



Smart Neutral Portfolios

The Need for Neutral Portfolios

Most investors realize that asset allocation decisions are the most important ones that they will make. Studies have shown that the vast majority (90% or more) of the long-term return of any overall portfolio is determined by its asset mix. The risk and return implications of even relatively modest differences in asset mix can be dramatic, particularly when compounded over time. Investors, especially those savvy enough to realize the dire consequences of being wrong on asset mix, are afraid of making a mistake. They are eager for guidance that will help them make sound asset allocation decisions. This paper, which builds upon [an earlier paper concerning asset mix](#), is designed to fill that need.

Neutral portfolios provide a recommended asset mix in the absence of an informational edge relative to other investors. They are recommendations for the neutral or normal asset mix for a typical investor. (I focus on U.S. investors.) The circumstances of each investor will influence the neutral portfolio appropriate for their situation. Typically, level of investor risk aversion and expected investment horizon are the most important circumstances that affect neutral portfolios. Investors with the lowest levels of risk aversion (high risk acceptance) and/or the longest investment horizons will have the most aggressive portfolios. Those with high risk aversion and/or short horizons will prefer the more conservative portfolios. Below I present three neutral portfolios, for conservative, moderate, and aggressive investors. These can be further customized as needed.

The Global Capital Market Portfolio

Under a fairly restrictive set of assumptions, Modern Portfolio Theory (MPT) recommends that all investors own a representative slice of the global market portfolio. The global market portfolio includes all capital assets weighted according to their total market value (capitalization). Capital assets clearly include stocks, bonds, and commercial real estate, but could also include commodities, currencies, private equity, and even human capital in the form of education. However, usually the global market portfolio is assumed to include only investable capital assets, such as publicly traded stocks, bonds, and real estate securities.

Many investors find great comfort in the fact that, so defined, MPT provides a universal, exact, and intellectually defensible neutral portfolio. It is the portfolio that can be owned by all global investors. It is assumed to be the most efficient portfolio, meaning that it has the highest expected return compared to expected risk.

Although limiting the global market portfolio to publicly traded stocks, bonds, and real estate securities is common, arguably it leaves out a large segment of assets that could be very important, including non-traded real estate and privately owned companies. Measuring the size of these less common components of the global capital market, and calculating their returns, is problematic. The returns of publicly traded real estate (e.g., REITs) and publicly traded companies that invest in private equity can be used to proxy for non-traded real estate and private company returns, but the approximation will be rough at best.

The best recent work attempting to measure the market values of a very wide variety of global capital assets is found in a 2012 paper by Doeswijik, Lam, and Swinkels (DLS) entitled [Strategic Asset Allocation: The Global Multi-Asset Market Portfolio 1959-2011](#). In the table below, I cite their figures as a starting point and then make several adjustments.

I mentioned above that MPT has some fairly restrictive assumptions. These are not necessarily realistic. For example:

MPT Assumption: Well informed investors will not prefer capital assets in their home country over other global assets.

Reality: Investors are generally saving to fund future expenditures in their home country denominated in their home currency, so a bias in favor of the home market is entirely sensible.

MPT Assumption: Global capital markets are frictionless, with no tax, legal, structural, informational, or cultural barriers to the free flow of capital.

Reality: Important barriers exist in many countries, and these often reinforce the home market bias.

MPT Assumption: All investors are motivated only by economics (risk and return).

Reality: Some important investors are motivated mainly by politics, including governments and central banks. Many institutional investors operate with various regulatory or tax structures that affect their investments. All investors are influenced to some extent by various psychological biases.

MPT Assumption: All capital assets are priced efficiently and reflect all knowable return and risk expectations.

Reality: The volatility in the pricing of capital assets far exceeds any rational changes in return and risk expectations, indicating a high level of time-series inefficiency. (Price changes are far too large relative to changes in fundamentals.) Furthermore, objective studies have shown certain “anomalies,” or excess risk-adjusted returns, associated with characteristics such as value and momentum.

The DLS global portfolio data is an excellent start, but in my opinion, several adjustments are needed as described below.

Global Market Portfolio Asset Mix

DLS Data with Adjustments

Source	(1)	(2)	(3)	(4)	(5)	(6)
	Doeswijkstra, Lam, and Swinkels (2012) \$Tril.	Doeswijkstra, Lam, and Swinkels (2012) %	DLS (2012) with DTZ value for Real Estate \$Tril.	DLS (2012) with DTZ Value for Real Estate %	DLS (2012) with DTZ RE and Zero Gov't Bonds \$Tril.	DLS (2012) with DTZ RE and Zero Gov't Bonds %
U.S. Stocks	14.5	17.4%	14.5	15.5%	14.5	21.2%
International Stocks	14.5	17.4%	14.5	15.5%	14.5	21.2%
Total Stocks	29.0	34.7%	29.0	31.0%	29.0	42.4%
U.S. Bonds	26.3	31.4%	26.3	28.1%	10.0	14.6%
Developed Market Bonds	14.1	16.9%	14.1	15.1%	5.4	7.9%
Emerging Market Bonds	2.1	2.5%	2.1	2.2%	2.1	3.1%
Inflation-Linked Bonds	1.8	2.2%	1.8	1.9%	1.8	2.6%
Total Bonds	3.9	53.1%	3.9	47.4%	3.9	28.2%
U.S. Real Estate	1.9	2.2%	6.8	7.3%	6.8	9.9%
International Real Estate	1.9	2.2%	6.8	7.3%	6.8	9.9%
Total Real Estate	3.7	4.4%	13.6	14.6%	13.6	19.9%
Commodities	0.4	0.5%	0.4	0.4%	0.4	0.6%
High Yield Bonds	1.2	1.4%	1.2	1.3%	1.2	1.8%
Hedge Fnds	2.0	2.4%	2.0	2.1%	2.0	2.9%
Private Equity	2.9	3.5%	2.9	3.1%	2.9	4.2%
Grand Total	83.5	100.0%	93.4	100.0%	68.4	100.0%
Total Alternatives		12.2%		21.5%		29.4%

Source: Doeswijkstra, Lam, and Swinkels, *Strategic Asset Allocation: The Global Multi-Asset Market Portfolio 1959-2011*

The first adjustment I make to the DLS data (from the original article) is to break out U.S. stocks, bonds, and real estate from non-U.S. stocks, bonds, and real estate. This facilitates tilting towards U.S. assets for U.S. investors. In column 1 above I estimate the breakout based upon recent data, which indicates that U.S. stocks and real estate are about 50% and U.S. bonds about 65% of the global totals.

The second adjustment has to do with the DLS estimate of the value of global real estate. Their figure of \$3.7 trillion (column 1) is untenably low compared to the figures provided by multiple other sources. Recent citations for the value of global commercial real estate (which excludes

owner-occupied residential real estate) range from \$13.6 trillion ([DTZ quoted in the Financial Times, 2015](#)) to \$26.6 trillion ([Prudential Real Estate, 2012](#)) to \$31.2 trillion ([Bank for International Settlements, 2011](#)). In column 3 I use the lower end of the range, which increases the estimated value of global real estate from 4.4% of the global market portfolio to 14.6%.

The third adjustment I make is to zero out the value of all government bonds in column 5. My rationale is that the size of the government bond market is artificially inflated by the fact that both issuers (governments) and some buyers (central banks) are motivated more by politics than by economics. Also, unlike corporate bonds, government bonds largely fund current consumption rather than true capital investment. Perhaps going to zero is an over-correction, but certainly some major adjustment is warranted. Using the DLS value for total government bonds in the original article (not shown above), I subtracted 65% from U.S. bonds and 35% from developed market bonds, leaving emerging market bonds and inflation-linked bonds unchanged.

Column 6 in the table above will be the starting point for forming a set of smart neutral portfolios (that reflect “smart” adjustments to global market value weights). However, further adjustments need to be made to reflect 1) an appropriate level of home country bias for U.S. investors and 2) appropriate levels of portfolio risk for various levels of risk aversion on the part of investors.

Unlike the MPT-based market capitalization weighted global market portfolio, there is no universally-recognized economic theory to guide the calibration of either home market bias or portfolio risk levels. However, target date funds from the three largest providers of such funds, Vanguard, Fidelity, and Schwab, provide logical reference points.

Target Date Funds

Most investors find it most comfortable to hold an asset mix that is similar to what they believe other investors hold. Behavioral finance has shown that many investors seek “the comfort of the herd.” Their instincts tell them that staying in the center of the herd is the safest option. Particularly for those who are looking after the assets of others and therefore do not share in the economics of their allocation decisions, minimizing “maverick risk” (the risk of being different and wrong) is usually the chosen path because that is the best way to appear prudent and burnish one’s investment career prospects. As Keynes observed, “worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.”

Individual investors often seek asset allocation guidance from authority figures that are perceived as experts, often in the form of asset allocation funds offered by recognized investment management companies. That is, they seek a “default option” when it comes to asset allocation. This is one reason for the enormous popularity of target date funds, lifestyle funds, and multi-asset funds in 401(k) plans. These funds are designed to guide the investor towards an appropriate default choice based upon easy, objective criteria such as expected retirement date and/or risk tolerance.

For the most part, these funds focus on liquid publicly traded asset classes and are no doubt heavily influenced by what will make investors comfortable. Consequently, they reflect conventional wisdom and consensus thinking with respect to asset allocation.

Target Date Fund Comparisons												
Based on Recently Available Data												
Category	Income				Target 2020				Target 2040			
Fund Ticker	VTINX	FFFX	SWKRX		VTWNX	FFFDX	SWCRX		VFORX	FFFFX	SWERX	
	Vanguard	Fidelity	Schwab		Vanguard	Fidelity	Schwab		Vanguard	Fidelity	Schwab	
	Target	Freedom®	Monthly		Target	Freedom®	Target 2020		Target	Freedom®	Target 2040	
	Retiremnt	Income	IncM Fnd		Retiremnt	2020 Fund	2020 Fund		Retiremnt	2040 Fund	2040 Fund	
Fund Name	Income	Income	Enhncd	Average	2020 Fund	2020 Fund	Fund	Average	2040 Fund	2040 Fund	Fund	Average
U.S. Stocks	20.9	17.0	22.1	20.0	43.4	38.9	42.3	41.5	62.9	55.8	62.5	60.4
International Stocks	9.0	7.0	10.5	8.8	18.7	18.0	16.3	17.7	27.0	26.0	24.3	25.8
Total Stocks	29.9	24.0	32.6	28.8	62.1	56.9	58.6	59.2	89.9	81.8	86.8	86.2
U.S. Bonds	39.3	46.0	49.6	45.0	30.4	30.5	27.8	29.6	8.1	10.0	6.5	8.2
International Bonds	14.0		10.7	8.2	7.5	1.0	10.5	6.3	2.0	1.0	4.1	2.4
Total Bonds	53.3	46.0	60.3	53.2	37.9	31.5	38.3	35.9	10.1	11.0	10.7	10.6
Commodities				0.0			4.6	1.5		7.2		2.4
Short-term funds	16.8	30.0	6.8	17.9		7.0	2.4	3.1			1.9	0.6
Other			0.4	0.1			0.7	0.2			0.6	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Expense Ratio	0.16	0.51	0.57		0.16	0.69	0.67		0.18	0.81	0.81	

The table above presents three types of target date funds for three different investment horizons. “Income” funds would be for those who are currently in retirement, and who presumably therefore prefer a conservative portfolio. “Target 2020” funds would be for those expected to retire in 2020, with a moderate amount of portfolio risk. “Target 2040” funds are for younger workers who are assumed to have more aggressive risk preferences.

While there are differences among the three fund providers, there is a high degree of consensus. As the target date lengthens, stock allocations increase and bond allocations decrease markedly. This is not at all surprising.

Perhaps more surprising is the strong consensus regarding home market bias. In all cases, U.S. stocks are preferred to international stocks by more than 2 to 1. The home market bias is even stronger for U.S. bonds, which are preferred over international bonds by more than 4 to 1. Fidelity is somewhat of an outlier with extremely low international bond allocations, preferring an allocation to commodities instead. The fund companies are also differentiated with respect to their attitude towards short-term funds.

Smart Neutral Portfolios

The purpose of this paper is to put forth a set of neutral portfolios for the long-term (although they will require rebalancing and updating from time to time). They are “smart” neutral portfolios only in the sense that they go beyond the simple capitalization-weighted global market portfolio by making a few adjustments that I believe are sensible, as described above.

A final set of smart neutral portfolios, conservative/short horizon – column (3), moderate/medium horizon – column (5), and aggressive/long horizon – column (7) are shown in the table below.

Smart Neutral Portfolios with Comparisons							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DLS Global Portfolio (2012) with DTZ RE and Zero Gov't	Income Fund Average	Smart Neutral Portfolio, U.S. Investor Conservative Short Horizon	Target 2020 Fund Average	Smart Neutral Portfolio, U.S. Investor Moderate Medium	Target 2040 Fund Average	Smart Neutral Portfolio, U.S. Investor Aggressive Long Horizon
Risk Tolerance Time Horizon							
U.S. Stocks	21.2%	20.0%	20.0%	41.5%	30.0%	60.4%	40.0%
International Stocks	21.2%	8.8%	10.0%	17.7%	15.0%	25.8%	20.0%
Total Stocks	42.4%	28.8%	30.0%	59.2%	45.0%	86.2%	60.0%
U.S. Bonds	14.6%	45.0%	25.0%	29.6%	15.0%	8.2%	5.0%
Developed Market Bonds	7.9%	8.2%	6.0%	6.3%	4.0%	2.4%	2.0%
Emerging Market Bonds	3.1%		4.0%		3.0%		2.0%
Inflation-Linked Bonds	2.6%		3.0%		3.0%		2.0%
Total Bonds	28.2%	53.2%	38.0%	35.9%	25.0%	10.6%	11.0%
U.S. Real Estate	9.9%		6.0%		8.0%		10.0%
International Real Estate	9.9%		6.0%		8.0%		10.0%
Total Real Estate	19.9%		12.0%		16.0%		20.0%
Commodities	0.6%	0.0%	2.0%	1.5%	2.0%	2.4%	2.0%
High Yield Bonds	1.8%		2.0%		2.0%		2.0%
Hedge Fnds	2.9%		3.0%		3.0%		2.0%
Private Equity	4.2%		3.0%		3.0%		3.0%
Short-term		17.9%	10.0%	3.1%	4.0%	0.6%	
Other		0.1%	0.0%	0.2%	0.0%	0.2%	0.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total International	42.1%	17.1%	26.0%	24.0%	30.0%	28.1%	34.0%

In selecting the weights for the three smart neutral portfolios, I attempted to balance between the adjusted DLS global portfolio weights shown in column (1) and the averages for the corresponding target date funds. In general, I believe that the smart neutral portfolios are similar in spirit to the corresponding target date funds, but are somewhat better diversified, and as such, should provide a slightly more attractive return/risk tradeoff over the long-term.

Clearly, the allocation percentages assigned to each asset class are round numbers. There is no decimal point accuracy implied. Investors should deviate from these weights according to their own preferences and circumstances. Over time, actual portfolio weights will drift away from their initial weights because of divergent performance among the asset classes. Investors may want to rebalance back toward initial weights based upon a time schedule and/or the degree of deviation between initial and actual weights. It may be advisable to review the weights at each year-end, particularly in taxable accounts, which may give rise to the opportunity to harvest

losses for tax purposes. (That is, selling a fund to realize a loss and reinvesting in another similar fund.)

The table below illustrates how the smart neutral portfolios could be implemented using Vanguard ETFs for the core stock, bond, and real estate allocations. Vanguard tends to have the lowest expense ratios of any ETF provider, as well as among the lowest bid-ask spreads, making theirs the least expensive ETFs to both own and to trade.

Smart Neutral Portfolio ETFs Using Vanguard Core ETFs									
Asset Class	Tkr	Bloomberg ID	Fund Name	Expense Ratio	Total Assets	Bid-Ask	Yield	Turnover	
U.S. Stocks	VTI	VTI US EQUITY	VANGUARD TOTAL STOCK MKT ETF	0.05	57,523	0.01	1.91	3	
International Stocks	VEU	VEU US EQUITY	VANGUARD FTSE ALL-WORLD EX-U	0.14	14,585	0.02	3.11	4	
Total Stocks									
U.S. Bonds	BND	BND US EQUITY	VANGUARD TOTAL BOND MARKET	0.08	26,546	0.01	2.47	73	
Developed Market Bonds	BNDX	BNDX US EQUITY	VANGUARD TOTAL INTL BOND ETF	0.20	3,470	0.04	1.16	#N/A	N/A
Emerging Market Bonds	VWOB	VWOB US EQUITY	VANGUARD EMERG MKTS GOV BNC	0.35	413	0.24	4.72	27	
Inflation-Linked Bonds	VTIP	VTIP US EQUITY	VANGUARD SHORT-TERM TIPS	0.10	1,800	0.07	#N/A	N/A	#N/A
Total Bonds									
U.S. Real Estate	VNQ	VNQ US EQUITY	VANGUARD REIT ETF	0.12	25,751	0.02	3.96	17	
International Real Estate	VNQI	VNQI US EQUITY	VANGUARD GLOB EX-US REAL EST	0.27	3,179	0.12	3.23	8	
Total Real Estate									
Commodities	USCI	USCI US EQUITY	UNITED STATES COMMODITY INDE	1.00	515	0.12	#N/A	N/A	#N/A
High Yield Bonds	JNK	JNK US EQUITY	SPDR BARCLAYS HIGH YIELD BD	0.40	9,697	0.03	6.01	49	
Hedge Fnds	QAI	QAI US EQUITY	IQ HEDGE MULTI-STRAT TRACKER	0.75	1,038	0.12	0.41	90	
Private Equity	PSP	PSP US EQUITY	POWERSHARES GLB LIST PRIV EQ	2.05	445	0.27	4.54	30	
Short-term	BSV	BSV US EQUITY	VANGUARD SHORT-TERM BOND ET	0.10	16,143	0.01	1.33	50	
Other									
Grand Total									
		Conservative Average		0.22		0.05	2.40		
		Moderate Average		0.22		0.05	2.50		
		Aggressive Average		0.21		0.04	2.61		

Source: Bloomberg

Individual investors with both IRAs and taxable portfolios will want to put the highest turnover and highest yielding ETFs into their IRAs in order to reduce taxes.

Some investors may prefer to use “smart beta” funds for the core stock, bond, and real estate allocations listed above. The term smart beta is used to describe passively managed funds that are constructed using algorithms other than market capitalization weighting. Often these smart beta funds are tilted towards one or more fundamental factors, such as yield, volatility, momentum, or various measures of value such as earnings, book value, assets, or cash flow. Critics of smart beta point out that any weighting methodology other than market capitalization

amounts to an active bet relative to market cap, and that the higher turnover and higher fund expense ratios of smart beta funds may negate any benefit for investors.

I am a proponent of carefully selected smart beta funds, particularly those associated with various forms of momentum and value. However, I try to tilt towards particular factors and away from market cap weighting only when I believe that the reward/risk ratio is particularly favorable. I use a rather complicated process to make these decisions, and I charge my clients a fee. For purposes of this paper, however, I have opted to stick with capitalization-weighted core funds more appropriate for the do-it-yourself investor.

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