Investment Insights

Senior secured loans: Attractive current income coupled with a short duration profile and low correlation of returns

Bjoern Wolber, CFA®
Head of EMEA
Investment Analysis

Sanyog Yadav, CFA®
Manager, EMEA
Investment Analysis

"When it is obvious that goals cannot be reached, don't adjust the goals, adjust the action steps."

Confucius (551 BC to 479 BC)

Institutional investors are facing growing challenges in the current capital market environment characterized by a mix of compressed risk premiums, negative-yielding 'safe-haven' investments and heightened volatility. In this environment, it is challenging to consistently reach targeted returns. Due to negative yields on high-quality government bonds, actuarial discount rates – used to value future pension liabilities – have also decreased, causing the present value of future pension liabilities to increase significantly. This forces institutional investors to consider new asset allocation strategies to manage the growing size and increasing volatility of their liabilities.

In our view, the current financial market environment calls for fundamental changes in asset allocation to allow for the long-term achievement of real return targets. Many of the most commonly used fixed income investments, such as high quality government bonds, now generate low to negative nominal returns. Consequently, modified durations of these investments have reached all-time highs, posing significant duration risk to investment portfolios. Although base rates across G7 countries are already either negative or at historical lows, forward rate expectations have started to fall. At the same time, global growth is losing its dynamism and concerns are growing over the future path of monetary and fiscal policy. To manage this uncertainty, we favour a fixed income allocation that enables 1) a flexible response to future interest rate movements and 2) attractive yields in a low-yield environment.

In the current market environment, senior secured loans (SSL) offer potentially attractive features that may meet the needs of investors:

- Attractive current income – independent from market environment[1]
- Minimal duration risk – providing a hedge against rising interest rates and inflation[2]
- Historic record of low volatility of investment returns compared to traditional asset classes[3]
- Strong historic and current risk-adjusted return profile[4]
- Implied comprehensive credit risk mitigation mechanisms[5]
- Low historical correlation of returns providing potential portfolio diversification benefits[6]

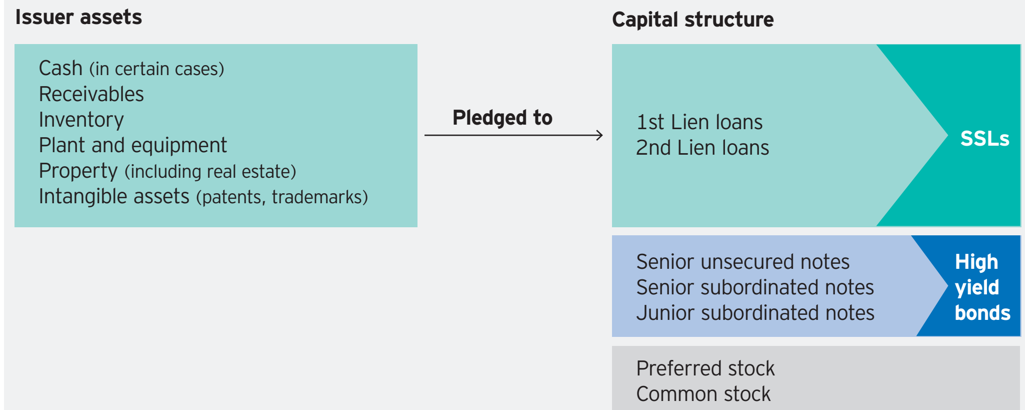
In general, SSL offer a combination of attractive current income, short duration and a largely uncorrelated source of return.

1. Introduction to Senior Secured loans

Senior Secured loans (SSL) are privately arranged loans issued to a consortium of banks and institutional creditors that provide companies with access to debt capital. SSL traditionally offer a fixed spread over a reference rate, making them 'floating-rate' instruments. Most fixed spreads over the reference rate reflects the credit risk of the issuer.

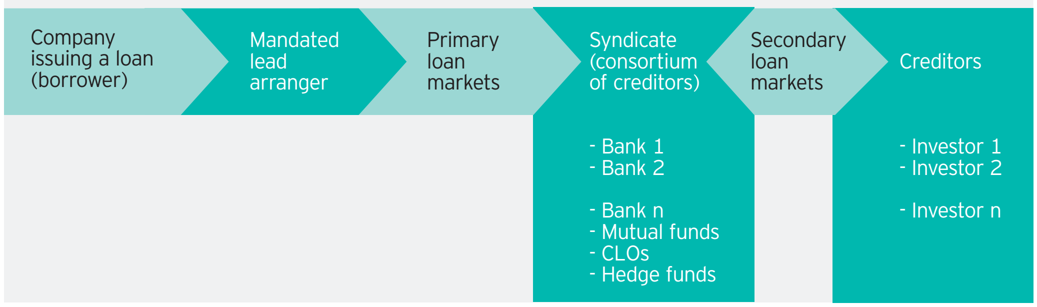
Generally, borrowers are corporates and the loans are typically dedicated to corporate purposes (such as capital expenditure), M&A-related transactions or refinancing debt. Loans typically have a credit rating below investment grade. Nonetheless, their special credit risk mitigation mechanisms (e.g. comprehensive collateral packages such as share pledges using debt to equity swaps, seniority in the company's capital structure and covenants) rank SSL at the top of a company's capital structure (figure 1). Seniority in the company's capital structure means that SSL investors are effectively ranked first for any repayment in the event of a default by the issuer.

Figure 1: Seniority of SSLs



Source: Invesco. For illustrative purposes only.

Figure 2: Structure of a syndicated loan



Source: Invesco. For illustrative purposes only.

The institutional market for SSL has been in existence for 30 years. The loan syndication and trading association, LSTA, has been a leading advocate for the US syndicated loan market since 1995, fostering cooperation and coordination among loan market participants, facilitating just and equitable market principles, and inspiring confidence among investors in corporate loan assets (Source: LSTA). Large loan issuers include Hertz, Dell and Burger King as well as European corporations such as Alstom, Celanese and Siemens.

Three parties are typically involved in the structuring of an SSL: 1) the borrower, 2) the mandated lead arranger (commercial or investment bank) and 3) a consortium of creditors (figure 2). The key task of the mandated lead arranger is to structure, arrange and administer the loan on behalf of the borrower. The mandated lead arranger establishes a consortium with creditors. The creditors' main task is to review and evaluate the borrower's creditworthiness i.e. its future capacity to meet interest and principal payments. The aim is to accurately assess current and future risks as well as 'fair' loan pricing. The origination and syndication of the loan takes place in the primary market, while any sale of the loan by one of the original lenders of the syndicate takes place over-the-counter (OTC) in the secondary loan market. The US leveraged loan market is very liquid. In 2018, secondary market trading volume was USD720 billion, based on a total market size of USD1.2 trillion. (Source: LSTA and Credit Suisse).

1.1 SSL in comparison with high yield bonds

SSL and high yield bonds are both debt instruments that rank higher than equity in a company's capital structure (as shown in Table 1). SSL sit at the top of the capital structure above high yield bonds and are backed by assets of the borrower. unlike high yield bonds which are typically unsecured. The difference in seniority between SSL and high yield bonds can have a significant impact on recovery rates: Over the last 32 years (between 1987-2018), the average debt recovery rate, as measured by ultimate recoveries for US SSL, was 80.3%, compared to 47.7%, on average, for US high yield bonds.[7]

Additionally, SSL are floating rate instruments, while high yield bonds are issued with a fixed coupon. High yield bonds tend to have a longer tenor (7-10 years on average) compared to SSL (5-7 years on average). Generally speaking, the average life of an SSL is three years due to the flexible loan prepayment structure. Loans typically have an average call protection of six months compared to three years for high yield bonds.

Table 1: Features of SSLs and High Yield bonds

	SSLs		High Yield bonds	
Debt Type	1st lien loans	2nd lien loans	Senior Notes	Subordinated Notes
Floating/Fixed?	Floating		Fixed	
Tenor:	3-5 years	4-8 years	7-10 years	8-10 years
Prepayment?	Yes		No	
Seniority:	Senior Secured		Senior unsecured	Senior subordinated
Secured?	Yes		Sometimes	
Call Protection?	Sometimes		Yes	
Covenants:	Maintenance	Less restrictive maintenance	Incurrence	

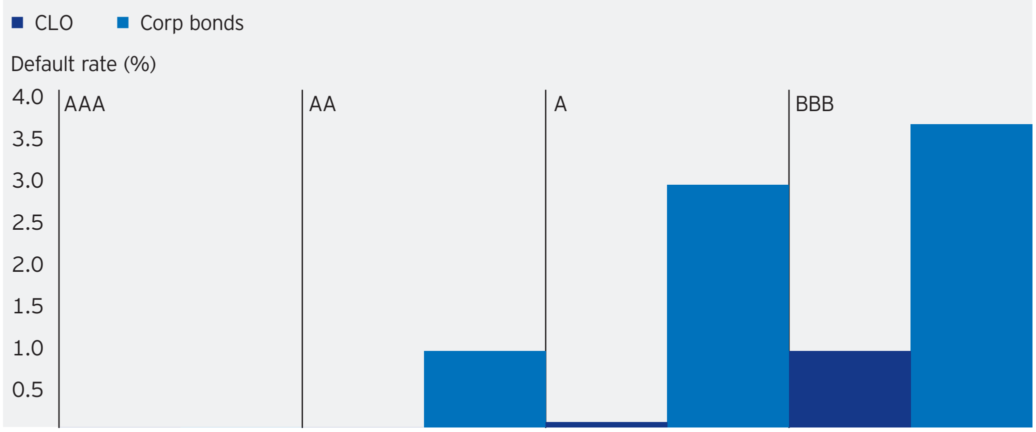
Source: Invesco. For illustrative purposes only.

1.2 SSL compared to other ABS

Asset Backed Securities (ABS)[8] are securities collateralized by financial assets (such as loans, leases, mortgages, or secured or unsecured receivables) that allow the holder of the security to receive payments dependent primarily on the cash flow from the asset ABS include SSL, CLO (collateralized loan obligations), MBS (mortgage backed securities), RMBS (residential mortgage backed securities), auto loans and credit card loans.

ABS funds such as CLO[9] funds are key investors in SSL. During the global financial crisis, the ABS asset class became notorious for extreme losses. Today we believe this generalization is not representative of the asset class, as the high level of defaults was confined largely to lower-rated RMB securities, and not ABS in general. Our research highlights some interesting statistics: During the global financial crisis, CLOs not only had the lowest loss rates among ABS, they also had the lowest loss rates among corporate credits.[10] Additionally, the default rate on rated CLO tranches has been well below equivalently rated corporate bonds since 1997 (figure 3).

Figure 3: Cumulative investment grade CLO versus corporate default rates (period 1997-2018)



Source: Moody's, S&P, data as of 30 June 2019.

These findings support our belief in the attractiveness of SSL as an asset class. Its senior rank in the capital structure, relatively high rates of recovery and low rates of default have lent to its resilience during the internet bubble of 2000 and the financial crisis in 2008. The average recovery rate, as measured by post-default trading prices, for first lien loans for the period 1987-2018 based on issuer-weighting stands was 67.2%. The "ultimate" recovery, which typically takes 1-2 years to resolve, was 80.3% (table 2). Even during the financial crisis, First lien loans exhibited similar results. The average recovery as measured by post-default trading prices was 78.4% while the ultimate recovery was 81.0%.[11]

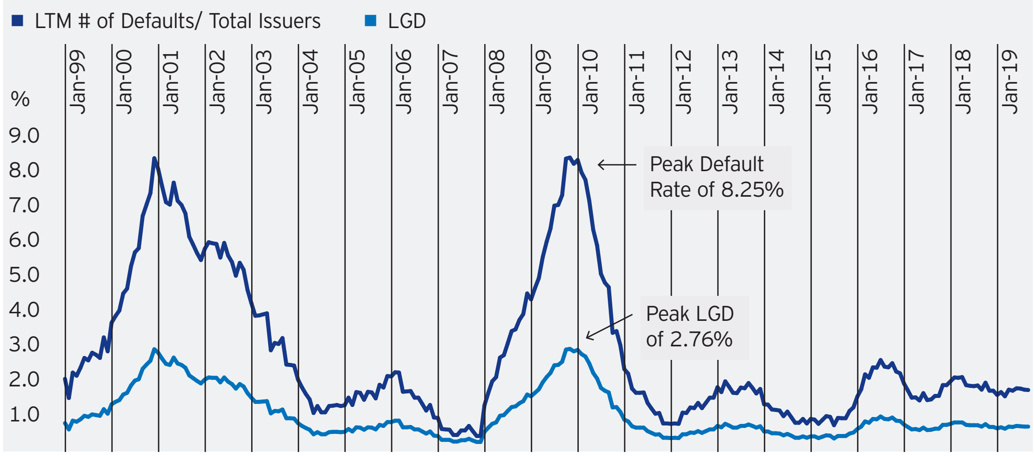
Table 2: Average corporate debt recovery rates as measured by post-default trading prices (%)
Average corporate debt recovery rates as measured by ultimate recovery

Priority position	2018	2017	1987-2017
Loans	85.00	84.30	80.30
Senior secured bonds	55.00	65.70	62.10
Senior unsecured bonds	35.40	58.30	47.70
Subordinated bonds	N/A	62.80	28.00

Source: Moody's Default Study, 1 Feb. 2019.

Moreover, loss given default (LGD[12]) rates, using an average recovery of 66.6%, the highest LGD rate over the period of existence of SSL, has been roughly 3%, which was during the financial crisis of 2008 (figure 4). During the same period, the secondary market prices of SSL dropped roughly 29%.

Figure 4: US loans default rate and Loss Given Default (LGD) over time



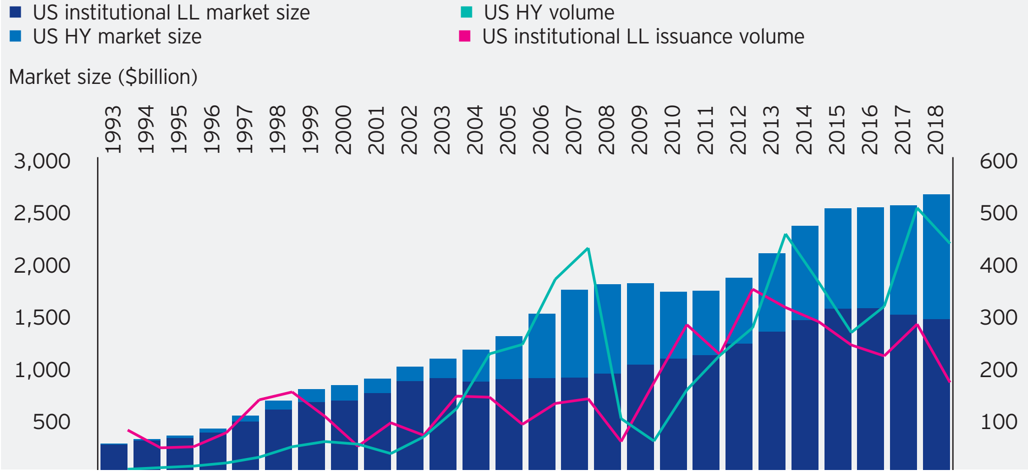
Source: S&P/LSTA as of 30 September 2019.

1.3 Loan market development

Participants and market features

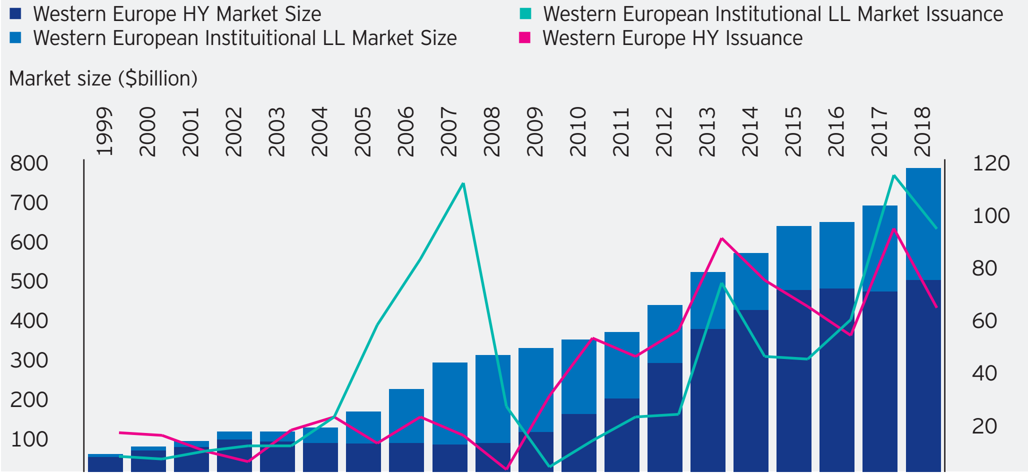
The institutional loan market has grown steadily over the past several years due to SSL's flexibility and lower capital charge compared to alternative asset classes. Secondary-market volumes in the US and Europe have increased five-fold over the last decade (Source: Credit Suisse). As of the end of December 2018, the total outstanding institutional market volume for US loans stood at about USD2.4 trillion (figure 5) while the total outstanding market volume for European institutional loans stood at EUR516 billion (figure 6).

Figure 5: Comparison of US leveraged loan (LL) versus US high yield (HY)



Source: Credit Suisse Research and Analytics, data as of 31 Dec. 2018.

Figure 6: European institutional SSL versus high yield (HY)



Source: Credit Suisse Research and Analytics, data as of 31 Dec. 2018.

Comparison of European loans versus US loans

The size of the European loan only recently eclipsed its 2008 peak, while the market for European high yield bonds has grown rapidly over the same time period (figure 6). In contrast, in the post-financial crisis period, US high yield bonds and loan markets have each grown steadily. The US loan market is currently four to five times as large as the European loan market, both in outstanding amount and volume of issuance. In table 3, we compare typical characteristics of US and European loans.

We expect CLO issuance (40% market demand) to continue at a similar pace to that seen in 2017 (€22 billion)[13] given the ready availability of underlying loan product and stable/compressing liability costs.

Table 3: European loans versus US loans

	European loans	US loans
Spread (bps)	352	356
Average price	97.95 €	96.2 $
Average floor (in basis points)	96	97
Weighted average life (in years)	5.21	4.83
3-year spread to maturity	413	478
Spread to aturity	424	476

Source: S&P/LSTA, data as of 30 September 2019.

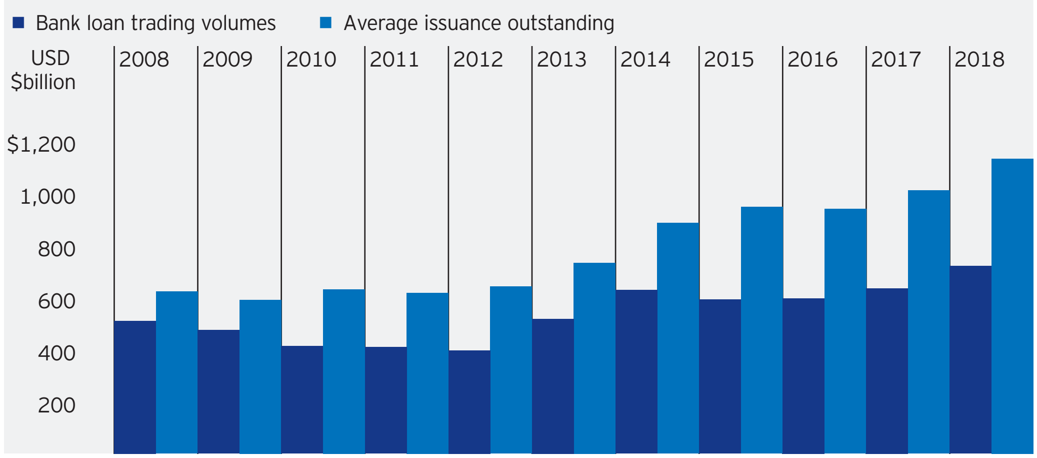
Both European and US loan markets currently offer attractive yields, in our view. In later sections of this paper, we delve deeper into various risk-return characteristics of these loan markets.

1.4 Loan market: trading and liquidity
Given the over-the-counter (OTC) nature of the market, lack of a TRACE trade reporting system, and the private nature of structuring deals, many market participants assume that the bank loan market is illiquid. According to the LSTA, at the end of 2018, the US loan market grew to a record USD1.19 trillion in total issuance outstanding, with new issuance of USD191 billion (20%) over the trailing twelve months.

The loan market has grown 112% since the end of 2007. While the size of the loan market has increased significantly, the overall number of issuers in the loan market has decreased from 1,740 in 2008 to 1,655 today. There are some misconceptions in the market regarding bank loans, including the following:

1. A common misconception in the bank loan space that arises as result of the OTC nature of the market is that bank loans are illiquid. The secondary market for bank loans is, however, surprisingly active and growing. Bank loan trading volumes hit record highs in 2018, reaching USD720 billion for the year (figure 7). Over the past three years, bank loan volumes have grown by over 7% year-over-year according to LSTA.
2. An important metric to consider when assessing liquidity in an OTC market is market breadth, or how much of the market trades on any given day, two statistics tracked monthly by the LSTA. During 2018, 520 loans traded on average each day (up 16% versus 2017), representing a notional amount of around three billion per day. On average, 47% of bank loans traded 20 or more times per month during 2018, an average of one trade per day. Compared to corporate bonds, bank loans trade much more frequently. Research by the US Securities and Exchange Commission and Financial Industry Regulatory Authority has shown that only 20% of TRACE eligible corporate bonds trade on any given day.
3. Finally, bank loan settlement is another area where misconceptions surrounding illiquidity arise. Investors often assume that the 30-plus days it can take to settle the small percentage of distressed loans is the standard for the market. However, settlement times fell to an eight-year low in 2018, with the median settlement time for the market at 11 days. Even during periods of bank loan market stress, as seen in December 2018, 52% of loan trades settled within T+10, while 33% of trades settled within T+7.

Figure 7: Evolution of loan trading volume versus loan outstanding volume



Source: LSTA, data as of 30 December 2018.

1.5 Loan market: Recent developments

Covenant-lite and misconceptions

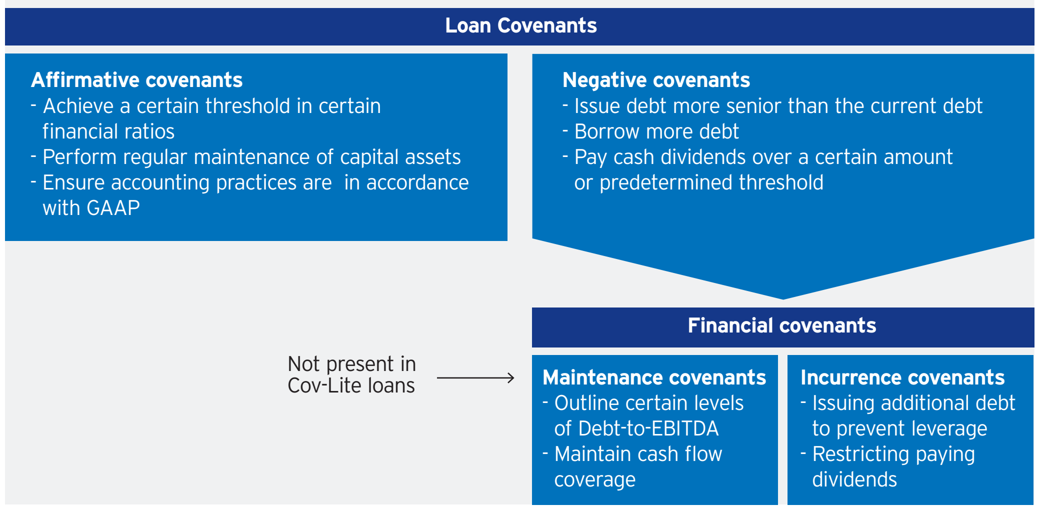
Loan credit agreements typically contain two types of covenants (figure 8):

1. **Affirmative covenants** require the issuer to adhere to certain terms, such as providing audited financial statements by a certain date.
2. **Negative covenants** are an agreement by the borrower to prevent actions that could negatively impact lenders without their consent. Negative covenants include, but are not limited to, clauses such as a negative pledge (prevents the borrower from issuing debt in the future that would negatively impact a first lien lender's priority claim), restricted payments (limits the borrower's ability to pay dividends or distributions), additional indebtedness (limits or restricts additional debt), and financial covenants explained below.

There are two types of financial covenants in the negative covenant category:

1. **Maintenance covenants** outline certain levels of financial ratios that a borrower must maintain, such as levels of leverage (debt-to-EBITDA), and cash flow coverage (EBITDA-to-interest), which are tested quarterly.
2. **Incurrence covenants** are tested only upon the "incurrence" of an event. These events can include: (i) issuing additional debt (preventing further leveraging) or (ii) restricting a company from paying dividends to equity holders.

Figure 8: Structure of loan covenants



Source: Invesco. For illustrative purposes only.

It is important to note that so-called covenant-lite loans still contain affirmative and negative covenants. Covenant-lite strictly relates to the lack of financial maintenance covenants. All high yield bonds are considered "cov-lite," as they do not have maintenance covenants but do have incurrence covenants.

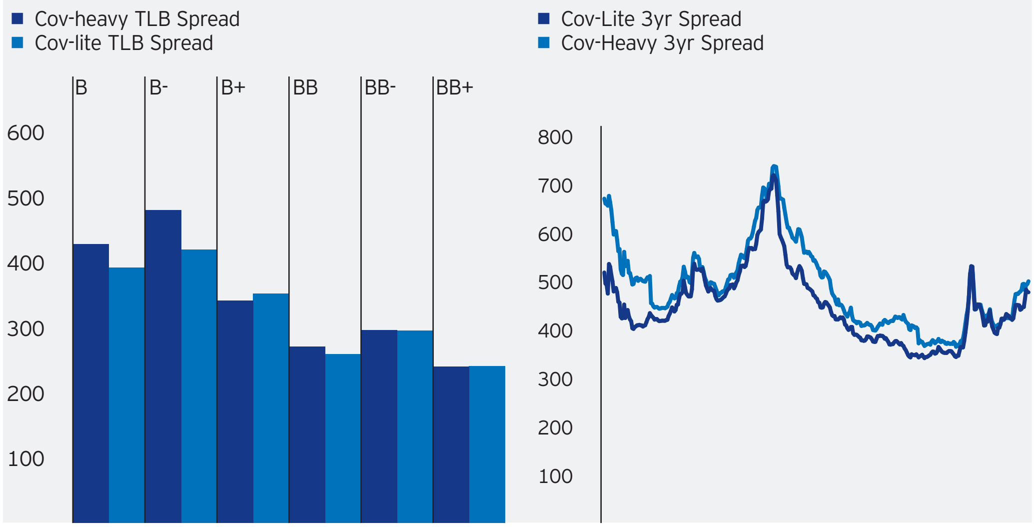
While financial covenants offer structural protection, they have not historically been a contributing factor in preventing credit deterioration or used by lenders to accelerate their loans and push companies into default. Instead, lenders have used covenant defaults primarily as an economic tool to extract additional spread and/or fees and, at times, to tighten credit agreements.

A covenant default is distinctly different from a payment default, which can induce a restructuring or bankruptcy. A large majority of new loans coming to market are cov-lite, but loans that contain maintenance covenants are generally of lower quality and thus require covenants to secure financing from the market.

A common perception about covenant-lite loans is that they are riskier than loans with covenants because they lack certain protections that serve as early warning signs of a company's financial trouble. We disagree with this view because financial performance is available to lenders with or without covenants. With such information, investors can detect a deterioration in earnings and take appropriate action without the need for covenants. In fact, covenants can be a lagging indicator of performance deterioration.

Figure 9 shows that investors have received higher spreads for deals with covenants than deals without covenants in both the primary and secondary markets. Our interpretation of this result is that, in the case of lower quality deals, as measured by S&P ratings, the loan market has required covenants to mitigate risk, yet higher quality deals have cleared the market without covenants. Said another way - deals with covenants tend to yield more than covenant-lite deals because the market views them to be fundamentally riskier and therefore needing additional covenant protection.

Figure 9: Cov-lite versus cov-heavy spread comparison



Source: S&P/LSTA, data as of 30 September 2019.

Lesser subordinated capital in capital structure

Much of the growth of the senior secured loan market has come at the expense of traditional unsecured high yield bonds. Both issuers and investors have migrated to the loan asset class. Issuers have valued the relatively lower cost of financing (given the senior secured status of loans and the flexibility to prepay or refinance. In contrast, unsecured high yield bonds are typically costlier from a coupon perspective in addition to pre-payment penalties. Investor demand has been driven by loans' relatively high coupons, low volatility and floating rate structure, amid expectations of rising rates.

The senior secured loan market is now similar in size to the high yield bond market. Less subordinated capital below loans in the capital structure will likely provide less cushion to losses in default scenarios, potentially leading to recoveries below historical long-term averages. With that said, loan managers should take capital structure considerations into account to derive their internal credit risk ratings. Even without subordinated debt, loans remain senior, secured obligations and should continue to benefit from higher recoveries relative to unsecured or subordinated debt. Given weaker terms in documentation and less subordination in capital structures, recoveries will likely be lower, but defaults will likely be less than at historical peaks and, as a result, we believe credit losses will not be meaningfully different from past cycles.

ESG (Environmental, Social and Governance) developments

ESG considerations have become increasingly relevant to investors, especially in Europe. It is, therefore, natural to see this theme emerge in the loan space. It is important to remember, however, that loans are not a security and issuers are often private companies or may be sponsored by a private equity firm. In this way, the loan market is unique, as managers cannot source data from external providers to access ESG-related information. This does not mean that investment managers do not possess the ability to make an impact. Although loan managers do not have voting rights or control over an issuer's ESG activities or conduct, they can emphasize the importance of ESG issues to management teams as it relates to their ability to raise capital. By integrating ESG considerations into their internal credit rating models, loan managers can drive credit spreads based on ESG considerations, which can, in turn, incentivise issuers to manage their ESG-related risks to achieve favourable credit spreads.

That being said, loans managed with ESG considerations are still relatively new and Invesco is a leader in the ESG effort. Invesco was recently the first loan manager to launch a US senior loan fund managed with ESG considerations in Europe.

Implications of LIBOR's phase-out

During the global financial crisis, it was alleged that LIBOR had been manipulated; since then, banks have reduced their interbank (LIBOR) borrowing. As a result, regulators have argued that LIBOR is no longer based on robust observations and that submissions are based on "expert judgement" rather than actual transactions or interpolation of transactions. US LIBOR is the widely used reference rate for nearly USD200 trillion in contracts. The December 2021 phase out of LIBOR and subsequent replacement rate transition seeks to 1) identify benchmarks anchored in observable transactions which are supported by appropriate governance structures, and ii) develop a plan to accomplish a transition to new benchmarks. In late 2014, the Alternate Reference Rates Committee ("ARRC") was formed to identify a replacement.

The ARRC has identified the Secured Overnight Financing Rate (SOFR) as the replacement rate for cash products, such as syndicated loans and collateralized loan obligations. SOFR is an overnight, secured risk-free rate, while LIBOR is an unsecured rate with a term curve. Because SOFR is secured, and thus expected to be lower than LIBOR, loans that "fall back" to SOFR will require a spread adjustment to make the successor rate more comparable to LIBOR (more on "fall backs" below.) SOFR is the combination of three overnight US Treasury repurchase agreement (repo) rates. The market for repo agreements is very liquid and deep, with more than USD1 trillion of trading per day. This means that SOFR will likely be robust, durable and difficult to manipulate—all perceived shortcomings of LIBOR.

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2. Value add of senior secured loans in an overall asset allocation

In our view, the attractive features of SSL can offer investors added value relative to other portfolio components:

2.1 Credit risk mitigation measures

A key strength of SSL is that, despite their classification as non-investment-grade investments, they offer several mechanisms that can help creditors mitigate the likelihood of default or, in the case of insolvency, strengthen their position with regard to all other capital providers:

- Collateral package: SSL are secured by collateral which typically includes a company's assets, such as real estate properties, plant and equipment and patents. The review and evaluation of collateral is a key component of due diligence analysis. In practise, most defaults are settled through debt to equity swaps, unless the defaulting company liquidates its assets.
- First lien on the company's assets in the event of bankruptcy: In the company's capital structure, SSL creditors are senior to all other capital providers. If a company defaults, SSLs are first in line to be repaid, resulting in a generally higher recovery rate compared to high yield bonds (see section 1.1).
- Covenants: SSLs are governed by a written contract which includes contractually agreed-upon financial covenants that place significant limitations on a borrower's business operations and are designed to limit the default rate.
- Effective post-investment monitoring: Rigorously monitoring a company's compliance with covenants, its financial health and capacity to meet principal payments using a combination of public and non-public information provides creditors with increased transparency and ensures that non-compliance can be addressed at an early stage.

  The historical recovery rates (as discussed in section 1.1) for defaulted loans demonstrate the effectiveness of the credit risk mitigation mechanisms of SSL.

2.2 Managing the impact of rising interest rates and inflation

Forecasting future interest rate movements is difficult but with core inflation in most developed markets below central bank targets, we expect rates to remain relatively stable or decrease going forward.

We consider the following two interest rate scenarios to be the most likely:
Scenario 1: Medium to long-term stability of interest rates
Scenario 2: Medium to long-term decrease in interest rates

Due to the special features of SSLs, we believe SSL investors are well positioned for both scenarios.

Scenario 1: Compared to other fixed-income investments, we believe SSLs offer an attractive investment opportunity in a low interest rate environment due to their high current income (table 4).

Table 4: Relative yields of key fixed income indices

Index	Universe	Rating	Interest	Modified Duration	Yield to Maturity
S&P Leveraged Loan Index	US	non-IG	floating-rate	45-60 days	LIBOR +355 bps
S&P European Leveraged Loan Index	Europe	non-IG	floating-rate	45-60 days	EURIBOR +352 bps
BbgBarc Euro Aggregate Government 500MM TR	Europe	IG	fixed-rate	6.42	0.27%
BbgBarc Euro Aggregate Corporate 500MM TR	Europe	IG	fixed-rate	5.22	0.44%
BofAML Euro High Yield TR	Europe	non-IG	fixed-rate	3.35	3.69%
BbgBarc US Aggregate Government TR	US	IG	fixed-rate	5.87	2.32%
BbgBarc US Corporate IG TR	US	IG	fixed-rate	7.9	2.87%
BofAML US High Yield TR	US	non-IG	fixed-rate	3.43	6.40%

Source: Barclays, BofAML, Credit Suisse as of 30 September 2019.

Scenario 2: We believe SSLs are well positioned for scenario 2. Although the floating rate nature of loans may cause modest fluctuations in coupons, components of the coupon (LIBOR + credit spread) have historically been inversely related. As LIBOR increases, usually due to macroeconomic strength, strong demand for floating rate loans enables issuers to reprice or refinance their loans at a lower credit spread. Conversely, if LIBOR declines, usually amid macroeconomic weakness, credit spreads have typically increased to compensate investors for perceived additional default risk. This dynamic has ultimately resulted in a relatively stable and high coupon rate, regardless of the direction of interest rates. Additionally, LIBOR floors[12] may give investors additional yield protection when interest rates decline significantly.

Table 5: Scenario analysis – medium-to long-term increase in interest rates

	Market Price	Accounting (according to IFRS 19)	Future Income
Straight Bond	decrease	write-down	unchanged
Senior Secured Loan	unchanged	unchanged	increase

Source: Invesco. For illustration purpose only.

To demonstrate the protective nature of SSLs, we use empirical evidence from the period November 2001 to August 2003 when the US Federal Reserve decreased interest rates five times by a total of 150 basis points.[13] During this period, the SSL benchmark indices (Credit Suisse Leveraged Loan Index and Credit Suisse Western Europe Leveraged Loan Index) performed in line with the corporate bond index (Bloomberg Barclays US Corporate Bond TR USD) on a risk-adjusted basis and outperformed US Treasury bonds in terms of return and risk-adjusted return (table 6). In addition, loans exhibited relatively lower volatility compared to corporate bond indices resulting in a similar Sharpe Ratio (table 6).

Table 6: Performance of key US bond indices in an environment of rising market interest rates

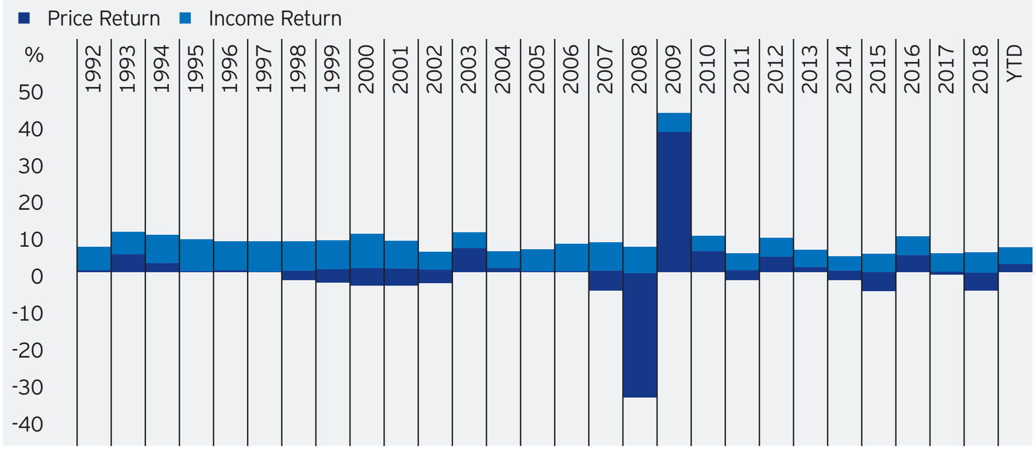
	Return	Std Dev	Sharpe Ratio	Sortino Ratio	Max Drawdown
Credit Suisse Leveraged Loan USD	5.00	3.73	0.91	1.42	-4.44
BBgBarc US Agg Bond TR USD	5.85	4.68	0.92	1.38	-3.55
BBgBarc US Corp Bond TR USD	7.75	6.13	1.00	1.61	-4.56
BBgBarc 1-3 Yr US Treasury TR USD	3.86	1.83	1.27	2.49	-0.74
BBgBarc 1-5 Yr Treasury TR USD	4.42	2.83	1.02	1.79	-1.27

Source: Morningstar. Monthly returns, time period: 01.10.2001 to 31.08.2003, in BASE currency. Past performance is not a guide to future returns.

2.3 Historical return profile in diverse market phases

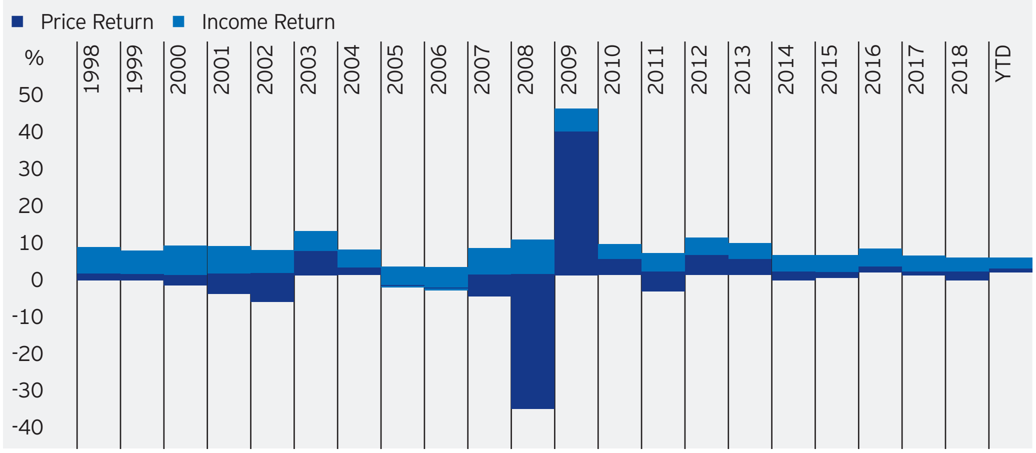
The historical performance of US and European SSLs – as represented by the Credit Suisse Leveraged Loan Index and Credit Suisse Western Europe Leveraged Loan Index, respectively – is very compelling, in our view (figure 10 and figure 11). Since its launch in January 1992, the Credit Suisse Leveraged Loan index has recorded a positive total return in each calendar year coupled with consistent income and moderate price fluctuation, except for the crisis year 2008. It is interesting to note that the maximum drawdown in 2008 was offset after 12 months by a strong rebound in performance. Along similar lines, the Credit Suisse Western Leveraged Loan Index has recorded a positive total return or moderate negative total return in each calendar year, coupled with consistent income and moderate price fluctuations, except for the crisis year 2008.

Figure 10: Breakdown of US SSLs historical total return into price and income return
(as measured by the Credit Suisse Leveraged Loan Index USD)



Source: Credit Suisse January 1993 to 30 September 2019.

Figure 11: Breakdown of European SSLs historical total return into price and income return
(as measured by the Credit Suisse Western European Leveraged Loan Index EUR Hedged)



Source: Credit Suisse from January 1998 to 30 September 2019.

After analysing the crisis year of 2008, we can conclude that the sharp drawdown was caused by a massive sell-off of loans, primarily driven by two extraordinary effects: 1) deleveraging pressure experienced by some market participants in the course of the Lehman bankruptcy and 2) a serious overhang stemming from already signed loans on bank balance sheets that had not yet been syndicated.

Despite the sharp correction in 2008, two important observations can be made: 1) Compared to other asset classes that also experienced heavy selling pressure, loans continued to pay highly stable cash flows. 2) As this sharp drawdown was not really driven by fundamentals, the mispricing was corrected during the following year. Investors who maintained a buy-and-hold strategy were rewarded: Between January 2008 and December 2010, SSL investments produced an absolute annual total returns of 4.3%[13] and - 3.69%[14] for the US and Europe, respectively. This result was achieved even though SSL default rates reached a record high during this period.

Despite occasional volatility in money and capital markets, SSLs recorded solid to strong performance through the business cycle over the past decade (table 7).

Table 7: SSL Performance in diverse market phases

	SSL work in most interest rates scenarios											
Thesis:	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Europe Business Cycle Stage	Recession	Recovery	Recovery	Expansion	Expansion	Expansion	Expansion	Recession	Recession	Recovery	Recession	Recession
Changes in ECB Deposit Facility Rate	-150bps	-50bps	-25bps	-	+25bps	+125bps	+50bps	-100bps	-155bps	-	-	-25bps
US Business Cycle Stage	Recession	Recovery	Recovery	Expansion	Expansion	Expansion	Expansion	Recession	Recession/ Recovery	Recovery	Recovery	Recovery
Changes in Fed fund rate	-475bps	-50bps	-25 bps	+175bps	+200bps	+100bps	-100bps	-400bps to - 425bps	-	-	-	-
CS LL Index Return	2.6%	1.1%	11.0%	5.6%	5.7%	7.3%	1.9%	**-28.8%**	44.9%	10.0%	1.8%	9.4%
CS WstEur LL Eur Hdg Return	1.5%	**-1.9%**	12.2%	6.9%	5.5%	6.0%	1.0%	**-30.2%**	47.2%	8.5%	**-0.6%**	10.4%

	SSL work in most interest rates scenarios					
Thesis:	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Europe Business Cycle Stage	Recession	Recovery	Recovery	Recovery	Recovery	Recovery
Changes in ECB Deposit Facility Rate	-	-20bps	-10bps	-10bps	0bps	0bps
US Business Cycle Stage	Recovery	Recovery	Recovery	Recovery/ Expansion	Recovery/ Expansion	Expansion
Changes in Fed fund rate	-	-	-	+50bps	+75bps	+100bps
CS LL Index Return	6.2%	2.1%	**-0.4%**	9.9%	4.3%	**1.1%**
CS WstEur LL Eur Hdg Return	8.7%	2.0%	3.1%	6.5%	3.3%	0.6%

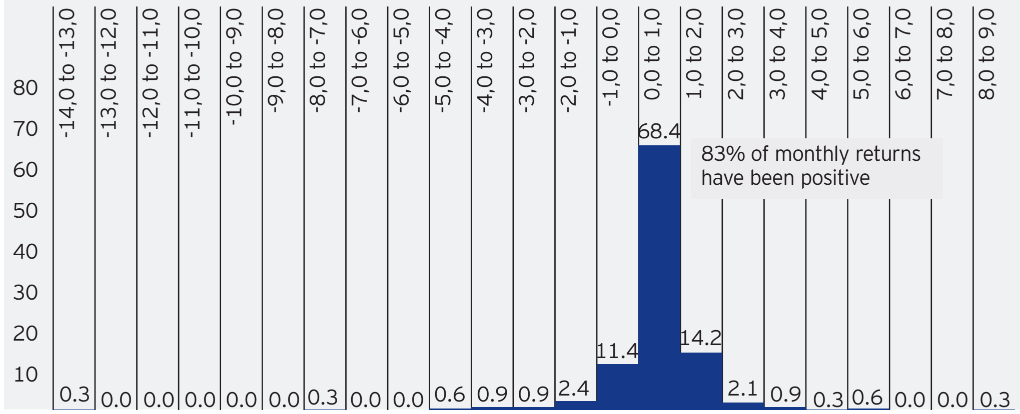
Source: US Federal Reserve, Morningstar as of December 31, 2018, index performance based on Credit Suisse Leveraged Loan Index (in USD) and Credit Suisse Western European Leveraged Loan EUR Hedged Index (in EUR). Past performance is not a guarantee of future results. An investment cannot be made in an index.

Remarkably, the index also recorded solid performance during the crisis years of 1993 and 1994 ('bond bubble'), 1998 (''LTCM collapse'') and 2000 to 2002 (''tech bubble''). We believe the consistent performance across various market cycles underscores the attractive risk/return profile of the SSL asset class.

Analysing monthly performance figures for the Credit Suisse Leveraged Loan Index substantiates this consistent performance: Over the last 27 years, 83% of US SSL monthly returns have been positive. (figure 12). Over the same period, the incidence of large negative returns (left tail of the return distribution) has been low at just 0.4% of all cases (figure 12). On average, US loans delivered annual returns above 4% in about 71% of all calendar years. Similarly, monthly figures for the Credit Suisse Western Europe Leveraged Loan Index were highly consistent: Over the last 21 years, 79% of monthly returns were positive (figure 13). Over the same period, the incidence of large negative returns has been low at just 0.4% of all cases (figure 13). Additionally, European loans delivered annual returns above 4% in 61% of all calendar years (figure 13).

Figure 12: Return distribution since inception – Credit Suisse Leveraged Loan Index (USD)

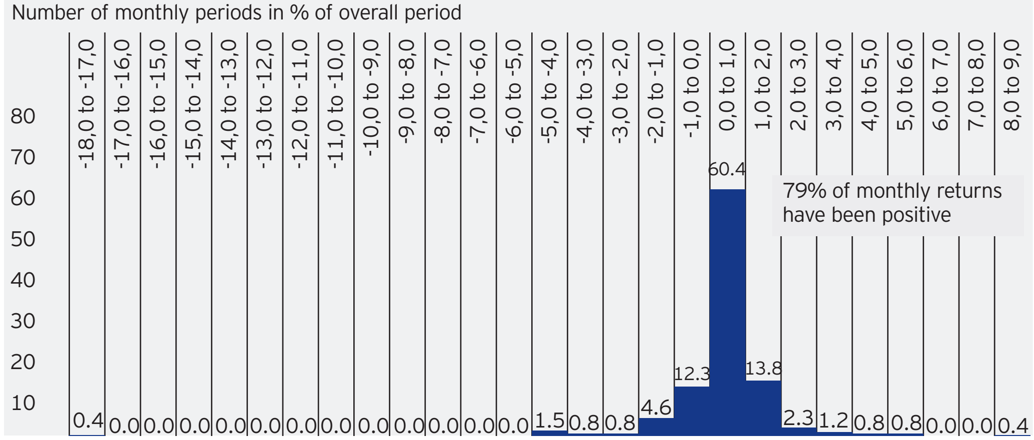
Number of monthly periods in % of overall period



Source: Data from Credit Suisse Leveraged Loan Index (in USD) as at 30 September 2019.

Figure 13: Return distribution since inception – Credit Suisse Western Europe Leveraged Loan Index (EUR Hedged)

Number of monthly periods in % of overall period

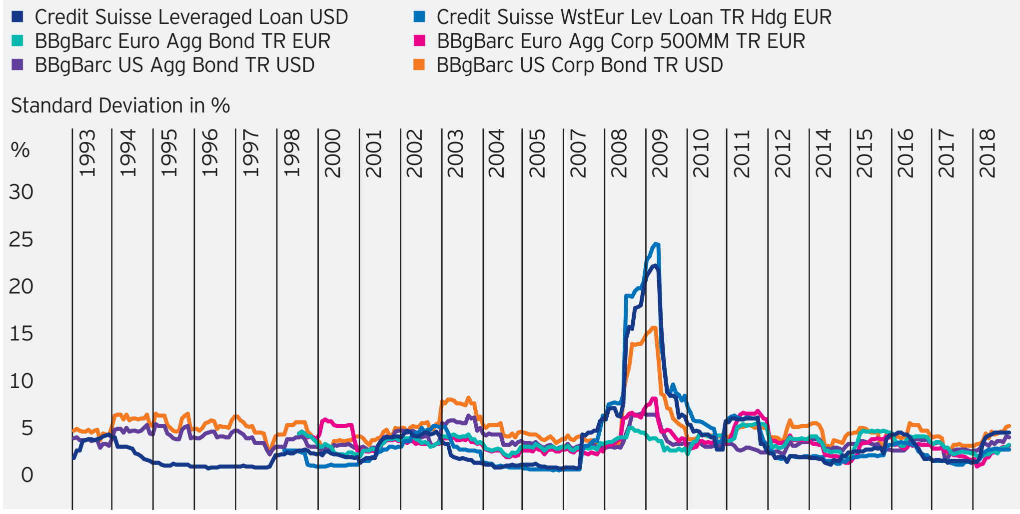


Source: Data from Credit Suisse Western Europe Leveraged Loan EUR Hedged Index (in EUR) as at 30 September 2019.

2.4 Historical volatility

The solid return profile of SSLs is also reflected in their volatility, as measured by the Credit Suisse Leveraged Loan Index for US loans and the Credit Suisse Western European Leveraged Loan Index. Since the launch of these loan indices, their annual volatility has averaged between 2% and 3%, except for the subprime crisis years of October 2008 to March 2010. In addition to consistently low 'absolute" volatility (except for the subprime crisis years), "relative" volatility compared to selected European and US bond indices (investment grade, non-investment grade) has been low (figure 14). This phenomenon can be explained by the regular adjustment of SSL floating rates to current market rates and attractive credit spreads that have driven stable returns. Assuming unchanged market liquidity and creditworthiness, changes in market rates typically have a marginal impact on SSL prices. In contrast, fixed-interest bond prices adjust as market rates change, which can lead to increased volatility of fixed-interest bonds and thus price risk.

Figure 14: Rolling standard deviation[1]



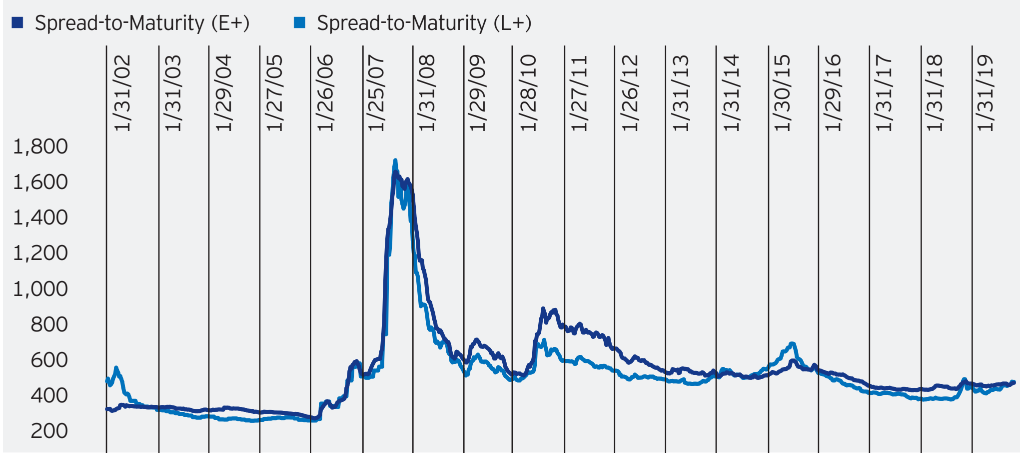
1 Rolling window: 1 year, 1-month shift.
Source: Morningstar, data as of 30 September 2019, in base currency.

2.5 Compelling return potential

To evaluate the attractiveness of the SSL market, we employ commonly used measures, such as spread to maturity, seeking to identify the fair market value, which we then compare to current and historical values.

The spread to maturity is based on the excess spread of the loans' yield to maturity over the current reference rate. The advantage of this valuation method lies in the fact that it does not consider the current level of money market rates, thus allowing for an exclusive comparison of current and historical excess spreads at any point in time. For example, we would consider a spread of LIBOR + 410 basis points as of the end of June 2018 to be attractive compared to the average spread of LIBOR + 296 basis points during the pre-financial crisis period (December 2002 to October 2008) (figure 15).

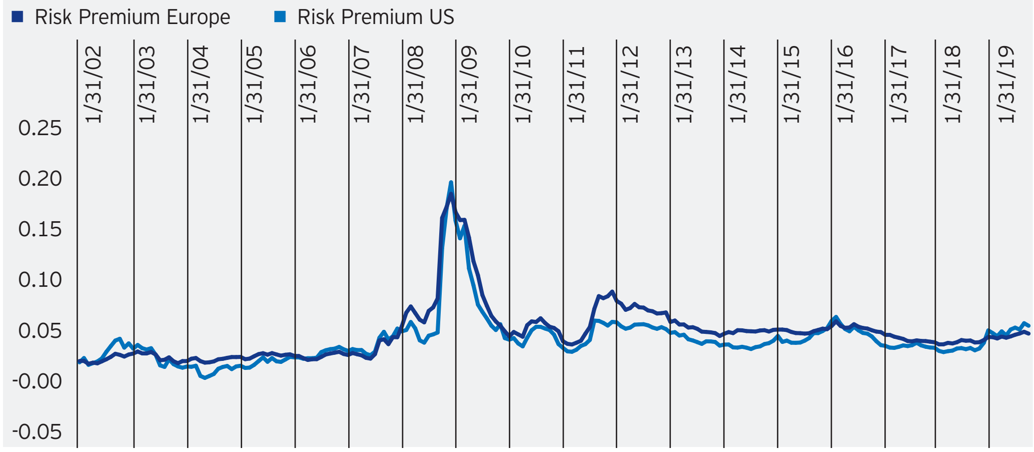
Figure 15: Spread-to-maturity (STM) - US versus Europe



Source: S&P/LSTA, data as at 30 September 2019.

Additionally, we consider risk premium, which is the difference between loan yields and US Treasury yields, to determine loans' relative attractiveness versus perceived "safe haven" assets such as five-year US Treasury bonds. Currently, risk premia in the US and European loan markets are above the pre-financial crisis average risk premium (from December 2002 to October 2008) - 150 basis points higher for European Loans and 195 basis points higher for US loans (figure 16).

Figure 16: Risk premium – US versus Europe



Source: S&P/LSTA, Bloomberg L.P., data as at 30 September 2019.

Overall, both US and European loan markets currently look attractive, in our view. Given the divergent macroeconomic environment between Europe and the US, a global loan portfolio, combining investments in both regions, could provide diversified sources of yields and the potential to improve the risk-adjusted returns compared to standalone investments in either region.

2.6 Attractive diversification benefits for overall asset allocation

Due to their attractive features (short duration, relatively high current income and credit risk mitigation measures) and solid historic performance across different market cycles, we believe SSLs offer the potential for low correlation to alternative asset classes. These diversification benefits relate to traditional asset classes such as fixed income, equities and commodities. For example: Adding SSLs to a European bond portfolio – irrespective of the investment universe and credit rating – may offer attractive diversification benefits. This is because SSLs have exhibited a low (pre-crisis) to moderate (post crisis) correlation to European corporate bonds. At the same time, correlations to government bonds have been negative (pre-crisis) or close to zero (post crisis), as shown in Figure 17. In our view, the integration of SSLs into an investment grade portfolio potentially offers an opportunity to exchange the insufficiently priced duration risk of a high quality bond for the (historically) attractively priced credit risk of an SSL.

Fig 17: Pre- and post-financial crisis

Pre subprime crisis	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1 Credit Suisse Leveraged Loan USD	1.00									
2 Credit Suisse WstEur Lev Loan TR Hdg EUR	0.83	1.00								
3 S&P 500 NR USD	0.49	0.44	1.00							
4 MSCI World NR USD	0.55	0.51	0.96	1.00						
5 MSCI Europe NR EUR	0.49	0.47	0.90	0.91	1.00					
6 BBgBarc Euro Agg Bond TR EUR	-0.14	-0.17	-0.28	-0.27	-0.36	1.00				
7 BBgBarc Euro Agg Corp 500MM TR EUR	0.34	0.25	0.05	0.10	-0.02	0.82	1.00			
8 BBgBarc US Agg Bond TR USD	-0.02	0.01	-0.21	-0.17	-0.31	0.78	0.67	1.00		
9 BBgBarc US Corp IG TR USD	0.38	0.32	0.10	0.17	0.00	0.66	0.85	0.85	1.00	
10 Bloomberg Commodity TR USD	0.23	0.09	0.03	0.19	0.05	0.04	0.24	0.05	0.24	1.00
Pre subprime crisis	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**		
1 Credit Suisse Leveraged Loan USD	1.00									
2 Credit Suisse WstEur Lev Loan TR Hdg EUR	0.90	1.00								
3 S&P 500 NR USD	0.59	0.53	1.00							
4 MSCI World NR USD	0.65	0.61	0.97	1.00						
5 MSCI Europe NR EUR	0.66	0.57	0.78	0.84	1.00					
6 BBgBarc Euro Agg Bond TR EUR	0.02	0.06	-0.01	0.01	0.13	1.00				
7 BBgBarc Euro Agg Corp 500MM TR EUR	0.53	0.55	0.38	0.43	0.50	0.73	1.00			
8 BBgBarc US Agg Bond TR USD	-0.03	0.03	-0.15	-0.10	-0.06	0.65	0.48	1.00		
9 BBgBarc US Corp IG TR USD	0.43	0.44	0.21	0.29	0.31	0.62	0.76	0.83	1.00	
10 Bloomberg Commodity TR USD	0.41	0.40	0.54	0.60	0.37	-0.18	0.14	-0.07	0.19	1.00

Pre subprime crisis: February 2002 to September 2008. Post subprime crisis: April 2009 to September 2019.
US loans represented by Credit Suisse Leveraged Loan Index in USD, European Loans represented by Credit Suisse Leveraged Loan Index EUR Hedged in EUR
Source: Morningstar. Monthly returns in base currency.

3. Conclusion

In the current market environment, very few fixed-income investments offer attractive current income with short duration and historically low volatility. SSLs combine these features while offering potentially attractive diversification benefits due to their historically low correlation to other asset classes. As a result, adding SSLs to a portfolio has the potential to decrease overall portfolio volatility while at the same time providing attractive return contributions.

Due to these factors, we believe SSLs currently offer an attractive investment opportunity. Yet despite the benefits of SSLs, European investors have tended to remain underinvested in the loan asset class. We believe this is primarily due to the non-investment grade nature of SSLs and associated regulatory constraints. Compared to other non-investment grade investments, however, SSLs benefit from certain credit risk mitigation measures that guarantee seniority to creditors in the case of default. This has historically resulted in lower default rates and higher recovery rates compared to unsecured non-investment grade securities.

In the current low interest rate environment, we believe an allocation to floating-rate SSLs can help reduce duration risk, potentially without diluting returns. Consequently, this should help to hedge portfolios against potential future increases in interest rates. Given SSLs' high level of yield, their currently attractive valuations and historically low volatility, we believe SSLs offer an income generating investment with an attractive risk-return profile.

Kevin Petrovcik
Senior Client Portfolio Manager

Q&A with Kevin Petrovcik, Senior Client Portfolio Manager with Invesco Global Bank Loans

We speak with Kevin Petrovcik, Senior Client Portfolio Manager of Invesco's Global Bank Loan team, about Invesco's competitive edge when it comes to managing bank loans and the current state of the bank loan market.

Could you describe Invesco's loan team?
With over USD40 billion under management, the senior secured loan team operates as one global team and has been managing bank loans for clients around the world for over 30 years.[17] Invesco's bank loan team has the best of both worlds: We are part of the larger Invesco organization and the its global support model, but, because we deal with private companies and information, we also operate independently within the Invesco framework. We manage institutional and retail portfolios for clients seeking income and yield within the global credit markets.

What differentiates Invesco's bank loan platform?

Diversity of Invesco's bank loan platform
Invesco operates in every segment of the senior secured loan space— institutional, including long-term investors; structured and CLOs, including more opportunistic investors; and retail and ETFs, including more thematic investors. This is important because we believe shifting investor profiles can create potential opportunities for other investor types. Our significant scale across different markets creates trading leverage and the ability to execute trades in the primary and secondary market.

Exclusively dedicated to bank loans
Because bank loans are a private asset class, our singular focus on loans provides us access to material non-public information that other investors who work with high yield do not have. We also have one of the largest teams dedicated to the asset class.

Managing bank loans for over 30 years
Our clients are seeking yield, income and to minimize volatility in their portfolios. Over the last 30 years, this asset class has proven that it can provide just that.[18] We have one of the longest track records in the industry, managing loans for pension funds, corporations, endowments, financial institutions, insurance companies and high net worth and retail investors around the world.

ESG is an umbrella term encompassing different things for different investors. Could you highlight Invesco's approach to ESG in the context of bank loans?
Because bank loans are private instruments, they represent a small pool of the investable universe rated by outside ESG rating providers. When we sought ESG ratings for bank loan issuers, we found data on only around 10% of our investment universe. To develop an ESG product that would work for our clients, we needed to develop a proprietary framework to rate each issuer from an ESG perspective. The ESG evolution over the past couple of years has increased clients' desire to invest in a socially responsible way. There is no one definition of what to incorporate in an ESG approach, so we worked with existing clients at the forefront of ESG investing to develop a framework that works today and is flexible enough to evolve in the future.

Do you think Invesco has a first mover advantage in bank loan-ESG strategies?
As with other bank loan strategies, we believe there is an advantage in being a first mover in the ESG space. ESG is not an exact science, but we believe it is very important to be measurable and actionable. Invesco's bank loan analysts have conducted ESG-specific due diligence reviews with issuers' management teams and are one of the first, or most progressive, bank loan analysts from an ESG perspective. We have independently rated over 700 issuers from an ESG perspective.

ESG ratings in the bank loan space are fairly new. Could you explain how ESG ratings are derived?

Our analysts measure each loan on a scale of 1-5 for risks related to multiple ESG factors under separate pillars for E, S and G (1= negligible risk; 2= low risk; 3= average risk; 4= above average risk; 5= high risk).

To derive an issuer-level ESG rating:

1. We average the various factors under each E/S/G pillar to determine a Pillar Rating.
2. We then weight each pillar by the average E/S/G pillar weights published by MSCI ESG Research by industry sector to come up with an ESG Composite Score.
3. Each ESG rating is reviewed and approved by Invesco's senior investment committee (the same committee that approves all bank loans from a credit perspective).
4. Each ESG rating is included in new deal underwriting and reviewed at least annually.

Could you explain how Invesco constructs ESG portfolios?

The investment objectives of our ESG portfolios involve an investment screen for ESG. The ESG screening process is designed to be flexible and currently incorporates the following criteria:

1. Exclude companies based on their involvement in:
   - Production of tobacco products
   - Controversial weapons
   - Extraction of thermal coal
   - Extraction of fossil fuels from unconventional sources
   - Generation of electricity above a defined percentage from coal-fired plants
   - Non-compliance with UN Global Compact principles
2. Exclude issuers with an E,/S/G pillar score above a certain level
3. Exclude issuers with a Composite E/S/G score above a certain level

Following the robust senior secured loan returns we saw in 2019, what are the expectations regarding return drivers for senior secured loans for the foreseeable future?

In our view, 2020 will be characterized again by strong performance of high-quality assets, offset in part by rising idiosyncratic risk and price dispersion against an uneven growth backdrop. Although headline economic growth is projected to be stable in the US and Europe, we expect continued credit deterioration and ratings downgrades among lower rated issuers. This will likely create thin demand at the stressed end of the quality spectrum in favor of better capitalized issuers with stronger earnings outlooks.

Notwithstanding economic uncertainties, we expect 2020 to be another solid year for senior secured loans. Although late cycle pressures and other idiosyncratic and sector-specific risks have risen, we believe loans are poised to deliver strong coupon income and relatively muted price volatility.

1 Source: Credit Suisse Leveraged Loan Index, data from1 Jan. 1992 – 31 Sept. 2019. US bank loans have generated average 6.25% income from 1992 to 2019.
2 Because bank loans are floating rate notes, they naturally provide a hedge against interest rate movement as the reference index resets every quarter. As interest rate tend to move with inflation, bank loans implicitly provide hedge against inflation as well.
3 Source: US loans represented by Credit Suisse Leveraged Loan USD have exhibited lower volatility i.e. 3.18% than US Equities represented by S&P 500 (12.54%), Global Equities represented by MSCI World NR USD (13.03%), US Corporate Bonds represented by Bloomberg Barclays US Aggregate Bond TR USD (4.12%), US High Yield represented by Bloomberg Barclays US HY 2% Issuer Cap TR USD (5.85%). Calculations in USD. Data from 1 Oct. 2009 – 30 Sept. 2019.
4 Source: US loans represented by Credit Suisse Leveraged Loan USD have provided better Sharpe Ratio i.e. 1.49 than US Equities represented by S&P 500 (1.58), Global Equities represented by MSCI World NR USD (0.69), US Corporate Bonds represented by Bloomberg Barclays US Aggregate Bond TR USD (1.08), US High Yield represented by Bloomberg Barclays US HY 2% Issuer Cap TR USD (1.24). Calculations in USD. Data from 1 Oct. 2009 – 30 Sept. 2019.
5 Source: Refer to section 2.1, page 6: "Credit risk mitigation measures."
6 Source: Refer to figure 17, page 16: "Pre- and post-financial crisis".
7 Moody's Default Study. 1 February 2019.
8 Definition based on 2010 Dodd-Frank Financial Reform.
9 CLOs are a form of securitization, where receivables from SSL are pooled together and passed on to different owners in various tranches.
10 Moody's, S&P, 31 Dec. 2018 (latest available data).
11 Moody's Default Study. 1Feb. 2019.
12 LGD=default rate*(1-recovery rate).

13 LIBOR Floors provide minimum LIBOR level even if it falls below a certain level, e.g. a loan with a LIBOR floor of 1 % priced at LIBOR plus 4 percent will provide a coupon of 5 percent, even if LIBOR dropped to 0.5% percent.
14 Source: US Federal Reserve.
15 Data from Credit Suisse Leveraged Loan Index (in USD) as at 30 September 2019
16 Data from Credit Suisse Western Europe Leveraged Loan EUR Hedged Index (in EUR) as at 30 September 2019
17 Source: Invesco, data as of 31 Dec. 2019.
18 The S&P/LSTA Liquid Leveraged Loan Index has had positive performance in all but two years over the past 21 years. Loan returns as measured by the index are as follows in (%):

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
3.65	4.99	4.18	1.91	9.97	5.17	5.08	6.77	2.02	-29.10	51.62

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
10.13	1.52	9.66	5.29	1.60	-0.69	10.16	4.12	0.44	8.64

Investment risks

The market for senior loans remains less developed in Europe than in the U.S. Accordingly, and despite the development of this market in Europe, the European Senior Loans secondary market is usually not considered as liquid as in the U.S. The market for illiquid securities is more volatile than the market for liquid securities. The market for senior loans could be disrupted in the event of an economic downturn or a substantial increase or decrease in interest rates. Senior loans, like most other debt obligations, are subject to the risk of default.

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