

A Risk Management Framework for Private Debt Investors

By Kevin Lester and Francois Scheepers, Validus Risk Management

Chapter 19 from 'New Strategies for Risk Management in Private Equity'

Published by Private Equity International in May 2014



**PRIVATE EQUITY
INTERNATIONAL**



Contents

Preface	1
About Us	1
About the Book	1
About the Chapter	1
1 Introduction	2
2 The Private Debt Risk Hierarchy	3
2.1 Program Level Risk	3
2.1.1 Investment Risk	4
2.1.2 Liquidity Risk	4
2.1.3 Market Risk	4
2.1.4 Summary	4
2.2 Fund Level Risk	5
2.2.1 Credit Risk	5
2.2.2 Prepayment Risk	5
2.2.3 Portfolio Risk	6
2.2.4 Market Risk	6
2.2.5 Liquidity Risk	7
2.3 Investment Level Risk	7
2.3.1 Default Risk	7
2.3.2 Market Risk	7
3 Private Debt Risk Management Framework	9
3.1 Risk Attribution	9
3.2 Risk Allocation	10
3.3 Risk Adjustment	10
3.4 Risk Reporting	11
3.4.1 Individual Investment Risks	11
3.4.2 Portfolio Risks	11
3.4.3 Macro Factor Risks	11
4 Case Study-Managing Currency Risk for a Private Debt Investment	12
4.1 Introduction	12
4.2 Risk Attribution	12
4.3 Risk Allocation	13
4.4 Risk Management	13
4.5 Risk Reporting	14
5 Conclusion	15

List of Figures

1	Private debt risk pyramid	3
2	A risk management framework for private debt investors	9
3	Hypothetical private debt fund structure	12
4	Value at Risk (VaR) from currency volatility over different time horizons	13

Preface

About Us

Validus is a leading independent advisor specialising in quantifying and analysing financial risk, as well as designing and managing optimal hedging strategies for Alternative Investment Funds, their investors, and their portfolio companies globally. Validus also assists with counterparty negotiation, practical implementation, best execution, training, risk monitoring, and reporting.

With offices in Europe and North America we advise on more than \$90 billion of risk exposure annually and our fund clients have combined assets under management in excess of \$700 billion. Since inception in 2010 Validus has worked with more than 100 different clients on every continent, many of which retain us for the provision of market risk advisory services on an ongoing basis.

About the Book

Lead edited by Capital Dynamics, **New Strategies for Risk Management in Private Equity** is a valuable educational resource for both LPs and GPs seeking practical techniques for managing and mitigating risk in the alternative investment industry.

Contributing authors:

- Davide Deagostino, BT Pension Scheme Management Ltd
- Crispin Payne, Collier Capital
- Augustin Duhamel and Vidar Bergum, 17 Capital
- Kelly DePonte, Probitas Partners
- Michel Degosciu, LPX Group
- Philippe Jost and Ivan Herger, Capital Dynamics
- Cengiz Temel, Quaesta Capital AG
- Austin Long, Alignment Capital Group
- Luba Nikulina, Towers Watson
- Eric-Jan Vink and Tim van der Weide, PGGM
- Jason Scharfman, Corgentum Consulting LLC
- Peter McGowan, Proskauer Rose LLP
- Jesse Reyes, J-Curve Advisors
- Peter Cornelius, AlpInvest Partners
- Arthur Rakowski, Macquarie Infrastructure and Real Assets
- David Scaysbrook and Tim Short, Capital Dynamics
- Kevin Lester and Francois Scheepers, Validus Risk Management
- Derek Williams, bfinance

About the Chapter

Authors of this chapter Kevin Lester, AMCT and Francois Scheepers, CFA are Co-CEOs of Validus Risk Management Ltd. and have nearly three decades of collective experience in the financial risk management industry.

Working together to collate their insider knowledge and experiences of the management and mitigation of risk, Kevin and Francois were asked to write a chapter aimed to provide an insight into the complex topic of risk management, specifically driven to focus of the area of Private Debt. This chapter has been published in Private Equity International's book *New Strategies for Risk Management in Private Equity* (May 2014). The chapter aims to outline the various areas of risks and exposures open to private debt investors and consequently how to handle those risks.

1 Introduction

The growth of the private debt market since the global financial crisis of 2008 is inextricably linked to the issue of financial risk. The failure of Lehman Brothers Bank and the subsequent financial market turmoil proved to be an important catalyst for the private debt sector, in an illustration of Joseph Schumpeter's concept of creative destruction. The structural damage inflicted upon traditional intermediaries (either directly via weakened bank balance sheets, or indirectly via the hurried implementation of burdensome bank regulations) created an opportunity for enterprising fund managers to channel capital from (primarily) institutional lenders to borrowers in a more efficient (and therefore profitable) manner. In addition, investor appetite for private debt fund offerings has been enhanced by the abnormal macroeconomic climate – in particular the historically low level of interest rates – caused by the policies of central banks designed to counteract the systemic risks facing the global economy.

As an emerging investment sector, so closely linked with the most significant market risk event of the modern era, it is not surprising that the subject of risk management is one which resonates strongly with private debt investors and fund managers alike. However, there are a wide range of philosophies and approaches applied to risk and private debt, and when it comes to the specifics of how risks are managed, there a number of factors to consider.

First of all, the size of the fund will have a big impact on how many resources can be allocated to the risk management function. For smaller managers (e.g. less than \$500 million in assets), often the fund principals are directly responsible for risk management. For medium-sized managers, many risk management functions may be delegated to the finance team, often falling under the responsibility of the finance director. For the largest managers, typically with several billion dollars under management, a dedicated risk management function is often necessary.

The investment focus of the fund also plays a major role in how risks are prioritized and managed. For example, a fund specializing in senior secured loans may be much more focused on minimizing the volatility created by extrinsic risks (e.g. currency exposure) than a fund specializing in distressed debt, where expected returns are typically larger (providing a natural buffer against the potential adverse impacts of unforeseen financial market risks) and more volatile. Similarly, funds which invest internationally will be exposed to different types of risk compared to those with a purely domestic focus, and funds which make fixed rate investments will have a substantially different risk profile from those which utilize a floating rate model.

Finally, the relevant regulatory environment is playing an increasingly important role in how risks are managed by private debt fund managers. Regulatory regimes such as the AIFMD in Europe and Dodd Frank in the United States are beginning to place specific obligations on fund managers, affecting how risks are identified, measured, managed and reported.

For the institutional investor, therefore, the ability to understand the risks associated with their private debt investments, and to assess the risk management capabilities of prospective fund managers, is often a critical success factor for a private debt portfolio. Arguably, it is even more important for the private debt sector than for other alternative investment classes such as private equity, due to the return profile of the asset class. Because the upside is often limited with private debt funds, it is more difficult for a manager's portfolio selection capabilities to override any potential risk management deficiencies. While a private equity manager may be able to rely on a small number of high performance assets to dilute the negative impact resulting from a given risk factor, this is less likely to be the case for a private debt manager. For the private debt investor, therefore, the ability to assess a fund's risk profile, and the risk management strategy employed to deal with the relevant risks, can be the difference between a successful investment and a failed one.

2 The Private Debt Risk Hierarchy

The private debt investment process hosts several important risk drivers as illustrated in Figure 1 below:

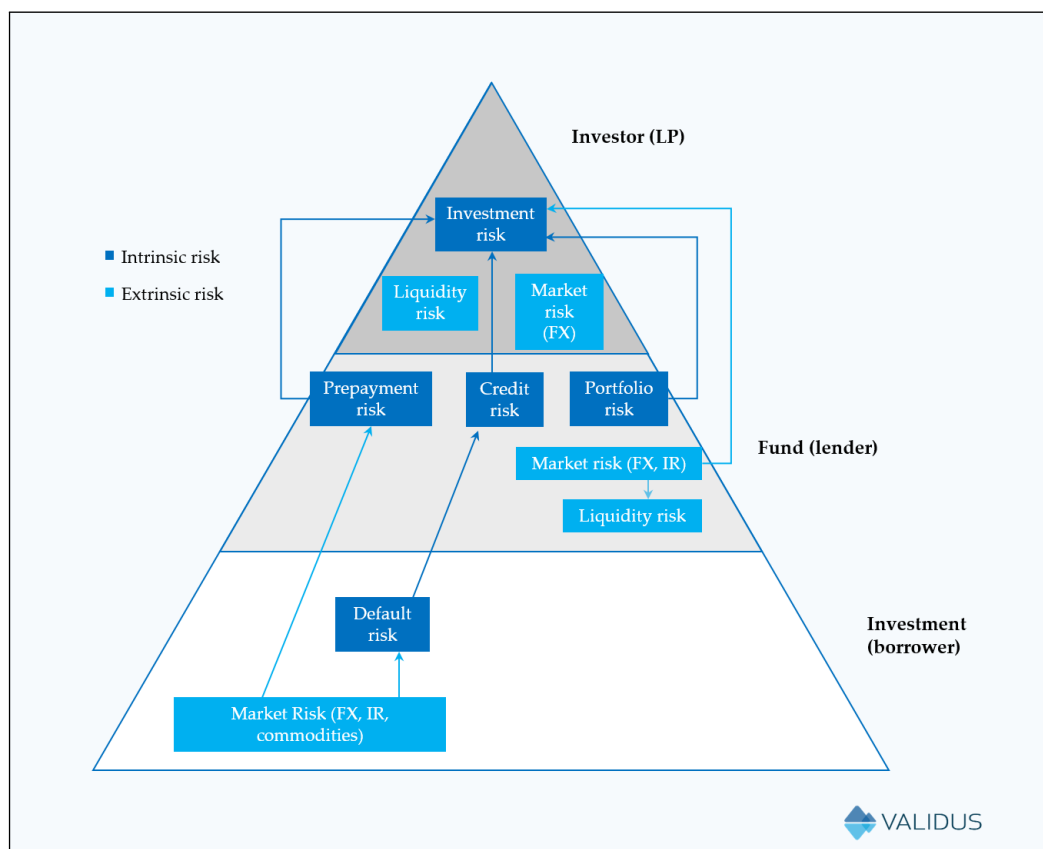


Figure 1: Private debt risk pyramid

One of the complexities in understanding (and managing) risk in the private debt sector is the way in which these risk drivers are often interrelated (as demonstrated by the arrows in Figure 1). For the institutional investor, sitting atop the investment process, it is therefore clear that the risks facing both the fund manager, and those facing individual borrowers, are ultimately risks to the investor as well (either directly or indirectly). Gaining a good understanding of how these risks relate to one another is a fundamental objective of the private debt risk management process.

2.1 Program Level Risk

Private debt risk at the investment program level refers to the impact of private debt investments on the risk profile of the institutional investor. There are three key risk components which should be considered on a programme level:

1. Investment Risk:
2. Liquidity Risk; and
3. Market Risk

2.1.1 Investment Risk

Investment risk with respect to private debt investments refers primarily to the total downside risk facing the investor in terms of both their capital and their expected yield. These risks typically result from both the intrinsic and extrinsic risks facing the private debt fund manager (as described in the section on fund level risk below). As such, when undertaking a private debt manager selection process, a comprehensive review of the prospective manager's risks, and of their risk management capabilities, should form a key component of the evaluation and selection process.

2.1.2 Liquidity Risk

The impact of private debt investments on an investment programme's liquidity profile is multifaceted. Whilst private debt is, fundamentally, an illiquid asset class (and the private debt investor is compensated for this – often earning an additional 100 - 200 basis points or more above comparable public market debt, despite a lower average loss ratio) and does present some similar liquidity risk issues as private equity (particularly at the beginning of the investment cycle), such as the liquidity risk associated with the uncertain timing of capital calls, it typically offers a much more stable liquidity profile after the initial investment period. This is particularly true for flow-through funds, where the return of interest income and capital can be predicted with a relatively high level of certainty, quite early on in the life cycle of an individual fund investment (and this is obviously especially true when it comes to funds making fixed rate investments).

As such, exposure to private debt can often be viewed as a tool with which investment programmes can manage their overall program level liquidity (after the initial investment period), due to the predictable cash flow profiles of such investments. This puts private debt into a very different category from other illiquid alternative assets (notably private equity), which are typically less predictable from a liquidity perspective throughout the investment cycle, and therefore create more liquidity planning challenges.

2.1.3 Market Risk

Market risk factors (such as currency, interest rates, and inflation rates) are often even more important with respect to private debt investments than they are for other illiquid alternative investments. This is due to two key factors of private debt investments:

1. The more stable return profile of private debt; and
2. The asymmetrical nature of private debt returns (i.e. the upside of the investment is often capped).

These factors mean that the random impacts of financial market forces are often more meaningful for private debt investors, as the volatility created by market forces is less likely to be concealed by the performance of the underlying investment, and any negative impacts generated by market risks are less likely to be compensated for by outperformance in the underlying investment portfolio.

2.1.4 Summary

Overall, the impact on program level risk created by an exposure to private debt is unique. This has a couple of important implications for private debt investors:

1. Private debt should be viewed as a distinct exposure from an asset allocation standpoint (rather than be included within a broader private equity allocation); and

2. When investing in private debt, the importance of isolating and managing market risk drivers, such as currency exposure, is arguably more important than for private equity investments.

2.2 Fund Level Risk

When analysing private debt risk on a fund level, it is useful for the private debt investor to divide the key risk drivers in terms of whether they are intrinsic to the underlying investment objectives of the fund, or alternatively, whether they are risks which are effectively by-products of the primary investment decisions of the fund manager. As the fund manager will generally be expected to be an expert with respect to the unique risk drivers of the asset class itself (i.e. the intrinsic risks), the communication between the fund manager and the investors with respect to such risks will likely differ, when compared to risks which are not directly related to specific investment decisions. More importantly, it is critical that the private debt investor is able to effectively measure the proportion of fund return which is being driven by the investment decisions of the fund managers, rather than by extrinsic risk factors, in order to be able to meaningfully gauge investment performance. The primary intrinsic risks which occur on a fund level are credit risk, prepayment risk and portfolio risk.

2.2.1 Credit Risk

Credit risk refers primarily to the possibility that the fund's borrowers default on either the principle or interest component on any given fund investment. Credit risk is typically the primary investment risk of a private debt fund, and private debt fund managers are expected to be experts in the analysis of individual credit profiles, the design and implementation of appropriate lending structures (seniority provisions, covenant protection etc.), and the ongoing management of lending relationships (working with borrowers to enable corrective action to minimize the probability and impact of default when necessary) in order to manage this risk effectively. As private debt often involves lending to borrowers with idiosyncratic borrowing requirements, the covenant design component of credit risk management can be particularly important – and standardized covenant protection is often not sufficient. In such situations, covenants may be linked to borrower-specific factors, such as contract renewals or letters of credit.

It is interesting to note that, despite the default rates of private debt being roughly similar to public markets (with respect to similar credit risk profiles), the recovery rates in private debt are often substantially improved (often more than twice as high). As such, it is the higher average recovery rate which makes private debt investments 'lower risk' than their public market equivalents. One reason for this improved average recovery rate is that public market defaults tend to involve more agents (e.g. lawyers, accountants), who have an incentive to both prolong and increase the costs of any liquidation or insolvency process, than private debt investors. Secondly, the covenant protection tends to be stronger and more carefully designed with respect to private debt investments, as opposed to 'off-the-shelf' covenants often found in public markets.

2.2.2 Prepayment Risk

Prepayment risk refers to the unscheduled return of principal on an investment – which occurs if the borrower decides to repay all or a portion of a loan prior to maturity. The consequences of this risk can be highly material for the investor, as they stand to lose the future interest payments related to the principal amount. Prepayment risk is a key risk for private debt investors, especially for investors whose primary objective is driven by the matching of assets and liabilities.

The primary method for managing prepayment risk is for the private debt fund manager to ensure that all lending agreements include prepayment provisions, similar to a make-whole call on a bond,

which ensures that, in the event of a prepayment, an additional payment based upon the net present value of future interest payments must be made by the borrower, ensuring that the investor receives the anticipated holding period return. This approach is generally effective; however it does potentially subject the investor to basis risk, depending on the structure of the prepayment provision and the interest rate conditions of the loan.

Prepayment risk is clearly driven by the interest rate risk facing the borrower, as prepayments are more likely to occur when interest rates fall. As such, this risk is also a function of the macroeconomic climate; in a low interest rate environment, such as that following the financial crisis in 2008, prepayment risk is clearly reduced.

2.2.3 Portfolio Risk

Portfolio risk refers to the aggregation of a fund's credit risk amongst all of its individual investments, and primarily refers to the risk of an overexposure to a particular credit risk profile within the fund. Relevant characteristics may be geographic (e.g. a fund is overly concentrated in a particular country or region), industry-based, or related to more idiosyncratic factors (company size, exposure to specific market or macroeconomic risk factors, for example). In each case, such concentration increases the overall risk to the fund, as multiple credit events may be triggered by a single economic or political factor. Fund managers will typically manage portfolio risk through a combination of diversification, placing specific restrictions on the proportion of investments which meet certain criteria, and seeking to eliminate certain portfolio level exposures altogether – such as refusing to invest in certain sectors or geographies. Portfolio risk can be a significant issue for individual private debt funds to the relatively small number of investments (often less than 20) in an individual fund.

2.2.4 Market Risk

Whilst credit risk, prepayment risk and portfolio risk fall within the expected core competency of a private debt fund manager, market risk, or the risk to fund returns created through the exposure to specific macroeconomic or financial factors, typically does not. A private debt fund manager is expected to be proficient at analyzing financial statements and structuring debt transactions, rather than speculating on currency or interest movements. As such, market risk can be considered an extrinsic risk, from the perspective of the fund manager, in that the impacts of these risks are often unrelated to the investment decision process of the fund manager. In effect, market risks represent random volatility, or noise, that interferes with investment performance.

Two of the most common sources of market risk facing private debt fund managers are currency risk and interest rate risk. Currency risk occurs when the currency of the investment differs from the fund's base currency. Depending on the proportion of the fund which is invested in foreign currency assets, this risk can be significant. Depending on the currency pair involved, annual currency volatility will often exceed 10% per annum, and during the 2008 financial crisis, volatility in even very liquid currency pairs, such as EURUSD exceeded 15% per year. Such 'noise' can clearly have very serious impacts on a portfolio of private debt investments, which will often have a target return of less than 15% per year.

Interest rate risk also represents a market risk for the private debt investor. This risk may be an absolute risk (in the case of floating rate funds), where falling interest rates negatively impact the absolute return to investors, or it may be a relative risk, where fixed rate investors underperform their peers in a rising interest rate regime.

A fund's market risk will often make a material contribution to the overall investment risk on a program level. This is for similar reasons as described in the section on program level market risk above (private debt's relatively stable and asymmetrical return profile), but the impact of the risk on a fund level will directly impact individual fund performance (and, in the absence of an effective

hedging programme, will obscure underlying fund performance).

2.2.5 Liquidity Risk

Liquidity risk faced on a fund level is quite different from liquidity risk faced a programme level. While liquidity risk on a program level is directly caused by the illiquid nature of the asset itself, this is not typically such a concern for fund, due to the absence of fund-level liabilities. Whilst some liquidity risk does exist for the fund manager with respect to underlying investment activity (caused, for instance, by an inability or unwillingness of an investor to fulfil a capital call in a timely fashion), this risk can typically be managed through the use of short term credit facilities.

More significantly, liquidity risk may occur as a by product of a fund's decision to hedge its market risk. Should these hedges require the posting of collateral, or should they need to be rolled over periodically, then the fund will need access to liquidity to meet these collateral requirements. This can result in a cash drag which negatively impacts fund returns. As such, market risk hedging programmes must be very carefully designed to balance the impact of market risk with the impact of liquidity risk caused by any hedging activity.

2.3 Investment Level Risk

2.3.1 Default Risk

The foundation of the entire risk pyramid portrayed in Diagram I is, unsurprisingly, the default risk of the ultimate borrower. The borrower's default risk is the generator of the fund's credit risk, and is generally the function of two intrinsic and one extrinsic factor.

The first intrinsic factor is the ability of the borrower to execute its business (including its financial) strategy. This in turn, may be related to many factors, including revenue growth (or decay), margin expansion (or contraction), cash flow generation (or destruction). The second intrinsic factor (which may be influenced by both the borrower and the fund) is the structure of the borrowing itself, involving the debt maturity schedule, the currency of the loan, lending covenants, flexibility etc.

2.3.2 Market Risk

An important extrinsic risk factor which can influence the default risk for the borrower is market risk. Typically, there are three main sources of market risk at this level of the risk pyramid:

1. **Currency risk:** This can relate directly to the debt itself (if the debt is denominated in a foreign currency from the borrower's perspective, such as a company from an emerging market borrowing in US dollars, for example), or it relates to the general currency risk exposure faced by the borrower during the course of its commercial operations.
2. **Interest Rate Risk:** This will represent a risk to the borrower when floating rate debt is employed.
3. **Commodity Price Risk:** For companies where commodity inputs or outputs make up a significant proportion of costs and / or sales, the movement in commodity prices alone can have a material impact on the borrower's risk of default. Many private debt funds will specifically refrain from lending to commodity-driven businesses due to the inherent volatility in financial performance that such commodity price exposure will create.

Generally speaking, for a lender, removing volatility from a company's financial performance is a good thing. Unlike an equity investor, the lender will not profit from favourable market movements.

However, a poorly designed risk management strategy can often be worse than having no strategy at all. As such, an understanding of both the potential implications of the borrower's exposure to market risk, and the measures (e.g. hedging strategies) employed to manage this risk is critical. In fact, there are many well known cases where, ironically, a borrower's market risk hedging programme has inadvertently precipitated a default. Likewise, there are many cases where the failure to implement a suitable hedging strategy has also lead to financial stress. From the perspective of the institutional investor considering investing in a private debt fund, it is important to ascertain the fund manager's capability to understand and properly evaluate the implications of any market risk which may exist at the borrower level.

3 Private Debt Risk Management Framework

Figure 2 illustrates a basic risk management framework for private debt investors. As demonstrated in the diagram, the implementation of a private debt risk management framework is an iterative process. This process, designed to ensure regular feedback with respect to risk exposure, is critical for two reasons:

1. The dynamic nature of risk exposures, which evolve constantly due to a combination of external (typically macro) factors, as well as internal factors (typically related to the evolution of the investor's overall investment programme, as well as the composition of the private debt fund itself); and
2. The symbiotic relationships between individual risk factors.

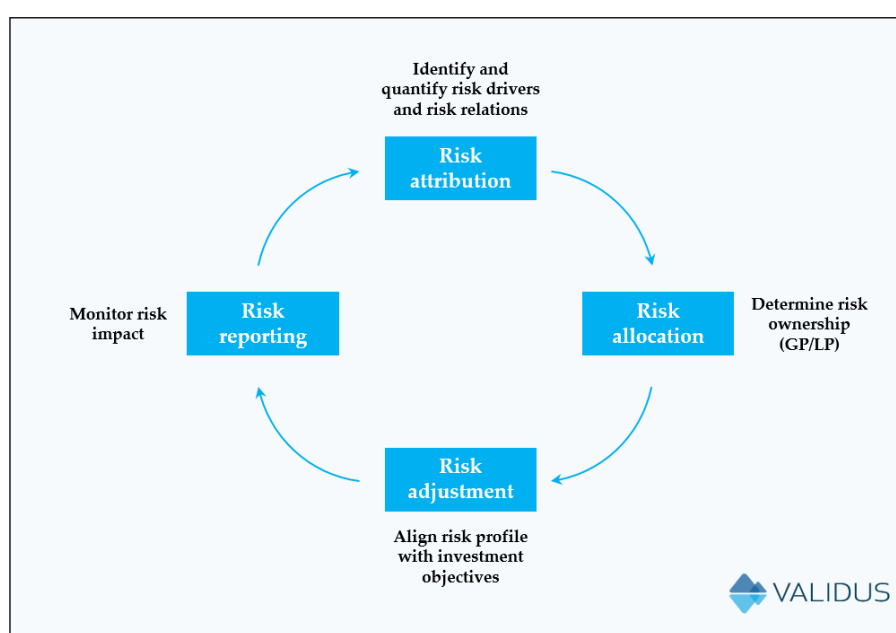


Figure 2: A risk management framework for private debt investors

3.1 Risk Attribution

Risk attribution, the determination of the relative contribution of individual risk components to the overall risk profile of the private debt investment, should occur on each level of the private debt risk hierarchy. First of all, the impact of the private debt investment on the overall risk profile of the investment programme needs to be analysed and understood. This is often particularly significant with respect to the liquidity risk of the programme, where a private debt investment can be seen to exacerbate programme liquidity risk in the initial phases of an investment (similar to all illiquid alternative investments), whilst playing a more benign, or even beneficial, role later in the investment cycle, where the predictable cash flow profile of many private debt funds can positively influence the programme's liquidity profile. (One common issue, for example, is the failure of many investors to adequately differentiate between allocations to private debt and other illiquid investments, such as private equity, when in fact the impact of a private debt investment on a programme's liquidity risk profile is often very different). The impact of market risk on the overall risk profile of the investment programme can also be material if the investment is denominated in a foreign currency.

It is also very important for the investor to understand the risk drivers on a fund level. In particular, it is important to understand how much risk is the result of intrinsic factors (particularly credit and portfolio risk) compared to how much risk is generated as a result of extrinsic factors (typically market risk).

3.2 Risk Allocation

Once the intrinsic and extrinsic risk components have been identified and measured, the ownership of each risk component should be clearly determined. The risk allocation process should be straightforward for intrinsic risks – they should be owned (and managed) by the entity responsible for that layer of the risk hierarchy. The investor will be responsible for the overall investment risk associated with the decision to invest in a particular private debt vehicle; the fund manager will be responsible for the credit risk, prepayment risk and portfolio risk associated with fund investments etc.

This issue can become slightly more complicated with respect to extrinsic risks, however (especially further down the risk hierarchy). Take market risk, such as currency exposure, which occurs at the level of the fund (e.g. a fund lends in a currency other than its base currency). It is often not clear which party, the investor or the fund manager, is responsible for this risk. On the one hand, the fund manager may view this risk as extrinsic to the investment decision (which, arguably, it is), and believe that the investor is in a better position to manage this risk directly (especially if the investor has a large balance sheet and if their portfolio already includes exposures to several other currency risks). On the other hand, the investor will not always have the necessary information to manage this risk efficiently (as fund reporting is typically not in real time).

The best way to resolve this dilemma is through an open discussion between the investor and the fund manager prior to the investment decision. All extrinsic risks (especially market risks) should be discussed in detail, and the fund manager should explain the costs of managing these risks (and the potential costs of not managing them). Such a discussion ensures that all parties are clear on their respective responsibilities when it comes to the management of all risks (both extrinsic and intrinsic). Clearly, in order to have a meaningful discussion, both the risks themselves, and the costs associated with managing them, must be quantified in some way. (Some techniques for measuring currency risk, and for assessing the costs associated with managing this risk, are described in the accompanying case study).

3.3 Risk Adjustment

The risk owner is responsible for ensuring full alignment between the private debt investment's actual risk profile and the desired risk profile. This typically involves hedging extrinsic risk factors using derivative hedging strategies.

There are two important factors to consider when implementing a hedging programme:

1. The impact of a hedging programme on other risk factors. For example, using derivatives may reduce / eliminate currency or interest rate risk, but it may create liquidity risk (related to the margin requirements associated with the hedging programme); and
2. Due to the investment profile of private debt (low return volatility, stable cash flow profile, limited 'upside' risk), mechanical rule-based hedging strategies are generally preferable to more tactical strategies. Rule-based strategies generally involve determining the relevant hedging metrics and thresholds (e.g. maximum hedging costs, maximum liquidity drag, maximum return at risk) and ensuring that a hedging programme is designed to achieve these stated objectives.

3.4 Risk Reporting

Risk reporting (and the regular analysis required to undertake risk reporting) represents a critical component of the risk management framework. It is this component which provides regular feedback to the investor, thereby ensuring that the risk management process remains dynamic and iterative, rather than static. A static risk management programme can easily be rendered ineffective or obsolete, due to changes in either the underlying risk profile of the investor's portfolio, or changes to financial market conditions.

Investor's will typically have aggregated risk reporting across multiple asset classes, often over three levels:

1. Individual Investment Risks
2. Portfolio Risks
3. Macro Factor Risks

3.4.1 Individual Investment Risks

Most private debt funds will regularly report basic investment data to investors, including current loans outstanding, yields, market values and durations. The fund manager will require much more in-depth risk reporting (typically on a quarterly basis) from its borrowers, often related to specific risk covenants.

3.4.2 Portfolio Risks

It is crucial that investors report aggregated risk on a portfolio level, which requires that asset class data be pulled from various individual fund managers. For certain key risks, notably for liquidity risk, this is a critical way to ascertain programme level liquidity risk resulting from the allocation to alternative investments. This is particularly important when the programme has a relatively high illiquid alternative allocation.

3.4.3 Macro Factor Risks

In order to understand the impact of macro factors such as currency volatility, or interest rate changes, it is essential that the investor receive an accurate breakdown of such exposures on a regular basis from the fund manager. If fund level market risk management is the responsibility of the fund manager, then the efficacy of the hedging programme should also be reported, ideally on both an historic (actual hedging impact) and on a forward-looking basis (using stress testing or probabilistic risk quantification techniques).

4 Case Study-Managing Currency Risk for a Private Debt Investment

4.1 Introduction

As Private Debt managers seek to expand globally, currency risk represents a growing challenge to both their returns and reputations and can limit global distribution. Marketing your fund to domestic investors investing in the same currency in which your fund is denominated is relatively simple. However, as the diagram below illustrates, an institutional investor whose assets (and liabilities) are based in dollars investing in a euro denominated master fund, faces significantly more risk than an investor with an euro base currency.

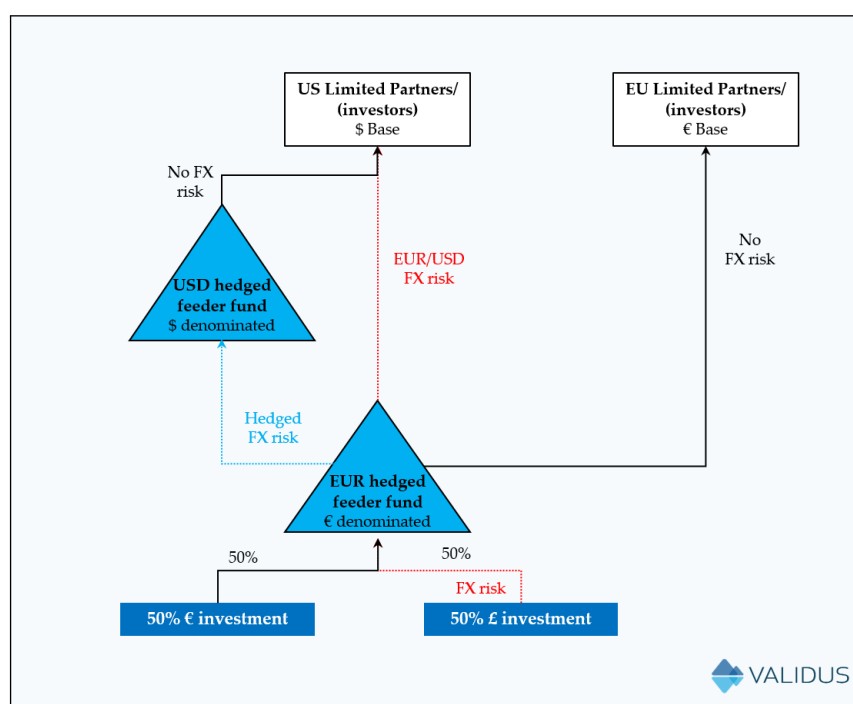


Figure 3: Hypothetical private debt fund structure

4.2 Risk Attribution

On the euro master fund level, currency risk arises from investments (loans) that are not denominated in the same currency as the euro master fund. In our example above, 50% of the loan investments are denominated in sterling resulting in fund returns directly being impacted by the volatility in the sterling-euro exchange rate. This volatility can have a large and material impact on the fund returns over the life of the investment. Figure 4 demonstrates that based on a 95 percent Value at Risk (VaR), currency losses can be significant for the fund over long time horizons. For example, there is a 5% chance that the value of the fund will fall by more than 20% by the end of a five year investment time horizon.

One problem with using traditional methodologies such as Value at Risk (VaR) is that it ignores the paths the portfolio might take along the way. An alternative measure of risk is Within Horizon Value at Risk, which measures the likelihood that our investment will decline more than a given amount (for example, 10%) at any given point within our five year investment time horizon.

This analysis shows that there is an 80% chance that our fund will fall below the 10% threshold at

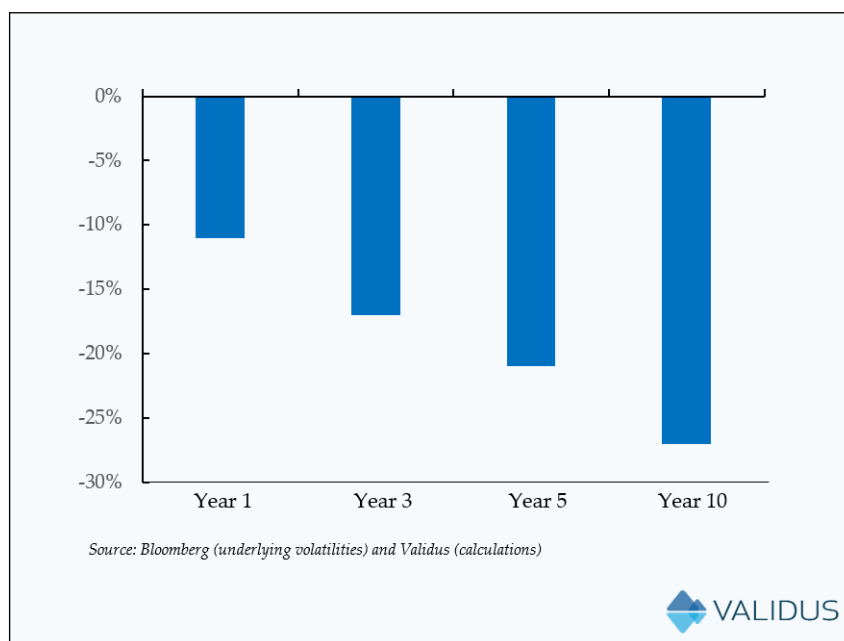


Figure 4: Value at Risk (VaR) from currency volatility over different time horizons

some point during the five-year investment period. This indicates that the risk of loss is considerably higher within our investment period compared to the Value at Risk which only measures the risk at the end of our five year investment horizon. This can have important consequences for the liquidity risk faced by the fund.

4.3 Risk Allocation

In this example, as the fund manager provides a choice of feeder funds for the investor, it is the fund manager, not the investor, who is responsible for managing currency risk if a US investor elects to invest via the USD feeder fund. However, if the US investor elected to invest via the euro feeder fund, then the investor will “own” the currency risk. In both cases, the fund manager will typically be responsible for the currency exposure related to the GBP investments.

4.4 Risk Management

Even if properly calibrated for risk management, a passive rolling forward hedging strategy may be inappropriate during periods of high volatility, when hedges can realise significant losses that will require funding. In our example above, consider a \$500 million hedged feeder fund. If the EUR were to appreciate by 10% against the dollar, the forward contracts will create a mark-to-market loss and \$50 million would need to be funded to cover these losses. As this example illustrates, a passive forward hedging programme can create significant liquidity requirements directly impacting future returns of the fund.

Because of this material impact on liquidity, private debt managers often require more customized hedging strategies to mitigate fund returns against currency volatility, whilst managing liquidity risk effectively. A third key parameter is the maximum budget, or hedging cost (typically a function of option premiums and interest rate differentials) available for the hedging programme. The challenge for the private debt fund manager, therefore, is to achieve the optimum balance between these competing parameters. Investor reporting should therefore include metrics which relate to each of these parameters.

4.5 Risk Reporting

For risk reporting purposes, it is essential that the investor is able to understand:

1. The impact of currency risk on fund returns on both a Master Fund and a Feeder Fund level. This can be done using standardized risk metrics based on the 'at-risk' methodology described above, in addition to basic stress-testing.
2. Aggregated fund exposure on a 'look-through' basis.
3. The performance of any hedging strategies employed by the fund manager (for both Feeder Fund and Master Fund level risk). Potential reporting metrics should include:
 - (a) Proportion of currency risk eliminated due to hedging programme;
 - (b) Total cost of hedging (direct hedging costs plus cash drag created by collateral requirements);
 - (c) Maximum expected liquidity requirements.

Where possible, both historical and forward-looking metrics should be employed.

5 Conclusion

In the world of illiquid alternative investments, firms and investors have often underemphasized the value of a rigorous, analytical approach to risk management. In fact, the distinction between the risk management function and the investment function has traditionally been a difficult one to make. There have been many reasons for this, including the lack of underlying price volatility associated with illiquid assets (which discourages the use of traditional financial risk metrics), and the fact that investment philosophies associated with asset classes such as private equity have evolved during a period of macroeconomic and financial market stability.

The emergence of the private debt market as a major investment opportunity has corresponded with a very different investment climate. The awareness of sensitivity to a wide array of risk drivers, such as general market liquidity, currency market volatility, and dramatic shifts in interest rates and credit conditions, has been greatly heightened by the experience of the financial crisis. In addition, the characteristics of private debt investments, including the unique liquidity and return profile, means that, as an investment class, the performance of a private debt portfolio is often especially sensitive to certain risks – in some cases, even more so than other illiquid alternative investments. As such, a meticulous approach to both the analysis and the management of risk is an essential component of a private debt investment programme.