Special Report

Hedge Funds: The Credit Market's New Paradigm

Analysts
Roger Merritt
+1 212 908-0636
roger.merritt@fitchratings.com

Eileen Fahey
+1 312 368-5468
eileen.fahey@fitchratings.com

Related Research
- "Hedge Funds: An Emerging Force in the Global Credit Markets," July 18, 2005
- "Assigning Credit Ratings to Hedge Funds," April 17, 2007

Summary
This report examines the role of hedge funds in the credit markets and potential implications for market behavior in a less favorable credit environment based on a survey of a number of global prime brokers that actively finance hedge fund positions. This report follows earlier Fitch Research that examined the growing influence of credit-oriented hedge funds and showed how hedge funds had emerged as an important source of liquidity for the credit markets.

Highlights
- To gain insight into hedge fund credit market activities, Fitch Ratings surveyed global prime brokers, as they effectively monitor the industry, providing financing and risk oversight.
- While leverage levels for many credit strategies did not change, most prime brokers reported pressure to offer increased leverage against hedge fund credit strategies, and maximum leverage for certain strategies increased from 2005 levels. Moreover, levels of reported leverage may not adequately reflect growing embedded leverage and complexity across the credit markets.
- Pressure on credit standards can also arise through greater use of cross-product netting, as well as increased access to term financing with margin lock-ups.
- Hedge funds' influence on the credit markets clearly has accelerated. Credit strategies, particularly those involving credit default swaps (CDS), were one of the fastest growing segments for hedge funds. As a result, hedge funds now make up nearly 60% of CDS trading volumes.
- The recent credit boom, particularly for certain sectors of the credit markets, has been fueled in part by hedge funds. Hedge funds' willingness to trade frequently, employ leverage, and invest in the more leveraged, risky areas of the credit markets magnifies their importance as a source of liquidity.
- The credit markets have undergone a structural paradigm change, even as they have experienced tremendous growth. The next credit downturn may very well involve more sudden, correlated declines in asset prices as hedge funds and prime brokers seek to unwind their positions in a more risk-averse market. This could be amplified by the financing of more complex, illiquid positions that are less easily valued.
- A deleveraging event is likely to affect most, if not all, sectors of the credit market, resulting in an increase in correlation as hedge funds and prime brokers seek to monetize their most liquid positions first.
- Given this paradigm change in the credit markets, liquidity risk is one of the more important considerations for credit investors today, as refinancing risk could be magnified in the next downturn.

June 5, 2007

Prime Broker Questionnaire

- Distribution of hedge fund strategies across equities, credit, other fixed-income and foreign exchange/commodities?
- Competition among prime brokers and impact on industry credit standards?
- Typical and maximum allowable leverage by credit strategy? Change over time?
- How margin levels are established, including less liquid and illiquid instruments?
- Collateral policies and frequency of margin calls?
- Other credit policies, including netting and cross default.
- Evolution of the use of term financings? Typical terms and conditions?
- Position monitoring?

Overview

At the end of 2006, Fitch interviewed a number of global prime brokerage institutions as a primary window into the activities of hedge funds. Prime brokers monitor the hedge fund industry by virtue of the financing and risk oversight they provide. A close examination of the prime brokerage universe was essential to understand which strategies and the degrees of leverage hedge funds were employing, areas of growth, and potential risks to the credit markets.

Questions Fitch sought to answer included the following:

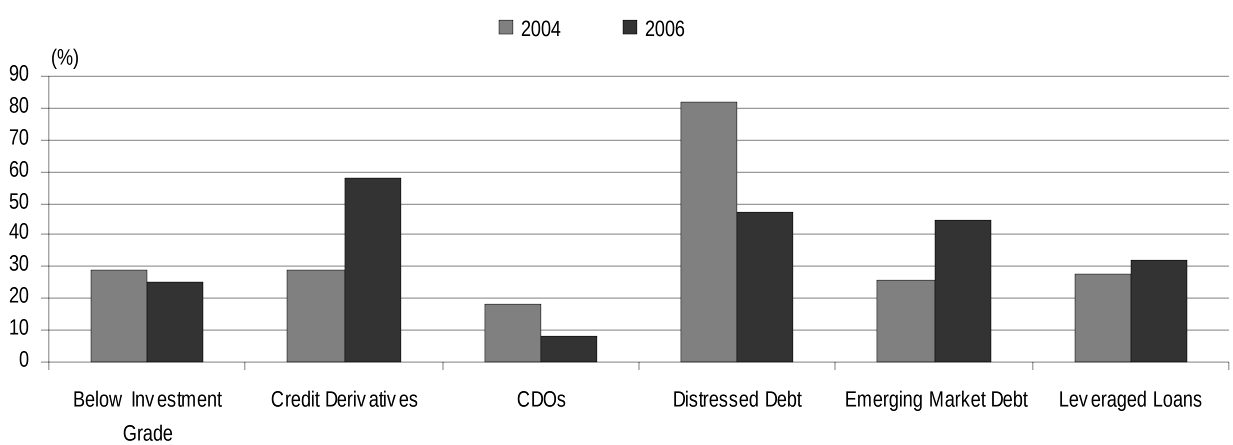
- Has the role of hedge funds changed materially since the 2005 report?
- To what degree have leverage and other measures of risk changed?
- Have hedge funds fundamentally altered the structure of the credit markets, creating a new market paradigm?
- If so, what does this mean in terms of market stability and behavior in the next credit downturn?

Hedge Fund Update

Since 2005, the hedge fund industry is estimated to have grown from approximately $1 trillion assets under management to more recent estimates of $2 trillion on an unlevered basis. Financial leverage, primarily from prime brokers and banks, increases the funds that hedge funds are able to deploy by a factor of at least 2.0 times (x) to 3.0x, implying closer to $4 trillion–$6 trillion of investable assets. Another notable change is that the industry has become increasingly global in the past few years, with approximately one-third of assets managed and domiciled outside the U.S. This globalization of the industry has had profound effects on markets in Europe and Asia and adds to challenges in global risk management and oversight.

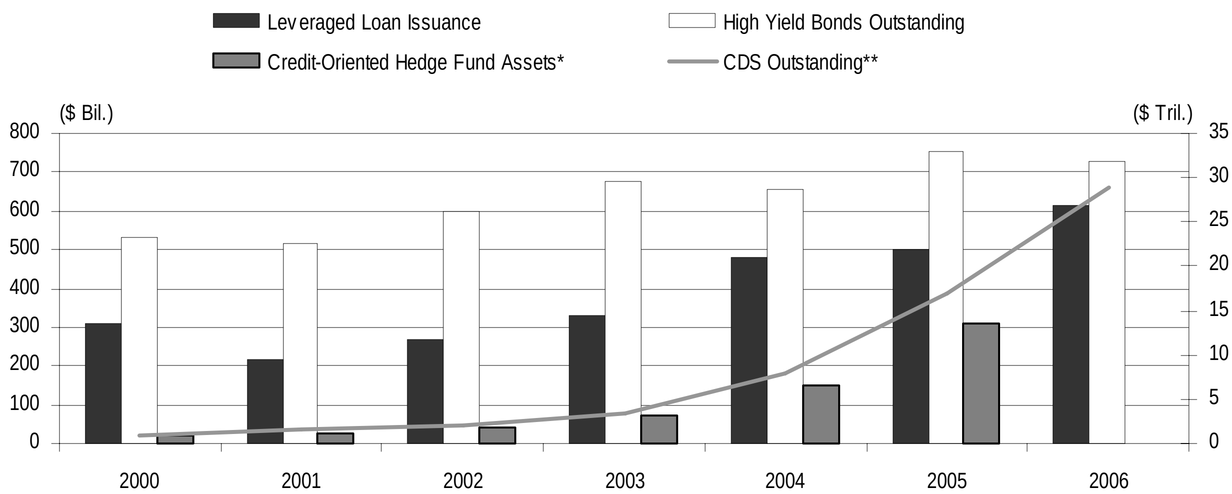
The industry has become increasingly institutional, a trend that most prime brokers believe will continue. To service their client base, the largest hedge funds are typically multistrategy oriented, moving into and out of various asset classes on an opportunistic basis.

Fueling a Credit Boom: Hedge Fund Trading Volumes



CDOs – Collateralized debt obligations. Note: Chart represents estimated hedge fund trading volumes as a percentage of sector totals.
Source: Greenwich Associates.

Growth of CDS and Leveraged Finance Markets



*Source: International Monetary Fund. **Sources: International Swaps and Derivatives Association, Inc. and Bank for International Settlements.
CDS – Credit default swaps.

The collapse of Amaranth Advisors (Amaranth) notwithstanding, the sophistication of risk management systems and liquidity planning has improved over time for the leading hedge funds and their prime brokers.

Impact on the Credit Markets

Since 2005, hedge funds' pursuit of credit-oriented strategies and their influence on key segments of the credit markets have continued to grow at a dramatic pace. The growing influence of hedge funds in the credit markets — cash and CDS — is supported by other third-party research. The International Monetary Fund Global Financial Stability Report from April 2006 provides data on the growth of hedge fund credit assets through 2005. Credit-oriented hedge fund assets grew to more than $300 billion in 2005, a six-fold increase from the level five years ago. Notably, this number excludes the multiplier effect of leverage and, therefore, understates the real amount of credit risk taken and the impact on trading volumes. At 5.0x–6.0x leverage, $300 billion of assets equates to $1.5–$1.8 trillion of assets deployed into the credit markets. Since then, it would appear that this number has continued to grow. While equity-oriented strategies still dominate, all prime brokers reported that credit strategies represented one of the fastest growth areas for hedge funds, outpacing equity-oriented growth of strategies.

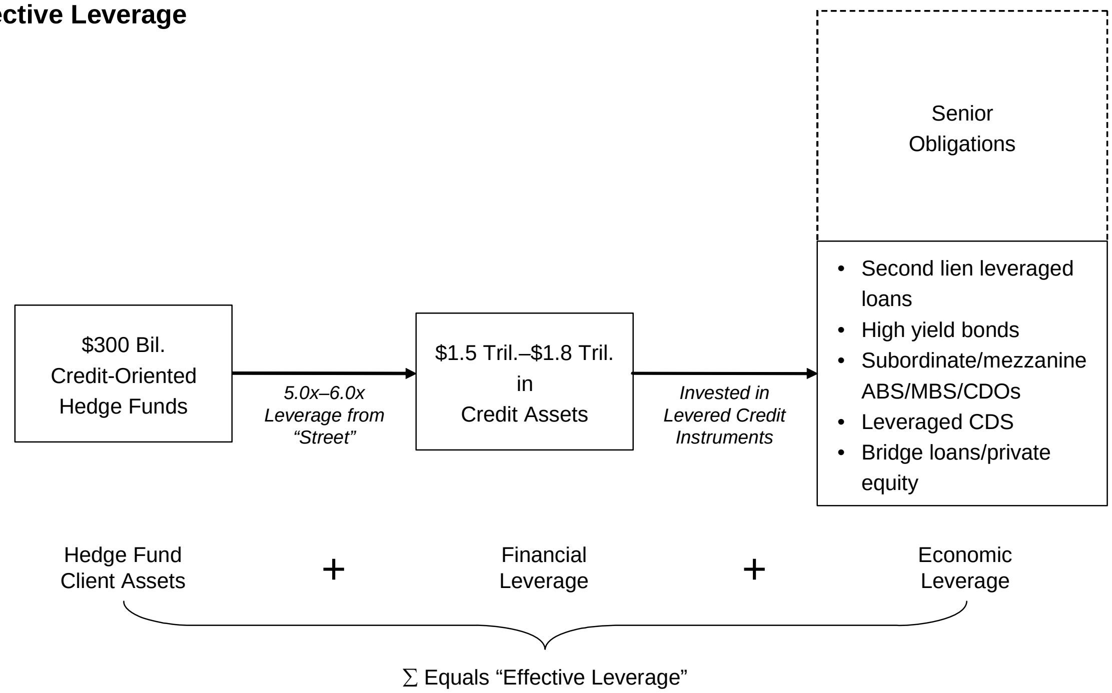
A report from Greenwich Associates last fall reported that hedge funds accounted for nearly 58% of all CDS trading volume and one-third of trading volume in structured credit products such as collateralized debt obligations (CDOs). For CDS, in particular, this was up considerably from 2005, when hedge funds represented less than 30% of trading volumes on a much smaller notional base. According to the Bank for International Settlements, the CDS market is estimated to have grown to nearly $29 trillion at the end of 2006. For the leveraged finance markets, trading volumes remained relatively steady at about 30%–32% for leveraged loans and 25% for high yield bonds. However, given the growth in the markets, the absolute amount credit instruments traded by hedge funds grew appreciably. For example, leveraged loan issuance reached $612 billion in 2006, up from $300 billion a few years ago.

Leverage Multiplier Effect

The impact of hedge funds on the credit markets can not be measured simply by trading volumes, but also must consider hedge funds' willingness to be risk takers by investing lower in the capital structure. By investing in instruments that are themselves levered, hedge funds are able to create a multiplier effect by combining financial leverage with so-called economic leverage. The combination of the two can be thought of as the effective leverage.

There is ample evidence that hedge funds continue to take subordinated (and therefore more levered) risk exposures in pursuit of higher returns. For example, hedge funds have been active buyers of second lien leveraged loans, and CDO issuance continued to expand, in part due to demand from hedge funds for

Effective Leverage



ABS – Asset-backed securities. MBS – Mortgage-backed securities. CDOs – Collateralized debt obligations. CDS – Credit default swap.

CDO equity exposures. In fact, many of the innovations in the markets today reflect demand from hedge funds for structures that generate higher returns. For example, CDO equity may be structured on the basis of reverse inquiry from hedge funds with few or any triggers at more senior levels of the transaction. A shift into more speculative, less liquid investments including subordinated/equity positions, bridge financings, and private equity is symptomatic of hedge funds' risk appetite in a low return environment.

■ Financing Strategies and Leverage

Fitch surveyed prime brokers to better understand how financing and leverage terms for hedge funds have trended, particularly for credit-oriented strategies. Of particular interest is whether leverage had increased, possibly introducing more risk to the credit markets. Prime brokers compete for hedge fund assets in part through providing attractive financing terms and lower margin rates. Heightened competition among established prime brokers, as well as newer entrants, has the potential to result in lower credit standards for the industry as a whole. Fitch focused on trends in leverage, as well as more subjective aspects, such as willingness to provide term versus overnight financing and netting arrangements.

Leverage targets among the prime brokers participating in Fitch's survey appeared in line with levels reported in 2005, although there has been some modest upward pressure. The maximum allowable leverage for certain strategies — fixed-income arbitrage and mortgage-backed securities/asset-backed securities relative value — had trended upward since 2005. Notably, no prime broker reported raising margin requirements in response to historically tight credit spreads and growing concerns about the general level of risk-complacency in the credit markets.

Most prime brokers agreed that there was continued pressure to provide more relaxed credit terms to hedge

Credit Strategies — Indicative Leverage

(x)

	Current	Last Study
Fixed-Income Relative Value	10–20	10–15
Long/Short Credit	5–15	10–15
CDS Leveraged Carry	20	20
MBS and ABS Arbitrage	6–10	6–8
Long/Short Cash Credit	3–6	5–6
EM Long/Short	2–4	3–4
Distressed	1.5–2	1.5–2

CDS – Credit default swap. MBS – Mortgage-backed securities.
ABS – Asset-backed securities. EM – Emerging markets.

Forced Unwind Example

Assuming a hedge fund leveraged 4.0x (20% margin) were operating near or at maximum permissible leverage, the fund could be forced to sell as much as 25% of its assets in the event of an initial 5% price decline in the value of its assets. Any collective, downward pressure on prices in the market arising from the hedge fund unwinding or an increase in margin requirements from the prime brokers would magnify the total amount of assets the fund is forced to sell. For example, an increase in the prime broker's margin from 20% to 25% on average would require a fund to deleverage as much as 40% to meet its margin calls and restore leverage to within acceptable limits.

Hedge Fund (4.0x Leverage)

100	80	4.0x
	20	

5% Mark-to-Market Loss

95	80	5.3x
	15	

No Margin Change			Margin Increases to 25%		
Restore 4.0x Leverage			Restore 3.0x Leverage		
75	60	4.0x	60	45	3.0x
	15			15	

funds — through higher leverage or other lending terms — due to growing competition to attract hedge fund clients. Reportedly, some prime brokers are estimated to derive 20%–30% of total revenues/ profits from hedge fund relationships — sales and trading, investment banking, financing, and risk management/back office support. The trend by hedge funds toward using multiple prime brokers continues and can increase the pressure on credit terms while making it challenging for prime brokers to monitor overall leverage at a fund. Prime brokers generally do not have full access to positions held at other prime brokers nor the degree of leverage supporting those positions.

Positively, most hedge funds were reported to be financing their positions at levels well below maximum leverage permitted by the prime brokers (typically 40%–60% of the maximum allowable), providing in theory a liquidity cushion against adverse market movements. Still, this cushion could disappear fairly quickly if asset prices declined and/or prime brokers raised their margin requirements following a risk re-assessment. Moreover, the reported leverage numbers should be viewed with a certain amount of caution. Leverage can be challenging to measure for hedge funds, particularly with the growing use of credit derivatives, and the leverage ratios reported to Fitch address fairly broad strategies and do not necessarily reflect the embedded leverage (the economic leverage) in the positions being financed. In general, prime brokers reported that hedge funds showed an increasing preference for executing their credit strategies through the CDS rather than the cash market.

Leverage is only one way of measuring of whether credit standards are becoming more or less relaxed. Lenders also compete on the basis of more comprehensive cross-product netting, which effectively increases available financing, as well as by meeting hedge funds' demands for term financing with fixed margins. Prime brokers appear to be offering more hedge funds access to term financing with funding and margins locked in (subject to certain limitations) for up to 180 days, although reportedly only on a selective basis for higher quality hedge funds. Before granting term financing, prime brokers evaluate a fund's risk appetite to determine its tolerance for leverage and the impact of liquidity on its strategy. Terms will include events of default or other liquidation triggers in the event the portfolio deviates from expected boundaries.

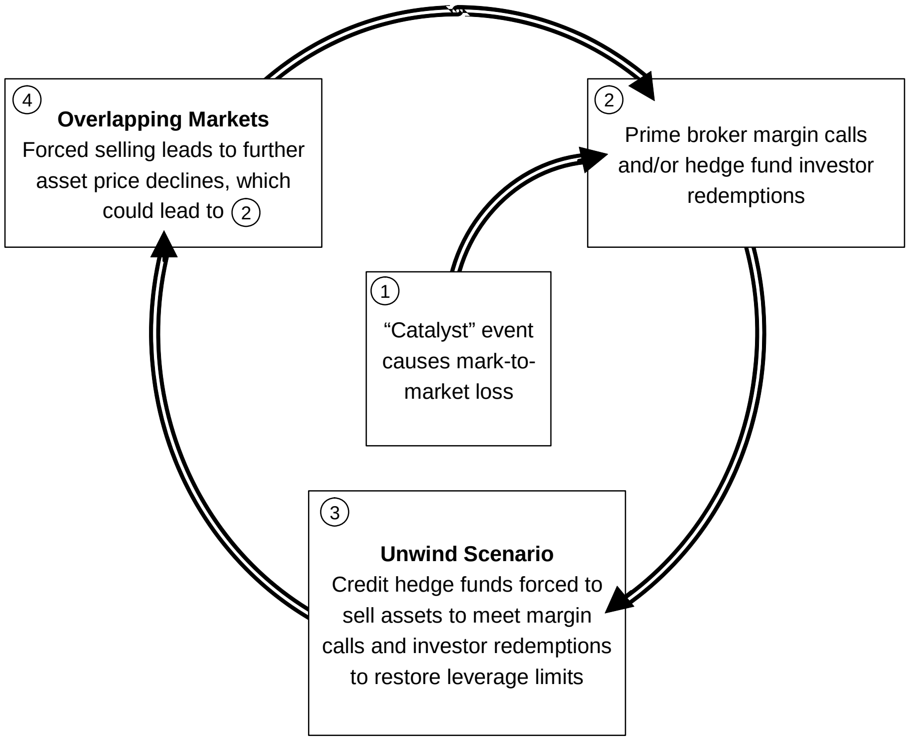
In addition, prime brokers have faced increased pressure to provide some degree of secured financing for hedge funds' less liquid positions, although financing to date has been subject to having the ability to price the instrument and identify plausible exit strategies. For example, CDO equity and other complex structured products may be financed on margin (reportedly up to 50%) if the bank's trading desks have familiarity with the transaction and the ability to arrive at an independent price.

■ Market Behavior — The Next Downturn?

The influx of hedge funds into the credit markets may well have resulted in a paradigm change in how the markets behave in the next downturn. Specifically, credit assets could behave in a more correlated, synchronous fashion if one or a number of hedge funds were forced to liquidate positions following some catalyst event in the markets. Investor redemptions and/or increased margin calls from prime broker banks could exacerbate a larger unwind of credit assets.

The inherent instability of hedge funds as an investor class — arising in large part from their reliance on short-term, margin-based leverage — is distinctly different from more traditional buy-and-hold

A New Credit Market Paradigm



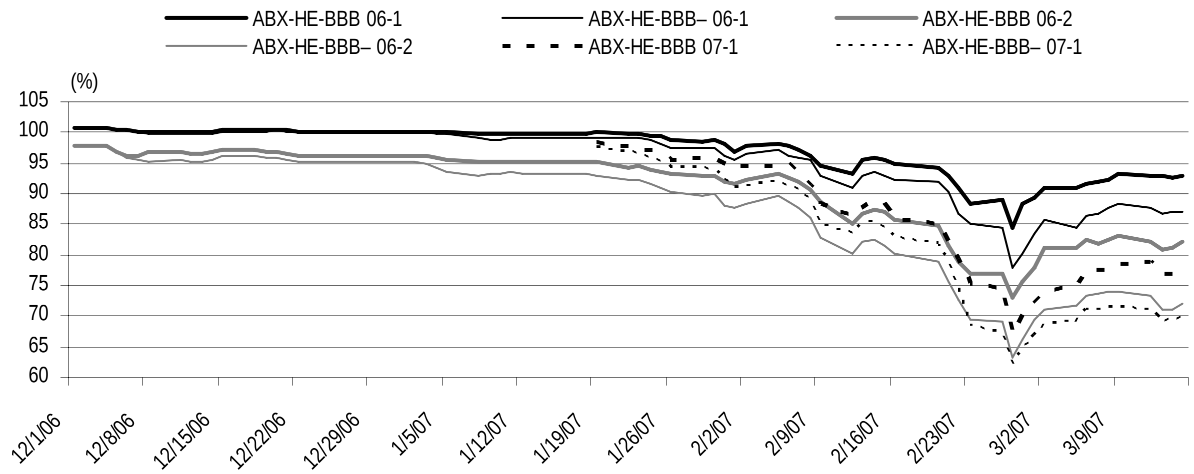
institutional investors and relationship-oriented bank lenders. Given the continued growth of hedge funds in the credit markets, the potential for a more synchronous, forced unwind of credit assets cannot be discounted. For example, Amaranth was reported to have sold leveraged loans and residential mortgage-backed securities to meet margin calls on its natural gas positions. During a period of market stress, any such forced selling of assets such as occurred with Amaranth would be magnified by the effects of leverage.

The credit market's growing reliance on hedge funds also introduces a new, untested behavioral element. Even if hedge funds retain the financial wherewithal to hold credit assets in a downturn, it is not clear whether they will have the willingness. Traditionally, banks had a longer term relationship perspective on lending and an incentive to hold and work out loans (carried on an accrual basis) to avoid realizing a loss. Hedge funds are distinctly different, as they do not have the same relationship incentives and are forced to recognize losses on a mark-to-market basis. Moreover, the CDS market now allows hedge funds (and banks, for that matter) to be long via the cash market and economically short via credit derivatives, making it easier to unload the combined position without a loss. These factors, which have emerged in a period of benign markets, add to the uncertainty as to how the credit markets will behave during a period of stress.

Positively, the largest hedge funds continue to improve their risk management capabilities and have developed contingency liquidity plans for times of stress. Also, the fact that hedge funds do not seem to be operating at the maximum leverage allowable by prime brokers effectively acts as a liquidity cushion against margin calls, as does their ability to access term financing with fixed margins. Still, there clearly has been a reduction in lending terms across the credit markets, as well as a trend toward more complex structures with embedded leverage, as evidenced by the tremendous growth in the CDS and leveraged loan markets. Competition among prime brokers, particularly from second tier prime brokers competing for business, also introduces the risk of less lending discipline over time.

The rapid growth in the over-the-counter CDS market is accentuating the changes in the credit markets. Explosive growth in the CDS market — $29 trillion

ABX.HE BBB and BBB– Price History
(As of March 15, 2007)



Source: Markit.

notional amount at year-end 2006 — introduces its own unique risks that have not been fully tested in a credit downturn. In the credit downturn in 2001–2002, CDS proved extremely useful in helping financial institutions hedge credit risk. However, since then, the markets have grown and evolved tremendously, and it is unclear whether the sheer size of this over-the-counter market could foster greater short-term price instability as hedge funds and their banks try to reverse positions with no natural takers of credit risk on the other side. The sharp price deterioration for the ABX.HE CDS index earlier this year, while clearly an extreme example, provides a cautionary tale of how any market can be subject to periods of dislocation.

■ Credit Implications

Given the current environment, Fitch believes liquidity risk is among the more important issues facing credit investors. Tight credit spreads and abundant capital have allowed even the most distressed issuers to readily access funding and refinance maturing debt. This apparent in the low default rate for corporate debt — recently under 1% according to Fitch's high yield default index — even as many credit metrics have eroded. For example, high yield issues rated 'CCC' or lower represented $125 billion of issuance at the end of March, or 17% of U.S. high yield volume. Yet, debt service measures remain weak, with interest coverage ratios of barely 1.0x. Even a temporary dislocation in the credit markets could negatively affect funding access for more marginal credits with upcoming debt maturities, leading to a rash of defaults.

Given this paradigm change in the credit markets, liquidity risk is one of the more important considerations for credit investors today, as refinancing risk could be magnified in the next downturn. Of particular importance is an assessment of liquidity sources and liquidity uses, including on- and off-balance-sheet debt, loan maturities, and contingent liquidity claims. The growing role of hedge funds in the credit markets without question has introduced greater liquidity in the near term. Of concern would be an ill-timed event that led to a sudden reversal of this liquidity across multiple segments of the credit markets.

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