

## 2017 Q4 Report on U.S. Direct Lending

Private debt has been a rapidly growing asset class among institutional investors, a trend that Cliffwater expects to continue. This report focuses on fourth quarter 2017 performance for one of the largest segments of private debt, U.S. middle market corporate lending.

Stephen Nesbitt  
CEO / CIO  
snesbitt@cliffwater.com

### The Cliffwater Direct Lending Index

Our analysis relies heavily upon the Cliffwater Direct Lending Index, or CDLI, an asset-weighted index of over 6,000 direct loans totaling \$91 billion in assets.<sup>1</sup> The CDLI is a first-of-its-kind index used by well-known institutional investors to help understand asset class characteristics and to benchmark performance of the asset class.

Gabrielle Zadra  
Senior Managing Director  
gzadra@cliffwater.com

Launched in 2015, the CDLI was reconstructed back to 2004 using quarterly SEC filings required of business development companies, whose primary asset holdings are U.S. middle market corporate loans. Importantly, SEC filing and transparency requirements eliminate common biases of survivorship and self-selection found in other industry universe and index benchmarks. And finally, loan assets in the CDLI are managed for total return largely by independent asset managers, unlike similar assets within insurance companies where statutory and other regulatory requirements can result in non-performance objectives. See [www.CliffwaterDirectLendingIndex.com](http://www.CliffwaterDirectLendingIndex.com) for further information on the CDLI.

Jeff Topor  
Vice President  
jtopor@cliffwater.com

### CDLI Returns<sup>2</sup>

	Fourth Quarter <u>2017</u>	Calendar Year <u>2017</u>	From Sept 2004 <u>Inception*</u>
Income	2.52%	10.16%	11.15%
Net Realized Gains(Losses)	-0.44%	-1.75%	-1.05%
Net Unrealized Gains(Losses)	-0.05%	0.33%	-0.33%
<b>Total CDLI Return**</b>	<b>2.02%</b>	<b>8.62%</b>	<b>9.70%</b>

\* Annualized returns through December 31, 2017.

\*\* Return subcomponents may not add exactly to total return due to compounding effects.

Direct lending assets, measured by the Cliffwater Direct Lending Index, earned a 2.02% total return in the fourth quarter, bringing its trailing four quarter (calendar 2017) total return to 8.62% and inception-to-date total return to 9.70%.

<sup>1</sup> The Cliffwater Direct Lending Index (the "CDLI") seeks to measure the unlevered, gross of fees performance of U.S. middle market corporate loans, as represented by the underlying assets of Business Development Companies ("BDCs"), including both exchange-traded and unlisted BDCs, subject to certain eligibility requirements. The CDLI is asset-weighted by reported fair value.

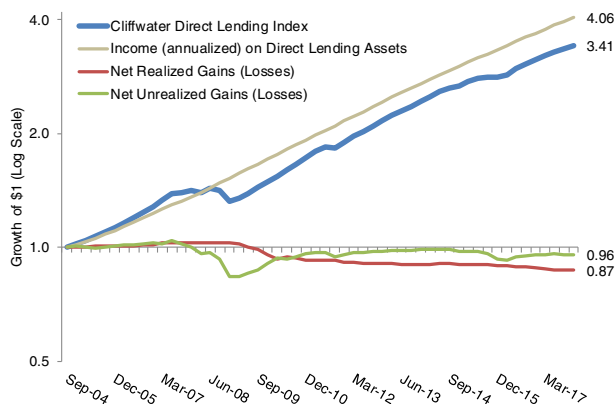
<sup>2</sup> Any information presented prior to the Launch Date (September 30, 2015) of the CDLI is back-tested. The CDLI performance has been prepared for informational purposes only. Past performance is not indicative of future returns. Please see additional CDLI disclosures at the end of this report.

Net realized losses totaled -0.44% during the fourth quarter and -1.75% for calendar 2017. The -0.44% fourth quarter loss was unexpectedly high and attributable to firm specific realized credit losses during the quarter rather than industry specific (oil & gas, retail) losses seen in prior quarters. From inception net realized credit losses equal -1.05% annualized, roughly equal to realized losses for broadly syndicated bank loans for the same period.

Net unrealized gains(losses) were -0.05% for the fourth quarter and +0.33% for the trailing four quarters. Unrealized gains in earlier quarters reflected offsets to realized losses. We expect cumulative unrealized gains or losses to average close to zero over time, because unrealized losses become realized losses upon default or are reversed upon loan repayment.<sup>3</sup>

Exhibit 1 plots the CDLI total return, in blue, together with its income, realized, and unrealized net gain (loss) components. Casual inspection shows clearly that quarterly income return drives total return over time, reduced periodically by net realized and unrealized losses.

Exhibit 1: Components of CDLI Returns  
(Sept 2004 to Dec 2017)



## Income Return

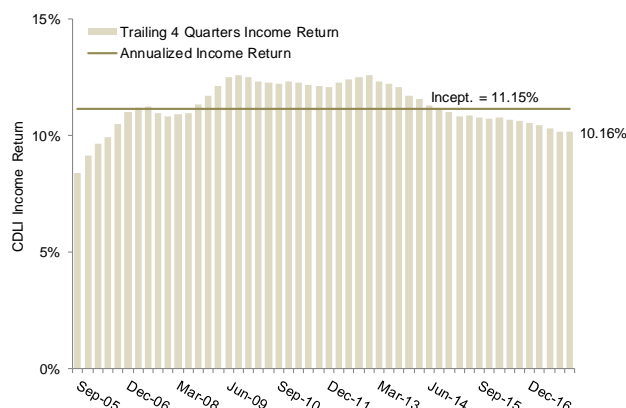
The credit markets are witnessing a significant pickup in the supply of capital, putting downward pressure on credit spreads and interest income, particularly in the public markets. These pressures are also finding their way to the U.S. middle market, which traditionally is less sensitive to macro trends.

Direct lending returns have historically been driven by consistent double-digit income returns, 11.15% (annualized) over the lifetime of the CDLI. But, as

<sup>3</sup> A further explanation of realized and unrealized net gains (losses) is provided later in this report.

Exhibit 2 shows, income as a percentage of assets has gradually declined over the past several years from their post-2008 highs. However, income rose in the most recent quarter-over-quarter and trailing four quarter CDLI income return stayed flat at 10.16%, but below the 11.15% annualized since inception income return.

Exhibit 2: CDLI Income Return (Trailing four quarters)



Recent stability in income returns is partially explained by the rise in short term rates, including Libor, which comprise, with credit spread, a portion of income return. Three-month Libor increased from 1.00% to 1.69% over the calendar year, helping to offset some spread compression in the middle market.

The decline in income return in 2017 also results from a gradual increase in the proportion of senior loans in the CDLI and a decline in second lien and subordinated loans. The percentage of senior loans in the CDLI grew from 56.3% at year-end 2016 to a historical high of 60.8% at year-end 2017, a sizable 4.5% year-over-year increase.

## Yield-to-Maturity

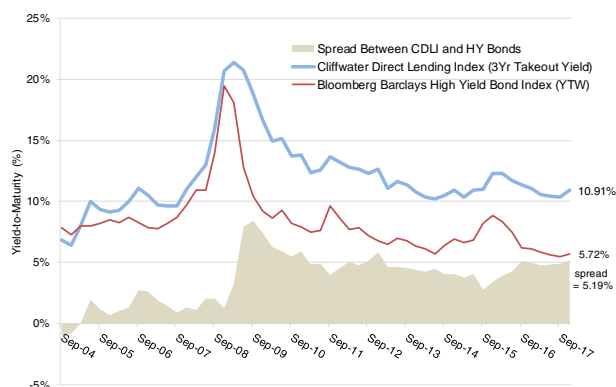
Total return investors prefer to think of yield through the lens of “yield-to-maturity”, reflecting current interest income plus the amortization of unrealized gains or losses. Unrealized gains or losses equal the difference between current value and principal paid at maturity.

While most direct loans have a 5-year stated maturity, refinancings and corporate actions reduce their average life to approximately 3 years. We calculate a “3Yr Takeout Yield” for the CDLI<sup>4</sup>, which we compare to an equivalent yield-to-worst calculation for the high yield bonds in Exhibit 3.

<sup>4</sup> “3Yr Takeout Yield” is calculated by assuming that all loans will be repaid at par in three years, which represents the average life of direct loans.

Also shown in Exhibit 3 is the difference in yield, or spread, between the CDLI and the Bloomberg Barclays High Yield Bond Index. The yield spread is a good indicator of relative value between the CDLI and high yield bonds.

Exhibit 3: Yield-to-Maturity, Sept 2004 to Dec 2017



Both the CDLI's 3yr takeout yield and the Bloomberg Barclays High Yield Bond Index's yield-to-worst rose during the fourth quarter. The CDLI 3yr takeout yield rose 0.53%, from 10.38% to 10.91%, while the Bloomberg Barclays High Yield Bond Index yield-to-worst rose a more modest 0.27%, from 5.45% to 5.72%.

The yield spread between the CDLI and high yield bonds rose from 4.93% last quarter to 5.19% at December 31, 2017, where it remains 0.61% above the 4.58% average spread over the past 10 years.

### Net Gains (Losses)

While the CDLI income return component largely drives long term total return, net gains (losses) can significantly impact returns over shorter time periods and can be very important in differentiating individual manager (lender) performance.<sup>5</sup>

Net gains (losses) are defined as the periodic change in loan valuation. It is the equivalent of price change for traded securities. We divide net gains (losses) into two components, realized and unrealized.

Realized gains (losses) represent the component of valuation change that reflects completed transactions. In the case of a portfolio of loans, such as the CDLI, realized gains (losses) mostly come in

the form of realized losses generated by write-downs of loan principal that result from borrower default. The amount of the write-down depends upon the value of the post-default collateral or new principal amount.

Unrealized gains (losses) represent the component of valuation change that is sourced by a change in market price or, in the case of a portfolio of loans, such as the CDLI, a change in "fair value" not attributable to a transaction.<sup>6</sup>

It is instructive to review the mechanisms by which gains and losses for direct loans typically are generated, as well as the linkage between realized and unrealized gains and losses.

- Loan values are established quarterly based upon a fair value assessment as to what the loan is worth. Fair value takes account of the probability and size of future loan impairments based upon individual loan circumstances.
- Price changes in the broader traded credit markets, including high yield bonds and bank loans, help guide expectations for future loan impairments and fair values.
- Quarterly changes in fair value create unrealized net gains (losses) which cause fair value to differ from cost (par) value. Most likely, fair value will be below cost value to reflect some probability of impairment.<sup>7</sup>
- Unrealized losses from reductions in fair value usually occur in advance of actual loan impairments as the certainty of loss increases as default approaches.
- A subsequent default event triggers a realized loss which is a permanent reduction in the cost (par) value of the loan.
- The realized loss (from a default or restructuring) replaces the existing unrealized loss through an offsetting unrealized gain. The new unrealized gain equals the prior unrealized loan loss if the default event and realized loss was correctly anticipated.
- Over time, investors observe a build-up in net realized losses, as defaults accumulate. These realized losses are comparable to loss rates<sup>8</sup> reported by rating agencies and banks for high yield bonds and bank loans.

<sup>5</sup> Long term net gains (losses) will almost always be negative for loans.

<sup>6</sup> ASC 820 (previously FAS 157) defines "fair value" as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." Assets with a value that cannot be determined by observable measures, which would include the direct loans in the CDLI, are considered Level 3 assets (illiquid) and where

valuation models are used to determine fair value. Best practice is to use an outside valuation firm to independently set or recommend fair value.

<sup>7</sup> An exception might be venture debt, where equity and warrants are offered by borrowers as enhancements.

<sup>8</sup> Default and recovery rates are more frequently reported for high yield bonds and loans. The credit loss rate is equal to the default rate multiplied by one minus the recovery rate.

- Unrealized losses will generally build in the early stages of a credit downturn and reverse in the later stages as realized losses from defaults replace them.

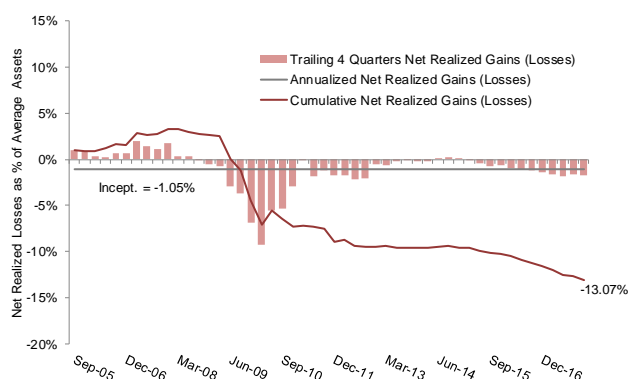
This background should help put the realized losses and unrealized gains reported for the CDLI over the quarter and trailing year in better context.

### Net Realized Gains (Losses)

CDLI net realized losses equaled -0.44% for the fourth quarter, well above the -0.26% historical average quarterly rate. Calendar 2017 net realized losses total -1.75%, also above the -1.05% compound annual rate from CDLI inception. The most recent quarterly credit losses appear to be firm-specific and not tied to broader common factors such as industry or general business cycle.

Exhibit 4 reports CDLI trailing four quarter net realized gains (losses) and since inception cumulative net realized gains (losses).

Exhibit 4: CDLI Net Realized Gains (Losses)  
(Trailing four quarters and since inception)



Realized losses for the CDLI can be divided into four subperiods. The 2004-2007 period saw strong economic growth that produced modest realized gains largely from equity stubs and warrants attached to direct loans, particularly second lien and mezzanine loans which were a greater fraction of the CDLI prior to 2008.

The second period includes the three years from 2008 through 2010 and is defined by the Financial Crisis. During that time, cumulative realized losses for the CDLI equaled -10.16%. We frequently use this three-year, -10.16% cumulative loss as a basis to stress test direct loan portfolios.<sup>9</sup>

Realized losses for the CDLI were relatively non-existent during the three-year 2012 to 2014 period

<sup>9</sup> The largest four quarter (one year) realized loss was -6.91% in 2009.

following the Financial Crisis and its aftermath. But in 2015 the Energy Crisis hit and disruption in the retail sector began in earnest. Realized losses picked up again and are just beginning to taper off. These realized losses totaled -3.85% of average assets (-1.42% annualized) for the last two and three-quarter years ending December 31, 2017.

### Net Unrealized Gains (Losses)

As discussed earlier, unrealized gains or losses will reflect changes in overall market credit spreads or will harbinger expected but uncertain future credit losses in the same way that banks book reserves against future realized losses. CDLI unrealized gains or losses come from quarter to quarter changes in (independent) valuations of existing loans.

The CDLI experienced net unrealized losses equal to -0.05% for the fourth quarter, bringing its 2017 calendar year unrealized gains to +0.33%. As Exhibit 5 shows, these net unrealized gains have been recent occurrences and largely reflect the unwinding of previous net unrealized losses with realized losses.

Exhibit 5: CDLI Net Unrealized Gains (Losses)  
(Trailing four quarters and since inception)

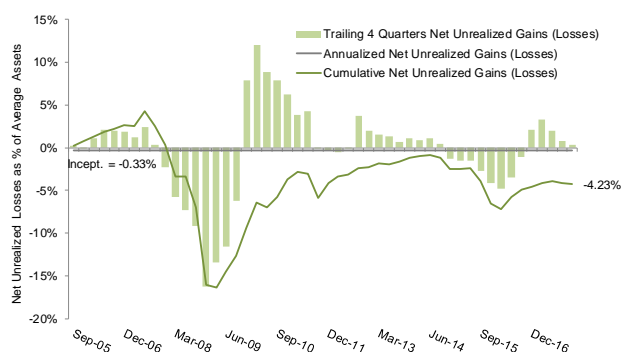


Exhibit 5 reports rolling four quarter and cumulative net unrealized gains (losses) for the CDLI. Cumulative and annualized net unrealized losses equal -4.23% and -0.33%, respectively, since inception.

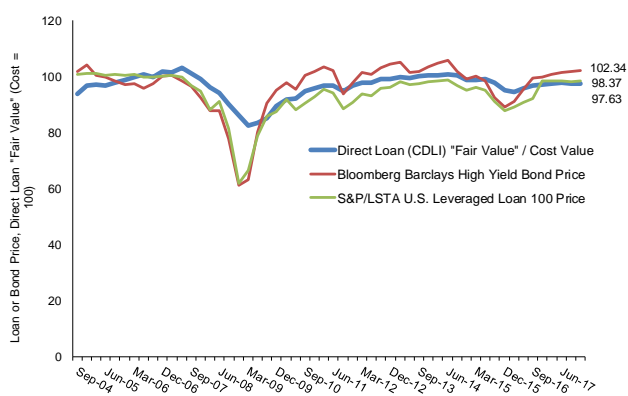
We would expect a long-term cumulative return for unrealized gains (losses) close to zero because, as discussed earlier, unrealized losses will either convert to net realized losses upon a credit default, or they will be reversed when principal is fully repaid. The cumulative net unrealized gain (loss) line in Exhibit 5 is consistent with this expectation.

For example, unrealized losses expanded in 2007-08 and again in 2013-14, anticipating rising realized

losses ahead. When loans are subsequently written down it creates a realized loss but also potentially an unrealized gain if the realized loss was previously anticipated in a prior period by recognizing an unrealized loss.

The potential for future gains or losses is partially telegraphed by the ratio of loan value to amortized cost, the latter representing remaining principal value. This ratio of value to cost is shown in Exhibit 6 for the CDLI together with similar ratios for high yield bonds and broadly syndicated bank loans.

Exhibit 6: Comparison of Market Value versus Cost (Principal) Value for CDLI with High Yield Bond and Bank Loan Prices, Sept 2004 to Dec 2017<sup>10</sup>



The CDLI was valued at 97.63 at December 31, 2017, equal to a 2.37% discount from cost or principal value. This 2.37% discount equals net unrealized losses embedded in the CDLI, which might suggest further realized losses averaging 0.79% per year for the next three years.<sup>11</sup>

Exhibit 6 also shows the similarity in valuation over time between direct loans, high yield bonds, and bank loans. The direct loans in the CDLI are valued quarterly using “fair value” accounting rules while high yield bonds and bank loan prices are market determined. Despite differing sources for price,

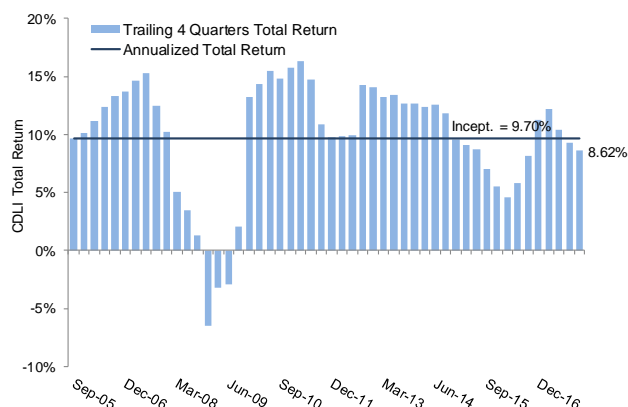
Exhibit 6 shows that direct loan valuation follows closely the high yield bond and bank loan markets, except in 2008, a time of extreme market distress.

At December 31, 2017, the CDLI “fair value” was below market prices for high yield bonds and bank loans, suggesting either that middle market loans values are more conservatively (under) priced or the values are correct and realized losses might continue to be slightly higher for middle market loans over the next three years.

## Total Return

Exhibit 7 reports trailing four quarter CDLI total return, combining the income return (Exhibit 2), net realized gain(loss) (Exhibit 4), and net unrealized gain(loss) components (Exhibit 5). The 8.62% trailing four quarter CDLI total return ending December 31, 2017 falls just short of the 9.70% total return since the CDLI September 2004 inception.

Exhibit 7: CDLI Total Return (Trailing four quarters)



Except for 2008 when the CDLI return was -6.50%, all other calendar year returns were positive, ranging between 6% and 16%. The compound annual total return from inception of the CDLI on September 30, 2004, through December 31, 2017, equals 9.70%.

<sup>10</sup> “Direct Loan (CDLI) “Fair Value” / Cost Value” is calculated based on the SEC filings of the BDCs that comprise the CDLI. Because direct loans are not traded assets and fair values are independent and unbiased estimates of the market values of assets, Cliffwater

believes this metric can be used a reasonable comparison to high yield bond and bank loan prices.

<sup>11</sup> Equal to 2.37% divided by 3 years, the average effective loan life.



## Disclosures

The views expressed herein are the views of Cliffwater LLC ("Cliffwater") only through the date of this report and are subject to change based on market or other conditions. All information has been obtained from sources believed to be reliable but its accuracy is not guaranteed. Cliffwater has not conducted an independent verification of the information. No representation, warranty, or undertaking, express or implied, is given as to the accuracy or completeness of the information or opinions contained in this report. This report is not an advertisement, is being distributed for informational and discussion purposes only, should not be considered investment advice, and should not be construed as an offer or solicitation of an offer for the purchase or sale of any security. The information herein does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. Cliffwater shall not be responsible for investment decisions, damages, or other losses resulting from the use of the information. Past performance is not indicative of future returns, which may vary. Future returns are not guaranteed, and a loss of principal may occur.

Statements that are nonfactual in nature, including opinions, projections and estimates, assume certain economic conditions and industry developments and constitute only current opinions that are subject to change without notice. Further, all information, including opinions and facts expressed herein are current as of the date appearing in this report and is subject to change without notice. Unless otherwise indicated, dates indicated by the name of a month and a year are end of month.

There can be no assurance that any expected rates of return will be achieved. Expected rates of return are subjective determinations by Cliffwater based on a variety of factors, including, among other things, investment strategy, prior performance of similar strategies, and market conditions. Expected rates of return may be based upon assumptions regarding future events and conditions that prove to be inaccurate. Expected rates of return should not be relied upon as an indication of future performance and should not form the primary basis for an investment decision. No representation or assurance is made that the expected rates of return will be achieved.

The Cliffwater Direct Lending Index (the "CDLI") seeks to measure the unlevered, gross of fees performance of U.S. middle market corporate loans, as represented by the underlying assets of Business Development Companies ("BDCs"), including both exchange-traded and unlisted BDCs, subject to certain eligibility requirements. The CDLI is an asset-weighted index that is calculated on a quarterly basis using financial statements and other information contained in the U.S. Securities and Exchange Commission ("SEC") filings of all eligible BDCs. Cliffwater believes that the CDLI is representative of the direct lending asset class. The CDLI is owned exclusively by Cliffwater, and is protected by law including, but not limited to, United States copyright, trade secret, and trademark law, as well as other state, national, and international laws and regulations. Cliffwater provides this information on an "as is" and "as available" basis, without any warranty of any kind, whether express or implied.

Past performance of the CDLI is not an indication of future results. It is not possible to invest directly in the CDLI. The CDLI returns shown are not based on actual advisory client returns and do not reflect the actual trading of investible assets. The performance of the CDLI has not been reviewed by an independent accounting firm and has been prepared for informational purposes only.

Index returns do not reflect payment of any sales charges or fees a person may pay to purchase the securities underlying the CDLI or a product that is intended to track the performance of the CDLI. The imposition of these fees and charges would cause the actual and back-tested performance of these securities or products to be lower than the CDLI performance shown.

Any information presented prior to the Launch Date (September 30, 2015) of the CDLI is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-tested calculations are based on the same methodology that was in effect when the CDLI was officially launched. Please refer to the methodology paper for the CDLI (available at [www.CliffwaterDirectLendingIndex.com](http://www.CliffwaterDirectLendingIndex.com)) for more details about the CDLI, including the Base Date/Value (September 30, 2004 at 1,000) and the Launch Date of the CDLI and the manner in which the CDLI is reconstituted and the eligibility criteria for the CDLI.

Prospective application of the methodology used to construct the CDLI may not result in performance commensurate with any back-tested returns shown. The back-test period does not necessarily correspond to the entire available history of the CDLI. Another limitation of back-tested hypothetical information is that generally the back-tested calculation is prepared with the benefit of hindsight. Back-tested data reflect the application of the CDLI methodology and selection of the CDLI constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the financial markets in general which cannot be, and have not been, accounted for in the preparation of the CDLI information set forth, all of which can affect actual performance.

When Cliffwater was unable to determine the nature of a BDC's investments because of limited information included in historical SEC filings, Cliffwater did not apply the portfolio composition criteria (a substantial majority (approximately 75%) of reported total assets are represented by direct loans made to corporate borrowers, as categorized by each BDC and subject to Cliffwater's discretion) to the BDC. In addition, the criteria regarding the timing of SEC filings was not applied for periods prior to the Launch Date. All other eligibility criteria were applied to determine whether to include the BDC in the historical CDLI composition and return. Index returns generally are published 75 days after calendar quarter-end.

The CDLI may include inaccuracies or typographical errors. Due to various factors, including the inherent possibility of human or mechanical error, the accuracy, completeness, timeliness and correct sequencing of such information and the results obtained from its use are not guaranteed by Cliffwater.

The CDLI is derived from sources that are considered reliable, but Cliffwater does not guarantee the veracity, currency, completeness or accuracy of the CDLI or other information furnished in connection with the CDLI. No representation, warranty or condition, express or implied, statutory or otherwise, as to condition, satisfactory quality, performance, or fitness for purpose are given or duty or liability assumed by Cliffwater in respect of the CDLI or any data included therein, omissions therefrom or the use of the CDLI in connection with any product, and all those representations, warranties and conditions are excluded save to the extent such exclusion is prohibited by applicable law.

References to market or composite indices (such as the S&P 500), benchmarks or other measures of relative market performance over a specified period of time (each, an "index") are provided for information only. Reference to an index does not imply that a portfolio will achieve returns, volatility or other results similar to the index. The composition of an index may not reflect the manner in which a portfolio is constructed in relation to expected or achieved returns, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility or tracking error targets, all of which are subject to change over time.

The Bloomberg Barclays U.S. High Yield Index (Bloomberg Barclays High Yield Bond) covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

The S&P/LSTA U.S. Leveraged Loan 100 Index is a market value-weighted index designed to measure the performance of the U.S. leveraged loan market. The index consists of 100 loan facilities drawn from a larger benchmark – the S&P/LSTA Leveraged Loan Index.

Cliffwater is a service mark of Cliffwater LLC.