



LSDI

**LINCOLN SENIOR
DEBT INDEX**

INTRODUCING: The Lincoln Senior Debt Index

Lincoln International is pleased to release the second 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 appears to have moved beyond the economic impact created by COVID-19. For the quarter ending March 31, 2021, prices and yields were almost identical to pre-COVID-19 December 31, 2019, levels and spreads approximated the average spread since the beginning of 2016. There is a reasonable expectation that the economy will continue to grow for the balance of the year, but there are numerous risks ahead. For example, the economic impact associated with virus mutations, rising commodity prices as well as monetary, fiscal and tax policies; therefore, market volatility is something to remain alert to.” said Professor Veronesi, Chicago Board of Trade Professor of Finance at the University of Chicago Booth School of Business.

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.

Lincoln also provides additional 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; and, (c) 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 prices of loans in 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, are primarily impacted by changes in 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 LSDI 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 2,400 private companies primarily owned by private equity funds for 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 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 the Methodology section at the end of this report and on our web site.

KEY OBSERVATIONS: Lincoln Senior Debt Index

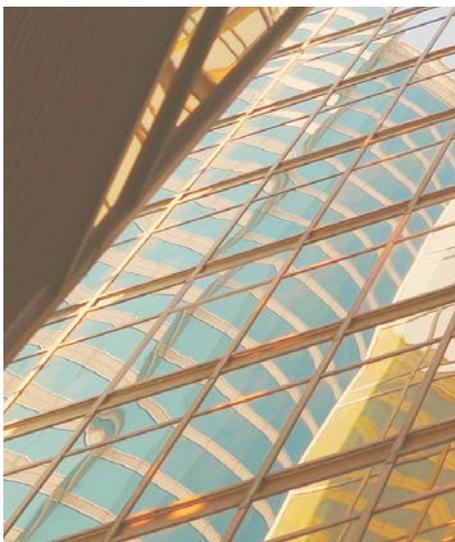
Q1

2021



98.5

Average Fair Value of
Loans in the Index as
of Q1 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 March 31, 2021, the Lincoln Senior Debt Index return was 2.4% of which credit risk accounted for 3.2% while the return due to changes in interest rates or LIBOR was (0.8%).

- The change in quarterly return due to credit improvements of 3.2% was the highest in the history of the LSDI demonstrating that companies in the first quarter of 2021, on average, successfully managed through the economic challenges created by COVID-19.
- The strong corporate earnings performance was consistent with our findings from the [Lincoln Middle Market Index](#) (i.e., Lincoln's enterprise value fair value index) as first quarter 2021 earnings performance was the highest since the third and fourth quarter of 2018.
- The Lincoln Senior Debt Index increased from 154.6 as of December 31, 2020, to 158.2 as of March 31, 2021. This continued the trend of nearly all asset classes increasing in value since the volatility at the onset of the global pandemic in spring 2020.

Fair value price range

The average fair value of loans comprising the index as of Q1 2021 was 98.5. This is the highest price since the first and second quarter of 2018. The highest loan price of 98.5 compares favorably with pre-COVID-19 price of 98.2 as of December 31, 2019.

Spread volatility

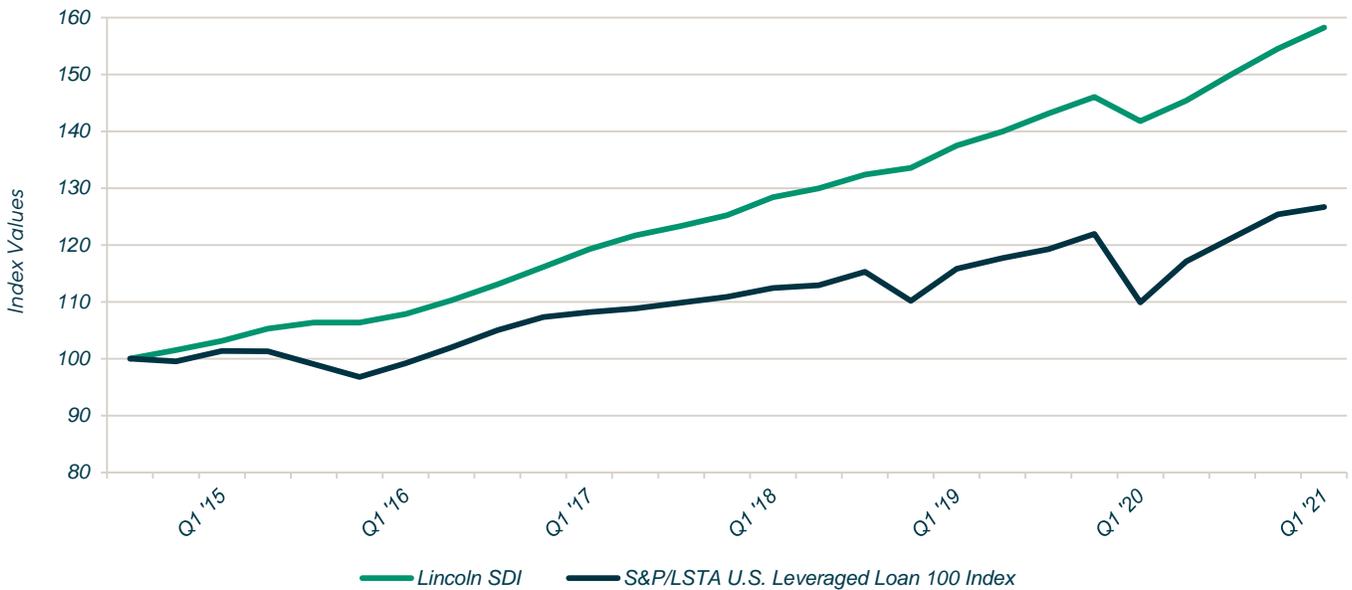
While spreads of 7.3% as of March 31, 2021 have declined considerably from their peak in the first and second quarter of 2020 of approximately 8.1%, they remain 0.4% higher than spreads as of December 31, 2019 (which were 6.9%).

RESULTS: Total Returns

Q1

2021

Comparison of Total Return – LSDI (All Loans) to S&P/LSTA U.S. Leveraged Loan 100 Index



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 the inception of the Senior Debt Index, both the S&P/LSTA U.S. Leveraged Loan 100 Index which measures the performance of the BSL market, and direct lending markets have experienced an increase in total returns. While income returns were more than offset by capital losses due to COVID in the first quarter of 2020, total returns began to recover by the second quarter of 2020 and have continued to trend upward thereafter.

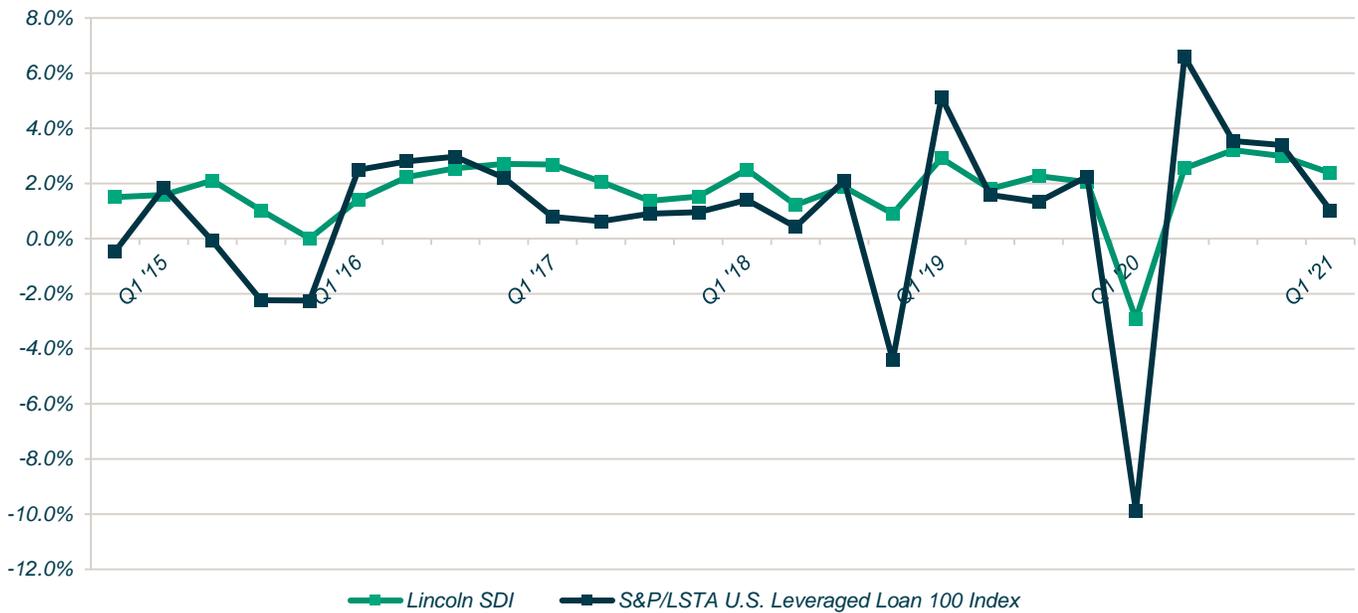
Given the higher cost of debt for middle market direct lending loans versus loans in the BSL market, yields are significantly greater in the direct lending market.

RESULTS: Total Returns (cont.)

Q1

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 U.S. Leveraged Loan 100 Index is high at 86%:

- the 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 the higher interest rate of its loans.
- From the third quarter of 2014, the inception of the Lincoln Senior Debt Index, through the first quarter of 2021, it only reported one negative quarterly return period: the first quarter of 2020.

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



Observations:

The average yield of the Lincoln Senior Debt Index is approximately 9.5%.

On average, loans in the direct lending market yield approximately 4.0% higher returns than broadly syndicated loans.

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

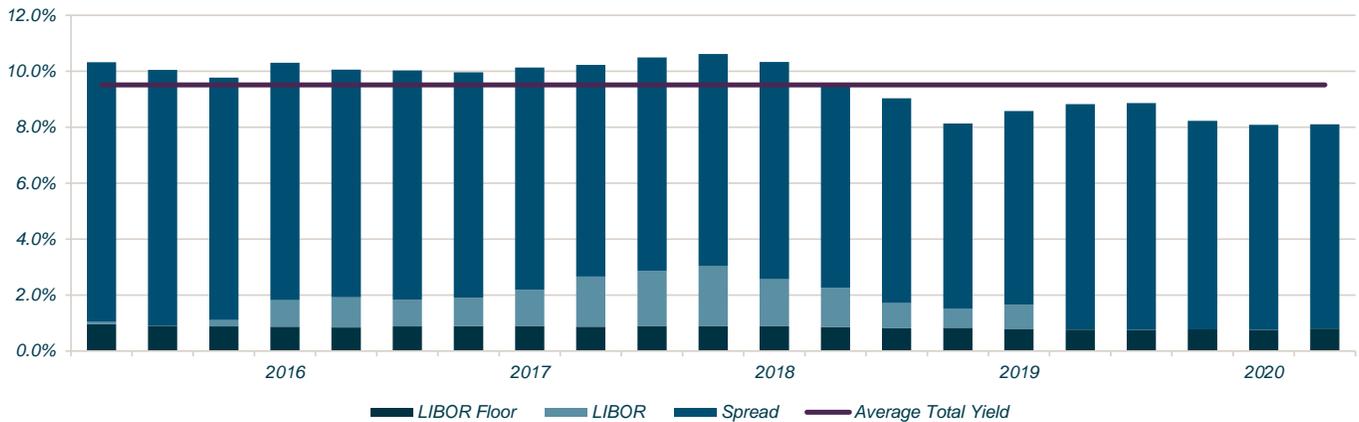
RESULTS:

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

Q1

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 9.5%.

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.

- As an example, the spread as of March 31, 2021, and June 30, 2019, were identical at 7.3%. However, LIBOR was 1.7% as of June 30, 2019, versus 0.8% as of March 31, 2021. Therefore, while the LIBOR floor partially tempers the 90 basis points decline in LIBOR, the yield as of June 30, 2019, was 9.0% versus the yield as of March 31, 2021 of 8.1%.
- It is important to understand that 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.

Particularly when LIBOR exceeds 1.0%, the change in spreads has a greater impact on the fair value of a loan versus changes in LIBOR. As the loans are floating rate, a 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.

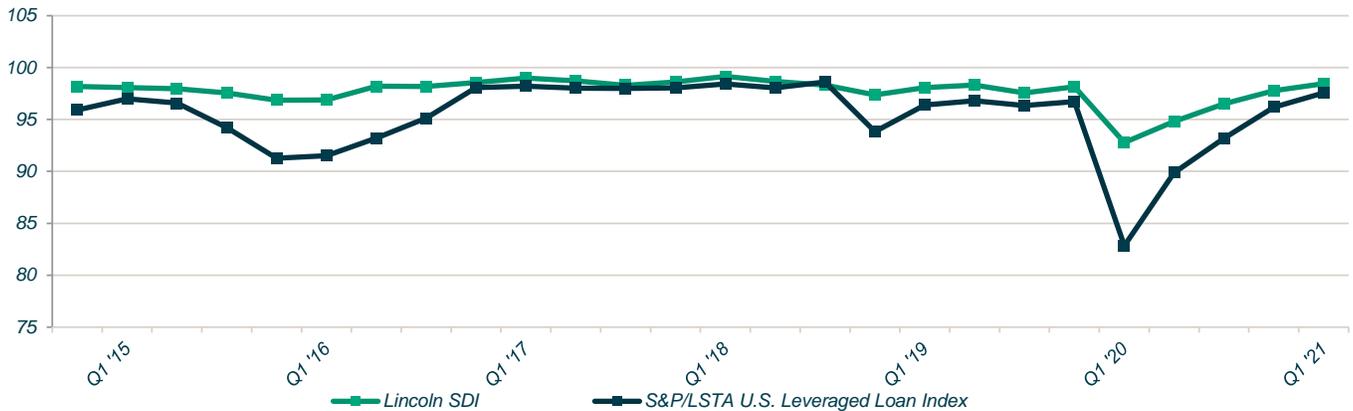
Over time, the direct lending market has become increasingly competitive as the supply of capital has increased along with the number of market participants. Therefore, we have observed spreads declining over time.

RESULTS: Fair Value – Price – Trends

Q1

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 average fair value of loans comprising the LSDI as of Q1 2021 was 98.5. This is the highest price since Q1 and Q2 of 2018. The price of 98.5 compares favorably with pre-COVID-19 price of 98.2 as of Q4 2019.

Over time, prices, on a fair value basis, have ranged between 97.0 to 99.0 (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 effectively 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.
- Capital Flows - 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. In other words, investments in direct lending funds are structured whereby investor redemptions are limited whereas BSL investors have the ability to exit at any time (i.e., in the first half of 2020 there was a significant capital outflow from the BSL market resulting in dramatic price declines). As an example, immediately after the onset of COVID-19 in 2020, selling pressure heightened the decline in BSL prices relative to the direct lending market.

RESULTS:

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

Q1

2021

Decomposition of Index Returns: Interest Rate versus Credit Risk



Observations:

The Lincoln Senior Debt Index's quarterly return was 2.4%, of which credit risk accounted for 3.2% while the return due to changes in LIBOR was (0.8%). The change in quarterly return due to credit improvements of 3.2% was the highest in the history of the Index.

The increase in the LSDI due to improvements in credit is consistent with the Lincoln Middle Market Index ("Lincoln MMI"), which captures enterprise fair value performance. Middle market financial performance strongly rebounded in the first quarter of 2021 precipitated by the vaccine rollout and aggressive monetary and fiscal policy.

The negative drag of changes in LIBOR were reflective of an increase in forward LIBOR period-over-period which resulted in a lower benefit of the LIBOR floors of the loans underlying the LSDI.

RESULTS: Default Rates

Q1

2021

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%
2021 Q1	4.2%
Grand Total	6.5%

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 been declining ever since. Absent an unexpected adverse macro-economic event, we expect defaults to remain consistent approximating the historical average of 6.5%.
- For the first quarter of 2021, the fair value of loans that experienced a covenant default was 86.8% for first lien loans and 85.0% for second lien loans.

SUMMARY: Q1 2021 Lincoln Senior Debt Index

- From 2014 through March 31, 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

Q1

2021

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.

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.

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.

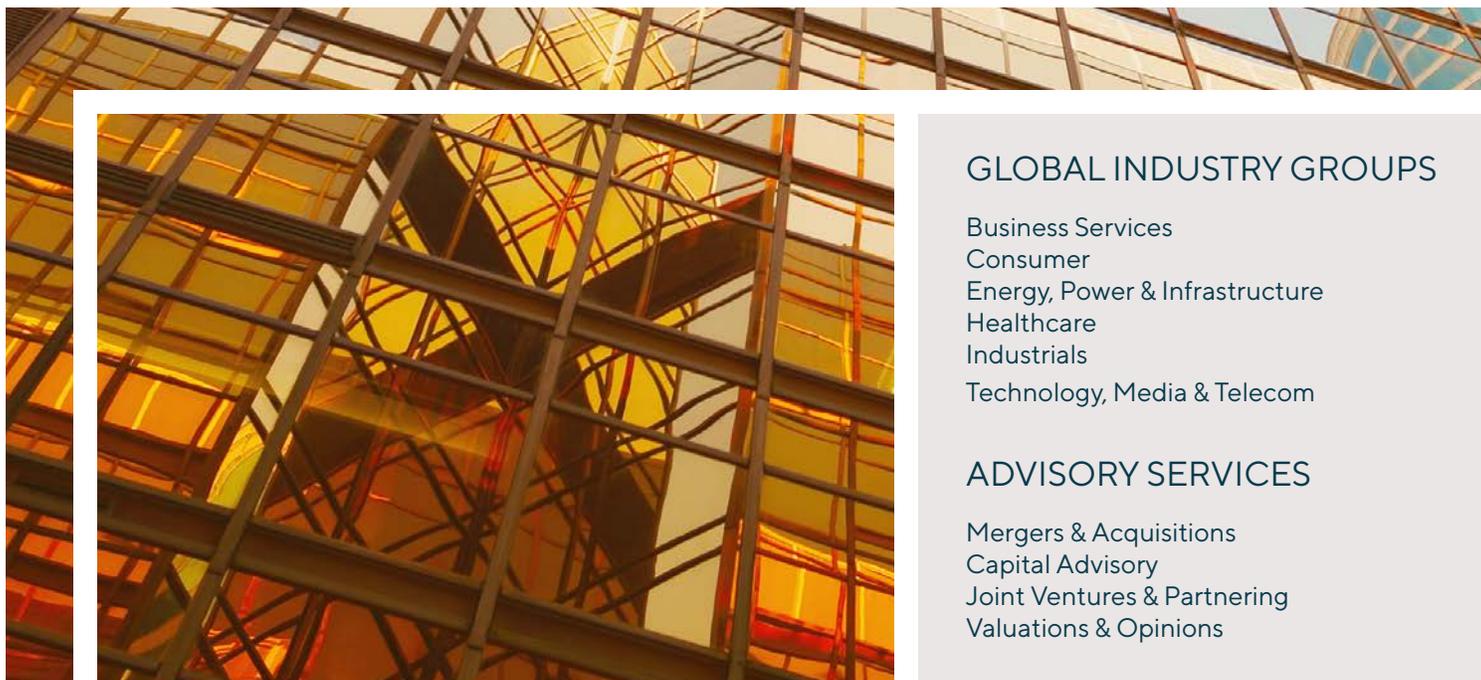
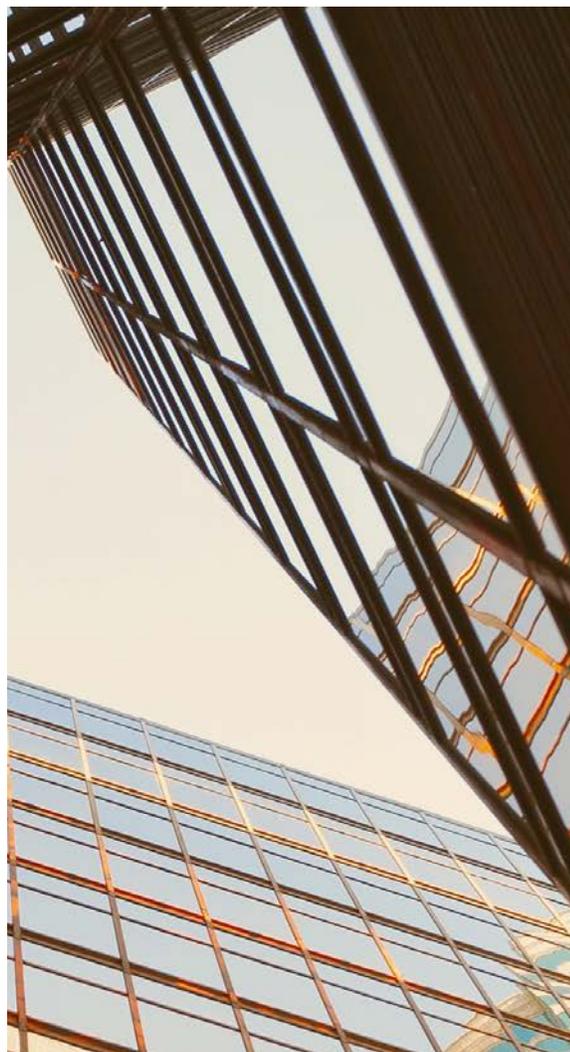


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