Executive summary. With short-term rates near 0%, investors seeking protection from a potential rise in interest rates may be considering an investment in floating-rate bond funds (also known as bank loans, syndicated loans, leveraged loans, and loan-participation funds).\(^1\) Over the 12 months ended March 31, 2011, open-end floating-rate funds, which constitute about 13% of the total floating-rate loan market, saw their assets increase by more than 50%,\(^2\) fueled by investor cash inflows of more than $27 billion.

To assist investors in evaluating floating-rate funds, this paper reviews key characteristics of the funds and addresses the suggestion that the funds offer both principal protection and above-average yields. We first compare floating-rate funds and typical fixed income products, highlighting differences between their primary risk-and-return drivers. We then analyze...
Floating-rate bonds: What makes them unique?

Floating-rate bonds differ from traditional bonds in several respects—notably, interest rate terms, capital-structure seniority, and borrower credit quality—each contributing to the asset class’s unique risk–return profile. We discuss each of these characteristics in turn, next.

Interest rate terms

Traditional bonds characteristically have a fixed coupon rate that is determined upon issuance. This rate remains unchanged throughout the life of the bond, providing investors periodic, static interest payments known as coupons. As interest rate levels change, the prices of such fixed-coupon bonds adjust so that their overall yield is in line with the market.

Interest payments of floating-rate bonds, however, are determined by a floating reference rate—such as the LIBOR (the London Interbank Offered Rate) or the federal funds rate—plus a fixed spread, or additional yield. Depending upon the loan agreement, the rate is adjusted periodically, typically at 30-, 60-, or 90-day intervals. As a result, the coupon payments on these loans vary, or “float,” in accordance with prevailing market interest rates. Because the coupon rate mirrors the market rate, floating-rate bonds exhibit minimal price sensitivity to changes in interest rate levels.

Capital-structure seniority

Floating-rate loans, as opposed to typical debt offerings, are not issued by a firm directly to the public. Instead, banks and similar financial institutions extend loans to firms in need of raising capital.
These loans, in a manner similar to mortgages or other private loans, are then repackaged for sale to investors.

Floating-rate loans are considered “senior” in a firm’s capital structure, meaning they typically have among the highest claims to a borrower’s assets in the event of default. This trait, combined with loan agreements that require firms to secure their assets with collateral, has led to increased recovery rates relative to less-senior debt (see Figure 1). Although recovery rates are a useful measure in the event of a firm’s default, they are not indicative of a firm’s likelihood of defaulting, and thus do not reflect an investment’s quality.

Borrower credit quality
Floating-rate loans most commonly serve as an alternative source of financing for companies whose credit quality is rated below-investment-grade, or “junk.” These companies may find it comparatively more difficult or costly to access more traditional credit sources, such as fixed interest rate bonds.

According to Morningstar, credit qualities of floating-rate funds range from BB (predominantly speculative) to B (speculative low-investment-grade), with a category average of B. For perspective, this is the same category average as that of high-yield bond funds. It’s not surprising, then, that default rates of floating-rate loans have significantly outpaced those of investment-grade bonds, and that they more closely resemble those of speculative-grade bonds (see Figure 2).

Unique characteristics, unique risk–return drivers
Low interest rate risk
When investing in a bond, investors are primarily compensated for taking on two types of risk: interest rate risk and credit risk. As mentioned earlier, floating-rate funds, by design, curtail the effects of the former; this is reflected in their Morningstar category average duration\(^4\) of 0.45 years. As such, prices of these bonds are not expected to significantly respond to interest rate fluctuations. With interest rate risk nearly eliminated, credit risk thus serves as the primary driver of returns.

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\(^4\) Duration is a measurement of a fund’s price sensitivity to changes in interest rates. See Bennyhoff and Zilbering (2010) for a more detailed discussion of duration.
High credit risk

Floating-rate funds’ minimal interest rate risk has understandably led some investors to assume that the funds can be used as an alternative to other short-duration funds, including money market and short-term bond funds. However, the magnitude of the credit risk incurred with floating-rate funds is much greater than that for money market and short-term bond funds. This is because floating-rate funds invest in below-investment-grade loans, whereas money market and short-term bond funds invest in high-quality securities. Thus, the returns of floating-rate funds are inherently tied to the considerable credit risk associated with “junk”-rated loans.

Figure 3 demonstrates the significance of this relationship; the correlation between annual changes in the option-adjusted spread (OAS) of the Barclays Capital U.S. Corporate Bond Index—a common measurement of U.S. credit risk—and the 12-month rolling returns of the floating-rate benchmark is –0.87. This strong inverse relationship reflects the tendency of floating-rate fund returns to move in the opposite direction of credit spreads. Such a relationship does not hold for money market or short-term bond funds. Therefore, investors should be careful to note the widely dissimilar risk-and-return drivers of floating-rate funds and other short-duration fixed income alternatives.

Figure 4 extends this analysis to view return correlations between floating-rate funds and fixed income benchmarks of various credit qualities. Not surprisingly, as the figure suggests, floating-rate funds (as measured by the Credit Suisse Leveraged Loan Index, which was created in 1992) have performed more similarly to benchmarks with lower interest rate sensitivity and greater credit.

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5 Over the same period (January 1, 1993, through April 30, 2011), returns of money market funds (represented by the Citigroup 3-Month U.S. Treasury Bill Index) and short-term bond funds (represented by the Barclays Capital U.S. 1–5 Year Government/Credit Bond Index) had respective correlations to year-over-year changes in the OAS of 0.30 and –0.03.
risk. For instance, the figure shows that the performance of floating-rate funds has differed greatly from that of long-term U.S. Treasuries—which are characterized by long durations and high credit quality—while more closely mirroring that of high-yield bonds, which are typified by intermediate duration and low credit quality.

Above-average liquidity risk
Another risk factor of particular importance for floating-rate funds is liquidity risk. In 2000, the Securities and Exchange Commission (SEC) mandated the use of mark-to-market loan pricing for active floating-rate managers. This increase in price transparency reduced loan-mispricing fears, and consequently led to substantial growth in the floating-rate loans industry. But despite its recent growth, the industry is still roughly half the size of the high-yield bond market and is vulnerable to liquidity shocks in unfavorable loan markets. For example in 2008, when collateralized loan obligations (CLOs) and hedge funds—the primary investors in the floating-rate loan industry—began selling off their loans en masse, interested buyers disappeared and the market’s liquidity dried up, contributing to depressed loan prices.

Performance during (and after) rising-rate environments
In rising-rate environments, floating-rate funds can be expected to benefit from rising coupon payments and the funds’ minimal interest rate sensitivity (relative to fixed-coupon payment, interest rate sensitive benchmarks). Since the 1992 inception of the Credit Suisse Leveraged Loan Index for floating-rate funds, there have been three periods, totaling 51 months, in which the Federal Reserve targeted interest rate increases (as measured by the target federal funds rate). Over these periods, on an annualized basis, the floating-rate loan benchmark outperformed fixed income benchmarks of varying durations and credit qualities, including the aggregate bond market, by 4.3%. These results, alongside post-rising-interest-rates performance, are summarized in Figure 5, on page 6.

Although floating-rate funds have outperformed over the past three rising-rate periods, investor outperformance going forward cannot be assumed, for several reasons. First, as shown in Figure 3, floating-rate fund returns ultimately depend upon the ability of below-investment-grade firms to make timely interest payments and avoid default. Given the unpredictability of credit markets, investors must be aware of the potential for underperformance if

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6 As of December 31, 2010, about $500 billion was in outstanding floating-rate loans (Loan Syndications and Trading Association, 2011).
7 The beginning dates of the rising-rate periods were selected based on the occurrence of two criteria for each period: (1) The target federal funds rate initially increased by at least 25 basis points; and (2) rates rose by a minimum of 100 basis points within the following year. The ending dates of these periods signify the peak of the rising-rate period, as indicated by an unchanged or declining target federal funds rate over the four months following the peak. Using this criteria, rising interest rate periods were identified as January 1, 1994, through February 28, 1995; June 1, 1999, through May 31, 2000; and June 1, 2004, through June 30, 2006.
credit spreads deteriorate. For example, when credit spreads widened during 2008, the floating-rate funds benchmark dropped by –28.8%, underperforming the Barclays Capital U.S. Aggregate Bond Index by 34 percentage points.

An additional concern brought to light in Figure 5 is the subsequent underperformance of floating-rate bonds after the target federal funds rate ceases to rise. Significant portions, if not all, of the excess returns witnessed during recent rising-rate periods would have been relinquished (relative to various fixed income benchmarks), had not investors successfully timed their exit positions in the market. As past Vanguard research has demonstrated, investors engaging in tactical asset allocation strategies have failed to consistently produce excess returns (Stockton and Shtekhman, 2010).

A final risk element to consider is that investors in floating-rate funds are also subject to active manager risk. Active management offers the opportunity to outperform a given benchmark, although typically at the cost of higher expenses, tracking error risk, and underperformance risk. As shown in Figure 6, active manager selection has, at times, greatly affected floating-rate fund investors’ returns, highlighted by a median benchmark underperformance of 8 percentage points in 2009. Moreover, the average asset-weighted expense ratio of an open-end floating-rate fund was 1.15% as of April 2011, according to Morningstar, about 1 percentage point higher than the average asset-weighted expense ratio of an aggregate U.S. bond index fund.

Figure 5. Floating-rate benchmark has outperformed in recent rising-rate environments


Source: Vanguard calculations, based on data from Morningstar, Inc.

8 For additional research on active manager performance, see Philips and Kinniry (2009).
Floating-rate funds as inflation hedge?
Historically in the United States, periods of rapidly rising rates have coincided with high or increasing inflation. This relationship has led some to suggest that floating-rate funds can serve as a fitting investment for investors looking to hedge inflation risks, as evidenced by a low, but positive, 0.35 correlation between floating-rate benchmark returns and changes in the consumer price index.

However, as Figure 7, on page 8, makes clear, floating-rate funds failed to consistently provide an inflation hedge between February 1992 and September 2008, a period that, as mentioned earlier, included three rising federal funds rate periods. Since that time, high correlations between inflation and floating-rate funds can be explained by concurrent bouts of deflationary pressures and widening credit spreads through first-quarter 2009, followed by subsequent reversions of each—and not by any inherent inflation hedge within floating-rate loans. As previous Vanguard research has shown (Bhardwaj, Hamilton, and Ameriks, 2011), maintaining a well-diversified portfolio of stocks, bonds, and other asset classes over the long term remains a wise strategy for managing inflation risk.9

Floating-rate funds as a diversifier?
Over the past 20 years, the floating-rate benchmark has exhibited a near-zero (–0.02) correlation with the U.S. aggregate bond market (as shown in Figure 4). Figure 8, on page 8, highlights this dissimilarity of returns over the five years through 2010. As a result, some investors may consider floating-rate funds as a potential long-term diversifier within their portfolio. To see how investors would have fared historically, we analyzed hypothetical benchmark portfolios representing the U.S. stock market, the U.S. aggregate bond market, and floating-rate loans.

9 For more information on hedging inflation, see Bhardwaj et al. (2011).
Figure 7. Floating-rate funds have not historically served as a reliable inflation hedge

CPI and floating-rate benchmark-return correlations

a. CPI: February 1992–April 2011


Figure 8. Floating-rate funds and aggregate bond market have widely dissimilar return patterns (five years ended December 31, 2010)

Notes: Floating-rate returns represented by Credit Suisse Leveraged Loan Index. Funds included in this analysis fell within Morningstar’s Bank Loan category and also had returns for the full calendar year. Aggregate bond-market returns represented by Barclays Capital U.S. Aggregate Bond Index.

Sources: Vanguard calculations, based on data from Morningstar, Inc.
Figure 9 displays the hypothetical historical returns of multiple U.S. equity/bond portfolios in 10% increments, assuming various fixed income allocations to floating-rate bonds and the aggregate bond market (also in 10% increments). As can be seen, a fixed income allocation to floating-rate loans in any proportion would have led to declining portfolio returns for the period. This reflects the fact that the aggregate bond market index outperformed the floating-rate loan benchmark, on average, over the period.

We next examined the volatilities of these same hypothetical historical portfolios (see Figure 10, on page 10). As the figure shows, benchmark portfolios consisting of at least 80% bonds would have benefited (in terms of reduced volatility) from allocating 10%-30% of their bond holdings to floating-rate funds. However, as the figure shows, this benefit would have quickly diminished as equities in excess of 20% were introduced into the benchmark portfolios. This reflects the well-documented diversification benefits of broad-based bond holdings for investors with balanced portfolios.

Figure 10’s data preliminarily suggest that some investors would have benefited from a partial portfolio allocation to floating-rate bond funds, specifically, investors who:

- Maintain highly bond-centric portfolios (as measured by 80% or more bond exposure).
- Are averse to pure interest rate risk.
- Are not averse to credit risk.
Typically, few investors meet all of the listed criteria. Highly bond-centric investors are often very risk-averse, and seek to limit price risk from any source. As such, exchanging interest rate risk for a floating-rate fund with prominent credit risk is likely counter to a bond-centric investor’s preferred risk domain.

Instead, investors looking to limit portfolio volatility—without introducing additional credit risk—might benefit most from reducing their portfolio’s interest rate exposure via more traditional fixed income funds, such as a diversified short-term bond or short-term Treasury fund (as shown in the hypothetical return scenarios in appendix Figures A-1 and A-2, on page 12).

**Conclusion**

Although floating-rate bond funds have mitigated price sensitivity to interest rate fluctuations and have offered, on average, yields that exceed those of money market funds, they have done so at the cost of increased credit risk. These funds primarily invest in floating-rate loans issued to firms with below-investment-grade credit ratings. Consequently, fund performance ultimately depends upon the credit risks facing these firms. As such, floating-rate bond funds exhibit risk–return profiles most similar to those of high-yield funds, and should not be considered an alternative to broad-based bond holdings.
In recent rising-rate periods, credit risks have remained relatively flat, leading to excess returns for high-yield and floating-rate bond funds (relative to various bond benchmarks). Given the unpredictability of the credit markets, however, outperformance during future rising-rate periods cannot be guaranteed. In addition, in the event of outperformance, realized excess returns hinge on the ability of investors to tactically enter and exit the market, an approach Vanguard does not advocate.

Lastly, floating-rate funds have exhibited a near-zero correlation to the U.S. aggregate bond market over the 19-year period ended December 31, 2010. Our research indicates that portfolios containing at least 80% in bonds could have reduced their volatility by allocating 10%–30% of their bond holdings to floating-rate bond funds. However, because bond-centric investors tend to be risk-averse, they would likely avoid adding a potentially volatile, high-credit-risk fund to their portfolios. Instead, investors interested in reducing their portfolio’s price risk from interest rate and/or credit-risk exposure might achieve more reliable benefits by investing in short-term U.S. bond and short-term Treasury funds.

References


Appendix

Figure A-1. Overweighting fixed income allocations to short-term bond funds reduces portfolio volatility because of reduced interest rate risk

Average annual volatility (January 1992–February 2011)

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<tr>
<th>U.S. equity/bond allocation (%)</th>
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Notes: This hypothetical illustration does not represent the return on any particular investment. U.S. aggregate bond market is represented by Barclays Capital U.S. Aggregate Bond Index. Short-term bonds are represented by Barclays Capital U.S. 1–5 Year Government/Credit Bond Index. U.S. total stock market is represented by Dow Jones U.S. Total Stock Market Index.

Sources: Vanguard calculations, based on data from Morningstar, Inc.

Figure A-2. Overweighting fixed income allocations to short-term Treasury bond funds reduces portfolio volatility because of reduced interest rate and credit risk

Average annual volatility (January 1992–February 2011)

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Sources: Vanguard calculations, based on data from Morningstar, Inc.
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