LINCOLN INTERNATIONAL

Q4 2020

LSDI

# LINCOLN SENIOR DEBT INDEX

INTRODUCING:

# The Lincoln Senior Debt Index

Lincoln International is pleased to release the first 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 University of Chicago Booth School of Business. "The direct lending market has grown considerably over the past decade. The LSDI provides market participants information improving their ability to estimate the risk - reward characteristics of this asset class," said Professor Veronesi, Chicago Board of Trade Professor of Finance at the University of Chicago Booth School of Business.

The direct lending market has grown to between $750 billion to $1.2 trillion in assets. Furthermore, this market is expected to grow by approximately 50% over the next five years. In contrast to loans made by commercial banks or in the broadly syndicated loan (BSL) market, the direct lending market is comprised of alternative lenders, having raised capital from public or private investors and will offer leveraged loans directly to borrowers, often to finance leveraged buyouts. Direct lending deals typically are floating rate loans to private (i.e., non-rated) middle market companies commonly owned by private equity groups, and, unlike the BSL market, are not highly syndicated.

In spite of the direct lending market's growth, what has been missing is the ability to granularly peer into the performance of this important but opaque asset class. For example, the pandemic demonstrated that the direct lending market behaves differently than loans in the BSL market. While correlated to the BSL market, the direct lending market experienced lower price and spread changes as it was significantly less volatile than the BSL during the height of the pandemic.

In addition, Lincoln provides descriptive statistics regarding the LSDI, including: (a) loan-to-value; (b) how the quarterly change in total return is impacted by changes in interest rates and changes in credit; and, (c) default rates.

The direct lending market is a significant source of capital to private equity-backed middle market companies. The LSDI will benefit market participants by providing information facilitating a greater understanding of the attributes of this important source of capital to the private sector.

**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 Unitranche loans; and,
3. Second lien loans.

**Additional descriptive statistics include:**

1. Default rates and fair value of loans in default;
2. Decomposition of index returns into the impact arising from the changes in LIBOR versus credit;
3. Loan-to-value;
4. EBITDA size; and
5. Total return by industry.

## HOW WE OBTAIN THE INFORMATION

On a quarterly basis, Lincoln values over 2,400 private companies primarily owned by private equity funds for over 100 alternative investment funds. Most of these companies are levered via borrowings from the direct lending market. A significant percentage of the LDSI constituents are based upon valuations of loans provided for non-public 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.

KEY OBSERVATIONS:

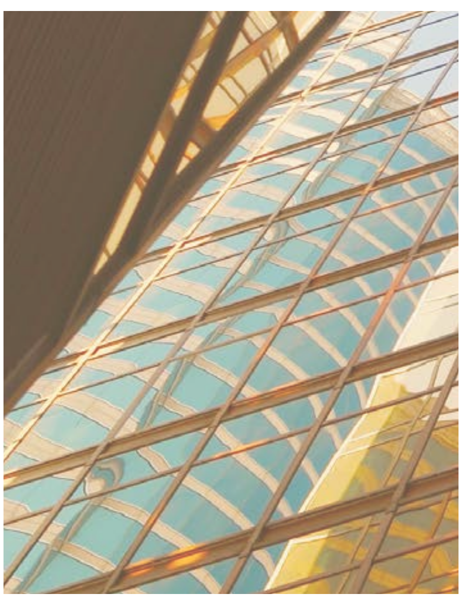
# Lincoln Senior Debt Index

**Q4**

2020

**96-99%**

Fair Value Price Range since Q4 2014



## Performance

Since inception, the only quarter in which the Lincoln Senior Debt Index meaningfully declined was Q1 2020 due to the impact of COVID-19.

- Senior loans returned positive returns of approximately 1% to 2% per for every quarter since the beginning of 2016, except for Q1 2020. In other words, even during the worst economic period in over a decade, the LSDI experienced only one negative quarter, in Q1 2020.
- On average, loans in the direct lending market yield approximately 4.0% higher returns than broadly syndicated loans. The higher returns are generally a result of their illiquidity and lending to smaller companies relative to the BSL market.

## Fair value price range

Prices (on a fair value basis) have ranged between 96% and 99% since Q4 2014 (except for Q1 2020. And the index finished the year above pre-pandemic levels).

## Total returns benefit from LIBOR floors

Total returns benefit from LIBOR floors, generally approximating 1.0%, whereas LIBOR floors are much less frequent in the BSL market.

- In periods where LIBOR is below 1.0%, LIBOR floors enhance total returns given the floors will stabilize cash flows and thus stabilize fair values.

## Spread volatility

Economic research demonstrates that higher spreads are associated with economic declines; conversely lower spreads are associated with economic growth and heightened competition.

- Spreads in the direct lending market have steadily declined since the inception of the index as capital in the direct lending market increased combined with competition from a rapidly expanding quantity of public and private credit funds.
- At the height of the COVID-19 pandemic, spreads spiked in Q1 2020, peaking at L + 8.0% for all securities; since then, spreads have declined to L + 7.3% in Q4 2020 as market conditions retreated to pre-COVID-19 levels.

## Second lien price and spread volatility exceed that of first lien loans

Spreads and prices for second lien loans are more volatile than first lien loans given second lien securities' subordinated position. Despite the volatility, second lien returns have outpaced first lien returns.



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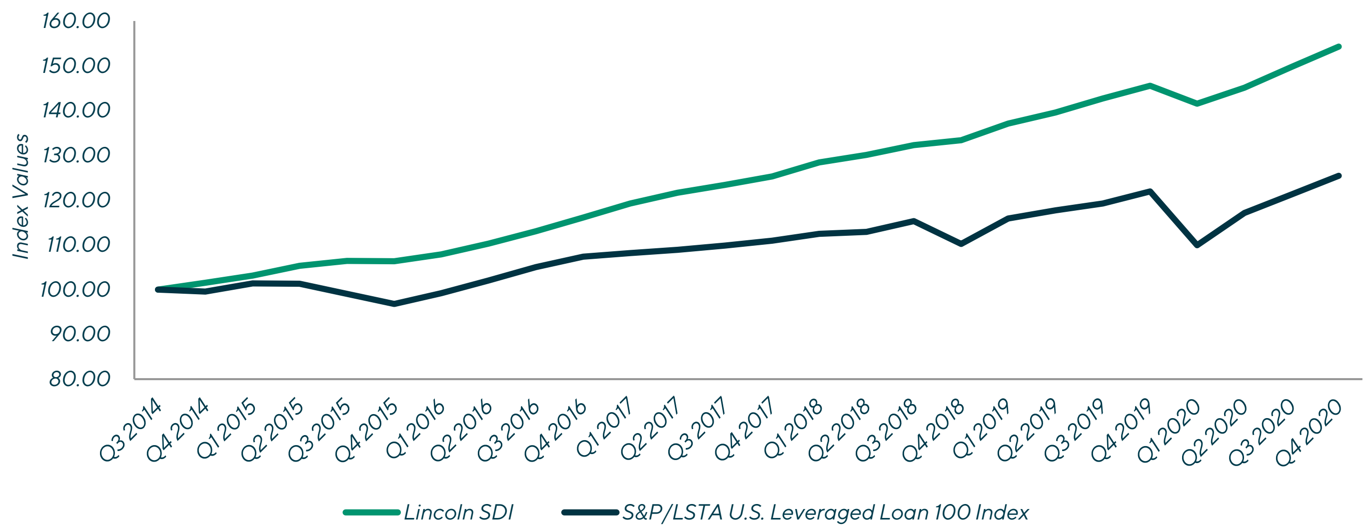
## Comparison of Total Return – Lincoln Senior Debt Index (All Senior Loans) to Broadly Syndicated Loan Market



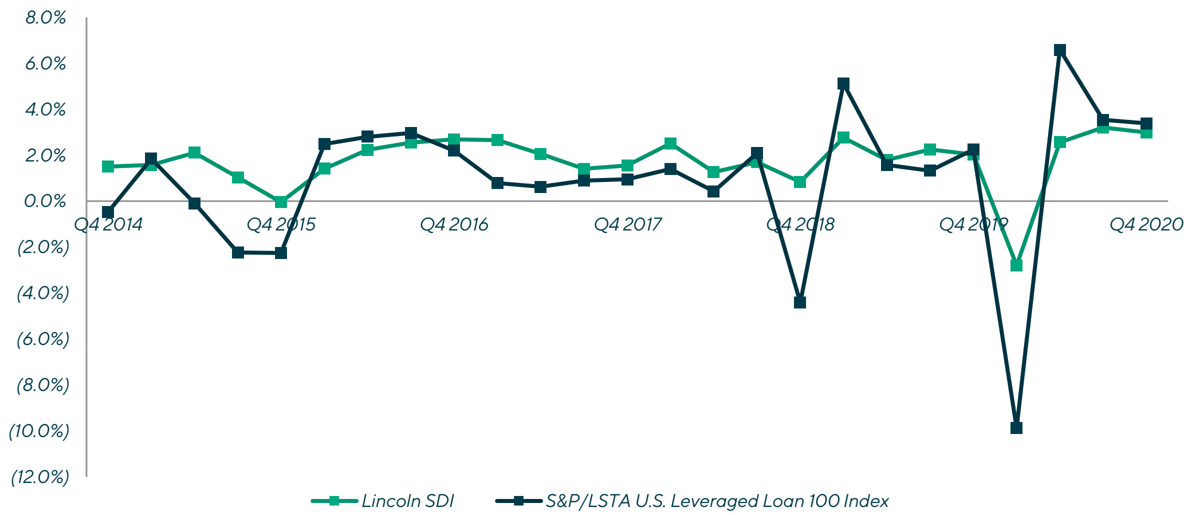

### Observations:

Investment returns are generated from two sources: (1) capital gains and losses; and, (2) income returns. In the leveraged lending asset class, income returns dominate capital gains or losses resulting in positive quarterly total returns.

Since inception of the Lincoln Senior Debt Index, both the BSL and direct lending markets have experienced an increase in total returns. While income returns were offset by capital losses due to COVID-19 in Q1 2020, total returns began to recover in Q2 2020 and both indices quickly exceeded pre-COVID-19 levels.

Given the higher cost of debt for middle market direct lending loans versus loans in the BSL market, income returns are significantly greater in the direct lending market.

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




## Observations:

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

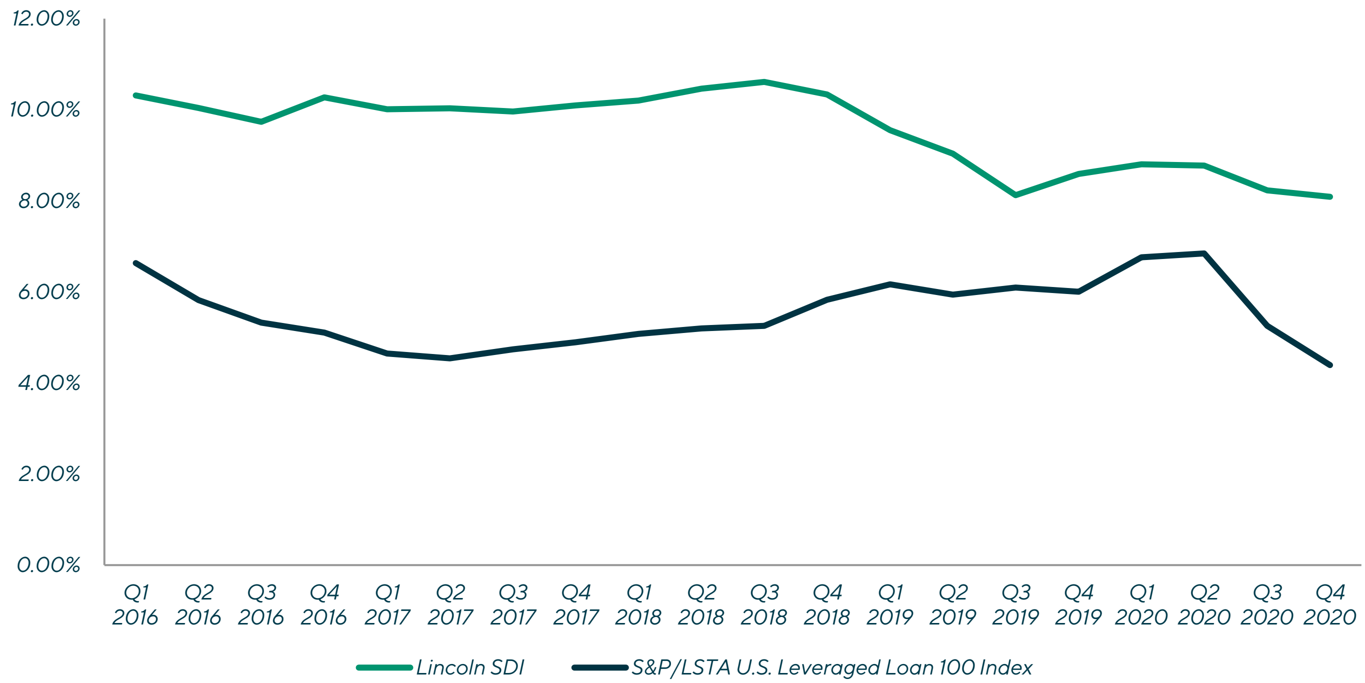
- the Lincoln Senior Debt Index is significantly less volatile; while,
- generating higher returns.

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

- Given that the companies being financed in the direct lending market are smaller than companies in the BSL market, it would be expected that direct lending returns are higher.
- Lower volatility is partly explained by: (a) the impact of LIBOR floors, particularly in low interest rate environments, which can serve to stabilize cash flows and effectively, but temporarily, convert direct lending loans to fixed rate instruments whereas BSL cash flows do often do not benefit from LIBOR floors; (b) the impact of illiquidity as loans in the direct lending market trade much less frequently than loans in the BSL market; and, (c) the impact of capital flows as investors in the BSL market have a greater ability to liquify their investment (admittedly at a discount) should they decide to exit the BSL market whereas investments in direct lending funds are structured whereby investor redemptions are limited. As an example, in the first and second quarters of 2020 BSL investors withdrew capital from the BSL market at record levels. This selling pressure heightened the decline in BSL prices relative to the direct lending market.

# RESULTS:
# Yields

## Comparison of Yields – Lincoln Senior Debt Index – All Senior Loans to Broadly Syndicated Loan Market



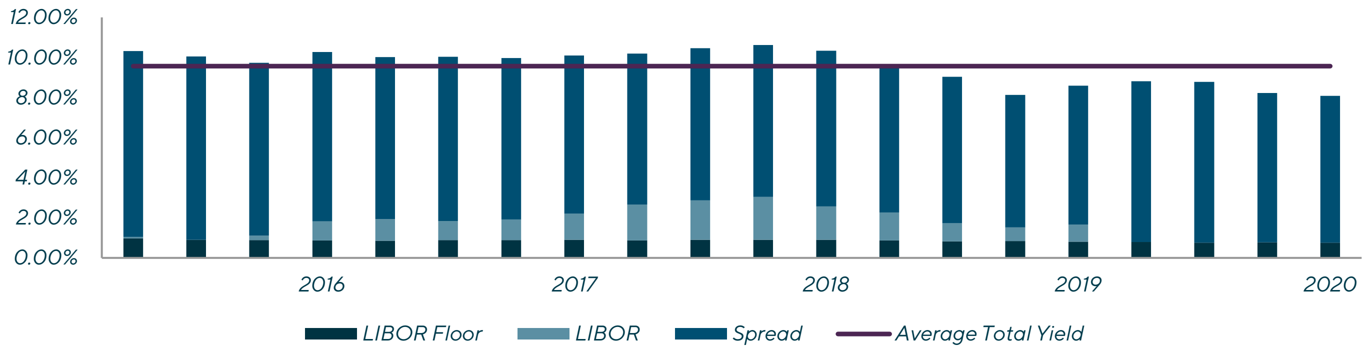

### Observations:

- The average yield to maturity of the Lincoln Senior Debt Index is approximately 9.6%.
- Direct lending yields are greater as the cost of debt is higher for smaller middle market companies relative to larger companies borrowing in the BSL market.
- A portion of the higher yield occurring within the direct lending market is attributable to illiquidity combined with the smaller size of the companies relative to the BSL market.
- On average, loans in the direct lending market yield approximately 4.0% higher returns than broadly syndicated loans.

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



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

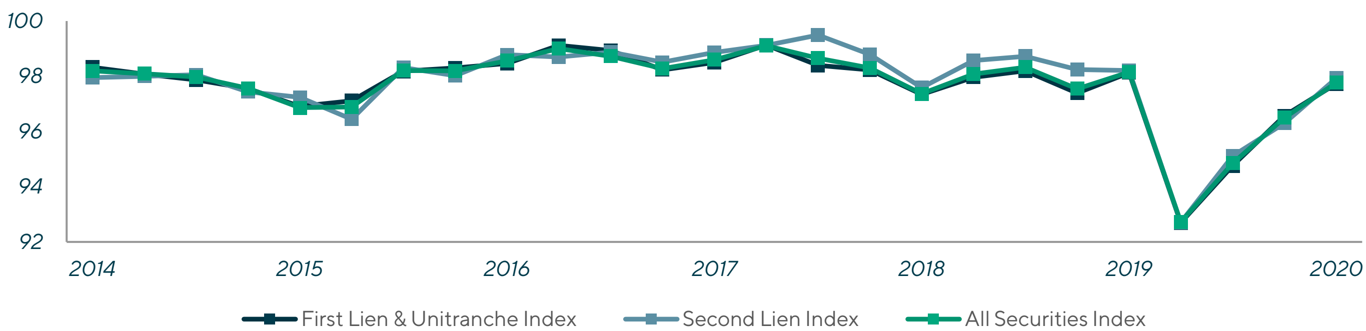



*Note: LIBOR Floor reflects fair value weighted average for each period while LIBOR above reflects the extent to which LIBOR is above the floor*

## Observations:

- The average yield of the Lincoln Senior Debt Index has been approximately 9.6%.
- 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.
- As LIBOR declines below 1below 1.0%, the value of a loan with a floor of 1.0% will increase (all else equal).
  - The benefit of the LIBOR floor became quite evident during the height of the pandemic as LIBOR declined below 1.0%.
  - In low interest rate environments, the impact of the LIBOR floor becomes a significant component of the total return and it creates an effective fixed rate instrument despite the loan bearing a floating rate.
- While yield in the direct lending market has remained in a band between 8.0% and 10.0%, the components of yield vary as LIBOR and spreads change.
- Over time, the direct lending market has become increasingly competitive as the supply of capital has increased along with the number of market participants. In general, spreads have declined over time.

## Fair Value – All Senior Loans




### Observations:

- An idiosyncrasy of loan valuation is that not all loans within a portfolio will have a fair value of 100 (i.e., par). Therefore, it is expected that the fair value of a portfolio of direct lending loans will have a fair value of less than 100. Furthermore, fair value of private debt is generally capped at 100 (i.e., par as loans are prepayable at par unless there is call protection). Unlike bonds that trade in the public markets with substantial make whole penalties or non-call periods, capital appreciation of direct lending loans is capped, but uncapped in terms of downside potential.
- Returns from interest income generally dominate returns from capital gains or losses.
- Over time, prices, on a fair value basis, have ranged between 96.0 to 99.0 (excluding the first two quarters of 2020).



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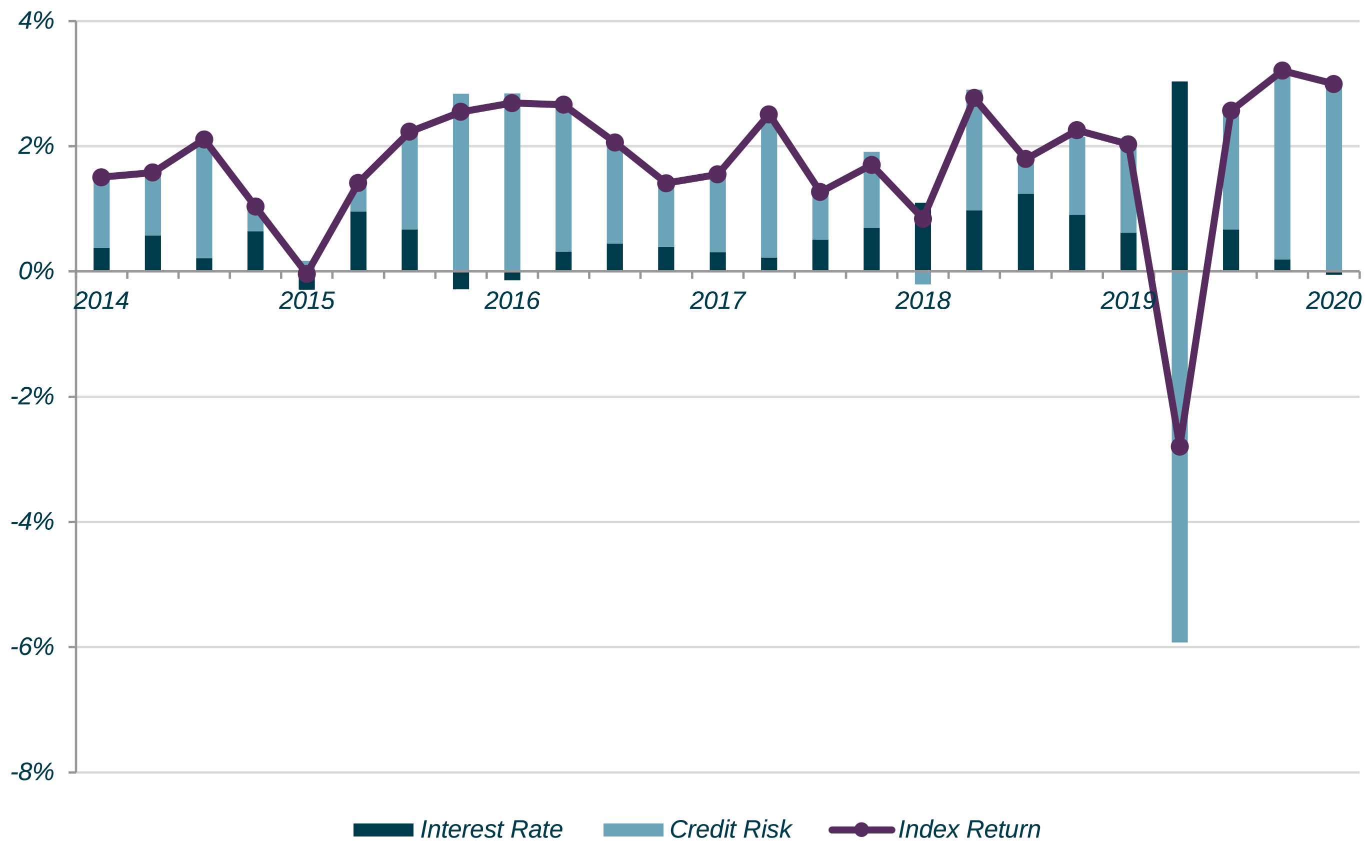
RESULTS:

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

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




## Observations:

- While certain fixed income asset classes can be quite homogeneous (i.e., U.S. Treasuries and pools of mortgage loans) loans in the direct lending market are heterogeneous. Unlike other fixed income markets, total return in the direct lending market is dominated by changes in credit quality (i.e., company fundamental performance) rather than the impact of changes in interest rates (i.e. LIBOR). Therefore, understanding the credit profile of each loan in a portfolio is important relative to returns.
- The average quarterly total return over the life of the Lincoln Senior Debt Index was 1.76%; of that amount 0.57% was due to changes in interest rates and 1.19% was due to changes in credit risk.



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Q4
2020

RESULTS:
# Default Rates

## Direct Lending Default Experience

| Date | Size Weighted Defaults |
|---|---|
| Qtr2 | 6.1% |
| Qtr3 | 5.6% |
| Qtr4 | 5.9% |
| **2018** | **5.9%** |
| Qtr1 | 5.0% |
| Qtr2 | 8.1% |
| Qtr3 | 6.1% |
| Qtr4 | 5.4% |
| **2019** | **6.2%** |
| Qtr1 | 5.0% |
| Qtr2 | 9.9% |
| Qtr3 | 9.3% |
| Qtr4 | 5.8% |
| **2020** | **7.2%** |
| **Grand Total** | **6.5%** |

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

### Observations:

- As expected, the default rate increased dramatically in 2020 Q2 and Q3. However, ignoring the peak of COVID-19, over time, the default rate has been between 5.5% to 6.5%.
- The fair values of the loans that have defaulted were approximately 87.0% for first lien loans and 73.0% for second lien loans.

SUMMARY:
# Q4 2020 Lincoln Senior Debt Index

- From 2014 through 2020 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

On a quarterly basis, Lincoln determines the enterprise fair value of over 2,400 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 ("LSDI").

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.lincolninternational.com/perspectives/an-overview-of-the-lincoln-senior-debt-index](www.lincolninternational.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.

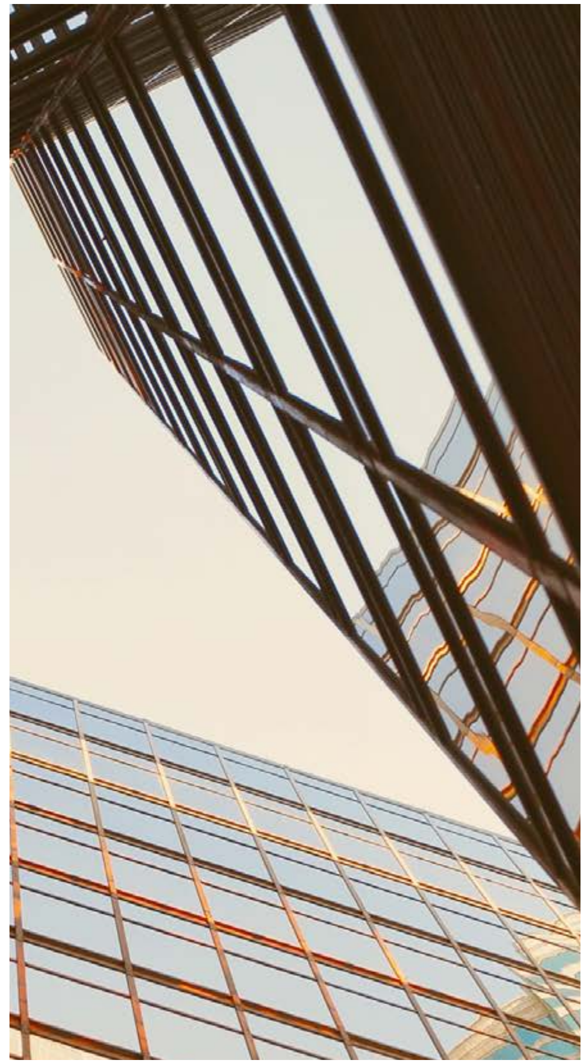
Professor Veronesi's undergraduate work was in economics at Bocconi University where he received a laurea magna cum laude with honor in 1992. He earned a master's degree with distinction in 1993 from the London School of Economics. He joined the Chicago Booth faculty upon obtaining his PhD in Economics 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 600 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.

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 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.



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