

innovation
intelligence
guidance
research
planning
reporting
integration
consulting
customization
diversification
due diligence
portfolios
rebalancing
risk scoring
asset allocation



Envestnet | PMC

Investment Methodology Guide



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Envestnet | PMC offers comprehensive investment research, consulting, and portfolio management.

This Investment Methodology Guide summarizes PMC's research and portfolio construction work, which are embedded into services available on the Envestnet platform. These services include PMC's capital markets assumptions, asset class portfolios, risk scoring, and a product review process that assigns research statuses.

This guide also describes supplementary research features available through CIO Support and Investment Consulting Services, our premium service offered to Envestnet enterprise clients.

PMC's Philosophy

PMC's foundation is deeply rooted in principles that provide the framework for building diversified, risk-managed portfolios to meet the long-term investment goals of a broad spectrum of clients.

These principles include:

Asset allocation. Thoughtful and professional asset allocation and a sound investment plan can help minimize losses and help protect portfolios against volatility and uncertainty.

Vehicle and investment selection and monitoring. Choosing appropriate managers and determining whether they should be actively or passively managed are key considerations in the investment planning process.

Portfolio construction and rebalancing. Proper diversification across the sub-asset classes can enhance a portfolio's risk/return profile. Regular portfolio rebalancing also helps keep allocations and risk exposures in line.

The screenshot shows the Envestnet | PMC website interface. At the top, there is a navigation bar with the Envestnet | PMC logo, menu items for 'ABOUT PMC', 'SOLUTIONS', and 'OUR INSIGHTS', and a search bar. Below the navigation bar, a large banner features a presentation slide titled 'CE Credit Presentation Series: Understanding Factor-Based Investing' with a 'LEARN MORE' link. To the right of the slide is a graph with 'Momentum' on the vertical axis and 'Value' on the horizontal axis, showing a blue target icon and a blue geometric shape. Below the banner, there is a section for 'LATEST INSIGHTS' with links to 'Commentaries: PMC Weekly Review - August 11, 2017' and 'The Envestnet Edge, July/August 2017', and a 'Multimedia' section with a link to 'Video: Changing Markets, Changing Portfolios'. A blue call-to-action box at the bottom right of the screenshot reads 'About Envestnet | PMC Visit investpmc.com'.

PMC's Expertise

PMC's experienced and specialized investment professionals have deep expertise in research, consulting, portfolio construction, and portfolio management.

Investment Committee

The PMC Investment Committee, comprising senior management professionals, plays a critical role in exercising fiduciary responsibilities for Envestnet clients. Meeting **formally each quarter (and more frequently on an ad hoc basis)**, it establishes and oversees the broad investment policies instituted on the Envestnet platform and within the PMC group.

The Investment Committee:

- oversees manager and mutual fund due diligence processes;
- guides investment product development and portfolio management;
- initiates and authorizes changes to investment policies and methodology on the platform; and
- reviews and approves revisions to capital markets assumptions and asset class portfolios.

Leadership Team

+ Investment Committee

Brandon Thomas
Chief Investment Officer

Tim Clift
Chief Investment Strategist

Cal Bryant, CFA
Senior Vice President,
PMC Overlay Services

Greg Classen, CFA
Senior Vice President,
Senior Portfolio Manager

Brooks Friederich
Director of Research Strategy

Janis Zvingelis, PhD, CFA
Senior Vice President
Director of Quantitative
Research

Erik Preus, CFA
Managing Director

Don Frerichs, CFA
Senior Vice President, Director
of Mutual Funds
Sr. Portfolio Manager – PMC
SIGMA Portfolios

Michael Featherman, CFA*
Managing Director, Head of
Investment Specialists

Ryan Tagal*
Director of Product
Management

+ Manager Research

Tim Clift
Chief Investment Strategist

+ Quantitative Research

Janis Zvingelis, PhD, CFA
Senior Vice President
Director of Quantitative
Research

+ Product & Institutional Consulting

Erik Preus, CFA
Managing Director

+ Investment Specialists

Michael Featherman, CFA
Managing Director
Head of Investment
Specialists

+ Portfolio Solutions

Brandon Thomas
Chief Investment Officer



PMC Staff and Bios

More details available at investpmc.com

* Non-voting member of the Investment Committee

PMC Research

Every facet of PMC’s services is backed by methodology steeped in sound fundamental theory and disciplined execution. Beginning with market views, asset allocation, and investment selection, and culminating with due diligence monitoring, PMC has established a thorough, consistent, and transparent methodology.

PMC’s research is incorporated in the platform in two primary ways:

1

Capital markets assumptions (CMAs) and asset class portfolios (ACPs) support portfolio construction and risk scoring methodology.

2

Evaluations, approvals, and research statuses assigned to portfolios and other investment products. More granular research attributes and content are available to enterprise clients that opt for CIO Support and Investment Consulting Services.

PMC conducts an annual, six-step process, using statistically advanced techniques to combine information coming from theory, data, forecasts by recognized economic analysts, and PMC’s own views into overall estimates of the CMAs.

| STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 | STEP 6 |
|---|---|--------------------------|--------------------------------|---|---|
| Estimating Standard Deviations and Correlations | Theoretical Model: Reverse Optimization | Researcher Views: Equity | Researcher Views: Fixed Income | Putting it All Together: Black-Litterman (Bayesian) Process | Expected Return Forecasting for Alternative Asset Classes |

1

Capital Markets Assumptions and Asset Class Portfolios

CMA's are the foundation of the ACPs on the Envestnet platform. Developed by PMC's Quantitative Research Group (QRG), these data sets help advisors determine risk profiles and suitable portfolios based on client needs and preferences.

Capital Markets Assumptions

CMA's are the expected returns, standard deviations, and correlations representing the long-term risk/return forecasts for the asset classes on the Envestnet platform.

We use these values to score portfolio risks, assist advisors to build portfolios, construct our asset allocation models, and create Monte Carlo simulation inputs for portfolio wealth forecasts.

PMC's approach to estimating CMA's and constructing asset allocation models is based on the following general assumptions:

- Global capital markets are largely efficient in the long run, where the market efficiency is measured by the Capital Asset Pricing Model (CAPM).
- Identifiable shorter-term inefficiencies may exist in the capital markets.
- Risk premia are time-varying.

Asset Allocation

The expected returns, standard deviations, and correlations derived from the CMA's process are used to create portfolios at various risk levels, grounded in a mean/variance optimization (MVO) approach that employs a resampled (also called bootstrap) version. A simple MVO approach produces portfolios that are sensitive to even slight changes

in the expected return assumptions, exacerbated by estimation error in those returns (as well as in standard deviations and correlations). Combining optimization with bootstrap statistical methods counters the inherent instability of the simple MVO approach. The portfolios that result are designed to be optimal under a broad variety of conditions and are far more stable over time than simple MVO-generated portfolios. We also apply constraints based on the relative capitalization of various asset classes to ensure that the portfolios do not stray too far from the market portfolio.

Additionally, we include a variety of diversifying asset classes, such as commodities, REITs, emerging markets equities, and high yield fixed income. To accommodate the various combinations of diversifying asset classes, we first create a portfolio with all the asset classes at a 50/50 equity/fixed income level.

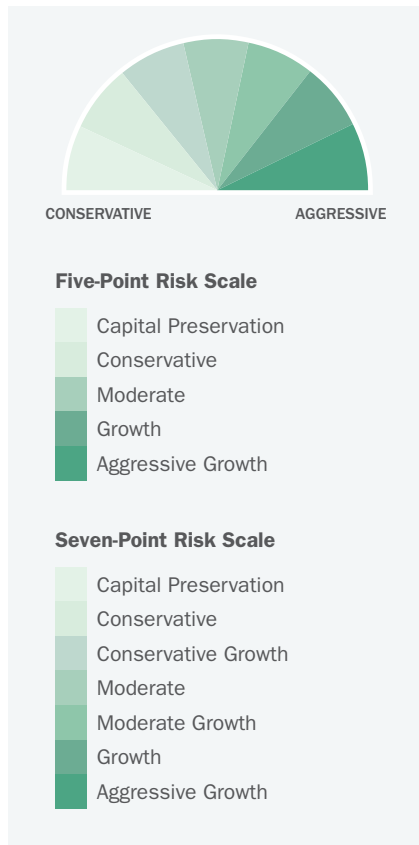
PMC Supports CMA's for the following asset classes.

| Equity | Fixed Income | Alternatives |
|--|--|--|
| <ul style="list-style-type: none"> • All Cap • Global Equity • Large-Cap Core • Large-Cap Growth • Large-Cap Value • Mid-Cap Core • Mid-Cap Growth • Mid-Cap Value • Small-Cap Core • Small-Cap Growth • Small-Cap Value • International Developed Markets • International Emerging Markets • Foreign Large Cap Core • Foreign Large Cap Growth • Foreign Large Cap Value • Foreign Small Mid Cap Core • Foreign Small Mid Cap Growth • Foreign Small Mid Cap Value • REITs • Commodities | <ul style="list-style-type: none"> • Intermediate Bond • Intermediate Muni • Long Bond • Long Muni • Short Bond • Short Muni • High Yield • International Bond • TIPS • Balanced • Bank Loan • Emerging Markets Bond • Cash | <ul style="list-style-type: none"> • Alternative • Equity Market Neutral • Event Driven • Hedged Equity • Bear Market • Multi-Strategy • Alternative Fixed Income • Managed Futures • Inverse • Leveraged • Long/Short Credit • Global Macro |

Each diversifying asset class rolls up either to fixed income or to equity, so we can combine any risk level and asset class to manage risk and reduce the number/complexity of asset classes.

Asset Class Portfolios

PMC's asset allocation methodology is the basis for our series of risk-based ACPs at various domestic equity tiers and diversifying asset class combinations. Five- and seven-point series are available, and may either include or exclude alternative strategy allocations.



PMC calculates pre- and after-tax CMAs ACPs and ALPs. The after-tax CMA's calculation forecasts the total pretax return and its dividend yield/coupon and capital gains components. This ensures the correct tax rates are applied to each component, which affects not only the after-tax expected

return but also each asset class's volatility. We use the asset class return and volatility as inputs to construct our after-tax ACPs. Although the methodology is similar to that used for our pre-tax ACPs, after-tax ACPs favor tax-efficient asset classes, such as various duration municipals and equities, in which a large proportion of the overall pre-tax return comes from capital gains.

Our ACPs construction process also offers wide flexibility for users and clients to construct their own custom ACPs. It accommodates numerous domestic equity tiers, diversifying asset classes, and different equity-to-fixed-income risk levels, offering thousands of different ACPs, based on the user's or client's preferences.

Portfolio Risk Scoring Methodology

The Evestnet platform's risk scoring methodology defines the relative risk of a portfolio. It also assists advisors and clients in constructing suitable portfolios based on client-specific investment objectives.

The key components of the process include:

- PMC's CMA's
- Asset class assignments
- Portfolio standard deviation
- Risk scales and scoring
- Client risk profile

We categorize all securities (and some investment strategies) on the Evestnet platform as one of 46 currently supported asset classes for which CMA's have been developed. To calculate the risk score of a given portfolio consisting of individual securities or investment strategies defined by a single style, the key objective is to compute the portfolio's projected standard deviation based upon PMC's CMA for each component.

We compute the portfolio's standard deviation based on the standard



deviation and correlation assumptions for the asset classes. SMAs, mutual funds, ETFs, equities, and bonds are considered as portraying an asset class exposure, and thus are mapped (as described earlier) into one of the asset classes in PMC's CMA process.

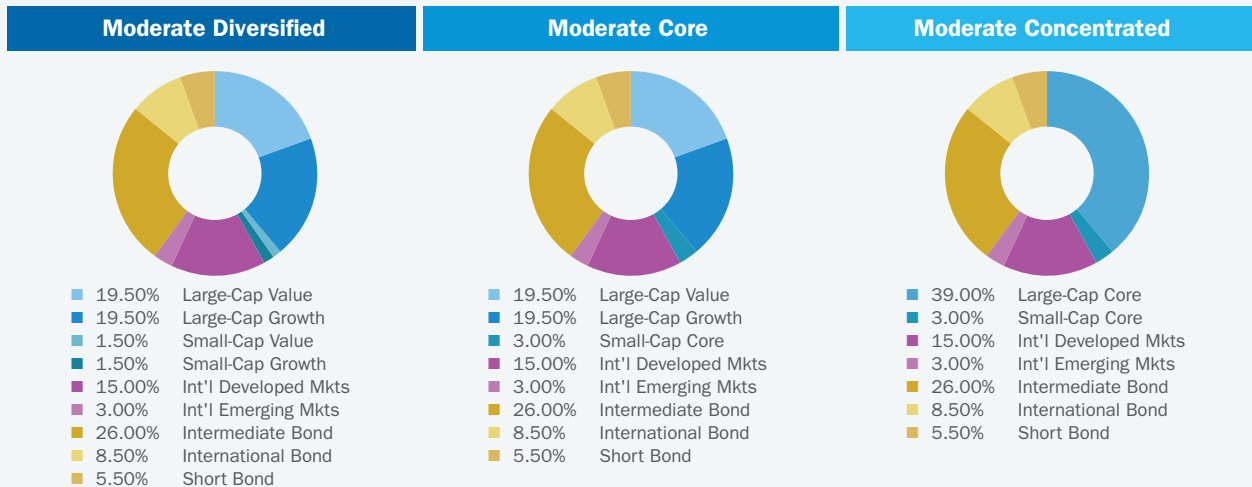
Balanced mutual funds, balanced SMAs, and strategist portfolios receive specialized treatment. For balanced mutual funds, the system breaks each down into a style allocation based on Morningstar's most recent underlying asset allocation of the fund's holdings. For a balanced SMA, the system analyzes the actual current positions of the SMA model.

Strategist portfolios are evaluated and assigned a risk category (Conservative, Moderate, Growth, etc.) according to a methodology that considers the flexibility of the strategy's asset allocation and investment approach. For strategist portfolios categorized as "Strategic," PMC calculates the risk score based on the strategy's most aggressive policy allocation. For portfolio solutions that follow a more flexible asset allocation approach, PMC has developed a weighted, multifactor methodology—a mix of quantitative and qualitative assessments of the strategy's objectives, policy constraints, historical returns, and historical holdings.

At each point in a risk scale, there are three portfolio iterations:

| Diversified | Core | Concentrated |
|--|---|------------------------|
| Includes large/small cap and value/growth splits | Includes value/growth splits for large cap, but core allocation for the small cap | No value/growth splits |

For example, the moderate risk category iterations from the PMC pre-tax ACPs' five-point risk scale are:



The three main uses of PMC's ACPs are the following:

- 1** As a reference for portfolios to score risk on the Evestnet platform.
- 2** As the basis for various managed solutions and PMC's consulting framework.
- 3** As suggested allocations on the Evestnet platform for advisors to use in constructing portfolios.

Asset class considerations for PMC pre-tax ACPs:

| Equity | Fixed Income | Diversifying Asset Class | Alternatives |
|---|---|--|---|
| <ul style="list-style-type: none"> • All Cap Equity • Large-Cap Core • Large-Cap Growth • Large-Cap Value • Mid-Cap Core • Mid-Cap Growth • Mid-Cap Value • Small-Cap Core • Small-Cap Growth • Small-Cap Value | <ul style="list-style-type: none"> • Intermediate Bond • Short Bond | <ul style="list-style-type: none"> • International Developed Markets • International Emerging Markets • Commodities • REITs • High Yield • International Bond • TIPS • Bank Loan • Emerging Markets Bonds | <ul style="list-style-type: none"> • Hedged Equity • Multi-Strategy • Event Driven • Alternative Fixed Income |

PMC Research Statuses

All strategists, SMAs, mutual funds, and ETFs on the platform are reviewed either quantitatively or qualitatively by the PMC Research team, and are assigned one of **three research statuses**.

Identifying the research status for all managed products is part of the standard available default content shown in our Research Center and on individual portfolio profile pages. Many Envestnet platform clients limit their advisors to those portfolios that are Approved (Quantitative and Qualitative). Clients can clarify and restrict their investment offering for their advisors and provide a smaller but still extremely comprehensive selection of portfolios for their advisors to use.



Portfolio Risk Scoring Policy

Contact us for more details: pmcconsulting@investnet.com

The PMC team updates the research status of all managed products on a quarterly basis and provides all Envestnet clients with a list of portfolios that are added to or removed from the Approved List. In addition, PMC provides basic recommendations of replacement portfolios for those strategies that fall off the Approved List each quarter. PMC provides this content and notification to those clients who may enforce that their advisors use Approved managers only. This content distills at a very high level PMC's ongoing monitoring of the

research suitability of portfolios for general platform clients, and provides timely and updated viewpoints on the portfolios on the general Envestnet platform.

PMC's platform-level research content does not include in-depth research notes on any specific managers, nor any other materials, content, or services.

The following section provides additional insight and detail on these research statuses, and the research processes from which they are derived, that are applied to the wide range of investment strategies and vehicles on the platform.

Three PMC Research Status

Available

These portfolios are available to advisors for use in client portfolios but have undergone no investment due diligence assessment by PMC or Envestnet. All mutual fund, SMAs, strategist portfolios, and ETF products added initially to the Envestnet platform are assigned the "Available" research status.

Approved-Quantitative

These portfolios have undergone PMC's due diligence process and are actively monitored, via a quantitative process only, on an ongoing basis. This process measures risk and return for each portfolio, and ranks it against its investment style peers, and is updated each quarter. Portfolios that fall below certain thresholds as a result of this process are removed from the "Approved-Quantitative" list. We do not use this methodology to approve proprietary PMC portfolios.

Approved-Qualitative

These portfolios have undergone PMC's qualitative due diligence process and are actively monitored by both PMC's quantitative and qualitative processes, on an ongoing basis. The due diligence process uses periodic reviews to monitor third-party money managers, who also have been thoroughly vetted by PMC's team of experienced research analysts. The process includes statistical analysis, site visits, and qualitative assessments of managers' ability to execute their strategies. The "Approved-Qualitative" research status is applied to mutual funds, SMAs, and strategist portfolios.

Available Status

Mutual funds and ETFs are subject to the additional oversight requirements of the Investment Company Act, and most are made available on the platform without additional onboarding requirements. However, managed portfolios (SMAs and strategist portfolios) must go through additional onboarding due diligence procedures. To be considered for inclusion on the Envestnet platform, new SMAs and strategist portfolios also must complete a New Manager RFI Questionnaire and be reviewed by Envestnet's Business Partners Acceptance Committee (BPAC).

Approved Status

PMC conducts the research and due diligence that drives the evaluation and approval process of investment strategies on the Envestnet platform, including SMAs, strategist portfolios, mutual funds, liquid alternatives, and ETFs. Although different investment vehicles demand unique due diligence

Annual Due Diligence Questionnaire

This document helps determine if a manager has maintained ongoing compliance with industry rules and regulations and Envestnet internal requirements for continued availability on the platform. All managers on the Envestnet platform must complete the Annual Due Diligence Questionnaire annually.

The questionnaire reviews general information about the firm and products offered, the compliance program, business continuity and disaster recovery, data protection, proxy voting and regulatory reporting, GIPS and performance audits, and trading.

Business Partners Acceptance Committee (BPAC) Review

The BPAC, consisting of a cross-section of individuals from Envestnet's Compliance, Legal, Research, Manager Services, Business Development, Product, and Sales departments, meets weekly to decide on Available status candidates.

BPAC Product Review Considerations

Envestnet's BPAC considers all aspects of the submitted request for information (RFI) and bases its decision on the following factors:

- Current Form ADV / legal or regulatory concerns
- Satisfactory business documentation, i.e. business continuity plans, data security, etc. / sound operating infrastructure / trading practices
- Acceptable minimum firm assets: generally, \$125,000,000
- GIPs-compliant (or otherwise audited) performance—generally a minimum of 36 months
- Strong risk-adjusted performance relative to stated benchmarks and peer group
- Relevant product offering given current roster of managed products / operational compatibility / trading requirements, etc.
- Equitable Trade Rotation: Managers who do not follow an equitable trade rotation policy for Envestnet's clients will continue to hold their portfolio on the platform, however a disclaimer will be added to their strategy and this portfolio may not retain its "Approved" research status on the platform.

Products are terminated from the platform if there is a corporate event, or if the money manager or BPAC determines that a viable contract and working relationship can no longer be maintained. A terminated product's research status is changed to "n/a," and is dropped from "Available" to "Closed to New," "Inactive," or "Terminated."

requirements, all of PMC's evaluations and approvals follow a comprehensive process.

PMC's goal is to identify investment quality by employing comprehensive quantitative and qualitative analysis, sound judgment, and an objective, transparent methodology to deliver

a broad list of approved managers across asset classes, risk tolerances, styles, philosophies, and vehicles. PMC's process results in a strategy earning the "Approved-Quantitative" or "Approved-Qualitative" research status, depending on the primary research method used for approval. PMC stands behind these strategies from

an investment fiduciary standpoint, regardless of the form of due diligence used to approve them.



PMC Research and Due Diligence

Contact us for more details:
pmcconsulting@envestnet.com

Approval Process

Objectives

PMC seeks to apply a consistent approval process to:

- provide a broad list of approved investment managers across asset classes, risk tolerances, styles, philosophies, and vehicles;
- meet industry best practices relating to objective, transparent methodology; and
- select managers who offer an attractive risk/reward proposition based on either our proprietary quantitative ranking model or the Research team's due diligence process.

For style-based investment strategies, including actively managed SMAs, traditional mutual funds, and passive strategies, such as ETFs, PMC primarily employs a quantitative due diligence process to approve investment strategies. For a select group of SMAs and mutual funds, PMC also applies a concurrent qualitative due diligence process to foster deeper coverage on strategies and in-depth research content to support our CIO Support and Investment Consulting Services clients. For liquid alternatives and strategist portfolios, PMC applies a qualitative due diligence process to approve strategies.

Both quantitative and qualitative processes are executed simultaneously

and continuously to evaluate the ongoing investment merits of the various investment options on the Envestnet platform. Updates to the research statuses of the investment strategies on the platform are announced approximately eight weeks after each quarter-end, and are implemented approximately 12 weeks after each quarter-end.

Quantitative Approval

PMC's QRG team implements and maintains the quantitative process that evaluates the investment options offered on the platform, resulting in a list of approved products each quarter. QRG's quantitative evaluation consists of two processes: one to evaluate actively managed mutual funds and SMAs, and a separate one to evaluate passively managed mutual funds, SMAs, and ETFs.

The quantitative ranking and approval methodology for actively managed products comprises six components—three return-based and three risk-based—that are each evaluated on multiple investment horizons. The return-based components include: active return, batting average, and information ratio; risk-based components are beta, R-Squared, and tracking error (TE).

To be eligible for inclusion in PMC's quantitative approval process, an actively managed mutual fund or SMA product must exhibit the following:

- three or five years (depending on Envestnet peer group) of complete, historical performance available on the Morningstar data feed; and
- a Morningstar-style category universe membership.

Each quarter, PMC downloads the data from Morningstar for all managers satisfying these criteria, classifies it according to Envestnet's peer groups, and assigns best-fit benchmarks.

We use Morningstar-assigned benchmarks, which are unique to the Morningstar-style category, to analyze managers. Some Envestnet peer groups (e.g., International Developed Markets), are formed by mapping multiple Morningstar-style categories into a single peer group. Managers also are subject to a regression analysis to determine whether the assigned Morningstar benchmark is appropriate. When possible, a benchmark whose fit is deemed to be considerably better than the Morningstar benchmark is selected from a pre-determined list for that particular Envestnet peer group. Finally, if the fit to the Morningstar benchmark (or any other benchmark in the pre-determined set of benchmarks) is poor, PMC reverts to the benchmark used in the fund's prospectus for the analysis.

This process results in a "Q-Score," a quantitative ranking derived from a 12-factor model comprising risk and return components associated with each individual portfolio being evaluated. The model places a premium on managers with the following characteristics:

- Consistent active return—portfolios that have consistently beaten their benchmark over time.
- Effective and consistent risk control—portfolios that have consistently tracked their respective benchmark over time.
- Efficient risk/return profile—portfolios that have generated

meaningful active returns relative to the risk taken.

To achieve initial "Approved" research status, the Q-Score must rank in the top 30 percent of the manager's peer group, and must rank in the top 50 percent to maintain it.

However, even with a high Q-Score, a portfolio may still be excluded from the Approved List. Managers who have had 100% portfolio management team turnover in any of the last 12 quarters will be screened out. Additionally, there is also a check if a manager denoted that they have GIPS information in the Morningstar database. If GIPS information is missing from the Morningstar database, an independent performance audit may be used as a manual override to the GIPS requirement, and certain SMAs may not be eligible from becoming "Approved" as a result of non GIPS compliance or no performance audit.

Mutual funds and SMAs that are configured as accessible options on the Envestnet platform that pass the quarterly Q-Score analysis (and not excluded due to GIPS non-compliance or have 100% manager turnover) are added to the Approved List with the "Approved-Quantitative" status.

The PMC Research team holds regular meetings with QRG to review and update the inputs and factors that make up the methodology.

Passively Managed Funds

The quantitative ranking and approval methodology for passively managed products looks at TE, liquidity, and costs.

The PMC Research team does not apply a qualitative review process to passively managed or indexed mutual funds, SMAs, or ETFs. Passively managed or indexed mutual funds, indexed SMAs, laddered bonds, and ETFs are all considered for quantitative approval by the PMC QRG team via the following process at this time.

Return Components

- Active Return
- Batting Average
- Information Ratio

Risk Components

- Beta
- R-Squared
- Tracking Error

ETF/Index Funds

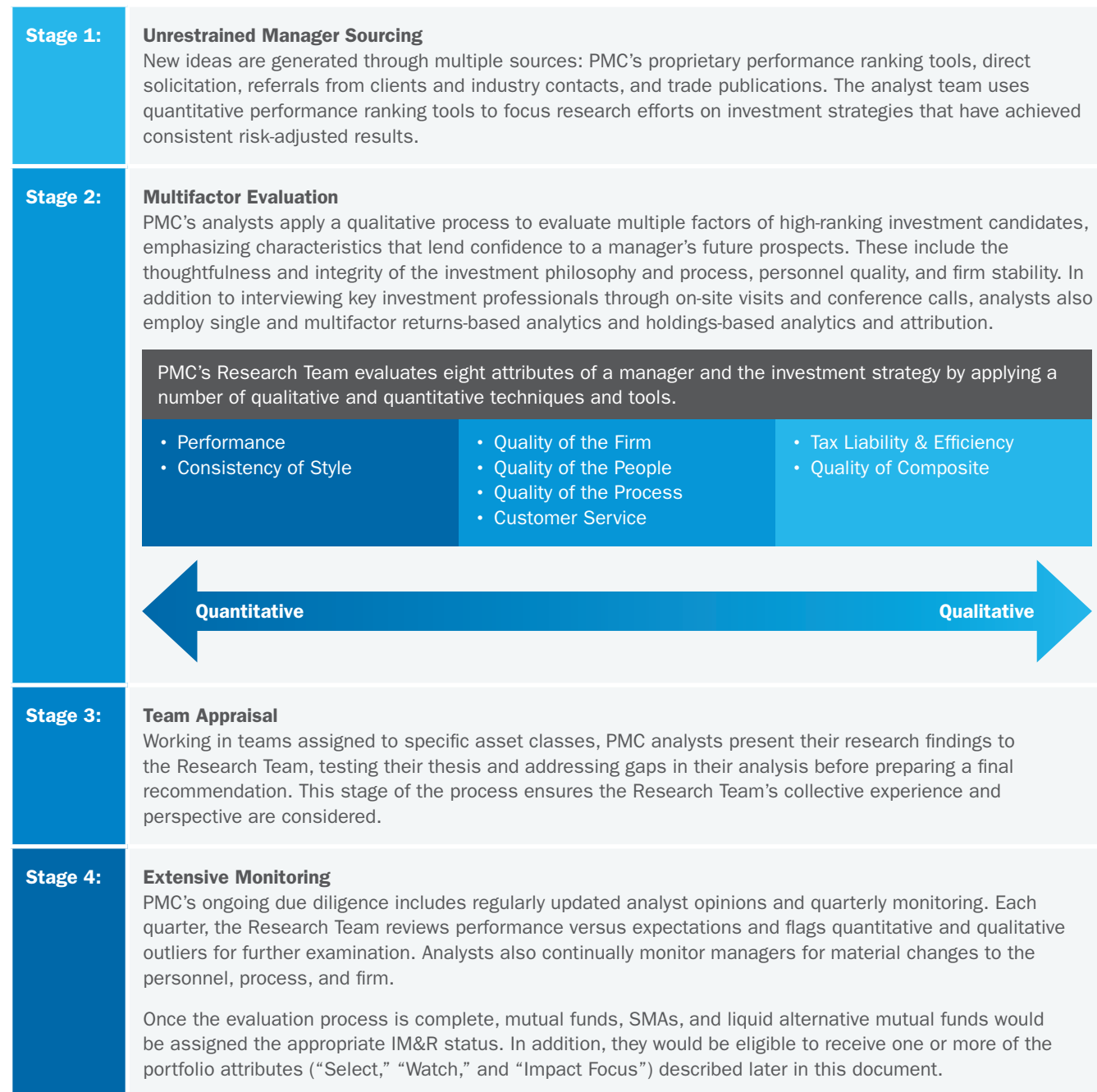
The ETF/index fund (referenced as “fund” in this section) ranking methodology consists of two steps: first, quantitative screening; and second, scoring and ranking.

PMC screens all available US-based funds in the Morningstar Direct database based on five criteria, and funds must pass all five to be eligible for ranking.

- Legal structure

- Active vs. passive management
- Available data history
- Envestnet platform style
- Total sponsor assets under management (AUM)

Separately Managed Accounts (SMAs) & Mutual Funds



Once the screening process is completed, PMC calculates a weighted-average score of three performance dimensions—tracking, liquidity, and cost—and then ranks the funds within their respective peer groups. As the fund’s main purpose is to provide exposure to a particular index (as opposed to delivering alpha,) the most important feature is how well the fund tracks a particular index. Consequently, PMC emphasizes the tracking score in constructing the overall score, assigning a 50 percent weight to the tracking quality and 25 percent each to both liquidity and cost.

The Approved List consists of all portfolios (mutual funds and ETFs are evaluated separately) whose scores place them in the top 30 percent within their peer group. In addition, PMC also approves those funds with AUM greater than the maximum of the AUM for quantitatively approved funds within the same peer group. This allows those funds to be considered that are popular in the marketplace, but that might not track a benchmark identical to that of a particular investment style.

In certain categories (e.g., Bank Loan, Commodities Broad Basket), the number of funds that meet the five criteria is too small to be ranked effectively via a quantitative process. These categories are ranked manually.

All ETFs and index-based mutual funds that are deemed “Approved” based on this methodology will receive the designation “Approved-Quantitative” on the Investnet platform. Please note: although mutual funds and SMAs are reviewed on a quarterly basis, index-based ETFs, mutual funds, and SMAs are only be reviewed annually.

Strategic Beta ETFs

PMC’s Strategic Beta (SB) ETF ranking methodology is similar to that of our regular ETFs and index funds.

In particular, it identifies products that have good characteristics in three

PMC Mutual Fund and SMA Quantitative Ranking Methodology 2022

PMC ETF and Index Mutual Fund/SMA Quantitative Ranking Methodology 2022

Strategic Beta ETF Ranking Methodology

PMC Mutual Fund and SMA Quantitative Ranking Methodology
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PMC ETF and Index Mutual Fund/SMA Quantitative Ranking Methodology
[Download the document](#)

PMC Strategic Beta ETF Ranking Methodology
[Download the document](#)

areas: cost, liquidity, and performance versus their peer group. The main difference between the regular ETF and SB ETF ranking is in how we evaluate the performance. For regular ETFs, we look for products with the smallest TE; however, for SB ETFs, we add two more performance dimensions to the TE criterion: the risk-adjusted return and the exposure to the desired risk factor.

As with our evaluation of traditional ETFs, the process for SB ETFs consists of two steps: first, quantitative screening, and second, scoring and ranking. The quantitative screening process for SB ETFs comprises eight screens, all of which an ETF must satisfy to be scored and ranked.

- Legal structure
- Active vs. passive management
- Available data history
- Investnet platform style
- Total sponsor assets under management (AUM)
- Product AUM
- Morningstar Strategic Beta flag
- Number of rankable products in the peer group

Step two in the process is to score and rank the universe that we screened in the previous step. We rank only

ETF products whose Morningstar SB Attribute is Dividend Screened/Weighted, Fundamental Weighted, Momentum, Quality, Low/Minimum Volatility/Variance, or Low/High Beta. These are by far the most popular SB attributes and cover more than 90 percent of all the products in Morningstar’s SB universe.

The framework of our existing ETF/Index product ranking methodology informs our SB ETF product ranking methodology, whose main ranking dimensions of cost, liquidity, and performance each have several sub-dimensions. Every product is ranked on each of these sub-dimensions, with the final product ranking being a weighted average of these sub-dimensions. The performance dimension for regular ETFs is measured by TE to the underlying index. The main change that we make in evaluating SB ETFs is in how we calculate performance. We use TE as one of the subcomponents of performance (similar to the regular ETF ranking methodology), but add two more: risk-adjusted performance and exposure to a particular risk factor.

Finally, the top 30 percent of the products in each peer group receives the “Approved-Quantitative” research

status, and they retain it until they fall below the 50th percentile. This spread between the approval percentile and the percentile at which the “Approved” status is dropped reduces the turnover in the list of approved products.

Qualitative Approval

PMC’s Q-Score is the primary approval process for style-based investments. PMC also provides thorough qualitative research which seeks to identify high-conviction strategies within a variety of asset classes. The strategies and funds approved via this process receive the research status of “Approved-Qualitative” on the platform.

PMC’s qualitative research process assumes that market inefficiencies exist and can be exploited by active management over time. True outperformance, however, is difficult to achieve and even more difficult to sustain. Distinguishing between generating “alpha”—defined as the positive contribution to performance that is attributable to a manager’s

decisions rather than market movement—and luck requires an understanding of a manager’s investment thesis and competitive advantage.

This additional due diligence helps assure advisors that the managers they deploy on their clients’ behalf have been thoroughly vetted by a team of experienced analysts. The comprehensive process includes various quantitative analyses, including on-site visits and assessments of managers’ ability to execute their strategies. Our due diligence seeks to:

- deliver comprehensive, unbiased coverage of asset classes and strategies;
- identify managers who have the potential to outperform their benchmarks on a risk-adjusted basis over a full market cycle;
- maintain the integrity of asset allocations through appropriate manager recommendations; and
- provide advisors with timely communications, forward-

looking opinions, and actionable recommendations.

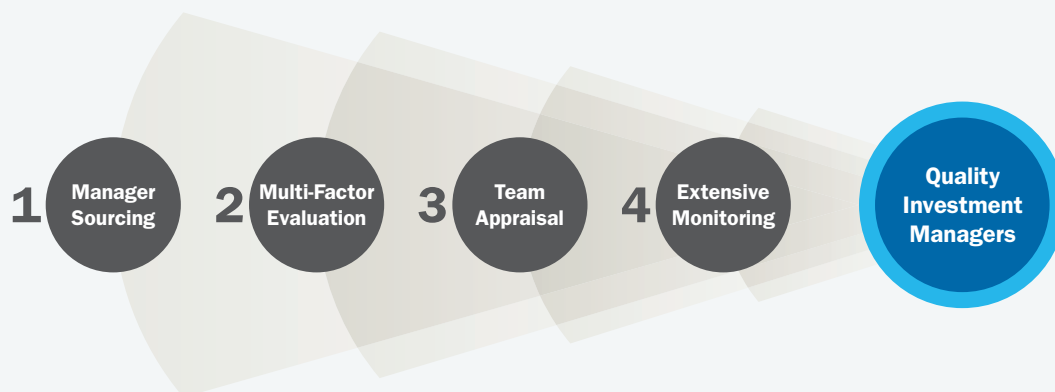
Liquid Alternatives Mutual Funds

PMC believes alternative investments can improve a portfolio’s risk/return profile. Although mutual funds with daily liquidity that employ alternative strategies may be simpler to implement, they still require rigorous due diligence, due to a rapidly growing universe, increasingly complex strategies, and misaligned expectations.

PMC views hedge-fund-like mutual funds, commonly referred to as “liquid alternatives,” as nontraditional investment strategies, rather than as a separate asset class. Like traditional managers, managers of alternative strategies take positions in the four major asset classes (equities, bonds, commodities, and currencies), albeit in conjunction with hedging strategies, through either derivative structures or, to a lesser extent, nonpublic markets.

Qualitative Research Process

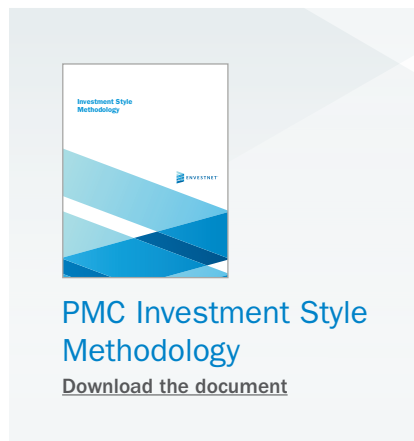
PMC provides upfront selection and ongoing due diligence on managed account strategies, mutual funds, liquid alternatives, ETFs, and fund strategist portfolios. While different investment vehicles demand unique due diligence requirements, all of PMC’s qualitative evaluations and recommendations are based on a consistent process.



PMC follows the same multifactor mutual fund evaluation process defined above, combining both quantitative and qualitative analysis, guided by the philosophy that all returns (both for traditional and nontraditional strategies) originate from risk exposures. In this regard, nontraditional strategies are no different from traditional strategies; where they differ is in the risk exposures that a manager of an alternative strategy either seeks or accepts to generate returns. Additionally, within the nontraditional space, idiosyncratic manager risks, such as embedded economic leverage in derivative contracts, are much more pronounced. Our job is to understand these risks, whether investment-related or otherwise.

PMC seeks to answer the following questions when evaluating liquid alternatives:

- Has the manager done this in the past? What evidence of success exists? Has the manager generated true alpha, or is this alternative beta?
- Does the firm have sufficient people resources in the front offices?



How adequate are its systems, infrastructure, and data feeds?

- Is the strategy appropriate for a mutual fund vehicle?

Once we complete the review process, we designate liquid alternative mutual funds as “Available” or “Approved-Qualitative,” and the funds may receive additional portfolio attributes as needed (“Select” and “Watch”).

Additionally, all liquid alternatives are automatically mapped to Envestnet styles, using Morningstar Categories as described in the PMC Investment Style Methodology document. These

liquid alternatives styles continue to be supported by PMC’s CMA methodology and annual updates.

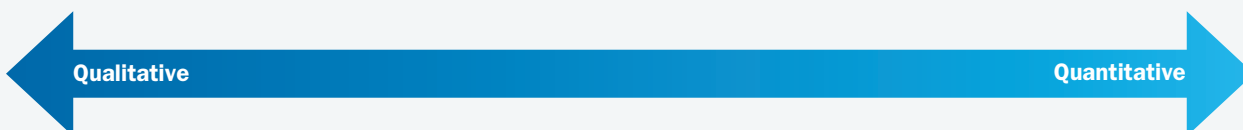
Strategist Portfolios

Strategist portfolios are asset-allocated managed account investment solutions composed of some combination of mutual funds, and/or exchange-traded funds. Most strategist portfolios are risk-based, asset-allocated portfolios that are offered in various models across the risk spectrum.

Additionally, unique tactical and style-specific strategist portfolios focus on traditional investment styles, asset classes, philosophies, risk tolerances, and portfolio attributes, or follow a more outcome-oriented mandate.

To help better organize this growing space, the PMC Research team dedicates significant effort to classifying and categorizing third-party strategist solutions available to advisors on the Envestnet platform. These solutions range from traditional long-term, fully diversified buy-and-hold investment mandates and multi-asset portfolios offered across various risk tolerances, to style-specific or outcome-

| Firm | Strategy | Performance |
|---|---|---|
| <ul style="list-style-type: none"> • Firm and Strategy Assets • Product and Asset Distribution and Diversification • Business Structure and Operations • Key Investment Personnel • Legal and Compliance | <ul style="list-style-type: none"> • Investment Philosophy and Process • Strategy Mandate and Positioning • Risk Analysis • Portfolio Holdings Analysis | <ul style="list-style-type: none"> • Investment Results • Portfolio Attribution • Composite Analysis |





PMC Strategist Approval Process

Contact us for more details: pmcconsulting@envestnet.com

based portfolio solutions that employ unique investment techniques.

PMC actively monitors and reviews strategists, and may add and/or remove strategist solutions at any time throughout the year. The PMC Strategist Research team's rigorous quantitative and qualitative research produces a thoroughly vetted roster of third-party investment managers, portfolios, and solutions that are well aligned with the demands of our clients and stand out from their peers.

Although PMC's research and due diligence process is similar to that for SMAs and mutual funds, certain characteristics of these solutions and the lack of formalized peer groups and standardized benchmarks require a specialized process for strategist portfolios.

To be eligible for the Approved List, strategist portfolios must submit both a Risk Score Questionnaire and a

Strategist Due Diligence Questionnaire and undergo a Qualitative Analyst Assessment conducted by a PMC research analyst.

The Strategist Due Diligence Questionnaire seeks to determine the following:

- Firm and strategy information
- Sales, marketing, and distribution capabilities
- Firm governance structure
- Firm and product asset history
- Investment team
- Investment philosophy
- Investment process
- Risk management
- Composite information
- Trading

The Qualitative Analyst Assessment is derived from interviews (including conference calls and/or on-site visits) with senior management and key investment personnel to gain a better

understanding of the firm's stability, key personnel, investment philosophy and process, performance metrics, risk controls, and product line-up. The following are core elements of the strategist due diligence:

- compliance with all due diligence requests;
- access and transparency into the firm, investment team, and investment process;
- organizational stability and success;
- quality and tenure of the investment team;
- analyst conviction in firm, investment team, and investment process;
- competitive historical performance;
- unique attributes that correlate to the success of the strategist solution; and
- multiple competitive advantages over peers.

Upon completion of the evaluation process, strategist portfolios are eligible for various analyst-driven research statuses: "Available" or "Approved-Qualitative," with additional portfolio attributes as needed ("Select" and "Watch").

CIO Support and Investment Consulting Services

Supplementary research features, including institutional-quality research, due diligence, consulting, and high-conviction investment solutions are available to enterprises and their advisors that opt for this premium PMC service.

Portfolio Attributes

In addition to a research status, SMAs, strategist portfolios, mutual funds, and ETFs also may receive one or more portfolio attributes that help provide further insight into the strategy's additional due diligence, level of conviction, or oversight.

Select

Portfolios with a select attribute have undergone PMC's due diligence process and are actively monitored through PMC's quantitative and qualitative processes on an ongoing basis. The PMC due diligence process monitors third-party money managers through periodic reviews. These managers have been thoroughly vetted by a team of experienced research analysts. The process includes statistical analysis, on-site visits, and qualitative assessments of managers'

ability to execute their strategies.

The PMC Research team designates high-conviction product ideas in each investment style, which includes mutual funds, SMAs, and strategist portfolios. These portfolios receive the research status of "Approved-Qualitative" along with the "Select" portfolio attribute. Note that PMC managed portfolios are not eligible for the "Select" portfolio attribute, as this category is reserved for analyst coverage of nonproprietary portfolios only.

Watch

Watch portfolios have been assigned the "Approved-Qualitative" research status, but have experienced a significant event, including, but not limited to: changes in key investment personnel; change in the investment process used and/or significant departure from the proprietary ratings methodology; material underperformance; or regulatory concerns. These portfolios are subject to ongoing monitoring and review to determine if the PMC Research team should remove them from the Approved List.

PMC Managed¹

Portfolios that are managed by PMC receive the research status of "Approved-Qualitative" with the "PMC Managed" portfolio attribute, as PMC actively manages these products and is confident in their investment

methodologies. Because all PMC managed strategies and funds are designated as "Approved," they do not undergo the same approval process and analysis that non-proprietary strategies do. Oversight of these portfolios lies with PMC's Investment Committee. These portfolios follow PMC's asset allocation methodology. Third-party investment vehicles, including mutual funds, indexed mutual funds, ETFs, SMAs, and strategist portfolios separately receive an "Approved" research status as a component piece.

Impact Focus²

The PMC Research team, with support from our research consultant, Veris Wealth Partners, selects third-party SMAs, strategists, and mutual funds that integrate socially responsible themes into their investment approach. These portfolios receive the "Impact Focus" portfolio attribute along with the "Available," "Approved-Quantitative," or "Approved-Qualitative" research status.

Strategic Beta³

The Approved List includes Strategic beta (or Smart Beta) ETFs that pass the criteria of PMC's quantitative approval process. These approved ETFs are passively managed and track non-traditional indices that are constructed using risk factors such as value, quality, and momentum. This ranking methodology screens ETFs based on



CIO Support and Investment Consulting

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¹ The PMC Managed portfolio attribute can be seen by all users of the platform and clearly identifies portfolios managed by the PMC team.

² The Impact Focus portfolio attribute can be seen by all users of the platform and designates an Impact portfolio fund.

³ The Strategic Beta portfolio attribute can be viewed by all users of the platform.

five criteria, calculates a weighted-average score of three performance dimensions (tracking error, liquidity, and cost), and then ranks them within their respective peer groups. Strategic beta ETFs receive the “Approved-Quantitative” research status and the “Strategic Beta” portfolio attribute.

Research Content

Analysts publish Analysts Opinions, Analysts Updates, Analysts Alerts, Scorecards, and QuickTakes for portfolios they cover. With the exception of QuickTakes, research content is available to PMC CIO Support and Investment Consulting Services clients only.

Analyst Opinions

An Analyst Opinion is an in-depth qualitative assessment of a portfolio, averaging approximately 2000-3000 words. It is written when initial due diligence is conducted on a portfolio, and is usually updated once every 12-18 months.

Analyst Updates

Analyst Updates are quarterly updates on those portfolios categorized for qualitative coverage for which an Analyst Opinion is also available. These are short write-ups, focused on the portfolio’s most recent performance and attribution, the portfolio manager’s market commentary, and the outlook

for the next six to nine months. Where pertinent, these write-ups also include any recent changes in terms of people or firm.

Analyst Alerts

These are simple alerts analysts can post on the platform when a material event occurs for a particular strategy or fund.

Scorecards

These research reports provide detailed qualitative and quantitative research and due diligence insights and analyst opinions to support our strategist portfolio research approval process. Through PMC’s research and due diligence reviews, each of the segments below receives a ‘score’ of 1 to 10. The Scorecard includes score/rating on the following elements:

- Asset class and business
- Investment team
- Marketing and distribution
- Investment philosophy and process
- Portfolio holdings
- Portfolio risk management
- Performance results
- Performance attributes
- Overall score/rating

QuickTakes⁴

SMA/Mutual Funds

Certain SMAs and mutual funds feature a commentary from PMC analysts that

displays on the platform for a certain period of time. These QuickTakes provide quantitative and qualitative insights on a broad range of fixed income and equity SMAs and mutual funds. These reports highlight the following:

- Key considerations
- Performance highlights
- Snapshot
- Alpha thesis
- Edge

Strategist Portfolios

The PMC Research Strategist Portfolio QuickTake reports are supplemental, single-page research pieces that can be used to obtain a deeper understanding of a strategist solution. These reports are available by default for the strategist program and can be accessed from the product profiles in the Research Center. These Quicktakes provide a summary overview of the following elements:

- Firm
- Investment team
- Investment process
- Performance
- Portfolio fit
- Investment edge
- Portfolio attributes
- Operational details

| Portfolio Attribute | Research Status | Research Content |
|-----------------------|---|--|
| Select | Approved-Qualitative | Analyst Opinion, Analyst Update, Analyst Alert |
| Watch | Approved-Qualitative | Analyst Opinion, Analyst Update, Analyst Alert |
| PMC Managed | Approved-Qualitative | — |
| Impact Focus | Available, Approved-Qualitative, or Approved-Quantitative | Analyst Opinion, Analyst Update, Analyst Alert, and QuickTakes if applicable |
| Strategic Beta | Approved Quantitative | QuickTakes if applicable |

⁴ Access to SMA and Mutual Fund QuickTakes is treated as a premium option, although full Premium Research is not required. Access is coordinated through the PMC Consulting team.



PMC Portfolio Solutions

PMC combines specialist asset managers and PMC capital markets intelligence to create advanced mutual fund wrap, unified managed account, and separate account portfolios.

PMC Strategist Portfolios

Through a multifaceted, collaborative effort among portfolio management, consulting, strategist research team, and QRG teams, PMC delivers a robust selection of total, targeted, and custom portfolio solutions to fit the needs of almost any investor.

PMC Strategic Asset Allocation and Diversification

Strategic asset allocation and diversification are fundamental principles of PMC's investment philosophy.

PMC believes strategic asset allocation and long-term diversification will help clients meet their long-term investment goals. Central to this philosophy is that investors benefit from diversified exposure to the set of global asset classes. While there are periods in which diversification detracts from performance, over time, allocation across various domestic and international asset classes and styles helps to produce smoother risk-adjusted returns and client outcomes.

In our ACP construction process for a given risk profile, the general equity/fixed income allocation is the most important consideration. We support more than 46 asset classes, and each asset class rolls up into the broader equity and fixed income asset classes. PMC offers standard ACPs across the risk spectrum, with the portfolios

comprising only a subset of the available asset classes. Within PMC's managed strategies, PMC portfolio managers are generally required to comply with a risk profile's equity/fixed income allocation, but may complete those respective allocations using various combinations of the available asset classes. For example, portfolio managers may choose to employ any of the nine diversifying asset classes.

For philosophical reasons, PMC does not implement any type of style bias in its asset class portfolios or in its managed strategies. For example, our allocations are neutral regarding growth and value styles, but portfolios may reflect a slight overweight to small cap in the domestic equity segment, as well as a modest "home country bias."

PMC Portfolio Construction and Maintenance Process

PMC's ACP construction methodology consists of several primary components. Modern Portfolio Theory (MPT) has been widely acclaimed as a theoretical portfolio construction framework since its introduction more than 60 years ago. Despite its theoretical and academic success, PMC believes the use of MPT in the finance industry is limited. When MPT is used, it typically either applies a large set of constraints or employs some type of methodological improvement, because MPT optimal portfolios can experience extreme

fluctuations over time and across the risk spectrum. Therefore, PMC uses what might be termed a "Modified MPT" by making adjustments to traditional MPT to correct some of its flaws, such as estimation risk, portfolio weight instability across risk and through time, and the tendency of both to stray materially from the world market portfolio allocations.

In our methodology's optimization process, we specify several relative constraints on the various asset classes to avoid over-optimizing the portfolios that result. These constraints ensure that the relative exposure sizes in the optimized portfolio track those in the observed market portfolio, while allowing the risk/return trade-off properties of the various asset classes to shape the final portfolio. Also, as noted above, we express no style bias, and restrict the allocation to value and growth to equal weightings, which, combined with the above size constraints, allows us to mimic the market portfolio in largely avoiding either a style or size bias in our ACPs.

Our ACP construction process allows for 13 domestic equity "tiers," or levels of granularity. For example, the domestic equity portion of the portfolio could be constructed using only all cap; or large cap core + small cap core; or large cap growth + large cap value + small cap core, etc. We also can add up to nine different diversifying asset classes, such as REITs, emerging

markets, high yield bonds, and TIPS.

To develop our series of standard PMC ACPs that span risk categories, we begin by constructing a 50 percent equity/50 percent fixed income portfolio that contains the most granular domestic tier of asset classes and all nine diversifying asset classes. We then propagate the 50/50 portfolio to other equity/fixed income splits, using the relative weights obtained in the 50/50 portfolio.

PMC maintains a separate process for constructing ACPs that contain liquid alternatives. It consists of an overlay approach to incorporate liquid alternatives in the portfolio framework, maintaining the relative allocations of the existing portfolio, and finding optimal allocations for the liquid alternative sleeves' size and composition. PMC carved out a fixed 25 percent allocation from the standard allocation in each risk bucket. This fixed 25 percent sleeve is reallocated among the nine liquid alternative styles that PMC supports to provide a lower Conditional Value-at-Risk (CVaR) for the resulting overall portfolio. CVaR, also known as "expected shortfall," is the average of all the returns that fall below the determined value-at-risk, providing an idea of the size and frequency of extreme events. The 25 percent fixed allocation is chosen based on testing of various combinations of liquid alternative and standard asset allocation proportions. A 25 percent allocation has a meaningful impact on the overall CVaR adjustment, yet not so great that it would impinge on the rest of the standard asset allocation. This level seems to represent the best tradeoff for investors who can tolerate moderate change in their asset allocation that results from including

liquid alternatives in their portfolio. Within the 25 percent dedicated allocation to liquid alternatives, the combinations of the weights of the nine liquid alternative sleeves vary, based on the overall risk of the asset class portfolio.

The three styles that result in the most diversified liquid alternative sleeve allocations are: Event Driven, Market Neutral, and Alternative Fixed Income. The fixed 25 percent liquid alternatives overlay results in a sizeable reduction of the downside portfolio risk, an intended and desirable consequence of the methodology used for investors who desire a meaningful impact from including liquid alternatives in their portfolio.

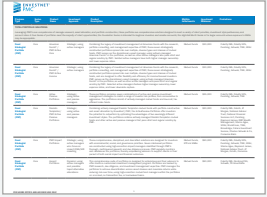
PMC's portfolio solutions are managed according to strategic asset allocations, and generally do not implement tactical biases based on prevailing financial market and economic conditions. However, certain PMC legacy offerings have historically incorporated modest asset class tilts based on relative valuations. These tilts are implemented on an annual basis, and portfolio managers of these solutions must adhere to the constraints in the Investment Policy Statement.

Rebalancing Frequency

PMC's strategic ACPs are generally rebalanced annually. PMC portfolio managers discuss and agree upon changes in the months leading up to implementing the changes and prepare commentary about those changes as part of the process. The commentary is distributed to advisors whose clients are invested in the portfolios.

Mutual Fund Share Class Policy

PMC strives to choose the lowest-priced shares available for all PMC



PMC Product Matrix
Download the full list of total, targeted, and custom portfolio solutions.

managed models. The actual share class fund that is purchased and allocated to an advisor's client account is specific to the advisor entity's agreement with the fund company. PMC does not negotiate share class availability on behalf of entities or their clients, nor does PMC monitor actual client accounts for share class usage; it is the advisor's responsibility to know which share class was purchased.

Because of the breadth of implementation and PMC's economies of scale, PMC often can obtain investment minimum waivers to access Institutional or lower-cost shares when selecting mutual funds for PMC managed models used across multiple accounts and broker-dealer clients. However, even though PMC endeavors to select lowest-cost share classes in PMC managed models, obtaining a minimum waiver is not always possible.

Additionally, custodian availability, or the lack of selling agreements between the broker-dealers offering the managed account and the fund company, can prohibit accessing lowest-cost share classes. PMC does not 'recommend' any share classes, nor does PMC monitor individual accounts for share classes.

Therefore, PMC's current model set and offering already strives to use, and in the majority of cases actually does use, the lowest-cost share class that is operationally or feasibly available to PMC's portfolio managers when constructing models. Because of this approach, PMC will not entertain requests on behalf of a given broker-dealer to use different share classes of funds that already have been selected.

We emphasize that PMC's portfolio managers do not consider the effects of transaction fee (TF) relative to no transaction fee (NTF) funds, which vary among custodians where PMC managed model portfolios are offered. This is because there are many downstream effects to account funding that are not visible to the portfolio management team. These decisions include the specific custodian that a firm or enterprise uses, and whether the custodian charges transaction-based or asset-based pricing. This analysis may occur at the program

construction level when the fund selection policies are designed.

PMC does not participate in any 12b-1 fee revenue sharing with any fund family, and therefore has no incentive either to use or not use 12b-1 share funds during portfolio management fund selection. In most cases, PMC strives to use Institutional share classes (if the investment manager allows an investment minimum waiver), or Advisor share classes (which often have a lower, but not the lowest, internal expense ratio, although they do have lower investment minimums), or no-load share classes. PMC does not use B or C shares in its portfolios, but in a handful of cases, PMC's portfolio managers will use load-waived A share funds in their model portfolios. Also, from time to time, a few no-load funds that use 12b-1 funds are in the PMC models, which factor in the share class's overall expense ratio during evaluation.

In many instances, PMC uses its alternate fund selection functionality in managing a model. Alternate usage is designed for custodial or fund-level considerations only (e.g., the primary fund is now Closed to New). For example, the initial share class chosen by PMC's portfolio manager may be an Institutional share class.

Alternate fund selections cannot be used to differentiate a generally offered PMC model from firm to firm. However, if custodial constraints limit the purchase of a fund for a small subsection of accounts, PMC may indicate a slightly higher-cost Advisor share class (A share) or a different fund strategy to be bought in its place, if the Institutional share class cannot be purchased because of the custodian that the home office firm has chosen. PMC cannot accommodate these alternate fund selections at a broker-dealer level.

For more information:

Join our mailing list
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OR

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Exchange Traded Funds (ETFs) and mutual funds are subject to risks similar to those of stocks, such as market risk. Investing in ETFs may bear indirect fees and expenses charged by ETFs in addition to their direct fees and expenses, as well as indirectly bearing the principal risks of those ETFs. Income (bond) ETFs and mutual funds are subject to interest rate risk, which is the risk that debt securities in a fund's portfolio will decline in value because of increases in market interest rates.

Alternative Investments may have complex terms and features that are not easily understood and are not suitable for all investors. Before investing, you should conduct your own due diligence to ensure you understand the features of the product. Alternative investment strategies may employ a variety of hedging techniques and nontraditional instruments, such as inverse and leveraged products. Certain hedging techniques include matched combinations that neutralize or offset individual risks, such as merger arbitrage, long/short equity, convertible bond arbitrage, and fixed-income arbitrage. Leveraged products are those that employ financial derivatives and debt to try to achieve a multiple (for example two or three times) of the return, or inverse return, of a stated index or benchmark over the course of a single day.

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