The Superclasses of Assets Revisited

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Mr. Robert Greer, Scholar-in-Residence at the JPMCC, presenting at the December 4, 2015 JPMCC Research Council meeting. Mr. Greer is a member of the JPMCC's Research Council, its Advisory Council, and the *GCARD*'s Editorial Advisory Board.

Over 20 years ago I published a paper that is still referenced today regarding the definition of an investable asset class. ("What is an Asset Class, Anyway?" *Journal of Portfolio Management*, Winter 1997). This current paper will summarize that earlier work, since it is still relevant, but will also build on that work to address another issue important to investors – how "irrational exuberance" affects various asset classes.

The original article defined an asset class as "a set of assets that bear some fundamental economic similarities to each other, and that have characteristics that make them distinct from other assets that are not part of that class." With 20 years of hindsight I would now add that we are talking about investable assets. I would also say that the assets in a class have certain similar risk factors that distinguish them from other investable assets. Note that this definition does not require that one asset

class has a low correlation with another distinct asset class, nor does it require that the individual assets within an asset class be highly correlated to each other; rather, it looks at the underlying fundamental drivers of changes in price of an asset.

In some cases, derivatives are required to make an asset class investable, or are used to give exposure to the risk factors of an asset. For instance, a stock option is a derivative that can give exposure to price movements of a basic asset class, a share of stock. (Some may argue that the share of stock is itself an investable derivative which gives exposure to the actual assets owned by a corporation.) In a similar vein, a commodity futures contract is a derivative that gives an investor exposure to the actual physical commodity referenced by the contract. (Note: it is the commodity itself that determines membership in an asset class, not the futures contract. Futures contracts on corn and oil would belong to a different asset class than futures contracts on the S&P 500.)

Using this definition, there are broadly three *superclasses* of assets, each of which will be discussed in turn:

- Capital Assets
- Consumable/Transformable Assets ("C/T Assets")
- Store of Value Assets ("SOV Assets")

Each of these superclasses can be divided into sectors, which some people call separate asset classes. For instance, many consider stocks and bonds to be two different assets. Also, some assets have characteristics of more than one superclass – gold has some characteristics of a C/T asset, and some characteristics of an SOV asset.

Capital Assets

A capital asset is an ongoing source of something of value. One of the most well-known capital assets is stocks. They provide the expectation of a stream of dividends for an indefinite period of time. The other well-known set of capital assets is bonds, which provide the expectation of a stream of interest payments, ending with the return of principal. At a higher level, both stocks and bonds could be viewed as derivatives that provide access to the assets of a corporation, with differing claims on those assets. But in any event, both stocks and bonds provide a stream of monetary rewards, and the value of a stock or bond might thus be assessed by using a discounted cash flow model to determine a net present value. This also means that, everything else being equal (which it really never is), the value of a capital asset will decline as the investor's discount rate increases. This is the unifying characteristic of capital assets – they can be valued using a discounted cash flow model, and are subject to changes in investor discount rates.

Using this framework, it should be clear that income-producing real estate is also in the capital asset superclass. So are foreign debt and equity instruments. But since each of these other capital assets also provides exposure to some unique risk factors as well, it can make sense for a portfolio manager to consider subsets of this generalized asset superclass.

Mr. Robert Greer, who is also a Senior Advisor at CoreCommodity Management, responds to a question from Ms. Amy Myers Jaffe (microphone), whom in turn is currently the Senior Fellow for Energy and the Environment at the Council on Foreign Relations. To Mr. Greer's left (in the photo) is Dr. Bluford Putnam, Ph.D., Chief Economist at the CME Group while to Ms. Jaffe's left (in the photo) is Dr. David Hammond, Ph.D., of the Hammond International Group. Both Dr. Putnam and Dr. Hammond are members of the JPMCC's Research Council.

Consumable/Transformable ("C/T") Assets

To quote my earlier paper, "You can consume it. You can transform it into another asset. It has economic value. But it does not yield an *ongoing stream of value*." That is a functional definition of a superclass of investable assets that does not include stocks or bonds. The best known of these C/T assets are physical commodities – "stuff" like oil, corn, cattle and copper. Some of these assets might be consumed directly (like cattle or corn), or some, like oil, might be transformed into an asset (gasoline) that can be consumed. These assets certainly have value, and that value is often accessed using the derivatives of commodity futures. But the asset, or its derivative, cannot be valued using a discounted cash flow model. Neither the commodity, nor its associated futures contract, generates an ongoing stream of value. It's no wonder that investable commodities, usually combined into an index to show the returns to the overall asset class, cannot be evaluated using the traditional tools of the Capital Asset Pricing Model – they aren't capital assets! A different model is used for valuing C/T assets – the model of supply and demand. While the specific risk factors determining the price of oil are different from

those determining wheat prices, both of these assets are priced based on the generalized laws of supply and demand.

We do need to distinguish between the investable asset class of commodities and the well-known approach of "managed futures." Those managed futures typically utilize financial futures in addition to futures that give exposure to true commodities. Moreover, the actively managed futures account does not have consistent exposure to the direction of price movements in the underlying assets. At any given time, a managed futures account may have long exposure, short exposure, or no exposure at all to, say, the price of wheat. And at the same time that inconsistent exposure to the price of wheat and other commodities is typically mixed up with exposure to stock, bond, and currency values. So the best that can be said about managed futures is that, while they are not a C/T asset, they do provide exposure to the asset class of "gray matter" – if the trader is smart or has a good system, you might have good returns. But intellect is not an asset that can be bought or sold.

Store of Value ("SOV") Assets

The third superclass of investable assets is the Store of Value assets. They cannot be consumed. They cannot be valued using a discounted cash flow model. Yet they do have value. Fine art is an example of the SOV asset superclass. While it does provide some non-economic value, it is still "worth something." Currencies (distinct from debt or equity denominated in a foreign currency) is another example of where an investor may put his dollars (assuming the USD is his home currency) if he thinks that the foreign currency will appreciate relative to the dollar.

Significance for an Asset Manager

While there may be only three investable asset superclasses, there are certainly subsets of these classes, each with its own set of risk factors. Both stocks and bonds generate a stream of value, but some of the drivers of those streams of value are not the same. One is finite and the other has an indefinite life. Also bonds have a higher, though fixed, claim on assets of the issuing corporation. In a similar fashion, some of the drivers of supply and demand for oil are different from drivers of wheat prices. But there is one unifying driver of demand for all C/T assets – global economic growth. As global economies grow, they increase the demand for all C/T assets. This shared risk factor, along with the uniqueness of using a supply/demand model to consider valuations, sets the C/T assets apart from the other two superclasses.

There are also some investable assets that share characteristics of more than one superclass. Gold is "consumed" in the production of electronics and jewelry, some of which never re-enters the supply chain. But gold has even stronger characteristics of an SOV asset, useful when investors don't know where to turn for safety. Gold even has a little bit of a capital asset characteristic, to the extent that it can be leased. Undeveloped land is an example of an SOV asset which can be converted to a capital asset if it becomes part of an income-producing real estate project.

While an asset manager needs to go deeply into underlying risk factors in constructing a portfolio, and in considering the mix of risks offered in some of the hybrid assets mentioned, this framework of superclasses of assets can improve that manager's analysis. For instance, one would not try to use the

CAPM to value a C/T asset. This framework can also help an asset manager determine how much the portfolio is being exposed to the risk of irrational exuberance.

How do Superclasses Respond to Irrational Exuberance?

By "irrational exuberance," I mean the action seen too often with some investable assets, where there is not a trustworthy measure of "intrinsic value" and where investors consequently might bid up asset prices to unsustainable levels. For this phenomenon to occur, there must be a lack of an objective measure of value and also a constraint on supply. The tulip mania of the 17th Century is a classic case of speculators (I will not grace those market participants with the term "investor"), bidding for a limited supply of bulbs while the only measure of value was what they thought the next speculator might pay. A more recent case in our memory was the dot.com bubble of the late 1990s. There was no clearly recognized measure of value for many of those companies, but just a story. Yet there was, at least in the short term, a limited supply of dot.com shares available, so the stocks were bid to unsustainable levels until that bubble burst. Equities generally have these characteristics. There is a limited or constrained supply of the asset available, and no clearly objective measure of what those shares are worth.

Bonds are not nearly as subject to irrational exuberance. True, they exist in limited supply, so that unrealistic expectations might drive interest rate spreads to unrealistic levels, but at least bonds have a fixed maturity and, usually, a fixed schedule of interest payments, which can provide guardrails for valuations.

SOV assets, on the other hand, can in a major way be subject to irrational exuberance. As fear and greed flow through the markets, major shifts can occur in where it is best to "store value." Should it be in precious metals? Or in Treasuries? Or in the Swiss Franc? There is a limited supply of all of these assets and, again, they lack an objective measure of value.

C/T assets, specifically commodities, don't face the factors that lead to irrational exuberance, partly because investors, who are subject to that emotion, deal in the commodity futures markets rather than in trading physical commodities. This means that there is effectively no constraint on the supply of what an investor buys. If an investor wants to buy 200 contracts of crude oil, another market participant will take the other side of the transaction and immediately the market will have 200 more crude contracts than it did before. Granted, market participants may misjudge what the future price of crude, or coffee, or aluminum might be, but that incorrect judgement won't last for long. As the futures contract that they hold approaches the time of delivery, the futures price will converge to the price of the physical commodity, which is determined by supply and demand in the physical market. And that physical market does not for the most part include those investors/speculators that are bidding for futures contracts. Rather the supply and demand is driven by the actions of businesses that purchase the commodity for consumption or by consumers who are driving supply and demand by their actions in the grocery store or at the gas pump. Unlike capital assets or SOV assets, the commodity markets have an objective determinant of value that does not include those investors who might otherwise be subject to irrational exuberance.

Conclusion

This framework for defining asset classes should be helpful to portfolio managers who are making asset allocation decisions, including in commodities. It will help them achieve more balanced diversification and will also make them more aware of their portfolio risks – especially the risk of irrational exuberance.

Author Biography

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Mr. Robert Greer is the first person to define an investable commodity index and is a pioneer in explaining why commodity indexes are an asset class distinct from stocks and bonds. He developed one of the two common methods of explaining sources of commodity index returns and has spoken on this asset class on national television, at industry conferences and trade meetings globally, and at college lectures at Yale, Oxford, Columbia, Princeton and elsewhere. Mr. Greer spent eight years managing the commodity index businesses at Daiwa Securities, Chase Manhattan Bank, and J.P. Morgan before joining PIMCO in 2002 to build their inflation products business. Under his 13 years of leadership PIMCO's commodity business grew from a single pilot account to become the world's largest commodity investment management business, at one time responsible for $35 billion in accounts. During this time the other inflation strategies for which Mr. Greer had business responsibility, including inflation-linked bonds, real estate, and certain multi-asset strategies, also grew so that his lines of business included over $100 billion in assets under management.

Prior to building the commodity and inflation business for PIMCO and others, Mr. Greer spent a decade in the commercial real estate industry, and also spent many years in corporate finance and computer systems development. But for more than two decades Mr. Greer's primary interest has been the business of commodity investment: so much so that the Chicago Mercantile Exchange has referred to him as "the godfather of commodity investing." He has also published articles on the subject in *The Journal of Portfolio Management*, *The Journal of Derivatives*, *The Journal of Alternative Investments*, *Pensions & Investments*, and in the inaugural edition of the *Global Commodities Applied Research Digest*, for which he is also a member of the Editorial Advisory Board. He has consulted on the subject of commodities to the CIA, the Bank of England and the New York Fed, and participated in the CFTC's Agricultural Roundtable in April 2008. Mr. Greer wrote and edited, The Handbook of Inflation Hedging Investments, oriented to the institutional investment community, which was published by McGraw Hill in December 2005. In addition, Mr. Greer wrote the foreword to the book, Intelligent Commodity Investing, which was published by Risk Books in 2007. He also co-authored Intelligent Commodity Indexing, published by McGraw Hill in 2012. Among other interests since retiring from PIMCO, Mr. Greer serves as a scholar-in-residence at the J.P. Morgan Center for Commodities, part of the University of Colorado Denver Business School, and is a member of both the Research Council and the Advisory Council of that organization. He is also a Senior Advisor for CoreCommodity, LLC, a prominent specialty asset manager of commodity mandates. He provides strategic consulting for companies in the physical commodity business, and is a member of PIMCO's Index Oversight Committee. Mr. Greer received a bachelor's degree summa cum laude in mathematics and economics from Southern Methodist University and was in the top 5% of his M.B.A. class at the Stanford Graduate School of Business.