

6 June, 2005

The Committee of European Securities Regulators
11-13 avenue de Friedland
75008 Paris
France

www.cesr-eu.org

Re: CESR's Advice on clarification on definitions concerning eligible assets for investments of UCITS - Response to Consultation Paper dated March 2005

Dear Sirs,

This submission is made jointly by Allianz Global Investors and PIMCO.

Allianz Global Investors AG is a financial holding company, based in Munich (Germany). With about one trillion Euros of assets under management, Allianz Global Investors is one of the top five asset management companies worldwide - with access to more than 60 million clients around the globe. Allianz Global Investors offers products covering all major equity and fixed-income investment styles and providing balanced products as well as alternative investment solutions. The business is organised into two global lines: Fixed Income and Equities, with PIMCO serving as the global investment platform for Fixed Income and RCM for Equities. Nicholas-Applegate, Oppenheimer Capital, NFJ Investment Group and Allianz Hedge Fund Partners serve as specialist managers. Allianz Global Investors' European business is mainly comprised of asset management companies in Germany, Luxembourg, Ireland and the UK and there is close co-operation with insurance related asset management entities of the Allianz Group in nearly all EU Member States, particularly in France and Italy.

PIMCO is one of the world's leading fixed income managers. PIMCO Funds: Global Investors Series Plc (the "Fund") is an Irish domiciled umbrella UCITS investment company which has a net asset value of approximately US\$10 billion (as of March 31, 2005). The Fund is managed by both PIMCO Europe Ltd and Pacific Investment Management Company LLC. PIMCO Europe Ltd is a limited liability company organised under the laws of England and Wales, is authorised and regulated by the U.K. Financial Services Authority and is wholly owned by PIMCO Global Advisors LLC, a wholly owned subsidiary of Allianz Global Investors of America L.P.. PIMCO Europe Ltd had more than EUR 25.9 billion in assets under management in London (as of March 31, 2005). Pacific Investment Management Company LLC, a Delaware limited liability company, was founded in 1971 and had approximately USD 464 billion in assets under management as of 31 March, 2005. In the United States, Pacific Investment Management Company LLC manages a large number of mutual funds ranging from strategic asset allocation funds, real return strategy funds, domestic equity-related funds and international equity-related funds.

In this submission, Allianz Global Investors and PIMCO hope to assist CESR by outlining some of the demands and trends that they are aware of in the global market place and by providing information relating to, and support for, the use of transferable securities and financial derivative instruments that give exposure to property and commodities within UCITS funds.

Principles Based Approach

In general, we welcome clarification of definitions in the UCITS Directive concerning eligible assets. We favour a principles based approach as opposed to a prescriptive approach in order to capture future innovative

products within the eligible asset classes permitted by the Directive and in order to ensure the continued success of the the European funds industry. In particular, we are of the view that reliance should be placed, where appropriate, on the expertise of the investment manager of a UCITS, which according to the Directive must be “authorised or registered for the purpose of asset management and subject to prudential supervision”, to determine investment decisions.

Market demands and trends

In the US and Europe, investors are recognizing that portfolios of only stocks and bonds are unlikely to achieve their investment objectives. Not only do they have modest expectations of return from stocks and bonds, but they are recognizing that these two asset classes offer limited protection from any inflation which will affect their liabilities.

Certainly defined benefit pension schemes have a liability linked to inflation—the higher the rate of inflation, the greater will be the amount of funds they ultimately pay out to beneficiaries. Endowments funds are relied on to provide funds for payment of salaries, building maintenance, and other goods and services whose prices go up with inflation. Most important, individual investors have great exposure to inflation. Upon retirement, they require purchasing power to provide their groceries, gasoline, medical care and other needs—all of which become more expensive as inflation increases.

Investors are looking beyond the realm of stocks and bonds to meet their return and inflation hedging requirements. Their expanded universe of investments includes property, commodities, and active asset allocation strategies. This expanded set of investments not only increases the likelihood of achieving their return and inflation hedging objectives but these other investments also provide diversification for their portfolios, which enables them to achieve higher expected return for any level of expected risk.

PIMCO has seen increasing demand for its ‘All Asset’ products. In the US, PIMCO’s All Asset Fund (“AAF”), a US registered mutual fund that utilizes active asset allocation (sometimes called “tactical asset allocation”), is invested to gain exposure to all asset classes:

- AAF allows the investor to achieve a more diversified portfolio without having to be a specialist in many disparate asset classes;
- in accordance with US mutual fund rules, AAF can be invested (by holding shares of sector-specific mutual funds) to provide exposure to inflation hedges like commodities, TIPS, and property; and
- the investment process of the AAF leads one to the expectation that it will provide positive real returns, net of inflation.

Since its launch in July 2002 AAF has grown in size to currently over USD 6.7bn and PIMCO anticipates this growth to continue. PIMCO has seen even stronger need for and interest in commodity index investments. Its CommodityRealReturn Strategy Fund (again a US registered fund) launched in June 2002 has grown to over USD 9.0bn at present.

PIMCO would like to have a similar product within its Dublin UCITS range and has no reason to believe that the need in Europe for such a product would be any less than for its US counterpart. Indeed, PIMCO intends to set these products up outside its current Dublin UCITS range should UCITS be unduly restricted from gaining exposure to real estate (via REITS or derivatives on REITS indices) and commodities (by use of derivatives on commodity financial indices). PIMCO has already set up a Luxembourg based ‘Commodities Real Return Fund’ outside of a UCITS wrapper due to the restrictive approach taken to date in this regard. PIMCO believes that this illustrates the potential for competitive disadvantage for the UCITS product, against regulated products from other jurisdictions and other non-regulated vehicles, if CESR takes a restrictive approach in this regard. This fund, in spite of being a non-UCITS vehicle, has already attracted over USD 110m of investor funds (as at 31 March 2005) since its launch in December 2004.

We believe that not to allow exposure to property and commodities within UCITS funds, by way of transferable securities and financial derivative instruments, would be contrary to the direction of demand in the market and contrary to investors interests, and we do not believe there are any justifiable grounds on the basis of investor protection to do so.

Transferable Securities and Financial Derivative Instruments

Given the diversity of the fund products offered and managed by Allianz Global Investors and PIMCO worldwide and our interest in ensuring that investors in UCITS Funds can achieve high returns within acceptable risk parameters by availing of maximum flexibility in line with the evolving financial markets, we have set out in **Appendix 1** hereto our specific comments in relation to the following sections of the Consultation Paper:

1. Clarification of Art. 1(8) (Definition of Transferable Securities);
2. Clarification of the scope of Art. 1(8) (Definition of Transferable Securities) and “techniques and instruments” referred to in Art. 21; and
3. Financial derivative instruments.

In relation to 1. and 2. above, we certainly agree that it is important for the integrity of the UCITS product that exposure is obtained by investing in transferable securities but, where this can be achieved, to prevent such exposure by creating an unnecessary ‘look through’ would be beyond the requirements of the UCITS directive and damaging to the interests of savers and the UCITS product alike. We believe strongly that there should be no requirement imposed to ‘look through’ certain transferable securities (i.e. closed ended funds) to underlying property. We believe that it is part of the investment manager’s role to ensure that there is sufficient liquidity in the portfolio as a whole in order to ensure that an UCITS can meet redemption requests as and when they arise.

In particular, we strongly believe that, given existing and growing demand, it would be a mistake if CESR rule out UCITS achieving exposure to real estate via, say, investment in REITS. In addition, from a legal perspective, we see no difference between investing in a listed property investment trust or REITS and investing in a listed property company save that a listed property investment trust or REITS would probably benefit from broader diversification than investment in a single property company.

Please find attached as **Appendix 2** a further explanation of the established US and developing European real estate investment trusts markets confirming that real estate has long been considered an inflation hedge and that it is currently possible to invest in real estate in a manner which is both liquid and transparent, where values are determined in an open marketplace.

In relation to 3. above, we believe strongly that similar arguments apply in respect of gaining exposure to commodities by use of derivatives on commodities indices (and these would apply to indeed derivatives on real estate indices). As such, we believe a UCITS should be permitted to invest in commodity index derivatives and other index derivatives irrespective of whether the underlying of the indices are comprised of ineligible assets in which a UCITS cannot invest in directly and there should not be a ‘look through’ to the underlying assets of the indices.

In practice, we believe that an index of commodities constitutes a “financial index”. The key indicators of this are that:

- such indices, albeit benchmarked off the prices of commodities, are purely economic in nature;
- trading commodity index derivatives is undertaken by the financial markets; and
- commodity index derivatives are cash settled and there is no mechanism for delivery of the underlying.

Key benefits of allowing exposure to commodities via indices include:

- Commodity indices eliminate any possibility of having to take delivery of a commodity;
- Commodity indices from a risk perspective should be viewed as part of an overall portfolio – the addition of exposure to commodities can actually reduce the risk of the portfolio (three of the top commodities indices (the Dow Jones-AIG Commodity Index, Goldman Sachs Commodity Index, and the Deutsche Bank Liquid Commodity Index) demonstrate that these indices have positive correlation to inflation and negative correlation to stocks and bonds); and
- Adding commodities to a portfolio allows the investor to add an inflation hedge to his investments, something which can’t as effectively be achieved by just using stocks and bonds (commodity indexes historically have had positive correlation to inflation, while most equity and bond indices have had negative correlation to inflation).

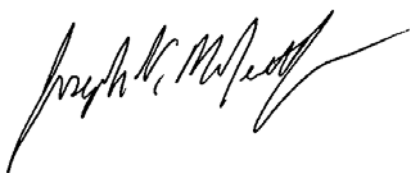
It is worth noting that commodity indices, fully collateralized, by themselves are only slightly more volatile than stock indexes.

Please find attached as **Appendix 3** a recently article about using commodity indices for achieving real return and efficient diversification. We would encourage review of this article as it outlines the nature of commodities, ways to get commodities exposure, pricing models and details and statistics relating to commodities indices. The resume of the author, Mr Bob Greer, Senior Vice President at PIMCO, is attached in the article. Mr Bob Greer would welcome the opportunity to meet with CESR if it should wish to discuss any related issues and would be happy to provide further information or assistance should it require this.

Please also find attached as **Appendix 4**, a draft article (yet to be published) (with the authors and acknowledgments as noted thereon) on Alternative Asset Allocation for Real Return, which outlines the case for the use of alternative assets and alternative asset allocation. The authors have given their consent to provide this article to CESR.

Yours Faithfully

Yours Faithfully

A handwritten signature in black ink, appearing to read 'Joseph N. M. Smith', written over a horizontal line.

**For and on behalf of
PIMCO Europe Limited**

**For and on behalf of
Allianz Global Investors AG**

APPENDIX 1

1. Clarification of Art. 1(8) (Definition of Transferable Securities)

Draft Level 2 advice

BOX 1

1. To be an eligible asset for a UCITS under Art. 19(1) (a) to (d), a transferable security must fall within the definition of “transferable security” in Art. 1 (8) of the Directive. In addition, the potential loss of the UCITS in respect of holding the security must be limited to the amount paid for it.
2. The UCITS should take into consideration the following factors in deciding whether or not any security is a “transferable security” (as defined):
 - Liquidity – The UCITS should consider, on reasonable grounds, that if the transferable security is added to its portfolio, it will continue to be able to comply with Art. 37 of the Directive. The transferable security must not compromise the overall liquidity of the UCITS. Volume and turnover in the transferable security will need to be considered in assessing liquidity. In addition, for price-driven markets, an independent analysis of bid and offer prices over a period of time may indicate the relative liquidity and marketability of the instrument. In addressing the quality of secondary market activity in a transferable security, analysis of the quality and number of intermediaries and market makers dealing in the transferable security concerned should be considered.
 - Valuation – There must be accurate, reliable and generally independent valuation systems available in relation to the instrument. Pricing in the instrument should ideally be readily available, regular and independent of the issuer. The UCITS’s overall valuation must fairly and accurately reflect the value of its underlying assets.
 - Information – The UCITS should assess the extent to which the issuer of the transferable security regularly makes information available to the market by providing accurate and comprehensive information on the transferable security or, where appropriate on the portfolio of the product in question.
 - Transferability – The manager should assess whether the security:
 - is offered on a limited basis;
 - has constraints on who may buy and sell the security.

These factors will clearly affect the transferability of the security.

 - In addition, the acquisition of any transferable security must be consistent with the stated investment objectives of the UCITS. These objectives will, of course, have to be consistent with the requirements of the UCITS Directive.
 - The UCITS should be able to assess on an ongoing basis the risk of the transferable security and its contribution to the overall risk profile of the portfolio.
3. When a structured financial instrument includes a derivative element, Art. 21 (3) of the Directive applies.

Questions:

Q1 ***Do you agree with the approach to the treatment of transferable securities and structured financial instruments outlined in this draft advice?***

Response The criteria highlighted above impose a more restrictive regime than that under UCITS I. We are of the view that it is the investment manager's role to ensure that there is sufficient liquidity in a portfolio as a whole in order to ensure that the UCITS will meet redemption requests rather than ensuring a high level of liquidity in each transferable security in order that it can constitute an eligible asset.

Q2 ***What would be the practical effect in your view if such an approach were adopted?***

Response If adopted, it would impose a significant burden and costs on investment managers (and indirectly UCITS), as investment managers would be obliged to carry out extensive due diligence on each proposed investment in a transferable security and maintain appropriate records to justify their decisions.

Draft Level 2 advice

BOX 2

1. The factors in Box 1 concerning listed transferable securities apply also to listed closed end funds. Where a listed closed end fund takes the form of a transferable security, as defined by the Directive in Art. 1 (8) and Art. 19 (1) (a) to (d), the UCITS should in addition:
 - (a) consider whether the transferable security in question may be engaging in cross-holdings in other closed end funds that take the form of transferable securities in such a way as to cause unacceptable risks for the listed closed end fund, and through it, for the UCITS itself;
 - (b) ensure that the asset management activity carried on by or on behalf of the listed closed end fund is subject to appropriate investor protection safeguards; and
 - (c) not make investments in listed closed end funds for the purpose of circumventing the investment limits provided for UCITS by the UCITS Directive.

Q3 ***Does the reference to “unacceptable risk” in the context of cross-holdings require further elaboration, and if so, how should it be elaborated?***

Response There is no requirement to look through a transferable security (such as a structured financial instrument), so why should such a requirement be imposed for other transferable securities such as closed end funds.

In the United States, PIMCO invests in real estate investment trusts “REITS”). REITS are pooled investment vehicles that own and usually operate income producing real estate. If a REIT meets certain requirements, including distributing to shareholders substantially all of its taxable income (other than net capital gains), then it is not taxed on the income distributed to shareholders. Consequently REITS tend to pay higher dividends than other issuers. This is an example of a closed end fund which as a transferable security would enhance the return to investors.

As stated above in Question 1, it is the investment manager's role to ensure that there is sufficient liquidity in a portfolio as a whole in order to ensure that the UCITS will meet redemption requests rather than ensuring a high level of liquidity in each transferable security in order that it can constitute an eligible asset.

Q4 ***Do you consider that in order to be considered as an eligible asset for a UCITS, a listed closed end fund should be subject to appropriate investor protection safeguards? If so,***

do you consider the proposed safeguards sufficient and clear-enough?

Response Whether a listed closed end fund is suitable for investment by a UCITS is a matter for the investment manager of the UCITS taking into account the investment objective and policies of the closed end fund and the experience and reputation of the service providers involved.

Q5 ***Further to the requirements presented in Box 2 (b), CESR is considering to clarify the investor protection safeguards with the following options:***

- ***the UCITS should verify that the listed closed end fund is subject to appropriate restrictions on leverage (for example, through uncovered sales, lending transactions, the use of derivatives) and that it is subject to appropriate controls and regulation in its home jurisdiction; or that***
- ***the UCITS should consider the extent to which the listed closed end fund can leverage (for example, through uncovered sales, lending transactions, the use of derivatives).***

Response We would favour a less prescriptive approach.

Q6 ***Should/should not UCITS be required to invest only in such listed closed end funds, that invest in transferable securities, that would themselves be eligible under the UCITS Directive?***

Regarding especially question 5 and 6, please give your view on the possible practical impacts of the different options, based on your experience. Please give concrete examples of the impacts in terms of what kind of instruments would be actually left out / taken aboard by the option chosen. Please give quantitative examples of the impacts in terms of the sphere of eligible instruments for UCITS, if possible.

Response For the reasons stated above, we are of the view that that a UCITS should not be required to only invest in listed closed end funds that invest in transferable securities that would themselves be eligible under the UCITS Directive.

Draft Level 2 advice

Box 3

1. For an investment in a transferable security to be eligible under Art. 19 (2) (a), it must be a transferable security that does not comply with the conditions respectively described in Art. 19 (1) (a) to (d).
2. The draft advice above in Box 1 in relation to transferable securities that fall within Art. 19 (1) (a) to (d) of the Directive, will also apply, as appropriate, to such transferable securities that fall within Art. 19 (2) (a). IN CESR's view, non-listed closed end funds are highly unlikely to meet the requirements as stated in Box 1.

Q7 ***Are there any practical difficulties in your experience in defining the boundary between Art. 19 (1) (a) to (d) and Art. 19 (2) (a)? Do you consider the suggested approach in Box 3 as appropriate?***

Response The principal difference between Art. 19 (1) (a) to (d) and Art. 19 (2) (a) is the requirement, in the case of transferable securities, that they be listed on or dealt in a regulated market. This is a matter of fact in each case.

We do not agree that non-listed closed end funds do not constitute transferable securities. As stated above in Question 1, it is the investment manager's role to ensure that there is sufficient liquidity in a portfolio as a whole in order to ensure that the UCITS will meet redemption requests rather than ensuring a high level of liquidity in each transferable security in order that it can constitute an eligible asset. For example a UCITS could invest in a non-listed closed end fund and ensure liquidity in the portfolio through a swap transaction.

2. Clarification of scope of Art. 1(8) (Definition of Transferable Securities) and “techniques and instruments” referred to in Art. 21

Draft Level 2 advice

BOX 10	
1.	Techniques and instruments relating to transferable securities and money market instruments should respect the general principle set out in Recital 13 of the Directive 2001/108/EC and may never be used to circumvent the principles and rules set out in the Directive. In particular, adequate measures should be adopted in order: - to ensure compliance with the requirements of an adequate risk management process, in line with Art. 21 (1) of the Directive, as well as with the detailed risk spreading rules specified by Art. 22 of the Directive; and - to avoid transactions which are not permitted by the Directive.
2.	Techniques and instruments must be used for the purpose of efficient portfolio management.
3.	UCITS are considered to use efficient portfolio management if they respect all of the following requirements: - The transactions are economically appropriate. This implies that they are realized in a cost-effective way; - The transactions are entered into for one or more of the following three specific aims: - the reduction of risk; - the reduction of cost; or - the generation of additional capital or income for the UCITS with an acceptably low level of risk.
4.	Based on the above-mentioned criteria; techniques and instruments relating to transferable securities and money market instruments include, but are not limited to, collateral under the provisions of Directive 2002/47/EC on financial collateral arrangements, repurchase agreements, guarantees received, and securities lending.
5.	Regarding the coherence between Art. 19 and Art. 21 (2), CESR notes that currently only financial derivative instruments are subject to both articles, and that in accordance with the wording of Art. 21 (2), financial derivative instruments used under Art. 21 (2) must comply simultaneously with the provisions of Art. 19.
6.	Art. 28 of the Directive defining the obligations concerning the information to be supplied to unit holders by UCITS implies that techniques and instruments relating to transferable securities and money market instruments can not result in a change of the fund's declared investment objective or add substantial supplementary risks in comparison to the concerned fund's general risk policy as described in its applicable sales documents.

Response

In relation to the first indent of paragraph 1, we are of the view that an adequate risk management process in line with Art 21 (1) of the Directive is only applicable to the use of financial derivative instruments and not other techniques and instruments.

In relation to what constitutes efficient portfolio management as set out in paragraph 3, we do not agree with the requirement that transactions entered into for the generation of additional capital or income for the UCITS should be entered into with an acceptably low level of risk. It is submitted that in relation to financial derivative instruments used pursuant to Art. 21 (2) of the Directive, the Directive does not impose any risk/exposure restrictions over and above those

set out in Art. 21(3) of the Directive.

3. Financial Derivative Instruments

Draft Level 2 advice

BOX 13

1. Operation in derivatives may never be used to circumvent the principles and rules set out in the Directive, as stated in Recital 13 of the Directive 2001/108/EC. As a consequence, underlyings of derivatives must be eligible assets.
2. In particular, eligible assets include:
 - a combination of eligible assets; and
 - financial instruments having one or several characteristics of eligible assets (e.g. interest rates, dividends or exchange rates).
3. Eligible assets exclude:
 - non financial indices; and
 - commodities.
4. Regarding investments giving an exposure to commodities, reference is made to point 2 of this draft advice concerning financial derivative instruments ("The eligibility of derivative instruments on financial indices").

Draft Level 2 advice

BOX 14

1. A financial index used as an underlying in an eligible derivative instrument must comply with the provisions of Art. 22a (1) of the Directive, that is:
 - be sufficiently diversified;
 - represent an adequate benchmark for the market to be which it refers; and
 - be published in an appropriate manner.

Q9

In addition to the criteria developed in the draft CESR advice, CESR is considering the following options:

- ***only financial indices based on eligible assets should be considered as eligible underlying for derivatives; or that***
- ***the wording of Art. 19(1) (g) does not require UCITS to apply a look through approach when concluding derivatives on financial indices. These financial indices should nevertheless comply with the three criteria set down by Art. 22a***

In the context of the above, and as far as derivatives on commodity financial indices are concerned, it is considered, whether:

- ***derivatives on financial indices on financial instruments based on commodities would be considered as eligible; or whether***

- ***derivatives on financial indices on commodities would be considered eligible.***

Please give your view on the possible practical impacts of the different alternatives, based on your experience. Please give concrete examples of the impacts in terms of what kind of instruments would be actually left out / taken aboard by the differed alternatives. Please give quantitative examples of the impacts in terms of the sphere of eligible instruments for UCITS, if possible.

Response

We are of the view that Art. 19(1)(g) of the Directive does not require a “look through approach” in order to determine the eligibility of a financial index in which a UCITS may invest. Therefore the second option as set out in second indent of Question 9 is the preferred option.

The following considerations should be borne in mind:-

- (1) There is no provision in the UCITS Directive which requires assets comprising an underlying financial index to be themselves assets listed under Article 19(1) of the Directive.

The “no look through approach” is justified by the fact that, to the extent index based FDI are necessarily cash settled, investment by a UCITS in such kind of instruments can not result in the delivery at maturity of ineligible assets. For example, in a total return index commodity swap, the fund will typically receive from the counterparty to the swap agreement the price appreciation of a commodity index, in exchange for paying the counterparty an agreed upon fee and therefore in no circumstance could that total return swap result in physical delivery of commodities. Furthermore investment in such index based FDI do not bear the same risks as investing in underlying commodities. For example the predominant risk in investing in a total return index commodity swap is credit risk i.e. whether the counterparty that issued the swap will actually pay the total return realised on the referenced index. This credit risk is minimised where the counterparty that issued the swap is a regulated financial institution with a substantial credit rating.

Therefore investments in index based FDI (irrespective of the assets comprised in the index) should be permissible within Article 19(1)(g) of the Directive provided investment in any financial index is in accordance with the investment objective of the UCITS.

- (2) According to Art. 21(3) of the Directive, where a UCITS invests in index based FDI, these investments do not have to be combined with the concentration limits specified in Art. 22 of the Directive. As it is possible to derogate from the “look through” principle for index based FDI, one should apply the same qualifying criteria when determining the eligibility of index based FDI.
- (3) Furthermore there is no provision in the Directive preventing a UCITS from obtaining an economical exposure to an ineligible asset (e.g. commodities). Such exposure may be obtained for instance through an investment in a limited company operating in the commodity sector. Therefore investment by UCITS in FDI which are based on indices of ineligible assets do not breach the principle which is referred to in paragraph 13 of the Preamble in the UCITS Directive.

We are of the view that derivatives on financial indices on commodities should be considered eligible assets, in accordance with Art. 19(1)(g) of the Directive, as do derivatives on financial indices on financial instruments based on commodities. On the basis, as stated above, that a “look through approach” is not necessary to determine whether a derivative on a financial index constitutes an eligible asset, the question in relation to a derivative on an index of commodities or a derivative on an index of financial instruments based on commodities is whether the index constitutes a financial index. We are of the view that an index of commodities and an index of financial instruments based on commodities (such as an index of futures commodities) each constitute a financial index in the same way that any other index is considered a financial index by virtue of the trading of that index in the financial markets.

Draft Level 2 advice

BOX 15

1. The fair value of an OTC derivative corresponds to the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.
2. The valuation of the contracts by the UCITS should be made on a daily basis, and be compared with an estimate provided by an independent third party at least on a monthly basis.
3. The definition of the fair value of an OTC derivative combined with the general requirements set by Art. 21 (1) of the Directive on risk management imply that an adequate risk-management process for OTC derivatives has the following characteristics:
 - the UCITS must have taken reasonable care to determine that, throughout the life of the derivative, it will be able to value the investment concerned with reasonable accuracy at its fair value, on the basis of the pricing model which has been agreed between the UCITS and the depositary, or on some other reliable basis reflecting an up-to-date market value which has been so agreed. When doing so, reference should be made to an accepted methodology; and
 - the UCITS should have the organization and the means to allow for a risk analysis realized by a department independent from commercial and operational units, and submitted to the supervisory bodies of the UCITS in order to set risk limits at least on a semestrial basis.

Response

In relation to paragraph 2, we do not agree that the valuation of OTC derivative contracts by the UCITS should be made on a daily basis when the UCITS is valued on a less frequent basis, bearing in mind the Directive provides that UCITS must establish the net asset values of their units, communicate them to the competent authorities at least twice a week and publish them twice a month very fortnight.

In relation to the second indent in paragraph 3, we do not agree with the risk limits to be set "at least on a semestrial basis". Furthermore it is unclear what CESR intends by reference to "a department independent from commercial and operational units".

Draft Level 2 advice

BOX 16

1. A credit derivative is a financial instrument allowing the transfer of the credit risk of an underlying asset or assets, independently from the other risks associated with the asset (exchange rate risk, index risk, interest rate risk).
2. A credit derivative is an eligible asset for a UCITS provided that the following conditions are met:
 - The credit derivative complies with the conditions of eligibility of derivative instruments;
 - The end of the transaction can only result in the delivery or in the transfer of assets eligible for UCITS, including cash;
 - The UCITS has taken adequate measures in order to limit risks of asymmetry of information, especially when dealing with related parties;
 - A UCITS investing in credit derivatives can demonstrate that it has the organization and the means to allow for:
 - a daily estimate of the contracts by the UCITS, that will be compared with an estimate provided by a third party at least on a monthly basis;
 - a risk analysis realized by a department independent from commercial and operational units,

and submitted to the supervisory bodies of the UCITS in order to set risk limits at least on a semestrial basis; and

- an internal control independent from the operational units.

- Coherence is ensured with the requirements set for OTC derivative instruments including the requirements on valuation, as developed above in Box 15 of this draft advice.

Q10 *What is your assessment of the risk of asymmetry of information in relation to the use of credit derivative by UCITS? Which kind of measures should UCITS adopt in order to limit the risk of asymmetry of information? Please explain the arguments for your view.*

Q11 *Do you consider that the problem of a potential asymmetry of information between issuers and buyers of credit derivatives can be dealt with by limiting the nature of the issuers on which the credit risk may lie to:*

- *one or several sovereign issuers;*
- *one or several public international bodies, provided that at least one Member State is a member of the(se) public international bodi(es);*
- *one or several regional or local authorities of Member States;*
- *one or several legal entities, either issuers of bonds admitted to trading on a regulated market that have been graded at least once by a rating agency, or issuers of shares quoted on a regulated market; or*
- *a combination of the above?*

Response We are of the view that credit default derivatives should not be treated any differently to other financial derivatives permitted by the Directive. In relation to restricting the issuers to which the credit risk relates, there is no guarantee that this would achieve the desired effect.

APPENDIX 2

Real Estate for Diversification and Inflation Hedging

Real estate has long been considered an inflation hedge. Its very name, real, relates to the idea that it provides real returns, which are understood to be returns in excess of the rate of inflation.

It is possible to invest in real estate in a manner that is both liquid and transparent, where values are determined in an open marketplace. In the US, this method is to purchase Real Estate Investment Trusts (REITS). A REIT is an investment vehicle which securitizes the owning and/or operating of real estate. Many REITS are listed and publicly traded on US stock exchanges, and this type of vehicle is gaining prominence in the UK and Europe as well.

In the US, a REIT can purchase, develop, own and/or manage real estate properties and/or real estate loans. To qualify as a REIT, a company must distribute at least 90 percent of its taxable income to its shareholders annually, and can leverage its real estate holdings without creating unrelated business income tax issues for tax-exempt holders of its securities. Because REITS are generally publicly traded, they are fairly liquid investments.

By September 2004, the equity market capitalization of REITS in the US was approximately USD 275MM, according to the National Association of Real Estate Investment Trusts. There are also in the US approximately 75 mutual funds that specialize in investing in REIT stocks.

REITS have historically fulfilled the expectations of investors. As shown in the first slide attached, the correlation of REITS to stocks and bonds has been declining. As shown in the second slide, the price of REITS has generally kept up with inflation, while the cash yield of REITS has added a real return in addition to this price appreciation.

Just as REITS themselves are generally liquid and have their value determined in the open market, there exist indexes that measure the return an investor would earn from holding a diversified portfolio of REITS. One such index is the Dow Jones-Wilshire REIT Index. Its components are shown on the third slide attached. This index is calculated daily, and its value is determined by the prices of its component REITS, all of which are traded in the open market. It is also possible to own derivatives (swaps) whose value is determined by movements in this public, liquid index. These swaps can be objectively marked to market on a daily basis.

APPENDIX 3

Commodity Indexes For Real Return & Efficient Diversification

Robert J. Greer

Real Return Product Manager

Pacific Investment Management Company (PIMCO)

APPENDIX 4

Working Draft

Alternative Asset Allocation for Real Return

By Robert D. Arnott and Robert J. Greer¹

(1) Introduction

We are all social creatures, to one extent or another. We are happy when people we respect agree with us and concerned if they do not. We remember recent successes fondly and recent failures with dismay and perhaps embarrassment – if we remember them at all. This has direct consequences for the ways in which we succeed, or fail, in our investments.

This chapter will discuss how recent successes in the stock and bond markets (over the last quarter century) shape our expectations for the future. We will discuss why that view of the investment future must change if we want to achieve solid inflation adjusted returns that will meet our liabilities. Those changes in attitude require that we lower our expectations of future returns from traditional stocks and bonds. We must also more actively consider including alternative investments in our portfolios. And in a world of expected low returns, we must seek alpha wherever we can. This includes alpha from active management of the securities in a particular portfolio and from actively managing the mix of asset classes in our portfolios. We conclude with a hopeful suggestion that, if we think broadly, boldly, and actively, it may still be possible to achieve real rates of return that satisfy our sensible portfolio return goals.

(2) The Past

During the 1980s and 1990s, with some pauses along the way, we experienced a relentless bull market, the largest in the history of the US capital markets. Between 1989 and 2001, the US equity market generated annualized returns of 13.6%. By comparison, the US equity market produced annualized returns of 8.2% over the 1802-2001 time period. Bonds also posted remarkable gains during the bull market of the 1980's and 1990's. Between 1989 and 2001 the Lehman Aggregate Index increased 8.6% per year on an annualized basis.

The bull market of the 1980s and 1990s allowed us to embrace the illusion that a typical portfolio can sustain 5% spending as a “conservative” choice. But, the lofty real returns during these decades benefited considerably from revaluation, not from the sustainable components of return, which are income and growth. For foundations, which typically have no source of supplementary contributions, this means that the foundation ultimately might not earn the 5% real return required to maintain the real value of the corpus of the foundation portfolio. The consequence is that most foundations, while enjoying a very long life span, may not produce

¹ We gratefully acknowledge the considerable help of Robert Huntsman, and the suggestions of Jason Hsu, of Research Affiliates LLC. Parts of this chapter were also drawn from selected Editor's Corners, in the *Financial Analysts Journal*, authored by Rob Arnott during 2003 and 2004.

returns in perpetuity, and so may not serve the goals of the founder forever.

None of this can be comforting to those who would like to rely on lofty return assumptions to justify hefty spending or skinny contributions. It is far better to plan for the future on assumptions that are sound, rather than relying on hope as our strategy for the future. The same applies for the individual investors planning for their future retirement: working a few extra years to “contribute” more to our retirement reserves is better than running out when we can least afford it, as a consequence of foolish or unrealistic assumptions.

Forecasting the Future by Extrapolating the Past

All too often, we forecast the future through extrapolation, arguably the worst way to forecast. If bond yields fall from 8% to 4%, and the bonds thereby deliver a 15% annualized return, should we assume 15% as a future bond return? Of course not! The capital gains that push our 8% yield up to a 15% return are nonrecurring. Should we “conservatively” assume continued capital gains of 7% per annum on top of our new 4% yield? Of course not! Should we be “even more conservative,” assuming just the 8% yield we started with? This is still far too optimistic, as any bond investor knows full-well. Yet, much of our industry is wedded to forecasting *equity* returns in this fashion – with an assist from assorted academic luminaries.

Returns are, for the most part, a function of simple arithmetic. For almost any investment, our total return consists of yield, growth and multiple expansion or yield change. For bonds, the growth is simple: fixed income implies zero growth of capital and income. For high yield or emerging markets debt, capital and income growth is negative, due to the occasional defaults. For stocks, capital and income growth tends to be around 1% above inflation, based on very long-term history.

The 7% real stock market returns for the past 78 years covered in the Ibbotson data consists of roughly 4.3% from dividend yield, plus a bit over 1% each from real dividend growth and from multiple expansion. So, why can't we expect 7% in the future? That's simple. We can't rely on multiple expansion, since the market isn't cheap by any conventional definition. Most observers would, at a minimum, subtract multiple expansion from future return expectations. Now we're down to roughly 5.5%. But, our current dividend yield is just 1.9%, not 4.3%, which takes our real return down to around 3%. And, that's without any “mean reversion” towards historical valuation levels. *Much of our industry seems fearful of this simple arithmetic, preferring to forecast the future by extrapolating the past.*

Why is a low (even negative) expected excess return considered shocking? There is no reason, outside of the illusionary world of finance theory, to believe that a temporary negative expected excess return should be impossible. Finance theory suggests that this should not be possible (*if* investors are rational, *if* there are no taxes, *if* utility functions flatten with increasing wealth, and so forth). But, finance theory would also demand that lotteries and casinos should have no customers.

Should there be a positive equity risk premium relative to bonds? Of course. Is it written into contract law for any assets we buy that at the current price levels we would receive return commensurate with investment risk? Of course not. Yet, the notion of a negative risk premium seems downright scandalous to our industry.

In the long run, the market must adjust to provide a positive risk premium. Else, why buy the riskier asset for a

lower return? But, the adjustment to a positive risk premium can be painful. A 5% risk premium is often taken as fact, but it's only a hypothesis, and often an ill-reasoned one. If we take a 5% risk premium as a fact, rather than as a hypothesis, this shortcut frees us to focus on asset selection, since we've now dispensed with the risk premium and, by extension, the resulting asset mix decision.

Even the most aggressive intellectually-honest forecasts of long-term earnings or dividends growth would see GDP growth as an upper bound. GDP growth has two engines: the growth of existing enterprises and the creation of new enterprises through entrepreneurial capitalism. Our stock market investments allow us to participate in the former but not the latter. Since over half of real GDP growth comes from entrepreneurial capitalism, real earnings and dividends from existing stocks should collectively grow a bit under half the rate of economic growth.

Surprisingly, consensus long-term earnings growth estimates routinely exceed sustainable GDP growth. The current consensus growth rate for earnings on the S&P 500, according to the 2005 Zacks survey  10%. This corresponds to 7% to 8% real growth, assuming the consensus inflation expectation of 2% to 3%. Real earnings growth of 8% is six times the real earnings growth of the past century, and three times the consensus long-term GDP growth rate. This is not possible, unless either GDP growth quadruples or stock buybacks exceed new share issuance by an unprecedented margin. Otherwise, aggregate earnings would eventually exceed our GDP.

GDP growth, less the economic dilution associated with entrepreneurial capitalism, basically defines the sustainable growth in per-share earnings and dividends. Accordingly, it is hard to imagine that, at the top of the bubble in late-1999 and early-2000, stocks offered a positive risk premium, when dividend yields were a scant 1.1%, far lower than the over-4% yield on inflation-indexed government-guaranteed bonds (TIPS)². The earnings and dividends for stocks would have needed to grow 3.3% per annum above the rate of inflation (triple the real growth rate of the prior century) in order for stocks to merely *match* the total return of TIPS. Was the market priced to produce a positive risk premium for broad stock market averages, relative to TIPS, at the beginning of 2000? History since 2000 has shown otherwise.

Many market observers would agree that the "cult of equities," the reliance on a 5% risk premium, was the single most damaging error in the institutional investing community in the past quarter century. Shouldn't our industry, as a matter of course, question aggressive, unsustainable growth forecasts before acting on them?

Closely related, why do we accept rising return expectations in a rising market? In 1982, the average pension return assumption was barely 6%. This was at a time when stock yields were 5% and both the earnings yield for stocks (the reciprocal of the price/earnings ratio) and bond yields were in the low teens. By the year 2000, the average pension return assumption had risen to approximately 9.5%, even though stock dividend yields and bond yields were down nearly 400 basis points and 800 basis points, respectively. Since then markets have fallen, and we're seeing pension return assumptions drifting *downward* again!

If we see bond yields fall 800 basis points, fueling substantial capital gains on top of a substantial initial yield, do we assume that the future returns will be better because the bonds exceeded expectations? No, we'll be

² *Treasury Inflation-Protected Securities, the US government's inflation-indexed bonds.*

grateful for the returns of the past and we'll expect less, not more, in the future. Why can't we use the same logic in equities and other asset classes?

Wealth & Sustainable Spending

What spending can our portfolios sustain? Many of the recent problems in the newly-underfunded pension, endowment and foundation world stem from (1) return expectations that are unrealistic and (2) a desire to spend more than market returns can support. A "need" for a particular rate of return, or a "hope" for performance that can sustain outsized spending, does not allow us to *expect* that return.

How do we define wealth? Is it the size of our portfolio? No: a century ago, a \$1 million portfolio was huge; today it's assuredly not. Is wealth defined as the real (inflation-adjusted) value of our portfolio? Not really. Spending needs change and the real returns that our portfolio can sustain will change over time. Even though the CPI has risen 20-fold over the past century, a \$20 million portfolio will not sustain the level of real spending that a \$1 million portfolio could sustain a century ago. Real yields are lower.

A better, albeit still imperfect, definition of wealth is the real spending that our portfolio can sustain, over the span that the portfolio is intended to serve. An 80-year-old with \$1 million is far wealthier than a 40-year-old with \$1 million. A \$1 billion pension fund can sustain larger payouts than a \$1 billion endowment or foundation, due to the finite life of pensioners (hence of current pension obligations).

Our industry pays scant attention to the concept of "sustainable spending," which is key to effective strategic planning for corporate pensions, public pensions, foundations, endowments and even for individuals. *Sustainable spending typically starts with sustaining the real value of the assets.* This requires realistic return assumptions. We need to know how much we can spend on a near-risk-free basis, in order to know how much of our intended spending comes from wishful thinking – from hope. This exercise sets the stage for a reasoned, risk-controlled quest for the incremental returns that we "hope" to achieve. Finance theory has paid this whole subject little heed.

"Sustainable spending" is not a fixed rate on assets. It changes as real yields change. Most foundations and endowments have used a 5% or 6% spending rule for many years. The capital markets have sometimes been priced to make this an easy goal, and sometimes (e.g., in recent years) a very difficult goal. For the same reasons, pensions cannot hope to duplicate the 1990s experience of replacing pension contributions with pension fund returns.

In recent years, many otherwise-sophisticated institutional investors have taken the view that they "need" a higher rate of return than the return that is assuredly available in the lowest-risk strategies (long, laddered treasury bonds for most pension funds, or long, laddered TIPS portfolios for endowments and foundations), and therefore "need" more in risky assets in order to earn their risk premium. It is a truism that one cannot earn a lofty return or *incur miserable losses* without above-average risk. It is very dangerous, however, to assume that higher risk will reliably lead to higher returns.

If we cannot be assured of a substantial risk premium, isn't it better to commit to a spending stream that we can *reliably* earn, boosting our spending only as future happy surprises increase our sustainable spending? Of

course, this option isn't available for foundations which must spend 5% each year, or lose their tax exemption. Alternatively, if we choose to spend more than our sustainable, shouldn't we at least acknowledge that we're spending future investment returns – that we may or may not earn?

For example, if we can assuredly earn a real return of 2% and want to spend 5%, then we need to find an incremental 3%. This must come from (1) a risk premium earned on our selected departures from our risk-minimizing portfolio, (2) an "alpha" from our superior choice of investment managers and strategies, or (3) additional contributions to our asset base.

Today, the average corporate pension fund is using a *pension return assumption* of roughly 8.5% in their earnings statement, and the average public fund is using a discount rate of 7.5% to 8%. With the bond markets yielding about 4%, and with most funds having about 30% to 40% in mainstream bonds, this means that most sponsors are expecting to earn at least 10% on their non-bond assets – a 6% increment over bonds – either from the equity risk premium or from alpha.

It is the conventional view that there is a large risk premium for equities and other risky assets. So, many sponsors expect to make up some of the difference with riskier assets. But, the current risk premium *cannot* be assessed by looking at past excess returns. This would lead us to boost our expectations at market tops and lower them at market bottoms. Instead, we should examine the building blocks of return. As we've already demonstrated, from current market levels, we do not find a large risk premium in most of the markets that we typically rely upon for this extra return.

The Role of Inflation

At the same time that current market levels are not priced to produce large risk premiums, rising inflation threatens to reduce the real returns actually available. During the bull market of the 1980's and 90's, inflation declined, while equity and fixed income returns increased. From 1929-1989, 43% of the total US equity market return was a result of inflation. From 1989-2001, only 20% of the annualized return of the US equity market was attributable to inflation. With nominal yields far lower today than in recent decades, real returns will decline if inflation rises, which may well happen in the years ahead.

For the long-term investor, return expectations of 8% and 9% can't be achieved in a world of stock yields below 2% and bond yields of 4%. If the intended spending rises with inflation, as it often does, then sustainable spending falls well short of 5%, absent contributions. In this environment, we must think creatively to meet our investment needs. We must look beyond traditional stocks and bonds to alternative asset classes that can be priced to offer better returns. We must actively manage our asset mix, including alternative assets in our decisions. And within each asset class, we must actively manage individual securities to seek those that are out of favor and priced for better returns. Pursuing these steps in parallel can improve our outlook for real inflation-adjusted returns.

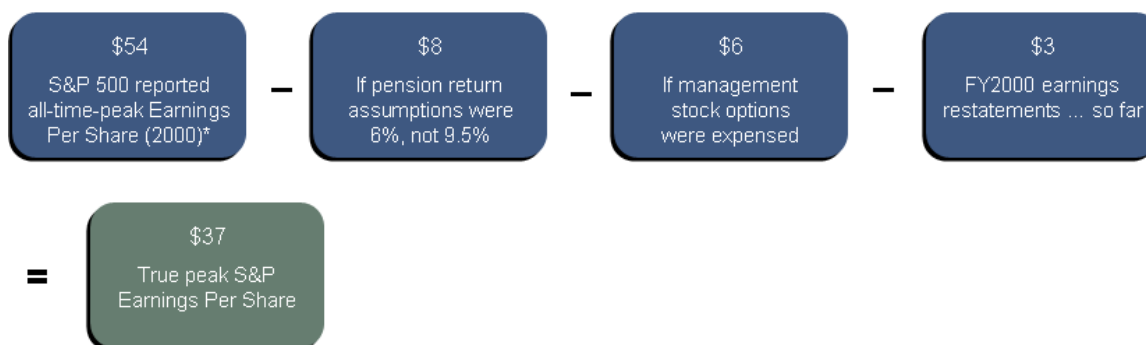
The Outlook for Stocks and Bonds

The current outlook for bond and equity markets reveals why investors must look beyond traditional stocks and

bonds for real returns. Returns are generated by three components: income (dividends), growth in income (dividend growth) and valuation expansion (P/E increases), or the price that the market is willing to pay for the income generated by an asset. Examination of these three components of returns for the US equity market reveals that the market is in the midst of a “perfect storm” as shown in Exhibit A. A combination of high valuations (i.e. P/E ratios), low quality earnings, and a low risk premium create the possibility of lower equity returns going forward.

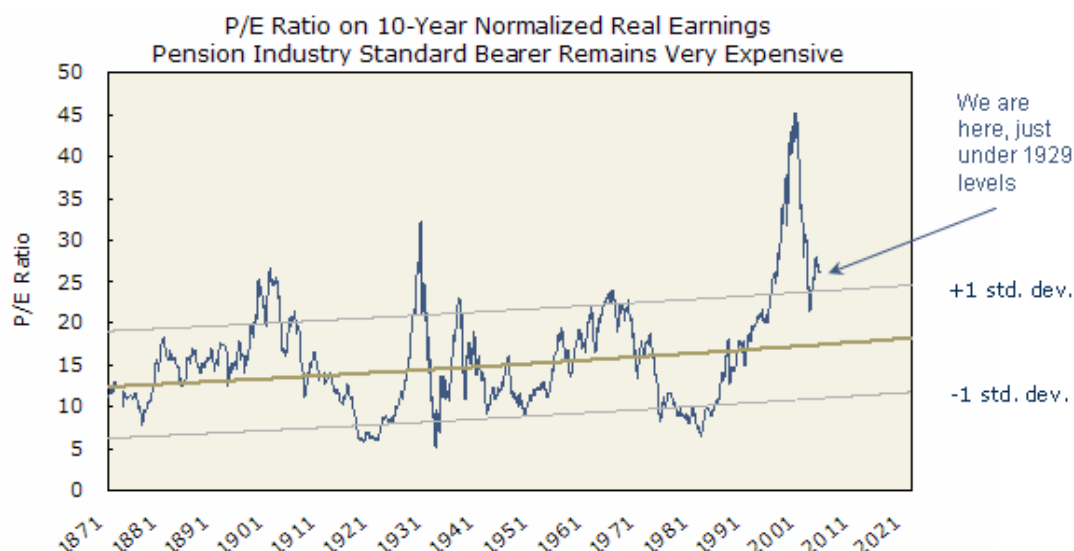
The first element of our “perfect storm” is earnings quality. In 2000, the S&P 500 reported a then-all-time-peak of \$54 in earnings. While that peak was exceeded in 2004, it remains the all-time-high in real, inflation-adjusted terms. How real was the \$54 in reported earnings? If corporate pension return assumptions had been set at 6% – a yield that was then available in the bond market to defease the long-term pension liabilities – instead of the 9.6% reported, the earnings figure would have been reduced by \$8. Reported earnings would have dropped by another \$6 if management stock options had been expensed. And, as of early 2005, earnings restatements for FY 2000 have resulted in a \$5 reduction to reported earnings {BOB – PLS FIX EXH A}. In other words, the true peak earnings for FY 2000 were closer to \$35, rather than the \$54 actually reported to Wall sStreet by Standard and Poor’s.

Exhibit A



Not only are earnings overstated but the price assigned to overstated earnings numbers is well above historical levels and so may well decline. Exhibit B shows that, as P/E ratios return to within one standard deviation of their historical level after a boom, several or more years of compression in price/earnings ratios have typically followed.

Exhibit B



Past is not prologue. Three previous secular bear markets, following a secular bull market peak, does not mean that we must assuredly repeat this pattern. But, it is dangerously naïve to suggest that this can't happen. And, it's equally dangerous and equally naïve to suggest that one nasty bear market, which served merely to bring us back to historical *peak* levels, has brought us "back to the races." The equity markets seem priced to provide forward-looking returns below historical norms – even if current valuation levels hold and there's no reversion back towards historical "normal" valuation levels.

The third element of the "perfect storm" is the decline of the equity risk premium. Investors, as well as academics, have historically expected an equity risk premium of 5%. The logic is as follows. *If* stocks offer a 5% "risk premium" relative to bonds, then it makes little sense for any long-term investor to diversify away from stocks. The arithmetic is compelling. *If* stocks normally deliver better returns than bonds, by 5% per year, compounded over time, the long-term investor has almost a 95% chance of winning with stocks by the end of a 20-year span. The "cult of equities," the notion of "stocks for the long run," is predicated on that lofty risk premium. If the risk premium is smaller, then the arithmetic quickly becomes less interesting: If the risk premium falls by half, the time required to have high confidence of winning with stocks quadruples. It's simple, but powerful, arithmetic.³

Many in academia like the simplicity of a fixed risk premium, matching the historical excess return of stocks relative to bonds or cash. Simplicity is often a good thing. But, as Albert Einstein was fond of saying, we should seek the simplest idea that matches reality – *but no simpler!* A fixed risk premium is a hypothesis, not a fact; indeed, it's one of the least defensible hypotheses in the finance world today.

What is the equity risk premium today? It is the difference between the current yield on equity, plus reasonable real growth expectations, and the current real yield on bonds. The long term real return to stocks can be calculated using the building blocks of return: income (dividends), plus the likely future real growth in income. The latter can be approximated by GDP growth, less growth in income attributable to the creation of new enterprises, in which today's equities cannot participate. (The new enterprises have yet to be created. Therefore, you cannot today purchase equities for these entities! Historically the growth of earnings and dividends from established companies has been 1.1%, which is about 1.6% less than the real growth of the economy, so this might be an approximation of the growth attributable to new enterprises.) The real bond return is simply the current TIPS yield. As shown in Exhibit 3, subtracting the two real returns produces an equity risk premium of approximately 1%, far smaller than the "fixed" risk premium of 5% built into the models of far too many academics and investment professionals.

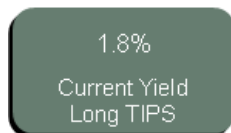
³
Thanks to Andre Perold for pointing this out

Exhibit 3

Real Stock Returns

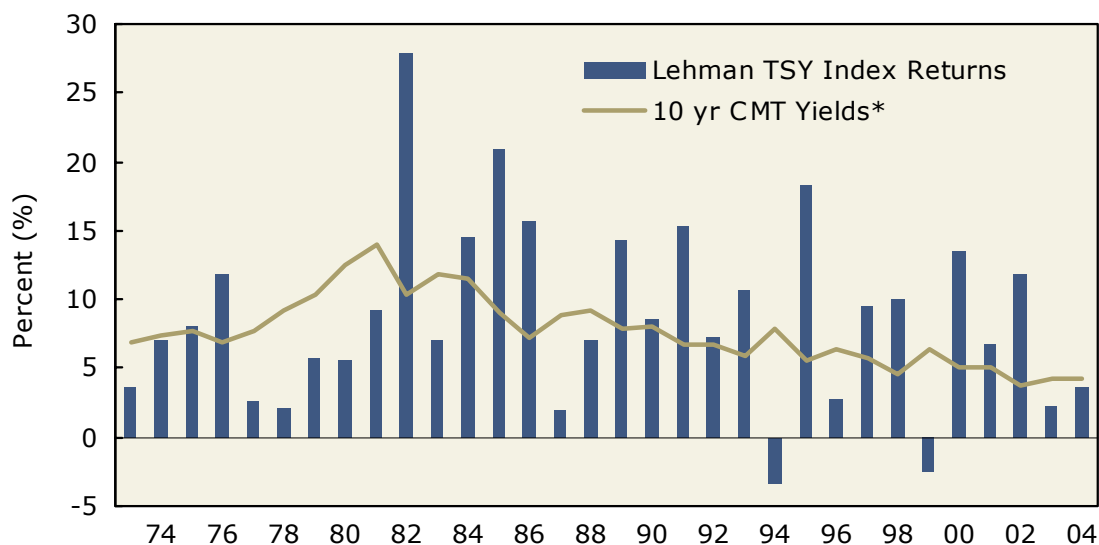


Real Bond Returns



Given conservative real stock returns of 3% and an equity risk premium of a little over 1%, investors might be tempted to turn to the other traditional asset class: bonds. Like equities, bonds experienced a rampant bull market in the 1980's and 90's, driven by falling yields and historically low interest rates.

Exhibit 4



However, if the Federal Reserve no longer allows interest rates to drift lower, but either keeps them stable or raises rates (which might happen in a reflationary environment), then bond yields should continue to rise, and there is no guarantee that bonds will outperform stocks. The result: the outlook for bonds is modest. The best estimate of future returns on bonds is probably the yield on the day that you buy one. In early 2005 the notional long-bond yield is between 4% and 5%. As previously demonstrated, TIPS represent the expected real long term bond yield because TIPS are adjusted for inflation. With a TIPS yield of around 1.8%, the best estimate of future real bond returns is around 1.8 %.

The Case for Alternative Assets

The modest real return available with stocks and bonds creates a compelling case for the use of alternative asset classes. The power of alternative asset classes is that they are uncorrelated or negatively correlated, providing the opportunity for an effective asset allocation in almost any market environment.

Table I: Asset Class Returns (1997 – 2004)

Asset Class	Return (Cumulative)	Risk* (Ann. Std Dev)	Correlation with 60/40*
■ Commodities	+113%	15%	8%
■ Real Estate (REIT)	+107%	15%	31%
■ Emerging Mkt Debt	+ 89%	16%	58%
■ TIPS Composite	+ 66%	5%	-6%
■ Long Govts	+ 61%	9%	-3%
■ Salomon World Bonds	+ 53%	7%	4%
■ ** <i>Lehman Agg</i>	+ 44%	4%	4%
■ GNMA's	+ 40%	3%	9%
■ High Yield Bonds	+ 36%	7%	52%
■ Short-Term Bonds	+ 27%	2%	-13%
■ Convertibles	+ 14%	14%	77%
■ ** <i>60/40 Passive Mix</i>	+ 10%	11%	100%
■ ** <i>S&P 500</i>	- 11%	17%	99%
■ EAFE Intl Stocks	- 38%	16%	74%

· Risk and Correlation from 1/97 to 12/04.

Table 1  demonstrates the performance potential of alternative asset classes. In an era in which most investors remained wedded to stocks and bonds or a traditional 60/40 portfolio, commodities outperformed all other asset classes and US equities finished second from the bottom on the list of asset classes as measured by annualized returns during the period. Depending on the market environment (falling rates, rising rates, inflation, deflation, growth, stagnation), there is an optimal mix of asset classes that may produce superior returns relative to any other mix of asset classes. Asset classes do not necessarily move together, which is why it makes sense to allocate assets among different asset classes depending on the current or expected market environment and the degree of correlation among asset classes. Table 2 demonstrates the correlation of asset classes from the inception date listed on the chart for each through December 31, 2004: Clearly, as some asset classes do better than their long term average, others do worse.

Table 2: Asset Class Correlations

Product Characteristics	Global Real: US TIPS Index as of 1/31/97	Dow Jones AIG Total Return as of 12/31/90	3 Month T-Bill Index as of 12/31/90	Lehman Long-Term Treasury as of 12/31/90	Lehman Aggregate as of 12/31/90	JPM Govt Bnd Non-U.S. HED G0 as of 12/31/90	ML US High Yield, BB-B Rated as of 12/31/92	JP Morgan Emerging Markets + as of 12/31/93	S&P 500 as of 12/31/90	MSCI EAFE Index as of 12/31/90	Wils hire REIT as of 12/31/90	LBAG(40%)\ S&P 500(60%) as of 12/31/90
Global Real: US TIPS Index	1.0											
Dow Jones AIG Total Return	0.2	1.0										
3 Month T-Bill Index	(0.0)	(0.1)	1.0									
Lehman Long-Term Treasury	0.8	0.0	0.1	1.0								
Lehman Aggregate	0.8	0.0	0.1	1.0	1.0							
JPM Govt Bnd Non-U.S. HED G0	0.6	(0.0)	0.3	0.6	0.6	1.0						
ML US High Yield, BB-B Rated	0.1	0.1	(0.0)	0.2	0.3	0.2	1.0					
JP Morgan Emerging Markets +	0.2	0.2	(0.0)	0.1	0.2	0.2	0.5	1.0				
S&P 500	(0.2)	0.1	0.1	0.0	0.1	0.1	0.5	0.5	1.0			
MSCI EAFE Index	(0.2)	0.2	(0.1)	(0.0)	0.0	(0.0)	0.4	0.5	0.7	1.0		
Wils hire REIT	0.2	0.1	(0.1)	0.1	0.1	0.1	0.3	0.3	0.3	0.3	1.0	
LBAG(40%) \ S&P 500(60%)	(0.1)	0.1	0.1	0.2	0.3	0.2	0.5	0.5	1.0	0.7	0.3	1.0
Annualized Standard Deviations	5.25%	11.98%	0.47%	8.58%	3.91%	3.02%	6.50%	16.25%	14.48%	15.14%	13.22%	8.96%
Annualized Period Returns	8.40%	7.27%	3.93%	8.96%	7.25%	7.67%	7.30%	13.65%	11.17%	6.10%	14.13%	9.86%

The fact that asset classes do not move together creates the opportunity for active asset allocation, or the choice of how much to invest in various asset classes at various points in time based on current and predicted market conditions (opportunities). Active asset allocation has evolved from its first incarnation as Tactical Asset Allocation (TAA) to its more complete form, known as Alternative Asset Allocation (AAA). AAA involves the periodic reallocation of portfolio assets among different asset classes based on near-term market conditions or forecasts. AAA enables portfolio weights to deviate temporarily from their long-term targets to optimize returns, preserve capital or exploit investment opportunities as they arise. For example, between January 1998 and December 1999, US equities produced annualized returns of 25%. During this same time period, the Lehman Aggregate generated annualized returns of approximately 4%. Traditional 60/40 asset allocation would have resulted in total annualized returns of 16% when an investor could have utilized AAA to allocate more heavily towards equities based on current market opportunities and, therefore, enhanced returns.

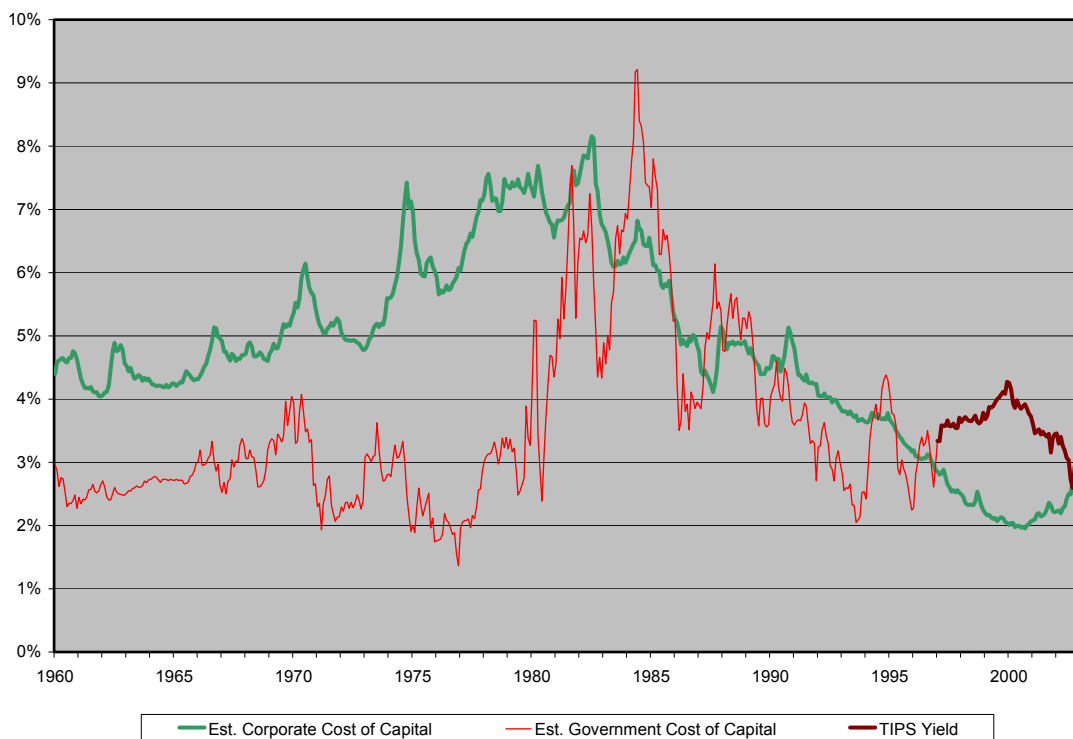
In the past, TAA involved tactical allocation among three asset classes: stocks, bonds and cash. However, TAA has evolved to encompass a broad array of asset classes, including real estate, emerging market equity, and commodities, among others. As it has developed, this broadened form of TAA (AAA) has become more sophisticated and more widely adopted in the marketplace.

Why might AAA be expected to generate positive real returns? There are two reasons. First, there is the use of alternative assets. Consider a portfolio composed of the asset classes in Table 2. The portfolio would have at its discretion long US government bonds, US Treasuries, European and Asian equities, high yield bonds, international bonds, commodities, US real estate and US equities. Assume that over a long time period valuation levels don't change. Anything riskier than a risk free-asset should earn a premium. TIPS can be considered the risk-free asset, as we explain later. With the exception of treasuries and bonds, all other asset classes have low TIPS correlations and all have correlations (in absolute terms) less than 1. As the TIPS yield (risk free rate) moves, all other asset classes move less than TIPS. Given a risk premium associated with each asset class, the risk premium would also move with TIPS but to a lesser degree (or in the opposite direction, depending on correlation). If the risk-free rate decreases by 1%, the Lehman Long Term Treasury yield might

decrease by 80 bps while the yield on the S&P 500 might actually increase by 20 bps. In this example, the portfolio's real return could increase by 100 bps overall, or 1%, due to the low correlations among these asset classes, despite the 1% decrease in the risk-free rate.

The second reason that AAA might be expected to generate positive real returns is its ability to allocate portfolio weights among different asset classes based on a shifting pattern of market and economic opportunities. For example, in a rising interest rate environment in which total bond returns decline, AAA could allocate portfolio assets to non-correlated or negatively-correlated asset classes to avoid the negative return drag inherent to fixed income in that environment, and to capitalize on the positive returns available with asset classes whose returns respond positively to rising interest rates.

Exhibit 2. Corporate and Government Cost of Capital (Jan 1960 - Mar 2003)



TIPS

What real return could one expect with AAA? To answer this question, we need a reliable risk-free rate. As stated previously, TIPS can proxy for the risk-free rate. Simplistically stated, stocks give us (1) a real yield, (2) a default premium for the risk of bankruptcy, and (3) a real growth expectation. For a broad market index, the latter two factors converge on a real growth rate of about 1%, so that the real cost of corporate capital is approximately the dividend yield plus 1%. In other words the average *real* cost of capital for the broad market averages, when funded through the equity markets, lies about 1% above the average dividend yield. Surprisingly, corporate bonds are a weaker measure of the real cost of corporate capital, due to the unknowable future rate of inflation.

TIPS clearly define the *real* cost of capital to the government. Before the launch of TIPS, we needed to infer that cost. Finance literature suggests that the real cost of capital should reflect expected real productivity growth, plus some premium for default risk and/or illiquidity. Since productivity growth closely tracks real per-capita GDP growth, this would point to a real cost of capital for the government (assuming zero default risk, which isn't quite true) approximately matching real per capita GDP growth, which has averaged 1.4% since World War II. Equities should have a risk premium, reflecting both the volatility of equities and the uncertain rate of real earnings or dividend growth

Exhibit  shows that this has been an inaccurate picture, with the government cost of capital sharply exceeding these levels (particularly in the 1980s, as investors factored in a large premium for expected inflation, which failed to materialize). The corporate cost of capital, as measured by stock dividend yields plus growth, swung sharply *below* the government's cost of capital at the peak of the 1998-2000 bubble. The cost of capital for the government and for the corporate arena (defined in this fashion) have also seen sharply negative correlations since late-1996, just before the launch of the TIPS market.

TIPS yields and stock market yields (plus a 1% growth premium) are, the best measures of the cost of capital for the government and for the corporate world, respectively. The relative comparison of the two is, in our view, the best measure of the relative attractiveness of stocks and bonds, given the remarkable (and largely unnoticed) parallels in the ways that the two assets deliver returns to their investors.

Given the TIPS yield as the real "risk-free" cost of capital, the risk-free rate has ranged from 3.3% in January 1997 to a high of 4.3% in January 2000 and a low of 1.8% in April 2005. The best estimate of the risk-free rate going forward is the current TIPS yield, or 1.8%.

Risk Premia for Alternative Assets

Given our choice of TIPS as the risk-free rate, what are the potential risk premiums associated with the asset classes in a highly diversified portfolio? Starting from the top of the correlation matrix in Table 2 (but leaving commodities for later), the risk premium of low duration Treasuries would be small and primarily reflect inflation and credit risk. The risk premium associated with long-term government bonds would reflect inflation risk, since

holders of this asset class bear the risk that the real value of future coupon payments will decline with rising inflation. The risk premium associated with intermediate duration government and corporate bonds (the Lehman Aggregate) would primarily reflect credit risk with a small component for inflation risk since the largest risk that holders of this asset class bear is the risk that issuers of corporate debt will default on promised payments or declare bankruptcy. Inflation risk represents a much smaller component of the risk premium associated with government and corporate debt given its low to intermediate duration.

The risk premium associated with global government bonds primarily reflects currency risk, since inflation risk and credit risk are not significant, given monitoring by international monetary authorities and the low to intermediate duration of this asset class. The high yield debt premium primarily reflects credit risk, given its low duration, and the premium associated with US equities (the S&P 500) solely reflects equity risk.

The risk premia associated with emerging market debt and equity are more complicated. Emerging market equity bears significant risk from the potential lack of corporate governance due either to lack of resources or lack of experience in establishing and enforcing corporate governance standards. However, holders of emerging market equity are often unaware of the extent of the risk they bear and, therefore, pay a higher risk premium than they realize. Emerging market debt entails less risk than does emerging market equity due to controls by international monetary authorities and experience by the banks and financial institutions that issue emerging market debt in doing so historically. There is a higher penalty imposed on foreign debt issuers who “game” foreign investors than there is on foreign equity issuers who exhibit the same behavior but who are not monitored by international monetary authorities or similar governing bodies.

The risk premium associated with REITs is composed of both an equity component, since REITs are traded as equities, as well as a duration component, since the underlying assets in which REITs invest behave like fixed income assets.

The risk premium associated with commodities is difficult to measure, since investors typically invest in long-only, fully collateralized, futures indexes rather than actually owning commodities. For reasons that have been explained in various academic papers⁴, this form of investment might be expected to provide a “risk premium” over the collateral return. That premium has averaged 5-6% over collateral since 1960, but may not be as great in the future, as more institutions make allocations to this asset class. Nevertheless, it seems reasonable to expect some level of premium in addition to the return from the collateral chosen to support the long-only futures.

Averaging the potential long term risk premia associated with each asset class in the matrix might generate a total estimated long-term risk premium of 2% over TIPS, which themselves might offer a real return of 1.5 – 2%. The strength of AAA is the incremental alpha that results from each part of the asset allocation process. On top of the 2% risk premium that might be earned through including alternative asset classes, additional alpha can be earned through the choice of which alternative asset classes to use and the choice of manager(s) within each asset class. This additional AAA step, of activity managing each asset class, might produce an extra 100

⁴

See, for instance, Greer, Robert J., “The Nature of Commodity Index Returns,” *Journal of Alternative Investments*, Summer 2000. Also see Gorton, Gary and Rouwenhorst, Geert, “Facts and Fantasies about Commodity Futures,” *Yale ICF Working Paper*(2005)

– 150 bps of alpha if the right portfolio managers are chosen and an efficient set of asset classes as designated.

Finally, actively rebalancing the asset mix among the selected asset classes and managers might produce an additional 100 – 150 bps of alpha on top of that already generated. Consider for instance, that a simple rule of rebalancing the asset classes of Table 2 back to an equal weight every month would have provided a return from 1997 – 2004 that was about 80bp greater than an equally weighted “buy and hold” of those asset classes. Is it unreasonable to think that intelligent and timely rebalancing might achieve even better returns?

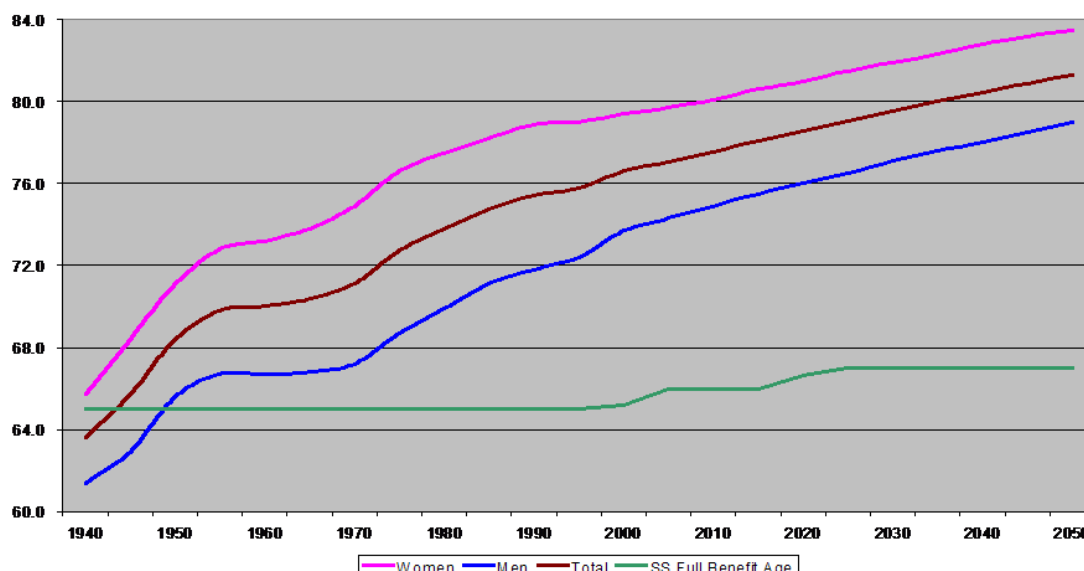
In short, it's reasonable to assume that AAA can potentially produce incremental returns of 4 to 5% on top of TIPS, which themselves produce an incremental return on top of inflation of 1 to 2%. If so, AAA might generate incremental returns above inflation of 5 to 6%. AAA can be an important real return strategy.

A Word on Demographics

The demographic patterns that have been evolving over the past 60 years have implications for retirement plans and for financial markets, of not only today but of the decades ahead. The first element of the demographic problem is the increase in the percentage of the population that is over 65. The proportion of the U.S. population over 65 will increase from 13% today to 20% in 2030. This is a result of the aging of the “baby boom,” born in the 15-odd years after World War II, coupled with the fact that life expectancy is much higher than 60 years ago, as shown in Exhibit 6. Because the birth rate since the early 1960s has been far lower than it was during the “baby boom,” the proportion of the population between ages 20 and 65 will steadily decrease over this same time period. The ratio of people aged 20-65 to people over the age of 65 will decrease from 4.9:1 in 2005 to 2.7:1 by 2035. The result will be a significant increase in the ratio of dependants to workers (who typically comprise about 60 to 65% of the population aged 20-65), beginning before 2010.

An adjusted dependency ratio should take into account not only older dependants but also children, further adjusted for the relatively higher proportion of resources consumed by the elderly relative to the young. This adjusted dependency ratio rises from 0.36 dependents per worker in 2008 to over 0.5 dependents per worker by 2030, an increase of over 38% .

**Exhibit 1. Demographics of Living Longer,
Life Expectancy, 1940-2050**



There are several implications that stem from this looming increase in the adjusted dependency ratio. First, the value of goods and services demanded by retirees (health care, leisure) may increase as they are provided by a shrinking supply (relative) of workers. Wages for those providing goods and services demanded by retirees should rise. Second, as retirees liquidate assets to purchase goods and services the value of these assets will decline. Retirees will likely favor fixed income investments, especially TIPS, which provide inflation-adjusted income. Growth stocks will decline in value as retirees attempt to unload them to a relatively smaller population of workers. The supply and demand imbalance may very drive down the real value of paper assets (especially the riskier assets, like stocks) and increase the value of goods and services demanded by retirees (as well as the wages of workers in favored industries).

In short, investors will likely be willing to sell paper assets to buy real assets, which can be a driver of inflation. An asset allocation program must recognize the consequences of this demographic shift and incorporate it into its investment process and choice of asset classes.

One other complication, associated with an aging population, has garnered little attention. While there are many exceptions to the rule, as people age, their productivity, their risk tolerance, their creativity and their entrepreneurialism typically decline (sad to say, as both authors of this chapter are past 50!). This means that the real per-capita GDP growth may slow as a falling fraction of the population works, and as we see a modest decline in productivity, creativity and entrepreneurialism. This should ripple through to a decline in the real growth in earnings and dividends, and also in the natural level of risk-free yields. Also, as the average risk tolerance in the investment community falls, the appetite for inflation-linked assets and lower-volatility assets may rise as the appetite for volatile assets, and assets that are vulnerable to inflation, falls.

Conclusion

Traditional asset classes are not positioned to deliver the returns that they have produced historically. Any asset class has three sources of return: income, growth in income and increasing valuations. The combination of current equity dividends, expected dividend growth and constant valuation levels (that are far above historical levels) would produce future real US equity returns of 3% without considering mean reversion. Expected real fixed income returns are also modest with a current TIPS yield of 1.8%. Despite low forward-looking real stock and bond returns, and an erosion of the expected equity risk premium to approximately 1%, many investors continue to incorporate return forecasts of 8% or 9% in their actuarial and personal investment assumptions and in their financial planning.

We cannot forecast the future by extrapolating the past. Doing so leads to assumptions that are not only inaccurate, but that prevent us from making choices that will enable us to reach our investment objectives. As the value of liabilities increases with inflation while real returns possible with traditional asset classes (i.e. stocks and bonds) diminish, investors must turn to alternative assets to fund their liabilities, and they must actively manage their asset mix.

Alternative Asset Allocation (AAA) is a powerful tool for producing real returns that can be utilized to provide the real returns necessary to meet (or exceed) liability requirements. AAA tactically allocates across numerous asset classes to exploit intermediate-term opportunities. AAA has three sources of alpha that may enable it to

produce real returns of 5-6% above inflation: the risk premium inherent to each asset class, the alpha generated by asset class and manager selection, and the changing choice of portfolio weights within each asset class throughout time.

Demographics will play a powerful role in the future of any asset allocation program. The retirement of the baby boomer generation will produce an increase in the ratio of dependents to workers that will drive down the value of paper assets, particularly relative to the value of goods and services demanded by retirees. Any asset allocation program must incorporate this fact into its investment process and asset selection.

Our ability to deviate from the crowd and to invest our resources in the highest potential assets is essential to our ability to meet our retirement objectives and to succeed in our investments.

Commodity Indexes For Real Return & Efficient Diversification

Robert J. Greer

Real Return Product Manager

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“Economic forces are not understood well enough for predictions to be beyond doubt or error....We are expecting too much if we require the security analyst to predict with certainty.”

Harry Markowitz, Portfolio Selection

Investment in commodities is an idea that has been around since the 1970's¹, but only recently has it become popular with institutional investors. Perhaps that's because traditional stocks and bonds have done so poorly in the last few years. Perhaps it's because investors have recently become more concerned about inflation, and they recognize that their liabilities will go up as inflation increases. Perhaps it's because investors are recognizing the potential diversification benefits that commodities offer. Or perhaps it's because they see other reputable investors who have committed to the asset class in search of potential benefits, which include:

- Diversification from stocks and bonds (zero or negative correlation)
- Positive correlation to inflation and to *changes* in the rate of inflation
- Long-term returns and volatility comparable to equities
- Protection from some economic “surprises” that is not offered by stocks and bonds.

This chapter will explain the fundamental reasons why those benefits have occurred in the past and why they might persist in the future. It's nice to see historical results. But an investor can't rely on historical results without understanding why those results occurred. First we'll explain why commodities are a distinct asset class. Then we'll think of the various ways that an investor might get exposure to the asset class, concluding that a commodity index is the best measure of inherent investable returns. We'll then explain why there are in fact inherent returns to the asset class, and why those returns should be expected to have the characteristics described above. And we will conclude with a brief look at historical results and consideration of how an investor might incorporate commodities in a portfolio.

Commodities as a distinct asset class²

Commodities are fundamentally different from stocks and bonds. While they are investable assets, they are not capital assets. Commodities do not generate a stream of dividends, interest payments, or other income that can be discounted in order to calculate a net present value. The Capital Asset Pricing Model does not apply to a bushel of corn. Rather, commodities are valued because they can be consumed or transformed into something else which can be consumed. Their value at any time is determined by basic laws of supply and demand. Analytically, it's the intersection of supply and demand curves that determines their price. And it's the expected intersection of those supply and demand curves in the future that will affect (but not totally determine) the price of a commodity futures contract. This is the unifying feature of commodities that distinguishes them as an asset class different from the other investable assets in a portfolio. These commodities include energy products, livestock, food, fiber, and industrial and precious metals. Unlike financial assets, commodities are *real* assets, also known as “stuff.” Stuff which can be used, touched, seen, consumed. Hard assets as opposed to paper assets. Not only are commodities a distinct asset class, but they are an important asset class in the world economy. The commodities included in some of the most popular investable indexes represent about US\$1.5 trillion of *annual* global production. It's important stuff.

Ways to get commodity exposure

If an investor wants exposure to commodity prices, the first thing he might think is that he should own commodities. Ideally, he should have a warehouse where he stores some barrels of crude oil in one corner, bushels of wheat in another corner, and a pen of live cattle in the middle of the space. Wrong! Not only is this obviously impractical, but in fact *the price of actual commodities has not even kept up with inflation since World War III*. Even if it were possible to own the physical commodity (as a “consumable asset”), this would not have provided an attractive return in the post-war period.

Some investors think they can get adequate exposure to the distinct asset class of commodities by investing in the equities of commodity producers. By creating a portfolio of oil and gas companies, mining companies, agribusinesses, and the like. This is not the same thing as getting direct exposure to commodity prices (and changes in those prices). Once you own stock of a commodity producer, you are exposed to the financial structure of that company, exposed to other businesses in which the company might be involved, exposed to changes in accounting practices of that company, and exposed to the management talents of that company. Perhaps most important, you are also exposed to the possibility that the management might, for valid reasons, hedge its commodity production, so that you don’t get the full benefit of changes in commodity prices. For instance, in one study, 78% of surveyed financial executives said they would give up economic value in exchange for smooth earnings.³

To get complete and direct exposure to changes in commodity prices, an investor must go directly to the commodity futures markets. At this point, he faces the question of “active” or “passive”. I.e., does he hire an active manager (a commodity trading advisor, or “CTA”) to give him the exposure to the asset class, or does he use a passive index. Some active managers might indeed create value. But the investor must ask the question, “Does this truly give me exposure to the asset class?” The best way to answer that question is to ask an active manager, “If I wake up one morning six months from now, and I see that the price of wheat has gone up, can you assure me that this will be positive for my portfolio?” Most CTAs will have to answer, “I don’t know. I can’t tell you if, six months from now, I’ll have a long position in wheat, a short position, or perhaps no position at all.” (Most CTAs will also have to tell you that they are likely to be holding positions in non-commodity futures, such as currency and other financial futures, so that they have exposure to a lot more than just commodity prices.) For these reasons, a CTA does not give consistent positive exposure to the asset class of commodities. Instead, just like hedge funds, the CTA is providing exposure to *the asset class of gray matter* (brain power). If the CTA in fact has good gray matter, in the form of technical systems or fundamental judgment, the investor might get good returns. But this is not the same thing as exposure to the asset class of commodities.

Unlike active management, a commodity index can serve as the mechanism for investment in this long-only exposure, or it can serve as the benchmark for active management of commodity futures. As such, an index will capture the inherent returns that have been there in the past.

Definition of a commodity index

A commodity index measures the returns of a passive investment strategy, which has the following characteristics:

- Holds only long positions in commodity futures.
- Uses only commodity futures (“consumable assets”).
- Fully collateralizes those futures positions.
- Passively allocates among a variety of commodity futures, taking no active view of individual commodities.

By holding only long positions, the investor will be required to “roll” her positions forward over time—unless she wants to own the physical commodity, which we have already established is both impractical and uneconomic. In other words, if she owns, say, the March crude oil contract, she will sell that contract and buy the April contract before delivery begins on the March futures. Then she will later roll from April into May. This process means that the investor will always be exposed to *changes in the expected future price of the commodity*. The second bullet point is obvious. We are talking about the asset class of “consumable assets”, not capital assets. No financial futures are included.

By “collateralizing” the futures positions, the investor will set aside collateral equal to the notional value of her long only contracts. Going back to crude oil, if she owns one crude contract at, say, US\$45 per barrel, times 1000 barrels per contract, she will have exposure to changes in the expected future price of US\$45,000 worth of crude. Therefore, she will set aside that amount of collateral to support her long-only position. This means two things. First, the investor will not get a margin call—unless the price of crude drops below zero. More important, the investor’s total return will equal the return on collateral plus or minus the change in the expected future price of the commodity. The collateral assumed in most published commodity indexes is T-Bills.

Finally, the investor will not try to predict which commodities will perform the best. Rather, she will allocate her portfolio to a broad range of commodities based on some predetermined algorithm, which typically will cause her to have more of her portfolio exposed to commodities that are more important in world trade. This is clearly not like managed futures. When using a commodity index, an investor doesn’t try to be smarter than the market; she merely extracts the inherent return that the market offers....and she restricts herself just to commodity markets. In this sense, a commodity index is indeed a distinct asset class.

Commodity Futures Pricing Model

Some people argue that, if the commodity futures markets are efficient, then there is no inherent return from consistently and passively owning long only futures. Not only do historical results prove those people wrong, but so does fundamental economic and financial logic, as the model described below explains.

It seems that most commentators like to talk about the energy markets, so this chapter will explore another market, live cattle, to explain the source of returns. Most commentators also like to talk about “contango,” “backwardation,” and “roll yield.” In this chapter we’ll try to avoid those terms.

Let’s assume that I’m a cattleman, and you, the reader, are a long-only investor in the commodity futures market. You have long-only fully collateralized positions in cattle, crude oil, wheat, and all the other commodities of an index. Further, let’s assume that your friend, Jackson, is neither a cattleman nor an investor. He is a meatpacker, and he has a commitment to supply, say, a million pounds a day of steak and hamburger to Safeway. Safeway will pay him market price, but he has to be sure that he has the meat to deliver.

We’re assuming efficient markets, which means that we all agree, at least at the margin, on what prices will be in the future.

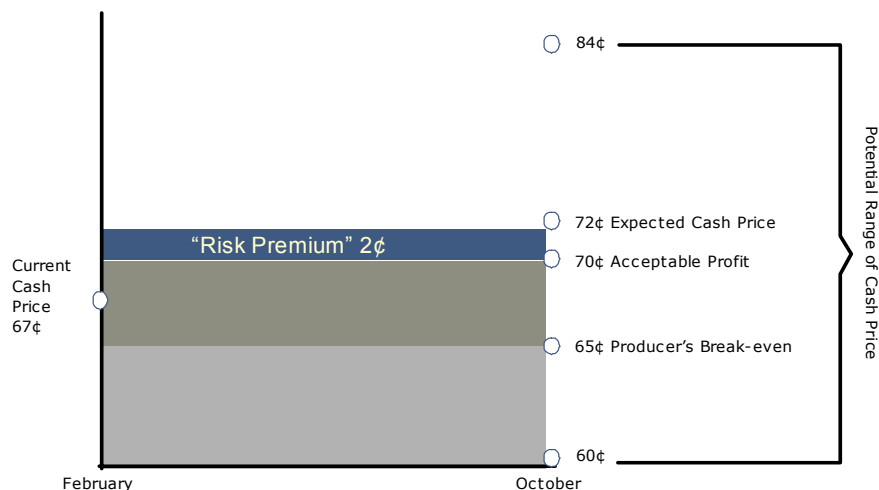
Let’s assume we (you, Jackson and I) are in February, and are looking out to October. We all agree that we think the price of live cattle in October will be 72 cents per pound. But we can’t be sure. We might have the entire world go on the Atkins diet, driving up the price of cattle to 84 cents. Or we might have a “mad cow scare” causing everyone to shun beef, and driving the price to 60 cents. We don’t know. But there is one thing we know about the future. We know that I have cattle coming to market in October. And when cattle are ready to come to market, they will be marketed, regardless of price. I also know that I have certain costs of production tied up in my cattle, say 65 cents per pound. I will need to sell my cattle for more than 65 cents in October if I’m going to stay in business as a cattle producer. So I approach you, the reader/investor, with a proposal: Since we both agree that the price of cattle is likely to be 72 cents in October, can we agree right now, ahead of time, that I will deliver my cattle to you at that price in the fall? I doubt you would accept my proposal, because I’ve just asked you to take on all of my price risk for a zero expected return. However, you’re a smart investor. You decide to counter my offer with a proposal of your own. You will agree to buy my cattle in October, but at a price of 70 cents—2 cents lower than where you or I think the price will really be. And I’ll be happy to take you up on your offer. I have just paid 2 cents to insure that I will remain in the cattle business! This is a key feature of commodity futures markets (unlike financial futures markets), which are often considered a “zero sum game.” There are participants in the commodity futures markets who have objectives different from the investment objectives of you, the long-only investor.

Why, you might ask, don’t I just go to Jackson the meatpacker, and contract with him for October delivery of my cattle. Simply put, Jackson, as a processor, doesn’t need the price

protection that I require. He will be selling beef to Safeway in October at market prices. If there are high-priced cattle, then he'll be selling high-priced steak. If low-priced cattle, then he'll sell low-priced steak. And either way, his inventory, on which he has price risk, is only a few days of supply. If Jackson locked in his cost of materials in February, without locking in his final selling price in October, he would actually be increasing his business risk. On average, over the wide range of commodities produced every year, the producer has larger inventories and higher fixed costs than the processor, who is the natural buyer of his products. Therefore the producer needs price insurance more than the processor.

The model I've described is shown in Exhibit 1. This "insurance premium" is not the only source of return to an index, but it's part of the picture.

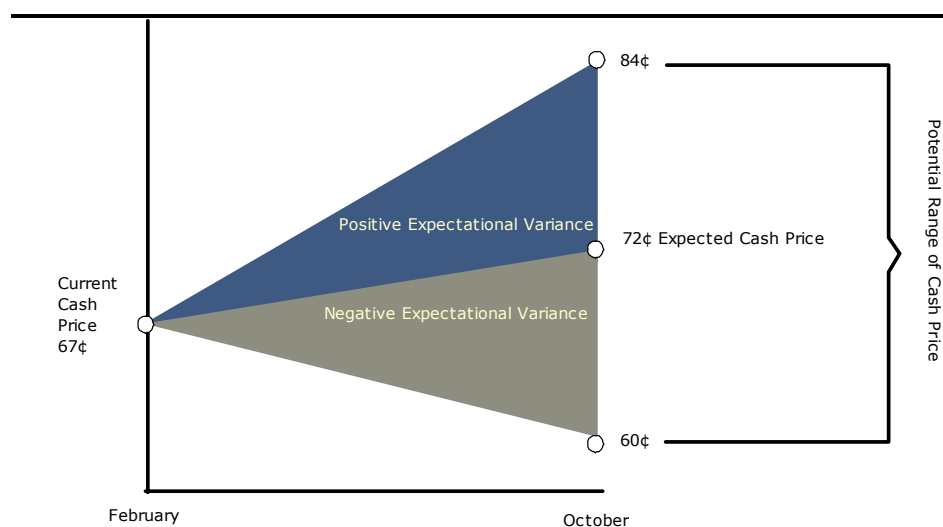
Exhibit 1: Commodity Futures Pricing Model



Source: PIMCO

Now time passes and we get to October. In all likelihood, the price of cattle won't be 72 cents. Something we didn't expect will have occurred. This is shown by Exhibit 2, which demonstrates that actual prices will have varied from our expectations. If we're really rigorous about our assumption of efficient markets, then we've got to say that, over time, the two shaded areas will even out. On average, we'll guess too high as often as we'll guess too low. However, in any one month, or any one year, this variance from expectations will likely dominate short term returns. So this "expectational variance"⁴ will not in the long run be a source of return. But it will very much affect the *pattern* of returns in a very important way, as we'll see in a minute.

Exhibit 2: "Expectational Variance"



Source: PIMCO

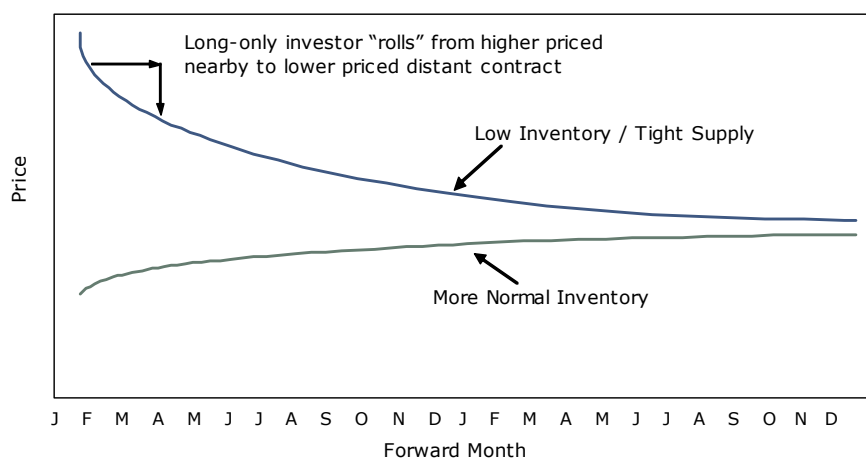
As we approach October, Jackson the meatpacker looks at the supply of cattle in feedlots in his market, and he begins to realize that there aren't as many cattle there as he had expected. Maybe a drought has reduced supplies, as cattle didn't fatten up quite as quickly as expected. Or, if this had been December, perhaps an early freeze would have shrunk supplies. For whatever reason, Jackson begins to worry. What if the cattle aren't there to be bought in the next few weeks? Or what if they are there only at a very high price? What's he supposed to do?

Simple. Jackson buys the October live cattle futures contract. This way, at worst, he can take delivery of cattle at one of several designated locations, to insure that he'll have animals to process. Or, more likely, if this anticipated shortage drives up prices in the cash market, he'll at least have profits from his long October position to help finance the purchase of cattle. Either way, at all costs he must meet his commitment to supply a million pounds a day of beef to Safeway. And Safeway will be paying market price, even if that price has gone up.

What's this likely to do to the futures prices, as Jackson pays up for the *convenience* of knowing that he'll have cattle to process through his plant? You're likely to see the price of the nearby contract go up, as Jackson and other meatpackers pay for the certainty of immediate supply. Economists call that "convenience yield." But perhaps Jackson's view of longer term prices (and your view as well, since the markets are efficient) hasn't changed? We already established that if he took a long term futures position, he would actually be increasing his business risk. This could lead to a situation where the longer dated futures prices are lower than current prices. Now imagine that Jackson had been working at a refinery where he was responsible for procuring crude oil. One day without a crude supply would not just disappoint customers. The cost of shutting down and then starting up a refinery is tremendous. How important is the *convenience* of supply in that situation? Very important.

Exhibit 3 is a schematic of forward prices for a commodity. The situation I just described is represented by the top curve. Future prices are lower than current price. For analysts who have grown up on the study of only financial futures, this makes no sense. For instance, how could the future price of the S&P 500 be lower than the current price? It can't, because there is an arbitrage opportunity—you could short the stocks of the S&P and buy the futures. Commodities are different. Can you sell short live cattle? Not likely. There is a term for this downward sloping pattern of forward price, a term which I promised I wouldn't use.

Exhibit 3: Examples of a forward curve



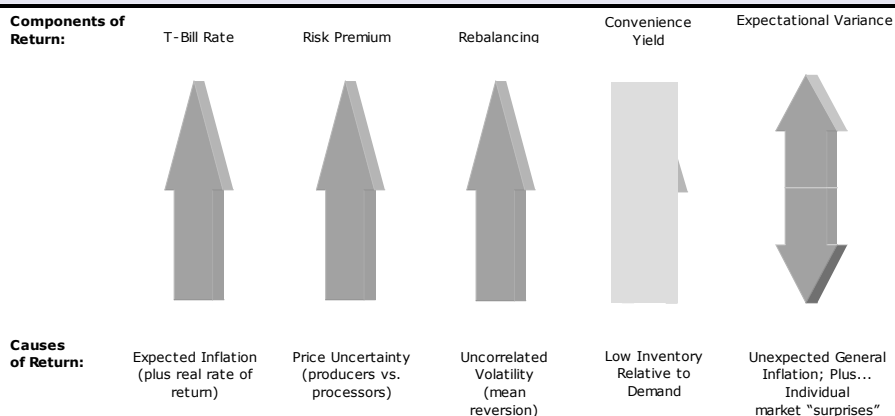
Source: PIMCO

Consider what this does to your portfolio of futures positions, since you are a passive long-only investor. As October arrives, you sell the nearby contract at a higher price and replace it with a lower priced December contract. Then, if in December there is still low inventory and tight supplies, Jackson may be paying up again for the convenience of being able to meet his contractual commitment to Safeway. That could cause the December contract to rise to the same level as the expired October contract. And you might have made money even if the cash price of cattle did not change between October and December.

At other times, when inventories are more plentiful, you are more likely to see a pattern of futures prices like the bottom line on this chart. There is a term for that price pattern also.

Let's begin to look at where your inherent return comes from, shown diagrammatically in Exhibit 4. There are several components to your return.

Exhibit 4: Commodity indexes: Basis for returns



Source: PIMCO

The first and easiest component of return is the return on your collateral, since your futures positions are fully collateralized. Published futures indexes typically assume that this collateral is invested in T-Bills, which over a long period of time have returned an expected rate of inflation plus a real rate of return. [True, as this is written in early 2005, T-Bills are yielding less than inflation. But both economic theory and longer term history demonstrate that T-Bills might be expected to provide a positive real yield.]

The next component of return is insurance. This has already been described. Now it's time to talk about another source of return offered by the commodity markets. This return comes from the fact that you would not expect commodity prices to be highly correlated with each other. Each commodity responds to a supply/demand model, with unique

supply/demand factors for each commodity market. The key factors that change our expectation about the price of oil are different from the key economic factors that change our expectation about the price of copper, which in turn are different from the key factors that affect our expectation about the future price of coffee. We take advantage of this fact by constructing a commodity index the same way that Harry Markowitz taught us was the efficient way to construct a portfolio of uncorrelated assets. An index can be designed to have weightings that force it to buy what goes down and sell what goes up. It can rebalance. This rebalancing can give you a third aspect of return to your commodity index—the return that can come from rebalancing a portfolio of assets that are not highly correlated with each other⁵.

The next arrow in Exhibit 4 shows the source of return labelled “Convenience Yield.” You’ll see this arrow is a little lighter. That’s because it’s there sometimes in some markets, and is dependent on the relative tightness of supply and demand. It’s also more important to processors in some commodities than in other commodities.

Finally, let’s go back to the “expectational variance” we talked about earlier. In most cases, the factors causing a change in expectations of future commodity prices have little or nothing to do with our expectations about stock or bond markets. A freeze in the Andes Mountains might dramatically affect our expectations about future coffee prices, but it will not affect the movement of the S&P 500, or the bond markets. Likewise with a strike in the copper mines in Chile, or a threat of mad cow disease. This fact supports the idea that movements in commodity futures prices should be generally uncorrelated with stock and bond returns with one important exception: Suppose that we all began to expect higher inflation.

If that happened, if in fact the world began to expect higher inflation, bonds would be dropping in price as interest rates rose. Many people would expect stock prices to drop as well. Yet a commodity index, because it reflects our changing expectation of future prices of over \$1.5 trillion per year of “stuff”, might be expected to rise in response to an expectation of higher inflation. This response to changes in inflation expectations actually gives us some reason to expect negative correlation between a commodity index and stocks or bonds.

Note that this last arrow points both up and down. Over a long time period, it may not be a source of return, as the market might guess too high as often as it guesses too low. But it is the major determinant affecting the *pattern* of returns to a commodity index over shorter periods of a week, a month, or even a year.

As an aside, ask yourself what kind of “surprises” are likely to affect futures. Most likely are unexpected reductions in supply. We seldom are surprised by a bumper crop or by additional supplies of crude oil, or cattle that suddenly appear. And demand is reasonably stable, unless there’s a shock like the threat of mad cow disease. So if supply shocks are more likely than demand shocks, then surprises should tend to be to the upside, which creates positive skew—certainly better than volatility to the downside.

Does a commodity index have an inherent return? Yes, though there can be extended periods of negative performance. That return consists of:

- Expected Inflation
- Plus (or minus) unexpected inflation
- Plus a real rate of return
- Plus an insurance premium to producers
- Plus another risk premium—sometimes—paid by processors for convenience
- Plus a rebalancing yield, if you choose to rebalance.

And because of the phenomenon of expectational variance, the pattern of index returns should be at least uncorrelated with stocks and bonds, or somewhat negatively correlated to stock and bond returns to the extent that unexpected inflation affects returns of all these asset classes.

Historical results

We have just reviewed the fundamental theory regarding the drivers of commodity index returns, and why those inherent returns should be expected to show a desirable pattern. It's as basic as Economics 101 and Finance 101. History supports these arguments. Table 1 shows the correlations and skews of the most used investable commodity indexes since their inception.

Table 1: Commodity index statistics

	DJ-AIG ²	GSCI ³	DBLCI ⁴	DBCLI-MR ⁵
Begin Date	31-Dec-1990	31-Dec-1969	31-Dec-1988	31-Dec-1988
End Date	31-Dec-2004	31-Dec-2004	31-Dec-2004	31-Dec-2004
Annualized Return	6.87%	12.00%	12.67%	13.22%
Annualized Volatility	11.66%	19.59%	23.67%	22.12%
Skew	(0.15)	0.99	2.10	1.62
Correlation to S&P500	(0.19)	(0.28)	(0.34)	(0.31)
Correlation to LBAG ¹	(0.09)	(0.07)	(0.13)	(0.16)
Correlation to CPI	0.17	0.17	0.32	0.30
Correlation to changes in CPI	0.12	0.33	0.37	0.37

¹ Lehman Brothers Aggregate Bond Index

² Dow Jones-AIG Commodity Index

³ Goldman Sachs Commodity Index

⁴ Deutsche Bank Liquid Commodity Index

⁵ DBLCI-Mean Reversion

Source: PIMCO

Past performance is no guarantee of future results.

They all indeed, for each of the time periods shown, have negative correlation to stocks and bonds and positive correlation to inflation. Most also have positive skew. The longest time series for these indexes is that of the Goldman Sachs Commodity Index, a product which has been calculated (on a back-tested basis) since 1970. This is a time which covers periods of increasing inflation, decreasing inflation, expansion, recession, war and peace. Over this extended period of time, that index has not only shown negative correlation to stocks and bonds, but has also shown a small positive correlation to inflation—and a larger positive correlation to *changes* in the rate of inflation. And it's changes in the rate of inflation that are more likely to hurt stock and bond returns. For instance, if we had a *stable* 10% rate of inflation, bonds could conceivably yield 12-13%, and stocks might not do so badly either. But what is disastrous for bonds and stocks is the move from a low rate of 3% up to a 10% rate of inflation. And that's when commodity pricing theory says that a commodity index should do well. In fact, especially over longer measurement periods, there is higher correlation to changes in the rate of inflation than to the level of inflation. And if you used annual returns instead of quarterly, this improved correlation to changes in inflation would be even more pronounced⁶. Furthermore, in only two years since 1970 did both stocks and a commodity index drop in value. This is true diversification.

To see what actual returns might have been in that wide range of economic environments from 1970 to the present, look again at Table 1. From 1970 through 2004, the GSCI actually had higher returns than the S&P 500, with only slightly higher volatility—and with that diversifying aspect of negative correlation. An examination of returns of the various commodity indexes over shorter periods of time would also show higher returns in the last few years, while returns in the '80s and '90s weren't much better than just the return on T-Bills (a time period when paper assets were benefiting a portfolio). It wasn't just in the 1970's that they did well. Over the most recent five years ending in 2004 this asset class performed well also.

One can begin to see why asset allocation models like commodities. And with a return that's related to inflation, which drives the liabilities of many investors, asset-liability models like commodities even more.

It looks like commodities might indeed shelter a portfolio from inflation, and also provide useful diversification in a wide range of economic environments. Meanwhile, you still have positive exposure to some unexpected events that might affect individual markets.

This could be shown if you looked at commodity index returns when we had the unexpected start of the first Gulf War. Even more interesting is to see the performance of a commodity index during the equity market meltdown of October 1987—commodities were flat. Why? People kept eating their Wheaties and drinking their coffee. No changes in supply and demand for commodities. That's the kind of fundamental economic diversification that makes this asset class so important.

In summary, a commodity index has an inherent return that can be expected to provide diversification in a variety of economic scenarios, when we don't know what scenario to expect.

Before concluding, let's consider one more issue. Let's say you buy into the asset class. That must mean that you want, besides diversification, some inflation protection. Remember that the published indexes, and all the data used in this chapter, assume that T-Bills are collateralizing long-only commodity futures. If you really want inflation protection, why would you use T-Bills as your collateral if you could use inflation-linked bonds (ILBs) instead.

Think about it. Real return characteristics of commodities backed by the real return aspects of inflation-linked bonds. ILBs might capture higher inflation as it actually occurs in higher reported CPI, while the commodity futures exposure might provide protection from rising inflationary *expectations*. And an investor might also consider, over a complete economic cycle, which might be expected to outperform—ILBs or T-Bills. If the former, then an investor could look for a way to collateralize futures with inflation-linked bonds. Just one more attractive feature of commodity indexes is that they can be implemented using a variety of styles for collateral management, including ILBs, or LIBOR, or some other style, as long as that style has a certain amount of liquidity.

Outlook

To this point I've made a case for commodity index investment as a strategic allocation. Diversification. Potential protection from unexpected events. Hedging from the inflation that affects our liabilities. These arguments were made while being agnostic about the economic outlook. In fact, as evidenced by the opening quotation from Markowitz, it's that agnosticism, that recognition that we can't "predict with certainty," which creates the need for the benefits that commodity indexes offer. But for a brief moment, as this is written in the first half of 2005, let's take a look at a possible scenario for the next few years, a secular timeframe. **The ideas briefly discussed here are presented much more thoroughly in other chapters of this Deutsche Investor Guide to Commodities.**

The U.S. government, the single largest economy in the world, is running large fiscal deficits and, in spite of some recent increases in the Fed discount rate, is still showing an accommodative monetary policy. Typically that might lead to increasing inflation, which could affect other economies as well. And due to continuing large trade deficits, the dollar has been weakening, which also could create higher inflation in the U.S. This threat of higher inflation, however, is being mitigated by the fact that, globally, there is an excess supply of labor and an excess supply of manufacturing capacity. China and India, and other emerging economies, are the most obvious places where this excess supply exists. This insufficient global aggregate demand might continue to mitigate inflationary pressures—at least inflationary pressures in labor and manufactured goods. But there is not an excess global supply of many commodities.

In the 1970's high commodity prices led to excess investment in infrastructure (supply, storage, and transportation), much of it supplied due to government incentives. Then, in the 1980's and 1990's, as returns to capital were poor in commodity industries, investment capital flowed elsewhere. Meanwhile, the global demand for commodities continued slowly and steadily to increase, as the global economy grew. That demand in many commodity markets is now catching up with aging infrastructure. And that demand is exacerbated by the growth of

emerging economies. As those economies become more urbanized, some of their workers are buying their first cars, first houses, first washing machines, and perhaps improving their diets. This means that the per capita demand for commodities is increasing in China, India, and elsewhere—and from a very low base. But infrastructure can't be built overnight. It will take many years and many hundreds of billions of dollars to catch up with this growing global demand. That means three things. First, there are more likely to be bottlenecks, or supply disruptions, which means that “surprises” (“expectational variance”) might more likely be to the upside. Second, tight supply and limited infrastructure might also mean, in some industries, that commodity processors will more frequently demand the *convenience* of having access to commodities until supplies are more plentiful. And third, to encourage the flow of capital into commodity industries, the commodity producers need an expectation of stable prices, which means that the demand for producer “insurance” may continue.

Fit in a Portfolio

Other chapters of this Investor Guide to Commodities will, with great analytical rigor, examine the role of commodities in a portfolio, as well as explore the various ways to get exposure to the asset class. But here we offer two analogies that begin to address this question.

Some people compare commodity indexes to fire insurance. You invest in it in case things go bad. If things don't go bad, the rest of your portfolio benefits. The difference between commodity indexes and fire insurance is that, even if you don't have the fire, the index has historically paid you a return anyway.

Others use the analogy of a fine martini, in which a commodity index is the vermouth. It makes the whole thing smoother and a little goes a long way.

In closing, consider another quotation from Harry Markowitz, from the same book:

“Only the clairvoyant could hope to predict with certainty. Clairvoyant analysts have no need for the techniques of this monograph.”

For readers who are clairvoyant, who can see into the future, you may not need the benefits of a commodity index. But for a financial analyst who can not predict with certainty, who is not clairvoyant, a commodity index can improve the expected performance of a portfolio in a world where we're not sure what to expect.

Endnotes

1 The first description of an investable commodity index was in The Journal of Portfolio Management, Summer 1978, "Conservative Commodities: A Key Inflation Hedge," by Robert J. Greer.

2 These thoughts on commodities as a distinct asset class are more fully expressed by the author in "What Is an Asset Class, Anyway?" in The Journal of Portfolio Management, Winter 1997.

3 "The Economic Implications of Corporate Financial Reporting," by John Graham and Campbell Harvey of Duke, and Shiva Rajgopal of the University of Washington (Working Paper #10550), as summarized by Peter Bernstein in his newsletter, Economics and Portfolio Strategy, 1 Aug 2004.

4 A term coined several years ago by Grant Gardner of the Frank Russell Company.

5 For a formula that might be used to measure the value of rebalancing in certain instances, see "The Nature of Commodity Index Returns," by Robert J. Greer, in The Journal of Alternative Investments, Summer 2000.

6 Gorton, Gary, and Geert Rouwenhorst. 2004. "Facts and Fantasies about Commodity Futures." Unpublished working paper.

Robert J. Greer

Bob Greer was the first person ever to define an investable commodity index or to advocate it as a separate asset class¹. He has spoken on this subject at numerous conferences and trade meetings, and has published articles on the subject in The Journal of Portfolio Management, The Journal of Derivatives, The Journal of Alternative Investments, Pensions & Investments, and elsewhere. For eight years he managed the commodity index business, first of Daiwa Securities, and then of Chase Manhattan Bank and JPMorgan. Prior to his management of commodity indices, Mr. Greer spent ten years in the investment real estate business.

These many years of real asset investment experience have come together in Mr. Greer's current position at PIMCO, where he is a Senior Vice President and Manager of Real Return Products, a product line which embraces commodities, inflation-linked bonds, real estate, and active asset allocation. He has also agreed with McGraw Hill to write a The Handbook of Inflation Hedging Investments, oriented to the institutional investment community.

Mr. Greer received a bachelors degree, with honors, in mathematics and economics from Southern Methodist University. He earned an MBA, with honors, from the Stanford Graduate School of Business.

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Investments in commodity-linked derivative instruments may be subject to greater volatility than investments in traditional securities. The value of commodity-linked derivative instruments may be affected by changes in overall market movements, changes in interest rates, and other factors such as weather, disease, embargoes, and international economic and political developments, as well as the trading activity of speculators and arbitrageurs in the underlying commodities.

Exhibits 1 – 4 are hypothetical examples for illustrative purposes only. The correlation of various indices or securities against one another or against inflation is based upon data over a long time period. These correlations may vary substantially in the future or over shorter time periods, resulting in greater volatility. Diversification does not ensure against loss.

The Lehman Brothers Aggregate Index (LBAG) is an unmanaged index, considered generally representative of investment-grade fixed income securities issued within the U.S. The Dow Jones AIG Commodity Index (DJAIG) is an unmanaged index composed of futures contracts on 20 physical commodities. Designed to be a highly liquid and diversified benchmark for commodities as an asset class. The Goldman Sachs Commodity Index (GSCI) is a composite index of commodity sector returns, representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the spectrum of commodities. The Deutsche Bank Liquid Commodity Index (DBLCI) tracks the performance of investments in a small set of liquid commodities. It is composed of six commodities: Sweet Light Crude, Heating Oil, Aluminum, Gold, Wheat and Corn. Each commodity has a constant weighting, which reflects world production and inventory so that the index provides a diverse and balanced commodity exposure. The Deutsche Bank Liquid Commodity Index - Mean Reversion (DBLCI-MR) tracks the performance of investments in a small set of liquid commodities. It explicitly uses variable weights for its constituent assets to capture the mean-reverting properties of commodities. The weights depend on price deviations from long-term averages.

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