



# Illuminate

ANALYSIS THAT REVEALS

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## MARKET COMMENTARY

*The Liquidity Risk Premium in Corporate Credit*

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THE CARLYLE GROUP

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GLOBAL ALTERNATIVE ASSET MANAGEMENT

# The Liquidity Risk Premium in Corporate Credit

By Jason M. Thomas and Mark Jenkins

- Between 2001 and June 2017, middle-market loans yielded one-third more than large corporate loans, on average, after accounting for default losses.
- This return premium is not a “free lunch,” but instead reflects compensation for direct lending’s illiquidity relative to larger, bank-syndicated loans. Larger loans tend to fetch higher prices at origination because information about the credit quality of the borrower can be obtained at lower cost and because these loans tend to be much easier to sell in secondary markets, particularly during periods of market stress.
- While data indicate that investors with long-term horizons or longer-dated liabilities can boost returns by increasing exposure to liquidity risk, in practice the size of the return premium will depend on credit selection, expertise dealing with loan workouts, and fund leverage.

Assets that are difficult to re-sell tend to be priced at discounts to more liquid securities that offer otherwise identical cash flows. Illiquidity-related price discounts have been documented across a wide swath of asset classes, including corporate equities, bonds, real estate, insurance, and derivatives.<sup>1</sup> In each case, the lower price paid at issuance or origination has translated predictably to higher returns over the life of the investment.

We observe the same phenomenon in corporate credit markets. The less liquid loans of smaller issuers tend to sell at a 6% average discount at origination relative to large corporate loans. These discounts cannot be fully explained by credit fundamentals, as middle-market loans tend to default less frequently and experience less severe losses in the event of default. As a result, middle-market loans have yielded one-third more than bank-syndicated loans, on average, after accounting for default losses and controlling for observable risk factors.<sup>2</sup>

## Origins of the Liquidity Risk Premium

“Liquidity” generally refers to the ease with which an asset can be converted into cash over a fixed time horizon. Most research measures illiquidity in terms of “transaction costs” like bid-ask spreads or commission and brokerage fees, but liquidity also relates to the discount to market value an investor must incur to complete a transaction (the price impact of a block trade in a stock, for example). The liquidity of an individual loan or bond tends to increase with the size of the borrower or credit facility, the frequency with which the loan or bond trades, and the average size of such trades.<sup>3</sup>

Private credit—loans to small-to-medium sized private companies—lacks an active secondary market. Trading volumes are low and little transparency exists regarding executed transaction prices or terms. To sell a loan, an investor would typically have to contact a broker-dealer to identify prospective buyers. Without any recent trades or indicative bids, potential buyers would likely require a period of weeks to investigate the company and obtain whatever information it deemed necessary to measure the risk of the loan. Even after

this process, the winning bid would likely include a discount to compensate for the risk that the seller knows something about the borrower that the prospective investor did not uncover (i.e. “adverse selection”).<sup>4</sup>

In combination, these frictions tend to push the effective sales price of middle market loans below “fair value.”<sup>5</sup> In fact, empirical analyses find more than one-fifth of credit spreads could be attributed to these liquidity-related costs rather than default risk.<sup>6</sup> A rule of thumb derived from these data suggest that credit spreads increase by 82 basis points for every 1% increase in transaction costs.<sup>7</sup> Similarly, gaps between trades have been found to increase spreads by an average of 30 basis points per year after controlling for credit risk.<sup>8</sup>

## Illiquidity’s Systematic Pricing Impact

While liquidity depends mainly on asset-specific features, aggregate, or market-wide liquidity conditions also loom large. Sometimes it’s more costly to sell certain assets than others, as aggregate liquidity fluctuates through time in response to macroeconomic developments, risk aversion, funding conditions, and capital constraints. Figure 1 plots the relationship between average credit spreads on corporate loans and a macro illiquidity factor, which estimates the effective discount an investor would have to accept to sell a loan or bond during a given quarter.<sup>9</sup>

<sup>1</sup> Fisher, J. et al. (2003), “Controlling for the Impact of Variable Liquidity in Commercial Real Estate Price Indices,” *Real Estate Economics*; Dimson, E. and Hanke, B. (2004), “The Expected Illiquidity Premium: Evidence from Equity Index-Linked Bonds,” *Review of Finance*; Dick-Nielsen, J. et al. (2012), “Corporate bond liquidity before and after the onset of the subprime crisis,” *Journal of Financial Economics*.

<sup>2</sup> As discussed below, these results cover the 2001 to June 2017 period, as captured by S&P LSTA data.

<sup>3</sup> Houweling, P. et al. (2005), “Comparing Possible Proxies of Corporate Bond Liquidity,” *Journal of Banking and Finance*.

<sup>4</sup> Even in the absence of adverse selection and inventory costs, illiquidity commands a premium.

<sup>5</sup> The assumed discount rate applied to the cash flows in this case would be based entirely on the equivalent duration risk-free rate plus the appropriate credit spread.

<sup>6</sup> Chen, L., Lesmond, D. and Wei, J. (2007), “Corporate Yield Spreads and Bond Liquidity,” *Journal of Finance*.

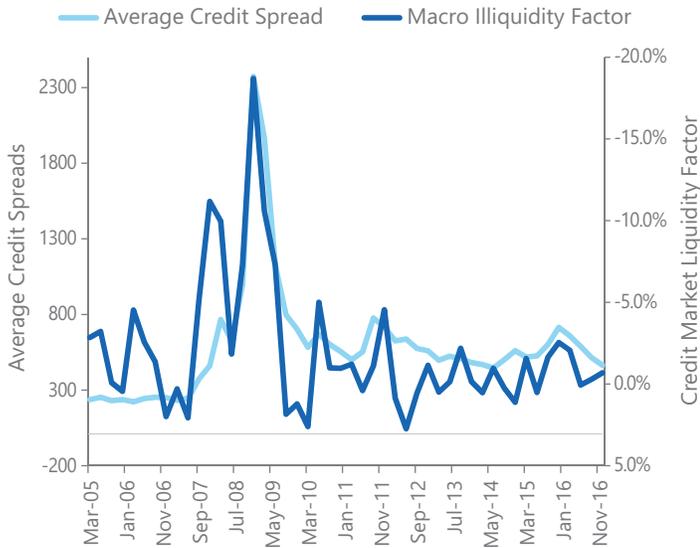
<sup>7</sup> Chen et al. (2010).

<sup>8</sup> Bianchi, C., Hancock, C. and Kawano, L. (2004), “Does Trading Frequency affect Subordinated Debt Spreads?” Fed Working Paper.

<sup>9</sup> The measure relies on order flow and price data from SIFMA and BAML and is based on Pastor and Stambaugh (2003), “Liquidity Risk and Expected Stock Returns,” *Journal of Political Economy*.

**FIGURE 1**

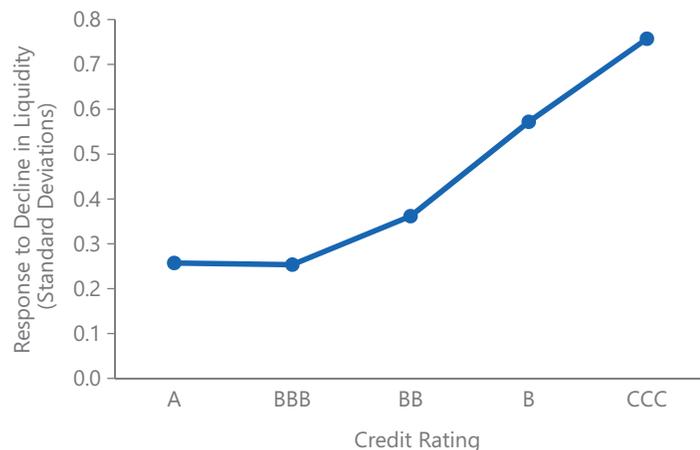
**Macro Liquidity Shocks and Credit Spreads<sup>10</sup>**



The commonality of liquidity risk across assets generates systematic pricing effects. Investors are willing to pay more for assets that can be sold quickly during a market downturn or “flight to quality.”<sup>11</sup> Large syndicated bank loans offer a form of “liquidity insurance” that makes them more valuable than middle market loans or other assets that can be difficult to offload in a crisis.<sup>12</sup> Spreads on large corporate loans have been 20% less sensitive to fluctuations in aggregate liquidity conditions than similarly-rated middle market loans.<sup>13</sup>

**FIGURE 2**

**Loan Price Sensitivity to Liquidity Shocks by Credit Rating<sup>14</sup>**



Higher-rated loans also tend to retain more of their value during periods when liquidity dries up. As shown in Figure 2, loan prices’ sensitivity to liquidity conditions rises exponentially as credit ratings decline. The price of CCC loans are three times more elastic to changes in aggregate

<sup>10</sup> Carlyle Analysis; S&P LSTA Database (spreads and prices); SIFMA (trading volumes). July 2017.  
<sup>11</sup> Amihud, Y. et al. (2013), *Market Liquidity: Asset Pricing, Risk, and Crises*. Cambridge University Press.  
<sup>12</sup> Lin, H. and Wang, J. (2010), “Liquidity Risk and Expected Corporate Bond Returns,” *Journal of Financial Economics*.  
<sup>13</sup> Carlyle Analysis; S&P LSTA Database (spreads and prices); SIFMA (trading volumes). July 2017.  
<sup>14</sup> Carlyle Analysis; S&P LSTA Database (spreads and prices); SIFMA (trading volumes). July 2017.

liquidity as the price of BBB loans. So while average spreads tend to rise as liquidity declines, smaller, lower-rated or unrated loans tend to bear a disproportionate share of the adjustment.

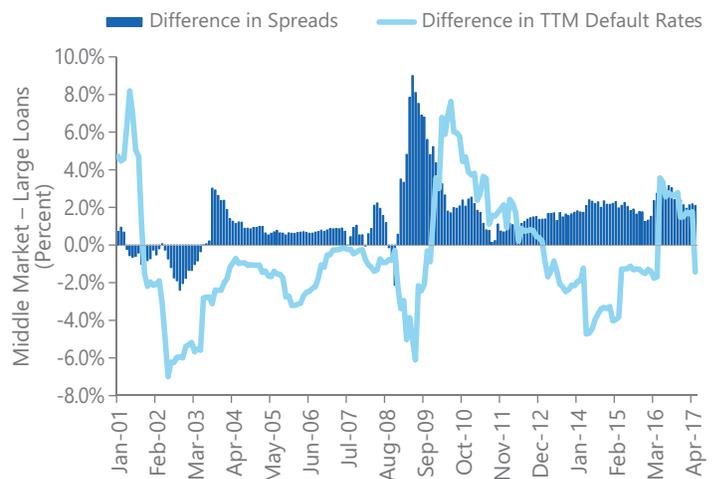
**Measuring the Illiquidity Return Premium**

The “liquidity insurance” provided by larger, higher-rated loans does not come free of charge. These assets tend to command higher prices at origination or issuance, which depresses their held-to-maturity returns relative to smaller, lower-or-unrated loans. Investors with shorter investment horizons, or less reliable funding sources, often have no choice but to pay the premium required to hold more liquid assets. But investors with longer-term investment horizons, long-dated liabilities, or secure funding may find that liquid credits account for too large a share of their overall portfolio. In such cases, investors may be sacrificing returns to buy liquidity risk insurance they do not need.

Since 2001, middle market corporate loans have offered spreads that have exceeded those of similarly-rated large loans by 130 basis points per year (Figure 3). This extra compensation was not tied to credit performance: over the same period, the annualized default rate on middle market loans was 70 basis points less than for large loans, on average, with substantially lower loss rates in the event of default. After accounting for average recoveries and term to maturity, smaller loans have been priced at a 6% average discount relative to large loans largely because of their illiquidity.<sup>15</sup>

**FIGURE 3**

**Middle Market Spreads and Default Rates Relative to Large Corporate Loans<sup>16</sup>**



When segmenting loan performance data by size, mid-market loans have generated annual outperformance that almost perfectly mirrors their average price discount. Since 2001, smaller loans have outperformed large syndicated loans by 1.7% to 1.8% per year on an unleveraged, market-wide basis (Table 1). Some of those

<sup>15</sup> This calculation assumes an average term to maturity of 5 years and a base interest rate of 5%. Middle Market Loans are defined as corporate loans made to corporates with less than \$50 million of annual Ebitda. S&P/LSTA Default Rates Data, July 2017.  
<sup>16</sup> Carlyle Analysis; S&P LSTA Database, July 2017.

TABLE 1

Unlevered Annualized Loan Returns<sup>17</sup>

|                                    | Mid-Market Loans | Large Loans | Difference |
|------------------------------------|------------------|-------------|------------|
| Annual Return (Arithmetic Average) | 6.8%             | 5.2%        | 1.7%       |
| Implied by Credit Rating           | 6.2%             | 5.6%        | 0.6%       |
| Residual                           | 0.6%             | -0.4%       | 1.1%       |
| Annual Return (CAGR)               | 6.7%             | 4.9%        | 1.8%       |
| Implied by Credit Rating           | 5.4%             | 5.4%        | 0.0%       |
| Residual                           | 1.3%             | -0.5%       | 1.7%       |

excess returns may be attributable to additional credit risk, but it is not clear how much. A larger share of smaller loans tend to be unrated, which makes comparisons difficult. More consequentially, small loans also tend to systematically outperform their credit ratings, while the opposite is true for large loans. As shown in Table 1, on an annually compounded basis, small loans outperform the return implied by their credit ratings by 1.3% per year, on average, while large loans underperform by -0.5% per year.

Evidence of apparent ratings bias is not surprising. Smaller firms tend to receive lower ratings because some “soft” credit metrics like “competitive position” tend to be correlated with size.<sup>18</sup> However, even if ratings perfectly capture the credit risk of the underlying loan, smaller loans still substantially outperform larger, more liquid loans after controlling for ratings differences in the respective samples.

Smaller loans tend to outperform, on average, because they can be so difficult to sell during periods of market illiquidity. During the Global Financial Crisis, the market value of middle-market loans plummeted, with cumulative returns between -18% and -26% below those of bank-syndicated loans. This sell-off was of no consequence to investors holding these loans to maturity; once liquidity returned, the price of middle-market loans quickly rebounded, with cumulative returns exceeding those of large loans by 30%.<sup>20</sup> The price shock of 2008-09 therefore related to the loans’ illiquidity, or the discount required to transact at short notice, not the fundamental credit quality of the loans.

FIGURE 4

TTM Returns on Middle Market Loans Measured Relative to Large Corporate Loans and Credit Rating<sup>19</sup>

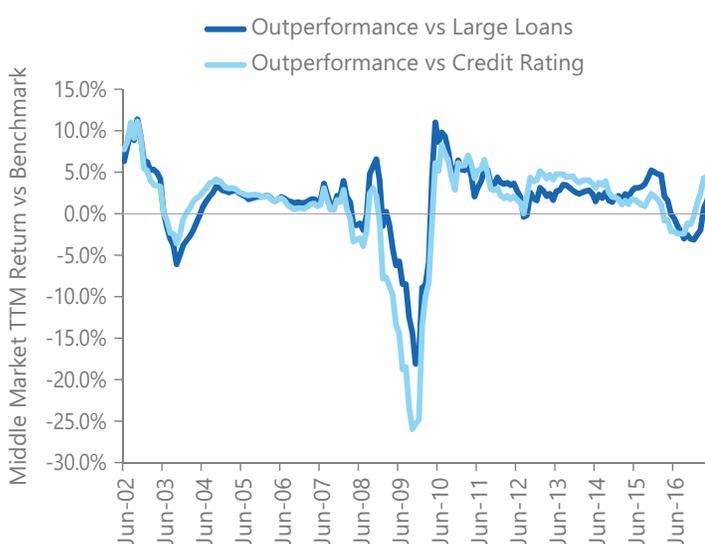
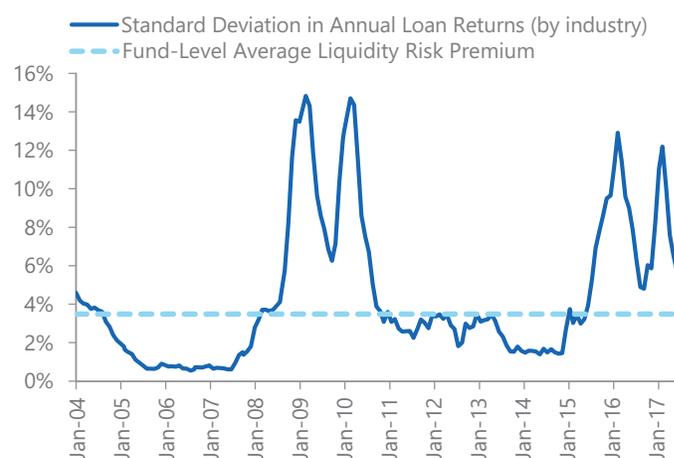


FIGURE 5

Liquidity Risk Premium Relative to Annual Variation in Loan Returns by Industry<sup>21</sup>



Practical Implications for Investors

While data indicate that investors with long-term horizons or longer-dated liabilities can boost returns by increasing exposure to liquidity risk, the size of the premium earned in practice will depend on a number of factors, including credit selection, loan terms, and fund leverage. The market-wide return premium to direct lending has been roughly 3.5%

17 Carlyle Analysis of S&P/LSTA Database, July 2017.

18 Hovakimian, A. et al. (2008), “How Do Managers Target Their Credit Ratings? A Study of Credit Ratings and Managerial Discretion,” FDIC Center for Financial Research Working Paper No. 2008-04.

19 Carlyle Analysis; S&P LSTA Database, August 2017.

20 Calculated between 2010 and 2015 based on S&P LSTA data, August 2017.

21 Carlyle Analysis; S&P LSTA Database, August 2017.

per year based on average fund leverage,<sup>22</sup> but achieving such returns requires the infrastructure necessary to assemble a well-diversified portfolio. Over the last 20 years, the standard deviation of annual loan returns across industries has been 1.25x as large as the average fund-level liquidity premium (Figure 5). The natural variation in loan performance across industries implies that loan portfolio returns could differ significantly based on credit selection. In some cases, the premium to syndicated loans may be erased by inordinate exposure to an underperforming industry. In others, superior credit selection, tighter loan terms, and better portfolio management could cause the fund-level direct lending premium to significantly exceed the 3.5% average.

## Conclusion

Empirical research has documented the existence of a liquidity risk premium across a variety of asset classes; corporate credit markets are no different. Larger, bank-syndicated loans command a premium at origination, which depresses their held-to-maturity returns relative to less liquid middle-market loans. Not every investor can afford to assume incremental liquidity risk. However, our results suggest that investors with longer-term investment horizons, long-dated liabilities, or secure funding may find that liquid loans account for too large a share of their credit portfolio. In such cases, investors may needlessly sacrifice annual returns to pay for “liquidity insurance” premiums that they do not need.

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<sup>22</sup> This assumes 2x fund leverage, consistent with the 1940 Investment Company Act.

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