How Modern Is Your Portfolio Theory?

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by Direxion Funds

Executive Summary: Although Harry Markowitz’s Modern Portfolio Theory (MPT) and its Efficient Frontier have served as the foundation of long-term investment management since it was first developed in 1952, technology and other factors have resulted in a new, complicated, worldwide marketplace that is capable of changing within a second – and which bears very little resemblance to the unlinked, open-outcry markets of a generation ago.

In the past, active or “tactical” investment management referred to jumping in and out of stocks and bonds – market timing. With the introduction of sophisticated funds that help the masses harness the power of institutional managers and alternative asset classes and strategies, today, tactical management may help to renovate your portfolios – and help you retain and attract assets.

The New Frontier

From November 2007 to April 2010, the stock market went from falling to 12-year lows – with the Dow losing 53% of its value in 18 months – to climbing back to its highest level since September 2008, while breaking multiple volatility records. Even traditionally conservative, portfolio diversification investments like municipal bonds fell roughly 15% in 2008. Every asset class sustained losses except two: U.S. Treasury bonds and gold.

After this tumultuous period, experts have generally become more optimistic about investment opportunities and the state of the markets, but warn there could be more periods of volatility and uncertainty ahead. In financial circles, for many, this is the question that resonates: Is Modern Portfolio Theory dead?

The classic definition of Modern Portfolio Theory is the allocation of assets among different types of investments, each of which have unique characteristics – thus reducing the probability of sustaining a large loss. Real market performance over the last few years, however, forces investors to challenge this theory. Disparate asset classes, with distinct risk profiles, all went down together in 2008 and early 2009.

Financial advisors have been preaching the commandments of diversification and asset allocation to their clients for decades. Today, in hindsight, reality may cause many to consider a more active solution.
The Time. The Place. The Theory.

In 1952, Harry Truman was president, the average price of a house was $16,800, and the average American earned $3,400 per year. That same year, the then 25-year-old, future Economics professor, Harry Markowitz, first published his Modern Portfolio Theory under the title “Portfolio Selection” in the Journal of Finance.

The theory considered the effects of asset risk, return, correlation and diversification on probable investment portfolio returns. His conclusion was that risk-adjusted returns are maximized by combining low-correlation, expected return and standard deviation of return. More plainly, the theory concludes that the risk in a portfolio of diverse individual stocks will be less than the risk inherent in holding any one of the individual stocks (provided the risks of the various stocks are not directly related). For a well-diversified portfolio, the risk – or average deviation from the mean – of each stock contributes little to portfolio risk. Instead, it’s believed that it is the covariance – or difference – between individual stocks’ levels of risk that determines overall portfolio risk.

As a result, according to the theory, understanding that risk is an inherent necessity when seeking higher rewards over time, rational investors should diversify their portfolios to optimize or maximize their risk-adjusted returns. These optimal portfolios lie on the “Efficient Frontier.” This is the cornerstone of MPT.

The Efficient Frontier & Asset Allocation

Research has shown that more than 90% of the volatility in a portfolio’s return is attributable to the asset allocation decision over time. Investing in multiple asset classes increases the investor’s opportunity for a positive outcome, because different asset classes do not tend to move in unison. According to Markowitz, an investor may be able to maximize risk-adjusted returns by combining low-correlation, risky assets – allowing the investor to harness the benefits of diversification to attempt to maximize return for a given level of risk.

To create a portfolio, asset classes are evaluated on three metrics:

- expected return;
- standard deviation of return; and
- correlation with other asset classes.

One of the most recognizable graphs in any academic finance class is Markowitz’s Efficient Frontier graph. The one to the right uses two asset classes with expected risk represented by the horizontal axis and expected return represented by the vertical axis.

A portfolio that shows the lowest risk level for a given level of return is deemed to be “efficient” – and a series of such efficient portfolios can be plotted to form an Efficient Frontier, which illustrates the
expected risk/reward trade-off faced by investors (according to MPT). Portfolio asset allocation is widely used to help investors maximize the benefits of Modern Portfolio Theory and the Efficient Frontier.

Why is MPT so widely followed?

It all makes sense in theory. But theories, by definition, must rely on assumptions. MPT and the Efficient Frontier were born and bred in academia, an environment where assumptions can be made, controlled, isolated and plotted on graphs. It’s simple and elegant, and can lead into various mathematical proofs and equations, which may help to explain why it has become so widely accepted.

MPT assumes, for example, that all investors are rational, seek a long-term investment horizon, are risk-adverse, and avoid volatility. Its orderliness and simplicity make it easy to understand. Ideas which are easy to understand, are easily sold – and bought. Its conclusion leads to an elementary methodology of investment management: “Set it. Rebalance every quarter. Repeat.”

Almost 60 years later, the investing landscape has changed. 1952’s “open outcry” trading pits filled with face-to-face buyers and sellers, have evolved into a complex web of electronic exchanges driven by computer-trading algorithms. Individual investors trade everything from stocks and bonds, to futures, options and FOREX, from their kitchen table on exchanges all over the world. Proprietary traders use high-speed computers to execute “flash” trades of millions of shares in a hundredth of a second, thousands of times a day. Individuals and fundamental investors with long-term horizons compete against technical traders, hedge funds and arbitragers seeking to capture profits on miniscule inefficiencies that develop and disappear in an instant.

How’s that MPT working for you?

A Decade of Delusion for Buy & Hold Asset Allocation
December 31, 2009, ended what was, by all measures, the worst decade for stocks overall since World War II. On this date, the S&P was 9.10% below its level at the end of 1999.

Relative Value

Investors who put $10,000 in stocks on Dec. 31, 1999, had $9,090 10 years later, while the same amount invested in 10-year Treasury notes would have
grown to about $18,000, following a 6.1% annualized return, according to Bloomberg. A $10,000 investment in the Reuters/Jefferies CRB Index of 19 raw materials increased 3.3% per year, to $13,803. Gold futures rose 14% per year, turning $10,000 into $37,852. The average annualized return for U.S. equity mutual funds was 1.7% during the decade. Only one fund out of 3,833 gained in 2008: Forester Value Fund rose a mere 0.4%, according to Morningstar Inc.

Hedge funds’ annualized return was about 6.3% in the 10-year period beginning Dec. 31, 1999, according to Hedge Fund Research’s HFRI Fund Weighted Composite Index. The measure rose 19% in 2009 through Dec. 15. (Bloomberg).

**Volatility Killed the Asset-Allocation Star**

One of the reasons for the market’s 10 years of negative returns was volatility. Take a look at market volatility for the 10-year period between 1999 through 2009:

**10-Years of Market Volatility**

As measured by the S&P 500® Index, U.S. equities during that time experienced three major volatility shifts: The first was caused by the 2000-2002 tech bubble, when the index lost 37.5%. Volatility climbed to 46% in August of 2002, coinciding with the bottom of the equity market for that cycle. During the four-year period from 2003 through 2007, the market experienced below-average market volatility. Equities steadily rose amid global economic growth, supported by a glut of easy credit. Finally, 2008 and 2009 experienced the highest level of market volatility ever recorded, triggered in part by the collapse of Lehman Brothers in September of 2008.

**Why Reality “Shorted” MPT: Homogenous Diversity**

Books will be written on why buy and hold strategic asset allocation has failed for more than a decade. But some causes seem obvious. Just think about these:

**A Rose By Any Other Name**

Traditional asset allocation relies on diversification of asset classes that are not correlated. Many investors assume diversification from holding say, International Large Cap Blend stocks and U.S. Large Cap
Blend stocks.

Are they really that different in terms of risk and correlation? Let’s take a look.

Correlations between asset classes in today's markets aren’t static – they're fluid. Most notably, from July 2008 through June 2009 – a period in the decade where true diversification would have been most valuable – traditional asset classes fell in lock step (except for Treasuries, as noted earlier).

**Traditional Asset Classes Provide Inadequate Diversification**

As you can see, in 2008 and 2009, if you were invested anywhere in the traditional equity space your allocations were highly correlated, which is why you may want to consider alternative asset classes.

![Correlation of Indices to the S&P 500 Index](image)

Source: Bloomberg. The above indexes were selected to represent a broad array of asset classes. The chart above represents correlation numbers of traditional asset class indexes to the S&P 500 Index, including the Dow Jones Industrial Average (to represent US Large Cap Equities), the Russell 2000 Value and Growth Indexes (to represent US Growth and Value investments), The MSCI Europe Ex UK and the FTSE 100 (to represent continental Europe Investment), the NIKKEI 225 and MSCI Pacific ex Japan (to represent Asia Pacific Investment), MSCI Emerging Markets Index (to represent Emerging Markets investments), the BarCap US Inflation Linked Bond Index (to represent US Bonds investment), and the Citigroup Non USD Global Bonds Index (to include Global Bonds investment). The Non Traditional Indexes represented include the Goldman Sachs Commodity Index and the Dow Jones Equity REIT index. This correlation is shown for the last year through 12/31/2009.

**Less Good and More Bad**

Asset allocators actually “steer” into down trends and away from up trends in order to maintain their
allocations. For example, an investor may have good reason to believe that International Large Cap stocks will underperform for a period of time, but would continue to hold them, and in fact may buy more if negative returns in that class (or positive returns in another), shift the allocation of the portfolio. Conversely, if the fundamentals of small caps still look great after a quarter of stellar returns, strict MPT followers would still sell the winners even if all signs point to more gains for the next quarter.

**Sophisticated Institutional Investors Know...**

Money is like manure. You have to spread it around or it smells. - J. Paul Getty

Without question, there is some validity to a long-term approach to investing. Along with asset allocation, it’s important to balance time horizon and risk tolerance against the potential for returns. In fact, many of the largest institutional investors start with traditional asset allocation as their foundation. Yet, because investing is as much an art as it is a science, they also rely on more.

So despite a healthy respect for market efficiencies, since the 1970s, many of these institutions have been using alternative asset classes, and alternative strategies with the intent to amplify the benefits of the Efficient Frontier, by pursuing growth during cyclical bear markets, while managing volatility to reduce portfolio risk over time.

**The Ivies: In Another League**

For example, the endowment funds for Harvard and Yale Universities have been using alternative asset classes and strategies to produce higher, more consistent returns with less volatility for decades. The two multi-billion-dollar funds have consistently built a track record of high risk-adjusted returns.

<table>
<thead>
<tr>
<th>Results of the Endowment Approach to Investing</th>
<th>1985-2008</th>
<th>Annual Compound Rate of Return</th>
<th>Volatility (measured by Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yale and Harvard Endowments Combined</td>
<td>15.95%</td>
<td>9.75%</td>
<td></td>
</tr>
<tr>
<td>S&amp;P 500® Index</td>
<td>11.98%</td>
<td>15.60%</td>
<td></td>
</tr>
</tbody>
</table>

Source: The Ivy Portfolio by Mebane T. Faber & Eric W. Richardson © 2009 John Wiley & Sons Inc.

Specifically, the Harvard Endowment Fund has delivered annualized returns that have consistently outperformed a typical 60/40 stock/bond asset allocation portfolio over time. Harvard Management Company (HMC) has generated significant alpha, in great part, through the use of alternative strategies and asset classes.

Over the long haul, INCLUDING the most tumultuous market since the Great Depression – the period from July 2008 through June 2009 – these institutions have carved out very strong long-term performance.
HMC cites risk management – protecting the assets that they manage – as a critical component of their success. If some of the most successful long-term investors have been using alternative strategies and asset classes to manage risk for decades, why isn’t everyone taking their lead?

The Haves & The Have-Not

For one thing, not everyone has access to the resources that the managers of a $30 billion endowment or hedge fund have at their disposal. At that asset level, resources, staff, technology, and infrastructure abound. First, there are unique risks associated with alternative asset classes and strategies that require special expertise. Fund managers engage in leveraging and other speculative investment practices that may increase the risk of investment loss. Some classes of alternatives can also be highly illiquid. Often, alternative investment funds are not subject to the same regulatory requirements as, say, mutual funds, and often charge high fees that may potentially offset trading profits when they occur. In addition to these general risks, there are other more specific risks to be considered, depending on the asset class in question. Institutions may even designate a Chief Risk Manager to strictly command a department dedicated to examining the best ways to use alternative strategies and asset classes to hedge portfolio risk. Implementing those strategies and managing them day in and day out, requires 100% hands-on attention by experts. Fundamental and technical analysis, short strategies, leverage, counterparty risk and illiquidity require very sophisticated management expertise. These realities have all tilted the playing field in favor of the largest players – until now.

If You Can’t Beat ‘em…

So how does this affect advisors? As markets have become more sophisticated and unpredictable, clients have become more demanding. In fact, any advisor who is not offering solutions for managing risk with uncorrelated investment strategies – ones that are transparent and liquid – may be losing new assets to the competition.

Formerly, alternative assets and strategies for risk management were options for only those investors who had access to the resources of the largest institutional investment firms, such as Wilshire Associates, JP Morgan & Chase and State Street Global Advisors. Recently, however, that access has expanded through a convergence of traditional and alternative investment products and strategies that is clearly underway. Within the past few years, alternative asset classes and strategies gained significant traction with Registered Investment Advisors and high-net-worth investors, through the introduction of products that combine the use of sophisticated, non-correlating strategies, within buy and hold “40-Act” (Investment Company Act of 1940) mutual funds, offered by institutional managers. These funds provide easy, cost-effective access to sophisticated, institutional-style investment and trading expertise to help manage risk and pursue growth.
Traditional institutional-only managers are applying their expertise to these funds, providing the masses with access to alternatives previously available only to the largest and wealthiest investors.

… Join ‘em

If we’ve learned anything over the past decade, one thing is clear: If you believe in Modern Portfolio Theory, but understand that you face a new frontier in markets that are vastly more sophisticated than any that could have been anticipated in 1952, you need to make the most of every opportunity in both “up” and “down” markets. Thankfully, today there are more options than ever to amplify the benefits of the (new) Efficient Frontier.

You Have Alternatives

Whether you want to take an active “hands on” approach, trading futures, or leveraged tactical trading funds; or you’re interested in managed buy and hold funds that offer exposure to alternative class assets and strategies, consider the many new alternatives to conquering the new efficient frontier.

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