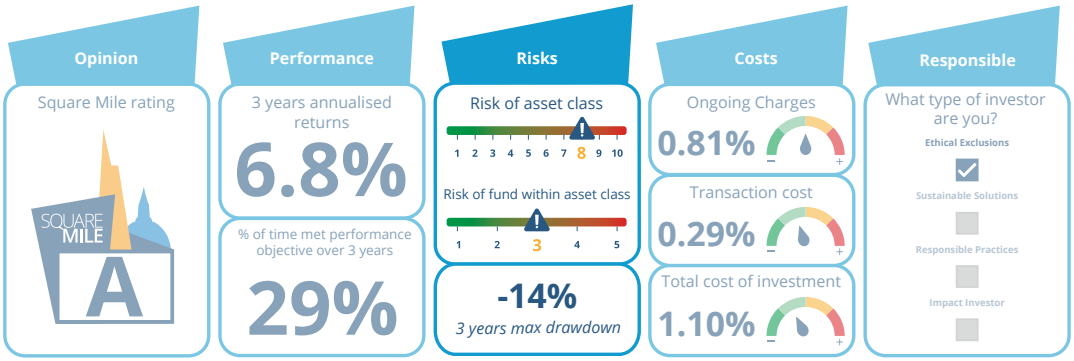
FOR PROFESSIONAL INVESTORS ONLY

Fund Dashboard:
Risk Rating Methodology

SQUARE MILE
INVESTMENT CONSULTING & RESEARCH



Source: Square Mile

The following methodology was created in order to provide insight into a strategy's long term risk expectations relative to other asset classes as well as a short term indication of how much risk this strategy has experienced relative to other strategies within the strategy's asset class or defined peer group.

The level of risk an investor is willing to accept is one of the main determinants of the future performance they might expect. The risk ratings can be used independently as a broad metric to screen and select strategies that best reflect the required underlying risk profile.

At the same time, it is important to note that other considerations should also be taken into account when selecting a strategy. Although risk ratings group together strategies with a similar risk profile this does not guarantee that the desired level of return will be achieved. An investment may cause loss of capital in any situation, regardless of risk levels.

The Fund Dashboard risk rating system uses a set of metrics to identify different levels of risk at two stages:

1. The risk of an asset class relative to other asset classes.
2. At a strategy level, the risk of strategy relative to their peer groups.

Each rating informs the user of the relative risk an investor would be subjected to when selecting a general asset class, a strategy within an asset class and a balanced multi-asset portfolio composed of different asset classes in a diversified manner.

In both "asset class" and "risk within asset class" approaches, risk levels are split into a scale ranging between 1 to 10 and 1 to 5 respectively. Each level of risk has its own defined expected volatility characteristics, with a score of 1 representing the safest profile and 10 the riskiest for asset class or 5 being the riskiest for risk of strategy within an asset class.

This methodology explains calculations and inputs behind both "asset class" risk score as well as risk score labelled as "risk of fund within the asset class".

Asset class risk score

The asset class risk score was designed to give an insight into a relative level of risk an investor could be exposed to when selecting a particular strategy. The calculation begins with identification and characterisation of different asset classes within the investment universe.

Universe creation

Firstly, we considered the universe of mutual funds available in the Investment Association (IA) universe. This collection was split into 44 distinctive peer groups, or asset classes containing, as of 31st May 2020, a total of 2,990 funds. No consideration was made of the strategy's domicile or its legal structure. Funds which have not yet been assigned to an IA sector and which reside within IA Unclassified group have been omitted from the following process.

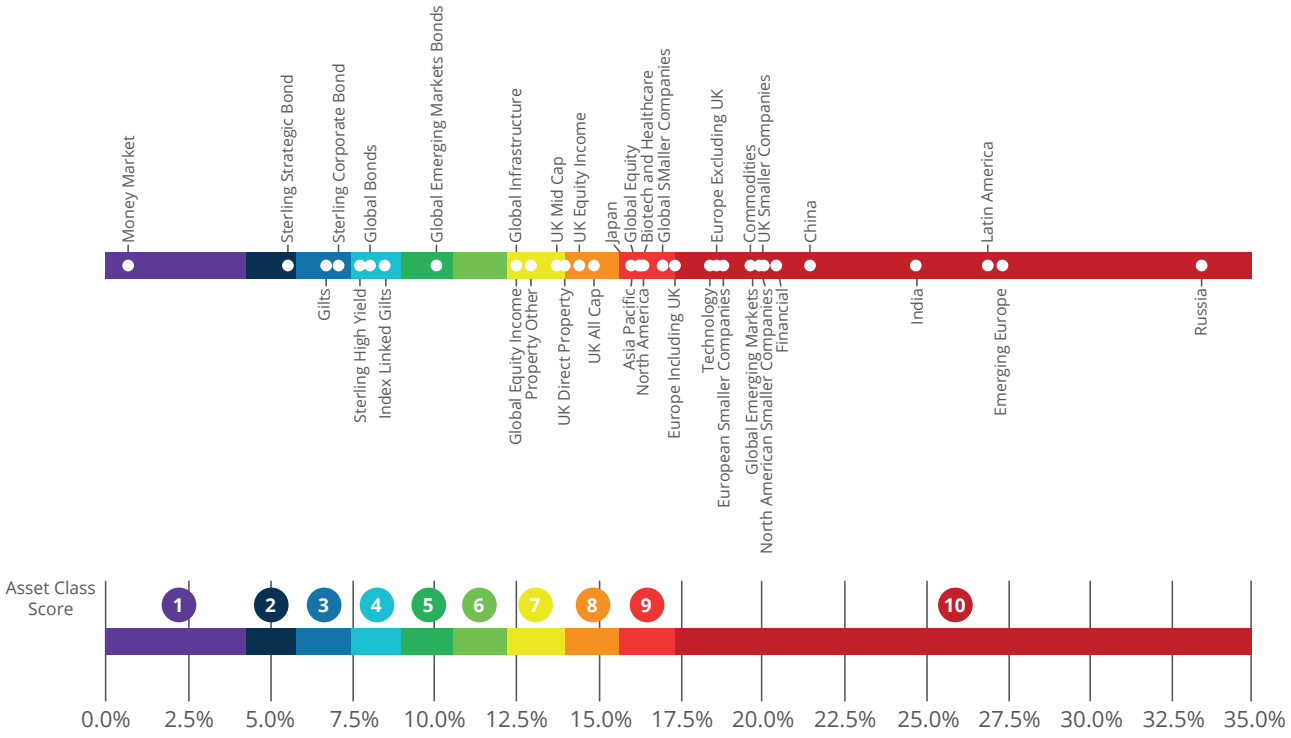
The asset classes and peer groups are reviewed on a quarterly basis. During the review, the suitability and content of each peer group is reviewed. Funds that have been launched since the last review will be added if they were not previously included during regular Fund Dashboard updates.

Asset class risk assignment – Single asset strategies

Each asset class is given a risk score based on the long term volatility expectations an investment would experience. The purpose of the rating is to provide insight into the relative levels of risk, compared to other asset classes, when selecting an asset class to invest in. Linking strategies to an asset class or risk level allows a more meaningful comparison between similar single strategy funds or multi-asset strategies respectively. It also provides a more forward looking and robust measure of the volatility expectations. For example, although emerging market bonds share similar levels of volatility to global equities their individual drivers of risk and risk management are different. Therefore, it is prudent to assume that in the long term these drivers would impact the two asset classes in a different way and would eventually manifest themselves in price volatility.

Each risk score exists within bounds created by the Square Mile's strategic asset allocation process. As a consequence, it is possible to indirectly compare the risk of a single strategy investment to a multi-asset proposition. This also can be used as an informative map of asset class "positions" relative to diversified portfolios and multi-asset funds.

Every single asset peer group's historic levels of risk is mapped onto risk range bands derived from the strategic asset allocation process, as shown in Figure 1. Asset classes which displayed levels of risk greater than 9 have been given a broad score of 10.



An example showing approximate positions of various asset classes relative to each other and on single risk range, divided into different risk level buckets.

Asset class risk – Multi-asset strategies

Risk scoring multi-asset strategies on an asset class basis requires a more detailed analysis of the underlying holdings in addition to a mechanism for capturing the tactical allocation positions taken over time. A more pragmatic approach, therefore, would be to compare historic volatility of these strategies to existing risk bands, based on a standard strategic asset allocation process. This enables the user to compare risks between individual strategies and when investing in a diversified multi-asset portfolio. Due to the consequences of diversification, it is not possible to achieve the same risk score attributed to the diversified portfolio by simply taking a weighted average risk of underlying individual strategies. Although the final risk scores cannot be used directly to calculate "overall" risk of a portfolio, they can still give an estimate of the risk an investment could be exposed to. For example, an investor focusing on investments in the lower risk range would not be likely to end up with a portfolio that exhibits high risk characteristics.

Asset class risk – Multi-asset strategies - mapping

The process of risk mapping multi-asset strategies is reliant on both strategies' performance history as well as set of comparative indices which differ in their risk profiles. Square Mile's strategic asset allocation process is used to create a set of 10 risk profile indices. Each index is derived from capital market assumptions of expected return and volatility for core asset classes such as: cash, UK Corporate Bonds, Gilts, UK Equity, Europe ex UK Equity, North American Equity, Japanese Equity, Pacific ex Japan Equity and Emerging Markets Equity. The capital market assumptions are updated on an annual basis.

Once a set of comparative risk indices has been calculated, every multi-asset fund's volatility journey is mapped onto risk bands created by the risk indices, to determine which risk profile is most suitable. Although the multi-asset strategies tend to be closely correlated with the risk indices, due to volatility being driven mainly by macro market events, they may at times exhibit misalignment. This could be due to the fund manager's tactical positioning or the strategy mandate changing its risk tolerance. A period of the last 5 years is used for each the strategy's risk mapping, in order to make risk assignment robust to short term changes and at the same time responsive to longer term changes.

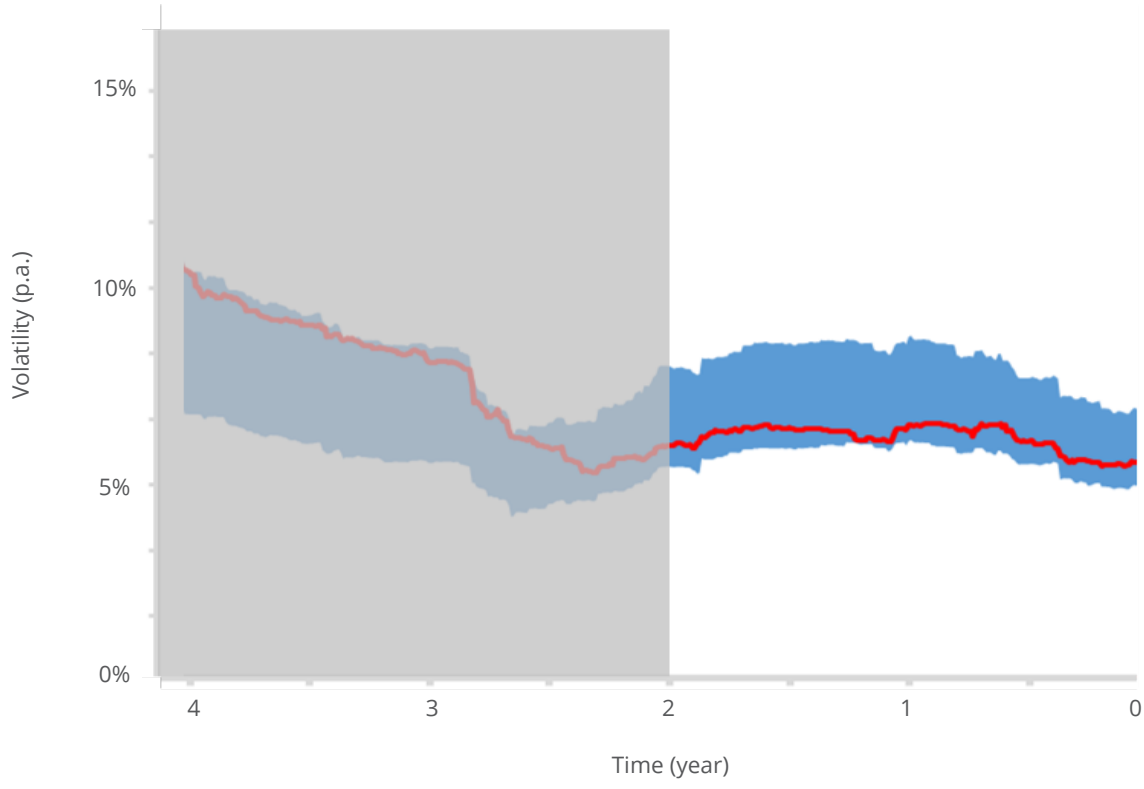


Figure 2. An example of risk mapping a fund, with a risk band displayed in blue, the fund's 3 year rolling volatility shown in red. Only the non-shaded area, representative of funds 5 year history is used.

Asset class risk – Multi-asset strategies – peer groups

An additional outcome of risk rating multi-asset strategies is the construction of multi-asset peer groups. Classifying single asset strategies is relatively simple, however multi-asset funds can consist of any number of different investment classes. The multi-asset peer groups are therefore defined by different levels of risk exhibited by their constituents.

Asset class risk – Absolute return strategies

The previously outlined methodologies relate to strategies which are bound to certain markets. Absolute return strategies tend to provide returns that are unrelated to any particular market and therefore it is less relevant to compare their relative risk to other asset classes. Instead the main risk comparison for the absolute return strategies is an assessment of their relative risk to other absolute return strategiesfound within their peer group.

Asset class risk - summary

The "risk of asset class" score is designed to be viewed with the corresponding strategy risk score labelled as "risk of fund within the asset class". It is possible that in the shorter term some strategies, within neighbouring asset classes, would display risk characteristics which would result in their actual levels of risk overlapping. Thus, each asset class risk score serves as a long term expectation of risk and therefore we would expect the strategies within each asset class to behave similarly within their assigned peer group.

Risk of a strategy within the asset class

The strategy's risk score, labelled as "risk of fund within the asset class", compares the risk of the strategy with other similar strategies as defined by their peer group. Since a majority of the risk that a strategy is subjected to is dependent on the asset class it is invested in, the purpose the strategy risk score is to assist in understanding a range of different styles and strategies these strategies may be exhibiting. However, it is worth noting that the asset class score is based on longer historic data, spanning more than a single market cycle. Moreover, the risk the fund manager might be taking can change tactically over time. Hence, we would expect the strategy risk score to be more dynamic than the asset risk score and as such more indicative of the relative levels of risk the investment was exposed to.

The risk at the strategy level is defined as both the likelihood of experiencing negative returns as well as the severity of those returns. This measure can also be described as ranking strategies, within a peer group, based on the frequency and magnitude of their worst returns, based on historical experience. For example, two strategies with the same average return would achieve two different risk scores if their return profile is different i.e. they might exhibit different probability of rare events also known as a "fat tail risk".

Strategy risk - calculation

The strategy risk score methodology uses historical weekly returns including dividends over the last three years in order to build a picture of the strategy's return profile, which includes statistical measures such as standard deviation, mean, skew and kurtosis. While using backward-looking measures limits the reliability of the future risk forecast it does allow us to compare how different strategies with a similar strategy behaved in the same market environment. The asset class risk score is designed to be a more direct indication of future risk expectations. Once a risk score has been computed for all eligible funds within the peer group, these results are normalised to form a 1 to 5 scale which represents strategy's "risk within the asset class".

The neutral score of 3 is given to strategies which exist in the middle of the absolute risk scale, while scores of 1 and 2 are given to strategies which exhibit smaller levels of risk. Consequently, strategies with risk scores of 4 and 5 tend to be riskier. At each subsequent risk grade, the investment is exposed to more extreme levels of risk. Each consecutive risk grade within the same asset class describes an equal increase in the amount of absolute fund risk. In other words, the difference in absolute risk between grades of 1 and 2 is the same as between grades of 2 and 3. The size of this increase is dependent on the composition of the asset class itself. For example, difference in absolute risk observed between increments of a uniform asset class, UK Gilts, would be smaller than in a more diverse asset class, like Global Equities which displays a much wider range of different risk profiles.

Strategies within a peer group which experienced extremely low or high levels of risk, which caused them to fall out of the 90th percentile range, have been automatically given a minimum risk score of 1 or a maximum score of 5 respectively. This tolerance band acknowledges strategies which have performed below and above expected behaviour within their asset classes, thus warning of heightened risk. As a result of the tolerance bands, the final scoring of the strategies becomes more reliable as it is less skewed by extreme cases.

Strategy Risk – summary

The strategy risk score describes risk relative to other strategies residing within the same peer group or asset class giving a short-term snapshot into the behaviour of various strategies. The strategies which are less risky are labelled with low scores of 1 and 2, while riskier strategies are given scores of 4 and 5. The funds with a neutral score of 3 take a median level of risk, characteristic to their designated asset class or peer group.

Qualitative Risk Assessment

In addition to Fund Dashboard's Risk Scores, Square Mile also completes a more qualitative risk assessment, which provides more context to the strategy's risk score. This risk assessment discusses 8 risk types: equity, interest rate, credit, exchange rate, liquidity, emerging markets risk, derivative and manager risk. Each risk type is graded on three levels from not significant to potentially significant and significant.

Many strategies will have very defined and discreet risks but inevitably some will be 'borderline'. We will refer to the strategy's prospectus for guidance but the prospectus tends to highlight all the potential risks that the strategy may face, now or in the future. In contrast we aim to highlight the risks that we believe managers are actually assuming in their day to day operations in running strategies.. The guide to some of these factors can be seen below.

Equity Risk

A modest level of equity exposure can materially affect the potential volatility of a strategy. Any equity exposure up to around 30% might be considered as 'Potentially Significant' and beyond this as 'Significant'. The degree of hedging (explicit and implicit) within the strategy may be a factor in our grading assessment.

Interest Rate Risk

Interest rates are used in discounting the future cash flows of virtually all investments (gold may be an exception). Interest rates are seen as a key risk for fixed income investments, though the degree of significance depends on the nature of the exposure. Multi-asset approaches are likely to have significant exposure unless risks are explicitly hedged.

Credit Risk

Credit risk incorporates bond default risk (a bond's failure to meet its interest/capital obligations) and bond downgrade risks (reduction in credit rating).

Exchange Rate Risk

We have restricted ourselves to considering exchange rate risk in the security's currency denomination. We have ignored many UK equity strategy's exposure to foreign equities (the IA sector classifications permit 20% to be invested abroad). Equity strategies investing in predominantly non-UK regions are considered to have 'Significant' risk unless actively hedged.

Multi-asset strategies tend to establish foreign holdings to diversify risks within their portfolios so we would recognise this exposure in our grading. Broadly speaking, 20-40% foreign exposure is graded as 'Potentially Significant' for these.

Liquidity Risk

Liquidity has a nasty habit of drying up when it is most needed and unfortunately it is very difficult to measure consistently. This measure's grading is largely left to our analysts' discretion. Our analysts will consider the liquidity available across the portfolio and how this might change in adverse market conditions and if the fund suffers sudden large redemptions.

Emerging Market Risk

Broadly speaking, emerging market exposure of below 5% is considered 'Not Significant' and beyond 20%-30% as 'Significant'.

Derivative Risk

Derivative risks are often latent but when they arise, they can have significant impact. This is a risk which is difficult to measure objectively and the grading is largely left to our analysts' discretion. We consider counterparty risk as a function of derivative risk.

Many funds operate within the UCITS regime and may be permitted to use derivatives. However, not all managers have historically utilised these powers and show little inclination to do so in future. We have marked such strategies as 'Not Significant' though the managers may change their strategy with no notice.

Manager Risk

Often the lead manager is an important component of the Square Mile rating. We use this segment to highlight key person risks. Note that the total absolute risk in a strategy is largely determined by the strategy's investment strategy. The manager is more influential in determining the performance/risk relative to fstrategies investing in similar assets.

Summary

In summary, the Fund Dashboard's risk scoring is displayed in two parts: asset class risk score and strategy's risk score. The asset class score gives a forward-looking indication of risk relative to other respective asset classes or strategies. The strategy risk score focuses on single strategies residing within each asset class peer group. Both risk scores give an overall picture of risk focusing on both long-term expectations through the asset class score and short-term risk profile classification through the strategy risk score. An additional qualitative risk assessment is provided for each Square Mile rated strategy which supplements the risk scoring methodology highlighted above.

Since the measures explained in this paper are based on historical performance they might not fully reflect the future risk expectations and therefore they should not be used as an expression of future performance.

Share class selection

For each strategy there could be as few as one investable share class or as many as 30 different share classes, each with different costs and investor outcomes. The risk scoring analysis is performed on a single chosen share class for each fund deemed the most widely available to advisers, as defined by platform availability within the appropriate peer group. This is done to make comparisons more relevant, as well as to avoid strategies with many share classes skewing the analysis for less represented strategies.

The rules for share class selection are listed as follows, in the order of importance:

- Share class is required to be "Clean" and sterling denominated.
- Distribution, for fixed income strategies preference is given to income distribution share classes.
- Platform availability, share classes, which are more widely available receive preference.
- History length, strategies with longer history are favoured.
- Cost, cheaper share classes, as determined by "total cost of investment" are preferred, however the cheapest share class might not necessarily be selected due to other stated reasons by the asset manager i.e. minimum subscription.

The share class which satisfies the majority of these criteria is selected and used to construct an appropriate peer group. On occasion, when the chosen share class becomes "closed" or restricted to fewer investors, the next recommended share class is selected.

The chosen share class for each strategy is referenced and can be seen when viewing strategies on the Academy of Funds website by clicking HERE.

Important Information