

MILLIMAN PAPER

Profiles of alternative assets in the life insurance landscape

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Introduction

As the need for life insurers to be competitive on the investment side becomes increasingly important, there is increased exposure to “nonstandard” assets that are not traditionally held by life insurance companies. Life insurers are branching out from the standard bond and mortgage holdings to new types of securities.

The identification and knowledge of these alternative assets will prove valuable as market penetration and subsequently modeling consideration increases.

WHY ALTERNATIVES?

For institutional investors, diversifying into alternative assets provides a myriad of benefits, including reduced portfolio volatility, reliable income streams, inflation hedges, low correlations to other asset classes, and high risk-adjusted returns.

As an example, energy transition infrastructure assets display a low correlation with other asset classes and public markets. The long-term maturities reduce expected volatility as it is insulated from current short-term market sentiment.

Additionally, and perhaps most critically in the current high-inflation economic environment, most infrastructure assets have inflation adjustment links with rates set to rise in accordance with inflation.

Infrastructure is a specific example of how incorporating alternatives into a portfolio can be a powerful risk management tool.

ALTERNATIVE ASSETS PROFILED

This paper profiles 11 popular alternative asset classes:

- Commercial real estate
- Private equity
- Emerging markets
- Private debt (direct lending)
- Collateralized loan obligations (CLOs)
- Middle market CLOs
- Energy transition infrastructure
- Royalty income trusts
- Cash sweeps
- Multicurrency draws
- Non-utilization fees for fund finance deals

Assets are ordered in the document by their prevalence in the industry.

5-PART ASSET PROFILE

For each asset type listed above, a five-part security portfolio is constructed. The profile consists of the following items:

1. **Security structure and characteristics:** A comprehensive description of each asset type is presented. This description consists of detailing the current and future economic value of the security. Additionally, a full outline of the asset’s economic performance is provided.
2. **Cash flow profile:** The cash flow profile of each asset is detailed. The cash flow profile is characterized, and the volatility of cash flows is given.
3. **Risks to consider:** Similar to the cash flow profile, the economic risks to which the security is exposed are detailed. For example, structured securities are subject to the risk of the underlying collateral, whether it is a hedge fund, private equity fund, or pool of debt obligations. Credit risk exposure of the asset and mitigation techniques such as credit enhancement through overcollateralization are described.
4. **ALM considerations:** The asset-liability management (ALM) considerations combine the cash flow profile and risk exposures to determine how the asset can effectively be employed in a portfolio to match a liability obligation stream.
5. **Modeling simplifications:** Complex assets can present many modeling difficulties. Our work focuses on these modeling issues and suggests possible modeling simplifications and their implications on the final financial results.

The profile of each asset is a reference guide or quick instruction manual for incorporating these assets into a diversified portfolio.

Commercial real estate

SECURITY STRUCTURE AND CHARACTERISTICS

Commercial real estate (CRE) comprises the class of real estate properties used for commercial activity and investment, not for family living or dwelling. CRE can be divided into two categories: traditional CRE, which refers to industrial, hospitality, multifamily residential, retail, and office space, and alternative CRE, an emerging group of nontraditional CRE assets ranging from self-storage facilities and student housing to healthcare facilities like hospitals and clinics.

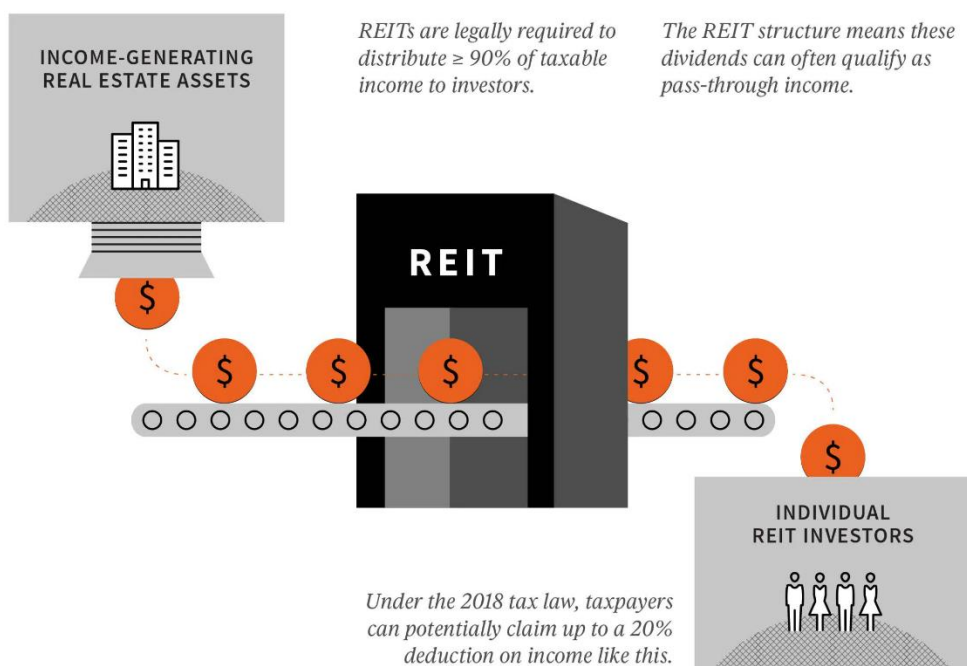
There are five popular options for institutional investors to gain exposure to CRE: through ground leases and direct investment, a real estate private equity fund, a publicly traded real estate investment trust (REIT), CRE collateralized loan obligations (CLOs), and commercial mortgage-backed securities (CMBS). This section will focus on REITs and ground leases and direct investment. Private equity, CLOs, and CMBS are discussed in other sections.

For ground leases, institutions directly acquire commercial real estate properties such as office buildings and recruit a tenant for a long-term lease lasting typically 50 to 99 years. The tenant is generally free to make and benefit from property improvements during the lease term, and the property, along with any improvements, is returned to the landlord at the end of the lease or on rent default.

Private equity real estate funds are professionally managed and pool private and public equity and debt real estate investments. They have a high entry capital requirement and offer higher return for higher risk (Kagan, 2022). A fund would recruit general partners that directly engage in property investment deals, and limited partnerships that supply the funds. Like other private equity funds, these funds have the characteristics of high up-front capital commitment, illiquidity and lock-up periods, slow distributions, and management fees (Kagan, 2022).

There are three types of REITs: equity REITs, mortgage REITs, and hybrid REITs, which are some combination of the first two. Equity REITs acquire ownership in income-producing real estate to generate returns primarily through rental income, while mortgage REITs lend money to CRE operators, through direct loans or indirect purchase of mortgage-backed securities, and generate returns primarily through the interest spread earned on mortgage loans over their funding costs (Chen, 2023). REITs are required to pay out 90% or more of their taxable profits to shareholders as dividends and are exempt from most corporate income tax (Chen, 2023).

FIGURE 1: REITS AND PASS-THROUGH INCOME FOR INVESTORS



SOURCE: "REITS 101: A BEGINNERS GUIDE TO REAL ESTATE INVESTMENT TRUSTS," FUNDRISE.

CASH FLOW PROFILE

Direct real estate investment requires a large up-front capital commitment to acquire the property. In addition, if financing is used through instruments such as a commercial mortgage, then interest expenses will become periodic cash outflows. However, after a ground lease is contracted, the investor can expect to receive stable, predictable cash flows at known frequencies. There is also potential for upward rent adjustment every 10 to 20 years within the lease term based on inflation. A less common alternative is the percentage rent clause, where the property owner is paid a specified percentage of the tenant's revenues.

At the end of the lease term, any improvements and appreciation in property value are returned to the property owner. Throughout the rental term, the tenant may be able to terminate the lease early by paying a termination fee, if agreed upon in the initial contract.

REITs provide cash flows primarily through dividends. Because most REITs are publicly traded, investing in REITs follows a similar funding process as traditional equity investment. By law, REITs are required to pay out 90% or more of their taxable income as dividends in any given year, and dividends could be paid in cash or stock. REITs historically provided above-average dividend yields before adjusting for risk, using income generated from its portfolio of assets, which may include mortgage payments and rental income from real estate direct investment and development. From a long-term perspective, REITs provide a steady income because they derive their distributions from leases and mortgages, both of which are assets that exhibit less volatility than traditional market-linked instruments and allow investors to capitalize on the appreciation of a portfolio of real estate properties over time.

ECONOMIC RISKS TO CONSIDER

CRE performance is intricately linked to economic conditions and exhibits cyclicity, exposing these investments to market risk and interest rate risk. Recessions and subsequent declines in real estate transaction activity negatively impact CRE direct investment and equity returns by causing declines in real estate values and rental rates.

For direct investment, concentration risk and geopolitical risk could be issues, which can be partially mitigated by diversifying portfolio holdings. Direct investment also creates competitive risk, and operational risk, which can be mitigated by engaging the right professional advisors in deals. Deal sourcing also requires sound investment opportunities, investment financing capability, and industry connections. Inflation risk is present, but ground lease rents can be adjusted every 10 to 15 years based on consumer price index (CPI).

Financing direct investment exposes the insurer to reinvestment and interest rate risk. Additionally, there is jurisdictional risk, requiring compliance with tax and legal requirements that may change over time. Other risks include counterparty risk and environmental liability/legal risk related to local inhabitants and tenants.

ALM CONSIDERATIONS

For direct investment, capital needs to be set aside to acquire property up-front, whether insurers prefer to pay in full or supply a percentage as down payment. Because of the nature of its low probability of default, as previously discussed, ground leases can be expected to supply stable and predictable monthly cash flows. This means ground lease payments across an entire CRE direct investment portfolio can be combined and regrouped to achieve a good match with liability cash flow needs. Operating expenses, property taxes, rental income taxes, property insurance, and mortgage payments should be deducted from monthly rental income. Cash payments may be prepaid or accrued for taxes and insurance in some cases.

REITs produce cash flows less predictable than ground leases but more predictable than traditional market securities. Because REITs distribute income at predetermined frequencies and often consist of debt instruments with known interest and principal repayment amounts, cash flows can be projected based on historical distribution patterns and the REIT's portfolio composition to determine the best fit in an ALM strategy.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

REITs can be modeled in an approach similar to traditional equity and debt securities. Depending on the composition of the REIT portfolio, it can be modeled as common stock or bonds for simplification. Adjustments may be needed for spreads and distribution rates.

The focus of modeling considerations will thus be on direct investment in commercial real estate. Based on industry standard appraisal techniques, CRE cash flows can be combined from two streams of payments.

The first is net rental income, equivalent to a stable predetermined cash flow less all costs and expenses outlined earlier. The amount is typically adjusted every 10 or 15 years to reflect inflation based on CPI. For example, a 5% adjustment every 15 years based on projected CPI increase could be applied as simplification. At the same time, net rental income cash flows can be averaged across each adjustment period for simplification, considering that expenses such as utilities may fluctuate seasonally, although such expenses are typically covered by the tenant in ground leases.

The second payment stream is for financing the property purchase. This includes the down payment and commercial mortgage payments. Mortgage refinancing rates can be projected based on 15-, 20-, or 25-year amortization periods into the future, which will be applied to the group of cash flows within each amortization block of, for example, 20 years. An amortization schedule can be used to determine the future book values to project the mortgage payments 20 or more years into the future after each refinancing agreement. Due to prepayment provision in commercial mortgages, prepayments are not common.

As a modeling simplification, the steady income stream of rent payments can be modeled as coupon payments of bond assets, and the steady stream of principal payments to finance the direct investment can be considered a stream of mortgage payments.

Private equity

SECURITY STRUCTURE AND CHARACTERISTICS

Private equity (PE) funds primarily invest in the “equity” of non-publicly traded operating companies. PE funds with direct investments employ specific targeted investment strategies depending on their preference.

In the typical PE structure, a limited partnership is registered in a jurisdiction. The investment manager is the fund sponsor and is also referred to as the general partner (GP). The GP pools together investments from a group of investors to create the structure. These investors are referred to as limited partners (LPs) and are typically of high net worth or institutional investors, including insurance companies. There is a contractual agreement between the LP and GP for the LP to compensate the GP for managing the fund and making investments.¹

The terms and structure of PEs are driven by the investment strategy and portfolio in which the PE specializes. A passive fund management strategy allows for the management to grow the company and generate returns (commoditized approach). Others are active and provide operational support to improve a company.

PE investment strategies include:

1. **Leveraged buyouts:** PE buys company, financed through debt collateralized by the company’s operations and assets, to maximize potential return.
2. **Venture capital:** Equity investment in startup company in less mature industries.

The private equity fund creates value for its investors through the following methods:

1. Sourcing proprietary deals, executing the transactions, and generating leads to raising funds without the need for engaging investment bankers.
2. Providing oversight and management to the companies, typically turning underperforming businesses around by increasing operational efficiencies and earnings.
3. Employing a strategic exit strategy such as resale of the company for profit and taking the company public through an initial public offering (IPO).

¹ A Simple Model. Private Equity Fund Structure. Retrieved August 3, 2023, from <https://www.asimplemodel.com/insights/private-equity-fund-structure>.

CASH FLOW PROFILE

PE funds are closed end funds meaning that the fund term is finite. The timeline can vary, with a typical life cycle of seven to 10 years. The initial period is spent raising capital to create the fund. Then there is a period when capital is invested in the fund's targeted investments. Lastly, there is the period when the risk pays off in the form of returns to the investors if the investment was successful. The timing of distributions to investors is uncertain.

The funds are illiquid during the lifetime where investors have limited ability to get in or out. Investors wishing to leave the fund must sell to a third party. However, PE funds have a history of high returns not easily obtainable from conventional investment options.

During the private equity fund's lifetime, it may execute a financial strategy to generate liquidity and realize returns on their investments in portfolio companies called dividend recapitalization. It involves a portfolio company taking on debt to pay a special dividend to its shareholders, including the private equity fund that owns a significant stake in the company. This strategy allows the private equity fund to "recapitalize" its investment by extracting cash from the portfolio company without selling its ownership stake.

For the closure of the fund, managers will search for specific liquidity events that provide opportunities for the fund to realize returns on their investments and, eventually, distribute capital back to the fund's investors. These events are critical as they allow the private equity fund to distribute profits and eventually wind down its operations. Some common liquidity events in private equity include: an IPO, where the private company becomes a publicly traded company by offering its shares to the public for the first time, or a secondary sale, where the private equity fund sells some or all its shares in a portfolio company to another investor. This transaction allows the fund to exit its investment in the company and generate liquidity.

These liquidity events provide the private equity fund with opportunities to realize gains on its investments and distribute capital back to its investors, which eventually leads to the winding down and closing of the fund. It is worth noting that the timing and nature of these liquidity events can vary depending on the fund's investment horizon, investment strategy, and market conditions. The fund manager's ability to identify and execute these events is crucial to delivering attractive returns to its limited partners.

Management fees are usually between 1% and 2% during the investment period. The fund sponsor may also be entitled to 20% of fund profits above a preset minimum as incentive compensation, known as "carried interest." That means, the LP gets distributed 80% of the profits on an exit and the GP keeps 20% of the profits.²

ECONOMIC RISKS TO CONSIDER

For private equity direct investment, the high return potential comes along with high uncertainty and many diverse types of risk. These risks include liquidity risk and market risk.

Liquidity risk comes from two aspects, funding risk and asset risk. Funding risk is the risk that a funding commitment cannot be fulfilled, which takes place when investors use debt for their investments. Higher interest rates during a tightening interest rate cycle will increase the risk. Another aspect is asset risk. Unlike those more liquid assets such as stocks and ETFs, private equity direct investment is usually locked for an average of four to seven years before there are exit options for returns. Investors also face an illiquidity discount when they exit their position due to the limited number of potential buyers.

Market risk includes interest rate risk, exchange rate risk, and commodity price risk. Investors should track the macroeconomic environment to decide the best exit timing.

² Shah, K. An Explanation of Private Market Fund Fees. iCapital. Retrieved August 3, 2023, from <https://icapital.com/insights/education/an-explanation-of-private-market-fund-fees/>.

ALM CONSIDERATIONS

Due to the illiquid nature of private equity direct investment, the ALM consideration is to determine the private equity allocation in a strategic asset allocation (SAA) that aligns with company's risk appetite and risk profile. PE direct investments have high expected returns and high volatility at the same time, so the main goals for insurance companies are maintaining a level of liquid assets and fulfilling funding commitment for PE direct investment.

Insurance companies can use either stress scenario or stochastic modeling to determine their capital levels. Considering the long-term feature of PE direct investment, insurance companies usually use a carve-out strategy that splits out long-term liability cash flow and use PE investment to back those liabilities.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

For private equities, the key consideration is equity risk premium. Investors will require higher economic benchmarks than public equity due to the following reasons (Vanguard, 2020):

1. Liquidity premium
2. Risk factors related to the specific private equity funds: industry size, leverage, valuation, etc.
3. Manager-specific alpha
4. All-in costs

Investors can rely on expert judgment or traditional valuation methods to set risk premium assumptions. The following methods are often used to justify the expected excess return of PE investments:

1. Using historical market data to calculate historical spreads over public equity indices.
2. Using a regime-switching scenario generator to estimate excess return and probability for both normal and stress regime.
3. Using a building-block approach to estimate the liquidity premium for fully illiquid investments.
4. Using the Sharpe ratio matching method to estimate the volatility for public and private equity investment and solve for excess return to assume the same Sharpe ratio for all investments.

Emerging markets

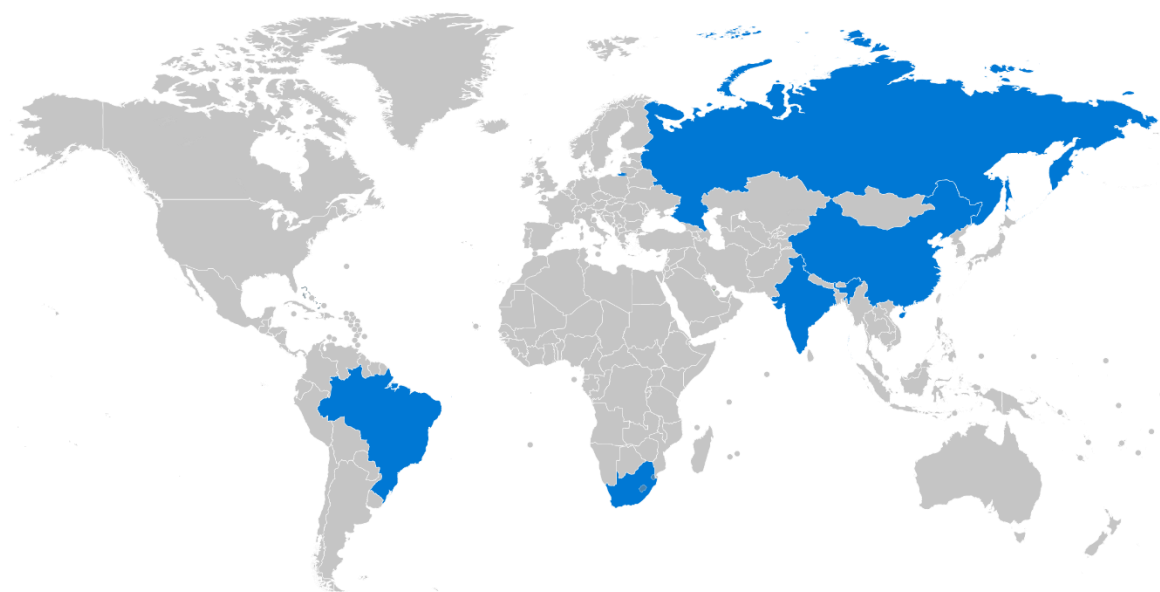
SECURITY STRUCTURE AND CHARACTERISTICS

Emerging markets refers to countries or regions going through rapid economic growth, which can be determined based on the gross domestic product (GDP) and per capita income (Ameriprise Financial, 2023). Over the last five years, some of the strongest emerging market nations have been found in Northeast Asia (South Korea and Taiwan) and the Association of Southeast Asian Nations (ASEAN), as well as in Latin and South America. The map in Figure 3 highlights those nations, along with a geographical location deemed "Emerging Europe."³ Although often classified in combination, emerging markets face different problems and are in various stages of development.

Emerging markets provide diversification and high growth benefits and allow investors to capitalize on above-average risk-adjusted returns due to information inefficiency. It is a significantly under-allocated asset class, accounting for 28% of global GDP but only 3% of average portfolio allocation. Two main reasons behind this under-allocation are the low availability of emerging market investment instruments, comprising only 10% of global equity markets, and low familiarity due to lack of investment experience and information.

One of the simplest ways for insurers to gain exposure to the emerging markets asset class is by investing in emerging market exchange-traded funds (ETFs), index funds, or mutual funds pooling together investments in equity and debt instruments in a range of emerging market regions. There is also the option to focus on specific countries or regions by investing in funds targeting those areas.

³ Dorson, W.M. (July 5, 2023). Emerging Markets Outlook 2023: Midyear Update. Global X. Retrieved August 3, 2023, from <https://www.globalxetfs.com/emerging-markets-outlook-2023-midyear-update/#:~:text=The%20first%20half%20of%202023,economic%20data%20disappointed%20lofty%20expectations.>

FIGURE 2: EMERGING MARKETS

Source: CREATED WITH MAPCHART.NET

CASH FLOW PROFILE

Emerging market ETFs trade like equity, and cash flows are generated through dividend distributions, which are typically linked to dividends the fund receives from the assets it holds. For instance, Megatrends quotes the dividend yield for iShares MSCI Emerging Markets ETF as of March 29, 2023, as 2.46%. As a passive investment strategy, ETFs are typically more tax-efficient and require less in management fees than active strategies.

Active strategies like mutual funds and index funds require higher capital commitment and provide less liquidity. Mutual funds and index funds differ by their asset selections. Whereas index funds are designed to match specific indices, mutual funds have more flexibility to choose and change their portfolio compositions. There is no clear evidence suggesting active strategies can outperform passive ETF strategies over the long term despite higher risk and costs. Mutual and index funds require additional fees to cover operating and management expenses, transaction costs, and sometimes one-time commissions. On the inflow side, active funds distribute interest income and dividends to investors, and typically dividend income is paid out in its entirety. In addition, capital gains from investments less capital losses are typically distributed annually at year-end. When investors sell or transfer their shares, they can realize capital gains on the sale as well.⁴

ECONOMIC RISKS TO CONSIDER

Emerging market investments are considered high-risk and high-return. Several risks are present, including foreign exchange (FX) risk, interest rate risk, geopolitical risk, market risk, sovereign risk, and credit risk. Emerging markets offer a diverse range of investment options, each with a unique risk profile but with significant similarities. Sovereign risk is specifically relevant to emerging market sovereign debt, describing the chance that the emerging market government or central bank will default.

Investing through experienced fund managers or diversified portfolios can mitigate market, concentration, and other risks, though less so. Other mitigation strategies include foreign exchange and interest rate hedging.

Today, although many emerging markets are working to reduce their dependence on the developed economy, they are still significantly impacted by developed world actions like U.S. rate hikes and the strength of the U.S. dollar.

⁴ Doak, E. (July 17, 2023). ETFs and Taxes: What You Need to Know. Charles Schwab. Retrieved August 3, 2023, from [https://www.schwab.com/learn/story/etfs-and-taxes-what-you-need-to-know#:~:text=If%20you%20sell%20an%20equity,\(NIIT\)%20on%20high%20earners.](https://www.schwab.com/learn/story/etfs-and-taxes-what-you-need-to-know#:~:text=If%20you%20sell%20an%20equity,(NIIT)%20on%20high%20earners.)

ALM CONSIDERATIONS

With the continued development of emerging economies and their financial markets and support from international governing bodies like the World Bank, there is a wide realm of promising strategies for insurers to mitigate risk while capitalizing on above-average returns and diversification benefits to their portfolio. The over-the-counter (OTC) derivatives markets in many emerging economies are well developed. Insurers can mitigate foreign exchange and currency risk with FX swaps and currency swaps. Credit risk and sovereign risk can be hedged using credit default swaps (CDS), which are traditionally more geared toward public debt than corporate debt. Although of smaller magnitude, interest rate risk can be hedged using interest rate swaps.

Focusing on ALM planning, the diversification provided by emerging market equity may act as a return stabilizer for the overall portfolio to meet liability obligations. Also, after accounting for defaults and other risks specific to emerging markets, the sovereign and private debt cash flows from interest and principal repayments in these markets can be matched against liability obligations like developed market debt. There is also a significant potential for capital appreciation (and depreciation) of equity, which should be factored into institutional ALM planning. Emerging markets are subject to higher risk-based capital (RBC) requirements in the United States and higher Bermuda Solvency Capital Requirement (BSCR) requirements in Bermuda, which increases the cost of capital.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

Emerging market equity and debt can be modeled in an approach similar to what insurers currently use for common stock and corporate debt, but with larger spreads to account for the additional risks previously discussed, especially credit risk and geopolitical risk. The volatility of expected returns should also be reflected in the model.

The modeling of risks like the credit default risk can be based on experience studies conducted by Moody's. A scenario analysis can be performed where appropriate for risks like interest rate risk and foreign exchange risk to project cash flow behavior.

Direct lending

SECURITY STRUCTURE AND CHARACTERISTICS

Direct lending is a form of debt financing in which borrowers obtain loans directly from institutional investors or specialized lending platforms, bypassing traditional financial intermediaries like banks. Direct lending is secured by the tangible assets of the borrowing entity, including physical assets such as plants, property, and equipment, and intangible assets like accounts receivable. It is a form of private debt that traditionally comprises first lien loans made to middle market companies, such as senior debt loans. Lately, however, other forms of middle market lending such as second lien debt, mezzanine debt, and uni-tranche debt have also come to fall under this category.

Direct lending is strongly characterized by the flexibility of the contract held between the borrower and the lender. These contracts are developed in a very controlled and customized environment, which provides more control over decision making. As a result, there is little to no secondary market, which results in lower marketplace volatility, but reduced liquidity as well.

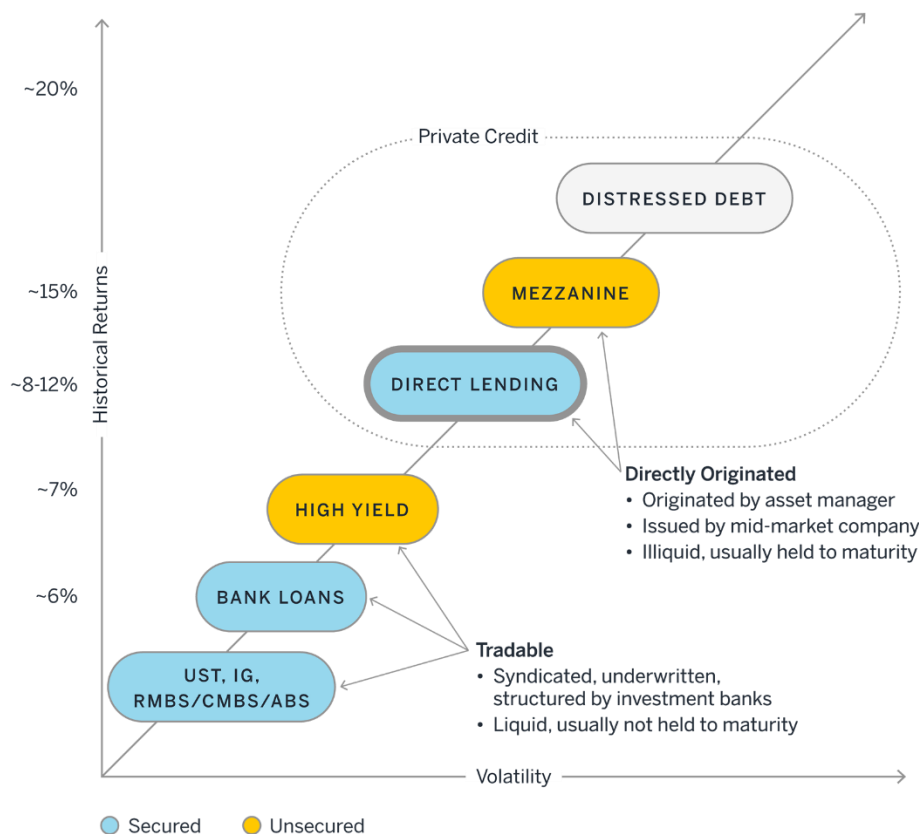
There are strong covenants in place to protect the lender, such as maintenance and incurrence covenants. As defined by [Law Insider](#), an incurrence covenant is "A covenant by any borrower to comply with one or more financial covenants only upon the occurrence of certain actions of the borrower, including a debt issuance, dividend payment, share purchase, merger, acquisition or divestiture."⁵ As these loans are collateralized and higher in the capital structure, lower potential losses in a default are observed.

There is an additional execution cost to gain access to more private and secured deals that allow more flexibility. As a result, direct lending falls into two main categories—sponsor-led deals, which are made through an intermediary, and non-sponsored transactions.

⁵ Law Insider. Incurrence Covenant definition. Retrieved August 3, 2023, from <https://www.lawinsider.com/dictionary/incurrence-covenant#:~:text=Incurrence%20Covenant%20means%20a%20covenant%20by%20the%20borrower%20to%20comply,%2C%20merger%2C%20acquisition%20or%20divestiture.>

An intermediary, such as an investment bank, is chosen to facilitate sponsor-led deals by conducting an auction. However, as an auction could lower the price of the debt or weaken the protective terms within the loans, the risk associated with these transactions may not be adequately reflected in an auction environment. These direct lending strategies are typically used to facilitate forms of leveraged buyouts.⁶

FIGURE 3: FIXED INCOME SPECTRUM



SOURCE: MARQUETTE ASSOCIATES – FIXED INCOME SPECTRUM

Non-sponsored transactions are made through a direct relationship between the investor and the end borrowing entity. These deals need more sector-specific knowledge and resources to source deals and conduct due diligence. Yet the lender benefits from less competition and more attractive pricing. Moreover, the additional effort involved in sourcing the deals could enable lenders to command higher yields from their loans.

CASH FLOW PROFILE

According to the U.S. Securities and Exchange Commission (SEC), direct loans are highly customized contracts that share certain structural features such as “security, structural seniority, floating rate pricing, contractual yield and amortization, financial covenant protections, and management access.”⁷ These features have enabled direct lending to historically produce “higher absolute and risk-adjusted returns when compared to bonds and traded loans.”⁸

In addition, direct lending traditionally services niches in the market that are not able to access broadly syndicated loans or are unable to borrow from the public adequately, particularly the middle market. Lenders in this space can charge a premium for access, flexibility, and faster analysis, and because servicing these markets also enables lenders in the private market to serve niche sectors and search for underpriced opportunities. As private markets are structurally illiquid, a liquidity premium is often added as well.

⁶ Eklund, T. Private Credit Outlook. CFA Society of New York. Retrieved August 3, 2023, from <https://cfany.org/private-credit-outlook/#>.

⁷ SEC (September 25, 2019). Form 10: Morgan Stanley Direct Lending Fund LLC. Retrieved August 3, 2023, from <https://www.sec.gov/Archives/edgar/data/1782524/000104746919005449/a2239758z10-12g.htm>.

⁸ Denisenko, E. (January 19, 2022). Why Direct Lending? CAIA Association. Retrieved August 3, 2023, from <https://caia.org/blog/2022/01/19/why-direct-lending>.

The cash flow profile of direct loans can vary depending on the specific terms of the loan agreement, including interest rates, loan duration, and repayment schedules. For borrowers, a well-structured cash flow profile ensures they can manage their debt obligations and maintain financial stability. For investors, understanding the cash flow profile helps them assess the risk and potential returns associated with investing in direct loans.

Insurers typically invest in securities to preserve capital. Mezzanine loans and senior debt are typically used as a part of this strategy. Mezzanine loans are a hybrid security and typically have a high correlation to the public market, or the performance of the company being invested in. Direct lending to middle market companies provides diversification due to low correlation to capital markets and robust transaction volumes. In addition, this highly fragmented and scalable corner of capital financing offers the chance for attractive returns on risk-based capital, which are higher than returns on high-yield bonds.⁹ (Cambridge Associates, 2017)

Most of the managers in the senior debt space participate through a sponsor by financing leveraged buyouts for private equity managers. Cambridge Associates writes, “They generate most of their returns from current cash pay coupons composed of a fixed credit spread and a fixed reference rate” (historically LIBOR, currently SOFR).¹⁰

Although direct lending primarily refers to first lien loans, certain second lien loans can often be classified under this category. For example, split lien loans and uni-tranche loans can have certain structures that would classify them as second lien loans. Thus, the cash flow for direct lending cannot be categorized simply by seniority (Cambridge Associates, 2017).

Senior debt funds can either be levered, with gross returns reaching 15%, or unlevered, with gross returns typically around 6% to 10% (Cambridge Associates, 2017). The overall level of leverage and the permanence of leverage lines are key points of focus from the investor’s perspective.

ECONOMIC RISKS TO CONSIDER

Direct lending is priced at a premium to traditional fixed income investments as it is considered a riskier asset. There are two main reasons for this; investors require unique skills and understanding of the various market niches, and there may not be an active secondary market, which makes the securities less liquid. In addition, private loans do not tend to be rated, while syndicated leveraged loans and high-yield bonds are usually rated by credit agencies, which makes the credit default risk harder to evaluate for direct lending and may also require the insurer to produce an internal rating for capital modeling purposes. These factors could make direct lending riskier and in turn offer the potential for higher yields and returns for investors.¹¹

However, historically, “secured private loans have had lower default rates and higher recovery ratios relative to high yield bonds.”¹² There is more uncertainty around the performance of private loans as information on default and recovery rates is not publicly available.¹³ But CAIA Association notes, “private loans can provide credit risk protections such as personal guarantees, cash collateral accounts, contract revenue assignment, and others.”¹⁴ Lenders may also be able to negotiate stronger covenants and protections than in the syndicated bank loan market as they typically service the middle market niche.

In addition, private debt may not experience the same J-curve as other private investments, where a pattern of negative cash flows is observed in the early years due to capital calls and management fees paid before there is a chance for the investment to generate returns. Current income received from borrowers of private loans may contribute positively to returns in the early years.

Senior loans offer stronger covenants than mezzanine debt and second lien loans. Insurers often invest in them through a sponsor.

The value of the outstanding debt may be affected by a change in interest rates. However, because direct lending managers typically assign a floating rate to the debt, the duration risk associated with a rising rate environment is eliminated.

⁹ ABGlobal. Private Credit for Insurers. Retrieved August 3, 2023, from https://www.alliancebernstein.com/sites/library/instrumentation/gi_7451.pdf.

¹⁰ Ibid.

¹¹ CAIS (May 27, 2022). An Introduction to Private Debt. Retrieved August 3, 2023, from <https://www.caigroup.com/articles/giving-credit-to-private-debt>.

¹² Denisenko, CAIA, Why Direct Lending? op cit.

¹³ CAIS, Introduction to Private Debt, op cit.

¹⁴ Denisenko, CAIA, Why Direct Lending? op cit.

ALM CONSIDERATIONS

Direct lending structures do not benefit from the liquidity and the consistency of ratings that broadly syndicated loans do as the companies targeted are often smaller and interact less frequently with the public markets. In turn, direct lending has the advantage of renegotiable terms or additional liquidity that can be extended to borrowers in periods of market stress, as was observed during the global coronavirus pandemic.

In recent years, more issuers from various industries have entered the private debt space as changes in bank regulation have reduced the accessibility to traditional bank loans for many borrowers and resulted in higher yields for issuers of direct loans. The increased competition in the market has allowed for weaker terms and conditions.

The increase in supply of capital has expanded the scope of lending opportunities for direct-lending funds. The market can meet the financing needs of larger companies, as opposed to those of only smaller, sponsor-backed companies. The capability of underwriting at a larger scale has also made direct lending a competitive option for borrowers, particularly those from countries where investment banks may not offer competitive terms and financing.¹⁵ ([Fitch Ratings](#))

However, the illiquidity of these assets is a primary ALM consideration. If an insurer is considering venturing into this asset class, it may want to produce long-term projections of assets and liabilities to ensure that it will have adequate liquid assets to meet liabilities as they fall due, and not to rely on direct lending structures to meet these obligations.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

Direct lending could either be bilateral, direct between a single borrower and lender, or syndicate, with several lenders involved in each deal. Insurance companies may also partner with existing investors and form a coinvesting arrangement. The loans could alternatively be originated by insurers, which would require specialist expertise.¹⁶ ([actuaries.org.uk](#))

Because private placements are a form of direct lending that has normally been targeted at long-term investors such as insurers and pension funds, a modeling simplification would be to treat these arrangements as bonds or direct loan assets, with various customized features.¹⁷

Private placements are traded very lightly post-issue, with no public disclosure of trades and as a result no creation of benchmark indices.¹⁸

Therefore, for modeling purposes, according to the Institute and Faculty of Actuaries, “An investor would need to analyze their own book of Private Bonds, based on suitable mark-to-model valuations of the Bonds held. This could then be compared against easily available benchmarks for Listed Bonds. A pickup in return vs. Listed Bonds would be expected as a reward for illiquidity.”¹⁹

Collateralized loan obligations

SECURITY STRUCTURE AND CHARACTERISTICS

A collateralized loan obligation (CLO) is a type of structured financial product that pools together a diverse portfolio of loans, often consisting of corporate loans or loans to small and medium-sized enterprises (SMEs). The CLO issuer then sells various tranches of this pooled debt to investors. Each tranche represents a different level of risk and return. In this section, the performance and risk of CLOs backed by first liens and broadly syndicated loans (BSLs) are discussed. A smaller number of CLOs are from middle market loans and second lien loans. They will be detailed in a subsequent section.

¹⁵ Fitch Ratings (May 11, 2022). The 2022 Annual Manual. Retrieved August 3, 2023, from https://assets.ctfassets.net/03fbs7oah13w/2My4tDqvFwvDAZ4rNCacBJ/929e0c96e057bb27197bd09e07f88359/2022_Lev_Fin_Annual_Manual.pdf.

¹⁶ Institute and Faculty of Actuaries (January 19, 2015). Nontraditional investments – key considerations for insurers. Retrieved August 3, 2023, from <https://www.actuaries.org.uk/system/files/documents/pdf/non-traditional-investments-paper.pdf>.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

CLOs parse out cash flows in accordance with a tranche structure. This structure controls how the underlying pool of loans is divided into segments or tranches with varying levels of risk and return characteristics. Each tranche represents a distinct portion of the CLO and is designed to cater to different types of investors with varying risk appetites. The key feature of the tranche structure is that each tranche has a different priority in receiving payments and absorbing losses from the underlying pool of loans.

1. **Senior tranches:** These are the most senior and safest tranches in the CLO structure. They have the first priority in receiving payments from the underlying pool of loans and are considered less risky compared to other tranches. Senior tranches offer lower yields but are designed to be more resilient to credit losses. Investors in senior tranches are usually more risk-averse and seek stable income streams.
2. **Mezzanine tranches:** Also known as "subordinated" tranches, these come after the senior tranches in the payment priority. Mezzanine tranches carry a higher level of risk compared to senior tranches but offer higher yields as compensation for the increased risk. Investors in mezzanine tranches are willing to take on more risk to potentially achieve higher returns.
3. **Junior tranches or equity tranches:** These are the most junior and riskiest tranches in the CLO structure. They have the last priority in receiving payments and are the first to absorb losses from the underlying pool of loans. Junior tranches offer the highest potential returns but are exposed to higher default risk. Investors in junior tranches are typically more aggressive risk-takers looking for significant upside potential.

CLOs that are backed by BSLs are typically arbitrage CLOs and represent approximately 90% of the CLO market. The term "arbitrage CLO" is used because an excess spread is earned between the coupons on the loans and the interest paid to the debt tranche. The excess spread is typically paid to the equity holders.

CASH FLOW PROFILE

CLOs have more predictable cash flows compared to many other collateralized securities. The predictability is enhanced by the consistent interest payments, which are typically either monthly or quarterly. Additionally, CLOs have a set of covenants and coverage tests that serve to enhance the predictability of cash flows:

1. **Coverage tests:** Periodical interest and principal tests are done to determine whether a CLO has adequate cash flow coverage of the expected payments. If it is detected that the collateral has deteriorated, corrective measures will be applied.
2. **Concentration limits within the collateral:** Deals mandate the minimum amount of collateral there should be from senior secured loans.
3. **Diversification of borrowers underlying loans:** Limits are set as a minimum for both distinct borrowers and the number of industries represented. Also, there are limits to the amount of loan collateral coming from a single borrower.
4. **Minimum size of borrowers:** There is usually a restriction on loans from small companies because their trading liquidity is low.

ECONOMIC RISKS TO CONSIDER

In general, the underlying collateral of CLOs from broadly syndicated loans are leveraged loans, which are issued by non-investment-grade companies with high debt levels. Most of the collateral consists of the least risky loans that have a priority claim on the underlying company's assets in the event of bankruptcy. However, CLOs have several risks that the investors should consider. They include:

1. **Credit risk:** Given the profile of the underlying loans, they can default, which could lead to large losses for investors. However, historically, default rates of CLOs are low. According to [S&P Global Ratings](#), from 1994 to 2019 only 0.4% of CLOs rated by S&P defaulted (S&P Global Ratings, 2021).
2. **Liquidity risk:** There is the risk that it may be difficult to find a buyer for CLO securities during economic stress, which could make it difficult for investors to exit from the deal. Lower CLO tranches have higher illiquidity.
3. **Interest rate risk:** CLOs with fixed interest rates will decline in value when interest rates rise.
4. **Prepayment risk:** Arises if loans are paid off before scheduled dates.

The loan covenant specifications help to manage these risks by requiring compliance with certain credit metrics. The covenant may also include limits on the amount of issues rated below investment grade, unsecured loans and non-first liens. Overcollateralization requirements, concentration limits, and transparent management of the portfolio by having frequent reporting with detailed listing of the collateral also serve as guardrails to managing these risks.

ALM CONSIDERATIONS

In asset and liability management, the underlying loans and the CLO covenant are key to modeling the CLO cash flows. Assumptions can be derived from the historical performance of similar loans. These assumptions include expected default rates, recoveries from defaults, and prepayments.

CLOs included as assets in a portfolio increase the effective diversification of the broader portfolio, as the correlation of a CLO with other fixed income categories and equities is low.

CLOs can also be a good hedge against inflation, as the interest paid on underlying loans are usually floating rate (indexed off three-month LIBOR, EURIBOR, or SOFR, with LIBOR usage being deprecated). They also have low interest rate duration.

MODELING SIMPLIFICATIONS

A cash flow model assesses tranche payments, defaults, recoveries, prepayments, and losses that would arise for different performance outcomes for the pool of underlying loans. Most CLOs have multiple-level tranches, which can be mapped to modeled tranches based on the risk profile, thereby approximating and consolidating the number of tranches in the model. The most senior tranche is the most protected and therefore has the highest credit rating and lowest coupon.

Key inputs and considerations for modeling the individual loans in their portfolio include:

1. Default rates: Moody's published data from analysis of historical data linking credit ratings to observed default probabilities can be used to determine defaults for the loans in the portfolio.
2. Recovery rates: Can also be based on tables that have been calibrated to historical recovery data.
3. Call optionality: Ability to exercise by the equity investors should be driven when market credit spread is below the CLO spread.
4. Transition rates: Can be based on historical Moody's transition data, modified for the specific industry sector or other idiosyncratic adjustments.
5. Prepayments can be estimated based on recent historical data for estimates based on tranche.
6. The loan price can be estimated from the historical monthly market price of the loan.
7. Senior secured loans have lower defaults than the other loans.
8. First lien loans have lower defaults than non-first liens.
9. Higher default rates for loans with higher spread over the rate index; this includes major industry sectors such as oil, gas, retail, and hotel.

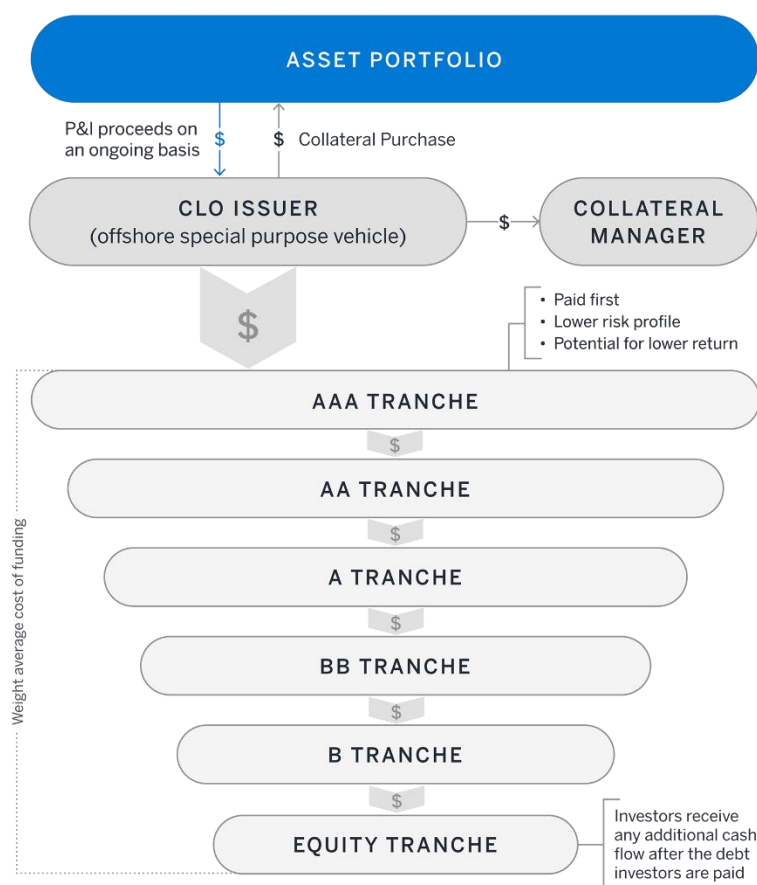
Middle market collateralized loan obligations

SECURITY STRUCTURE AND CHARACTERISTICS

As previously mentioned, according to the National Association of Insurance Commissioners (NAIC) collateralized loan obligations (CLOs) "are structured securities collateralized primarily by leveraged bank loans, which include broadly syndicated bank loans (BSL), the largest segment of the bank loan market) and/or middle market (MM) loans." Middle market CLOs refer to CLOs collateralized by middle market loans. The NAIC Capital Markets Bureau classifies middle market CLOs as "a subset of the leveraged loan market consisting of loans made to companies with less than or equal to \$500 million in gross revenues and less than or equal to \$50 million in earnings before interest, tax, depreciation, and amortization (EBITDA)" (NAIC Capital Markets Bureau).

Middle market loans have historically had a higher default rate, hence more subordination is required in CLO tranches collateralized by middle market loans to achieve investment-grade ratings. Because of the lower credit quality of borrowers, the middle market lagging 1-year default rate is on average 4.6% higher relative to that of BSLs (NAIC Capital Markets Bureau).

FIGURE 4: CLO TRANCHEs



CASH FLOW PROFILE

CLOs, and subsequently middle market CLOs, typically last eight to 10 years. To ensure stable cash flows over the life of the CLO, like BSL CLOs they are subject to a series of coverage tests, such as the overcollateralization (OC) test and the interest coverage (IC) test, which are detailed in the section above.

However, middle market CLOs differ from BLS CLOs in that, in addition to the coverage tests, they require more par-subordination to achieve investment-grade ratings, and as a result sometimes do not issue lower-rated tranches, as they would be more likely to see downgrades.²⁰

This has led to middle market CLOs consistently outperforming BSL CLOs in uncertain markets. For instance, in 2020, only about 1.3% of middle market CLO ratings were lowered, in comparison to 13% of BSL CLO ratings (Dopp, 2021). This can be attributed to a lower default rate being reported as parties to middle market loan agreements can amend loan terms to avoid payment defaults and bankruptcy.

Defaults and downgrades in underlying loans lead to the calculation of a lower OC ratio, redirecting cash flow to senior classes in certain cases. This protects the higher-rated classes in the CLO when defaults or downgrades occur in underlying loans.

Typically, U.S. middle market CLOs have lower obligor diversity within each portfolio in comparison to a BSL CLO transaction. However, there is greater asset diversity and lower asset overlap between middle market CLOs from different managers because many middle market CLO managers act as the deal originators for some of the assets in their CLO portfolios, which reduces the risk of default and volatility.²¹

²⁰ S&P Global Ratings (January 27, 2023). Middle Market CLO and Private Credit Quarterly: Harbor In The Tempest? Retrieved August 4, 2023, from https://www.spglobal.com/_assets/documents/ratings/research/101571981.pdf.

²¹ Ibid.

The ability of CLOs to remain relatively stable in an uncertain market can also be attributed to CLO manager asset swaps. CLO managers can swap out distressed assets from the portfolio and replace them with loans from better-performing companies. Because middle market CLO managers often hold the CLO equity in their transactions, and manage assets across diverse types of accounts, they may be incentivized to move distressed assets outside of their CLO(s) and replace them. It is often easier for a manager to work out a distressed loan outside the CLO.

ECONOMIC RISKS TO CONSIDER

Collateralized loan obligations (CLOs) provide financing to non-investment-grade companies while catering to debt investors with varying risk appetites. Insurers looking to diversify their investment profiles with low-risk assets have gravitated to middle market CLOs, and primarily invest in the most senior CLO notes.

In addition to mitigating risk through diversification, CLO portfolios have certain structural protections and covenants that protect investors, primarily in the senior tranches, in the event of a default or changes in financial planning. There is also increased financial reporting required with most contracts, including a series of regular tests. Often, if the interest or collateralization test is failed, proceeds are used to redeem senior notes.

However, even with risk mitigation through collateral diversification and protective covenants, risk exposure to economic conditions persists. Like broadly syndicated CLOs, middle market CLOs are exposed to these risks but in different ways.

- **Credit risk:** The primary risk with middle market CLOs lies in the credit quality of the underlying loans. Middle market companies may carry higher credit risk than the larger, more established corporations bundled into BSLs. If a significant number of borrowers default on their loans, then the value of the CLO's assets can decline, leading to potential losses for investors.
- **Economic downturns:** Middle market companies are often more sensitive to economic cycles than broadly syndicated loan (BSL) companies. During economic downturns, their revenues and profitability can decline more sharply than larger corporations, increasing the risk of loan defaults within the CLO portfolio. Economic contractions can also make it challenging for these companies to refinance their debts, leading to potential liquidity issues for the CLO.
- **Market appetites:** The changing and frequently challenging landscape of the investment market plays a key role in the middle market CLO economic environment. In early 2022, the demand for private debt grew with middle market CLOs being a primary source of this funding, along with business development companies (BDCs), separately managed accounts, and private debt funds. However, despite the increased market appetite for the private funding that middle market CLOs provide, the current unfavorable economic environment that includes high inflation and accompanying aggressive tightening of monetary policy provided strong enough headwinds that this market shrunk. In 2022, the middle market CLO issuance declined nearly 33% to just 5.8 billion.²²
- **Liquidity risk:** Middle market CLOs are less liquid compared to larger market CLOs. Finding buyers for these smaller and less-known loans during market stress can be difficult, potentially leading to longer periods to sell assets or obtain fair market prices, affecting the fund's overall liquidity.
- **Manager risk:** The performance of the CLO heavily depends on the expertise and decision-making of the asset manager. Inadequate risk assessment or improper portfolio management can lead to higher defaults and lower returns for investors.
- **Interest rate risk:** Fluctuations in interest rates can impact the performance of CLOs. When interest rates rise, the value of existing fixed-rate loans in the portfolio may decrease, leading to capital losses.
- **Regulatory risk:** Changes in regulations governing CLOs or the financial industry, in general, can impact the profitability and viability of middle market CLOs. New regulatory requirements may increase compliance costs or restrict investment strategies, affecting returns for investors.
- **Prepayment risk:** CLO investors are exposed to the risk of prepayments on the underlying loans. If borrowers pay off their loans early, then investors may have to reinvest the proceeds in lower-yielding assets, potentially reducing overall returns.

²² S&P Global Ratings (August 15, 2022). Middle Market CLOs Face Unexpected Headwinds Amid Rising Private Debt Demand. Retrieved August 4, 2023, from <https://www.spglobal.com/ratings/en/research/articles/220815-middle-market-clos-face-unexpected-headwinds-amid-rising-private-debt-demand-12469996> (registration required).

ALM CONSIDERATIONS

While both property and casualty (P&C) insurers have stuck to investment-grade securities, they have traditionally participated in the highest parts of the ratings scale, whereas life insurers have been more open to investing in lower-rated tranches. Life insurers, particularly those with large legacy books, benefit from an additional way to offset the declining yield from maturities and lower-yield new corporate debt (Dopp, 2021).

There are various ALM considerations when venturing into the middle market CLO market. Namely, regulatory and capital requirements. Because insurance companies are subject to specific regulatory requirements regarding their investments and capital adequacy, ALM for middle market CLOs should ensure compliance with relevant regulations and assess how the investments impact the company's overall risk-based capital position.

- **Risk profile alignment:** Insurers typically have specific risk tolerance levels and risk profiles that guide their investment decisions. The ALM process should evaluate how middle market CLOs fit within the company's risk appetite, considering factors such as credit risk, liquidity risk, and interest rate risk associated with these investments.
- **Credit risk assessment:** Insurance companies exploring investing in the middle market CLO market need to carefully assess the credit quality of the underlying loans in middle market CLOs. Credit risk analysis should focus on the default probabilities, loss given default, and correlation of defaults within the portfolio. Insurers may have internal credit rating systems that can help evaluate the creditworthiness of these investments.
- **Cash flow matching:** Cash flow matching is an evolving area in ALM. Therefore, incorporating market CLOs into a portfolio may involve matching the cash flow profiles of these investments with the company's expected cash flow needs to meet policyholder obligations.
- **Duration and interest rate risk:** Because insurance companies often have long-term liabilities, the ALM process should evaluate how middle market CLOs impact the company's interest rate risk exposure and assess strategies to manage any duration mismatch between assets and liabilities.
- **Stress testing and scenario analysis:** Stress testing and scenario analysis should be performed to assess how middle market CLOs behave under adverse economic conditions. This analysis helps determine the potential impact on the company's financial position and ability to meet policyholder obligations during economic downturns.
- **Reinvestment risk:** Middle market CLOs have a finite investment period, therefore insurance companies investing in these instruments must plan for reinvesting the proceeds as loans mature or are paid off. ALM modeling should include strategies for reinvesting in similar or alternative assets, considering prevailing market conditions and interest rates.
- **Portfolio diversification:** While middle market CLOs can offer attractive yields, insurers should ensure that their overall portfolio remains adequately diversified across various asset classes to manage risk effectively.

Overall, a balance must be struck between seeking attractive investment returns and managing the inherent risks associated with middle market CLOs.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

As with broadly syndicated CLOs, a cash flow model for middle market CLOs would need to reflect the deal's tranche structure and layer on performance changes from defaults and prepayments.

Because middle market CLOs are actively managed, with distressed assets replaced, insensitivity to market conditions could be part of the modeling factors.

Energy transition infrastructure

SECURITY STRUCTURE AND CHARACTERISTICS

Energy transition infrastructure is a modern asset class that broadly comprises assets used to produce renewable energy, assets supporting emerging sustainability trends, and assets used to sustainably manage energy, primarily electric vehicle (EV) usage. The first category of renewable energy generation assets includes wind, solar photovoltaic, hydroelectric power generation units, and biomass combustion/methanation systems (Lance, Céline, & Ange-Wilfried, 2021). The second category comprises new infrastructure classes supporting the global energy transition, such as EV charging networks and battery storage facilities (Brinkman & Sarma, 2022). The third category of sustainable energy management consists of entities specializing in energy storage, transport, and electrification through processes such as energy grid management and electric cable production to improve energy reliability, efficiency, and integration. Because exposure in the third category can be achieved directly through equity investments in publicly traded companies such as Schneider Electric and Prysmian Group, the first two categories will be the focus of discussion for the purposes of the sustainable infrastructure section. Infrastructure assets within the first two categories operate on a similar pay-for-use model, where the buyer typically pays the asset owner for either the amount of the resource used or for the number of times they use the resource, in the case of EV charging in some scenarios.

The renewable energy and electric vehicle industries have grown complementarily and rapidly over the past years with the developed world's urgent need to engage in effective energy transition and reduce reliance on nonrenewable natural resources. The increased attention and growth of energy transition creates the benefits of significant cost reductions due to technology from scale and developer experience and better financing terms as the industry matures (Lance, Céline, & Ange-Wilfried, 2021). Sustainable energy infrastructure is demonstrating reduced dependency from public subsidies and seeing a shift to allow the most competitive and profitable projects to be built, leading to less speculation and lower risk for investors (Lance, Céline, & Ange-Wilfried, 2021). Additionally, renewable energy, especially wind and solar as the main growth drivers over the past 20 years, are competing among the cheapest energy sources, giving investors protection against market demand fluctuation (Lance, Céline, & Ange-Wilfried, 2021).

Insurance companies have long been a significant source of financing for traditional infrastructure classes, such as utilities, transportation, and natural resources, for their attractive features, including inflation protection, stable and predictable cash flows from inelastic and consistent demand, high credit quality, and low market correlation (National Association of Insurance Commissioners, 2023). Energy transition infrastructure offers largely the same benefits and gives insurers the opportunity to tap into a fast-growing segment to generate higher returns than what was possible through conservative traditional infrastructure investments.

CASH FLOW PROFILE

Whether it is hydroelectric, solar photovoltaic, onshore, and offshore wind, biomass combustion plants for power generation, or specialty infrastructure like EV charging stations, a common attribute of the asset class is high up-front capital requirement. For example, a solar plant requires heavy initial investment to acquire and prepare the land, install solar panels, and set up energy transport mechanisms. However, once set up, there are minimal variable costs associated with production over the typically minimum 20-year to 30-year life span of the infrastructure assets. This is especially true for solar plants, which generate uncertain but zero-variable-cost energy once in operation. Income from energy contracts and EV charging payments are not fully predictable but a stable long-term source of cash flows indexed to inflation and largely protected from market volatility. The expected volatility of energy transition infrastructure cash flows would tend to be between that of traditional equity and fixed income securities.

ECONOMIC RISKS TO CONSIDER

As real assets, energy transition infrastructure investment poses risks from sustaining operations and financing. The main risks are operating risk, technology risk, environmental risk, financing risk, political risk, and sector risk.

To highlight the risks most relevant to energy infrastructure, technology risk is the risk of invested assets becoming obsolete, driven by new technological development; environmental risk is natural disruptions such as tornadoes and droughts that may prevent assets from operating at full capacity; financing risk involves the risk of being unable to refinance debt taken to acquire assets and service interest payments, especially in the event of interest rate increases; environmental, social, and corporate governance (ESG) risk involves legal implications from disrupting local environments and inhabitants; political risk involves regulatory changes that may inhibit production or increase costs. A considerable proportion of these risks can be mitigated by obtaining technical and local expertise and selecting experienced investing intermediaries.

ALM CONSIDERATIONS

Typically, energy demand is highly predictable over the year as energy usage follows a known pattern month by month. The same predictability applies to modern energy infrastructure like EV charging stations. Based on prior experience, energy transition infrastructure cash flows can be projected without significant challenges. If the asset is being used to back short-term liabilities (such as property and casualty liabilities), then the seasonality of the cash flows should be considered. However, if backing long-term life insurance liabilities, the seasonality of the cash flows is not as material.

The standard practice of entering energy contracts further enhances the predictability of asset cash flows, allowing for a more accurate match with liability obligations.

Given the volatility of oil prices, when oil prices rise, dampening equity returns, then renewable energy assets can act to balance this effect with higher energy prices and demand, which can reduce the risk exposure of the overall portfolio.

MODELING SIMPLIFICATIONS

There are three key components to modeling energy transition infrastructure: financing, production and operating costs, and energy sales.

Financing consists of the initial capital investment and continuing costs, including loan repayment, loan interest, and loan refinancing considerations. A combination of interest rate projections and amortization schedules can be used in a way equivalent to the commercial mortgage loans described in this report.

On the cost side, operating expenses and variable production costs should be included. This typically includes staff salaries, utilities, rent, transmission, equipment maintenance, taxes, and insurance where applicable.

Finally, energy demand can be used as a key driver of income. The history of local energy use can be considered against local energy supply to project future demand for an independent infrastructure asset, as well as price movements. Typically, power generation plants enter energy contracts, which offer more predictability on the income side. Inflation adjustments can be factored in when determining future income.

When combined, the three components above can effectively model cash flows starting from time zero for an energy infrastructure asset.

A modeling simplification similar to RITs (discussed in the upcoming section) is to treat these infrastructure assets as equity with a long-term average return, made up of the growth and dividend components, where growth represents appreciation and dividend represents asset-generated income.

Royalty income trusts

SECURITY STRUCTURE AND CHARACTERISTICS

Royalty income trusts (RITs) are investment vehicles where a pool of funds is used to acquire energy-producing natural resource assets to generate income for investors as these resources are exploited (Bloomenthal, 2021). Payments are typically distributed monthly based on the prior month's royalty income across the pool of natural resource assets the trust buys into, and the fund dissolves when all owned natural resources are depleted. A main example is when a RIT acquires mineral rights on a piece of land and receives income as a percentage value of the resources extracted from that property.

A key advantage of RITs compared to funds is their special characteristic as a pass-through entity that provides tax advantages because its distributions to investors are not considered taxable. To partake in the investment, insurers would buy shares of publicly traded corporations that acquire ownership of rights to natural resource deposits, collect income in the form of royalties, and distribute them periodically on agreed upon timelines to shareholders as dividends. Note that while the trust acquires mineral rights, it does not own the land or mine the natural resources itself. This way, RIT investors are disengaged from the underlying businesses' operational decisions, which the section on risk below will discuss, may pose additional uncertainty (Bloomenthal, 2021).

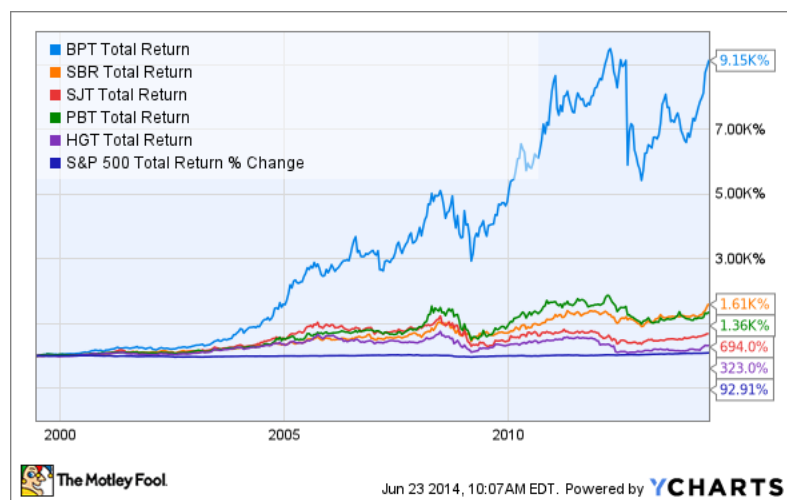
Compared to other forms of royalties, such as patent, trademark, and copyright licensing as well as funding smaller-sized businesses to be repaid in revenues, RITs focus on investments backed by natural resources, which are real assets, thereby reducing the inherent risk, and they face a market where demand is more predictable. Additionally, because a RIT focuses primarily on real assets, its income cash flows have an important inflation hedge characteristic valuable to institutional investors (MacKellar, 2022).

CASH FLOW PROFILE

RITs depend on their underlying portfolios of acquired mineral rights for cash flows. Mineral rights generate cash flows according to a contractually agreed-on percentage interest with the exploration and production company. Minerals are classified into producing and nonproducing resources. Whereas producing minerals will immediately generate cash flows from active mineral exploitation activity, nonproducing minerals create uncertainty as activities like oil and gas extraction can take years from initial exploration to drilling and depend on the availability of related infrastructure such as pipelines for transportation. Once there are contracts in place and active mineral extraction activities, cash flows occur in monthly payments, less the mineral rights owner's share of state production tax, representing a typical 6% to 7% of gross income. Although the value of the cash flows exhibit volatility related to world commodity prices, such as oil supply and demand, the inelasticity of mineral supply and the acquisition of producing minerals can act as mitigation.

Therefore, certain royalty trusts have provided exceptionally strong returns. The diagram in Figure 1 highlights the returns of BP Prudhoe Bay, San Juan Basin, Permian Basin, Hugoton, and Sabine over the S&P 500.

FIGURE 5: RETURNS



SOURCE: BPT TOTAL RETURN PRICE DATA BY YCHARTS.

ECONOMIC RISKS TO CONSIDER

The biggest risk associated with RITs is market risk. Mineral and natural resource extraction is intricately linked to commodity market conditions, which creates two issues. First, global commodity price volatility heavily influences RIT income, as most contracts pay investors based on commodity sale revenues. Second, when global demand drops or excess supply is present, resource extraction from large companies will be reduced, thereby reducing royalty income. And because commodity prices are determined by market supply and demand, they exhibit high correlations with traditional markets, offering limited diversification benefits from the market risk side.

Another key risk is complexity risk, coming from the need for RIT investment vehicles to hire professional advisors, bear operating expenses, and build in-depth industry knowledge to select investments. RITs are often required to make up-front capital commitments without certainty on whether and when the returns will be paid off. As previously mentioned, a sensible mitigation is investing in mineral rights with proven value and that are already being extracted.

Additionally, from the institutional investor's standpoint, the share price of RITs is exposed to interest rate risk and all risks present in the secondary market. This also means the risks can be effectively managed by existing hedging and diversification strategies without much extra effort.

ALM CONSIDERATIONS

Mineral extraction activity is subject to commodity market development, and it is difficult to predict in the long run. However, when RITs are already under extraction with established mineral rights contracts already included in a portfolio, both the frequency and the number of payments can be reasonably predicted. For this reason, RITs can be paired with other instruments to become a great match for short-term to medium-term liability obligations. Similar to energy infrastructure, it also has an offsetting effect against dampened market returns from a rise in oil prices.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

For producing mineral rights, royalty payments based on recent experience, typically the past three to 12 months of cash flows, can be used to project future cash flows, extending until the end of the contract term. By comparison with similar mineral rights land on the market, an estimate can be generated on the total amount of minerals present in the piece of land, normalized to the size of the land covered. This total amount can then be used to estimate the number of months or years the asset will generate royalty income before the resources are depleted. Similar to ground leases, prices can be adjusted upward over projected contract terms years into the future to reflect inflation.

Because RIT cash flows are unsteady and less predictable, and mineral rights are typically designed to be held long-term for 10 and more years, RITs can be treated like private equity investments and modeled using an average return from industry experience of the RIT type. This modeling approach may be sufficient if the RIT is incorporated into a diverse portfolio, or if the insurer is investing in a range of different RITs backed by various mineral types. The average return is made up of a growth component, representing appreciation in value of the mineral rights, and a dividend component, representing royalty payments derived from the value of the minerals extracted, just as common stock is modeled.

However, if some RIT investments are linked to a single commodity or if the portfolio is not diverse, then the modeling approach should be more sophisticated, layering in economic scenarios projecting the commodity price and volatility.

Cash sweeps

SECURITY STRUCTURE AND CHARACTERISTICS

A cash or credit sweep is referred to as an arrangement between a bank and a customer or corporation whereby any excess funds in an account can be used to pay down the debt or transferred to an account earning higher interest. It is the funds that are in excess of a "target balance" or a threshold level that the company wishes to keep in the account. The threshold level is impacted by numerous factors, including the company's ability to generate free cash flows and liquidity preference on the amount withheld, which is usually determined at corporations' own discretion. For funds being swept into the account earning higher interest, they are invested in highly liquid instruments such as short-term certificate or money market funds, with an interest rate offered by the account based on the prevailing interest rate in the money market.

Some cash sweeps use a "toll rate" instead of an account level to determine the cash sweep trigger. This toll or hurdle rate is set contractually and any performance in excess of the toll rate is available to be swept into another account.

A cash sweep is often done in an automated process where excess funds are automatically transferred between accounts as soon as the threshold and all other conditions are met. This automation is beneficial in generating marginally more return for idle cash by sweeping funds into an investment vehicle and is cost-effective in managing excess cash reserve and reducing the costs of borrowing.

CASH FLOW PROFILE

Cash flows from a cash sweep depend on the specific terms of agreement that are in place, which typically include the interest rate, timing, and the amount of excess funds.

Depending on the agreement, once the commercial line of credit is paid down, any excess funds will be swept into an investment sweep, which operates similarly to a cash sweep account, but has the objective of investment rather than debt repayment.²³

The interest rate offered by the cash sweep arrangement varies depending on multiple factors. It can be determined by the financial institutions that offer the arrangement, the type of investment vehicle the excess funds are swept into, and the prevailing market environment. The interest rate impacting the ultimate cash flows would not be fixed but would change over the time of the term.

The basis of the cash flows of cash sweeps is the actual amount of excess funds occurring in each period. The excess amount depends on the threshold level that the customer or company sets and the actual balance sitting in the original account. The nonnegative amount used as the basis to determine the cash flows can be lower when funds are being moved out from the account earning higher interest or are higher otherwise.

During a cash sweep, a stand-alone cash sweep analysis is conducted to estimate the time in which the debt would be repaid in full. It is also used as an alternative to interpreting debt metrics, such as the loan life coverage ratio (LLCR) and the Project Life Coverage Ratio (PLCR).²⁴

Cash sweeps are often used within zero balance account (ZBA) or multi-bank target balance agreement (MBTBA) structures. In a ZBA, a cash sweep is done automatically to move excess funds from the account into a separate investment or interest-earning account at the end of each business day. The purpose of a cash sweep is to maximize the utilization of available funds and to ensure that the account maintains a zero or minimal balance during nonbusiness hours. In an MBTBA, the sweep is done across multiple accounts held by different banks. The primary purpose of a cash sweep MBTBA is to centralize cash management and optimize the use of funds across all accounts.²⁵

²³ California Bank Trust. Sweep Accounts. Retrieved August 4, 2023, from <https://www.calbanktrust.com/business/treasury/capital-management/sweep-products/>.

²⁴ Yeldham, J. (October 26, 2011). Cash Sweep Analysis in Project Finance. Mazars. Retrieved August 4, 2023, from <https://financialmodelling.mazars.com/resources/cash-sweep-analysis-in-project-finance/#:~:text=During%20a%20cash%20sweep%2C%20100,governed%20by%20the%20term%20sheet.>

²⁵ Waters, M. (October 1, 2020). Optimizing Credit Facilities That Support Cash Sweeps Around the World. ALM Treasury & Risk. Retrieved August 4, 2023, from [https://www.treasuryandrisk.com/2020/10/01/optimizing-credit-facilities-that-support-cash-sweeps-around-the-world/?slreturn=20230704111053.](https://www.treasuryandrisk.com/2020/10/01/optimizing-credit-facilities-that-support-cash-sweeps-around-the-world/?slreturn=20230704111053)

Cash sweeps across multiple banks are particularly useful in instances where a recurring payment larger than a specific account threshold has been made. In that case, the account accesses an intraday credit facility to make the payment at the time at which it is due, and the credit is paid off at the time the sweep is rebalanced.

FIGURE 6: CASH SWEEPS



Standardization is a significant concern for entities with this operation as requirements vary among banks, countries, and currencies. More importantly, recurring payments may be predictable and can be accounted for within the threshold maintained, but occasional payments, such as tax or bonus payments, may increase the total debt held by the organization. This issue can be resolved by active management and resizing the accounts when a larger payment is expected, which requires active communication channels with each bank and robust reporting on the entity's payment patterns over a long time.

ECONOMIC RISKS TO CONSIDER

1. **Interest rate risk:** This is the primary risk exposure for this asset class. Because the sweep process is an automated one, it is very vulnerable to the interest rate environment at the time that funds in the account exceed the threshold. If funds above the threshold are used to pay off debt, the debt repayment pattern would be inconsistent and may lead to higher repayment amounts over the duration of the loan. If funds above the threshold are transferred to an account earning high interest, then the interest rate offered by the account will be based on the prevailing interest rates in the money market. Money market accounts typically offer higher interest rates than traditional savings accounts, but lower rates than long-term investments such as stocks or bonds.
2. **Liquidity risk:** Because the process is automated, any extra cash above the threshold generated by a bull market or outperforming business cycles would be transferred out immediately and made inaccessible. As a result, the funds would not be there in an economic reversal.
3. **Operational risk:** The process is automated, thus glitches in the algorithm or technology could cause inaccurate allocation of funds.

All the risks above are subject to the specific arrangements determining the interest rate, timing, and excess funds.

ALM CONSIDERATIONS

The primary benefit of a cash sweep is that it helps manage credit defaults, particularly for large entities with multiple bank accounts that are difficult to track actively. Participating in a cash sweep ensures that balance thresholds are maintained in deposit accounts while reducing the amount of the line of credit.²⁶

The complexities of the thresholds and sweep rules outlined in the sections above serve to make the cash flows from the cash sweep unpredictable, and hence difficult for insurers to use from an ALM perspective.

²⁶ Accounting Tools (September 2, 2022). Credit Sweep Definition. Retrieved August 4, 2023, from <https://www.accountingtools.com/articles/credit-sweep#:~:text=What%20is%20a%20Credit%20Sweep,firm's%20outstanding%20line%20of%20credit.>

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

The following items should be considered when modeling cash sweep transactions.

1. **Account structure:** The account structure provides the foundation of cash sweep modeling. Therefore, identifying the primary account and any associated sub-accounts or linked accounts and how funds flow between them is key to accurate modeling. It is vital to determine how the cash sweep will affect each account and its balance. Typically, this can be modeled with a loan asset with several sub-balances or accounts where cash flows are transferred between the sub-accounts.
2. **Sweep rules:** It is important to define the rules that govern the cash sweep process. This includes determining when the sweep should occur, how frequently, and under what conditions. For example, the economic conditions that trigger the sweep from the primary account should be defined. This trigger can be an account amount or a macroeconomic event.
3. **Debt priority:** Determine the priority of debt repayment. If there are multiple debts, establish the order in which they should be paid off. This could be based on interest rates, maturity dates, or other factors.
4. **Minimum balance requirements:** Consider any minimum balance requirements for the primary account or linked accounts. Ensure that the cash sweep avoids reducing the account balance below these thresholds to prevent potential penalties or account closures.
5. **Interest earnings:** If the cash sweep involves transferring funds to an account earning higher interest, then model the interest rates and any associated fees or restrictions on those accounts.
6. **Transaction costs:** Assess any transaction costs or fees associated with the cash sweep process. This could include charges for transferring funds, early repayment penalties on certain debts, or any other relevant costs.

A simplification for modeling credit sweeps would be to treat them as a loan asset with dynamic account mechanics, with the sweep rate being a fixed input. A more complex model would have an economic trigger and the ability to track several sub-balances and corresponding interest rates.

Multicurrency draws

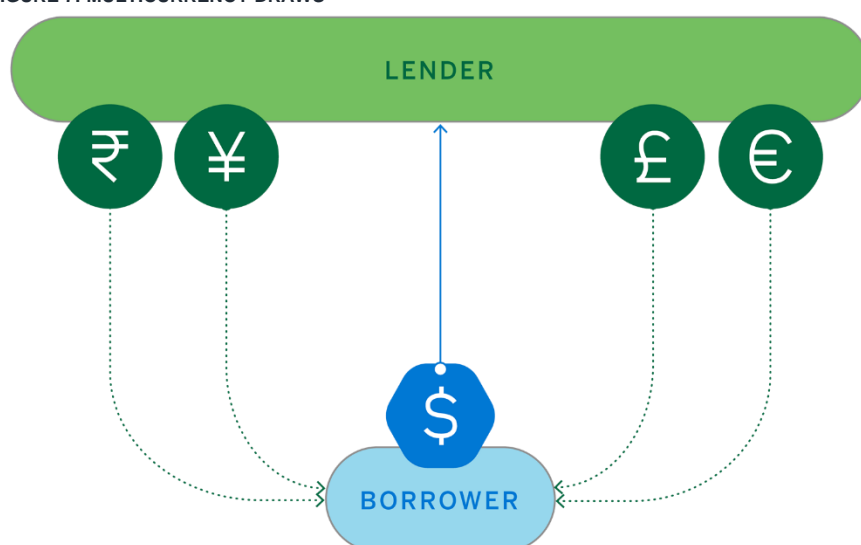
SECURITY STRUCTURE AND CHARACTERISTICS

Multicurrency draws involve financial transactions where an entity, such as a corporation or a government, borrows money from a lender or a group of lenders in multiple currencies. Loans may be structured in a variety of ways and in many different currencies. The borrower agrees to pay back the loan in the currency of the lender's choice at a predetermined interest rate specified in the agreement terms. A floating or variable rate of interest is frequently used in these agreements.

This type of financing allows the borrower to manage its foreign currency exposure and access funds in different currencies, depending on its needs. As a result, this is beneficial to corporations that operate in more than one nation or operate in nations with limitations on currency availability. Funds are offered in multiple currencies, allowing the borrower to access funds in different currencies as needed. Currencies can be dynamically added to the transaction. However, as detailed below, this increases the exposure to currency risk.

The multicurrency draw is negotiated between lenders and borrowers and settled before the loan is funded. This arrangement allows the agreement to be highly customizable. Terms are subject to change due to movements in the market conditions and status of the parties, but the modifications need to be agreed upon by both entities. Various terms are covered, including drawdown, fixed or floating interest rates, and prepayment allowances.

FIGURE 7: MULTICURRENCY DRAWS



Multi-currency draws involve financial transactions where an **entity borrows money in multiple currencies**. The borrower agrees to pay back the loan **in the currency of the lender's choice** at a predetermined interest rate, **often a floating or variable rate of interest**.

CASH FLOW PROFILE

Like cash sweeps, where cash flows depend on the specific terms of agreement, multicurrency draws also have agreements negotiated between borrowers and lenders. The terms covered in the agreement typically include interest rate, drawdown terms, exchange rate for the repayment, and other common terms in a fund agreement.

Given the presence of multiple currencies, details need to be outlined for the choice of currency and the exchange rate used in calculating the payments. However, the most common feature across all multicurrency draws is that the option to conduct business in other currencies is available while the only tangible currency that is provided is the local one.

For instance, when payment is received in a foreign currency in a multicurrency account, the money can be held in the currency received or it can be converted back to a local currency. The ability to convert currency when needed gives the account holder the ability to take advantage of exchange rates while avoiding the fees that would be otherwise charged by a domestic bank account for the same service.²⁷

In addition to reducing the number of currencies a business would have to manage, multicurrency systems often also offer the ability to conduct several simultaneous transactions in different foreign currencies. This is a service that many companies require and are thus willing to pay a premium to access. This is amplified by offering functions to automatically convert invoices in a foreign currency into the local currency to simplify bookkeeping for foreign accounts.²⁸

Thus, a multicurrency draw can be used to speculate on a currency, explore a new market at a reduced cost, and generate a more definite cash flow through lending.

²⁷ Batdorf, E. (October 25, 2022). Multicurrency Account: What Is It and How Does It Work? Forbes. Retrieved August 4, 2023, from <https://www.forbes.com/advisor/banking/multi-currency-account/>.

²⁸ Asokan, N. (October 10, 2022). What Is the Use of Multicurrency for Companies? AGICAP. Retrieved August 4, 2023, from <https://agicap.com/en/article/multi-currency/>.

ECONOMIC RISKS TO CONSIDER

Multicurrency draws are subject to various economic and foreign exchange rate risks. When borrowing in multiple currencies, fluctuations in exchange rates can significantly impact the borrower's financial position.

In addition to economic risks, companies invested in multicurrency draws are exposed to transaction risk and translation risk.

Transaction risk arises from conducting business in a foreign currency and could be caused by instances such as a time difference between an entitlement to receive cash and the actual receipt of the cash. The exchange rate could have decreased between the time that the contract was written and the time that the payment is due, making it more profitable to lend in the local currency.

Translation risk, also known as accounting or financial reporting risk, is a type of foreign exchange risk that arises when a company's financial statements are prepared in one currency but include transactions or assets denominated in other currencies. It occurs when the exchange rates between the reporting currency and the foreign currencies fluctuate, leading to changes in financial positions.

ALM CONSIDERATIONS

While there is not a lot of participation in multicurrency draws directly by insurance companies, asset management companies used by insurance companies are actively participating by issuing multicurrency draws to their clients.

For issuers of multicurrency draws, the primary risk consideration is managing currency risk. Because it is the primary risk, the asset manager's process must assess and control the potential risks associated with currency movements to minimize adverse effects on cash flows.

Additionally, the cash flows themselves must be actively managed when participating in multicurrency draws. Different currencies may have varying interest rates and repayment terms. As a result, cash flow movements due to interest rates and repayment terms in each currency should be closely monitored to ensure the availability of funds to meet debt obligations.

Finally, maintaining sufficient liquidity is crucial when engaging multicurrency draws. The borrower must have access to funds in the required currencies to meet the liability obligations. Adequate liquidity planning, including the availability of appropriate currency reserves, credit lines, or other funding sources, is necessary to address any unforeseen liquidity shortfalls.

MODELING CONSIDERATIONS AND SIMPLIFICATIONS

When conducting financial modeling for multicurrency draws, several simplifications and techniques can be employed.

1. **Single currency approach:** Instead of modeling each currency separately, a single currency approach can be employed where all cash flows are converted into a base currency using appropriate exchange rates. This simplification can make the modeling process more manageable and allow for easier analysis of aggregated cash flows.
2. **Fixed exchange rate assumption:** In some cases, if there is an expectation or contractual agreement that exchange rates will remain fixed over a specific period, the model can assume a constant exchange rate. This simplifies the calculations by eliminating the need to incorporate exchange rate fluctuations, although it may not accurately capture real-world scenarios.
3. **Simplified interest rate modeling:** Interest rates in different currencies can be modeled using simplified assumptions, such as assuming a constant rate over the life of the loan or employing a representative interest rate for each currency. This simplification can streamline the calculations while still capturing the general interest rate dynamics.

Non-utilization fees for fund finance deals

SECURITY STRUCTURE AND CHARACTERISTICS

Non-utilization fees are fees that a lender charges a borrower when the borrower does not draw down or utilize a committed line of credit. It is considered compensation for the lender's lost opportunity cost. According to Law Insider, fees range from 0.5% to 1.0% per annum (Law Insider, n.d.).

The unused portion of the committed line of credit is the basis determining the amount of fees to charge borrowers and can vary depending on the actual unused amount. As a result, the actual amount of fee can increase or decrease over time.

Non-utilization fees are usually charged annually or paid up-front, depending on the agreement between the lender and the borrower. Because the fee is calculated as a percentage of the unused portion of the loan and can be negotiated to a lower fee in exchange for other benefits, the amount of the fee will frequently vary throughout the life of the loan.

CASH FLOW PROFILE

Most contracts specify time periods (usually on a quarterly basis relative to the termination date) at the end of which the buyer must determine the average utilization by the seller between time periods. This is often done by dividing the sum of the purchase prices outstanding on each day during this period by the number of days in the period. This is calculated as a percentage of the committed amount.²⁹ Most contracts specify a minimum for this metric, referred to as the "utilization percentage."

If the utilization percentage falls below the minimum specified (usually about 30%), then the seller shall pay the buyer on either the payment date, or immediately succeeding the calculation or termination date, as specified by the contract. The buyer may, in its sole discretion, net such non-utilization fees from the proceeds of any purchase price paid to any seller.

The non-utilization fee paid conventionally equals the product of the following:

1. The percentage agreed to be paid as per the contract.
2. The committed amount.
3. 1 - utilization percentage.

ECONOMIC RISKS TO CONSIDER

When considering non-utilization fees for fund finance deals, there are several economic risks to evaluate.

For borrowers, the decision to pay non-utilization fees is evaluated in light of other available investment opportunities. Therefore, they face an opportunity risk and cost from not using those funds elsewhere. Borrowers must ensure that the fees paid for non-utilization are justified in terms of the expected returns from deploying the funds elsewhere.

Moreover, non-utilization fees are often designed to incentivize borrowers to deploy funds promptly, ensuring efficient use of the available liquidity. However, if borrowers are pressured to invest funds in suboptimal or illiquid assets to avoid paying fees, then they may face increased liquidity risk. The ability to exit or unwind investments may be compromised, impacting the overall risk profile of the fund.

The decision to delay fund deployment and pay non-utilization fees may be driven by market timing considerations. However, timing the market is difficult and the borrower may experience unfavorable market conditions when deciding to finally deploy the funds.

Finally, because non-utilization fees are typically negotiated directly with lenders or financiers, the lender is exposed to counterparty risk. The lender's ability to collect non-utilization fees could be compromised if the borrower faces financial difficulties.

²⁹ Law Insider, Common Use of Non-Utilization Fee Clause in Contracts. Retrieved August 6, 2023, from https://www.lawinsider.com/clause/non-utilization-fee/_2.

ALM CONSIDERATIONS

Because non-utilization fees for fund finance deals are primarily a contractual arrangement between the borrower and the lender and are therefore not a direct part of the ALM process, it is difficult to detail the ALM considerations for this feature in isolation and they should be considered within the greater context of a fund finance deal.

When considering the broader ALM perspective for fund finance deals, including the use of non-utilization fees, the following items are relevant:

Non-utilization fees may affect the liquidity position of the fund. Borrowers should consider the impact on cash flow management, ensuring that sufficient liquidity is maintained to cover the fees, meet debt service obligations, and address any unexpected liquidity needs.

Because ALM involves managing interest rate risk, and this is especially true if the fund finance deal includes variable interest rates, borrowers should assess the interest rate exposure and potential fluctuations in interest rates to anticipate the impact on the cost of borrowing and the fund's financial position.

Lastly, non-utilization fees do affect the cash flow dynamics of the underlying asset or fund and, consequently, the fees need to be incorporated into cash flow projections and liquidity management strategies.

MODELING SIMPLIFICATIONS

One modeling simplification is to assume a fixed non-utilization fee rate throughout the projection period. This approach assumes the fee rate remains constant regardless of the time the funds remain unused.

Another simplification is to assume a fixed non-utilized amount (or percentage of the fund) throughout the modeling period. This approach assumes that the amount of unutilized funds remains constant over time, allowing for easier calculations of the non-utilization fees.

In the cash flow projections, it is necessary to incorporate the non-utilization fees as an outgoing cash flow. A simple adjustment can be made by deducting the non-utilization fees from the available cash flow of the underlying fund as an investment expense, reducing the net cash flow.

Conclusions drawn

In conclusion, investing in alternative assets can offer attractive opportunities for diversification and potential high returns, but it comes with inherent risks and important considerations. These assets, ranging from commercial real estate and private equity to energy infrastructure, often lack the liquidity and transparency of traditional investments. As such, insurance companies must be cautious and thoroughly research each alternative asset before committing funds. Understanding the complex and evolving nature of these markets is crucial to mitigating risk and making informed decisions. Moreover, alternative investments are not suitable for all investors and should only be considered as part of a well-balanced and diversified portfolio. Conclusions from the research:

1. **Mindful diversification:** Investing in these different asset classes is a good diversification play, but it must be done without giving undue concentration risk. This can be managed through asset type and sector limits, such as the 258(E) asset limitations required by the Bermuda Monetary Authority.
2. **Long-term duration:** Life insurers manage long-duration liabilities. A lot of these assets, such as RITs, commercial mortgages, and CLOs, are long-duration instruments, making them quite attractive.
3. **Real asset exposure:** Many of these assets are backed by real assets, and this can enhance their value on loss given default more than a pure financial instrument.
4. **Special risk:** Some assets, such as emerging markets ETFs, may have political and/or regulatory risk. The models for assessing these risks may be in their infancy or not available at all.
5. **Illiquidity:** A lot of these assets are long-duration and illiquid. The insurer will have to project and manage its long-term liquidity position by assuring that the portfolio also contains highly liquid instruments.

While this paper details 11 alternative assets becoming more frequent in the insurance landscape, it is not an exhaustive source. Financial instruments will continue to evolve to meet the securitization needs of institutions throughout the world. It will be interesting to see what new instruments are just around the corner.



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