

GUGGENHEIM

November 2019

The Science and Art of Risk Management

Liquidity Risk



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Report Highlights

- In investing, risk has many faces, but all risks share a common theme: Uncertainty over the future course of events. Our goal in this paper is to explain our approach to understanding, evaluating, and managing risk, with a particular focus on liquidity risk.
- In fixed income, the compensation for taking different risks—default risk, downgrade risk, liquidity risk, counterparty risk, regulatory risk, market risk—is reflected in additional spread over the risk-free benchmark.
- One of the foundational tenets of our investment philosophy is that searching for value outside traditional benchmarks can uncover investments that offer attractive returns with low correlations, and limited duration and credit risk. However, identifying suitable investments outside traditional benchmarks also requires a careful analysis of instrument liquidity.
- It is important to understand how buyers and sellers will react in different market environments. In certain scenarios, as volatility rises liquidity can evaporate for short periods across many sectors, including many that are perceived to be more liquid.
- In our system, we classify securities into over 1,400 different liquidity groups that are broken down by sector, rating, original issue size, duration, and more.
- After classifying individual asset class investments into specific liquidity groups and producing various liquidity curves, we perform liquidity risk assessments for every portfolio we manage and determine whether any changes need to be made in the management of its liquidity risk.
- The Guggenheim Risk Management Group has the ability to escalate potential problems and make recommendations independently from the standard investment process.

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The capacity to manage risk, and with it the appetite to take risk and make forward-looking choices, are key elements of the energy that drives the economic system forward.

– Peter Bernstein

Against the Gods:

The Remarkable Story of Risk

“Risk Is a Choice Rather Than a Fate.”

To investors, the future is the only thing that matters. Clients entrust asset managers with their capital, expecting that it will be preserved and, at some point in the future, increase in value. The various strategies that the asset manager deploys to generate that future value drives the expected size of the return, but every investment strategy—from holding T-bills to investing in corporate credit to trading tech stocks—comes with risk. In investing, risk has many faces, but they all share a common theme: Uncertainty over the future course of events.

In his masterful 1996 book, *Against the Gods: The Remarkable Story of Risk*, economist Peter Bernstein explains that the defining characteristic of modern times is “the notion that the future is more than a whim of the gods and that men and women are not passive before nature.” This notion that we could define what may happen in the future was made possible with the development of such mathematical tools as the theory of probability, statistics, mean regression, outcome distributions, and scenario analysis—all landmark achievements in the understanding of risk.

The presumption that asset managers can predict the impact of various risks on the future outcome of an investment strategy is based on mathematical models that use historical data and subjective assumptions for scenario inputs. This combination of quantification and experience constitutes the science and the art of risk management.

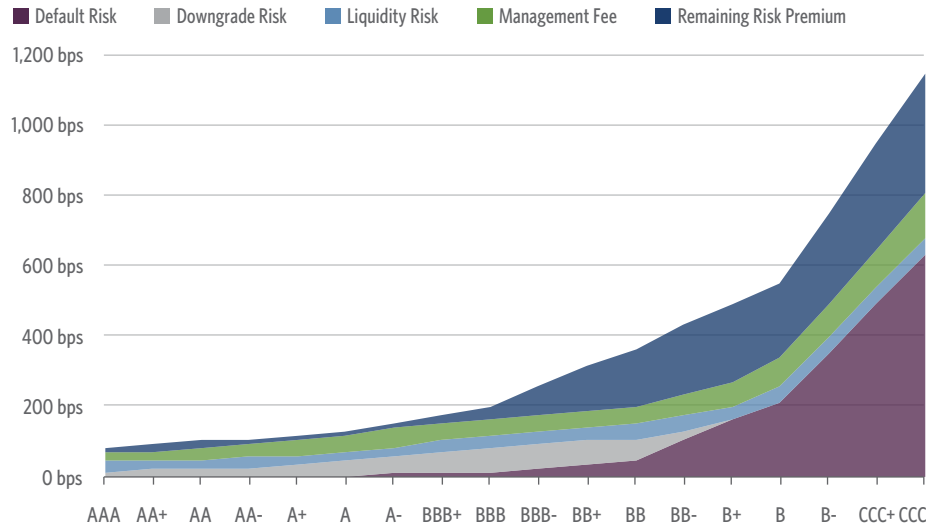
Our goal in this paper is to explain how we make investment decisions based on our understanding, evaluation, and management of risk, with a particular focus on liquidity risk. “Risk is a choice rather than a fate,” said Bernstein. Every investor must be humble enough to realize that even with the most sophisticated modern tools, the future is still unknowable. At Guggenheim, we embrace the concept that good risk management leads to good decision making. We are deliberate in the risks we choose to take and the steps we take to guard against them.

Market Perceptions of Risk

For fixed-income securities, the best-case scenario is to receive the timely payment of principal and interest until maturity. When market participants evaluate fixed-income investment opportunities, they in essence are determining the appropriate compensation for the various risks—default risk, downgrade risk, liquidity risk, counterparty risk, regulatory risk, market risk—that could keep this best-case scenario from occurring. This pricing is reflected in additional spread over the

security's risk-free benchmark. Most of this risk premium can be allocated to supporting excess returns, but it can also provide compensation for the many costs associated with managing a portfolio of risky assets. The chart below illustrates the components of spread, using a variety of long-term averages and industry estimates.

Composition of Corporate Credit Spreads by Rating



Source: Guggenheim Investments, BAML, S&P Global, TRACE. For illustrative purposes only. Bps = basis points. One basis point is equal to 0.01 percent.

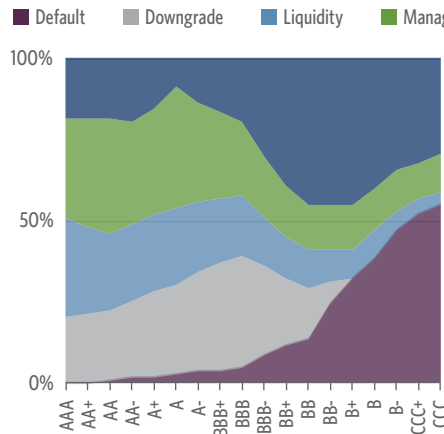
For example, over long periods of time, corporate bonds are downgraded more than they are upgraded. The credit spread should reflect this because a cost will be incurred when a corporate bond is sold after being downgraded, just as there is compensation priced in to cover any expected costs related to defaults. The yield premium an investor will want for these risks will differ by rating, sector, and position in the business cycle.

The costs associated with managing a portfolio should also be covered by the credit spread. Further, the amount of spread required to compensate an investor for any of these risks can vary by rating and by asset class.

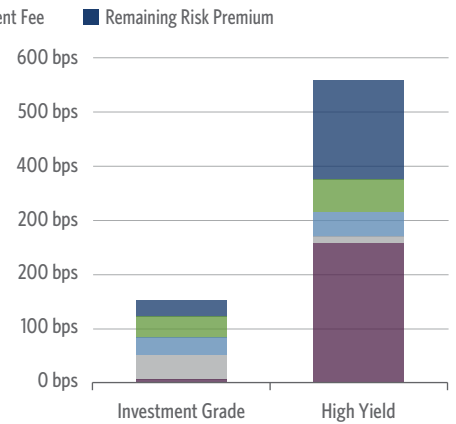
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Credit spreads and their constituent parts vary over time based on changing market expectations.

Composition of Credit Spread Varies by Rating



Amount of Credit Spread (in bps) Varies by Asset Class



Source: Guggenheim Investments, BAML, S&P Global, TRACE. For illustrative purposes only.

The charts above represent a stylized decomposition of credit spreads based on long term averages. However, credit spreads and their constituent parts vary over time based on changing market expectations. When net downgrades are expected to remain low, or default rates are expected to remain minimal, only nominal amounts of the risk premium are needed to compensate the market for these expected costs. When a business downturn or recession looms and the probability of downgrades and defaults rises, however, the amount of compensation or spread associated with credit risk will also rise.

Spreads also cover the costs of managing a pool of assets. Arguably, the rise in passive investing has put downward pressure on the amount of spread required to cover the costs of managing the average portfolio, but these expenses still exist. For a highly rated portfolio of securities, this cost could be relatively low. Conversely, managing a portfolio of low-rated securities or highly complex structured investments could cost more. These portfolios require additional research, structuring, legal expertise, and back-office support. For these portfolios, a greater amount of the credit spread will be allocated to covering these costs. For example, AAA-rated CLO tranches offer a wider risk premium when compared to corporate AAA-rated securities or Agency paper, owing to their greater complexity and perceived lower liquidity.

Similarly Rated Assets Offer Increasing Amounts of Spread Based on Complexity of Each Security



Source: Guggenheim Investments, Bloomberg, Barclays, Palmer Square CLO Senior Index. Note: These spreads are representative of recent market pricing and not necessarily based on any particular point in time. For illustrative purposes only.

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Liquidity refers to the ability and cost to sell assets for cash.

Defining Liquidity and Liquidity Risk

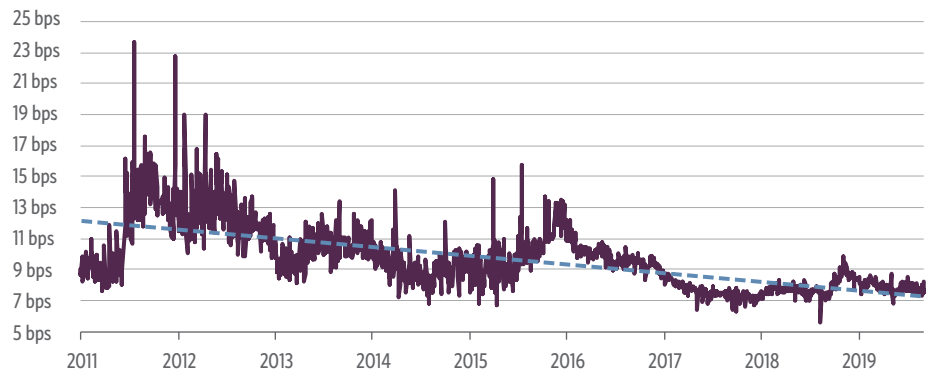
Some risks are easier to evaluate and manage than others. Credit risk, broadly defined, is fairly straightforward for asset managers to evaluate, as they can study financial statements, interview management, and study industry and market fundamentals to determine the probabilities and potential costs and recoveries of credit events. In addition, long-term downgrade, default, and recovery rate data are widely available. Similarly, fee data offer a reasonable proxy for the amount of spread necessary to cover portfolio management costs.

Liquidity risk is a different story. Broadly speaking, liquidity refers to the ability and cost to sell assets for cash. Former Federal Reserve Governor Kevin Warsh, in a [speech on the topic](#) in 2007 when the nascent financial crisis was sparking liquidity issues, said that liquidity “reflects the ability to transact quickly without exerting a material effect on prices.” The basis of this concept, he continued, is that “while buyers and sellers have different views on the most likely outcomes... they largely can agree on the distributions of possible outcomes for which they demand risk-based compensation.” In other words, investors will have differing perceptions of risk and of the premium offered in the market for taking risk, but this is what makes markets.

A security that is considered highly liquid, i.e., easily sold with little disruption to its market price, will be accompanied by a low liquidity risk premium; conversely, a relatively illiquid security will carry a higher risk premium. The Federal Reserve Bank of New York research team reviewed market liquidity after the financial crisis in a [2017 report](#), and observed that investors demanded higher returns for less liquid assets. “Moreover,” the report said, “asset illiquidity deters trade and hence investment, impeding the efficient allocation of risk and capital in the economy.”

The BBB Bid/Ask Spread Has Steadily Declined

BBB Bid-Ask Spread in Basis Points

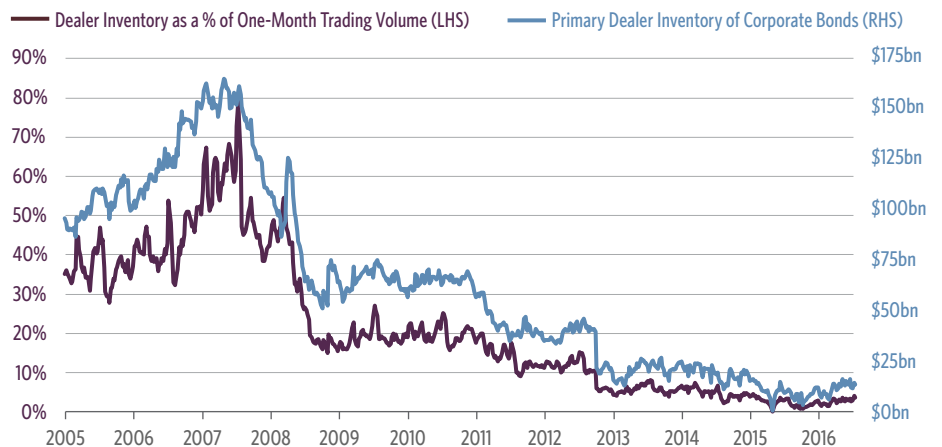


Source: Guggenheim Investments, BAML. Data as of 10.31.2019.

In its most basic form, the component of spread that is associated with liquidity risk is the amount that is needed to cover the bid-ask spread of a trade. The annual cost of these trades can be estimated (in basis points and as a percentage of the overall spread) based on average reported bid-ask spreads and the market turnover rate (trading volume as a percentage of the outstanding market). By this measure, liquidity has improved throughout the current business cycle.

Some will suggest that lower bid-ask spreads are a sign of better liquidity, but this trend is due in part to the change in dealer business models. We believe that bid-ask spreads have narrowed over the years as dealers transitioned from a principal model, where they were active investors and market makers, to an agency model, where dealers only facilitate trades when a buyer and seller are already known.

Dealer Inventories Are a Fraction of Their Pre-Crisis Levels



Source: Guggenheim Investments, Federal Reserve Bank of New York, Bloomberg. Data as of 10.23.2019.

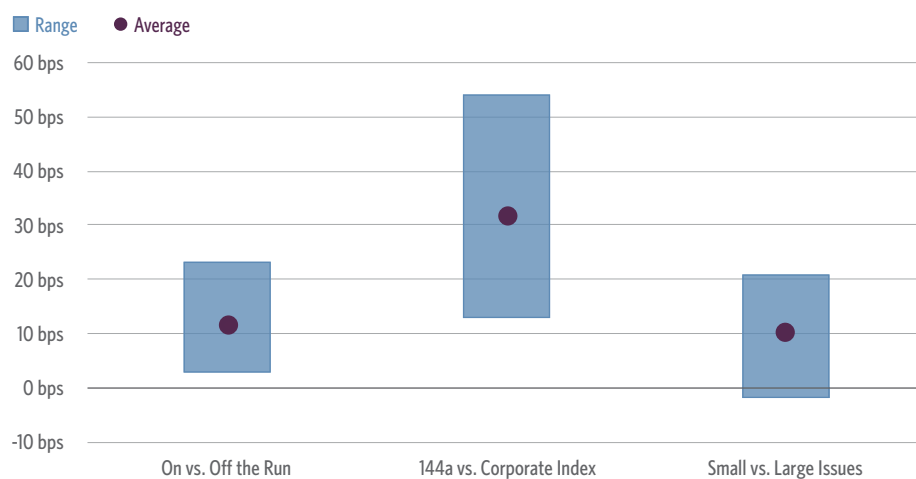
“ Securities with similar credit risk but different structural characteristics can have different liquidity profiles.

Moreover, dealer balance sheet inventory, which traditionally served as a source of liquidity, has been reduced in the process. That liquidity “service” is now provided by buy-side firms. As a result, price volatility is heightened during periods of dislocation due to the inability of dealers to maintain efficient markets.

This model of crossing trades results in lower bid-ask spreads, but it should not imply that the markets will be more liquid when stressed conditions arise.

Securities with similar credit risk but different structural characteristics can have different liquidity profiles. For example, once a bond is no longer considered “on the run” (i.e., not the most recently issued bond by the borrower) it becomes less liquid. A larger bond issue will be more liquid than a smaller issue. Similarly, because fewer market participants can trade unregistered bonds (144a), this reduces sources of liquidity, resulting in wider spreads to compensate for this liquidity risk.

Spread Experience Varies by Issue Characteristics



Source: Guggenheim Investments, BAML, Barclays, Bloomberg. Note: Range is defined as the difference in spreads between the 10th and 90th percentiles from August 2009 to August 2019 for the categories of bonds identified for each bar on the chart. For illustrative purposes only.

Managing Liquidity Risk

Liquidity risk matters when an asset manager wants to sell securities, but it is particularly important when it is *forced* to sell, such as selling to meet redemptions. We believe that liquidity risk management is an essential part of the portfolio management process. During the financial crisis, certain sectors of the market essentially ceased trading. Other examples of market stress experiences—such as in the surprise rate hike of 1994, the Taper Tantrum of 2013, the oil market collapse in 2014, and the credit volatility spike of December 2018—have also demonstrated how quickly liquidity can change. In instances like these, market participants will find that liquidity can dry up entirely, or that they need to execute

smaller trades or take more time to find buyers. We have seen how much the cost to sell various securities increases during a bout of illiquidity as compared to periods of lower market stress.

Today, quantitative easing programs and prolonged periods of low interest rates by global central banks have increased the size of the bond market while the post-crisis reduction in dealer market-making activities has limited their ability to serve as providers of liquidity in times of market stress. These unique market characteristics represent uncharted territory for liquidity scenarios.

Managing liquidity risk has always been an integral part of Guggenheim's investment process. One of the foundational tenets of our investment philosophy is that searching for value outside traditional benchmarks can uncover investments that offer attractive returns with low correlations, and limited duration and credit risk. However, identifying suitable investments outside traditional benchmarks also requires a careful analysis of instrument liquidity to build portfolios that are consistent with potential liquidity requirements of investors. For these reasons, Guggenheim has always made liquidity risk management a feature of our security underwriting process. Our dedication to and process for managing liquidity risk applies to all institutional separately managed accounts and open-ended mutual funds we manage. Our liquidity risk management framework includes liquidity-focused responsibilities shared by individuals across the entire investment process, as well as a dedicated Liquidity Risk Officer. In addition, we have established in our mutual fund complex well-defined Liquidity Risk Management Policy and Procedures to comply with the Company Liquidity Risk Management Programs rule—also known as SEC rule 22e-4 (see box below).

Origins of the SEC's Liquidity Rule

In late 2015, Third Avenue Management's Focused Credit Fund, a \$789 million high-yield bond fund, abruptly blocked investor redemptions and soon after announced that its only recourse would be to liquidate the fund's assets. It was the biggest collapse of a mutual fund since the financial crisis and triggered an investigation by the Securities and Exchange Commission (SEC) into the outsized risks related to its holdings and the catastrophic lack of liquidity when its investors needed it most. The result of this investigation was the promulgation of a new industrywide liquidity rule, SEC Rule 22e-4, the groundwork for which was laid in 2016 and which went into effect on Dec. 1, 2018. The rule, which applies to open-ended mutual funds and exchange-traded funds but excludes money market funds, requires fund managers to assess, manage, and review liquidity risks pertaining to their funds. Specifically, the SEC requires fund companies to assess the liquidity of their underlying holdings under normal and stressed market conditions, manage position concentration and leverage, and take into account settlement periods. This information, which must be reported monthly to the SEC, divides asset concentration into four categories of liquidity: highly liquid (convertible to cash within three business days), moderate liquidity (convertible to cash within four to seven business days), less liquid (could be sold within seven calendar days, but settlement is expected to take longer), and illiquid (assets that cannot be sold within seven calendar days). Fund managers are expected to maintain a self-determined highly liquid investment minimum (HLIM) and must disclose procedures to address any HLIM shortfall that lasts more than seven days. Illiquid investments exceeding the SEC's limit of 15 percent of net assets must also be reported and explained.

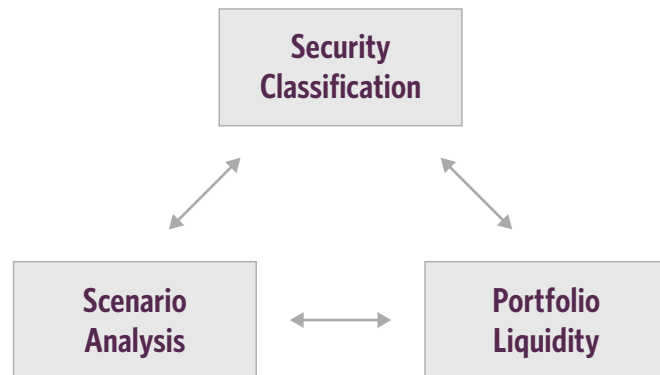
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The management of liquidity risk is an iterative process. Each component is constantly updated.

As mentioned earlier in this report, risk premiums (i.e. credit spreads) include compensation for the expected costs associated with liquidity in order to minimize and limit any trading costs, such as those associated with meeting redemption requests. Our framework allows us to quantify the amount of time needed and the cost associated with liquidating any sized portion of any of the portfolios we manage for our clients. While we understand that trading costs are unavoidable, particularly during times of distress, Guggenheim's liquidity risk management framework is aimed at evaluating and minimizing these costs.

There are several steps and many tools utilized in our management of liquidity risk, summarized in the following schematic. Altogether, this framework relies heavily on the experience and specialized focus of our Sector Teams and trading desks, as well as the use of purpose-built technological solutions.

Three Elements of Liquidity Risk Management



The management of liquidity risk is an iterative process. Each component is constantly updated, and each update affects the other two components. In this way, liquidity risk management is a constant part of our portfolio management process.

- Throughout the course of our regular trading activities, we assign each instrument held in a portfolio to a liquidity group.
- We determine the liquidity profile of each and every portfolio we manage based on specific liquidation parameters.
- Finally, we use a proprietary risk management platform to run routine scenario analyses. The tools can also be used to find optimal strategies for trading within each portfolio based on its specific holdings and under different market environments.

Security Liquidity Risk Classification

Every holding purchased on behalf of our clients is classified into a liquidity group with common characteristics that can affect the liquidity of the investment. In our system we have over 1,400 liquidity groups or “clusters” into which a different security will be classified. The liquidity groups are broken down by sector, rating, original issue size, duration, and/or maturity. Trading desks then assign to each liquidity group an estimate of how many days it would take to execute the trade and the transaction costs involved with trading within that time frame. The variations of settlement cycles across instruments is also considered. Liquidity groups are evaluated and updated as appropriate. Ultimately, this liquidity analysis can inform aspects of our trading and portfolio management strategy. For example, liquidity analytics help us to determine an appropriate mix of assets given certain liquidity requirements under different market liquidity assumptions. To provide insight into how this works, the table below sets forth liquidity inputs supplied by our trading desks—days to sell and the cost in basis points of spread—for selected liquidity groups.

Security Type Liquidity Shows How Days to Sell and Cost Can Vary with Inputs

| Example | Trade Size (\$mm) | Days to Sell | | Cost (bps of spread) | |
|--|-------------------|--------------|----------|----------------------|----------|
| | | Normal | Stressed | Normal | Stressed |
| BB-rated High-Yield Corporate, Issue size >= \$200 million | 0-2 | 1 | 1 | 12.5 | 25 |
| BB-rated High-Yield Corporate, Issue size >= \$200 million | 2-50 | 2 | 3 | 25 | 50 |
| BB-rated High-Yield Corporate, Issue size >= \$200 million | 50+ | 5 | 6 | 50 | 100 |
| BB-rated High-Yield Corporate, Issue size < \$200 million | 50+ | 7 | 8 | 75 | 150 |
| Esoteric ABS: Aircraft Leasing | 0-5 | 1 | 1 | 5 | 15 |
| Esoteric ABS: Aircraft Leasing | 5-15 | 1 | 1 | 5 | 20 |
| Esoteric ABS: Aircraft Leasing | 15-30 | 5 | 5 | 10 | 40 |
| Esoteric ABS: Aircraft Leasing | 30-50 | 7 | 7 | 25 | 50 |
| Esoteric ABS: Aircraft Leasing | 50+ | 12 | 12 | 30 | 60 |
| AAA-rated Floating Rate CLO: Middle Market | 0-15 | 1 | 1 | 8 | 15 |
| AAA-rated Floating Rate CLO: Middle Market | 15-30 | 3 | 3 | 14 | 30 |
| AAA-rated Floating Rate CLO: Middle Market | 30-50 | 5 | 5 | 28 | 45 |
| AAA-rated Floating Rate CLO: Middle Market | 50+ | 7 | 7 | 32 | 60 |
| BBB-rated Inv. Grade Corp, Issue size > \$300 million, Duration 5-10 yrs | 0-2 | 1 | 1 | 5 | 7 |
| BBB-rated Inv. Grade Corp, Issue size > \$300 million, Duration 5-10 yrs | 10-20 | 1 | 3 | 5 | 12 |
| BBB-rated Inv. Grade Corp, Issue size > \$300 million, Duration 5-10 yrs | 20-1000 | 3 | 3 | 5 | 10 |
| BBB-rated Inv. Grade Corp, Issue size > \$300 million, Duration 10+ yrs | 20-1000 | 4 | 4 | 5 | 10 |

Source: Guggenheim Investments. For illustrative purposes only. Based on internal estimates and subject to change.

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Asset managers should be cognizant of the liquidity premiums that are available in the market when acquiring assets.

It is important to acknowledge that the estimates for each liquidity group are just that. In a truly stressed environment it is difficult to predict just how buyers and sellers will react. In certain scenarios, as volatility rises liquidity can evaporate for short periods across many sectors, including many that are perceived to be more liquid. Moreover, in certain scenarios investors will try to sell what they can rather than what they want, which could disproportionately hurt those securities considered to be more liquid. In addition, liquidity pressures will differ by manager, portfolio mix, and client base. For these reasons, as discussed above, asset managers should be cognizant of the liquidity premiums that are available in the market when acquiring assets.

For mutual funds, investments from the different liquidity groups are further assigned to one of four liquidity categories.

- **Highly Liquid Investment:** Any cash and any investment, such as a U.S. Treasury bond, that can be converted into cash in current market conditions in three business days or less without significant impact on its market value.
- **Moderately Liquid Investment:** Any investment that can be converted into cash in current market conditions in more than three calendar days but in seven calendar days or less without significant impact on its market value. A typical security in this bucket is a large trade order size in a high-yield bond, or a moderate position in a lower-rated CCC bond with a small issue size.
- **Less Liquid Investment:** Any investment that can be sold in current market conditions in seven days or less, but where settlement is expected to take more than seven calendar days without significant impact on its market value, such as a bank loan.
- **Illiquid Investment:** Any investment that cannot be sold in current market conditions in seven calendar days or less without significant impact on its market value, e.g., a direct private investment.

Portfolio Liquidity Risk Factors

Because the needs and characteristics for each account we manage are typically unique, we cannot apply the same trading strategies to each portfolio. This is true even if those portfolios comprise assets with substantially similar liquidity classifications as described above. For this reason, we based our guidelines for the management of liquidity risk for certain portfolios on three liquidity risk factors:

- **Portfolio Structure:** The investment strategy being utilized and the liquidity of portfolio investments during both normal and reasonably foreseeable stressed conditions, including evaluating types of securities and sectors, portfolio concentration by securities, sectors, and issuers, as well as the use of borrowings and derivatives. Our analysis includes the development of various “liquidity curves,” which combine portfolio and market constraints that affect

security liquidity. Multiple liquidity curve types are used to estimate the cost to trade individual securities, groups or clusters of investments, and ultimately determine potential trading costs and the number of trading days needed to liquidate as a function of trade order size.

- **Redemption Activity Cash Flow Projections:** Short-term and long-term cash flow projections from redemption activity during both normal and reasonably foreseeable stressed conditions. We customize projections for certain portfolios based on assets under management, strategy, historical redemption activity data, and contractual liquidity terms. These cash flow projections determine the order size assumptions used with the liquidity curves described above. Cash flow forecasts are established for normal and reasonably foreseeable stressed market conditions.
- **Capital Resources:** Holdings of cash and cash equivalents, as well as borrowing arrangements and other funding sources to meet redemptions. We consider the availability and use of a liquidity facility to address funding requirements or to bridge settlement periods for instrument types with longer term settlement periods, such as bank loans. These facilities are not available for every type of account.

Scenario Analysis—Putting It All Together

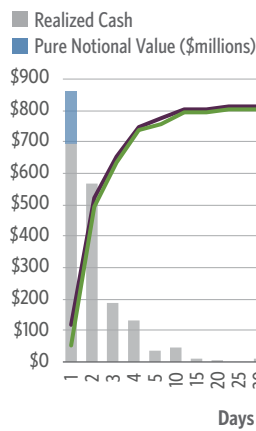
After classifying individual asset class investments into specific liquidity groups and producing various liquidity curves, we perform liquidity risk assessments for every portfolio we manage. We do this using the Guggenheim Liquidity Risk Platform, a proprietary tool that provides robust analytics and meets the detailed reporting requirements of our clients, regulators, and internal teams. Our platform includes a multitude of reporting tools that are highly configurable to the needs of various portfolio management teams, regardless of the type of portfolio or assets being managed. This platform is differentiated from other widely available solutions in its ability to integrate and centralize Guggenheim's various liquidity, market, and credit risk analytics. Ultimately, these proprietary capabilities allow us to supplement and enhance risk analytic tools that we access from vendors like BlackRock and Bloomberg.

The Guggenheim Liquidity Risk Management Platform allows us to run a range of liquidity scenario simulations. The outcome of the scenario simulations reflects the type, market value, and notional value of assets liquidated, in dollar terms and as a percentage of the portfolio, utilizing the security level risk characteristics and the portfolio level risk factors. The liquidity curve estimations are based on clustering categorizations for each fixed-income sector—not just “rates” sectors and investment-grade bonds, but also asset-backed securities, mortgage-backed securities, collateralized loan obligations, high-yield bonds, and bank loans—and are analyzed with significant input from our sector-dedicated trading desks.

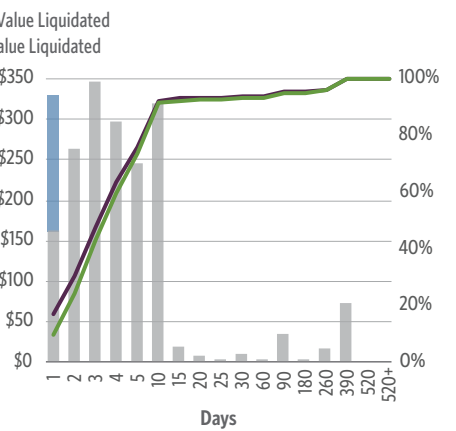
The object of the analysis is to forecast the number of days and the cost to liquidate different amounts of the portfolio in normal and stressed market conditions. Trading desks are consulted for estimates in unstressed or normal market conditions, and for estimates in a stressed scenario. For example, under stressed conditions, the trading desks could be asked to consider the cost and time it would take to sell securities when equities are down 15 percent and credit spreads for high-yield bonds double over a one-month period.

Examples of the output of this analysis are presented below:

Liquidating a Portfolio Under Normal Conditions



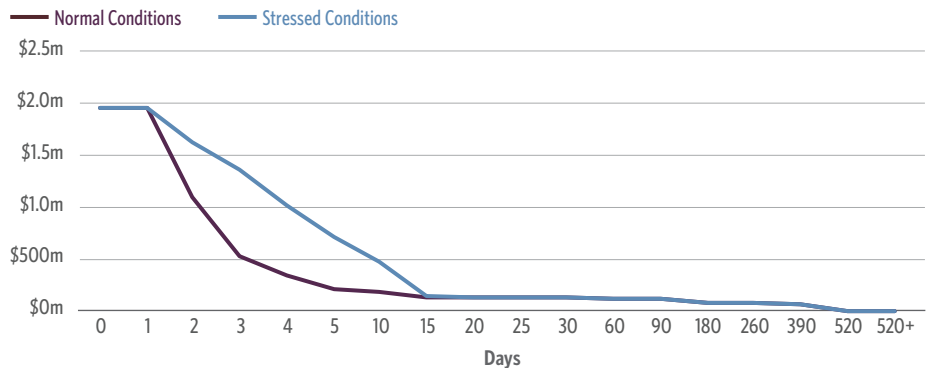
Liquidating a Portfolio Under Stressed Conditions



Source: Guggenheim Investments. For illustrative purposes only.

The chart below combines the results above to illustrate the time it takes to achieve 100 percent liquidation of the notional value of the portfolio for both normal and stressed market conditions.

Liquidating a Portfolio Amid Market Stress Takes Longer



Source: Guggenheim Investments. Gross notional value. For illustrative purposes only.

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Liquidity risk assessments that are performed for each account are used to determine whether any changes need to be made in the management of its liquidity risk.

As the output demonstrates, in stressed conditions it takes longer to liquidate a portfolio. These output results will differ by the portfolio's strategy, its holdings, and market conditions. Liquidity risk assessments that are performed for each account are used to determine whether any changes need to be made in the management of its liquidity risk. In this way, the Guggenheim Risk Management Group has the ability to escalate potential problems and make recommendations independently from the standard investment process. We may consult and consider the views of portfolio managers, traders, and other investment and operations groups with respect to any actions or recommendations. The range of actions could include:

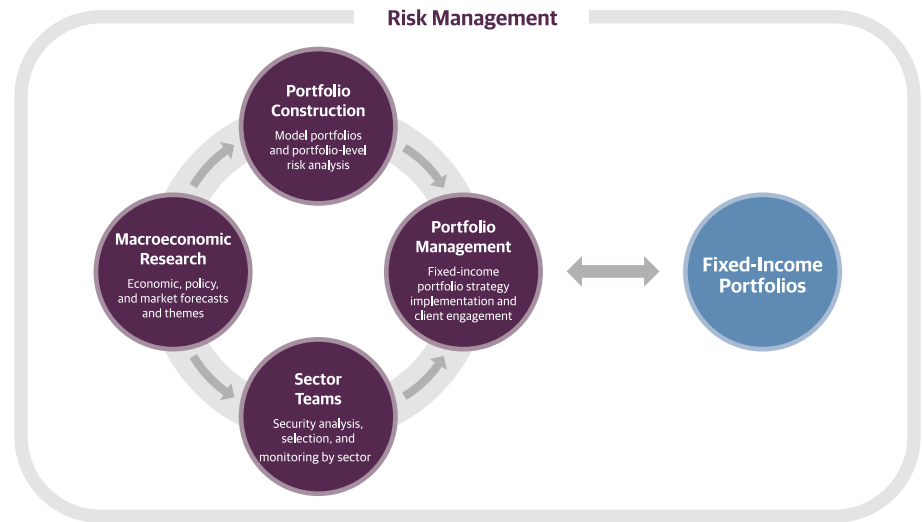
- increase the portfolio's cash holdings;
- impose limits on acquisitions or holdings of certain instruments or asset classes;
- increase the portfolio's Highly Liquid Investment Minimum, if applicable;
- impose limits on the amount of illiquid or less liquid investments the portfolio may hold;
- increase borrowing capacity (or decrease/prohibit certain types of borrowings that unnecessarily encumber liquid assets);
- implement more frequent liquidity category classification and/or liquidity risk reviews; and
- recommend that portfolio managers exercise other options to meet redemptions.

The Guggenheim Risk Management Structure

Guggenheim's fixed-income investment process disaggregates the primary functions of investment management into four independent teams that work together to mitigate behavioral biases, make better decisions, and enable our best research and ideas to be expressed in actively managed portfolios. These four primary and independent functions—Macroeconomic and Investment Research, Sector Teams, Portfolio Construction, and Portfolio Management—work together to deliver a predictable, scalable, and repeatable process. In our disaggregated process, the way the specialized roles work together slows down decision making. For example, sector constraints set by the Portfolio Construction Group ensure discipline in portfolio investment and rebalancing. For security analysis, sector teams rely on market forecasts based on macroeconomic research. Each of the four groups has more time to focus on—and is the only group responsible for—its area of expertise.

Guggenheim Investments' risk management function, led by Chief Risk Officer Joseph Burschinger, is independent of Guggenheim's investment process, and provides an overlay of risk oversight that is an integral component in every investment and portfolio strategy allocation decision we make.

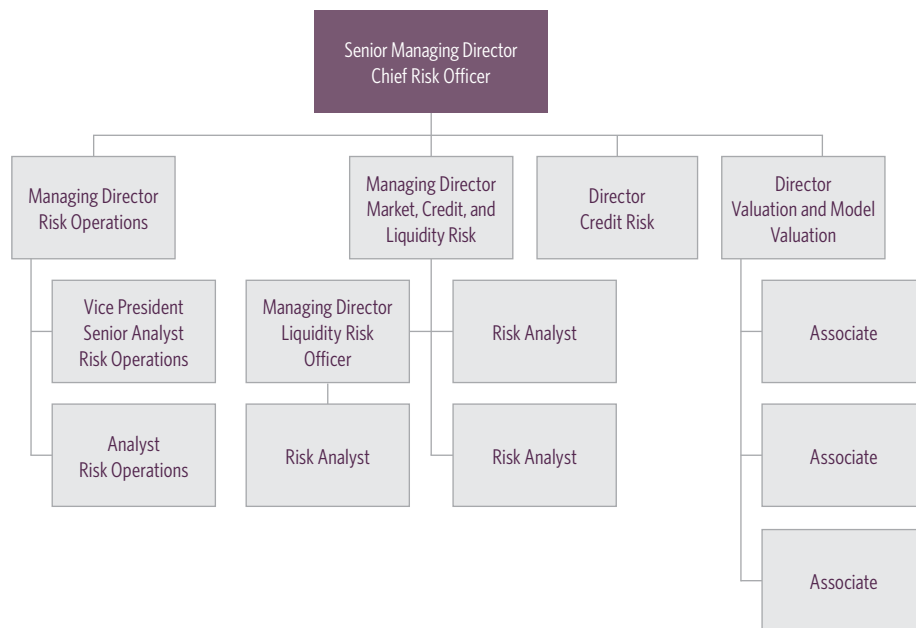
Risk Management Provides Independent Oversight of the Guggenheim Investment Process



The Risk Management Group comprises 14 specialized risk management professionals across four distinct areas of focus:

- Operational risk, which includes designing controls and creating efficiencies to mitigate risks across the investment platform with an emphasis on portfolio management;
- Market, liquidity, and credit risk, which involves modeling portfolio systematic and idiosyncratic factor sensitivities and stress testing over various economic scenarios to quantify the probability and magnitude of portfolio risk;
- Credit risk with an emphasis on structured ABS loan transactions; and
- Model valuation risk, which provides surveillance and oversight of various initiatives related to model validation and control.

Risk Group Staffing by Function



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It is impossible to deliver compelling risk-adjusted returns without a robust, comprehensive, and independent risk management function.

The Science and Art of Risk Management

As Peter Bernstein said, the ability to define what may happen in the future and to choose among alternatives lies at the heart of risk management. Risk, and defining the best strategy to manage it, is to some extent subjective: Every client and every portfolio has different needs and requires a distinct approach when seeking to safeguard their capital. Moreover, the inputs utilized in the sophisticated risk models that generate outcomes are based on historical perspectives and market intelligence that only come with experience. The science and art of risk management helps investors make the best choices.

In asset management, performance is evaluated on a risk-adjusted basis. While we believe liquidity risk is always a concern, it is also important to remember that liquidity risk is only one of many risks that require constant diligence to manage and mitigate. It is impossible to deliver compelling risk-adjusted returns without a robust, comprehensive, and independent risk management function.

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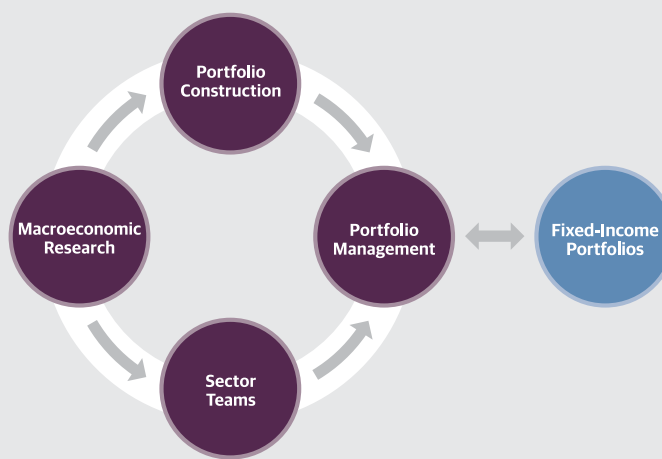
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About Guggenheim Investments

Guggenheim Investments is the global asset management and investment advisory division of Guggenheim Partners, with more than \$213 billion¹ in total assets across fixed income, equity, and alternative strategies. We focus on the return and risk needs of insurance companies, corporate and public pension funds, sovereign wealth funds, endowments and foundations, consultants, wealth managers, and high-net-worth investors. Our 295+ investment professionals perform rigorous research to understand market trends and identify undervalued opportunities in areas that are often complex and underfollowed. This approach to investment management has enabled us to deliver innovative strategies providing diversification opportunities and attractive long-term results.

About Guggenheim Partners

Guggenheim Partners is a global investment and advisory firm with more than \$275 billion² in assets under management. Across our three primary businesses of investment management, investment banking, and insurance services, we have a track record of delivering results through innovative solutions. With 2,400+ professionals worldwide, our commitment is to advance the strategic interests of our clients and to deliver long-term results with excellence and integrity. We invite you to learn more about our expertise and values by visiting GuggenheimPartners.com and following us on Twitter at twitter.com/guggenheimptnrs.

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