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# Senior Secured Loans: Attractive current income coupled with a short duration profile and a history of low correlation of returns

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## In brief

Senior Secured Loans (SSL) provide investors with an attractive investment opportunity: SSL pay a floating coupon at a premium above a base rate, which translates into a generally limited interest rate sensitivity. By being both “senior” and “secured”, SSL can offer mitigation of downside risk in the event of default. Based on their unique investment profile, SSLs have provided low correlation to traditional asset classes and thus delivered attractive returns and risk diversification in the past.

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**Investors are facing growing challenges in the current capital market environment which is characterized by a mix of overall compressed risk premiums, low-yielding ‘safe-haven’ investments and recurring high volatility. In this environment, it is challenging to make sustainable decisions in order to reach the targeted returns.**

In our view, the current capital 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 real returns. Consequently, modified durations of these investments have reached all-time highs and thus impose significant duration risk to investment portfolios. While base rates across the G7 countries are either negative or at historical lows, yield curves in some countries have begun to steepen. At the same time, global growth is still fragile and concerns over the future path of central bank activities and national fiscal politics remain. Against this background, it remains hard to obtain resilient forecasts on future interest rate developments. To manage this uncertainty, we believe that a fixed-income allocation should be considered that enables 1) a flexible response to future interest rate movements and 2) automatic participation in future rate hikes without diluting returns on investment.

In the current market environment, Senior Secured loans (SSLs) can offer attractive features that may cater for the needs of investors:

- Attractive current income - independent from market environment
- Minimal duration risk - providing a hedge against rising interest rates
- Historic record of low volatility of investment returns compared to traditional asset classes
- Good historic and current risk-adjusted return profile
- Implied comprehensive credit risk mitigation mechanism - senior in capital structure and secured
- Low historical correlation of returns - providing potential benefits from portfolio diversification

In general, SSLs can offer a combination of attractive current income coupled with a short duration profile and are largely an uncorrelated source of return.

# 1 Introduction to Senior Secured loans

Senior Secured loans (SSLs) are privately arranged loans issued to a consortium of banks and institutional creditors that provide companies with access to debt capital. SSLs traditionally offer a spread over the reference rate, typically LIBOR or EURIBOR, making them 'floating-rate' instruments. The majority of the spread over the reference rate typically covers the credit risk of the issuer.

Generally, the borrowers are corporates and the loans are normally dedicated for 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, seniority in the company's capital structure and comprehensive financial covenants) rank SSLs at the top of a company's capital structure (figure 1). Seniority in the company's capital structure effectively means that the SSL investor is ranked first for any repayment in the event of a default of the issuer.

While companies have used SSLs for centuries to provide part of their capital structure, the institutional market for these loans did not develop

until the late 1980s. Over the last 30 years, bank loans have had an established loan trading, settlement and administration process as well as improved transparency standards. Large loan issuers include Hertz, Dell and Burger King as well as European corporations such as Alstom, Celanese, E.ON and Siemens.

Typically, three parties are involved in the structuring of a SSL: 1) the borrower, 2) the mandated lead arranger (commercial or investment bank) and 3) a consortium of creditors and investors (figure 2). The key task of the mandated lead arranger is to structure, arrange and syndicate the loan on behalf of the borrower as well as to administer payments through the life of the loan. At the same time, the mandated lead arranger establishes a consortium with additional investors. The main task of the investors is to independently review and evaluate the borrower's creditworthiness, its future capacity to meet interest and principal payments. The aim is to precisely assess current and future risks as well as 'fair' loan pricing.

Figure 1  
**Seniority of SSLs**

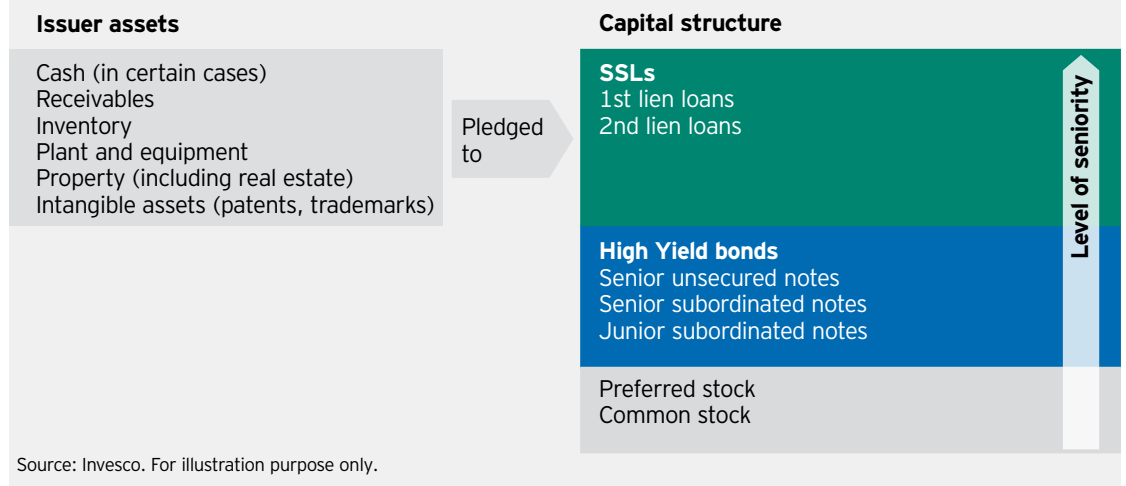


Figure 2  
**Structure of a syndicated loan**

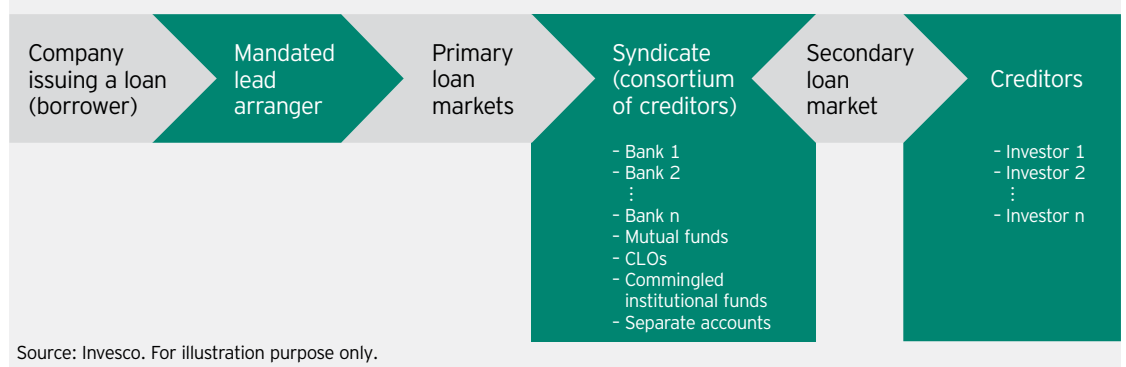


Table 1  
**Features of SSLs and High Yield bonds**

| Debt type       | SSLs                                      |                | High Yield bonds |                     |
|-----------------|---|----------------|------------------|---------------------|
|                 | 1st lien loans                            | 2nd lien loans | Senior notes     | Subordinated notes  |
| Floating/fixed  | Floating                                  |                | Fixed            |                     |
| Tenor           | 5-7 years                                 | 5-8 years      | 7-10 years       | 8-10 years          |
| Prepayment      | Yes                                       |                | No               |                     |
| Seniority       | Senior secured                            |                | Senior unsecured | Senior subordinated |
| Secured         | Yes                                       |                | Sometimes        |                     |
| Call protection | Sometimes, but typically less than 1 year |                | Yes              |                     |

Source: Invesco. For illustration purpose only.

### 1.1 SSLs in comparison with High Yield bonds

SSLs and High Yield bonds are both debt instruments and rank higher than equity in the capital structure (as shown in figure 1). SSLs are on the top of the capital structure and have a comprehensive collateral package, whereas High Yield bonds rank below SSLs in the capital structure and are typically unsecured. This can be meaningful. For example, over the last 29 years (between 1987-2015), the average debt recovery rate measured by ultimate recoveries for US SSLs was 80.4%, while for US High Yield bonds it was 48.8% on average<sup>1</sup>.

Additionally, SSLs are floating rate instruments, while High Yield bonds are issued with a fixed coupon. High Yield bonds tend to have a longer tenor (between 7-10 years on average) in comparison to SSLs (between 5-7 years on average). SSLs offer flexibility to the issuer to pay the principle before the expiration of the loan maturity. This process is typically called prepayment, repayment or callability, which makes the actual life of a loan even shorter than the contractual maturity.

In table 1, we have listed the major features of SSLs and High Yield bonds.

### 1.2 SSLs in comparison with other ABSs

An Asset Backed Security (ABS)<sup>2</sup> is a fixed income or other security collateralized by any type of financial asset that allows the holder of the security to receive payments that depend primarily on the cash flow from the asset. ABS generally includes CLOs (Collateralized Loan Obligations), MBSs (Mortgage Backed Securities), RMBSs (Residential Mortgage Backed Securities), Auto Loans and Credit Card Loans.

ABS funds such as CLO<sup>3</sup> funds are one of the main investor groups in SSLs. Post financial crisis, some of the ABS asset class was under review for its extreme losses during the crisis. We find the generalization not appropriate as the high level of defaults predominately applied to lower-rated RMB

securities and not ABSs in general. The research we conducted highlights something remarkable: Post Lehman, CLOs not only had the lowest loss rates among all ABSs; they had also the lowest loss rates among all corporate credits<sup>4</sup>. Additionally, the default rate on rated CLO tranches has been well below equivalently rated corporate bonds. On top of that, CLO AAA and AA notes have never suffered a default.

These findings support our belief in the attractiveness of SSL as an asset class. The strengths of this asset class such as its senior rank in the capital structure as well as high recoveries and low default rates have shone through both the internet bubble in 2000 as well as the financial crisis in 2008. The average recovery rate, which is measured by post default trading prices, for 1st lien loans for the period 1983-2015 based on issuer-weighting stands was 66.6% (table 2). And if one observes the "ultimate" recovery, which typically takes 1-2 years to resolve, the average recovery for the period 1987-2015 was 80.4%. Even during the financial crisis, 1st lien loans exhibited similar results. The average recovery measured by post default trading prices was 78.4% and the ultimate recovery was 81.0%.<sup>5</sup>

Table 2  
**Average global corporate debt recovery rates measured by post-default trading prices**  
 (issuer-weighted in %)

| Lien position            | 2008 | 2015 | 1983-2015 |
|--------------------------|------|------|-----------|
| 1st lien bank loan       | 63.4 | 63.4 | 66.6      |
| 2nd lien bank loan       | 40.4 | 32.1 | 31.8      |
| Senior unsecured bond    | 33.8 | 37.9 | 37.6      |
| Senior subordinated bond | 23.0 | 39.1 | 31.1      |

Source: Moody's Default Study, 29 February 2016.

### 1.3 Loan market: Market development over years

#### 1.3.1 Participants and market features

The institutional loan market has grown quickly over the past years. Secondary-market volumes in the US and Europe alone have increased five-fold over the last decade. As of the end of December 2016, the total outstanding institutional market volume for US loans stood at about USD 964 bn (figure 3) while the total outstanding market volume for European institutional loans stood at EUR 168 bn (figure 4), highlighting loans' rightful claim as an asset class that should be taken seriously.

In the primary market for SSLs, the main participants include banks, finance companies, insurance companies, securities firms and fund managers for CLO, institutional loan funds, separate managed accounts, retail loan funds, hedge and high-yield funds. All in all, this seems to confirm our view that the loan market is attracting increasing interest as you can expect from an established asset class.

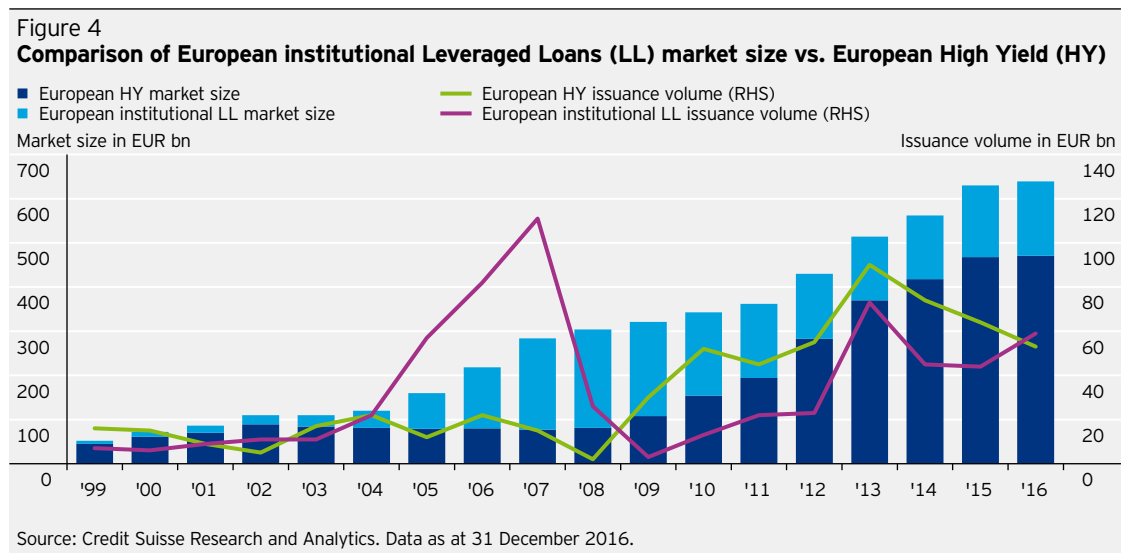
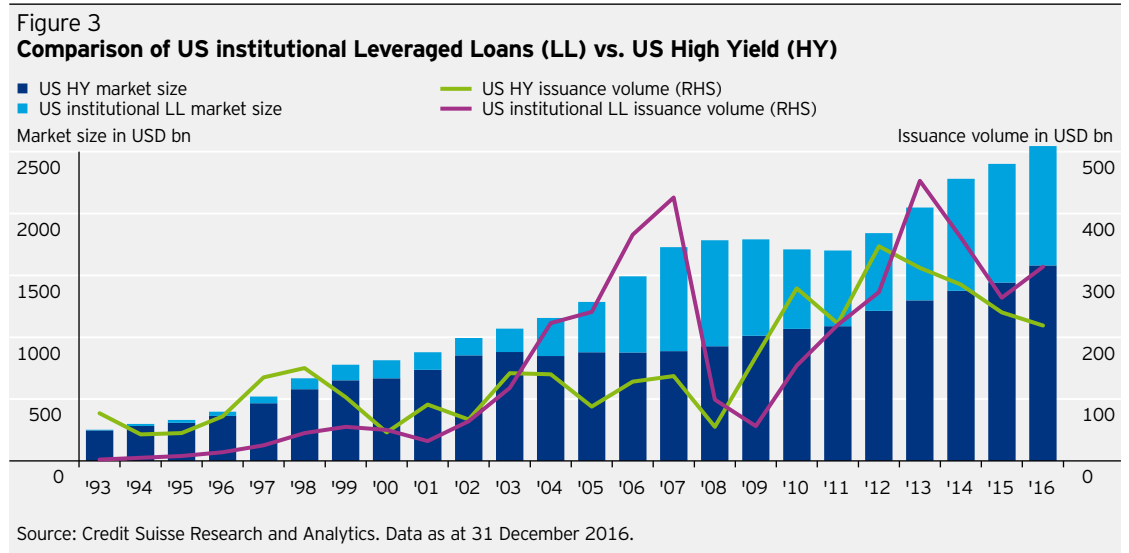
### 1.3.2 Comparison of European loans versus US loans

The European loan market has contracted from the 2008 peak while the market for European High Yield bonds has grown rapidly over the same time period (figure 4). In contrast, post financial crisis, US High Yield bonds and Loan markets have both grown at a rapid pace. Currently, the US loan market is roughly four to five times as big as the European loan market both in outstanding and issuance terms. In table 3, we compare different characteristics of US and European loans.

Both European and US loan markets have currently attractive yields to offer and in later sections of this paper, we will delve deeper into other risk-return characteristics of these loan markets.

### 1.4 Loan market: Trading and liquidity

Looking at the loan market, we have noticed that liquidity and market transparency have consistently improved with significant daily trading volumes. Not only have we seen more market participants entering the market, leading to tighter bid/offer spreads over



**Table 3**  
**European loans versus US loans**

|                                  | <b>European loans</b> | <b>US loans</b> |
|----------------------------------|-----------------------|-----------------|
| Outstanding institutional volume | EUR 168 bn            | USD 964 bn      |
| Issuance institutional loans     | EUR 59 bn             | USD 314 bn      |
| Reference rate                   | EURIBOR               | LIBOR           |
| Spread                           | 401 bps               | 391 bps         |
| Average price                    | EUR 97.58             | USD 97.18       |
| 3 year spread to maturity        | 522 bps               | 461 bps         |
| Spread to maturity               | 554 bps               | 470 bps         |

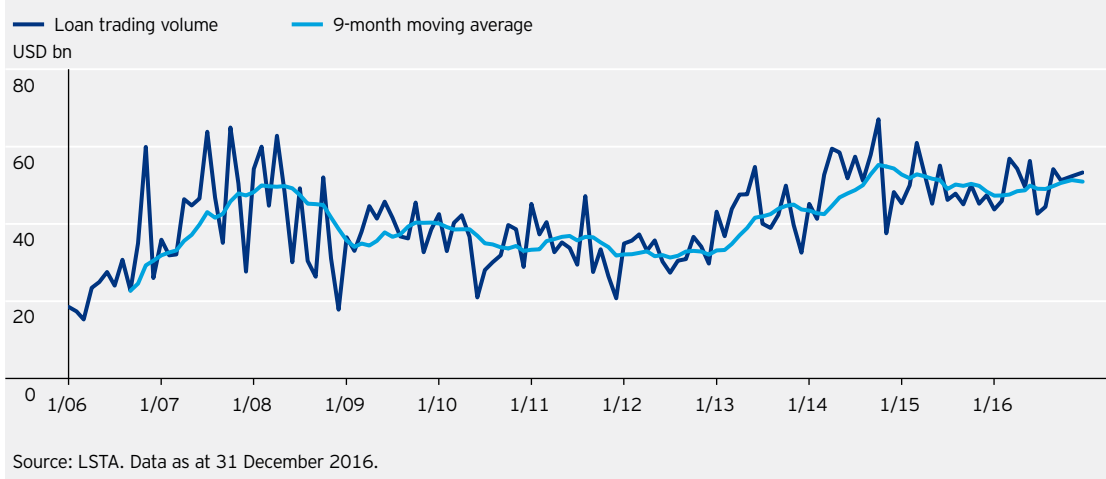
Source: Credit Suisse. Data as at 31 December 2016.

time, we have also noticed that the liquidity environment, both in terms of market depth and breadth, has improved (figures 5 and 6). This development reflects investors' growing appetite for loans and follows the introduction of trading platforms, improvements in loan trading documentation, and greater transparency and reliability with respect to third-party pricing.

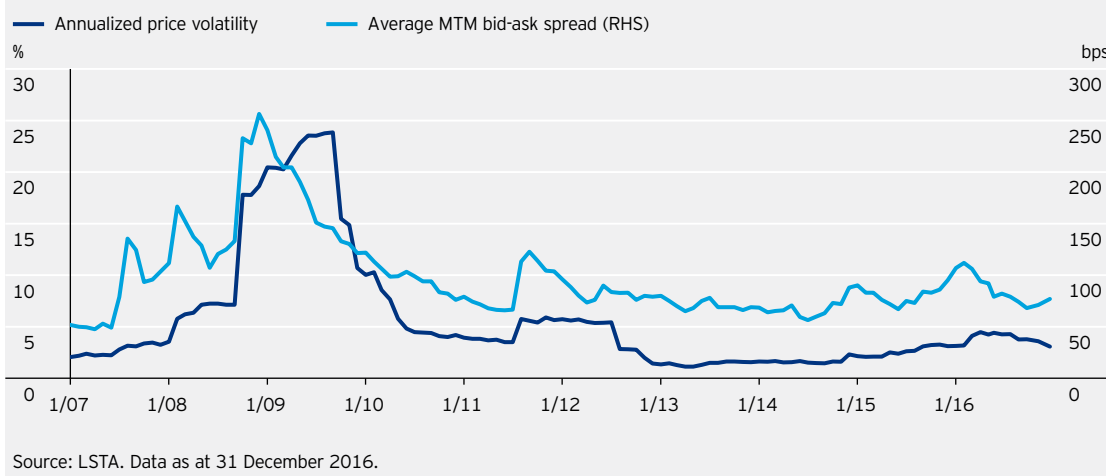
Our observations are supported by:

- Trading turnover in the US secondary market stands at about USD 550 bn for 2016 (figure 5).
- Bid quotes for loans were continuously received even during the worst liquidity squeeze at the time of the capital market crash in 2008.
- A glance at the post-Lehman period shows that the secondary market situation calmed down after the crisis year of 2008: Despite the continuing uncertainties within the capital markets, SSL bid quotes have been recovering steadily. During this period, the bid-ask spreads have tightened with declines in the daily price volatility (figure 6).

**Figure 5**  
**Evolution of US loan monthly trading volume**



**Figure 6**  
**Evolution of US loan average trading price and median bid-offer spread**



The vast and diverse investor base in SSLs confirms the level of maturity of the market. In the US, these investors range from daily liquid retail mutual funds, to institutional pension funds and credit arbitrage hedge funds. In 2011, Invesco created the first ETF<sup>6</sup> for investments in SSLs. Today's investors are somewhat different from the pre-financial crisis investors. Given the currently attractive spreads and income, traditional 'unleveraged' investors' participation has been on a steady rise post 2008 financial crisis. As in many other areas, the loan market has experienced a healthy market shakeout in the aftermath of the Lehman crisis.

thousands of loan facilities. By delivering data and documents via secure channels, these platforms help custodians and trustees reduce settlement risk and increase operational efficiency. Increased settlement certainty has also facilitated the entry of new investors to the loan asset class, leading to a continuous growth in trade volume liquidity (refer to figure 5).

All in all, current loan market pricing and valuation measures have increased transparency by increasing operational efficiency and reduced counterparty risk by increasing settlement certainty as well as reduced settlement time.

### 1.5 Loan market: Loan pricing and portfolio valuation

In the US and Europe, electronic loan pricing platforms have been established over the last decade, most notably those administrated by Markit and Thomson Reuters. Amongst other data, the information available includes daily pricing for

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## 2 Value add of Senior Secured loans within an overall asset allocation

Many investors view SSLs as part of their fixed-income or alternatives allocation. In our view, the attractive features of SSLs can offer investors an added value investment opportunity relative to other portfolio components:

### 2.1 Comprehensive credit risk mitigation measures

A key strength of SSLs 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:** SSLs are secured by collateral which typically includes all of a company's assets including real estate properties, plant and equipment and patents. The review and evaluation of collateral is a key component of a due diligence analysis. In practise, most of defaults are settled through restructuring of the balance sheet unless the defaulting companies end up liquidating their assets.
- **First lien on the company's assets in the event of a bankruptcy:** In the company's capital structure, SSL creditors are senior to all other capital providers. If a company defaults, then SSLs are first in line to be repaid, which results in a markedly 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 covenants that place significant limitations on a borrower's business operations and are designed to control the deterioration of a borrower through structural protection.

- **Effective post-investment monitoring:** By rigorously monitoring the 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 stated credit risk mitigation mechanisms of SSLs.

### 2.2 Managing the impact of rising interest rates and inflation

From today's vantage point, it is impossible to meaningfully forecast the timing of future interest rate hikes. The fact that negative nominal yields occur rarely does however provide for a somewhat asymmetric distribution in the probability of rising versus falling rates.

In view of the historically low level of interest rates and the concerted interventions of central banks, we currently consider the following two interest rate scenarios most likely:

**Scenario 1:** Medium to long-term flatness of interest rates

**Scenario 2:** Short to medium-term increase in interest rates

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

Table 4  
Relative yields of key fixed income indices

| Index   | Universe | Rating | Interest      | Modified duration | Yield to maturity |
|---|----------|--------|---------------|-------------------|-------------------|
| Credit Suisse Leveraged Loan USD                    | US       | non-IG | floating-rate | 45-60 days        | 6.59%             |
| Credit Suisse Western Europe Leveraged Loan EUR Hdg | Europe   | non-IG | floating-rate | 45-60 days        | 5.58%             |
| BBgBarc Euro Aggregate Government 500MM TR          | Europe   | IG     | fixed-rate    | 7.2               | 0.40%             |
| BBgBarc Euro Aggregate Corporate 500MM TR           | Europe   | IG     | fixed-rate    | 5.3               | 0.87%             |
| BofAML Euro High Yield TR                           | Europe   | non-IG | fixed-rate    | 4.3               | 3.89%             |
| BBgBarc US Aggregate Government TR                  | US       | IG     | fixed-rate    | 5.9               | 1.88%             |
| BBgBarc US Corporate IG TR                          | US       | IG     | fixed-rate    | 7.3               | 3.37%             |
| BofAML US High Yield TR                             | US       | non-IG | fixed-rate    | 4.25              | 6.48%             |

Source: Bloomberg Barclays, BofAML, Credit Suisse. Data as at 31 December 2016.

- **Scenario 1:** Compared to other fixed-income investments, SSLs currently offer what we view to be a very interesting investment opportunity in an environment of low and flat market rates due to their high current income (table 4).
- **Scenario 2:** We believe SSL investments are optimally positioned for scenario 2, a scenario that might appear more threatening from an investor's perspective. As the yields of SSLs adjust to market rates on a quarterly basis, SSLs fully participate in rising market rates, as soon as they move through the LIBOR/EURIBOR floors<sup>7</sup>. At the same time, with their ultra-short duration (with average interest rate reset periods of 45 to 60 days) - the rate hikes should also pose no real threat to SSL prices. This fact could be particularly beneficial to those who apply fair-value accounting and carry fixed-income investments at their market value. As floating-rate investments, SSLs serve as a natural hedge against rising interest rates and inflation (table 5).

Using empirical evidence, from the period of July 2004 to June 2006 during which US interest rates continuously increased, we can see how SSLs acted as a natural hedge against rising rates.

Table 5  
Scenario analysis: short to medium-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.

While the US Federal Reserve raised interest rates 17 times by a total of 425 basis points<sup>8</sup> during this period, the SSL benchmark indices (Credit Suisse Leveraged Loan Index and Credit Suisse Western Europe Leveraged Loan Index) clearly outperformed traditional short- and long-term bond indices (table 6). In addition, a glance at the risk metric 'volatility' shows that this outperformance was accompanied by a relatively lower volatility of the SSL benchmark

Table 6  
Performance of key US bond indices compared to SSLs in an environment of rising market rates

|   | Cumulative price return | Cumulative coupon return | Return (cumulative) | Standard Deviation | Sharpe Ratio |
|---|-------------------------|--------------------------|---------------------|--------------------|--------------|
| Credit Suisse Leveraged Loan USD                        | -0.25%                  | 12.20%                   | 11.92%              | 0.66               | 3.66         |
| Credit Suisse Western Europe Leveraged Loan EUR Hdg     | 0.05%                   | 11.67%                   | 11.98%              | 0.42               | 8.13         |
| US T-Bill (3M)  | 0.00%                   | 6.78%                    | 6.78%               | 0.33               | -            |
| Bloomberg Barclays 1-3 Yr US Treasury TR USD            | -3.87%                  | 7.58%                    | 3.66%               | 1.05               | -1.35        |
| Bloomberg Barclays 1-5 Yr US Treasury TR USD            | -3.39%                  | 7.29%                    | 3.43%               | 1.63               | -0.93        |
| Bloomberg Barclays US Aggregate Bond TR USD             | -3.98%                  | 10.52%                   | 5.94%               | 2.91               | -0.12        |
| Bloomberg Barclays US Corporate Investment Grade TR USD | -5.59%                  | 11.99%                   | 5.76%               | 3.83               | -0.10        |

Source: Morningstar. Monthly returns, time period: 1 July 2004 to 30 June 2006, in base currency. **Past performance is not a guide to future returns.**

indices, resulting in a superior Sharpe Ratio within the peer group.

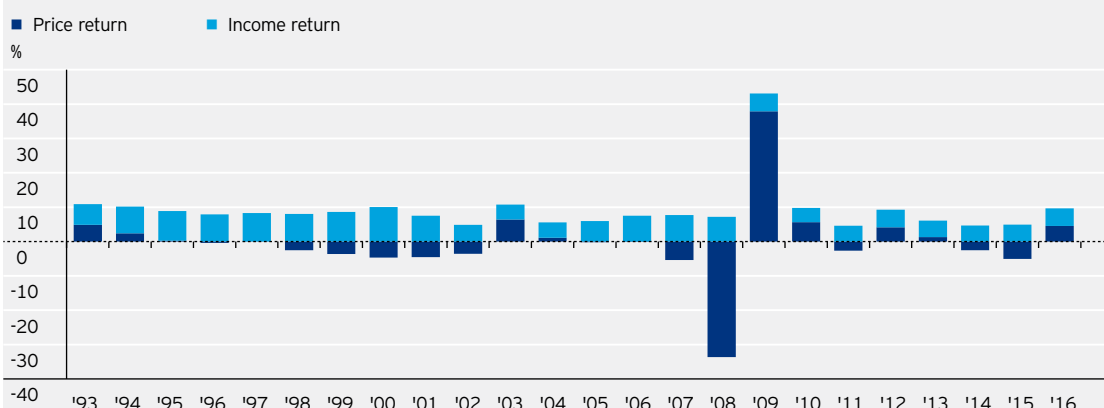
### 2.3 Historical return profile in diverse market phases

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 (figure 7 and figure 8). 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, with the exception of the crisis year 2008. It is interesting to note that the maximum drawdown in 2008 was already offset after 12 months by a strong rebound in performance. On similar lines, Credit Suisse Western Leveraged Loan Index has recorded a positive total return or a moderate negative total return in each calendar year coupled with consistent income and moderate price fluctuations, with the exception of the crisis year of 2008.

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 forced upon some market participants in the course of the Lehman bankruptcy and 2) a serious overhang stemming from already signed loans that were still on bank balance sheets and which had not yet been syndicated.

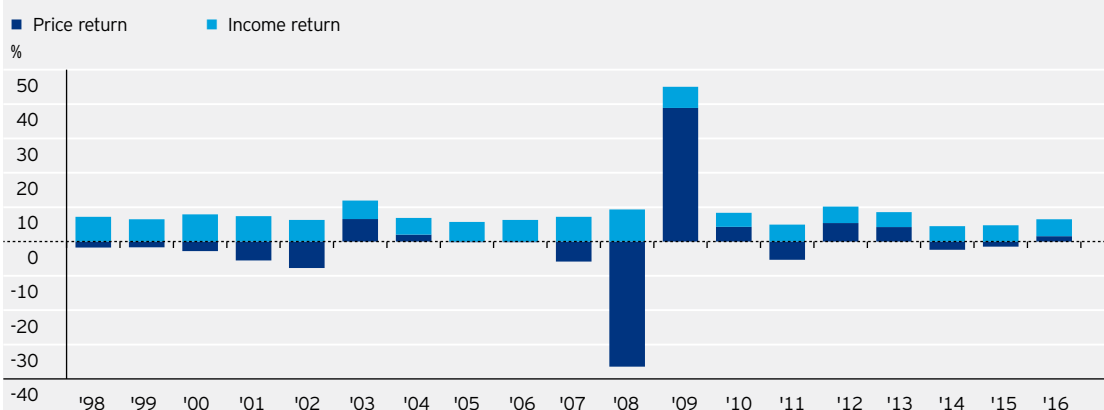
Despite the sharp correction in 2008, two important observations can be made here: 1) Compared to other asset classes which also experienced heavy pressure, loans continued to pay highly stable cash flows. 2) As this sharp drawdown was not really driven by corporate fundamentals, the mispricing was corrected again during the following year. Investors who were prepared to stick to a buy-and-hold strategy saw their strategy rewarded: Between January 2008 and December 2010, SSL investments produced an absolute return of 4.3%<sup>9</sup> p.a. and 3.69% p.a.<sup>10</sup> for US and Europe respectively. This was achieved despite the fact that SSL default rates reached a record high during this period.

Figure 7  
**Historical total return breakdown of US SSLs into price return and income return**  
 (as measured by the Credit Suisse Leveraged Loan Index USD)



Source: Credit Suisse January 1993 to December 2016. **Past performance is not a guide for future returns.**

Figure 8  
**Historical total return breakdown of European SSLs into price return and income return**  
 (as measured by the Credit Suisse Western European Leveraged Loan Index EUR Hedged)



Source: Credit Suisse January 1998 to December 2016. **Past performance is not a guide for future returns.**



Despite the occasional high volatility of money and capital markets, a glance at the different market phases and interest rate scenarios over the past decade shows that SSLs recorded very solid to strong performance through nearly all phases of the business cycle (table 7).

Remarkably, the US index, which has a longer track record going back to 1993, also recorded very solid performance during the crisis years of 1993/1994 ('bond bubble'), 1998 ('LTCM collapse') and 2000 to 2002 ('tech bubble'). Overall, we believe the consistent performance across various market cycles underscores the current attractive risk/return profile of the asset class.

Analyzing the monthly performance figures for the Credit Suisse Leveraged Loan Index substantiates the asset class's highly consistent performance: Over the last 25 years, 84% of the monthly returns were positive. Over the same period, the occurrence of large negative returns (left tail of the return distribution) has been very low at just 0.3% of all cases (figure 9). On average, US loans delivered annual returns above 4% in about 71% of all calendar years. Similarly, the monthly figures for the Credit Suisse Western Europe Leveraged Loan Index were highly consistent: Over the last 19 years,

80% of monthly returns were positive. Over the same period, the occurrence of large negative returns has been very low at just 0.4% of all cases (figure 10). Additionally, European loans delivered annual returns above 4% in 61% of all calendar years.

## 2.4 Historical volatility

The solid 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 the loan indices mentioned before, the indices annual volatility has averaged between 2% and 3% with the exception of the subprime crisis years i.e. the period of October 2008 to March 2010. In addition to the consistently low 'absolute' volatility (with an exception of the subprime crisis years mentioned before), the low 'relative' volatility (except the period July 2007 to February 2011) compared to selected European and US bond indices (investment grade) has also been very impressive (figure 11). This phenomenon can be explained by the regular adjustment of SSL floating rates to current market rates. Assuming unchanged market liquidity and creditworthiness, the impact

Table 7  
**SSL performance in diverse market phases**  
Thesis: SSL work in most interest rates scenarios

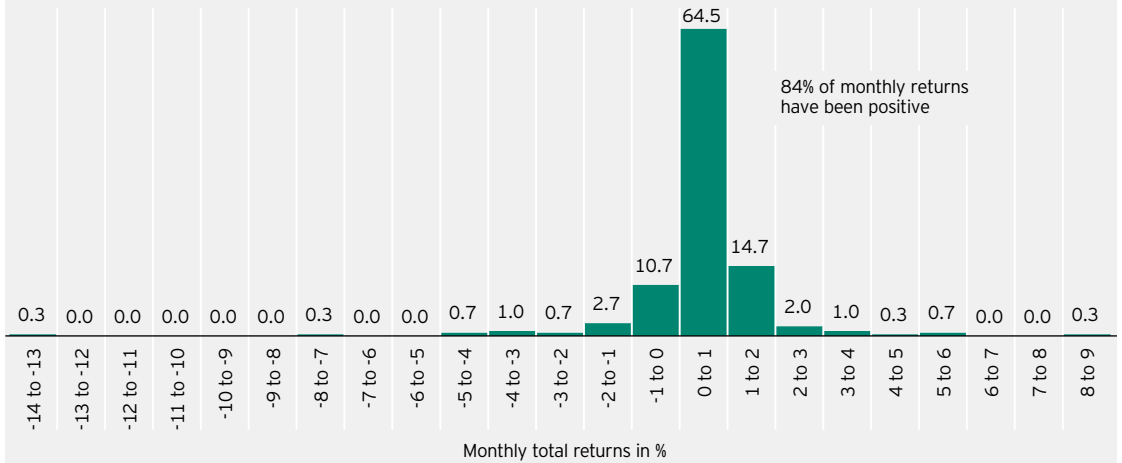
|      | Europe business cycle stage | Changes in ECB deposit facility rate | CS WstEur LL Eur Hdq Total Return | US Business Cycle Stage | Changes in Fed fund rate | CS LL Index Total Return |
|------|-----------------------------|--------------------------------------|-----------------------------------|-------------------------|--------------------------|--------------------------|
| 2001 | Recession                   | -150bps                              | 1.5%                              | Recession               | -475bps                  | 2.6%                     |
| 2002 | Recovery                    | -50bps                               | -1.9%                             | Recovery                | -50bps                   | 1.1%                     |
| 2003 | Recovery                    | -25bps                               | 12.2%                             | Recovery                | -25 bps                  | 11.0%                    |
| 2004 | Expansion                   | -                                    | 6.9%                              | Expansion               | +175bps                  | 5.6%                     |
| 2005 | Expansion                   | +25bps                               | 5.5%                              | Expansion               | +200bps                  | 5.7%                     |
| 2006 | Expansion                   | +125bps                              | 6.0%                              | Expansion               | +100bps                  | 7.3%                     |
| 2007 | Expansion                   | +50bps                               | 1.0%                              | Expansion               | -100bps                  | 1.9%                     |
| 2008 | Recession                   | -100bps                              | -30.2%                            | Recession               | -400bps to -425bps       | -28.8%                   |
| 2009 | Recession                   | -155bps                              | 47.2%                             | Recession/<br>Recovery  | -                        | 44.9%                    |
| 2010 | Recovery                    | -                                    | 8.5%                              | Recovery                | -                        | 10.0%                    |
| 2011 | Recession                   | -                                    | -0.6%                             | Recovery                | -                        | 1.8%                     |
| 2012 | Recession                   | -25bps                               | 10.4%                             | Recovery                | -                        | 9.4%                     |
| 2013 | Recession                   | -                                    | 8.7%                              | Recovery                | -                        | 6.2%                     |
| 2014 | Recovery                    | -20bps                               | 2.0%                              | Recovery                | -                        | 2.1%                     |
| 2015 | Recovery                    | -10bps                               | 3.1%                              | Recovery                | -                        | -0.4%                    |
| 2016 | Recovery                    | -10bps                               | 6.5%                              | Recovery/<br>Expansion  | +50bps                   | 9.9%                     |

The recurring and fluctuating levels of economic activity that an economy experiences over a long period of time. The five stages of the business cycle are growth (expansion), peak, recession (contraction), trough and recovery. At one time, business cycles were thought to be extremely regular, with predictable durations, but today they are widely believed to be irregular, varying in frequency, magnitude and duration. Source: US Federal Reserve, Morningstar as at 31 December 2016, 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 guide for future returns.**

Figure 9

**Return distribution since inception - Credit Suisse Leveraged Loan Index (USD)**

Number of monthly periods in % of overall period

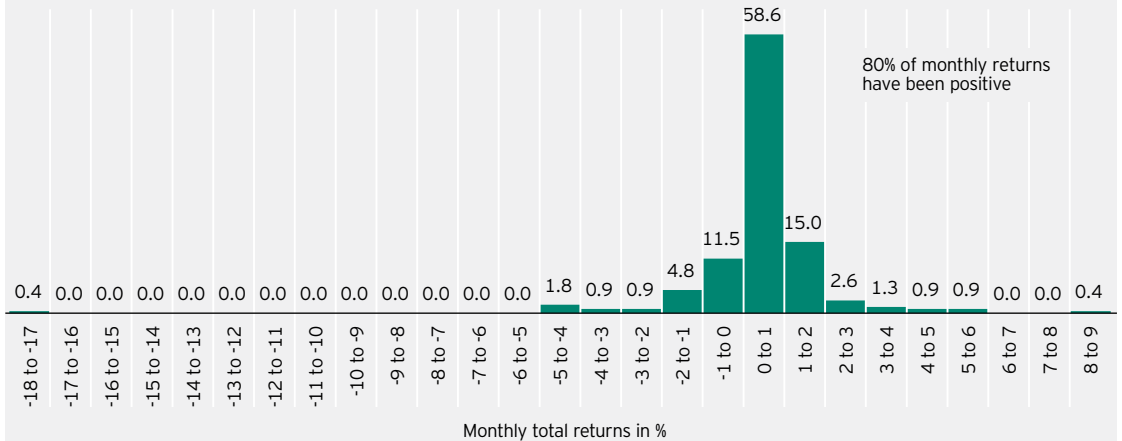


Source: Morningstar. Time period: 31 December 1992 to 31 December 2016. **Past performance is not a guide to future returns.**

Figure 10

**Return distribution since inception - Credit Suisse Western Europe Leveraged Loan Index (EUR Hedged)**

Number of monthly periods in % of overall period



Source: Morningstar. Time period: 31 December 1992 to 31 December 2016. **Past performance is not a guide to future returns.**

that changes in market rates can have on SSL prices is marginal. In contrast, fixed-interest bond prices adjust as market rates change, which leads to an implicit increase in the volatility of the fixed-interest bonds and thus the investor's price risk.

**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. At a spread of LIBOR +470 bps as of the end of December 2016

compared to the average of LIBOR +357 bps for the pre financial crisis period (from December 2002 to October 2008), we consider valuations of the US SSL market to be very attractive (figure 12). While a premium of 113 bps over the pre financial crisis average currently applies to the US market as of December 2016, for European loans this number stands at 201 bps.

Additionally, we look at risk premium, which is the difference between loan yields and treasury yields, for loans in order to understand their relative attractiveness with respect to perceived safe haven assets such as 5 year treasury bonds. When one compares the risk premium for US and European loan markets, both are currently trading above pre financial crisis average risk premium (from December 2002 to October 2008), 204 bps higher for European Loans and 75 bps higher for US loans (figure 13).

Overall, both US and European loan markets look interesting and offer good opportunities.

Figure 11  
Rolling standard deviation\*

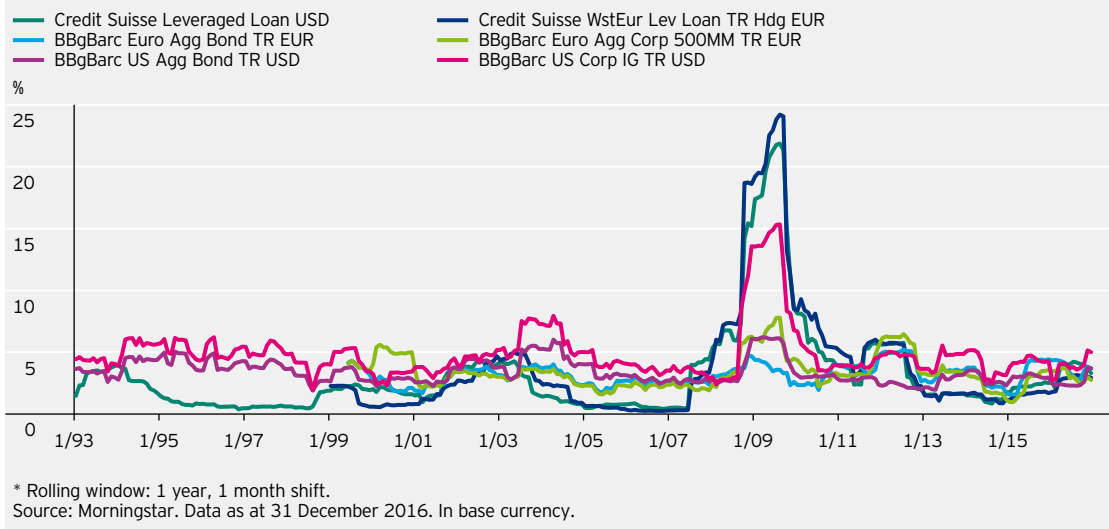
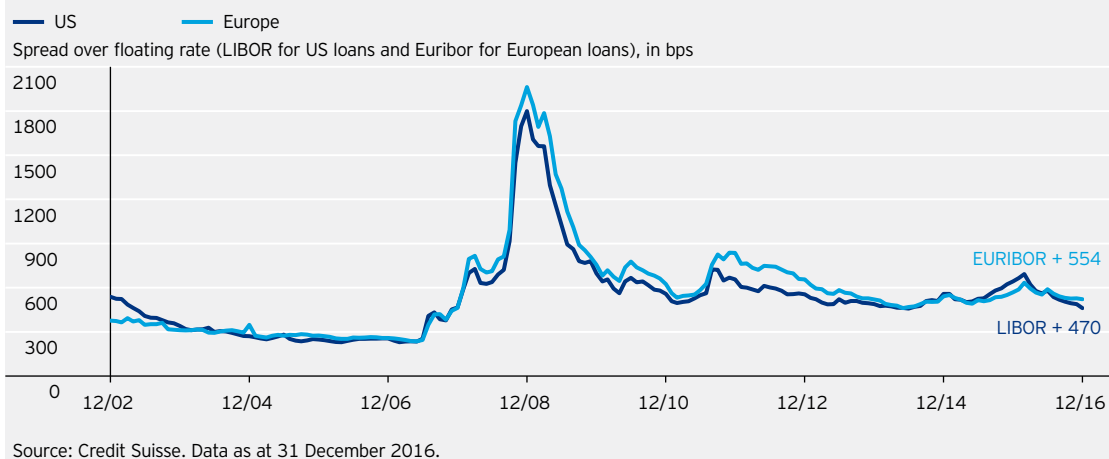


Figure 12  
Spread-to-maturity (STM) - US versus Europe



With a divergent macroeconomic environment of Europe and US as a backdrop, a global SSL portfolio, combining investments in both regions, could provide diversified sources of yields and the potential to improve the risk-adjusted returns currently offered by standalone investments in US or European loans (see 2.7).

## 2.6 Attractive diversification benefits within overall asset allocation

Due to their attractive features (short duration, relatively high current income and special credit risk mitigation measures) and their solid historic performance across different market cycles, SSLs offer very low correlation potential to most other asset classes. We believe this makes them a credible asset class.

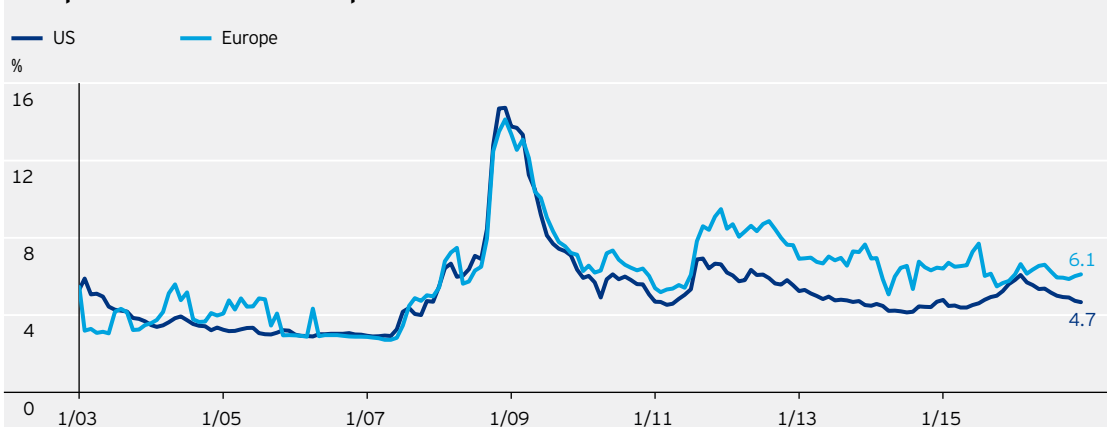
The diversification benefits of SSLs observed over the past years cover all traditional asset classes such as fixed income, equities and commodities. As an example: Adding SSLs to a pure bond

portfolio - irrespective of the investment universe and credit rating - may already offer attractive diversification benefits. This is due to the fact, that SSLs have exhibited a low (pre-crisis) to moderate (post crisis) correlation to corporate bonds. At the same time, correlations to government bonds have been negative (pre-crisis) or close to zero (post crisis) as can be seen in table 8. In the current environment, the integration of SSLs into an investment-grade portfolio 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.

### 2.6.1 Case Study: Diversification benefit of SSLs in a European institutional investor's portfolio

In this section, we are going to discuss the potential diversification benefit provided by global SSLs to a fictitious European institutional investor's portfolio. As discussed in section 2.5, global SSLs could provide an investor diversified sources of return due

Figure 13  
Risk premium - US versus Europe



Source: Credit Suisse, Bloomberg. Data as at 31 December 2016.

to the differences in the macro environment between US and Europe, which could lead to improved risk-adjusted returns. For this reason, we used global SSLs in our study as they have historically provided superior risk adjusted returns and we expect them to continue this trend.

Based on an institutional asset allocation study<sup>11</sup> 2016, we divided European institutional investors into two groups: one with an equity bias<sup>12</sup> in their portfolio and one with a fixed income bias<sup>13</sup> in their portfolio. We included only the liquid part of the institutional investor's portfolio which comprises

Table 8

**Correlations with US and European Loans pre and post subprime crisis (pre and post crisis)**

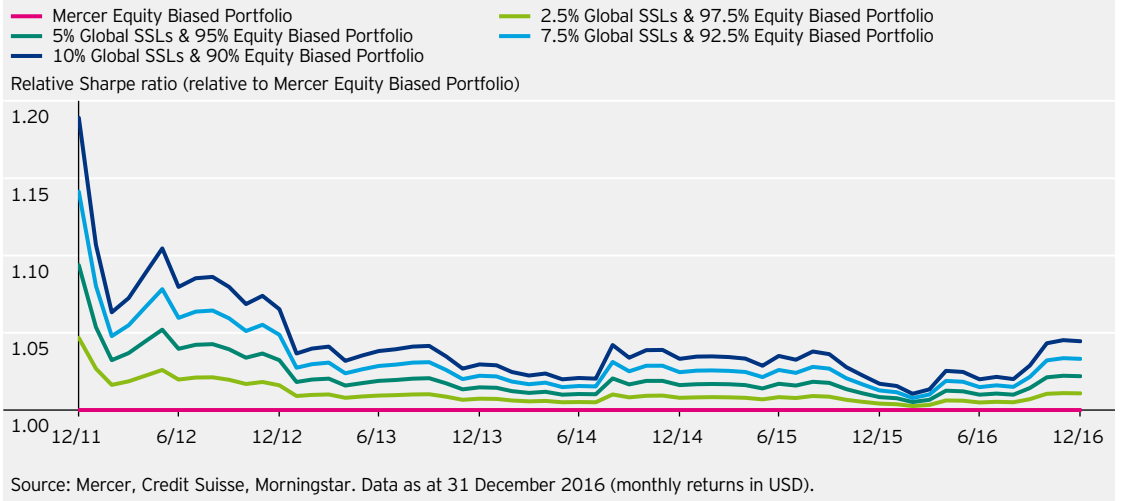
| <b>Pre subprime crisis</b>                        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| <b>1</b> Credit Suisse Leveraged Loan USD         | 1.00     |          |          |          |          |          |          |          |          |           |
| <b>2</b> Credit Suisse WstEur Lev Loan TR Hdg EUR | 0.83     | 1.00     |          |          |          |          |          |          |          |           |
| <b>3</b> S&P 500 NR USD                           | 0.49     | 0.44     | 1.00     |          |          |          |          |          |          |           |
| <b>4</b> MSCI World NR USD                        | 0.55     | 0.51     | 0.96     | 1.00     |          |          |          |          |          |           |
| <b>5</b> MSCI Europe NR EUR                       | 0.49     | 0.47     | 0.90     | 0.91     | 1.00     |          |          |          |          |           |
| <b>6</b> BBgBarc Euro Agg Bond TR EUR             | -0.14    | -0.17    | -0.28    | -0.27    | -0.36    | 1.00     |          |          |          |           |
| <b>7</b> BBgBarc Euro Agg Corp 500MM TR EUR       | 0.34     | 0.25     | 0.05     | 0.10     | -0.02    | 0.82     | 1.00     |          |          |           |
| <b>8</b> BBgBarc US Agg Bond TR USD               | -0.02    | 0.01     | -0.21    | -0.17    | -0.31    | 0.78     | 0.67     | 1.00     |          |           |
| <b>9</b> BBgBarc US Corp IG TR USD                | 0.38     | 0.32     | 0.10     | 0.17     | 0.00     | 0.66     | 0.85     | 0.85     | 1.00     |           |
| <b>10</b> Bloomberg Commodity TR USD              | 0.23     | 0.09     | 0.03     | 0.19     | 0.05     | 0.04     | 0.24     | 0.05     | 0.24     | 1.00      |
| <b>Post subprime crisis</b>                       | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> |
| <b>1</b> Credit Suisse Leveraged Loan USD         | 1.00     |          |          |          |          |          |          |          |          |           |
| <b>2</b> Credit Suisse WstEur Lev Loan TR Hdg EUR | 0.90     | 1.00     |          |          |          |          |          |          |          |           |
| <b>3</b> S&P 500 NR USD                           | 0.59     | 0.56     | 1.00     |          |          |          |          |          |          |           |
| <b>4</b> MSCI World NR USD                        | 0.66     | 0.64     | 0.97     | 1.00     |          |          |          |          |          |           |
| <b>5</b> MSCI Europe NR EUR                       | 0.66     | 0.59     | 0.79     | 0.84     | 1.00     |          |          |          |          |           |
| <b>6</b> BBgBarc Euro Agg Bond TR EUR             | 0.03     | 0.07     | 0.00     | 0.02     | 0.16     | 1.00     |          |          |          |           |
| <b>7</b> BBgBarc Euro Agg Corp 500MM TR EUR       | 0.55     | 0.57     | 0.39     | 0.46     | 0.53     | 0.73     | 1.00     |          |          |           |
| <b>8</b> BBgBarc US Agg Bond TR USD               | 0.04     | 0.08     | -0.15    | -0.09    | -0.04    | 0.66     | 0.52     | 1.00     |          |           |
| <b>9</b> BBgBarc US Corp IG TR USD                | 0.50     | 0.50     | 0.21     | 0.31     | 0.34     | 0.62     | 0.80     | 0.82     | 1.00     |           |
| <b>10</b> Bloomberg Commodity TR USD              | 0.39     | 0.40     | 0.52     | 0.59     | 0.34     | -0.20    | 0.14     | -0.04    | 0.22     | 1.00      |

Pre subprime crisis: February 2002 to September 2008. Post subprime crisis: April 2009 to December 2016.

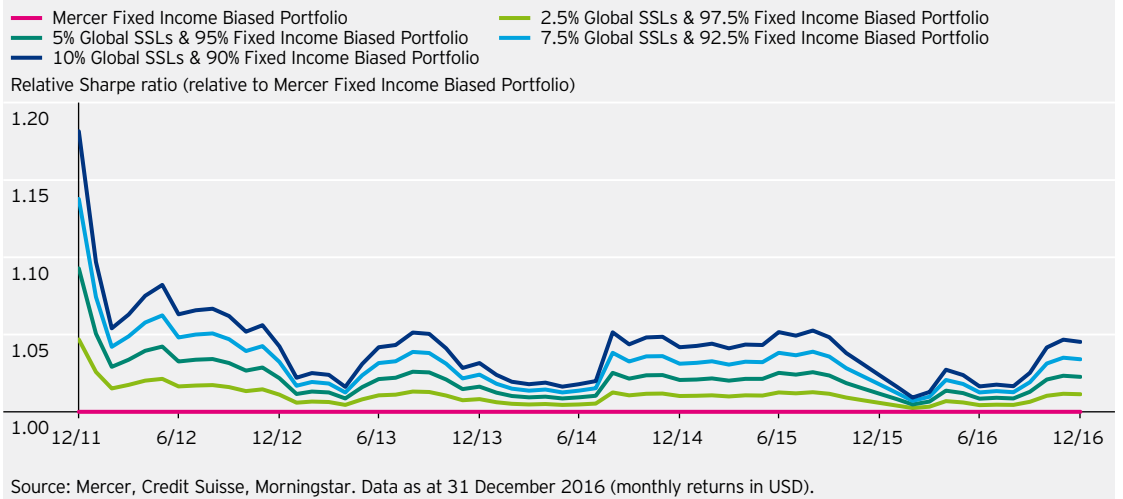
US loans represented by Credit Suisse Leveraged Loan Index in USD, European Loans represented by Credit Suisse Leveraged Loan Index EUR Hedged in EUR

Source: Morningstar. Monthly returns in base currency.

**Figure 15**  
**Diversification benefit of SSLs in an equity-biased institutional portfolio**



**Figure 16**  
**Diversification benefit of SSLs in a fixed income-biased institutional portfolio**



mainly global equities, global fixed income and liquid alternatives. The results of our research show that adding SSLs<sup>14</sup> to the institutional portfolios would have reduced the portfolio risk and improved returns. Figures 15 and 16 show a clear improvement in 3 year rolling Sharpe ratio over the last 5 years (covering the period of 01.01.2009 to 31.12.2016), for both types of institutional portfolios. By increasing the weighting of SSLs, the Sharpe ratios of both institutional portfolios were incrementally increased.

All in all, adding SSLs to a portfolio can enable investors to reduce overall portfolio volatility profile as well as actively manage its duration. For example, where a rise in interest rates is anticipated, the

interest rate duration of a portfolio can be reduced through an allocation in SSLs. Such an allocation can help offset the losses of investments in straight bonds and reduce overall portfolio volatility.

Depending on individual market expectations, considering loans in the strategic asset allocation can tap attractive opportunities.

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### 3 Conclusions

In the current market environment, very few fixed-income investments offer attractive current income with a short duration and historically low volatility. SSLs combine all of these features while additionally offering potentially attractive diversification benefits due to their historical 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.

On account of these factors, we believe that SSLs currently offer an attractive investment opportunity. Yet despite the benefits of SSLs, European investors in particular remain underinvested in this 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 comprehensive credit risk mitigation measures that guarantee seniority to creditors in case of a default. Historically, this has resulted in notably lower default rates and higher recovery rates, compared to unsecured non-investment grade securities.

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

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#### Notes

- 1 Moody's Default Study. Date as at 29 February 2016.
- 2 Definition from 2010 Dodd-Frank Financial Reform.
- 3 CLOs are a form of securitization, where receivables from SSLs are pooled together and passed on to different owners in various tranches.
- 4 Bank of America Merrill Lynch, Wells Fargo, Moody's, S&P. Data as at 31 May 2014 (Latest available data).
- 5 Moody's Default Study. Data as at 29 February 2016.
- 6 This ETF is not registered for sale in CE and UK.
- 7 Loans that include floor options will participate as the market rates exceed the contracted floor level.
- 8 Source: US Federal Reserve. Data as at 30 June 2006.
- 9 Data from Credit Suisse Leveraged Loan Index (in USD) as at 31 December 2010.
- 10 Data from Credit Suisse Western Europe Leveraged Loan EUR Hedged Index (in EUR) as at 31 December 2010.
- 11 European Asset Allocation Survey 2016, Mercer LLC
- 12 Equity biased portfolio consists of 40% global equities, 50% global bonds and 10% liquid alternatives.
- 13 Fixed income biased portfolio consists of 24% global equities, 62% global bonds and 14% liquid alternatives.
- 14 Proxies for asset classes used: Global Equities: MSCI World 100% Hdg USD; Global Fixed Income: BBgBarc Global Aggregate Hdg USD; Liquid alternatives: Credit Suisse Liquid Alternative Beta Index USD; SSLs: Market weighted Credit Suisse Leveraged Loan Index USD & Credit Suisse Western Europe Leveraged Loan Index USD Hdg.

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