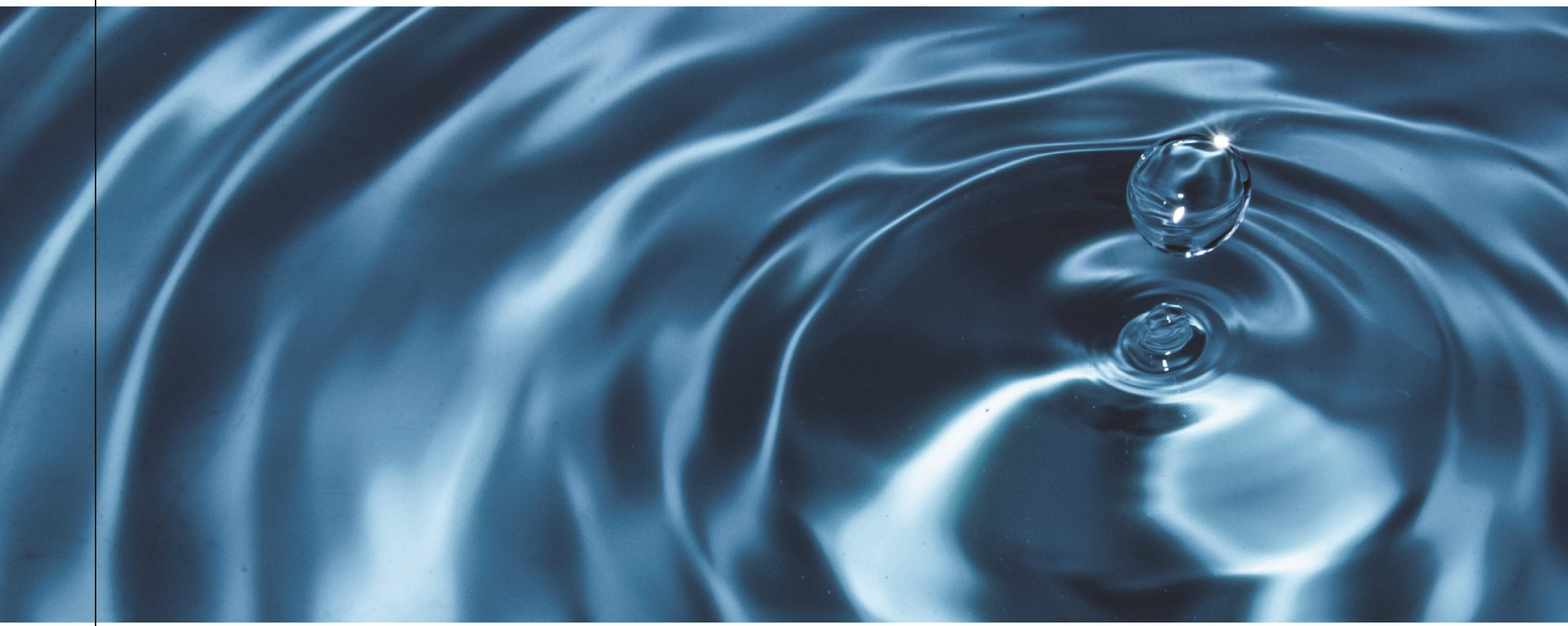
William Blair

July 2017
Perspective
Global Multi-Asset

The Case for Macro



Macro investors adopt a top-down view of the world in which they analyze broad trends to allocate risk across asset classes, geographies, sectors, and currencies—resulting in a liquid strategy that aims to deliver strong risk-adjusted returns without having to rely on rising equity or bond markets. In this paper, we discuss the potential benefits of such a strategy and detail our approach.

Dynamic Allocation
Strategies Team

Macro Diversification: including a global, top-down, multi-asset, multi-currency capability in your portfolio

Defining Global Macro

Macro investors subscribe to a top-down view of the world and allocate risk capital across a broad universe of geographies and exposures, including equities, fixed income, currencies, and commodities. True macro investors do not invest or conduct research with a "bottom up" lens, but instead analyze broad macroeconomic trends, themes, and geopolitical opportunities to construct a well-diversified, global investment strategy.

Global macro strategies are designed to deliver strong risk-adjusted returns without having to rely on rising equity and bond markets. Freed from adherence to traditional benchmarks, macro managers take risks only in those markets, currencies, or commodities they believe are adequately compensated, and by which they can take risk through either long or short exposures. While some global macro strategies may dynamically manage their (equity) beta exposure, most macro strategies have a long-term beta expectation ranging from 0.0 to 0.5.

The global macro universe can be broken down into two main approaches—systematic and discretionary. Systematic strategies rely on quantitative or technical models that objectively allocate capital in a structured and mechanical fashion with little to no human discretion (other than what is built into the models themselves). While a reliance on some degree of quantitative modeling is prevalent throughout the macro investment universe, discretionary strategies depend on qualitative elements in their macro investment process. Discretionary strategies focus on fundamental research and apply proprietary quantitative and qualitative assessments of economic, thematic, and political trends to subjectively allocate risk.

The Potential Benefits of Including Macro Strategies in Your Portfolio

Global macro investing offers many potential benefits when included in an investment portfolio. Macro strategies offer macro diversification, a form of diversification that traditional strategies often struggle to provide. They do so by accessing risks and returns that are uncorrelated to traditional markets through a differentiated approach that analyzes data and information from a top-down perspective. Adding top-down (macro) capabilities can augment performance through both return enhancement and risk mitigation.

> **"While many portfolios are well-diversified from a bottom-up view, relatively few adequately incorporate a top-down perspective."**
>
> — Dynamic Allocation Strategies Team

While many portfolios are well-diversified from a bottom-up view, relatively few adequately incorporate a top-down perspective. Bottom-up diversification certainly has its merits, but applying this approach in isolation misses many of the benefits that a top-down approach can offer.

Economic, thematic, and political trends are often not isolated to one country, region, or asset class. Their influence may span geographies and cut across many markets and currencies simultaneously. In a global macro strategy, these transcendent trends and themes can be better captured within the portfolio. For example, the Commodity Supercycle, the back end of which we now find ourselves, has affected many emerging and developed economies through price volatility of oil. Consequences have been visible across their equity and fixed-income markets and currencies. Another example, a slowdown in Chinese growth, has affected not only China and Greater Asia, but also China's trading partners as well as their currencies and commodity markets. A global macro manager that incorporates the impact of these macro influences across all asset classes, regions, and sectors greatly enhances the **total** diversification of a portfolio.

> **"Macro strategies are benchmark-agnostic, which means they own those markets and currencies that appear to be cheap and/or adequately compensated, and avoid (or short) those in whichrisks are expensive and/or not appropriately compensated."**
>
> — Dynamic Allocation Strategies Team

A key characteristic of macro strategies is full flexibility to best manage macro risks and take advantage of arising opportunities. As mentioned previously, macro strategies are benchmark-agnostic, which means they own those markets and currencies that appear to be cheap and/or adequately compensated, and avoid (or short) those in which risks are expensive and/or not appropriately compensated. Macro strategies can also take both long and short exposures to exploit investment opportunities that are either undervalued or overvalued.

In traditional (benchmark-relative, long-only) strategies (such as a "balanced" 60/40 portfolio), if a manager finds that Japanese equities are overpriced, for example, the portfolio will own fewer Japanese equities than the benchmark. But the manager still **owns** Japanese equities. Not only does the portfolio still have exposure to an unattractive market, but this may also reduce the amount of risk the manager is willing or able to take in other, more attractive opportunities. A global macro manager will either not own Japanese equities or establish a short exposure to benefit from a current overvaluation and expected subsequent price depreciation.

Short exposures can also be used to isolate relative opportunities (positioned in opposition to a long position in another market such that the two—taken together—net to zero exposure) or broadly reduce portfolio risk by decreasing beta, duration, or currency exposures.

Importantly, because true macro strategies are both multi-asset and multi-currency in their orientation, macro managers have the ability to separate asset and currency decisions, and are able to take risk exposures in opposite directions if so desired. Taking the former example a step further, a macro manager may believe that the Japanese yen is undervalued at the same time the Japanese equity market is expensive. A macro manager may take a position, in this case, that is long the currency but short the equity market simultaneously. This level of granularity offers a dual benefit should both the (equity) market and currency ultimately revert to their respective fundamental values.

> **"Another advantage of a macro strategy is the utilization of asset classes that have little to no correlation with traditional markets, such as currencies and commodities."**
>
> — Dynamic Allocation Strategies Team

Another advantage of a macro strategy is the utilization of exposures that have little to no correlation with traditional markets, such as currencies and commodities. The inclusion of one or both of these risk exposures increases the breadth and depth of a portfolio, which then enables macro managers to seek opportunities or mitigate risks where traditional managers may not be able to do so. The following correlation matrix—which includes a macro investment approach that expects an equity beta average of

Figure 1:
William Blair Dynamic Allocation Strategies Correlation Matrix

	U.S. Equity	Ex-U.S. Developed Equity	Emerging Equity	U.S. Government Bonds	U.S. Investment-Grade Corporates	Emerging Market Debt (USD)	Commodities	Infrastructure	Private Equity	Real Estate	Macro Diversified
U.S. Equity	1.0	1.0	0.9	0.2	0.2	0.3	0.0	0.4	0.9	0.4	0.6
Ex-U.S. Developed Equity	1.0	1.0	0.9	0.2	0.2	0.3	0.0	0.4	0.9	0.4	0.6
Emerging Equity	0.9	0.9	1.0	0.2	0.2	0.2	0.0	0.3	0.8	0.3	0.6
U.S. Government Bonds	0.2	0.2	0.2	1.0	1.0	0.7	0.0	0.2	0.0	0.2	0.4
U.S. Investment-Grade Corporates	0.2	0.2	0.2	1.0	1.0	0.7	0.0	0.2	0.0	0.2	0.4
Emerging Market Debt (USD)	0.3	0.3	0.2	0.7	0.7	1.0	0.0	0.2	0.1	0.2	0.3
Commodities	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Infrastructure	0.4	0.4	0.3	0.2	0.2	0.2	0.0	1.0	0.3	0.2	0.3
Private Equity	0.9	0.9	0.8	0.0	0.0	0.1	0.0	0.3	1.0	0.3	0.5
Real Estate	0.4	0.4	0.3	0.2	0.2	0.2	0.0	0.2	0.3	1.0	0.2
Macro Diversified	**0.6**	**0.6**	**0.6**	**0.4**	**0.4**	**0.3**	**0.0**	**0.3**	**0.5**	**0.2**	**1.0**

Source: William Blair.

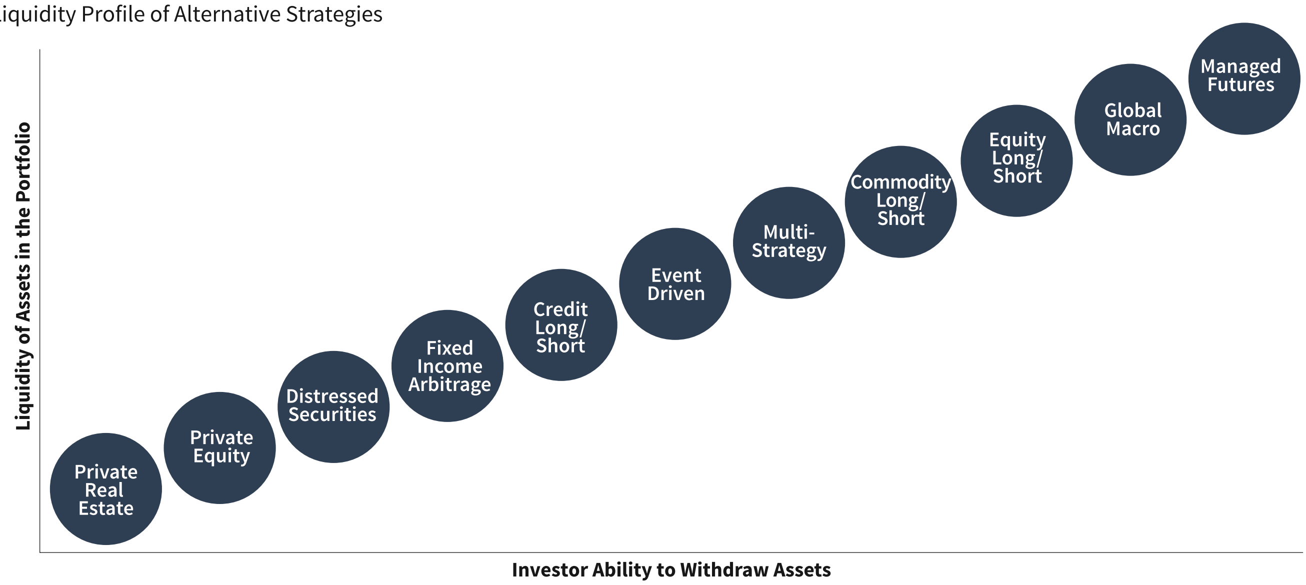
0.35 over time—provides a quantitative affirmation of this diversification benefit. The matrix reflects an equilibrium (or "normal") state of risk that is both forward-looking and very long-term in its orientation.

Global macro managers often have access to an expanded pallet of instruments from which to implement their views or mitigate risks. Given their appetite for diversified, index-level exposures, macro strategies use exchange-traded funds (ETFs) and index-level derivatives such as futures, forwards, swaps, and options. Sometimes investors incorrectly equate derivatives with higher levels of risk; however, derivatives can be used to both increase or decrease the (intended and) compensated risks of a strategy, and often represent the most efficient means of doing so. Advantages can include increased liquidity, lower cost, tax efficiency, the ability to short, greater precision, and even the ability to customize. Furthermore, these instruments can provide exposures (or payoff profiles) that traditional instruments cannot. For instance, options contain asymmetric payoffs, which can provide downside protection that traditional instruments lack.

> **"Global macro strategies typically have an attractive liquidity profile because the underlying markets and instruments used are all very liquid themselves."**
>
> — Dynamic Allocation Strategies Team

Lastly, a large hurdle to the majority of alternative investments is the liquidity profile. For investments like private equity, infrastructure, and real estate, an investor's capital is often locked into the strategy for a long period of time, while other alternative strategies attempt to capture returns in assets that are inherently illiquid, such as distressed assets. However, global macro strategies typically have an attractive liquidity profile because the underlying markets and instruments used are all very liquid themselves. This can be a benefit for those investors who are seeking diversification without having to sacrifice liquidity.

Figure 2:
Liquidity Profile of Alternative Strategies



Source: Altergris, "The Case for Liquid Alternative Investments," June 2012, and William Blair.

Our Approach to Global Macro

The Dynamic Allocation Strategies team employs a discretionary global macro approach that has the following defining characteristics:

- Long-term, fundamental value foundation;
- Fundamental opportunities viewed through thematic and geopolitical risk lenses, among others;
- Discretionary strategy setting;
- Extensive use of active currency management; and
- Dynamic risk management.

These characteristics are borne of an investment process that has been honed during multiple decades of top-down, multi-asset investing as a team.

This investment process can be summarized in three stages: where, why, and how, as figure 3 illustrates.

Figure 3:
Three-Stage Investment Process

Source: William Blair.

Where: Identification of Value-to-Price Discrepancies

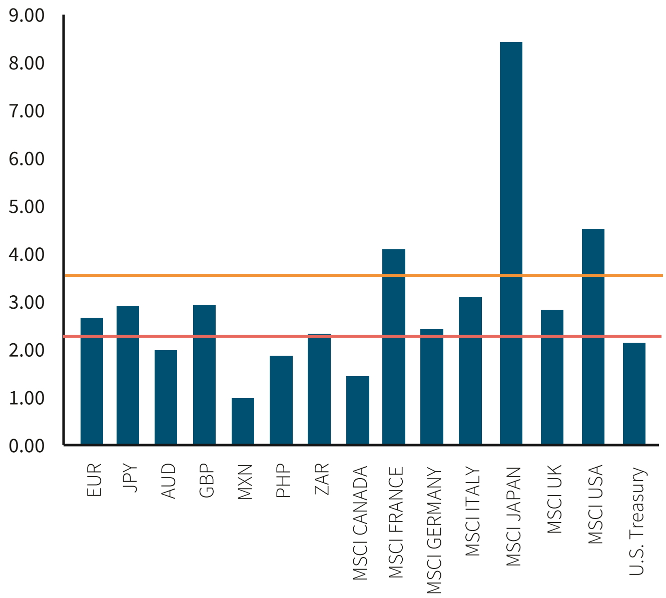
Focusing on top-down fundamentals, the team seeks to identify, evaluate, and benefit from the correction of discrepancies between fundamental value and price. Value is determined using proprietary discounted cash flow models for equity and bond markets and a relative purchasing power parity framework for currencies. Once we determine fundamental value, we observe current price to identify investment opportunities, defined as large discrepancies between our estimate of a market's or currency's value and its current price.

Since we view our investments from a macro perspective, we are often asked how we can determine fundamental value for an index differently than an analyst might for an individual company. Just as a company's cash flows respond to certain drivers, such as an energy company's to the variation of the price of oil, cash flows for a collection of companies respond to other, broader drivers, such as economic growth. Often these influences are more easily understood when looking at long time horizons as individual companies are prone to company-specific risks, which can alter expected cash flows. These idiosyncrasies, however, can be diversified away when evaluating a *collection* of companies that instead respond to broad economic themes.

> **"We believe that currencies are one of the most misunderstood and little-recognized components in investment management."**
>
> — Dynamic Allocation Strategies Team

One of the differentiators of our approach is the extent to which active currency management is utilized. We believe that currencies are one of the most misunderstood and little-recognized components in investment management. We have found that the conventional wisdom among market participants is that it is difficult to establish a fundamental value for exchange rates and/or difficult to consistently earn a positive return using fundamental value as a point of orientation. Naturally, that keeps the exploitation of fundamental currency opportunities a relatively rare phenomenon within the competitive landscape. Scarcity in this realm helps promote inefficiencies, and we are happy to operate in inefficient areas in which we believe we have uncommon expertise. To wit, empirical evidence not only shows that conventional wisdom is incorrect, but also demonstrates that the pull of fundamental value is actually stronger and quicker for exchange rates (with a three- to five-year reversion horizon) than for equities or bonds (with a five- to eight-year horizon).

Figure 4:
Average Half-Life of Currency and Asset Reversion of Price to Value (in Years)



Source: William Blair.

Currencies also have little-to-no correlation with equities and bonds, and we take advantage of the fact that currencies are a powerful diversifier within our capabilities. The combination of the strong value-reversion characteristics and the diversification benefit are the major reasons why, on average, we are happy to take an unusually large amount of currency risk within our strategies.

One set of exposures in which we do not directly invest are commodities. Commodities do not generate cash flows (or yield) and, therefore, lack a true fundamental value. Instead, commodity prices are driven by supply and demand forces, which in turn can be affected by trends in demographics, weather patterns, and production deals orchestrated by small numbers of major players or cartels like the Organization of the Petroleum Exporting Countries (OPEC). Though we do not invest in commodity markets directly, the direction of commodity prices is important to the exposures we may take in currencies or markets (like the energy sector) that are influenced by commodities.

> **"Our process is designed to ride the tides, navigate the waves, and ignore the ripples."**
>
> — Dynamic Allocation Strategies Team

We often refer to fundamental value as the "tide" that raises and lowers all boats, or the beacon to which price gravitates over the long term. This focus on long-term, forward-looking information differentiates our process from many other approaches wherein investors miss the tides altogether as they focus exclusively on the "waves," such as macro themes and geopolitics, and the "ripples," which are little more than "noise" emanating from the hundreds of talking heads on TV. Our process is designed to ride the tides, navigate the waves, and ignore the ripples.

> **"Although fundamental value is absolutely necessary as a starting point or foundation of our investment process, relying on it alone as a means of investing is not sufficient."**
>
> — Dynamic Allocation Strategies Team

Why: Assessment of Opportunities

Although fundamental value is absolutely necessary as a starting point or foundation of our investment process, relying on it alone as a means of investing is not sufficient. The *why* stage of our investment process involves the evaluation of the "waves"—influences outside of fundamentals that can materially affect the path that prices take to converge on value. These influences can act as tailwinds or headwinds to price converging on value in the short-to-medium term. To evaluate why prices differ from value, we typically use three main frameworks:

- Conventional wisdom is a multidimensional assessment of recent economic activity, monetary policy, and the degree of risk aversion across a number of geographical regions. This provides insight into the sentiment of the market and an idea of what is already being "priced in" by other investors.

- Macro themes are identified that cut across asset classes and geographies, typically lasting for multiple years. These thematic influences are modeled as risk factors than can alter compensation, risk, or correlations in our short-term (Outlook) risk model. These themes can evolve over time, changing in both their intensity and in how they directionally influence certain markets and currencies.

- Geopolitical analysis is used to understand political situations and developments such as conflicts, strategic negotiations, or elections around the world. We apply a game-theoretical framework to organize our analysis, which involves identifying the key players of the game, their (primary and secondary) objectives, and the different powers that they can wield to achieve these objectives. The purpose of this analysis is not necessarily to predict outcomes, but rather to better understand the consequences of such outcomes and the actions and reactions that players may take to reach a final result. This framework for organizing information best equips us to get as much understanding of geopolitical situations into our analysis as possible while not being surprised by developments within the "game theater" as they occur. In short, our geopolitical analysis can help either avoid risks that the market underappreciates, or to take compensated risks where the market is overly cautious.

While these frameworks are instrumental in incorporating these nonfundamental influences and creating consistency in how we approach them through time, what is even more important is the dialogue that we have as a team. The successful interpretation of, and navigation about these shorter-term influences, are a critical element of the Dynamic Allocation Strategies team's investment process, but not to the disregard of the underlying tides.

> **"We use two proprietary, forward-looking risk models to guide portfolio construction."**
>
> — Dynamic Allocation Strategies Team

How: Portfolio Design

The last stage of our process is to merge the *where* and the *why* into an integrated, calibrated portfolio of risk exposures pursuant to the particular strategy's specified risk budgets. We use two proprietary, forward-looking risk models to guide portfolio construction. Our Equilibrium risk model encompasses a long-term view that can be thought of as a "normal" state of risk. Because a true normal state of risk rarely exists, we also view our exposures through our Outlook risk model, a shorter-term model that originates with the Equilibrium view and is then twisted—or distorted—to arrive at a framework we believe is consistent with today's (current) risk environment. For example, our forward-looking assessment is that equities and bonds have a small positive correlation to one another over the long term (Equilibrium), but in the short term (Outlook) these two asset classes actually have a negative correlation to one another. Aspects of the *why* stage of our process are modeled into Outlook and directly influence the extent to which Outlook is different from Equilibrium.

As a starting point to portfolio design, we use a proprietary portfolio calibration tool known as valuation-based allocation (VBA). This engine incorporates our forward-looking views on risk, correlations, and value-to-price profile for each market and currency in our universe not only in isolation, but also in relation to every other market and currency in our universe (what we call a "matrix" approach) to create a calibrated portfolio of risk exposures based on expected contributions to both return and risk. VBA allows the team to allocate risk appropriately within the portfolio and at the aggregate level ***over time***, which is a primary reason the team does not use an optimization approach. Among the problems with using an optimization approach is that while an optimizer can point an investor to the best (most efficient) return/risk trade-off at a point in time, it does not help with how much risk *should be* taken at any point in time or with how to consistently allocate risk over time. The VBA approach helps ensure that we will identically allocate risk capital at different points in time given the same environment and parameters.

The resulting suggested allocations (or signals) to each market and currency act only as a first step in portfolio construction. While our themes are modeled as risk factors in our Outlook risk model, many aspects of the *why* stage of our investment process are qualitative and not captured in the VBA process. We embrace the notion that it is impossible to model every single aspect of our analysis efforts. The setting of portfolio exposures, therefore, is a subjective effort and may, at times, result in significant deviations from the signals suggested by this (VBA) calibration tool. While every aspect of the investment process is a team-based approach, the ultimate decision-making authority resides with the portfolio managers.

> **"We embrace the notion of dynamic risk allocation. … The dynamic risk level of the strategy, and from where that risk is coming, can be thought of as an equation: where + why + risk = how"**
>
> — Dynamic Allocation Strategies Team

Importantly, we embrace the notion of dynamic risk allocation. That is, we do not target a specific level of risk at all times, but dial the risk level of the portfolio up and down based on the magnitude of fundamental opportunities we see, as well as our assessment of *why* those opportunities exist. All else equal, we want to take more risk when larger fundamental opportunities arise. VBA incorporates this flexibility, guiding us to take more risk when prices are further away from value. But this, too, relies on discretionary judgement by the portfolio managers. In addition to dynamically managing risk at the total portfolio level, the team also dynamically allocates risk within the portfolio among equities, fixed income, and currencies over time. This approach often stands in stark contrast to other approaches that seek to take an equal amount of risk across component parts of the portfolio and/or keep the total strategy's risk level constant through time. In fact, the team relies on four distinct risk budgets (systematic, unsystematic market, currency, and total) as it allocates risk capital over time. If there are more (or larger) fundamental opportunities in currency, for example, then we will dynamically move to take more currency risk. Ultimately, all strategies have an expectation of an average level of volatility that lies roughly at the midpoint of the strategy's total risk budget.

The team also makes explicit decisions about the use of optionality and the convex/concave profile of the strategy at any point in time. There are times when the team desires to be buyers of insurance and employ a more convex profile. Similarly, there are times when a more concave strategy profile is warranted and the team is happy to be sellers of insurance to capture the valuable premia that the market is providing.

The dynamic risk level of the strategy, and from where that risk is coming, can be thought of as an equation: *where + why + risk = how*. If prices are far from value in the *where* stage, and there are no headwinds, for example, to price reverting to value, then we want to take above-average risk in the portfolio. If there are fewer opportunities, the opportunities are smaller, and/or there are headwinds to those opportunities being realized, for example, then we want to take below-average risk. This concept is summarized in figure 5.

Figure 5:
Determining Dynamic Risk Level

		Where	
		Prices Close to Value	**Prices Far From Value**
Why	**Headwinds**	Below-Average Risk	Average Risk
	Tailwinds	Average Risk	Above-Average Risk

Source: William Blair.

Conclusion

Macro investors adopt a global, top-down view of the world in which they analyze broad macroeconomic and political trends to allocate risk across asset classes, geographies, and sectors in an unconstrained fashion. The outcome is a liquid strategy that aims to deliver strong risk-adjusted returns without necessarily relying on rising equity or bond markets. When included in a portfolio, macro strategies provide macro diversification that portfolios focused exclusively on bottom-up analysis lack, thereby improving portfolio performance through return enhancement or risk mitigation. The DAS team's macro approach starts with fundamentals to identify long-term investment opportunities (the tides), uses unique frameworks and decades of experience to navigate the medium-term influences such as macro themes and geopolitics (the waves), and ignores the short-term noise such as headlines or talking heads on TV (the ripples).

About William Blair

William Blair is committed to building enduring relationships with our clients and providing expertise and solutions to meet their evolving needs. We work closely with Taft-Hartley clients, private and public pension funds, insurance companies, endowments, foundations, sovereign wealth funds, high-net-worth individuals and families, as well as financial advisors. We are 100% active-employee-owned with broad-based ownership. Our investment teams are solely focused on active management and employ disciplined, analytical research processes across a wide range of strategies, including U.S. equity, non-U.S. equity, fixed income, multi-asset, and alternatives. As of March 31, 2017, William Blair manages $67.9 billion in assets. William Blair is based in Chicago with an investment management office in London and service offices in Zurich and Sydney. William Blair Investment Management, LLC and the investment management division of William Blair & Company, L.L.C. are collectively referred to as "William Blair."

Important Disclosures

5785596 (07/17)