



**LSDI**

**LINCOLN SENIOR  
DEBT INDEX**

# INTRODUCING: The Lincoln Senior Debt Index

Lincoln International is pleased to release the Q3 2021 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 (VOG) in collaboration with Professor Pietro Veronesi, the Chicago Board of Trade Professor of Finance at The University of Chicago, Booth School of Business. "Competition in the direct lending market has continued to increase as the supply of capital has increased, exemplified by the Lincoln Senior Debt Index's yield of 7.8%, the lowest in the index's history. Despite this yield compression investors still see a strong return in the direct lending market relative to the broadly syndicated loan market, with the yield differential increasing to 4.8% in the third quarter of 2021 compared to 4.4% in the preceding quarter." said Professor Veronesi.

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

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

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

- All senior loans – consisting of first lien, unitranche and second lien loans;
- Senior loans – consisting of first lien and unitranche loans; and,
- Second lien loans.

Lincoln additionally provides descriptive statistics, including: (a) loan-to-value; (b) how the quarterly change in total return is impacted by changes in interest rates and changes in credit; (c) stress testing resulting in how value changes in the current and subsequent quarters as spreads change; and, (d) default rates.

The U.S. non-investment grade corporate loan market has two segments: the broadly syndicated loan ("BSL") market, which attracts larger companies (i.e., as an approximation companies with EBITDA greater than \$100 million) and direct lending market (i.e., companies less than \$100 million of EBITDA). 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 and the size of the companies and credit facilities. Given the greater liquidity in the BSL market, pricing and terms are a function of technical market and competitive factors whereas the direct lending market, which is more illiquid, has a stronger orientation to assessing company fundamentals.

In contrast to the S&P/LSTA U.S. Leveraged Loan 100 Index, whose constituents are companies borrowing in the BSL market, the LSDI constituents 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 facilitating a greater understanding of the attributes of this important source of capital to the private sector.

## How We Obtain the Information

On a quarterly basis, Lincoln values over ~2,500 private companies primarily owned by over 100 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 LSDI constituents are based upon valuations of loans provided for non-public business development companies (BDCs) 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 section at the end of this report and on our web site.

# KEY OBSERVATIONS: Lincoln Senior Debt Index

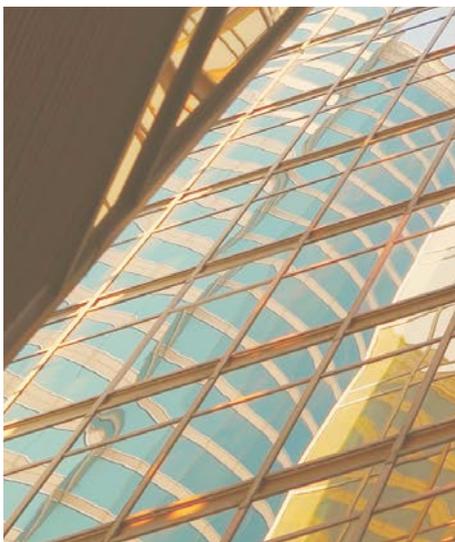
Q3

2021



99.0

Average Fair Value of  
Loans in the Index as  
of Q3 2021



## Returns from credit risk continue to dominate returns from changes in interest rates

The two primary risks in this asset class are interest rate risk and credit risk. For the quarter ending September 30, 2021, the Lincoln Senior Debt Index return was 1.9%, of which credit risk accounted for 1.8%, while the return due to changes in interest rates or LIBOR was 0.1%.

- The change in quarterly return due to credit improvements of 1.8% is modestly higher than its historical average of 1.3%, but decreased from the prior year of record setting levels, in the 3.0% range, demonstrating that companies in the third quarter of 2021 have successfully managed through the economic challenges created by COVID-19 and are beginning to stabilize after the recovery seen over the past three quarters.
- The strong corporate earnings performance was consistent with our findings from our Lincoln Private Market Index (LPMI), our enterprise value fair value index; for more information on the LPMI visit [An Overview of the Lincoln Private Market Index](#) on the Lincoln web site.

## Performance

The LSDI Index increased from 161.4 as of June 30, 2021 to 164.5 as of September 30, 2021. The U.S. leveraged finance market performed positively in the third quarter of 2021, continuing the trend from the first half of 2021 and consistent with most other debt and equity asset classes.

## Fair value price range

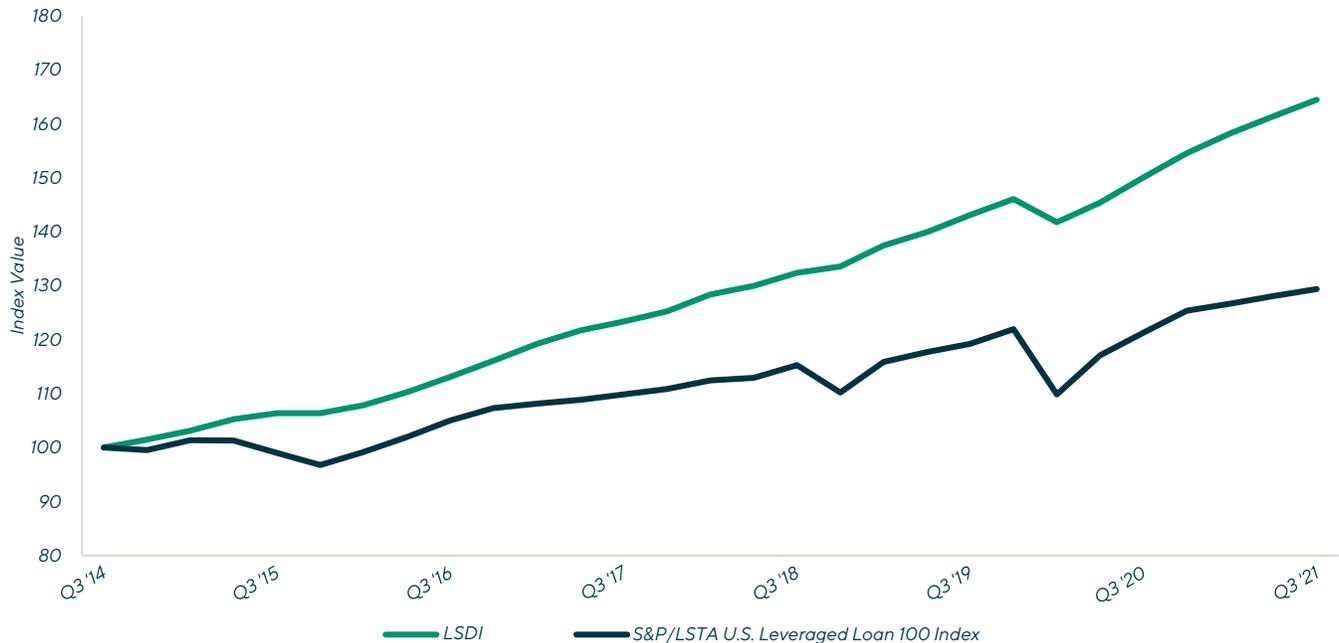
The LSDI closed out the quarter marginally above 99.0, breaking the 99.0 level for the second time in the history of the index, nearing the record peak of the LSDI of 99.2, set in the first quarter of 2018.

# RESULTS: Total Returns

Q3

2021

## Comparison of Total Return – LSDI (All Loans) to S&P/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 return dominates capital gains or losses, resulting in a positive quarterly total return.

Since the inception of the Lincoln Senior Debt Index, both the S&P/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. While income return was offset by capital losses due to COVID-19 in the first quarter of 2020, total return began to recover by the second quarter of 2020 and has continued to trend upward thereafter.

Capital gains have provided upside opportunity over the past year as the index's constituents recovered from COVID-19, contributing to the index's increase through capital appreciation. As many companies have now recovered, the index's return from capital appreciation has approached a limit and is expected to be driven largely by income return in the near-term.

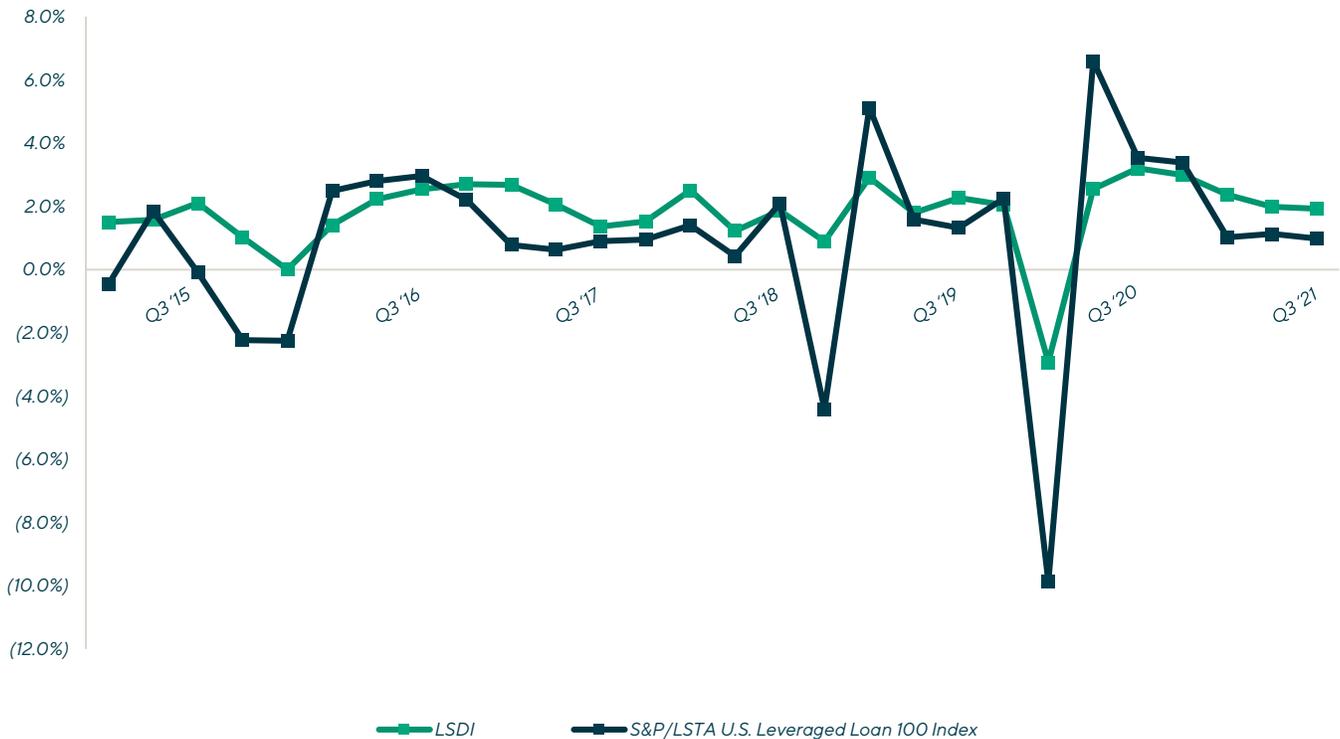
Given the higher cost of debt for middle market direct lending loans versus loans in the BSL market, yields are significantly greater in the direct lending market, accounting for the LSDI generating a total return higher than the BSL market.

# RESULTS: Total Returns (cont.)

Q3

2021

## Correlation and Comparison of Quarterly Returns – LSDI (All Loans) to Broadly Syndicated Loan Market



### Observations:

While the correlation between the Lincoln Senior Debt Index and S&P LSTA 100 Investment is high at 86%:

- The Lincoln Senior Debt Index is significantly less volatile; while,
- Generating higher returns.

Investments in the direct lending market experience higher returns and lower volatility than the BSL market.

The direct lending market experiences negative returns much less frequently than the BSL market, given its higher yields.

- Since the inception of the Lincoln Senior Debt Index in Q3 2014 to Q3 2021, only Q1 2020 reported a negative quarterly return.

Comparison of Yields - LSDI (All Loans) to Broadly Syndicated Loan Market



**Observations:**

The average yield of the Lincoln Senior Debt Index has been approximately 9.4%.

On average, loans in the direct lending market yield approximately 4.8% more than broadly syndicated loans, an increasing difference compared to 4.4% in the second quarter of 2021.

- The tightest difference was 2.0% in the second quarter of 2020 and the widest being 5.5% in the second quarter of 2017.

Interestingly, as of December 31, 2019, direct lending yields were 8.6% versus BSL yields of 6.0%. As of September 30, 2021, direct lending yields declined only 80 bps to 7.8%, whereas BSL yields declined 300 bps to 3.0%. We attribute the significant decline in BSL yields to high capital inflows being experienced in the BSL market combined with purchases by CLOs, which are the largest buyers of broadly syndicated loans. In contrast, while there is a lot of dry powder in the direct lending middle market, it is less liquid and, therefore less accessible than the BSL market, reducing the impact of these market forces.

## RESULTS:

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

Q3

2021

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



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

### Observations:

The average yield of the Lincoln Senior Debt Index has been approximately 9.4% since its inception.

It is common that direct lending loans contain LIBOR floors of 1.0%. In contrast, LIBOR floors in the BSL market are not as prevalent. Consequently, as LIBOR declines below 1.0%, the benefit to yield resulting from the LIBOR floor will partially mitigate a decline in LIBOR.

- While the average yield in the direct lending market has remained in a band between 8.0% and 10.0%, the components of the yield vary as LIBOR and spreads change.
- As the LIBOR curve steepened in the third quarter of 2021, the yield of the index did not receive benefit from the implied LIBOR floor for the first time since the fourth quarter of 2019.

Over time, the direct lending market has become increasingly competitive as the supply of capital has increased along with the number of market participants. The increased competition in the market was evidenced in the third quarter of 2021 by the index's 7.8% yield, the lowest in the history of the index. This is driven by compression in the spread, which was at 6.9% in the third quarter of 2021, its second lowest point since the inception of the index, and lowest since the third quarter of 2019, just prior to the onset of COVID-19, when it was 6.6%.

Ignoring the impact of LIBOR floors, the change in spreads has a greater impact on the fair value of a loan versus changes in LIBOR. As direct lending loans are based on a floating rate, LIBOR, from a valuation point of view, the loan's discounted cash flow model contains LIBOR in the numerator and denominator, thus canceling each other out. However, the numerator is LIBOR plus the contractual spread, whereas the denominator is LIBOR plus the market required spread – the fair value spread. Therefore, it is the change in the denominator or credit spread that positively or negatively impacts fair value.

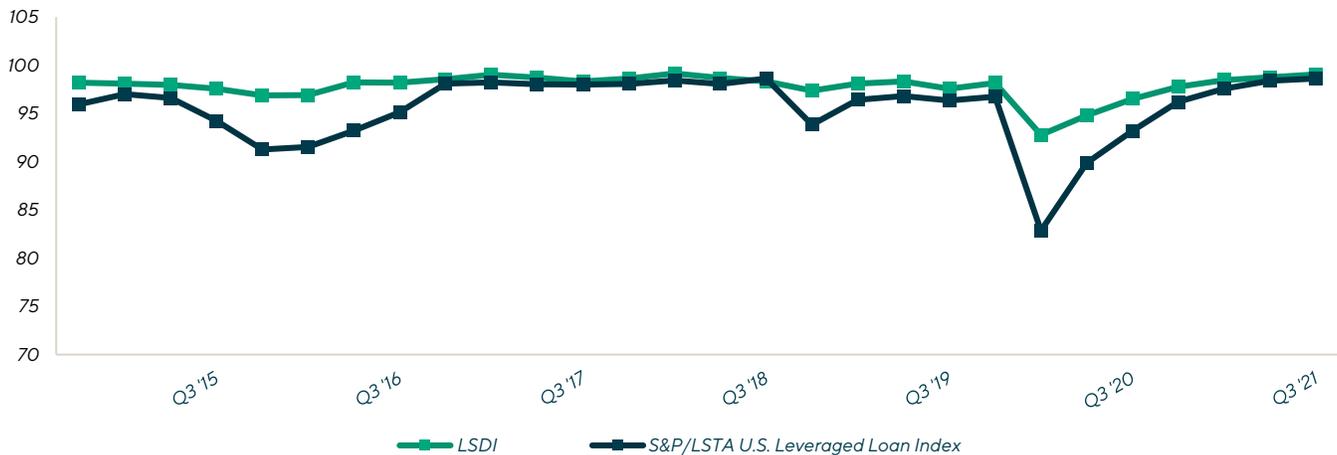
# RESULTS:

## Fair Value – Price – Trends

Q3

2021

### Fair Value - LSDI (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 S&P/LSTA U.S. Leveraged Loan Index

#### Observations:

The Lincoln Senior Debt Index closed out the quarter at 99.0. This is the highest price since the peak of the LSDI in the second quarter of 2018.

Over time, prices, on a fair value basis, have ranged between 97.0 to 99.2 (excluding the first two quarters of 2020).

There are several reasons for this phenomenon whereby loans in the direct lending market do not experience the same price volatility as observed in the BSL market:

- It is common for loans in the direct lending market to contain LIBOR floors as compared to loans in the BSL market. Therefore, in low interest rate environments, the impact of LIBOR floors becomes a significant component of total return. In effect, whenever LIBOR is below 1.0% (the typical floor for a loan in the direct lending market), the loan becomes a fixed rate investment. In contrast, the prevalence of this subsidy in low interest rate environments is much lower in the BSL market.
- Loans in the direct lending market trade much less frequently than loans in the BSL market, and,
- 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

Q3

2021

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



### Observations:

The Lincoln Senior Debt Index quarterly return in Q3 2021 was 1.9%, of which credit risk accounted for 1.8%, while the return due to changes in LIBOR was 0.1%. The change in quarterly return due to credit improvements of 1.8% remained stable from the prior period, but was still above historical levels.

The increase in the LSDI due to improvements in credit is consistent with the LPMI, which captures enterprise fair value performance. Middle market growth slowed in the third quarter of 2021, returning to normalized pre-COVID-19-pandemic levels of growth as the initial tailwinds of the vaccine rollout and aggressive monetary and fiscal policy subsided.

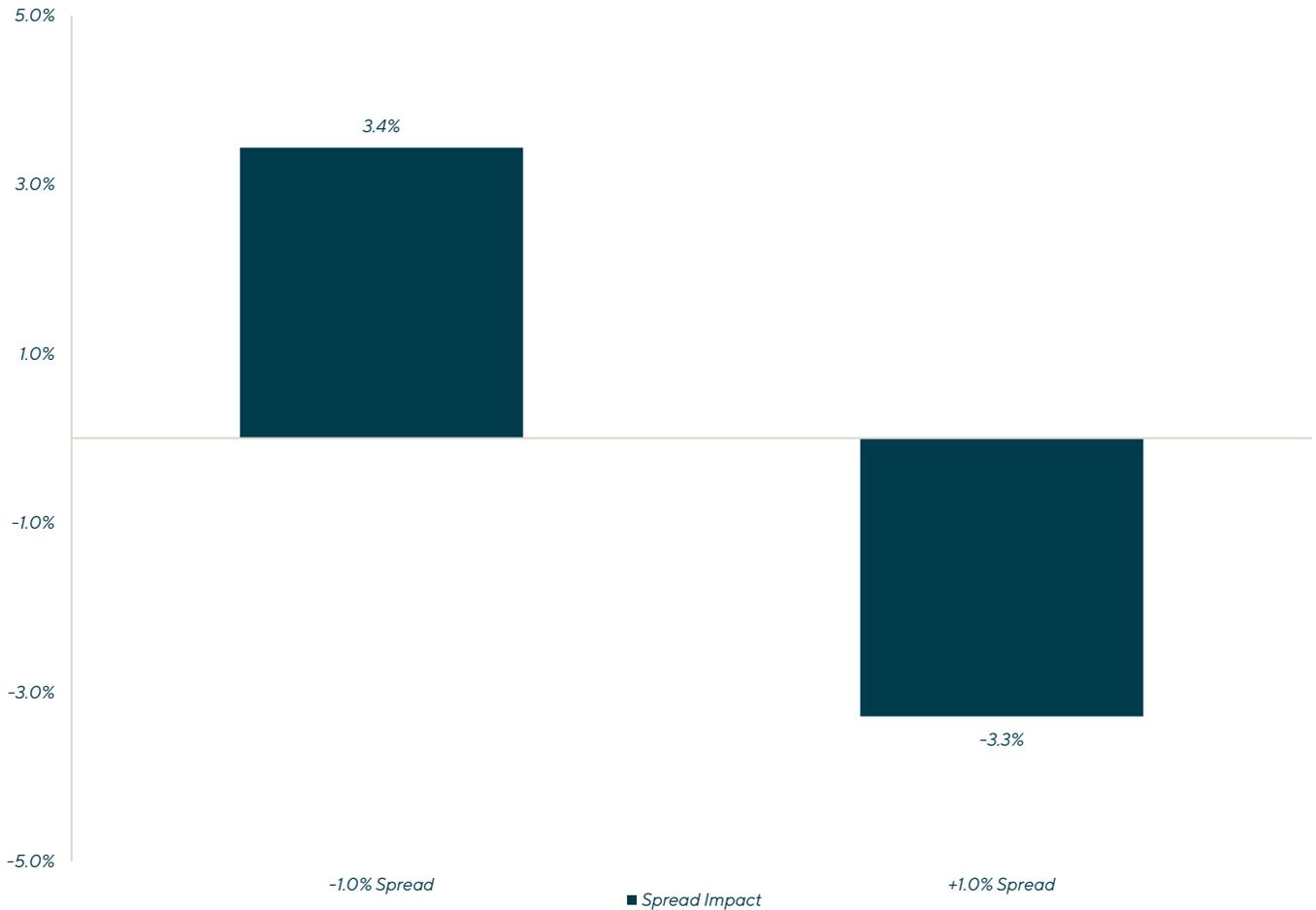
Reflecting the economy-wide recovery returns across industries returned to historical levels as growth slowed.

# RESULTS: Spread Sensitivity

Q3

2021

## Q3 2021 Lincoln Senior Debt Index Spread Sensitivity



### Observations:

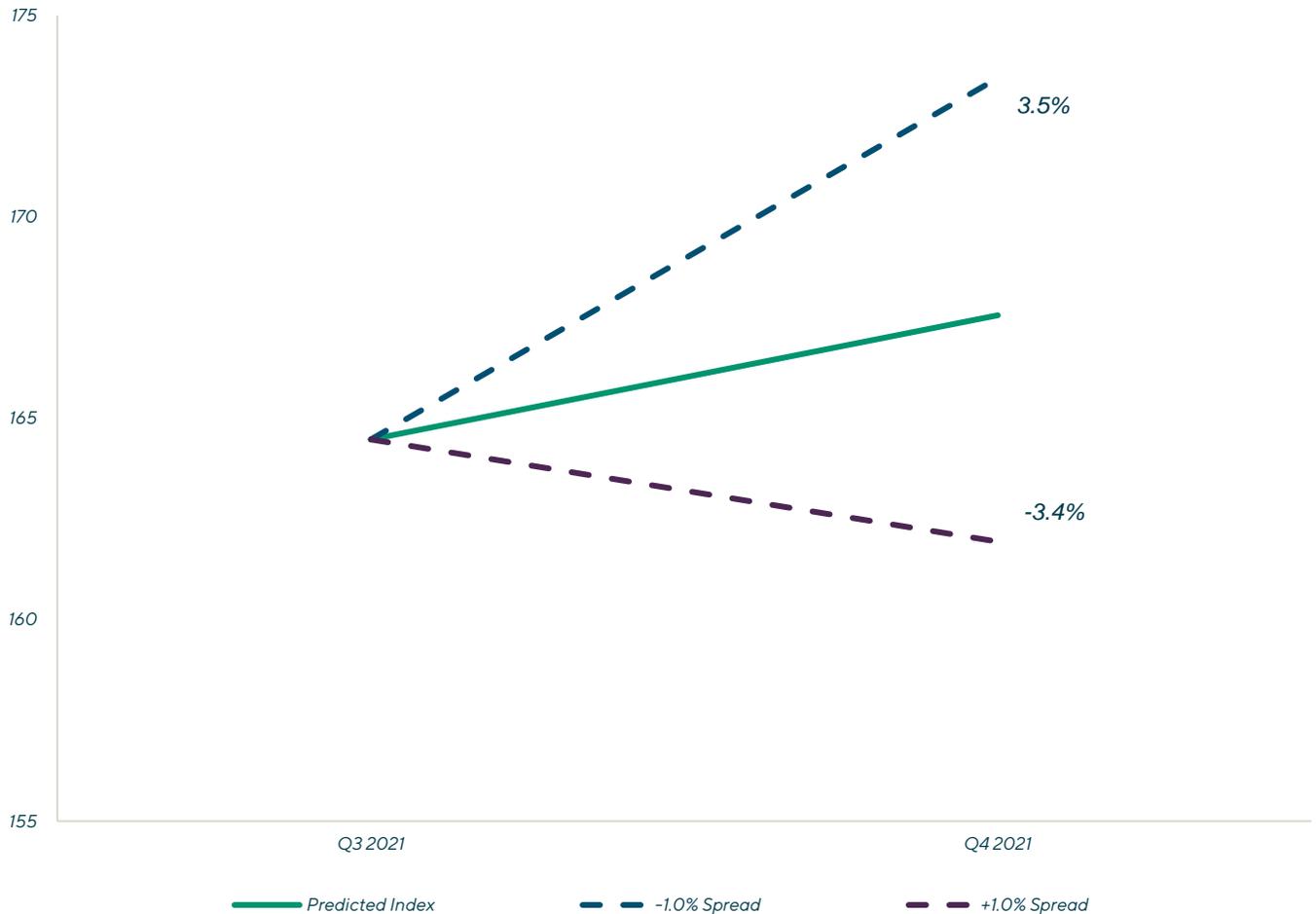
Measuring the immediate impact on total returns, as of September 30, 2021, a 1.0% increase in spreads would decrease the value of the Lincoln Senior Debt Index by 3.3% from 164.5 to 159.0. Conversely, the impact from a 1.0% decrease in spreads would have increased the Lincoln Senior Debt Index by 3.4% from 164.5 to 170.1.

# RESULTS: Spread Sensitivity (cont.)

Q3

2021

## Projected Q4 2021 Lincoln Senior Debt Index Spread Sensitivity



### Observations:

Measuring the impact on total returns as of the next quarter, if LIBOR remains unchanged between September 30, 2021 and December 31, 2021, a 1.0% increase in spreads would decrease the predicted value of the Lincoln Senior Debt Index by 3.4% from a predicted 167.6 to 161.9. Conversely, the predicted impact from a 1.0% decrease in spreads would be an increase of 3.5% from 167.6 to 173.4.

# RESULTS: Default Rates

Q3

2021

## Direct Lending Default Experience

Date	Size Weighted Defaults
<b>2018</b>	5.7%
Q2 18'	5.8%
Q3 18'	5.5%
Q4 18'	5.8%
<b>2019</b>	6.2%
Q1 19'	5.0%
Q2 19'	8.2%
Q3 19'	6.1%
Q4 19'	5.4%
<b>2020</b>	7.0%
Q1 20'	5.0%
Q2 20'	9.4%
Q3 20'	9.0%
Q4 20'	5.6%
<b>2021</b>	3.6%
Q1 21'	4.1%
Q2 21'	3.1%
Q3 21'	3.2%
<b>Historical Average</b>	<b>5.8%</b>

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

### Observations:

As expected, the default rate increased dramatically in the second and third quarter of 2020 and has since declined to lower levels, sitting at 3.2% as of September 30, 2021.

## SUMMARY: Q3 2021 Lincoln Senior Debt Index

From 2014 through September 30, 2021, 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.

## METHODOLOGY:

# Source of Data and Sample Size

Q3

2021

On a quarterly basis, Lincoln determines the enterprise fair value of over 2,500 portfolio companies for approximately 100 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 Lincoln Senior Debt Index can be found at: <https://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 PhD-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 PhD in Economics from Harvard University in 1997.

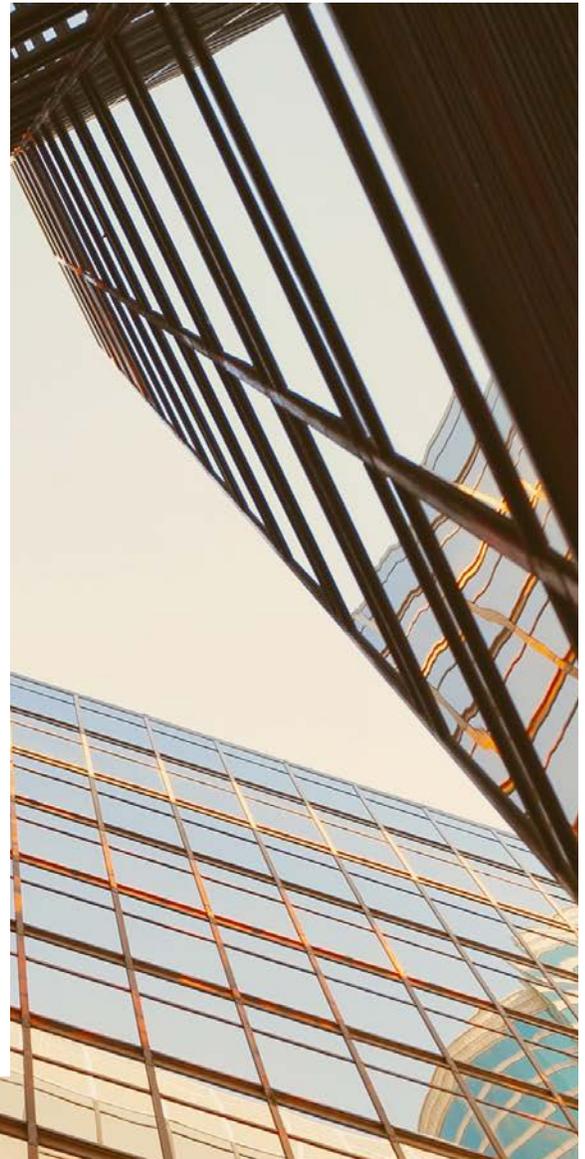


## ABOUT LINCOLN INTERNATIONAL

We are trusted investment banking advisors to business owners and senior executives of leading private equity firms and public and privately held companies around the world. Our advisory services include mergers and acquisitions, debt advisory, growth equity and restructuring for the middle market. We also provide valuations and fairness opinions and joint ventures advisory services. As one tightly integrated team of more than 700 professionals across 16 countries, we offer an unobstructed perspective, backed by superb execution and a deep commitment to client success. With extensive industry knowledge and relationships, timely market intelligence and strategic insights, we forge deep, productive client relationships that endure for decades. Connect with us to learn more at [www.lincolninternational.com](http://www.lincolninternational.com).

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 International's "real world" transaction experience from its mergers & acquisitions and debt advisory practices to assist its clients in the determination of fair value. Lincoln International's highly skilled professionals have extensive experience in determining and supporting fair value measurements for traditional and complex securities.



### GLOBAL INDUSTRY GROUPS

Business Services  
Consumer  
Energy, Power & Infrastructure  
Healthcare  
Industrials  
Technology, Media & Telecom

### ADVISORY SERVICES

Mergers & Acquisitions  
Capital Advisory  
Joint Ventures & Partnering  
Valuations & Opinions

**IMPORTANT DISCLOSURE:** Lincoln's Senior Debt Index is an informational indicator only, and does not constitute investment advice or an offer to sell or a solicitation to buy any security. It is not possible to directly invest in the Lincoln Senior Debt Index. Some of the statements above contain opinions based upon certain assumptions regarding the data used to create the Lincoln Senior Debt Index, and these opinions and assumptions may prove incorrect. Actual results could vary materially from those implied or expressed in such statements for any reason. The Lincoln Senior Debt Index has been created on the basis of information provided by third-party sources that are believed to be reliable, but Lincoln International has not conducted an independent verification of such information. Lincoln International makes no warranty or representation as to the accuracy or completeness of such third-party information.