feet, less about 0.4 trillion cubic feet to the interest of British Petroleum. On this basis, Sohio's interest would be 6.6 trillion cubic feet, or 26% of the total. Production will be subject to a 12½% royalty and a 4% severance tax for the state.

Plans to produce Prudhoe Bay gas have encountered monumental regulatory delays. Under the Alaska Gas Transportation Act of 1976, the Federal Power Commission must recommend a route for Alaskan gas transportation by May 1, 1977. President Carter will have until September 1, 1977 to make a decision, then subject to Congressional review. On February 1, Administrative Law Judge Litt of the Federal Power Commission recommended selection of the Arctic Gas Project over El Paso Alaska and Alcan Pipeline-Northwest Pipeline. Under this alternative, Arctic gas would go via the Mackenzie Delta to both the Great Lakes area (70% of volume) and the West Coast (30%). Deliveries are projected at 2¼ billion cubic feet a day in the fifth year. Construction time would be three years following approval.

Even with the Litt recommendation, the issue is far from resolved. Both El Paso and Alcan will receive further consideration. If a Canadian route is opted by U.S. officials, extensive Canadian legal and regulatory proceedings will follow. In addition, the state of Alaska strongly favors the El Paso proposal which would carry gas through Alaska for liquefaction at Gravina Point on the southern coast, and it may exert considerable influence over the ultimate decision. The state is currently raising the possibility that oil recovery will be diminished unless substantial quantities of natural gas are reinjected over a long period of time.

Considering this complex setting, it is impossible to predict when Prudhoe Bay natural gas production will begin. For purposes of general assessment, however, Sohio would itself produce about 575 million cubic feet a day if gross output reaches 2¼ billion feet daily. Assuming a wellhead price of \$1.00 per thousand cubic feet and a unit profit of \$0.35, annual earnings per share would be \$1.20.

FINANCES

Sohio's capital outlays have risen substantially in the past several years in conjunction with Alaskan oil development.

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977E</u>
	-----\$ Millions-----				
Alaska					
Production	61	134	411	531	430
Pipeline	22	367	1,067	1,052	440
Total Alaska	83	501	1,478	1,583	870
Other	110	199	163	115	95
Total	193	700	1,641	1,698	965
Internally Generated Funds	119	172	193	200	450
Long-Term Debt	9	391	1,144	1,631	600
Common Stock	5	2	141	2	2

About \$430 million remains to be spent on Prudhoe Bay development and \$440 million on TAPS. The company has recently announced a \$250 million debenture offering which will cover about half of the remaining Prudhoe Bay requirement, and drawdowns under existing arrangements should cover the balance of TAPS financing. The company will spend about \$265 million on U.S. flag tankers in 1977. This outlay is reimbursable once charter and lease arrangements are made and is therefore excluded from capital expenditures in the table on the preceding page.

Sohio is constrained by covenants of existing agreements to a debt limit of \$5 billion in connection with Alaskan oil development. About \$3,241 million of this authorized indebtedness had been incurred through December 31, 1976. Actual borrowings should approach \$4.5 billion other than construction of the Long Beach-Midland pipeline system which is in question, and in any event would not begin until cash flow is available from Prudhoe Bay oil.

Sohio's capital structure has been transformed over the past several years to a debt ratio that currently approaches 75%. By 1978, when Alaskan oil begins to flow in significant quantities, cash flow will be available to both reduce debt, support sizable new investments, and raise dividends. Our 1977-1981 cash flow projections are as follows.

	1977	1978	Estimated 1979	1980	1981
	----- \$ Millions -----				
Net Income	245	895	790	985	1,035
Depreciation	225	300	325	360	400
Deferred Taxes	55	60	65	70	75
Total	525	1,255	1,190	1,415	1,510
Debt Maturities	18	33	188	120	319
Dividends at Current Rate	55	85	85	85	85
Total	73	118	273	205	404
Available for Investment and Dividend Increases	452	1,137	817	1,295	1,106

Our forecast of debt ratios is presented in the following table. For working purposes, we have assumed that the common dividend will be increased about \$0.75 a share annually to approximately \$5.00 a share in 1980 or a 30% payout at that time. We have not allowed for possible borrowings in connection with the proposed Long Beach-Midland pipeline.

	Yearend					
	1976	1977	1978	Estimated 1979	1980	1981
	----- \$ Millions -----					
Amounts						
Long-Term Debt	3,627	4,210	4,250	4,050	3,930	3,630
Shareholder Equity	1,549	1,705	2,425	2,995	3,715	4,440
Total	5,176	5,915	6,675	7,045	7,645	8,070
Percents						
Long-Term Debt	70%	71%	64%	57%	51%	45%
Shareholder Equity	30	29	36	43	49	55
Total	100%	100%	100%	100%	100%	100%
Return on Average Equity	9%	15%	43%	29%	29%	25%

BRITISH PETROLEUM OWNERSHIP AND LONGER TERM CONSIDERATIONS

British Petroleum presently owns 10 million of Sohio's 39 million shares. When Prudhoe Bay is producing 1,282,000 barrels a day or more, BP's interest will increase to about 33 million of 61 million shares, or 54% of total. Majority ownership will be held by BP as early as 1978.

In our opinion, BP control of Sohio will be analogous to Royal Dutch/Shell group majority ownership of Shell Oil. As in the case of Shell, Sohio will probably be run as an autonomous U.S. member of a larger international group. Rising cash flow from Alaskan oil will most likely be redeployed into development of other domestic energy resources. Sohio will probably become active in future U.S. offshore lease sales. In addition, coal expansion could be accelerated, compared to recent years when capital constraints have limited spending to \$20-40 million annually. Sohio has also been active in shale oil over the years, and this long term energy source could receive a further influx of funds.

Eight years ago, BP merged its U.S. properties with Sohio to facilitate financing of North Slope development, perhaps little realizing at the time what a formidable task this would be. Basically the same strategy should apply in the future. BP will want to continue expanding in the United States, and Sohio should benefit commensurately as this objective is pursued.

RR-77-42

—Research Department—

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FINANCIAL SUMMARY

	1971	1972	1973	1974	1975	1976
Operating Data (Mil.)						
Revenues	\$1,338	\$1,395	\$1,515	\$2,220	\$2,521	\$2,927
Depreciation	73	71	67	68	82	82
Pre-Tax Income	65	82	108	186	187	193
Taxes	6	222	34	60	60	56
Net Income	59	60	74	126	127	137
Operating Ratio (%)						
Pre-tax Margin	4.9%	5.9%	7.1%	8.4%	7.4%	6.6%
Tax Rate	9.2	26.8	31.5	32.3	32.1	29.0
Net Margin	4.4	4.3	4.9	5.7	5.0	4.7
Equity Turnover	1.3X	1.3X	1.4X	1.9X	2.0X	2.0X
Return on Avg. Equity	5.7%	5.7%	6.7%	10.6%	10.1%	9.1%
Per Share Data						
Earnings Per Share	\$1.61	\$1.63	\$2.20	\$3.44	\$3.42	\$3.55
Dividends	1.35	1.35	1.35	1.36	1.36	1.36
Price Range	46-35	49-30	86-42	86-38	85-45	81-61
Book Value	\$28.63	\$29.37	\$30.84	\$33.99	\$35.55	\$37.76
P/E Range	29-22	30-18	43-21	25-17	25-13	23-17
Average P/E	25	24	32	18	19	20
P/E Relative to S&P 500	146%	140%	246%	202%	181%	200%
Avg. Shares Outstanding	36.5	36.6	36.7	36.6	37.1	38.5

BALANCE SHEET SUMMARY

	December 31 -- (\$ Millions)			
	1970	1974	1975	1976
Current Items				
Assets				
Cash & Equivalents	\$ 60	\$ 118	\$ 84	\$ 165
Receivables	246	327	338	437
Inventories	100	197	234	239
Total Current Assets	\$ 506	\$ 642	\$ 656	\$ 841
Liabilities				
Short-Term Debt	\$ 8	\$ 15	\$ 84	\$ 21
Other Current Liabilities	208	326	366	519
Total Current Liabilities	\$ 216	\$ 341	\$ 450	\$ 540
Current Ratio	2.3X	1.9X	1.5X	1.6X
Net Assets				
Net Working Capital	\$ 290	\$ 301	\$ 206	\$ 401
Net Plant	1,093	1,747	3,281	4,869
Investments	84	53	53	52
Other Assets--Net	64	180	197	373
Total Net Assets	\$1,531	\$2,281	\$3,737	\$5,695
Capitalization				
Long-Term Debt	\$ 500	\$ 805	\$1,949	\$3,627
Deferred Items, etc.	13	232	327	508
Preferred Stock	16	12	12	11
Common Equity	1,002	1,232	1,449	1,540
Total Capitalization	\$1,531	\$2,281	\$3,737	\$5,695
LT Debt as % of Capitalization	33%	35%	52%	64%

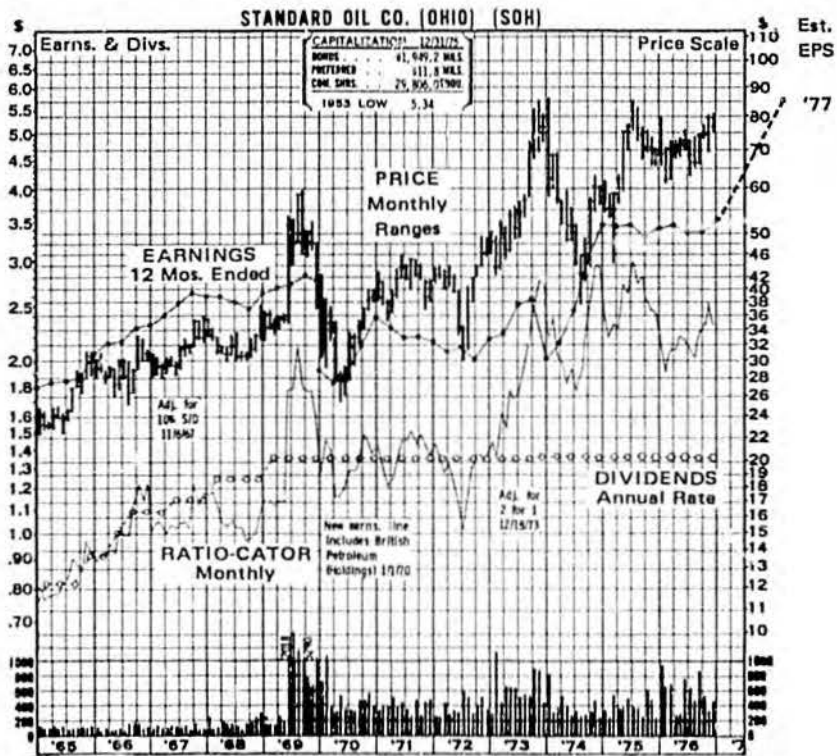


Chart courtesy of Securities Research Company.