The Evolution of Equity Mandates in Institutional Portfolios

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The historical starting point for a U.S. institutional investor is the "classic" 60/40 portfolio—60% U.S. stocks and 40% U.S. bonds. This has been the long-term hypothetical model of a pension fund and other institutional investors. In fact, asset managers have developed products to offer to institutional investors based on this classic asset allocation. Balanced mandates were born to capture this simple application of equity and bond risk.

While this model may be classic, it has eroded over the years as more asset classes have been introduced to the financial markets and as institutional investors have become more sophisticated in their asset allocation. Diversification remains a cheap, if not free, lunch so the greater and better access that an investor has to asset classes, the better diversified the portfolio can be. The introduction of, and access to, additional risk classes has resulted in portfolio allocations that deviate from the classic 60/40 portfolio.

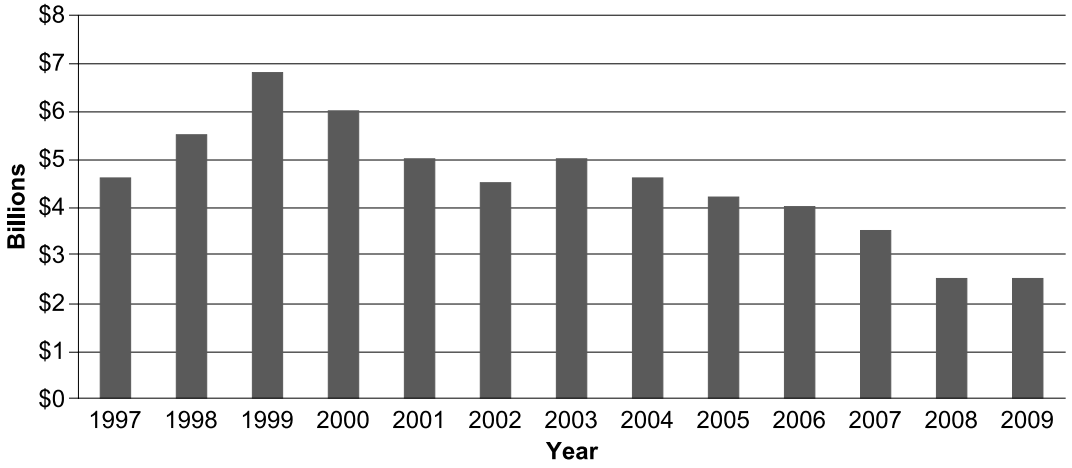
This change in asset allocation is apparent in that balanced-mandate products have declined significantly over the last decade. One reason is that balanced mandates use a peer group as their target return. As a result, balanced-mandate managers focus on what other balanced managers are doing which concentrates the performance benchmark not on the financial markets but on the reference peer group. This leads to a herding effect where the balanced managers are unlikely to take on more (or less) risk than their peer group or invest in other asset classes that are not pursued by their peer group.

Balanced funds are sometimes called consensus funds because they track the average balanced fund in the market. This means that the investment decision in a consensus fund is based on the average asset distribution of all balanced funds in the market. In turn, this means very little deviation from the classic 60/40 equity/bond allocation. Exhibit 1 tracks the assets under management for a balanced fund that has the following mandate:

- Track the asset split and performance of all balanced-mandate funds in the industry, and
- Achieve the average return among those funds in the market.

Balanced funds have declining popularity with both institutional and retail investors for two reasons. First, balanced mandates reflect the classic asset allocation, which ignores many of the other risky asset classes that can provide effective portfolio diversification. Second, the classic asset allocation may not match the specific liability stream that a pension fund, endowment, or retail investor has to fund. As a result, these

EXHIBIT 1
The Rise and Fall of a Balanced Mandate



types of products are declining over time as Exhibit 1 demonstrates.

VALUE VERSUS GROWTH AND SMALL CAP VERSUS LARGE CAP

In the early 1990s, (Fama and French [1992, 1993]) identified additional systematic risk factors associated with the U.S. stock market. Specifically, they found a systematic outperformance of value stocks over growth stocks and small-capitalization stocks over large-capitalization stocks. Their research led to what is commonly known as the Fama–French three-factor model. This is an expansion of the famous capital asset pricing model (CAPM), first identified by Sharpe [1964]. The CAPM has a single systematic risk factor—the market risk factor. Sharpe identified this as a consistent risk for which investors need to earn a return over the risk-free rate to compensate them for taking on the risk inherent in the equity markets.

It is important to distinguish between the CAPM and the Fama–French models. The CAPM is often referred to as a one-factor model. This is an unfortunate description of the CAPM. As the title to Sharpe's original paper indicates, the CAPM is an *equilibrium model* that ties return to the level of market, or systematic, risk. The CAPM equilibrium model identifies beta as a way to compare the excess returns of an investment with the excess returns of the market as a whole.

Conversely, the work of Fama–French was done with factor analysis. They did not develop an equilibrium model to describe the effects of small-cap versus large-cap stocks or value versus growth stocks. Instead, Fama and French started with the empirical observation that two classes of stocks have tended to do better than the market as a whole: 1) small-cap stocks and 2) stocks with a high book-to-market ratio, which tend to be called value stocks because a lower valuation is placed on their balance sheet assets. Fama and French added these two factors to the market risk established by Sharpe's equilibrium model in order to reflect a portfolio's exposure to three risk factors:

1. The market risk factor established through Sharpe's equilibrium model
2. A "small minus big" (SML) risk factor to reflect the Fama–French empirical observation that small-cap stocks tend to outperform large-cap stocks
3. A "high minus low" (HML) risk factor to reflect the Fama–French empirical observation that value stocks with a high book value tend to outperform growth stocks with a low book value

These additional factors measure the historic excess returns of small caps over big caps and of value stocks over growth stocks. Moreover, once SMB and HML are defined, the corresponding coefficients are determined by linear regressions and can take negative values as well as positive values. The Fama–French three-factor

model explains over 90% of a diversified portfolio's returns, compared with the average 80% explained by the CAPM.

As knowledge of the Fama–French three-factor model spread throughout the investor community, U.S. institutional investors began to diversify away the traditional large-cap stock market benchmark to include these other risk factors. Value and small-cap mandates began to gain traction. To accommodate this domestic diversification within the U.S. stock market, index-providing companies, such as Russell and MSCI, quickly adopted benchmarks that could be used in equity portfolios. MSCI added growth and value indices to its index lineup in 1997, and Russell added growth and value indices in 1995. Similarly, Russell and MSCI added small-cap and large-cap stock indices as well. Interestingly, Russell developed its small-cap and large-cap stock market indices in 1990 before the advent of the Fama–French three-factor model. Exhibit 2 tracks the risk premium for high book-to-value ratio minus low book-to-value ratio (value over growth) from 1995. Initially, this premium was negative as the U.S. stock market built up to the tech bubble. However, since the popping of the tech bubble, the value-over-growth risk premium has been a consistent performer.

Similarly, Exhibit 3 shows the risk premium for small-cap stocks over large-cap stocks. Interestingly, this premium was also negative during the build-up of the tech bubble—large-cap stocks were rewarded more often than small-cap stocks during this period. However, after the popping of the tech bubble, the observed premium for SMB returned to a positive risk premium.

U.S. STOCKS VERSUS INTERNATIONAL STOCKS

Eventually, institutional investors in the U.S. began to realize that the large-cap, small-cap, value, and growth mandates provided diversification only with respect to their local market and that additional diversification had to be obtained outside the boundaries of the U.S. The phenomenon is not unique to U.S. investors—international diversification is a tool institutional investors outside the U.S. have used for many years.

A key part of the bias on the part of U.S. investors is the fact that the U.S. equity market accounts for such a large portion of the global equity market. For example, the MSCI All Country World Index (ACWI) spans the equity markets of 45 countries and captures over 99% of the investable markets in both developed and emerging economies. In 2010, the U.S. equity market still accounts for about 43% of the ACWI. It is easy to see the reason of such a home bias for U.S. investors in their equity allocation.

Some of this bias still remains. Under traditional equity management, institutional investors view the global equity market as a set of geographic building blocks with the equity market defined in terms of domestic versus international stocks. Exhibit 4 compares the U.S. allocation to the international allocation for the average equity portfolio of institutional investors (Kang, Nielsen, and Fachinotti [2010]). U.S. equities still dominate with an over 60% allocation, but international mandates have grown. This first step in international investing actually looks more like a

EXHIBIT 2
HML—Value over Growth

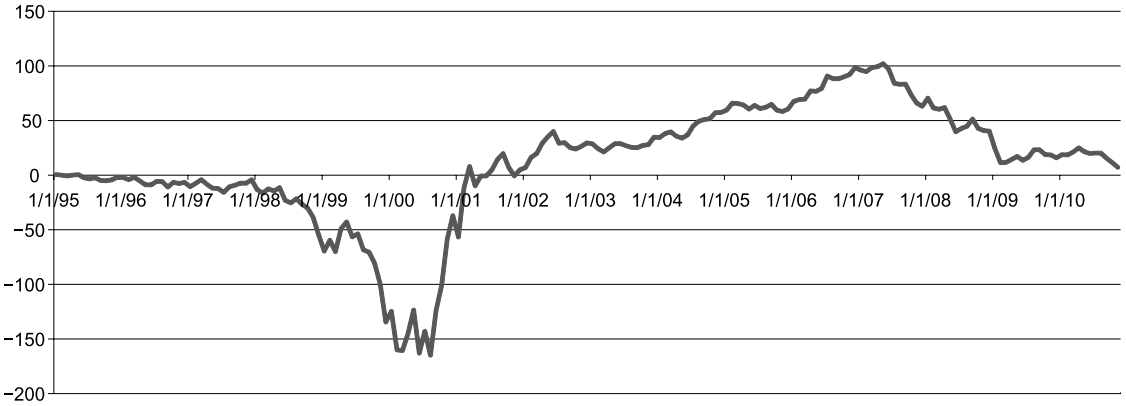


EXHIBIT 3
SMB—Small Caps over Large Caps

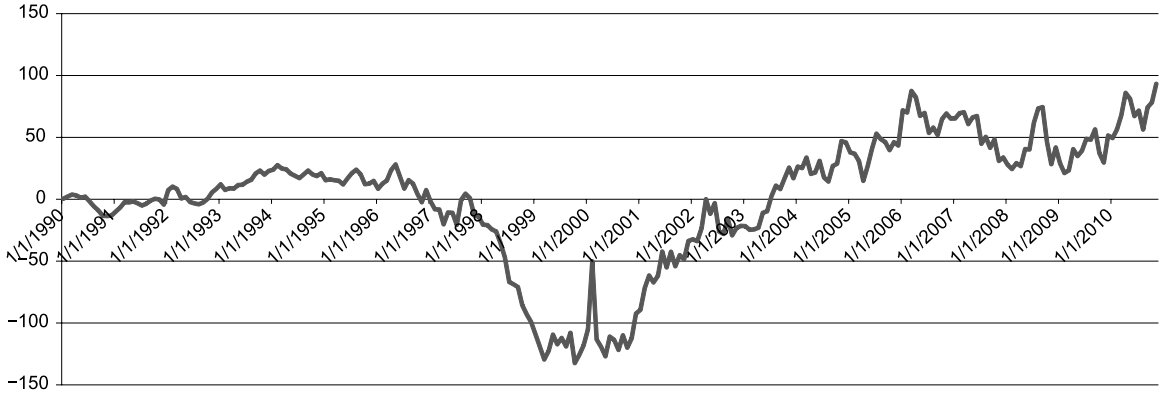
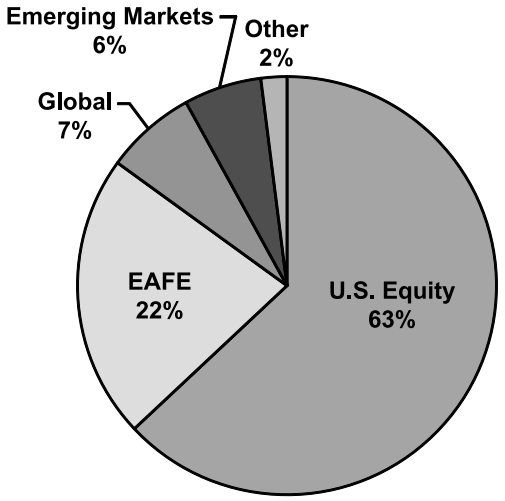


EXHIBIT 4
U.S. Institutional Investor Equity Allocation



binary approach: U.S. stocks plus developed international equities. The allocation to global equity mandates or emerging markets has been smaller. This can limit active managers who might otherwise forgo investment opportunities within the broader equity universe.

GLOBAL MANDATES

The next step in the evolution of stock investing was global mandates. Over the past decade institutional investors have questioned the economic merit of the traditional split in equity mandates between domestic and international. This approach was built upon historic notions of segmented markets, idiosyncratic risks, lower transparency, domestically focused corporations, and currency movements. But the approach has changed dramatically during the first decade of the new millennium.

Increasingly, the financial markets have embraced a global economy. For example, 20 years ago the G-7—the largest free-market, industrialized nations in the world—met twice a year to discuss monetary and fiscal policy. Over the past 20 years, however, the G-7 has grown to be the G-10, then the G-15, and now the G-20. Indeed, emerging market economies, such as those of the BRIC (Brazil, Russia, India, and China) nations, are now part of the G-20 group of nations.

This change has had direct implications for the way equity portfolios are allocated. Whereas 20 years ago significant diversification was achieved by investing outside the domestic boundaries of an institutional investor's home currencies, now there is much greater coordination of global economic policies, which reduces the diversification benefits of international investing.

At the same time that there has been a rise in macroeconomic policy across borders, there has been an increase in the multinational nature of large corporations. As the global economy has grown, multinational corporations have begun to receive a larger proportion of their revenues outside their domestic currency than ever before. As a result, international diversification has become less of a consideration and global investment mandates have grown.

This development is demonstrated in Exhibit 5, which shows the correlation of investment returns across several major international stock markets: the S&P 500

EXHIBIT 5
Correlations Across International Stock Markets

	S&P 500	FTSE 100	DAX 30	CAC 40	Hang Seng
Panel A 2000–2005					
S&P 500	1.00				
FTSE 100	0.74	1.00			
DAX 30	0.73	0.79	1.00		
CAC 40	0.74	0.84	0.89	1.00	
Hang Seng	0.46	0.55	0.54	0.51	1.00
Panel B 2006–2010					
S&P 500	1.00				
FTSE 100	0.88	1.00			
DAX 30	0.88	0.92	1.00		
CAC 40	0.87	0.95	0.95	1.00	
Hang Seng	0.65	0.68	0.67	0.67	1.00

(U.S.), FTSE 100 (U.K.), DAX 30 (Germany), CAC 40 (France), and Hang Seng (Hong Kong). Panel A shows the correlation coefficients for these markets for the years 2000–2005 and Panel B shows the correlation coefficients for the years 2006–2010. There is a significant increase in the correlations across all of these international stocks markets. As the correlation across stock markets increases, diversification benefits decrease.

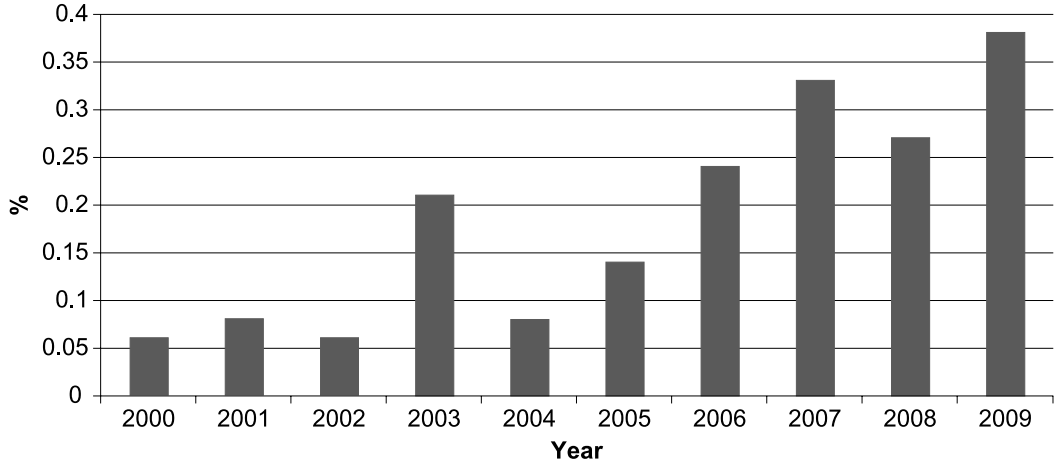
The decline in diversification across international boundaries has led investors to think of global equity as a single strategic asset class. This is a natural development in the globalization of financial markets and has led to stock indices such as the ACWI, a stock market index with over 2,000 stocks around the world that includes securities from 23 developed markets and 23 emerging markets.

With the globalization of equity markets, institutional investors have begun to realize that the partitioning of the equity markets into domestic and international equity blocks does not reflect the economic development of the global financial markets. In fact, recent research by MSCI Barra has established that developed markets are driven mainly by global industry and style risk factors and less by differences across countries or regions. Compared to a domestic and international structure, global mandates enable managers to pick stocks from a global opportunity set and accommodate investment bets on global sector and style exposures (Kang, Nielsen and Fachinotti [2010]), which allows active managers to apply their sector expertise or insights to select the best stocks in global sectors regardless of the geographic location of the portfolio companies.

The result has been a growth in global equity mandates as demonstrated in Exhibit 6 (Kang, Nielsen and Fachinotti [2010]). From 6% in 2000 to 38% in 2009, institutional investors have adopted global mandates at an increasing rate. The higher degree of freedom for managers to pick stocks globally and manage global sector and style exposures offers more potential to add value.

Emerging markets, however, continue to have different risk and return dynamics with local risk factors

EXHIBIT 6
Growth of Global Mandates as a Percentage of International Equity Mandates



and country allocation as the dominant drivers. Some investors believe that managing emerging market equities requires a different investment process and therefore may be better suited to a dedicated emerging market mandate. As a result, a subset of global investing divides the equity world into two simple subsets: global developed markets and emerging markets.

BESPOKE BETA

The growth of the exchange-traded fund (ETF) market has brought to bear another form of equity management known as *bespoke beta*.[1] Bespoke beta is custom-tailored bits of systematic risk (beta) that can be added to an equity portfolio. Bespoke beta describes the method by which asset managers capture local risk premiums. Therefore, bespoke beta is custom beta designed to match a tailored equity risk exposure.

ETFs divide the broad financial markets into submarkets (e.g., value and growth), sectors, industries, and other localized risk exposures. ETF products slice and dice the equity, bond, currency, and commodities markets to bring investors wedges of systematic market risk for targeted economic exposures. Through ETFs, investors can make size, style, sector, subsector, country, and region bets in their portfolio.

The first ETF was the Standard & Poor's Depository Receipt (SPDR) introduced in 1993. From that start, ETFs have grown significantly. Exhibit 7 tracks the growth of the ETF market over the last decade. In fact, ETFs were the only segment of the asset management industry that demonstrated growth during the tumultuous year of 2008.

Investors seek bespoke beta for several reasons. First, bespoke beta is a cheap and efficient way to make sector, style, size, or country bets. Even if an investor has limited knowledge regarding individual securities, she may have some insight into the macroeconomic fundamentals that may impact certain sectors, countries, or style factors. ETFs allow an investor to either overweight or hedge different parts of her portfolio. In fact, one of the popular features of an ETF is that it trades like a stock so that it can be shorted to hedge out or trim an unwanted beta exposure.

For example, Exhibit 8 compares the iShares Russell 2000 Value ETF and the Russell 2000 Value stock index. If an investor wants to overweight small-cap value stocks in her portfolio, she can do this through the iShares ETF. Notice how closely and efficiently the ETF tracks the actual index, which is an important condition if the portfolio manager intends to place an overweight on small-cap value stocks because tight tracking to the index is necessary.[2]

The advent of ETFs made for more efficient portfolio construction. The ability to add a macroeconomic top-down overlay to a stock or bond portfolio allows an active manager to extract the most value from her information set. Even though ETFs are passive products, they can be used in an active fashion to implement overweights or underweights in an equity portfolio.[3]

Consider a last example. Many institutional investors in the U.S. make an allocation to U.S. equities and

EXHIBIT 7
ETF Market

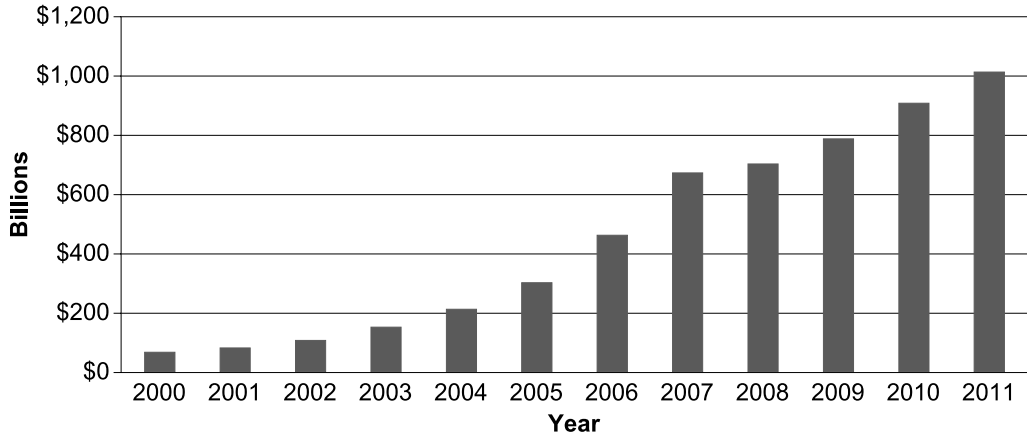
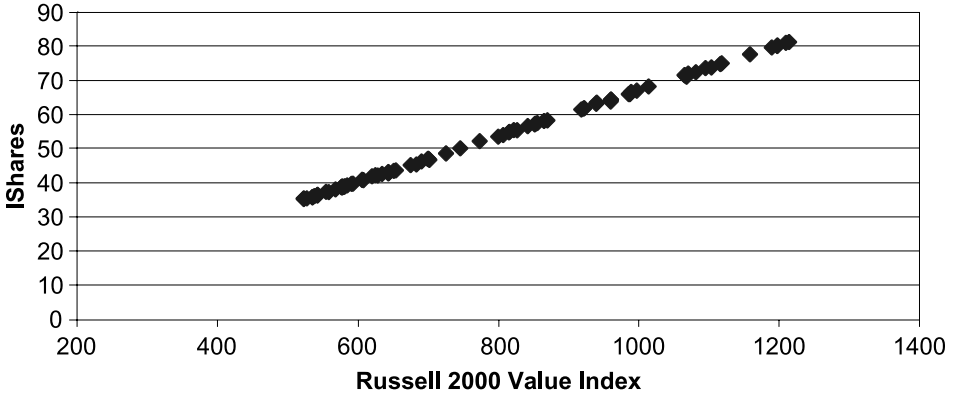


EXHIBIT 8
iShares Russell 2000 Value vs. Russell 2000 Value Index (in USD)



then round out their equity exposure outside the U.S. through an EAFE (Europe, Australiasia, and Far East) mandate. The MSCI EAFE Index is the most widely used benchmark for international equity accounts, but lost between the cracks of this portfolio construction approach is the equity market of Canada.

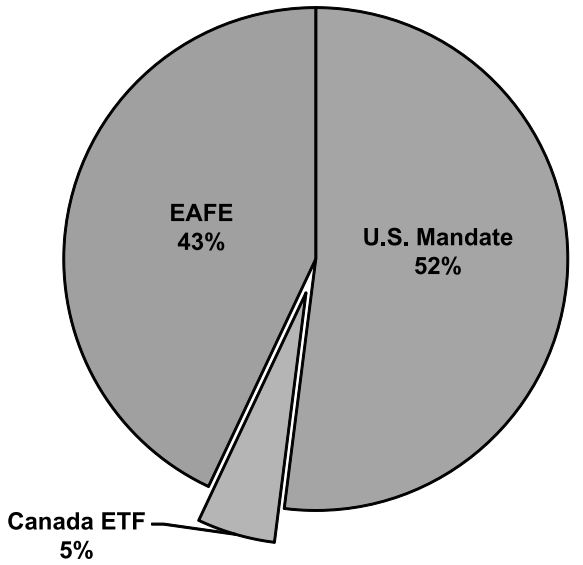
Canada is the seventh largest economy in the world and accounts for about 4.5% of the global equity market value. Unfortunately, because it is not contained in EAFE, many large U.S. investors have limited or no exposure to the Canadian equity market. Using ETFs, a U.S. investor can tailor Canadian equity exposure to complete the EAFE and U.S. equity mandates, which is shown in Exhibit 9.[4]

RISK PARITY

The most recent evolution in equity asset allocation is a strategy called risk parity. Risk parity is a general term for several investment techniques that attempt to equalize risk taking across different asset classes. Liebowitz and Bova [2007] have demonstrated that in a diversified institutional asset allocation up to 90% of the volatility of a diversified portfolio can be explained by the movement of the equity market. This is because traditional portfolios tend to be heavily weighted toward stocks—large cap, small cap, domestic, international, developed, and emerging. Even though a portfolio may seem diversified across these different equity classes, it adds up to a significant amount of equity beta contained in the portfolio. Furthermore, even if the portfolio is diversified across real estate, private equity, and credit, these asset classes have sufficiently high correlation to the equity markets that the overall equity risk in the portfolio gets pushed up well beyond 80%.

From this analysis, the idea of risk parity has taken hold. The idea is simple enough—the goal is to achieve diversification across asset classes by taking an equal amount of risk for each investment. Essentially, it is a "naive" risk budgeting tool in that risk parity allocates the same amount of risk to each asset class from which an investor constructs a portfolio. The process works by decreasing those assets in the portfolio that have a large share of the portfolio risk budget and increasing

EXHIBIT 9
Completing an Equity Portfolio with a Canadian ETF



the portfolio allocation to those assets with a lower risk profile. The trick is to figure out what the resulting asset allocation is when risk is equally divided across the asset classes. For example, Qian [2005] determined that a portfolio with an allocation of 23% to the Russell 1000 Index and 77% to the Lehman Aggregate Bond Index would have an equal risk contribution from stocks and bonds.

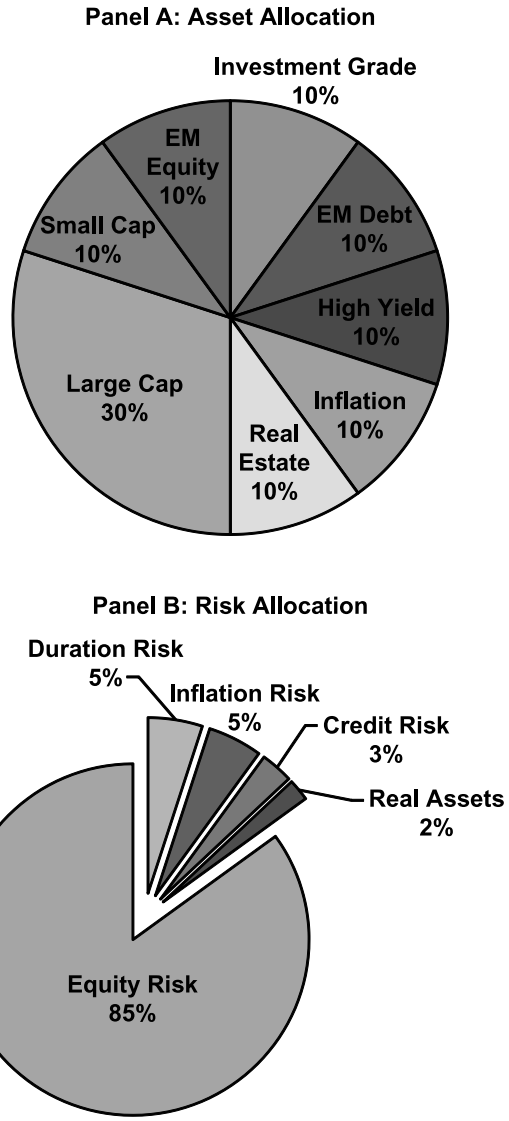
Risk parity falls somewhere between active and passive management. Risk parity portfolios buy and sell assets to keep dollar holdings proportional to estimated risk. If the price of a security goes up and the risk level remains the same, the risk parity portfolio must sell some of that asset to keep its risk weight at the same level as the rest of the asset classes.

Consider it from another point of view. Generally investors risk budget by dividing their portfolio into a number of asset classes that they expect will provide sufficient portfolio diversification. Consider Exhibit 10, Panel A, which shows a standard asset allocation across several asset classes. Fifty percent of this portfolio is committed to the public equity markets, but equity risk creeps in through other parts of the portfolio.

This is made clear in Exhibit 11, which shows the correlation and betas of other asset classes compared to large-cap U.S. stocks over the last decade. The diversification to the portfolio comes primarily from credit, inflation protection, and duration risk, although they have smaller allocations in the portfolio. Equity risk dominates. Exhibit 10, Panel B, shows the risk profile of the portfolio. Eighty-five percent of the risk of the portfolio is driven by equity risk even though the asset allocation only has a 50% allocation to equities.

Risk parity attempts to reduce the dominance of equity risk in the portfolio by giving an equal weight to all of the asset classes in the portfolio. Risk parity starts with risk allocation and then backs into, or reverse engineers, the asset allocation. Exhibit 12, Panel A, now starts with an equal-weighted (12.5%) allocation to risk for each of the eight asset classes that we examine. The resulting asset allocation is significantly different from the traditional asset allocation. Now, the asset allocation to equities shrinks to 25% of the portfolio, while investment-grade bonds, emerging market debt, credit, and inflation hedging (TIPs) securities take on the majority of the asset allocation. The fixed-income investments increase significantly because their initial risk profile is low compared to equities. So in order to put fixed-income categories of assets on a risk parity with equities, these asset classes have to be "grossed up," taking on a larger proportion of the overall portfolio.

EXHIBIT 10
Asset Allocation and Risk Allocation

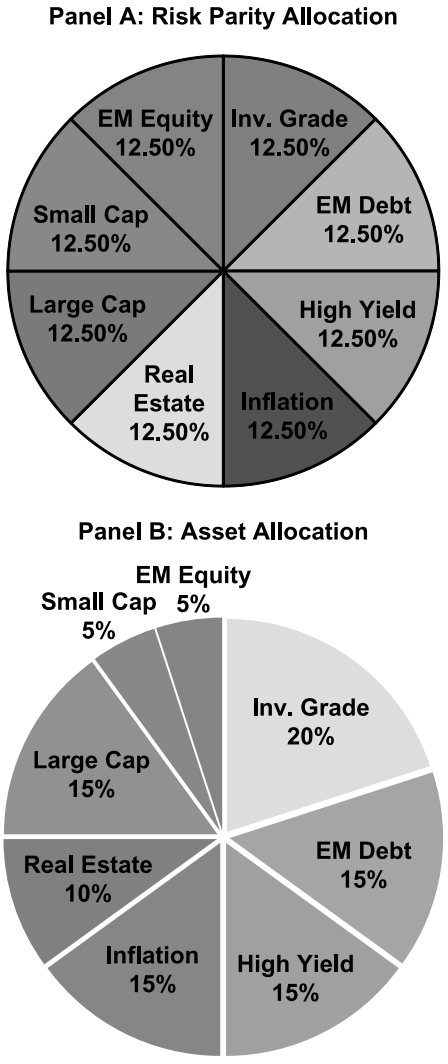


The benefit of risk parity is that it can achieve a more efficient portfolio as measured by the Sharpe ratio, that is, efficient in the sense of achieving more return per unit of risk taken. Exhibit 13 shows the efficient frontier and the capital market line (CML). The efficient frontier is the most efficient combination of assets that yields the best return for a given level of risk, or the lowest risk for a given level of return. The region along and below the

EXHIBIT 11
Equity Risk Across Other Asset Classes

	Correlation with Large-Cap Stocks	Beta to Large-Cap Stocks
Small Cap	0.84	1.11
EM Equity	0.81	1.2
High Yield	0.65	0.44
Real Estate	0.62	0.92
EM Debt	0.76	0.46
Investment Grade	−0.09	−0.02
Inflation	0.11	0.24

EXHIBIT 12
Risk Parity Allocation and Asset Allocation



efficient frontier represents a feasible set of investment portfolios that can be achieved using various combinations of the eight risky asset classes.

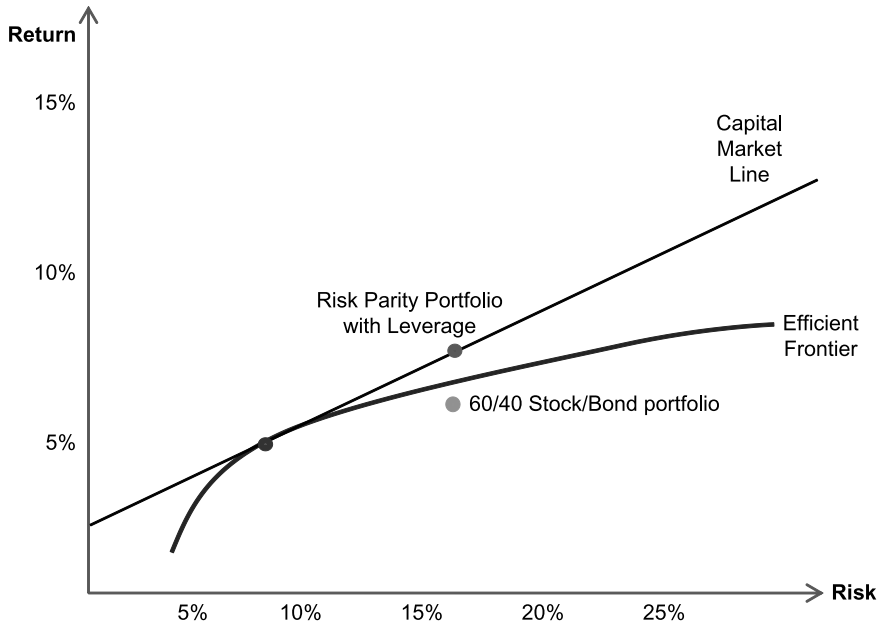
The capital market line is tangent to the efficient frontier. One end of the CML is anchored at the risk-free rate, assumed here to be a long-term risk-free rate of 2%. The other end of the CML touches the efficient frontier. This tangency point indicates the optimal portfolio on the efficient frontier (i.e., the one that achieves the highest Sharpe ratio, that is, the best risk–return trade-off). The optimal portfolio has relatively little risk (about 7.5%), but is also one of the lower-yielding portfolios on the efficient frontier at about 4%.

The 60/40 stock/bond portfolio achieves an expected return of about 6% with a volatility of 15%, but it is below the efficient frontier (i.e., it does not offer an optimal risk–return trade-off). In the standard form of the CAPM, the market portfolio is the tangency portfolio, which is the best portfolio of risky assets to hold. Proponents of risk parity argue, on the one hand, that this is not the case due to institutional constraints; institutional and retail investors do not hold an optimal blend of risky assets. Risk parity advocates claim, on the other hand, that the unlevered risk parity portfolio is the tangency portfolio, or is as close as can be measured given uncertainties and noise in the data.

As noted earlier, the tangent portfolio may be efficient in terms of the risk–return trade-off, but it is a portfolio with a low expected return—about 4%. This is "the catch" with risk parity portfolios. Fixed-income asset classes tend to earn lower returns than equities. Callan Investments Institute [2010] estimated that unlevered risk parity portfolios earn 150 basis points (bps) less in annual return than the traditional asset allocation. And with pension funds, endowments, and foundations facing funding shortfalls, it is difficult for these institutional investors to accept a risk parity portfolio with its lower return expectation.

This is where the CML comes into play. Portfolios on the CML are more efficient than portfolios on the efficient frontier; that is, they achieve more return at a given level of risk. But to position a portfolio along the CML and increase risk and return, leverage is needed in order to invest more than 100% in the tangency portfolio. Some endowment funds, in fact, follow this approach. The Sharpe ratio for all portfolios on the CML is constant, that is, an investor can choose the level of risk to be taken.

EXHIBIT 13
The Capital Market Line and the Risk Parity Portfolio

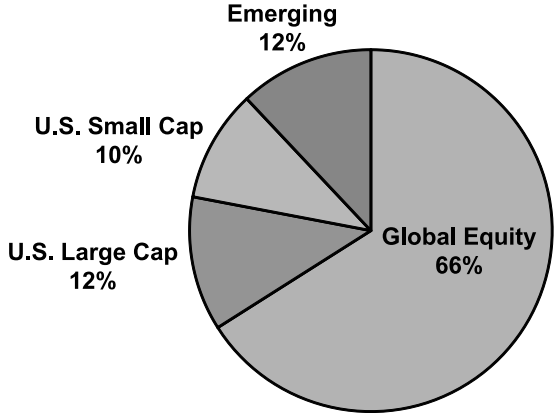


The CML defines the portfolios that can be achieved through combinations of the risk-free cash rate and the risk parity portfolio. To the left of the risk-parity tangency portfolio, holding a combination of the risk parity portfolio and cash lowers both the risk and expected return of the resulting portfolio, yet the Sharpe ratio remains constant along the CML.

The converse is also true. If an investor can borrow at the risk-free rate, he can add leverage to the risk parity portfolio and increase the return by moving up the CML to the right of the risk-parity, tangency portfolio. The Sharpe ratio remains constant along the CML. For example, the levered risk parity portfolio is superior to the 60/40 stock/bond portfolio. By borrowing at the risk-free rate and investing the borrowed money in the risk parity portfolio, an investor can achieve the same level of risk as the 60/40 stock/bond portfolio (15%), but at a higher expected return of 8%.

In theory, the use of leverage is all well and good, but there are some practical problems. First, since the credit crisis of 2008–2009, banks have been slow to open their credit lines. Second, borrowing at the risk-free rate is often not the case even for well-established institutional investors who generally have to pay some premium above the risk-free rate, perhaps as much as 50 or 100 bps. Also, it may be hard for some institutional investors such as pension funds to leverage their portfolio. In some cases, outright bans against the use of leverage in a pension portfolio exist, and in other cases, there is just suspicion about leverage. In 2008, leverage was the downfall of many investment strategies and firms, such as Lehman Brothers, and brought other firms, such as Merrill Lynch, Citigroup, and AIG, to their knees.

EXHIBIT 14
A U.S. Pension Fund



As a last example, even if risk parity has not been adopted fully across asset classes, it is being adopted to a lesser extent in equity portfolios. Exhibit 14 shows how one U.S. pension fund distributes its equity risk across four buckets of equity risk: global, emerging markets, small cap, and large cap. Both emerging markets and small-cap stocks are expected to have more risk than the global market. Thus, consistent with their higher-risk profile, they receive smaller allocations in the portfolio. The large-cap portion of the equity portfolio is often used to help bring risk parity to the riskier slices of the equity pie.

CONCLUSION

Benchmarking in the equity markets was revolutionized by Sharpe's [1964] equilibrium model of risk and return. This model was expanded through an

empirical factor analysis conducted by Fama and French [1992, 1993] to add two risk factors: small-cap stocks versus large-cap stocks, and value stocks versus growth stocks. The discovery by Fama and French of the two additional risk factors led to specialized indices to support equity mandates designed to capture the risk premiums associated with small-cap stocks and value stocks. These equity mandates were primarily domestic equity mandates.

Over time, international equity mandates have grown in popularity with institutional investors. A more recent development is global equity mandates that allow investment across borders without regard to domestic and international boundaries. Popularity of the international mandate has been driven by the recognition of a global economy where fiscal and monetary policies are increasingly synchronized across both developed and emerging economies. Global mandates also recognize that multinational corporations now derive a significant portion of their revenues outside their domestic country. Also, the correlation of equity market returns across developed economies has increased significantly in the last five years. Global mandates now account for 38% of all equity mandates across institutional investors.

Another recent development in the equity markets is bespoke beta. The growth of the ETF market has allowed for custom-tailored bits of systematic, or beta, risk. Bespoke beta is the method by which local risk premiums that are embedded within a specific market sector—industry, capitalization range, or geography—can be captured. The popularity of ETFs and the desire to capture bespoke beta has led to fast growth in the ETF market, exceeding $1 trillion in 2011.

Last, risk parity has become a new tool in portfolio management. The goal is to diversify across asset classes by taking an equal amount of risk in each asset class. Risk parity has gained popularity because it attempts to reduce the dominance of equity risk in the portfolio by giving an equal risk weight to all of the asset classes in the portfolio.

ENDNOTES

[1]The term "bespoke" actually comes from Saville Row in London. In times past, lords and ladies would visit Saville Row for their custom-tailored clothing. In selecting fabric for their suits and gowns, they would select a bolt of cloth and purchase the whole bolt so that no other suit or dress could be made from the same material. When this happened, the bolt of cloth was said to be spoken for; see Anson [2008].

[2]As a side note, most ETFs are *beta drivers*; that is, they track a well-defined market benchmark. Beta drivers are linear in their performance; they track in a straight line the benchmark to which they are identified; see Anson [2008].

[3]An overwhelming amount of ETFs are passive products tied to a well-recognized stock market, bond, style, or country index. But within the past few years, ETF providers have experimented with active ETFs.

[4]We use the MSCI iShares Canada Index Fund (EWC), which has approximately 100 stock holdings that capture roughly 85% of the market cap of the Canadian stock market.

REFERENCES

Anson, M. "The Beta Continuum: From Classic Beta to Bulk Beta." *The Journal of Portfolio Management*, 34 (Winter 2008), pp. 53-64.

Callan Investments Institute. "The Risk Parity Approach to Asset Allocation." February 2010.

Fama, E., and K. French. "The Cross Section of Expected Stock Returns." *Journal of Finance*, 47 (1992), pp. 427-465.

——. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics*, 33 (1993), pp. 3-56.

Kang, X., F. Nielsen, and G. Fachinotti. "The New Classic Equity Allocation." MSCI *Research Insight*, October 2010.

Leibowitz, M., and A. Bova. "Gathering Implicit Alphas in a Beta World." *The Journal of Portfolio Management*, Vol. 33, No. 3 (2007), pp. 10-18.

Qian, E. "Risk Parity Portfolios: Efficient Portfolios through True Diversification." Panagora Asset Management Research Paper, September 2005.

Sharpe, W. "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk." *Journal of Finance*, 19 (1964), pp. 425-442.