LUISS

Bachelor Degree Program in Business Administration

Course of Financial Markets

Insurers as the new Shadow Banks? An analysis of the growth of insurers' CLO investments and the role of Private Equity

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1. Introduction

1.1 Background and Motivation

The global financial crisis experienced in 2008 has had a huge impact on the perception and on the analysis of risks, especially by financial institutions, regulators and economists. The developments of the crisis showed how the traditional banking system is not the only responsible for systemic risk, a huge portion of it was driven by the actions of the so-called "shadow banking system". The agents that are comprised in this realm are non-bank financial institutions such as investment funds and companies or insurers that operate and operated in the maturity transformation, credit creation and leverage, usually making use of extremely opaque channels that lack proper regulation.

Focusing on the origin of the expression "shadow banking", the term was born due to the need to contextualize and define actors and activities that, even though extremely fundamental, carried out operations outside the regular framework of the banking system. As said, these agents tend to amplify systemic vulnerabilities via leverage, increased interconnectivity and liquidity shocks, playing a critical role in credit markets.

In the years that followed the 2008 crisis, multiple regulators and scholars started being captivated by insurance companies (and in particular by life insurers). Insurers had always been viewed as stable, risk-averse investors until that moment, for this reason they were extremely undervalued players within the shadow banking system. Remarkably, life insurers began undertaking heavy investments in structured credit instruments such as CLOs (Collateralized Loan Obligations). Specifically, this financial product offers highly attractive yields by packaging leveraged loans into tranches and distributing them to investors. Products like CLOs clearly reduce transparency in asset valuation and quality and provoke a surge in insurers' exposition to credit market volatility.

It is crucial to underline that, following the steps of investment banks prior to 2008, insurers were often responsible for the structuring and warehousing of CLOs. In addition, they habitually cede to offshore affiliates their liabilities in order to build up their capital and regulatory efficiency (maintaining superficially strong solvency metrics).

On the parallel track, since 2010s, Private Equity (PE) firms entered the insurance sector by acquiring major stakes in life insurance companies. Private Equity insurers have been making considerable use of shadow insurance (off-balance sheet and intra-group reinsurance arrangements) minimizing transparency and increasing volatility. As for their investment behavior, PE-owned insurers prefer illiquid and lower-rated instruments (often internally managed).

In this context, this thesis seeks to investigate the evolving role of insurers as non-bank credit intermediaries, with a specific focus on their integration into structured credit markets and the influence of private equity ownership. The goal is to shed light on the changing face of the insurance industry and assess the extent to which shadow banking activities and Private Equity involvement interact, reinforce one another, and contribute to systemic vulnerabilities.

1.2 Research Question and Objectives

As already anticipated, in recent years, the role of life insurance companies in financial markets has changed in noticeable ways. Many of these firms are now more involved in areas once thought to belong mostly to banks or investment funds and PE firms entering the industry introduced new priorities and operating models. This has raised questions about how to classify them and how to regulate them effectively.

The thesis is driven by a central question:

"Have life insurers in the United States started functioning in ways that resemble shadow banks, and if so, has private equity ownership been a factor driving this shift?"

Given the background, the research is intended to achieve some key objectives:

· Conceptual objective: it will explain what is meant by "shadow banking" and explore how that definition might apply to insurers under current conditions

· Descriptive objective: it will look at what has changed inside the industry, particularly how companies manage assets, take on risk, and use financial structures like CLOs.

· Analytical objective: understand the impact of Private Equity in the industry. Ownership can affect strategy, especially when firms are focused on returns.

· Risk objective: investigate broader implications and systemic risks. If insurers are approaching a shadow banking nature, that could affect markets, regulation, and stability.

· Policy objective: whether the current regulatory framework is adequate or certain areas are being overlooked, creating potential gaps.

These objectives help form a clearer picture of a sector that appears to be evolving, and not always in ways that are easy to monitor.

1.3 Methodology and Scope

This thesis bases its research on a qualitative methodology by concentrating on existing market data, regulatory reports and academic research. The starting point is represented by US life insurers since the dynamics under examination are most evolved and inspected. With the aim of underlining the increasing involvement of insurers in the securitization market (and the parallel PE trend), the research concentrates on post-2008 developments to approach, step by step, the 2020s.

The methodology employed does not rely on empirical modeling. Critical synthesis, analysis and interpretation are the tools employed. As said, US insurers are the initial focus, but global regulatory discussions and comparative international cases will be analyzed in the context of macroprudential supervision and risk transmission.

The structure and the scope ensure that the thesis to remain grounded and allow for maneuvers to cover broader implications and debates.

2. Shadow banking and the Role of Insurers

2.1 Definition and Characteristics of Shadow Banking

The expression "Shadow Banking" gained fame during the global financial crisis of 2008[1]. It relates to financial activities and institutions that perform banks' core functions including credit intermediation, maturity transformation and liquidity provision, but avoid traditional banking regulations. It adds that such entities are not held to the same level of supervision, capital requirements or risk controls as banks, despite often performing many of the same functions in the allocation of credit and the movement of money.

The Financial Stability Board (FSB) has defined shadow banking as the system of credit intermediation that involves entities and activities outside the regular banking system (FSB, 2011). Not the type of institutions, but the bank-like activities they get up to, so its definition is more fragile than the conventional shadow banks. Such vehicles might be money market funds, hedge funds, structured investment vehicles, and more recently, insurance companies. Shadow banking systems are typically characterized by interlinkage with banks and capital markets, short-term funding or liquidity transformation reliance, the use of sophisticated or obscure financial instruments, capital constraints evasion and regulatory arbitrage, limited transparency or disclosure requirements[2] (FSB, 2011).

The problem with this system is that it has the ability to magnify the problems of banking as we know it (runs, contagion, buildup of leverage) without the protections in place for conventional banks. This can create instability and lead to shock transmission, especially when markets are stressed (FSB, 2011).

Non-bank entities sharing some or all of these characteristics have attracted increasing interest in recent years. At the center of it are life insurance companies. Although insurers are generally thought of as conservative and long-term investors, increased participation in structured credit,

[1] The expression entered policy use during 2007–09 as supervisors mapped nonbank channels transmitting run and contagion risk beyond regulated banks. (FSB, 2011)

[2] These characteristics matter since they recreate the ingredients of bank fragility (runnable funding, asset opacity and leverage) without equivalent safety nets. (FSB, 2011)

offshore reinsurance transactions, and regulatory capital arbitrage has led academics and regulators to question that belief (IMF, 2023).

Today insurers perform both maturity transformation and liquidity transformation, especially when they back long-term, illiquid credit assets with shorter-duration liabilities, such as fixed annuities[3] (Foley-Fisher et al., 2023). They sometimes also have intermediated entities such as special purpose vehicles or offshore affiliates with catalogs of risk exposures that are not easy to see but low capital charges, reminiscent of shadow banking (IMF, 2023).

The move is not industry wide, but the direction is most apparent among those with private equity behind them and an imperative to chase yield, engineer clever restructuring of debt and play aggressively for returns.

2.2 Regulatory Landscape and Gaps

Policymakers have long struggled to regulate shadow banking since the financial crisis of 2008. Banks, subject to capital requirements, stress testing, liquidity rules, and supervisory reporting are being regulated up the wazoo, whereas large swathes of shadow banking were not covered. The availability of such regulatory arbitrage enables some entities to conduct bank-like activities without the corresponding regulations.

Insurance firms had not previously been considered part of the shadow banking system, regulation, especially in the U.S., is largely state-based rather than federal, coordinated by the National Association of Insurance Commissioners (NAIC)[4]. Although insurance regulation has traditionally been aimed at solvency, consumer protection and reserves for policyholders, it has not consistently adapted to the more complicated financial practices that insurers have adopted.

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[3] Life insurers increasingly fund illiquid credit (CLO tranches) with annuity liabilities and, in some cases, retain risk from affiliated CLO issuance, replicating bank-like maturity transformation outside bank regulation. (Foley-Fisher et al., 2023)

[4] The state-based regime complicates group-wide supervision of insurance groups (and PE-linked insurers) that extend across on-shore insurers, offshore reinsurers and affiliated asset managers. (IMF, 2023)

There’s an important question with regard to insurer investment activity. Life insurers, for instance, can maintain oversized positions in collateralized loan obligations (CLOs) and other structured products, which may get preferential treatment under Risk-Based Capital (RBC) rules (Fringuellotti & Santos, 2025). These instruments might carry low capital charges versus their actual risk they present in stressed markets. Additionally, offshore reinsurance transactions, especially when conducted with entities located in places with lower regulatory burdens (such as the Cayman Islands or Bermuda), can be a way to take liabilities off balance sheets and lower reserve requirements with reduced regulatory scrutiny in certain circumstances, as pointed out by Foley-Fisher et al. (2023) and the IMF (2023).

These are the gaps worrying analysts and policymakers. Separately, some researches’ findings cautioned that some life insurers are adopting investment and reinsurance strategies (IMF, 2023) that look to regulators like financial engineering once common in shadow banking before the market collapsed in 2008. In addition, in some cases, insurers are effectively performing maturity transformation borrowing on a short-term basis to fund longer-dated illiquid credit assets, without being subject to the same liquidity regulation that banks would be under those conditions.

Complicating the picture, there is also wide variation in the way state regulators are addressing the issue. There are a range of views concerning how much leeway should be granted to insurers, for instance, to conduct the three related-party issues referred to above, to use internal models to value assets and liabilities or to write business on the thinnest of capital margins. This has enabled companies to engage in “regulator shopping” by picking jurisdictions with friendlier rules, undermining regulatory consistency across the sector even further.

In the face of such obstacles, it has become difficult to implement reforms. The fractured state of insurance regulation in the U.S., and lack of coordination among financial regulatory agencies, has hindered these efforts. Organizations such as the FSB, IAIS (International Association of Insurance Supervisors) and NAIC have already recognized the increasing systemic significance of such large insurers. However, regulatory instruments have not yet fully adapted to the size and complexity of their operations in the capital markets.

The result is a financial landscape where insurance companies can conduct shadow-bank-like activities, particularly securitization, leverage and intermediation, without the same level of scrutiny as banks. This not only poses the risk for financial stability but also generates large blind spots for regulators trying to map interconnected exposures across sectors.

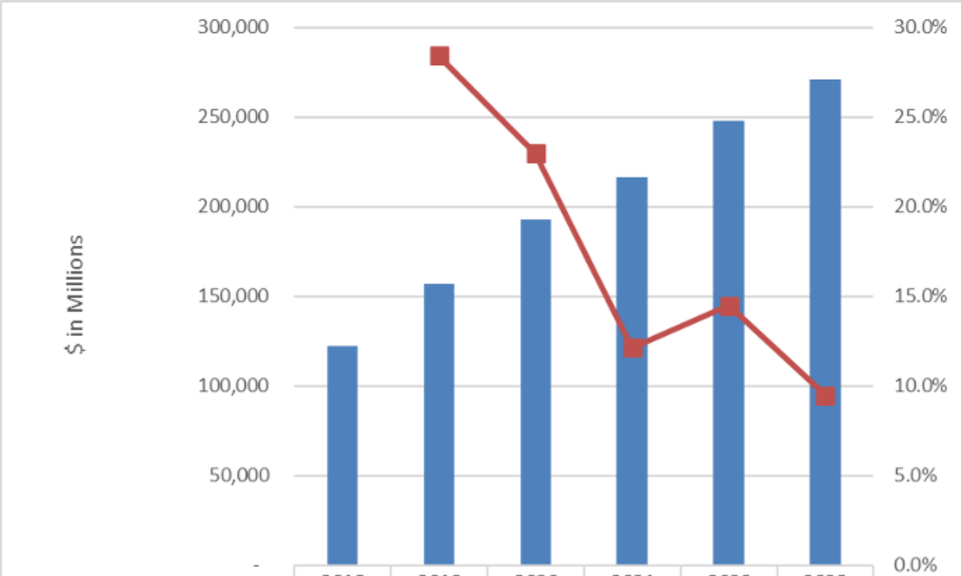
2.3 Loan securitization – a shadow banking case

Loan securitization is one of the most direct illustrations of insurers engaging in activities that are part of the shadow banking sector. Securitization is the practice of pooling individual loans (typically corporate-issued leveraged loans) to create Collateralized Loan Obligations (CLOs), which are then sliced and sold to investors[5]. This transaction isolates origination from funding and passes credit risk through a set of structured finance layers, often with little visibility, opaque risk exposure and complex risk dynamics.

Securitization was traditionally the domain of banks and investment firms. But insurance companies have emerged as major CLO investors in the past decade, particularly life insurers, which are increasingly involved in the structuring or warehousing of the securities. U.S. insurers held $271.2 billion in CLOs as of the end of 2023 (and $247.7 billion as of year-end 2022), an amount that has been climbing steadily from the middle of the last decade, according to data from the NAIC.

[5] A typical CLO capital structure includes senior, mezzanine, junior and equity tranches; cash flows are allocated by seniority with over-collateralization and interest coverage triggers. (Foley-Fisher et al., 2023)

Figure 1: U.S. Insurance Industry's Historical CLO Exposure, 2018–2023



	2018	2019	2020	2021	2022	2023
Total CLOs	122,163	156,880	192,910	216,312	247,661	271,161
Annual Growth Rate		28.4%	23.0%	12.1%	14.5%	9.5%

Note. Chart 1, by Johnson, Lee, Carelus & Lee (2024).

There are many reasons insurers are attracted to securitized loan products. Higher yields even on similarly rated corporate bonds are tempting to firms that are under pressure to meet return targets in a low-yielding world. Furthermore, as of now, several of these instruments have low capital charges under the risk-based capital rules, particularly the AAA- or AA-rated tranches. Implicit in this is that they become very efficient from a regulatory arbitrage perspective, even if the collateral was very risky at the credit and liquidity level.

The growing participation of insurance companies in CLO markets has several implications. Primarily, it raises issues about maturity transformation. And although these investments are usually funded by long-dated liabilities, such as insurances, the underlying leveraged loans are usually short to medium term and can be illiquid in a credit shortage. This mismatch can produce vulnerabilities if insurers must impair these assets or sell them into a falling market.

Second, all that securitizing can erode underwriting standards over time. When loans are made with the intent to sell into a CLO structure, there can be less motivation for lenders to pay close attention to credit quality. It was a hallmark of the subprime mortgage crisis of 2008 and some economists argue that similar dynamics could recur in corporate credit markets if supervision remains lax.

Third, insurers' sizable CLO holdings could pass shocks between sectors. Losses in the leveraged loan market could result in asset write-downs, capitalization or liquidity concerns for insurers with heavy exposures to these products. Further, CLO structures are opaque, especially when used in combination with off-balance sheet vehicles and related-party reinsurance arrangements, preventing regulators from getting a full look at firms' risk exposures.

Bhardwaj, Ge and Mukherjee (2025), for instance, illustrate how the ownership structure of CLO tranches can impact the dynamics of the credit market. When the investor base is dominated by insurers, who tend to be buy-and-hold investors, borrowers may benefit from a more stable credit environment. However, stability can disappear overnight if insurers face financial difficulty or change investment strategies, especially under private equity ownership. Taken together, insurers' growing participation in securitized loan markets is a sharp example of shadow banking activity. It is a cocktail of regulatory arbitrage, financial product complexity and a separation of credit origination from credit risk. Although these practices could potentially increase output and capital effectiveness in the short term, they also create systemic risks that are inadequately taken into account in existing regulatory schemes (Foley-Fisher et al., 2023).

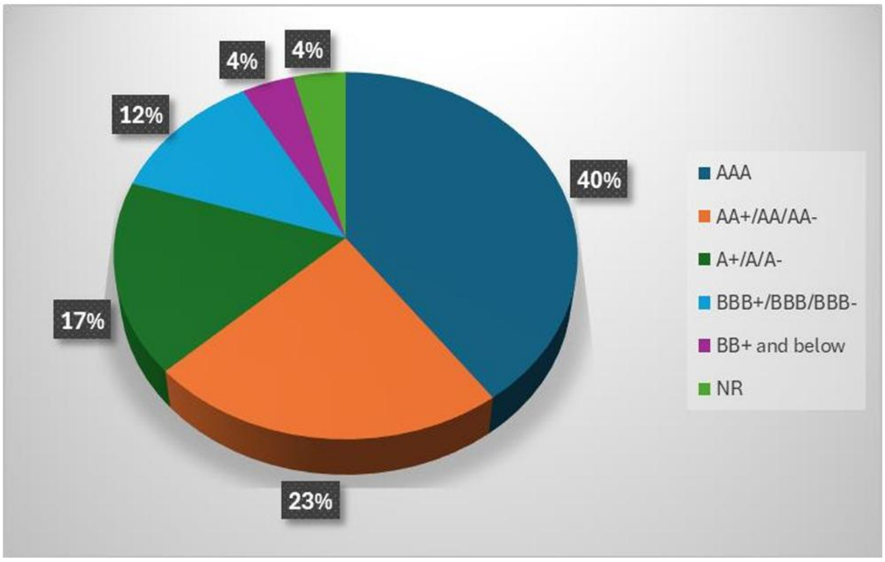
3. Insurers' Role in Loan Securitization

3.1 Regulatory Environment of Insurance Companies with regard to CLOs

The rules applied to insurance companies, certainly in the U.S., are focused on solvency, policyholder protection and long-term asset-liability matching. But it was not built from the ground up to handle the type of sophisticated, market-facing financial strategies that insurers are more and more taking on, especially in structured credit like Collateralized Loan Obligations (CLOs).

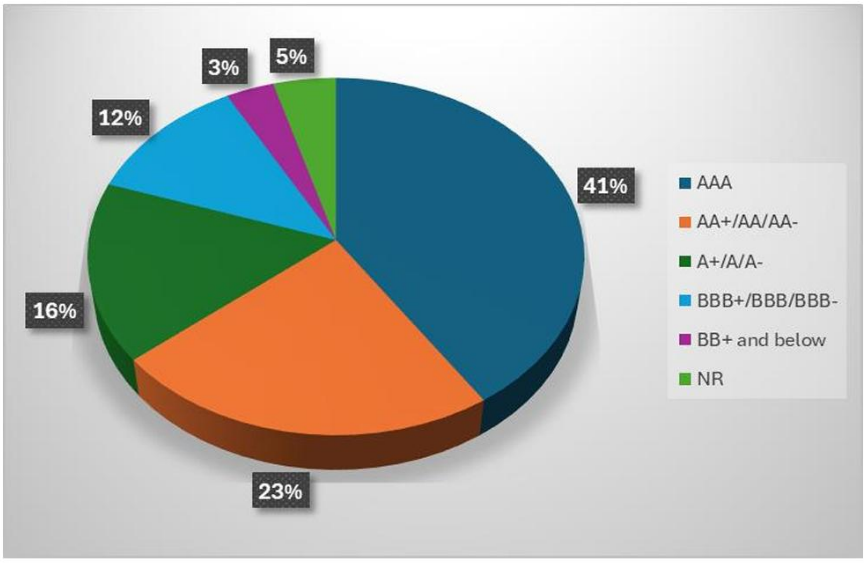
Unlike banks, which are federally regulated, U.S. insurers are, for the most part, subject to regulation by states, which are brought together through the NAIC (National Association of Insurance Commissioners). The NAIC has established uniform standards for the calculation of Risk-Based Capital (RBC) requirements, which are designed to ensure that insurers have adequate capital relative to the riskiness of the assets and liabilities on their balance sheet. Even though these RBC computations typically impose lower capital charges on highly-rated structured products (such as AAA and AA CLO tranches), the risk associated to the underlying loans can increase remarkably in periods of market stress. With regard to credit quality, investment grade tranches (BBB or higher) made up 82% of total CLO investments at both year-end 2022 and 2023 (a slight increase from the 80% of 2021). More specifically, as of year-end 2023, the AAA category represented 41% of total exposure (40% in 2022) while the AA and A categories combined constituted about 40% of total exposure, almost exactly like in 2022 (NAIC, 2023, 2024). Overall, there was a modest improvement in CLO credit quality from 2022 to 2023.

Figure 2: U.S. Insurers' CLO Credit Quality as of Year-End 2022



Note. Chart 4, by Johnson, Lee, Carelus & Lee (2024).

Figure 3: U.S. Insurers' CLO Credit Quality as of Year-End 2023



Note. Chart 3, by Johnson, Lee, Carelus & Lee (2024).

The regulation creates a strong incentive for insurers to focus their investments on the highest rated part of the CLO market. U.S. 2023 based on NAIC's 2023 report shows, as previously highlighted, that the U.S. insurers had $271.2 billion of holdings in CLOs, and most of those holdings was in AAA or AA tranches, which receive more favorable capital treatment. The reports also indicate life insurers hold the largest share of this exposure, in part because of longer-duration liabilities and a desire for yield given prevailing low interest rates.

Affiliated reinsurance firms, typically based offshore under the auspices of jurisdictions such as Bermuda, can introduce an additional layer of complexity, lowering capital requirements or hiding direct exposure (IMF, 2023). In many cases, insurers load up related liabilities in these affiliates and shift CLO assets into them, making it harder for regulators to gauge remedies to consolidated risk (IMF, 2023). Even though some states and the NAIC have suggested stricter disclosure requirements for such deals, enforcement has been uneven, and some offshore entities are beyond the full grasp of American regulatory levers.

Another shortcoming is that the NAIC incorporates heavily third party credit ratings in determining risk weights. This can create a tendency to rely too heavily on third-party assessments, even when those ratings are not an accurate reflection of the risk of the assets underneat. In the 2008 crisis, these structures (MBSs and CDOs) were also AAA rated but turned out to be systemically fragile. Ratings inflation or downgrades that come later remain a concern in the CLO space.

The NAIC has made some strides in the direction of addressing these challenges through enhancing transparency and the work of modeling. In recent years, for instance, it created its own CLO modeling framework to add to rating-based evaluations. But the roll-out is still a work in progress and regulatory tools are still limited relative to the complexity and rapidity of market innovation.

In other words, although insurers are technically subject to capital requirements and disclosure rules, the regulatory system does not adequately account for the risks of aggressive exposure to CLOs. This is what ends up happening when insurance firms are let loose to play a leading role in the securitization market, unshackled by all the regulations that would bind banks or investment outfits that got up to the same kinds of tricks.

3.2 Insurers' Participation in the CLO Market Over the Past Years

For the last ten years, U.S. insurers (most particularly U.S. life insurers) have played a growing role investing in the collateralized loan obligation (CLO) market. Its role in both size as well as systemic relevance has expanded, making insurers an increasingly systematic force in structured credit markets. They are participating driven by the search for greater yields, regulatory capital efficiency and changing business models, including those driven by private equity ownership.

As reported by the NAIC in 2022 and 2023, U.S. insurers' aggregate exposure to CLOs increased by 9.5% to about $271.2 billion (as measured by book/adjusted carrying value, or BACV) at year-end 2023, up from $247.7 billion at year-end 2022 and $216.3 billion at year-end 2021.

Life insurers held the overwhelming majority of these holdings. They owned $192.3 billion (about 78%) in 2022 and $217.1 billion, or 80%, of the industry's total CLO exposure in 2023. While the specific 2023 breakdown by type of insurer is not readily apparent in the executive summary, the overall picture indicates that life companies would remain the dominant players (NAIC 2023, 2024). This is in line with their long duration liabilities and natural appetites for yield-enhancing assets.

Table 1: U.S. Insurers' Exposure to CLOs by Industry Type, 2022–2023 ($BACV bil.)

Industry Type	YE 2023	Pct of Total 2023	YE 2022	Pct of Total 2022
Life	217.1	80%	192.3	78%
P/C	46.3	17%	47.4	19%
Health and Title	7.61	3%	8.0	3%
Total	271.0	100%	247.7	100%

Note. Numbers in the table have been rounded. Table 1, by Johnson, Lee, Carelus & Lee (2024).

CLOs are particularly appealing for insurers as they offer a yield pick-up and friendly regulatory treatment. Insurers hold the lion's share of their CLO investments in the most senior tranches, which are usually rated AAA or AA by place like S&P and benefit in terms of capital charges from RBC charges under the NAIC' Risk-Based Capital (RBC) regime. These highest-rated tranches also provide yields that are generally higher than those for equivalent-rated corporate bonds and other instruments. In particular, the AAA-rated CLOs reached a 180 basis points average spread over term SOFR (Secured Overnight Financing Rate) in 2023 (NAIC, 2024).

The rise of CLO holdings does not revolve solely around a pursuit of higher yields, it is about playing with structural and regulatory incentives. As discussed in academic literature and evidenced by the NAIC reports, insurers, especially those with the support of private equity, are making growing use of structured assets like CLOs to enhance regulatory capital, move risk through affiliated offshore reinsurers and match the investment strategy with longer-term liabilities such as annuity contracts.

This behavior is likely to provoke important questions over portfolio concentration, liquidity risk and exposure to leveraged loan markets. Loss-absorbing protections characterize senior CLO tranches, but they're still subject to downgrades, spread volatility and loan-pool downturns. The aggregate concentration of insurer CLOs by CLO structure may exacerbate market fragility in case of a widespread credit shock.

In addition, off-balance-sheet transfer of liabilities to affiliate reinsurers (often located in more permissive regulatory jurisdictions) may mask inherent levels of credit risk and levels of transparency. This introduces an element of opacity to the degree to which it is possible for authorities to track aggregate system risk and muddies the waters regarding stress testing.

In summary, the ongoing increase in insurers' CLO holdings highlights their changing status as securitized credit market participants. Their presence can improve market stability in normal circumstances to the extent that they contribute to buy-and-hold behavior, yet the size, shape, and connectedness of these positions point to emerging vulnerabilities that deserve increased regulatory scrutiny.

3.3 Impact on Borrowers and Credit Markets

The rising influence of insurers in the securitization of corporate loans clearly has wide-ranging implications for borrowers and the overall credit markets. Given that insurers are also increasing their exposure to CLO tranches, senior and junior alike, it is also possibly the case that the progression of insurance companies into the loan CLO market affects not only the shape of loan markets, but also the risk profile with which borrowers must contend.

One of the main results of Bhardwaj, Ge and Mukherjee (2025) and of Fringuellotti & Santos (2025) is that the involvement of nonbank investors in securitization, in particular insurers, can affect the sensitivity of loan supply to financial conditions. If the demand for securitization products, such as CLOs, explodes, originators are induced to make more loans, which may lead to a temporary enhancement of credit supply for firms that might otherwise suffer tighter lending conditions. Yet, this reliance on investor demand also comes with new instabilities.

Insurers are usually buy-and-hold investors, offering predictable source of funding in normal times. But in times of market turmoil, the value of CLO holdings can fall precipitously, including in a senior tranche. Should insurance entities suffer losses, capital needs could cause them to reduce new investments or reposition their portfolios causing a contraction in liquidity in the loan origination market. This opens up a channel through which borrower access to credit can end up more volatile, especially in bad times.

Additionally, when insurers, particularly those burdened with private equity ownership models, fan the flames of loan enthusiasm as a result of CLO purchases, this leads to relaxed underwriting standards. Because of the securitization of credit risk, loan originators may feel less need to be strict in measuring borrower quality. Though this might increase the short term availability of credit, it raises default risk, and creates weak companies that only exist in (securitized) credit markets to refinance (Fringuellotti & Santos, 2025).

The effect has been particularly pronounced in the leveraged loan market, which constitutes the collateral pool for most CLOs. Many borrowers in this market employ flexible, floating-rate debt and in many cases these borrowers have non-investment grade ratings. The surge of insurer-backed CLO demand could result in weaker covenants and greater leverage among corporate borrowers. These factors can exacerbate systemic vulnerabilities when interest rates go up or growth slows down.

Other evidence suggests that the presence of insurers can influence the pricing and structure of loans. When loans are originated with securitization in the forefront, the terms may be adapted to suit the preferences of investors rather than those of borrowers. This, in turn, includes the proliferation of 'covenant-lite' lending, prepayment penalties, and other provisions intended to make the asset appealing to CLO arrangers and end-investors. Further, demand from insurers for securitized loans can also influence and undermine market discipline. Most bank lenders hold the credit risk of their loans and therefore have the incentives to monitor borrowers after origination. Securitization, on the other hand, removes risk bearers from credit monitoring, leading to a possible separation between risk holders and credit monitoring, especially when insurers to manage risk use credit rating rather than their own estimates.

In the final analysis, the expansion of insurers' role in securitization of loans has expanded capital market liquidity for borrowers of all sizes. This has had the effect of creating new fragilities as well, with the risk of a sudden credit pullback, deterioration in underwriting and an increased engagement in pro-cyclical behavior. Those forces point to the significance of considering the indirect impact of the investment activities of insurers in the real economy, particularly with regulatory oversight of such activities still being piecemeal and incomplete.

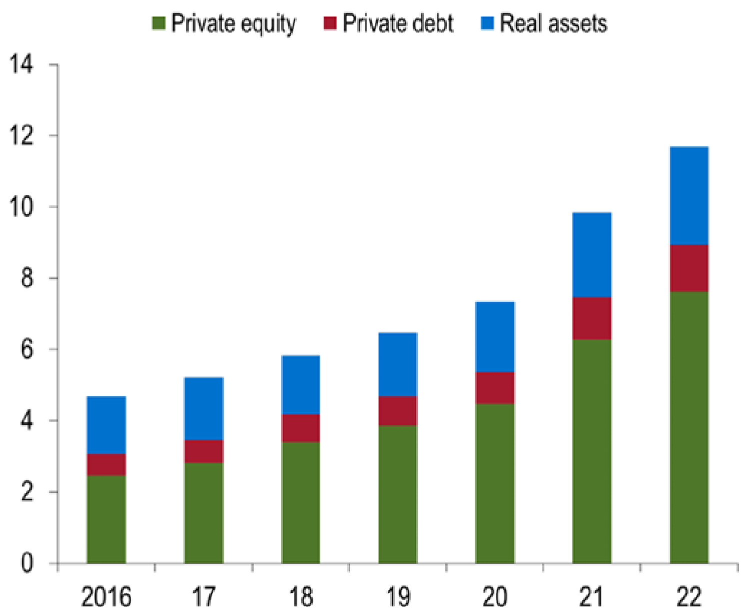
4 Private Equity’s Growing Influence in the Insurance Industry

4.1 Increasing Private Equity Ownership of Insurers

After the 2008 financial crisis, private equity (PE) investment slowly filtered into the U.S. life insurance marketplace. This has now developed into a structural change, in which the role of private equity in the economy, in both magnitude and speed, has become large and growing. Whereas insurers tended to follow a long-duration, low-risk strategy over the years to align their investment portfolios with their liabilities, PE firms have effectively pioneered a new model using insurance liability as permanent capital to purchase higher-yielding (often esoteric) and illiquid structured credit products.

The reach of private equity is also far wider. At the end of Q2 2021, private equity-owned firms managed roughly 10% of U.S. life insurance general account assets with a value near to $500 billion (Foley-Fisher et al.,2023). This is nearly tenfold compared to figures from more than a decade ago and a phenomenal jump considering that in 2008 there was no PE involvement in the industry. Life insurance assets under management increased from $23 billion to $250 billion in the period 2009-2014 (Kirti & Sarin, 2023) and the share of new annuity sales by PE-backed insurers grew from below 3% (in 2009) to nearly 20% in 2017 (LIMRA, 2008, 2013, 2017, as cited in Kirti & Sarin, 2023). Per the IMF (2023) the assets under management of PE companies reached $12 trillion in 2022. This is representative of the trend under analysis.

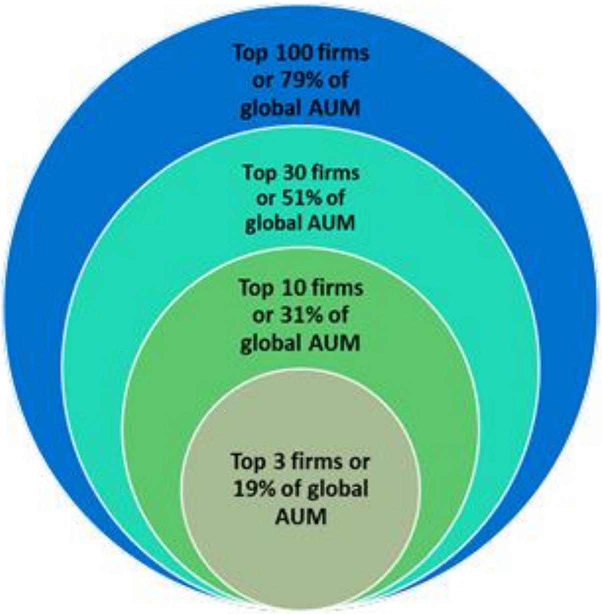
Figure 4: Private markets assets under management (Trillions of US dollars)



Note. Figure 1, panel 1, by Cortes, Diaby & Windsor (2023).

It is at the firm level that industry concentration is large. According to estimates by the IMF (2023), the share of the 10 largest PE firms in global PE AUM had reached 31% by 2022, of which the three largest players (Apollo, KKR and Blackstone) possessed 19% combined.

Figure 5: Concentration of PE Assets under Management



Note. Figure 1, panel 3, by Cortes, Diaby, & Windsor (2023).

These are not only investors in insurers, but they have vertically integrated their insurance holdings into larger asset management universes. Some examples by the IMF (2023) are:

- Apollo Global Management completed a full merger with Athene, a leading issuer of fixed indexed annuities, which will help match the insurer's liabilities with Apollo's credit strategies (IMF, 2023);
- KKR bought Global Atlantic in 2021, providing it with direct control of a significant slice of life and retirement business (IMF, 2023);
- Blackstone bought and invested in companies including Fidelity & Guaranty Life (FGL Holdings, 2017)[6] and Allstate Life Insurance (The Allstate Corporation, 2021)[7] to increase its presence in the retirement business.

[6] FGL Holdings' Form 8-K (Nov. 30, 2017) details completion of the Fidelity & Guaranty Life transaction and related investment-management agreements with Blackstone affiliates.
[7] Allstate's Form 8-K (Nov. 1, 2021) announces completion of the sale of Allstate Life Insurance Company to entities managed by Blackstone.

Outside of ownership, capital structure and investment behavior have evolved. Insurers that are PE-owned frequently cede reinsurance offshore, shifting a significant portion of liability to a jurisdiction such as Bermuda that has more appealing regulatory requirements. As the IMF Assessment (2023) has put it, PE-affiliated insurers reinsure a significant share of annuity reserves 'offshore'. This practice of "shadow reinsurance" on one hand reduces the amount of capital needed and increases return on equity, but on the other makes the business less transparent and harder to regulate.

The size of PE-induced trades is illustrated by the 2023 $28 billion transaction between Lincoln Financial Group and Fortitude Re (IMF, 2023). This transaction included the following:

- $9 billion of universal life insurance with secondary guarantees;
- $12 billion of long-term care rider reserves;
- $8 billion in fixed annuity reserves to Fortitude Re, a PE-capital backed reinsurer in Bermuda.

These transactions are not isolated. The template is all but identical: PE firms buy life insurers, offshore the liabilities via reinsurance, and park the general account assets in structured credit, leveraged loans, collateralized loan obligations (CLOs), and private placements. This can be seen in Kirti and Sarin (2023) who report that PE-owned insurers have relatively high holdings of private-label asset-backed securities (ABS), and that their holdings of privately rated or unrated securities increase after acquisition. These products are also often associated with higher expected losses and the risk metrics or models used to value them might not replicate the conservatism of a traditional (re)insurer or regulator.

In addition, the mix has changed. PE firms have ventured heavily into FIA (fixed indexed annuities) and RILA (registered index-linked annuities) products that provide limited downside gains but include complex hedging and derivative structures, which make their risk-return profile less transparent. Industry data suggest that by 2023, PE-affiliated firms commanded approximately 35% of all new fixed and FIA sales in the U.S. (McKinsey & Company, 2024). Over the broader market, FIAs and RILAs rose from about 23% to 44% of total annuity sales between 2015 and 2024 (Life Insurance Marketing and Research Association, 2025). Kirti and Sarin (2023) observe PE insurers relinquished 20% of the full annuity marketplace by the end of their sample period (2017), compared to 3% in 2009. These are vehicles that produce predictable liabilities, making them well-suited to financing infrastructure spending, alternative investments and other favored sectors of PE houses, but also cause consumer protection and liquidity worry under stress.

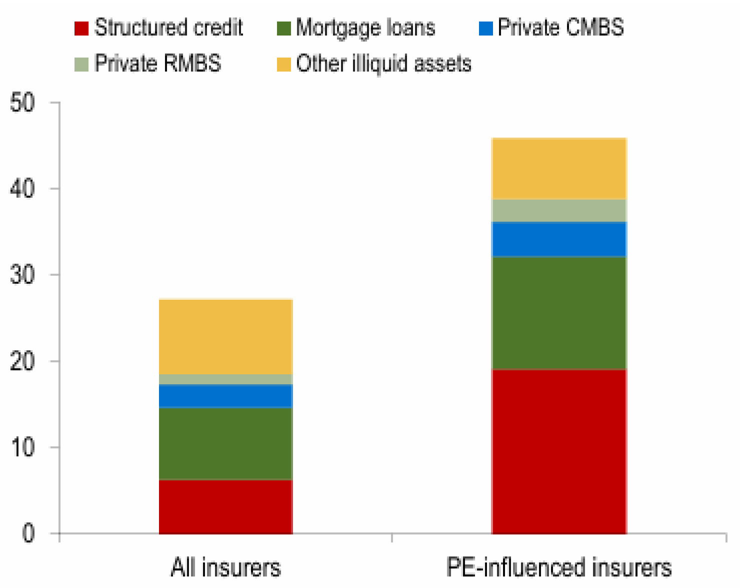
Finally, the managerial incentives under PE are distinct relative to traditional settings. PE firms optimize for return on equity and fee income, not long run surplus accumulation and solvency stability, generally over a shorter horizon. This can prompt actions such as regulatory arbitrage (rating shopping, offshore reinsurance); growth that is capital-light (reinsuring away liabilities); heightened financial opacity (through internal rating system) and hunting for yield (in structured credit, at least CLOs).

Such conduct is far from the tradition of prudential culture that has always governed mutual and stock insurers. They also further entangle insurers in the shadow banking system, with risks that traditional measures of regulation may not entirely capture.

4.2 Effects on Risk-Taking and Investment Behavior

The emergence of life insurance firms owned by PE firms has been linked to significant changes in insurers investment practices, portfolio, and risk profile. While incumbent insurers are heavily into conservative asset-liability matching, PE-backed insurers have an enormous appetite for structured, illiquid and higher-yielding assets. This is not just anecdotal, there is such a wealth of empirical data that demonstrates the impact of PE ownership across both the asset allocation and capital efficiency strategies.

Figure 6: US Insurers Allocation to Illiquid Assets as of December 2021 (Percentage)



Note. Figure 4, panel 2, by Cortes, Diaby & Windsor (2023).

Empirical evidence of this can be found in Kirti and Sarin (2023) who document that post-acquisition PE-owned insurers undertake a statistically and economically significant reallocation of their portfolios away from publicly rated investment grade corporate bonds toward ABS (therefore at least partially private-label) and unrated or internally rated structured products. These assets are often subject to higher expected losses than rated or capital treatment would imply. The study documents that after a PE acquisition, the losses per unit of capital tend to increase by roughly 50 percentage points (Kirti & Sarin, 2023).

On average, PE-backed insurers have capital charges that are lower than those for similar traditional insurers, in large part because of their tailored use of structured assets rated NAIC-1 under obsolete or non-transparent methodologies (Kirti & Sarin, 2023). These changes are particularly significant because with the NAIC's "expected loss" framework, some mezzanine tranches of CLOs, and others of non-gateway private ABS, can be mispriced from a regulatory capital perspective, creating an incentive for firms to seek yield without commensurate capital buffers.

PE sponsor-backed insurers had emerged as among the most prolific and active participants in the collateralized loan obligation market, especially in the riskier junior tranches. From the NAIC 2023 report:

- U.S. insurers' total CLO exposure increased 9.5% year over year to $271.2 billion as of the end of 2023 from $247.7 billion in 2022;
- CLOs make up 3.2% of the industry's total cash and invested assets in 2023 (up from 3% in 2022), but higher for life insurers and especially PE-owned;
- Large insurers' share of the total CLO exposure amounted to 81% in 2023.

Differences in firm structure between PE-backed Insurers and traditional mutual or stock companies' differences in firm structure between PE-backed insurers and traditional mutual or stock companies also come through governance and managerial incentives:

- PE fund business models, which are predominantly focused on fee-driven revenue formulas with assets-under-management or return objectives that promote yield maximization rather than liability matching (McKinsey & Company, 2024);
- There is greater use of off-balance-sheet financing, internal ratings, and affiliated transactions that make it more difficult for regulators to see warnings.

If some of these changes seem positive for consumers, for example, higher credited rates on annuities the correlative risk is that returns will be subsidized by thinner capital cushions and more exposure to market volatility. Under stress, liquidity mismatches, unclear reinsurance agreements and valuation challenges would put policyholders and the wider financial system at risk of surprising losses (IMF, 2023; Foley-Fisher et al., 2023).

Bhardwaj, Ge and Mukherjee (2025) suggest that changes in insurer investment behavior are directly transmitted to corporate borrowers through the linkages CLO managers enjoy with corporate borrowers. Insurers investing in CLO tranches generate the following:

- Increased loan origination volumes;
- Lessening the spread and easier credit terms for borrowers;
- Greater employment effects, especially among non-public firms.

These phenomena imply that insurers' conduct under PE ownership now has putative real-economy effects, potentially reinforcing credit cycles and, conceivably, transmitting shocks via previously uncorrelated conduits (Bhardwaj, Ge & Mukherjee, 2025).

The entrance in the life insurance industry by private equity has drastically changed investment styles, capital strategies and risk taking incentives. The resulting portfolio deviations pass to complex and illiquid and higher yield financial instruments are well known, as are the related regulatory and financial-engineering strategies to justify them. While these advances can improve returns and market functioning in a benign environment, they also present tail risks, systemic weaknesses, and regulatory obstacles that demand greater vigilance. The risks just mentioned, and their relevance for financial stability, are addressed in the following section.

4.3 Regulatory and Market Implications

The ever-closer nexus between private-equity (PE) and life insurers is posing a two-pronged challenge to financial watchdogs and markets. The complexity, the lack of transparency, and the structural change that comes with PE ownership have left market participants wondering whether the existing oversight structure is sufficient, as well as whether high capital cushions can indeed be fully trusted and whether they exert spill-over effects into the broader market. This chapter investigates the key regulatory and market effects associated with this development, based on data from U.S.-enforcing institutions, central banks and academic literature.

The shift of portfolio risk is frequently achieved by way of capital efficiency initiatives like offshore reinsurance (mainly in low-solvency-rule jurisdictions), with Bermuda being a popular destination (IMF, 2023). This facility permits insurers to reduce onshore capital mandates while maintaining economic exposure to riskier assets, this move facilitates regulatory arbitrage, migrating liabilities to jurisdictions with weaker capital and disclosure requirements. It tends to be backed by closely related reinsurers, leading to murky intra-group relationships hiding the true risk of the combined entity.

For instance, Athene uses Bermuda captives to run a massive amount of its liabilities off its U.S. balance sheet, deploying the precious capital to buy CLOs and private credit. The IMF (2023) highlights this as a key systemic issue, with implications for lower transparency, regulatory arbitrage and procyclicality in the exposures of liabilities and high-risk assets.

Table 2: Examples of triangular organizational structures designed for private debt business models

(1.) US life insurer	(2.) Offshore captive reinsurer	(3.) Asset manager
AIG	AIG Life of Bermuda	AIG Asset Management
Allianz US	Allianz Re Bermuda Life	PIMCO
Athene	Athene Life Re (Bermuda)	Athene Asset Management
Genworth	Genworth Life and Annuity Ins. Co. (Bermuda)	AssetMark
Guggenheim Life	Delaware Life Ins. and Annuity Co. (Bermuda)	Guggenheim Partners
Global Atlantic	Global Atlantic (Bermuda)	Goldman Sachs Asset Management
Legal & General America	Legal and General Reinsurance Co. (Bermuda)	Legal & General Investment Management America
MetLife	MetLife Reassurance Company of Bermuda	MetLife Investment Management
Aegon US	Transamerica Life (Bermuda)	Aegon Asset Management
AXA US	XL Bermuda	AXA Investment Managers
Nassau Life	Nassau Re (Cayman Islands)	Nassau Corporate Credit, Nassau CorAmerica

Note. Table 1, by Foley-Fisher, Heinrich & Verani, (2023).

This credit risk sharing arrangement minimizes owner's capital requirements under U.S, statutory accounting, while holding the economic risk exposure constant. After all, the risk still effectively resides with the ultimate financial group. Without group-level supervision across different U.S. states and offshore jurisdictions, risks can build up outside the oversight of any one regulator.

The more troubling issue is that regulatory capital requirements not reflecting the true risk of the portfolio. Structured products such as CLO mezzanine tranches can receive a favorable NAIC-1 or NAIC-2 designation under the NAIC's framework even though they are economically indistinguishable from BB or B assets (Kirti & Sarin, 2023).

As underlined by Kirti and Sarin (2023), the expected loss per dollar of capital increases by more than 50 percentage points for PE-backed insurers.

PE insurers are much more likely to hold structured securities rated NAIC-1, which receive low capital charges despite having higher loss probabilities than similarly rated corporate bonds. Fringuellotti & Santos (2025) underline that this behavior results in capital arbitrage, in which insurers “load up” on high-yield structured assets that are capital efficient but economically risky. These incentives have especially distortive effects in the CLO market, capital rules are driving investment in ways that may not reflect sound risk management.

The behavioral effects of PE ownership have also contributed to market-level distortions, especially in structured credit markets. PE-affect firms disproportionately hold mezzanine tranches, where yields are highest relative to regulatory capital requirements.

Foley-Fisher et al. (2023): Insurers are increasingly exhibiting behaviors once associated with shadow banks, such as warehousing, originating, and securitizing leveraged loans (just like investment banks did before 2008).

This results in increased insurer exposure to the corporate credit cycle. The stability of household retirement products is now tethered to the leveraged loan market. In a downturn, this connection could lead to procyclical asset sales, fire-sale risk, or runs on annuity products, especially if confidence in capital buffers deteriorates.

The U.S. regulatory regime for insurance is state-based, which results in challenges to coordinated supervision of nationally active and globally integrated PE-insurer groups (Foley-Fisher et al., 2023). This results in fragmented data collection (with limited look-through to offshore reinsurance flows or affiliated investment positions), limited stress testing at the consolidated level (given insurers’ increasing systemic footprint) and opaque governance chains (with ownership and control channeled through private funds, asset managers, and special-purpose vehicles).

The IMF (2023) and Federal Reserve research both recommend the use of federal or consolidated supervisory tools, including group-wide capital adequacy assessments, public reporting of intra-group reinsurance (and investment exposures) and enhanced disclosure of alternative asset holdings and valuation methodologies.

Regulatory authorities in several jurisdictions have started to recognize the risks associated with the convergence of private equity. The NAIC Macroprudential Working Group proposes changes to the structured asset capital treatment and offshore reinsurance disclosures. IMF

(2023) too advocates a macroprudential framework that goes beyond entity-level solvency and captures interconnected exposures between insurers, private credit, and corporate borrowers.

Notably, some of the most prominent recommendations include:

- Modifying the capital charges for structured products to reflect the underlying credit risk more accurately;
- Consolidated supervision of affiliated reinsurers and asset managers (including offshore captives);
- Liquidity risk management mechanisms for long-term, liquid annuity-backed investments.

In conclusion, the regulatory and market impacts associated with the ownership of insurance by PE are complex and evolving. While private equity represents credit risk, financial innovation, and capital, it also contributes to two new forms of risk: regulatory arbitrage, opacity, and systemic interconnections with shadow credit markets. Overcoming these challenges will necessitate a transition away from entity-based regulation towards group-wide, risk-based, and forward-looking supervision. The rest of this section will explore how these factors could give rise to system-wide financial stability risks.

4.4 Why do insurers engage in Shadow Banking activities? Is private equity involvement one of the driving forces?

The growing role of insurers in shadow banking has been a characteristic of contemporary financial intermediation. Insurers have traditionally been long-term, conservative institutional investors, but the post-crisis financial world has seen them begin to stray from this path. Multiple structural factors including long-term low interest rates, changing regulation and most importantly, the growing power of private equity ownership have transformed the incentives and operating models of insurers (Kirti & Sarin, 2023). The section seeks to understand why they are now getting involved in shadow banking by risk-taking on financial markets, and assesses the role of private equity in stimulating this change.

The primary reason insurers have become more involved in shadow banking is the quest for returns in an environment of seemingly endless low interest rates after 2008. In particular, life insurance companies have long-term liabilities in the form of annuities and retirement products that need stable, high-yielding assets in order to meet promised returns.

But yield simply has not been good enough in the post crisis world for those traditional fixed income assets such as investment grade bonds. Pretty strong pressure on insurers to go non-traditional on their investment activities across all lines: private credit and direct lending, CLOs, private-label structured securities, securitization of mezzanine and equity tranches (Foley-Fisher et al., 2023; Fringuellotti & Santos, 2025).

These exposures also provide higher nominal yields, but are also more opaque, complex, and illiquid similar to the shadow banking sector.

A second driver for that engagement with shadow banking is the ability to engage in regulatory arbitrage within current insurance capital regimes. NAIC's reforms post-2009 opened the door for expected-loss based models for structured products, which are known to underestimate tail risks. Consequently, some mezzanine CLO tranches or internally rated ABS could be subject to materially more favorable capital treatment than comparable public corporate bonds of similar economic risk (Kirti & Sarin, 2023; Fringuellotti & Santos, 2025).

Both Fringuellotti & Santos (2025) and Kirti & Sarin (2023) document how insurers take advantage of that gap by investing in assets with lower capital charges, but higher economic risk (this behavior is more prevalent among PE owned firms).

Organized offshore quote swap reinsurance is also popular to take liabilities offshore and release onshore capital (IMF, 2023). While regulation and structure considerations are necessary conditions for insurers to engage in shadow banking, PE ownership is an amplifying agent (IMF, 2023; Foley-Fisher et al., 2023). PE firms come with a playbook that includes:

- Financial engineering expertise (Foley-Fisher et al., 2023);
- Aggressive re-up targets and constrained investment windows (McKinsey & Company, 2024);
- Experience with structured credit and Alternative investments (Foley-Fisher et al., 2023; IMF, 2023);

- AUM/investment performance-based incentive structuring (McKinsey & Company, 2024).

Private equity-backed insurers are statistically more aggressive investors. Kirti & Sarin (2023) empirically find that, following the takeover by a PE sponsor, there are changes in portfolio (within few weeks from acquisition) with the share of structured and illiquid assets that increases significantly. In addition, expected loss per unit of capital is hiked up by adding 50 percentage points.

These companies also generally provide higher credited rates on their annuity products due to the yield pickup on their more aggressive portfolios (Kirti & Sarin, 2023). This is healthy in the short run for consumers, but raises solvency concerns in the long run, particularly during credit stress.

The operating model of many PE-owned insurers closely resembles that of shadow banks, including pre-crisis investment banks. As previously highlighted, these insurers source, underwrite and securitize leverage loans (retaining equity/mezzanine tranches of CLOs), invest Annuity Premiums in Leveraged Credit Intermediation and use related-party affiliates (reinsurers, asset managers, SPVs) to manage risk opacity.

Foley-Fisher et al. (2023) maintain that this model is a plain-footed migration of shadow banking activities to the insurance industry. In addition, the dependence on non-bank credit creation and short-term financing of long-term risk, along with interconnected exposures can create liquidity imbalances and propagation of systemic stress.

Private equity ownership adds potential conflicts between the incentives of owners and the protection of policyholders. PE sponsors are typically incentivized to maximize asset growth, fee income and investment yield over the relatively short investment window (e.g., 5–7 years), while insurance liabilities are often multi-decade in duration (McKinsey & Company, 2024). Furthermore, U.S. insurance regulation, which is also protectionist in spirit, is not ideally suited to aggregate holding company risk across numerous affiliates, especially when offshore captives and intricate asset manager formations are implicated (IMF, 2023).

The involvement of insurers in shadow banking is multi-faceted, motivated by economic need, regulatory arbitrage and financial engineering. Private equity has played a central role in this transformation, but nowhere has this change been as rapid, profound and evident than in the insurance sector. PE-backed insurers do not only seek for higher yields via shadow banking strategies but also construct operating models similar to non-bank credit intermediaries. Their increasing footprint in structured credit markets and their reliance on capital-efficient structures offer opportunities and risks for these activities, and with it a need for rethinking regulatory frameworks and supervisory coordination, as well as systemic monitoring.

5 Systemic Risks and Financial Stability Concerns

The interplay between insurance firms, shadow banking activities and private equity ownership has illustrated a series of evolving systemic risks to financial stability. Insurers are not adequately equipped to effectively monitor interconnected exposures, capital arbitrage and liquidity mismatches, particularly when engaging in intricate financial engineering, reinsurance and securitization, relative to traditional systemic actors (such as conventional banks), despite being under constant regulatory monitoring. The current chapter scrutinizes potential transmission channels of the aforementioned risks, analyzing both the channels that make insurers vulnerable and those through which risk is transmitted to other sectors. Simultaneously, the section will dive into regulatory blind spots and loopholes that may aggravate systemic fragility and contribute to wider implications on market stability and macroprudential oversight.

5.1 Potential Channels of Risk Transmission from Insurers' CLO exposure

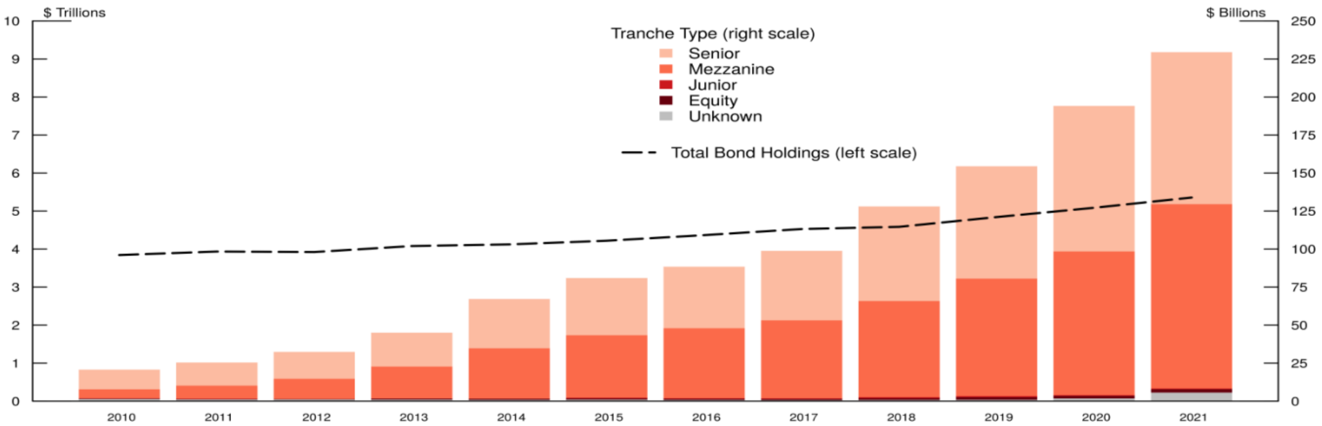
5.1.1 Channels that enhance Insurers' vulnerability

The structural alterations in insurance firms, especially under PE ownership, have created several distinctive transmission methods across markets, institutions, and geographical regions for financial risks:

A. Fire-Sale and Market Liquidity Risk
Fringuellotti and Santos (2025) demonstrated that insurers, who possessed approximately 44% of all investment-grade mezzanine CLO tranches, served as systemically integral players in structured credit systems. Simultaneously, PE insurers frequently retain subordinated tranches issued by affiliates, and the tranches are more susceptible to mark-to-market losses during economic distress. The NAIC (2024) discovered that U.S. insurers' CLO exposure increased to $271.2 billion, with life insurers accounting for 80% of the amount. The high concentration rate among insurers reflects the risk of simultaneous asset sales during economic downturns. As

such, insurers, who have increasingly allocated existing capital to illiquid and intricate financial instruments, including private ABS, CLOs and unrated credit, have become more susceptible to market liquidity shocks, such as an abrupt requirement to liquidate assets owing to credit downgrades, policyholders' withdrawals, or regulatory interventions. Resultantly, fire sales occur, which depress asset prices and generate amplification loops.

Figure 7: US insurer general-account investments in CLOs



Note. Figure 1, panel a, by Foley-Fisher, Heinrich & Verani (2023)

B. Liquidity and Duration Mismatches

Life insurers assure long-term liabilities, especially annuities. Meanwhile, PE-backed insurers have increasingly invested in structured credit and private debt, which are frequently illiquid and opaque. The trend has led to higher liquidity mismatches, which is a typical characteristic of traditional shadow banking activities. Foley-Fisher et al. (2023) revealed that affiliated insurers supported respective CLO issuance and retained risky tranches by frequently employing policyholder funds, including annuity premiums. The approach imitates the maturity transformation observed in investment banking, which is characterized by the utilization of long-term liabilities to fund long-term, risky, and less liquid credit portfolios. Insurers might be compelled to perform asset sales or delayed redemptions during economic distress, which would jeopardize market liquidity and consumer trust.

C. Amplification in Stress Scenarios

The accumulation of high-yield yet illiquid assets on insurers' financial balance sheets has rendered the system susceptible to procyclical deleveraging during economic distress, with mark-to-market losses eroding capital, stricter regulatory requirements propelling asset sales, and decreased investments in CLOs shrinking corporate credit, particularly among lower-rated borrowers.

5.1.2 Channels that transmit risk to other sectors

Real-Economy Spillovers
Insurers have increasingly played the role of systemic credit intermediaries via the influence in the leveraged loan and CLO markets. Financial shocks to insurers' capital can directly impact credit creation, particularly for small and medium-sized enterprises (SMEs) contingent upon CLO financing. Bhardwaj, Ge and Mukherjee (2025) uncovered that insurers' capital inflows into CLOs generated more favourable loan terms for borrowers, elevated employment rates, and promoted more investments, especially across private companies. Meanwhile, insurers would encounter higher valuation or capital pressures and credit issuance declines, which would negatively influence corporate operations and potentially the wider labour market and introduce an additional macro-financial risk transmission channel. Resultantly, PE insurers' investment decisions would diminish the positive indicators of the real economy.

5.2 Regulatory Blind Spots and Market Fragility

The U.S. consolidated federal supervision on life insurers remains scarce despite increasing systemic significance, which has constrained regulators' capabilities to swiftly and effectively identify or respond to systemic threats. Several regulatory blind spots have been pinpointed:

A. Capital Inadequacy for Structured Credit
Current NAIC risk-based capital (RBC) frameworks have continuously neglected the potential risks of structured products, including CLOs and ABS, which would garner ratings-driven

capital treatment even when underlying credit profiles are turbulent or ambiguous. Kirti and Sarin (2023) discovered that PE insurers retained approximately 50% more assets with a higher expected loss per unit of capital compared to traditional insurers while requiring 20% lower capital charges. The trend highlighted the significant exploitation of arbitrage opportunities and the regulatory discrepancies between financial risks and capital regulations. Resultantly, insurers could accumulate riskier tranches with higher returns without a sufficient capital buffer.

B. Regulatory Arbitrage and Reinsurance Loopholes

Another risk amplifier is the offshoring of liabilities through affiliated reinsurance structures in jurisdictions, such as Bermuda. The offshoring platforms operate under lower capital and disclosure standards, which enable insurers to circumvent certain statutory capital requirements in other nations despite the same level of economic risk. The affiliated reinsurers are constantly controlled by the same PE parent, which allows risk transmission without substantial economic systems and structures and higher financial solvency. Resultantly, the opaque nature of relevant transactions might impede effective and efficient supervisory coordination during financial crises, which would delay resolution or create contagion across affiliated financial firms.

C. Limited Group-Level Supervision

Various PE companies have continuously structured insurance operations via holding companies and offshore reinsurers, which are not subject to the U.S. group-wide solvency regulation. The IMF (2023) delineated that PE insurers operate across ambiguous legal and operational structures, such as asset managers, reinsurers, and financial SPVs, without any single authority possessing a holistic monitoring of pertinent risks across the consolidated financial group. While multiple concerns have been conveyed regarding PE insurers' systemic roles in private credit markets, the enforcement capability is limited without federal insurance authority.

D. Intricacies and Interconnectedness

The growing complexity observed in the interaction between insurers, asset managers, and offshore entities has resulted in interconnected risks, with financial shocks in a certain segment potentially disseminating to other segments through operational, funding, or contractual connections. Foley-Fisher et al. (2023) demonstrated how PE companies emerged from and invested in CLOs via various legal entities, which led to circular exposure and higher correlational risks. The interconnections are mostly surreptitious, which has increased the difficulty of monitoring and stress-testing.

E. Regulatory Fragmentation and Delayed Response

The fragmented U.S. regulatory framework, which is characterized by state-based insurance supervision, limited federal oversight, and offshore reinsurance gaps, might diminish the efficiency of economic crisis responses when unified solvency stress tests are absent at the group level and centralized reporting is unavailable on cross-entity capital flows, which could aggravate contagion upon diminished confidence in insurer solvency among policyholders.

6 Conclusion and Policy Considerations

The insurance industry has transformed amidst the growing association with shadow banking activities and higher PE ownership, which has profoundly influenced systemic risks and financial regulations. These systemic risks associated with PE life insurers and relevant shadow banking activities are not hypothetical but resemble historical market fragilities observed in previous financial crises. Life insurers' evolving profiles from conservative balance sheet managers to leveraged and return-seeking financial intermediaries require adjustments in regulatory assumptions.

The current study aimed to elucidate the mechanisms of the observed transformation by scrutinizing how regulatory discrepancies, structural innovation, and market incentives led insurers (in particular life insurers) to assume the roles (including credit intermediation, loan securitization, and financial engineering) that were primarily played by conventional banks and other financial intermediaries previously. Hence, appraising the wider implications of the transition for financial stability, regulatory frameworks and macroeconomic resilience. Resolving the emerging market vulnerabilities necessitates effective and efficient enhancements in capital regulatory frameworks, group supervision, and macroprudential oversight amidst the growing macroeconomic uncertainty and challenging international credit conditions.

The present chapter synthesizes the key empirical findings and theoretical insights developed and provides academic and policymaking recommendations to effectively regulate the current insurance sector amidst higher intricacies and interconnectedness.

6.1 Summary of Key Findings

Shadow banking was denoted as credit intermediation activities beyond the traditional banking system, with an increasing trend observed among life insurers via the involvement in structured credit, liquidity transformation, and regulatory arbitrage. Life insurers play the roles without regulated instruments, sufficient capital buffers, or adequate regulatory supervision. The higher engagement of life insurers in shadow banking activities, especially through PE ownership, has engendered alternative and complicated systemic risks due to interconnected ownership structures, regulatory arbitrage, large-scale exposure to structured credit markets, and capital optimization. Specifically, the U.S. insurers became more exposed to CLOs and other structured products, with CLO exposure elevated from $247.7 billion to $271.2 billion or a 9.5% annual increment from 2022 to 2023 (NAIC, 2024). The PE insurers also shifted investment strategies towards more ambiguous, riskier, and lower-rated assets, as indicated by higher levels of expected losses, lower capital charges, and a higher focus on mezzanine and unrated credit. Concurrently, regulatory blind spots, such as offshore reinsurance and ratings-based capital requirements, allowed the insurers to conceal actual risks and circumvent solvency requirements. Thus, systemic risks, including procyclical deleveraging under market stress, feedback loops with the corporate credit markets, liquidity mismatches and regulatory loopholes in the current regulatory framework, were engendered. The findings also demonstrated that insurers' capital flows directly contributed to credit supply and borrower outcomes, which generated an additional transmission channel between insurance balance sheets and the real economy.

6.2 Potential Risks and Future Research Directions

The implications of the structural alterations in the insurance industry require more nuanced and in-depth research, especially:

- A formal macroprudential framework to quantify how insurer capital shocks disseminate to corporate credit markets and employment;
- A deeper analysis of how insurer risk-taking demeanours differ across jurisdictions and regulatory frameworks, such as between the NAIC and European Solvency II;
- Investigations of the feedback loop between offshore reinsurance and market volatility to determine how Bermuda-domiciled reinsurers might aggravate or alleviate systemic shocks;
- More granular examinations on governance, incentives, and performance outcomes among PE insurers, such as assuming the role of affiliated asset managers.

6.3 Regulatory Recommendations

The following policy directions were proposed to alleviate the aforementioned systemic risks and bridge the identified regulatory gaps:

1. Reinforce Capital Standards: To enhance NAIC capital regulations to more accurately reflect the risk of structured credit and private ABS, with capital charges aligned with expected loss and asset opacity;
2. Consolidated Supervision: To extend regulatory supervision to the entire insurance group, particularly PE-affiliated insurers, with a federal supervisory framework potentially required for entities engaged in traditional banking activities;
3. Disclose Offshore Reinsurance Structures: To mandate full transparency on offshore reinsurance, such as the actual identity of counterparties, capital amounts, and contractual guarantees;
4. Enhance Stress Testing: To execute stress testing catered to PE insurers to account for asset illiquidity, liability run-risk, and market interdependence;
5. Establish Macroprudential Authority: To empower the Financial Stability Oversight Council (FSOC) or a similar authority to designate systemically vital insurers and apply tailored prudential standards;
6. Monitor Interconnectedness: To mandate insurers to reveal cross-holdings and exposures to affiliated CLOs and asset managers for more effective risk mapping and early interventions.

The interplay between PE, life insurance, and shadow banking has created an alternative and hybrid financial framework with both efficiency gains and systemic vulnerabilities. While regulatory arbitrage and financial innovation have enabled insurers to pursue higher returns, regulatory arbitrage and financial innovation have also elevated financial intricacies, market opacity, and contagion risk. Therefore, policymakers should proactively respond to guarantee that insurance firms fulfil crucial economic roles without becoming a factor of market instability in the wider financial system. The current study results emphasized the importance of reconsidering how modern insurance institutions should be regulated within the wider financial ecosystem when life insurers evolved from traditional liability managers into active agents in credit transformation and structured finance. The operations of life insurers have frequently been under PE owners' guidance, which has elevated systemic relevance even when relevant activities are obscured from consolidated monitoring. Addressing the systemic risks necessitates constant updates and modifications of existing regulatory frameworks by accounting for the current structural realities of financial markets. A progressive, risk-sensitive, and internationally coordinated regulatory framework is critical to guarantee that insurance firms serve as stable financial actors and responsible contributors to long-term financial health in a highly dynamic economic landscape.

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