

**LSDI**

**LINCOLN SENIOR  
DEBT INDEX**

# INTRODUCING: The Lincoln Senior Debt Index

Lincoln International is pleased to release the quarterly Lincoln Senior Debt Index (LSDI). The LSDI represents years of research and analysis of data and was developed by professionals from Lincoln's Valuations & Opinions Group in collaboration with Professor Pietro Veronesi of The University of Chicago Booth School of Business.

For the quarter ending June 30, 2023, trends in the direct lending market were positive. The Lincoln Senior Debt Index yield reached another record high at 11.7%, a seven basis point increase relative to the previous high of 11.6% in the first quarter of 2023. Fair value also continued to climb, finishing the second quarter of 2023 at 96.9. Finally, the default rate declined approximately 30 basis points since Q1 2023, breaking a six quarter trend of observed increased rates of default in the direct lending market. In other words, lenders continued to benefit from high interest rates resulting in record yields and stable prices while also getting a better handle on the credit stresses in portfolio companies that were resulting in continued defaults. This somewhat surprising decrease in defaults may be explained by Lincoln's observation of over 450 amendments executed in 2023, or approximately 20% off all companies that Lincoln tracks. We believe this demonstrates that borrowers and lenders anticipated defaults, which primarily resulted not from declining earnings but from increases in interest rates, and proactively addressed the issue by amending the loan documents. Lincoln also noted that, of these amendments, 31% had sponsors injecting equity while 38% had increases in interest spreads (33% of which included some payment-in-kind interest).

In the second quarter of 2023, the direct lending and broadly syndicated loan (BSL) market continued to experience a contraction in their yield differential with only a 2.1% yield difference relative to the historical average of 3.9%. LSDI yields have risen from 10.2% to 11.7% (1.5%) from June 30, 2022 to June 30, 2023 whereas BSL yields have risen from 7.0% to 9.6% during this same period (2.7%).

## **The LSDI provides insight into the direct lending market as it is a fair value index consisting of four components:**

1. Total return (income return plus capital gain return);
2. Price (i.e., fair value);
3. Spread; and,
4. Yield to maturity.

## **Each of the four components are then categorized into three types of senior loans:**

1. All senior loans – consisting of first lien, Unitranche, and second lien loans;
2. Senior loans consisting of first lien and
3. Second lien loans.

In addition, we provide additional descriptive statistics including: (a) loan-to-value; (b) the impact of interest rate and credit changes on total return; (c) the results of stress testing spread changes in the current and subsequent quarters and (d) default rates.

The U.S. non-investment grade corporate loan market has two segments: the BSL market, which attracts investors investing in broader syndicated deals and the direct lending market for investors investing in club deals. While correlated, there are subtle but significant differences between the two markets. Both markets primarily provide floating rate loans; however, divergences exist in terms of market liquidity, company size and credit facility size. Given the greater liquidity in the BSL market, pricing and terms are a function of the technical market and competitive factors, whereas the more illiquid direct lending market has a stronger orientation to assessing company fundamentals.

In contrast to the Morningstar LSTA U.S. Leveraged Loan 100 Index which is comprised of companies borrowing in the BSL market, the constituents in the Lincoln Senior Debt Index are virtually all companies borrowing in the direct lending market.

The direct lending market is a significant source of capital to private equity backed middle-market companies. The Lincoln Senior Debt Index benefits market participants by providing information to facilitate a greater understanding of the attributes of this important source of capital to the private sector.

# KEY OBSERVATIONS: Lincoln Senior Debt Index

Q2

2023

## How We Obtain the Information

On a quarterly basis, Lincoln values over 4,750 private companies primarily owned by over 150 alternative investment funds and lenders to funds. Most of these companies are levered via borrowings from the direct lending market. A significant percentage of the Lincoln Senior Debt Index constituents are based upon valuations of loans provided for non-public business development companies and other private investment vehicles and, therefore, not disclosed in public filings.

For many of the private companies valued quarterly, Lincoln advises on the fair value of at least one senior debt security in the capital structure. All valuations conform with GAAP and fair value principles and have been reviewed by fund management, fund boards, limited partners and auditors.

Additional information can be found in our methodology discussion and on our website.

96.9

Average Fair Value  
of Loans in the Index  
as of Q2 2023

## LINCOLN SENIOR DEBT INDEX - KEY OBSERVATIONS - ALL LOANS - SECOND QUARTER 2023

- The LSDI returned 3.2% for the quarter ending June 30, 2023, and represented the second highest quarterly return since the inception of the publication. This outpaced the return from the first quarter of the year by 0.6%.
  - Returns consist of two components: (a) interest income; and (b) capital gains or losses. Both income returns and returns from capital gains were positive due to increasing interest rates and yield and stable prices.
- Yields between the direct lending market and BSL market continued to compress in the second quarter of the year, with a 2.1% gap between the yields derived from the LSDI and Morningstar's LSTA. This represents the smallest yield gap between the two publications since the third quarter of 2020 and decreased the average yield premium to 3.9%.
- Prices increased in both the BSL market and the LSDI, with second quarter prices stepping up \$1.00 to 94.9 and \$0.61 to 96.9 within each index, respectively.



# RESULTS: Total Return

Q2

2023

## Comparison of Total Return – Lincoln Senior Debt Index (All Loans) to Morningstar LSTA U.S. Leveraged Loan 100 Index



### Observations:

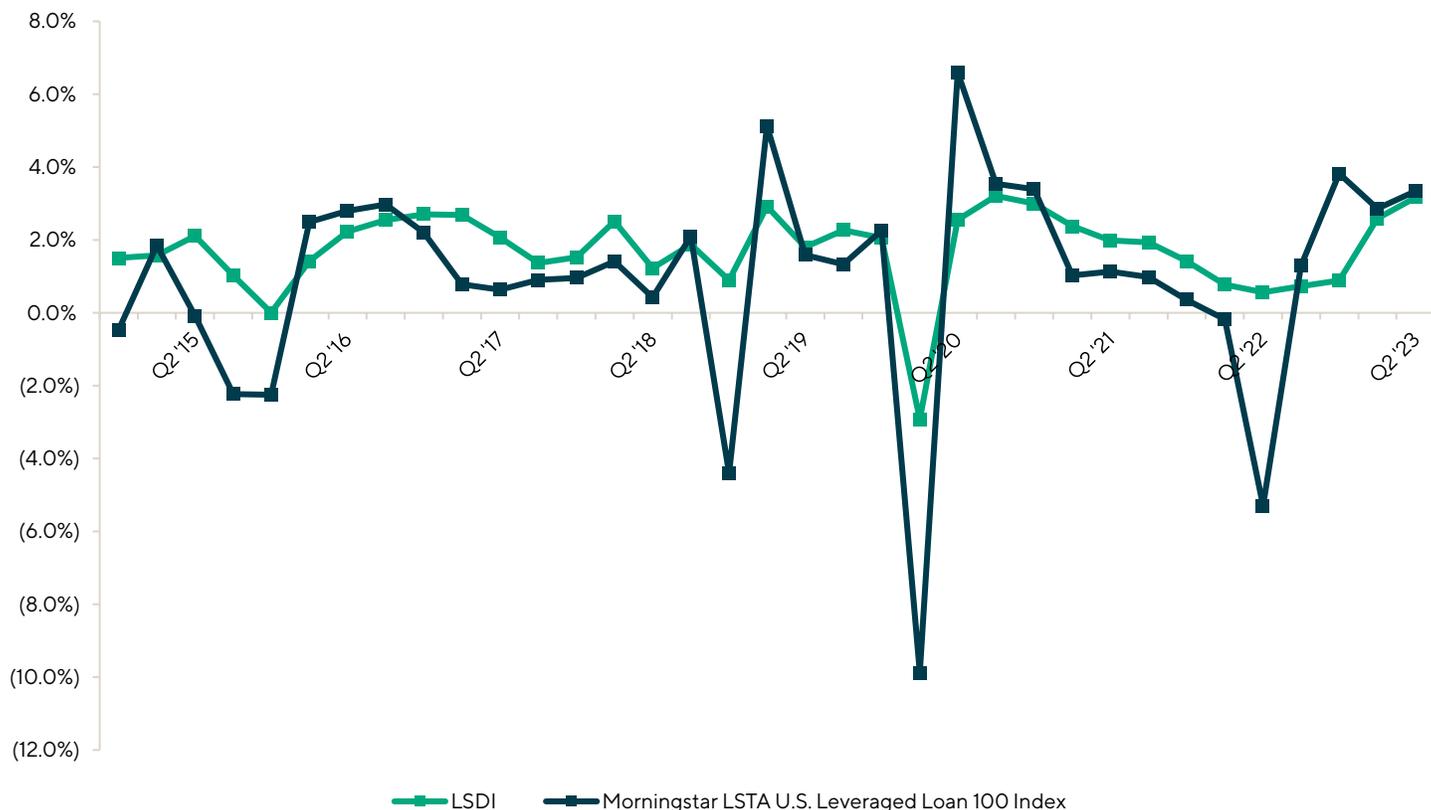
- Investment return is generated from two sources: (1) capital gains and losses; and (2) income return. In the leverage lending asset class, income returns dominate capital gains or losses, resulting in a positive quarterly total return.
- Since the inception of the Lincoln Senior Debt Index, both the Morningstar LSTA U.S. Leverage Loan 100 Index, which measures the performance of the BSL market, and the direct lending market have experienced an increase in total return. BSL returns for the quarter ending June 30, 2023, were 3.3% versus the LSDI of 3.2%.
- Given the relatively high level of interest rates we expect returns to remain high by historical standards.

# RESULTS: Total Return (cont.)

Q2

2023

## Correlation and Comparison of Quarterly Returns – Lincoln Senior Debt Index (All Loans) to Broadly Syndicated Loan Market



### Observations:

- The correlation between the LSDI and Morningstar LSTA 100 Investment is high at approximately 81.5%. However, there are two distinct differences:
  - the LSDI is significantly less volatile; and
  - the LSDI generates higher returns on average.
- The direct lending market experiences negative returns much less frequently than the BSL market, given its higher yields.
  - Since the inception of the LSDI on September 30, 2014 through June 30, 2023, only the quarter ending March 31, 2020 reported a negative quarterly return whereas the BSL market has experienced eight quarters of negative returns.

# RESULTS: Yields

Q2

2023

## Comparison of Yields - Lincoln Senior Debt Index (All Loans) to Broadly Syndicated Loan Market



### Observations:

- Due to rising interest rates, the yield of the Lincoln Senior Debt Index was 11.7% for the quarter ending June 30, 2023, which was marginally higher than the prior quarter.
- The LSDI yield continued to climb, with the 11.7% yield surpassing the prior quarter as the highest yield since inception of the index. In contrast, the yield for the BSL market was 9.6%.

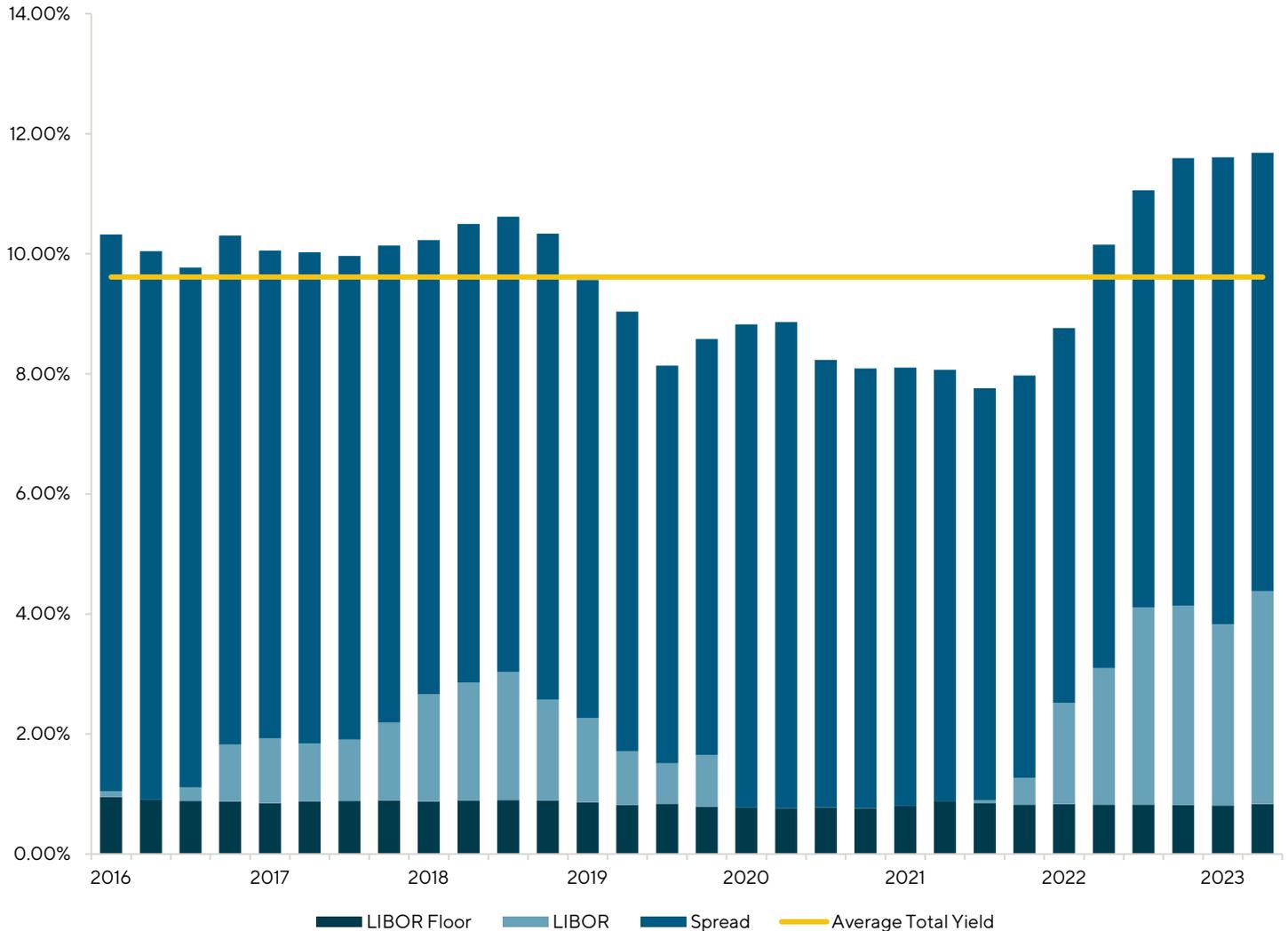
## RESULTS:

# Decomposing Yields in the Direct Lending Market – LIBOR Floors and Spreads

Q2

2023

## Decomposing Yield – LIBOR, LIBOR Floors and Spreads – All Loans



Note: LIBOR Floor reflects fair value weighted average for each period while LIBOR above reflects the extent to which LIBOR is above the floor

### Observations:

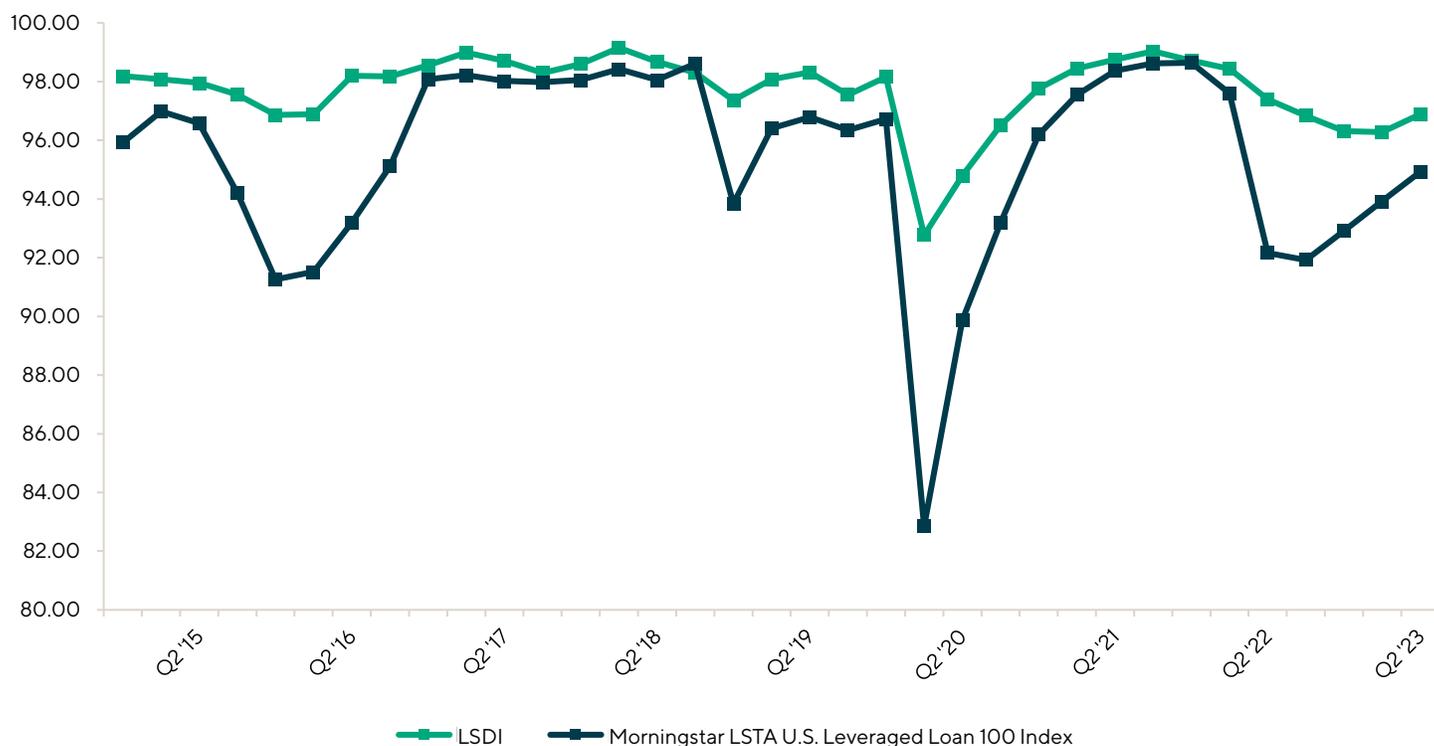
- The average yield of the Lincoln Senior Debt Index since inception has been approximately 9.6%.
- From 2016 until the quarter ending June 30, 2022, yields in the direct lending market had remained in a band between 8.0% and 10.0%. However, as reference rates began to increase in 2022 Q2 and 2022 Q3, yields increased as well and have exceeded 11.0% since 2022 Q3.

# RESULTS: Fair Value – Price – Trends

Q2

2023

## Fair Value – Lincoln Senior Debt Index (All Loans) Compared to the S&P / LSTA U.S. Leveraged Loan Index



Note: Price based on fair value of the Lincoln Senior Debt Index and average bid of the Morningstar LSTA U.S. Leveraged Loan Index

### Observations:

- The Lincoln Senior Debt Index was 96.9 as of June 30, 2023, up incrementally from the prior quarter’s price of 96.3.
- The fair value of 96.9, though up from the peak COVID-19 impacted quarters of 2020, is still below the historical average of 97.7. Since 2014 the lowest price of the LSDI was 92.7 in Q1 of 2020 while the highest fair value was 99.2 in Q1 of 2018.
- There are several reasons for the phenomenon whereby loans in the direct lending market do not experience the same price volatility as observed in the BSL market:
  - Loans in the direct lending market trade much less frequently than loans in the BSL market.
  - Investors in the BSL market have a greater ability to liquidate their investment should they decide to exit, as trading is a viable option. In contrast, investments in direct lending funds are structured whereby investor redemptions are limited. Therefore, capital flows are not as volatile as the BSL market.

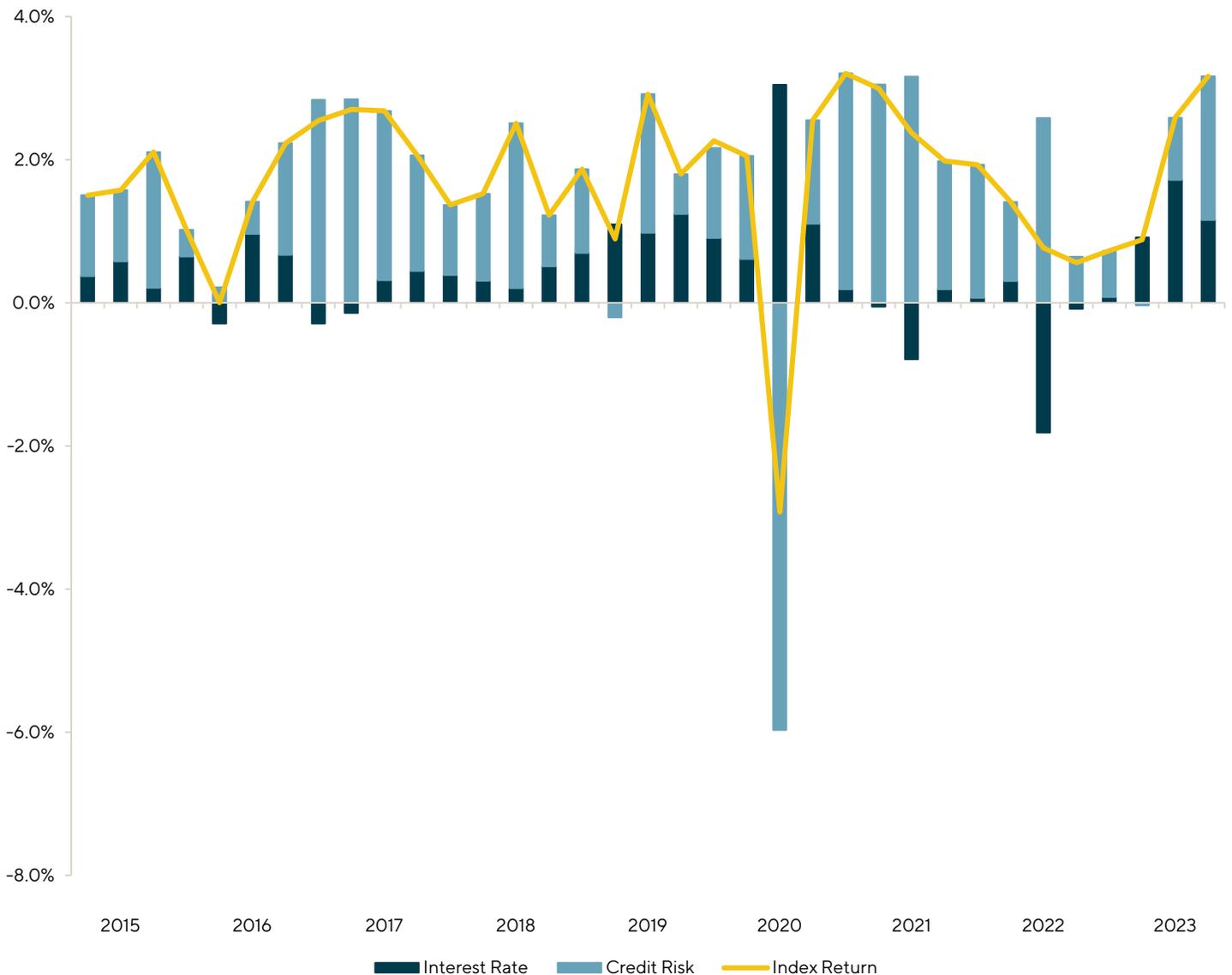
## RESULTS:

# Bifurcation of the Impact on Total Return Due to Credit Risk and Interest Rate Risk

Q2

2023

### Decomposition of Index Returns: Interest Rate versus Credit Risk



#### Observations:

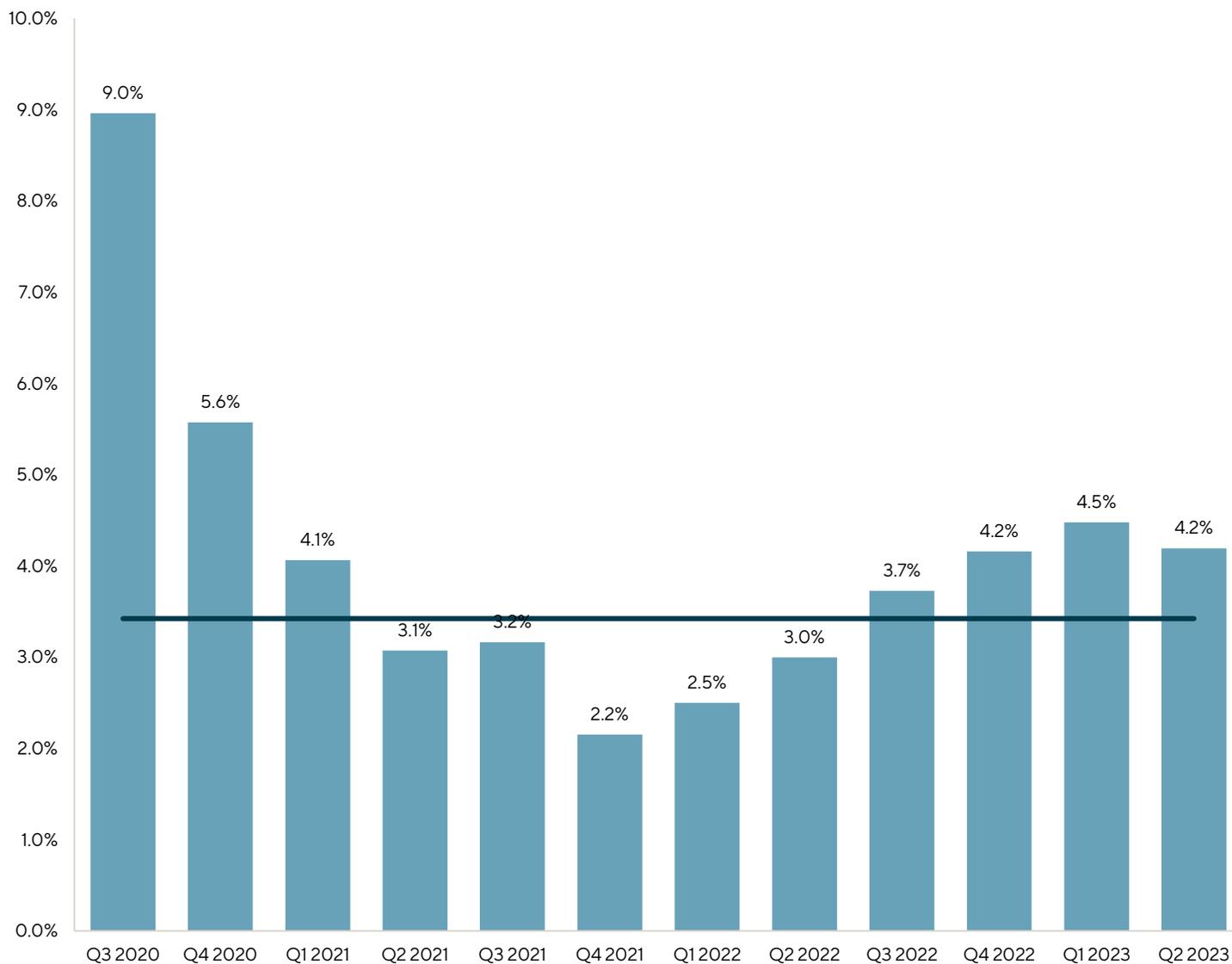
- The LSDI returned 3.2% for the first quarter of 2023 versus 2.6% for the first quarter of 2023.
- Decomposing the quarterly return of 3.2%, the majority of the return is attributable to changes in credit risk while interest rate changes only accounted for 1.2% of the return in the current quarter.

# RESULTS: Default Rates

Q2

2023

## Direct Lending Default Experience



Note: Defaults defined as loan covenant defaults (not monetary defaults)

### Observations:

Default rates decreased as of June 30, 2023 to 4.2%, which was the first decline in the default rate since Q4 2021.

## Source of Data and Sample Size

On a quarterly basis, Lincoln determines the enterprise fair value of over 4,750 portfolio companies for approximately 150 private equity sponsors and lenders. These portfolio companies report quarterly financial results to the sponsor (i.e., private equity group) or lender. Lincoln obtains company and loan level information to create the Lincoln Senior Debt Index.

All information is prepared in accordance with the fair value measurement principles of generally accepted accounting principles. Finally, each valuation is then vetted by auditors, company management, boards of directors and regulators.

Additional information about the methodology of the LSDI can be found at: [www.lincolnternational.com/perspectives/an-overview-of-the-lincoln-senior-debt-index](http://www.lincolnternational.com/perspectives/an-overview-of-the-lincoln-senior-debt-index).

## Academic Advisor

Professor Pietro Veronesi is the Chicago Board of Trade Professor of Finance at the University of Chicago, Booth School of Business. He is also a research associate of the National Bureau of Economic Research and a research fellow of the Center for Economic and Policy Research.

Professor Veronesi's research has appeared in numerous publications, including the *Journal of Political Economy*, *American Economic Review*, *Quarterly Journal of Economics*, *Journal of Finance*, *Journal of Financial Economics* and *Review of Financial Studies*. He is the recipient of several awards, including the 2015 AQR Insight award, the 2012 and 2003 Smith Breeden prizes from the *Journal of Finance*, the 2008 WFA award, the 2006 Barclays Global Investors Prize from the EFA, the 2006 Fama / DFA prizes from the *Journal of Financial Economics* and the 1999 Barclays Global Investors / Michael Brennan First Prize from the *Review of Financial Studies*. Professor Veronesi teaches both masters- and Ph.D.-level courses. He is the recipient of the 2009 McKinsey Award for Excellence in Teaching.

His undergraduate work was in economics at Bocconi University where he received a laurea magna cum laude with honor in 1992. He earned a master's degree with distinction in 1993 from the London School of Economics. He joined the Chicago Booth faculty upon obtaining his Ph.D. in Economics from Harvard University in 1997.

## SUMMARY:

### Q2 2023 Lincoln Senior Debt Index

- From 2014 through June 30, 2023, a portfolio of direct lending loans has yielded higher returns and lower volatility relative to broadly syndicated loans.
- The Lincoln Senior Debt Index provides market participants many unique valuation insights into the fair value of direct lending loans and represents a significant enhancement to the information available within an opaque market.

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Lincoln's Valuations & Opinions Group is a leading independent valuation advisor to managers of illiquid assets and lenders to alternative assets funds. The group specializes in the valuation of illiquid debt, equity and derivative securities. Additionally, they provide independent fairness, solvency and other transaction opinions for a variety of corporate transactions for both public and private companies.

The firm's Valuations & Opinions Group is widely recognized for leveraging Lincoln's "real world" transaction experience from its mergers and acquisitions and debt advisory practices to assist its clients in the determination of fair value. Lincoln's highly skilled professionals have extensive experience in determining and supporting fair value measurements for traditional and complex securities.



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