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Insurance companies in the Euro
area: asset allocation and impact on
financial markets

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Discussion papers

Discussion papers are research-based papers on policy relevant topics, offering a broader and more balanced perspective. While being partly based on original research, they place the analysis in the wider context of the literature on the topic. They also consider explicitly the policy perspective, with a view to develop a number of key policy messages. Their format offers the advantage that alternative analyses and perspectives can be combined, including theoretical and empirical work. The selection and distribution of discussion papers are subject to the approval of the Director General of the Directorate General Research.

ABSTRACT

Euro area insurers manage several trillion euro in assets and take a long-term investment perspective. They hold more alternative and less liquid assets than in the past, partly resulting from the long period of low interest rates until 2022. As a result, their balance sheets have become less liquid and more sensitive to market conditions overall. Meanwhile their holdings of sovereign bonds show significant home bias, which may have even increased with quantitative easing policies. Sovereign bonds also serve as key liquidity source for insurers, who sell sovereign bonds to meet the liquidity needs in response to large claims after natural disasters. Thus, liquidity shocks can spill over from insurance to the sovereign debt markets, increasing market volatility. Capital markets union would likely help insurers diversify their bond portfolios and promote cross-country risk sharing.

JEL Codes: G22, E52, E58

Keywords: Insurance companies; Sovereign holdings; Climate risk; Monetary policy transmission

Non-technical summary

Insurance companies in the euro area are major investors in financial markets, with their investments in equity and fixed-income securities comparable to banks and dominated only by investment funds. They are particularly active in bond markets, where insurers hold substantial amounts of sovereign, corporate, and bank-issued debt. Through these holdings, insurers contribute to the interconnectedness of the European financial system.

Their investment strategies are closely linked to the nature of their liabilities, which differ across business lines. Life insurers manage the long-term liabilities arising from retirement and life insurance contracts by investing predominantly in long-maturity sovereign and corporate bonds. Many life insurance products link policyholder returns to underlying portfolios and include guarantees. While the use of such guarantees has declined in recent years, most active contracts still feature them, requiring careful asset–liability management. Sovereign debt remains at the core of life insurers’ investment strategies due to its long duration and favourable regulatory treatment. Euro area government bonds are exempt from capital charges related to credit, concentration, and counterparty risk, reinforcing their attractiveness. Moreover, domestic sovereign yields often serve as benchmarks for pricing and evaluating life insurance products, contributing to a strong home bias in investment portfolios, especially in larger euro area countries.

Central bank policies have also shaped insurers’ asset allocations. The Eurosystem’s quantitative easing (QE) programmes since 2015 encouraged a rebalancing toward less liquid assets such as real estate, mortgages, loans, and hedging instruments. In countries with a pronounced home bias, exposures to domestic sovereign bonds increased further during this period. The monetary tightening cycle that began in 2022 has partly reversed these trends.

Climate risks are increasingly influencing the behaviour of non-life (i.e., property & casualty) insurers. Natural disasters, particularly floods, can lead to large insurance payouts

that require insurers to liquidate assets to cover claims. On average, major flood events in the euro area prompt non-life insurers to sell around 8% of their government bond holdings. Such selling pressure, concentrated in short-term bonds, can temporarily affect domestic sovereign bond prices, particularly in markets where insurers already hold large shares of domestic debt.

In summary, euro area insurance companies play a pivotal role in financial markets, with their investment decisions influenced by a complex interplay of economic conditions, regulatory frameworks, and climate-related risks. The substantial scale of their bond holdings, coupled with the sensitivity of their portfolios, highlights their critical importance in both maintaining financial stability and shaping market dynamics in the euro area.

I. Introduction

Insurance companies in the euro area are major investors in financial markets, with their investments in equity and fixed-income securities comparable to banks and dominated only by investment funds. They are particularly active in bond markets, where they hold substantial amounts of sovereign and corporate debt. In their role as significant investors, bond demand significantly affects bond issuers' funding costs and, thus, real economic activity (see [Kubitza \(2025a\)](#) for evidence from US insurers). Moreover, among insurers' corporate bond holdings is a significant amount of bonds issued by banks and other financial intermediaries, amplifying interconnectedness in the European financial system.

Asset-liability management significantly shapes insurers' investment decisions, with portfolio choices varying systematically across different lines of insurance business. On the one hand, non-life (property and casualty) insurers insure damage and liability risks (e.g., to cars and properties) with short-term (typically one-year) contracts. Among other risks, these contracts provide protection against natural disasters, directly exposing insurers to rising climate risks. As a result, non-life insurers invest in shorter-term assets and exhibit a higher portfolio share of equity investments than life insurers.

On the other hand, life insurers manage long-dated retirement and life insurance contracts by investing in long-maturity bonds. The most common and traditional contracts offered by European life insurers combine savings and annuity products with “profit participation” in the insurer's general account. This scheme offers a return to policyholders that depends on the pooled investment portfolio (“general account”) and (most often) a guaranteed return. The post-crisis period of low interest rates (2015-2022) provided a challenging environment for insurers to finance the high level of guarantees sold in the past at low rates, raising sustainability concerns about these products. While life insurance companies have been reducing the amount of guarantees attached to these contracts, the large majority of life

insurance products with profit participation that are still commercialised features some form of guarantee, which insurers have to back up with the returns arising from their investment portfolios.

Sovereign debt remains a cornerstone of life insurers' investment strategies owing to its long duration and favourable regulatory treatment. From a regulatory point of view, euro area government bonds benefit from an exemption from capital charges related to credit risk, concentration risk, and counterparty risk.¹ Moreover, in several countries, domestic sovereign yields are the natural benchmarks for evaluating the performance of traditional life insurance products, with discount rates and annual guaranteed returns linked to domestic sovereign bond yields. This provides further incentives for insurers to allocate a large portfolio share to sovereign bonds.

Life insurers also exhibit a high level of home bias (i.e., preference toward bonds with domestic issuers) in both sovereign and corporate bonds. While there is some degree of heterogeneity across countries, home bias is strong especially for the largest countries in the euro area, a result that is robust to the use of different measures of home bias.

Because of large investments in sovereign bonds, the portfolio allocation of euro area insurers has been significantly affected by the central bank asset purchases that started in 2015. In particular, the quantitative easing (QE) policy of the Eurosystem induced a reallocation towards alternative investments, namely less liquid financial assets such as mortgages and loans. Our estimates suggest that when the central bank purchases 1% of the amount outstanding of the bonds in an insurer's portfolio, the insurer rebalances approximately 0.5% of its portfolio towards alternative investments. In addition, in countries where insurers exhibit high home bias, QE further increased the overall exposure toward domestic sovereign bonds. The increase in interest rates starting in 2022 partly reversed this development.

Due to their high market liquidity, sovereign bonds also insure insurers against liquidity

¹Ellul et al. (2011); Becker and Ivashina (2015); Ellul et al. (2015) and Becker (2022) document the importance of capital requirements for insurers' investment portfolio allocations.

risk. This is particularly important for non-life insurers that are increasingly exposed to large and sudden claim payments related to climate risk. Insurers sell financial assets after natural disasters to fund insurance claims, which can have significant price effects in related markets. Floods are the most common type of disasters in the euro area. We estimate that euro area insurers dispose of a significant fraction - around 8% on average - of their government bond portfolios to pay the damages arising from a major flood event. The bulk of these asset sales concentrate in short-term and, in particular, sovereign bonds, driven by their high liquidity. This can have significant effects on the yields of domestic sovereign bonds, in particular in countries where insurers have a strong home bias in their investment. In these countries, the concentrated sale of short-term sovereign bonds to finance the payment of damages from natural disasters may raise sovereign funding costs precisely when fiscal needs are increasing to support populations affected by such disasters.

The rest of the paper is organised as follows. Section II provides a broad description of the insurance sector in the euro area. Section III analyses how life insurers manage the duration mismatch between assets and liabilities, the implications for portfolio allocation and home bias, and the interactions with monetary policy. The insurance of climate risks in the euro area and their liquidity management by non-life insurers is examined in Section IV. Finally, Section V outlines a number of policy implications from our analyses.

II. The Euro area insurance sector

Insurance companies are important financial intermediaries in all euro area countries, both as investors and for providing risk management to households and firms. There are notable cross-country differences resulting from structural features of the domestic national markets but also from opportunities arising from the single market. In absolute value, insurers in France and Germany are the largest sectors in terms of gross written premiums (GWP),

followed by insurers in Italy, The Netherlands and Spain (see Figure 1).² However, relative to the size of the domestic economy, the insurance premiums in Ireland, Luxembourg, and Malta are larger, resulting from the role of these countries as financial centres, where a large number of insurers are legally incorporated. The relative importance of the life and non-life (property & casualty; P&C) segments in terms of premiums is mostly balanced in the largest euro area countries, while in smaller countries non-life business is generally more important.

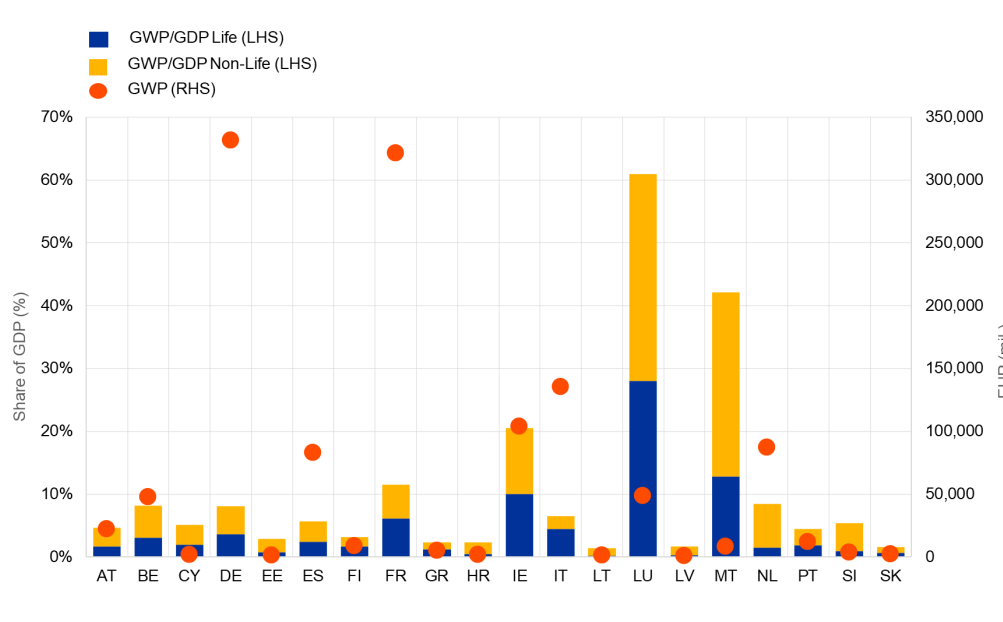


Figure 1: Gross written premiums by business line as of 2023:Q4. The figure depicts gross written premiums (GWP) as a share of gross domestic product (GDP) in % (LHS) and total GWP in million EUR (RHS) by country. The total across countries is EUR 1.224 trillion. Data: EIOPA Financial Stability Report June 2024.

²Gross written premiums are the premiums collected by insurers on all policies written before any deduction for reinsurance or commissions.

A. Life insurance products

During the most recent decade, and in particular after the implementation of the regulatory framework of Solvency II in 2016³, there have been significant changes in the composition of life insurance products. In general, life products can be classified into three broad categories. First, following the Solvency II classification (LoB 30), the traditional life insurance savings or pension-related products are insurance products with profit participation. While the specific features of this product vary across countries and insurers, they have key features in common. Traditional products are split into a savings phase, during which policyholders increase their savings by paying regular premiums, and an annuitization phase, during which policyholders receive ex-ante fixed annuity payments. This makes the contracts generally long-term in nature. Insurers guarantee an ex-ante fixed minimum annual interest rate (“guaranteed rate”) on policyholders’ savings. Moreover, contracts with profit participation provide additional returns to policyholders that result from sharing the investment (and mortality) profits on the insurer’s overall asset investments (i.e., coupons, dividends and rents received as well as profits from asset liquidations). Insurers smooth the final return to policyholders by actively managing asset reserves that are built up in good times and released in bad times ([Hombert and Lyonnet, 2022](#)). The total amount of profits to be shared with policyholders is typically governed by national regulations.⁴ Moreover, these contracts may include guaranteed insurance payments in the event of policyholder death, and the possibility of early surrendering to receive savings back before maturity ([Kubitza](#)

³Solvency II is a prudential and risk-based regime, which came into effect in the European Economic Area (EEA) in January 2016. It sets out quantitative and qualitative requirements applicable to insurance and reinsurance companies to ensure adequate protection for policyholders and beneficiaries.

⁴Across EU countries, the profit sharing mechanism is determined by national regulations in different ways. For example, French law mandates life insurance companies to pay out to policyholders at least 85 percent (in Germany, at least 90 percent) of their net financial revenues (i.e., dividends, coupons, rents, and realized capital gains). Realized capital gains materialize only when the insurer decides to liquidate asset investments. Because unrealised gains can be hoarded as reserves before being credited to policyholders, dynamics of policyholder returns from profit participation do not need to coincide with the dynamics of investment returns at market prices.

et al. (2025a)).

Insurance with profit participation is the largest source of interest rate guarantees in most European markets. Figure 2 displays the average level of return guarantees for traditional products in 2018, distinguishing between all existing contracts and products that are still actively sold. Despite of low market interest rates in 2018 (with 10-year AAA-rated euro area sovereign yields at 0.5%), the average guarantee on existing contracts exceeds 2% in most countries. This reflects contracts from legacy business, sold in times with high market rates. Instead, actively sold products consistently display a lower level of guaranteed rates in all countries.

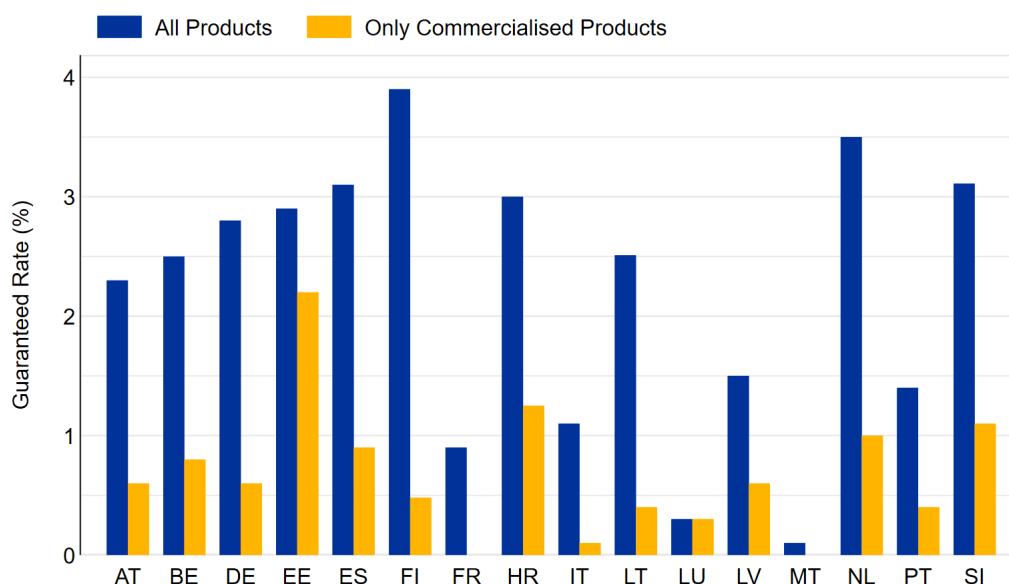


Figure 2: Average guaranteed rate for traditional life products as of 2018. Data: EIOPA LTG Report, 2018.

The second main category of life insurance products is that of unit and index-linked contracts. Unit-linked insurance contracts offer payouts that are linked to the returns of an underlying (separate) investment portfolio (often an investment fund). Some “hybrid” products also include a minimum guaranteed return, which is typically smaller than that

of traditional products. Thus, policyholders bear (most of) the investment risk. The low yield environment between 2015 and 2022, which includes the introduction of Solvency II in 2015, was accompanied by a significant increase in sales of unit-linked relative to traditional products.

As a percentage of total euro area insurers' investments, investments related to unit-linked products grew steadily from 15% to 22% since the introduction of Solvency II.⁵ Figure 3 shows that, in several euro area countries, unit-linked business is now the largest segment of life insurance business (see, for example, Finland, Ireland and Luxembourg), while in larger countries such as France, Germany and Italy, it accounts for 20–40% of premiums. This change in product composition implies an important shift in the allocation of investment risks from insurers to the household sector. Part of this dynamic may be due to the low interest rate environment, putting life insurers under strain to deliver on high guarantees issued in the past (Berdin and Gründl, 2015; Kojen and Yogo, 2022), and the changing regulatory landscape, incentivizing insurers to reduce guarantees (Barbu et al., 2025).⁶

The third category is “Other Life” which is a residual one including a range of insurance products with no profit participation and are not unit-linked; among the most relevant there are term life and immediate annuities. In term life contracts, policyholders pay regular premiums throughout a typically fixed period. If the insured person dies before maturity, the insurer pays a death benefit to the beneficiaries. Annuities provide a guaranteed income stream for a set period of time or for life, in exchange for a lump sum payment or a series of payments. Insurance with profit participation and unit and index-linked contracts can typically be converted into an annuity at the policyholder's retirement. Annuities generate a predictable income during retirement, insuring policyholders against longevity risk, i.e., the risk that savings might not last throughout their lifetime. The share of products within

⁵Source: EIOPA public insurance statistics 2023:Q4.

⁶Relatedly, Kojen and Yogo (2022) examine the supply of financial guarantees in U.S. life insurance products (“variable annuities”).

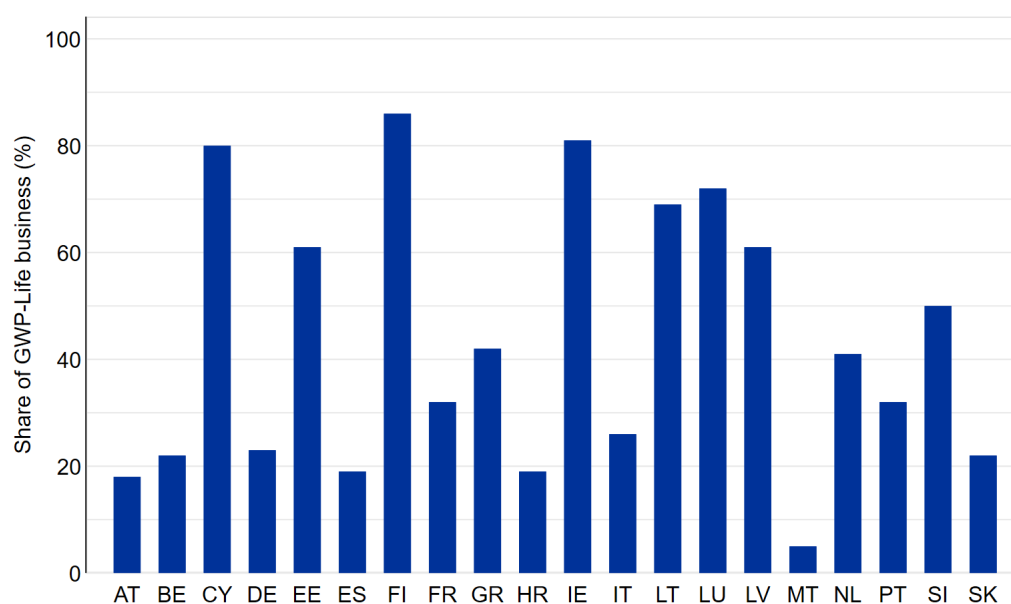


Figure 3: Unit-linked as a share of life insurance premiums across countries (in %) as of 2023:Q4. Note: Prudential solo reporting, premiums are measured in gross written premiums. Data: EIOPA Financial Stability Report June 2024.

the category “other life” with interest rate guarantees is approximately 70% for existing and 45% for commercialised products.

B. Non-life insurance products

Shifting the focus to non-life insurance, the largest lines of business are car insurance (which combines liability and other insurance), medical expense insurance, and fire & property insurance, which all account for close to one fifth of total non-life insurance premiums (EIOPA (2023a)). In terms of premiums, non-life insurance (EUR 505 billion in gross written premiums) is approximately the same size as life insurance (EUR 611 billion).⁷

Property insurance is the primary means to financially insure against damages from natural disasters. This type of insurance covers both physical assets, like buildings and personal belongings, and may also extend to cover loss of income or increased living expenses resulting from an insured event. Property insurance is a common pre-requisite to obtaining a mortgage and one of the most widespread non-life insurance products.⁸ Total annual premiums for property insurance in the euro area amount to EUR 100 billion, which is close to 1% of aggregate GDP.⁹

Property insurance costs account for a significant share of housing costs. For example, (Keys and Mulder, 2024) estimate that premiums for homeowners insurance amount to 20% of mortgage payments (principal and interest) for average U.S. homeowners, and to more than 40% for 10% of homeowners.¹⁰ As such, mortgage delinquency rates are sensitive to the

⁷Source for gross written premiums: EIOPA insurance sector overview report https://www.eiopa.europa.eu/publications/european-insurance-overview-report-2023_en.

⁸Ramnath and Jeziorski (2021) estimate that more than 90% of U.S. homeowners have homeowners insurance coverage.

⁹Source: Own calculations based on EIOPA Insurance Statistics for premiums, claims and expenses at solo level (annual frequency) and the share of “fire and other damage to property insurance” at country level in 2023 from the EIOPA European Insurance Sector Overview Report (https://www.eiopa.europa.eu/publications/european-insurance-overview-report-2023_en).

¹⁰U.S. homeowners insurance protects from liability and physical damages including most natural disasters except for floods, which are covered by the U.S. national flood insurance program.

cost of homeowners insurance (Ge et al., 2025a). Moreover, the costs of property insurance are reflected in house prices. For example, Ge et al. (2025b) provide empirical evidence that home prices in disaster-exposed areas decline with rising flood insurance prices.

By investing insurance premiums in financial assets, property insurers are exposed to financial market fluctuations, such as those driven by monetary policy. Knox and Sørensen (2024) document a strong link between insurers' investment returns and insurance prices. Damast et al. (2025) show that financially constrained property insurers respond to contractionary monetary policy surprises by raising insurance prices, compensating for market value losses on their invested assets. Rate hikes reduce the value of insurers' equity investments and long-term bond holdings, which tightens their financial constraints. In response, constrained insurers bolster their net worth by increasing property insurance prices. This monetary-policy-induced contractions in insurance supply reduce home prices and, thus, affect the transmission of monetary policy to the residential real estate market. The effect is especially pronounced in areas that are more exposed to natural disasters, where households face higher insurance costs on average. Thus, in contrast to traditional channels of monetary policy transmission, the transmission through homeowners insurance interacts with the exposure of households to climate risks.

Consistent with the requirement by mortgage lenders for borrowers to obtain property insurance, lenders are sensitive to the residual risk exposure of homes. In the model of Garmaise and Moskowitz (2009), insurers but not banks specialize in monitoring investments that increase risk resilience, e.g., to natural disasters. For this reason, in equilibrium, banks require households to obtain insurance coverage and credit supply is constrained by insurance market frictions. Based on granular U.S. data, recent studies document the reluctance of lenders to originate and maintain mortgages that are exposed to high uninsured flood risk, which are more often securitized, entail larger down-payments and higher interest rates (Sastry, 2022; Blickle et al., 2024). Lenders are also monitoring the counterparty risk of property insurers and limit their exposure to fragile insurers by selling loans associated with

fragile insurers to government-sponsored enterprises (Sastry et al., 2024). This evidence suggests that the banking sector is actively managing its exposure to natural disasters by relying on insurance markets. Well-functioning property insurance markets are, thus, not only important for household risk management but also for the financial stability of the banking sector.¹¹

Property insurance premiums are particularly high in areas exposed to natural disasters, in which expected damages and, thus, expected insurance claims are large. In addition, reinsurance prices significantly contribute to the cost of insurance for households (Keys and Mulder, 2024). Reinsurance companies are used by primary insurers to diversify correlated or severe risks, such as natural disasters. Property catastrophe reinsurance prices have approximately doubled between 2018 and 2023 in Europe as well as in the US.¹² Froot (2001) argues that capital market frictions and market power of reinsurers constrain the supply of (re-)insurance of catastrophe risks, amplifying insurance prices for households. Oh et al. (2025) document the impact of regulatory frictions on homeowners insurance prices in the US, where state insurance regulators are able to block or adjust changes in the pricing of property insurance.

Figure 4 depicts the price index for the two main non-life insurance lines in the euro area, property and car insurance.¹³ The costs of obtaining insurance have surged by 25% for property and 35% for car insurance since 2017, respectively. Comparing these dynamics with the overall euro area inflation index suggests that aggregate inflation is a key driver of insurance prices. From 2016 to 2021, all three price indices move in close tandem. With the inflation surge in 2021, aggregate inflation shoots up, whereas it takes more than one year

¹¹Relatedly, Bhutta and Keys (2022) document that mortgage lenders and government-sponsored enterprises relied on weakly regulated private mortgage insurers to manage borrower default risk during the 2000s mortgage boom, which has significantly contributed to the collapse of these sectors during the great financial crisis.

¹²Source: <https://www.artemis.bm/regional-property-cat-rate-on-line-index/>. The doubling of reinsurance prices cannot be fully explained by inflation: the cumulative rise in the consumer price index was approximately 20% in the euro area from 2008 to 2024.

¹³The data is sourced from the ECB and based on harmonised indices of consumer prices (HICPs).

for insurance prices to start catching up. The long time lag is consistent with the annual re-pricing of non-life insurance contracts (Damast et al., 2025). An important component of non-life insurance pricing is the cost to repair damages. In fact, the rise in car insurance prices lags behind the rise in car repair costs and, analogously, the rise in property insurance prices lags behind the rise in house repair costs (see Figure A1). These observations emphasize the strong impact of aggregate price dynamics on insurance.

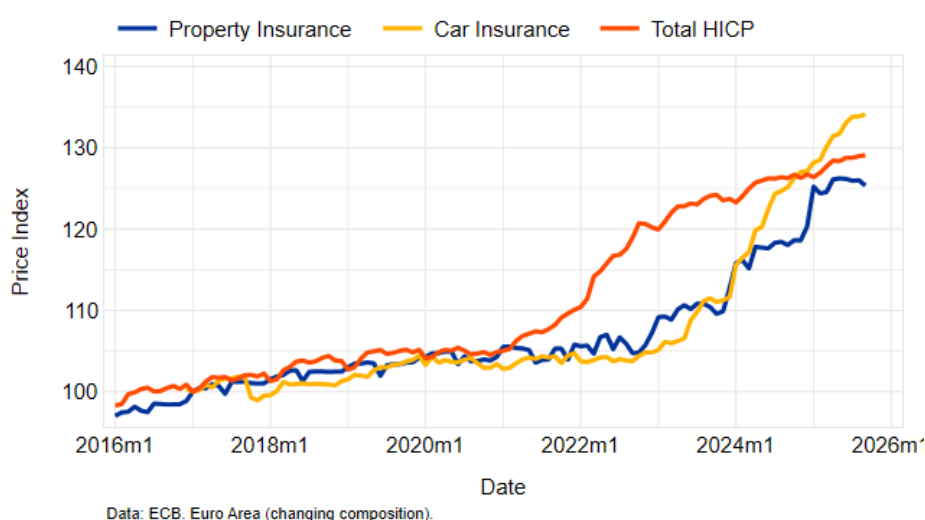


Figure 4: Insurance price indices for the euro area. We show the harmonised indices of consumer prices (HICPs) for car and property insurance as well as the overall inflation basket in the euro area, normalized to 100 in January 2017.

On the one hand, high insurance prices dissuade households from obtaining insurance, leaving them vulnerable to risks. On the other hand, high insurance prices enable insurers to build up financial buffers against large-scale events. Less than half of the damages from natural disaster in the euro area are insured by private insurance companies.¹⁴ Instead,

¹⁴See EIOPA’s “Dashboard on insurance protection gap for natural catastrophes”: https://www.eiopa.europa.eu/tools-and-data/dashboard-insurance-protection-gap-natural-catastrophes_en. Also, behavioural biases and simplified heuristics may contribute to low insurance coverage. For example, the findings by Cookson et al. (2025) suggest that insurance coverage limits are difficult for policyholders to estimate or not sufficiently salient, which leads to severe underinsurance, impairing disaster recovery.

a large part of these damages is borne by national governments, which provide disaster relief to affected households and business. Governments must trade off the ex-post benefits of providing relief to households with the adverse effect on ex-ante incentives for disaster risk management. On the one hand, providing disaster relief spurs economic recovery after disasters, which is important as many households are uninsured (Collier and Ellis, 2024). On the other hand, it creates moral hazard for households, which, in expectation of receiving government support in case of disasters, face lower incentives to seek private insurance and invest in risk measures to mitigate the costs of natural disasters (Boomhower et al., 2023).

Current and discussed policy approaches address this trade-off mainly in two ways. First, increasing the scope of risk sharing, e.g., through cross-country reinsurance schemes, may reduce frictions in the reinsurance market, increasing affordability and, thus, insurance take-up by households.¹⁵ Second, mandatory private insurance, especially for households in high-risk areas, may mitigate moral hazard incentives.¹⁶ However, requiring households to fully bear the costs of natural disasters may increase the cost of living in highly exposed areas to the extent that few households want to live there. This may not be desirable for societies facing the potential of drastically increasing natural disaster risk in the upcoming decades. Alternatively, governments may also mandate adaptive investments, e.g., through building standards. Their effectiveness crucially depends on regulators' ability to judge the effectiveness of required actions, which, in some jurisdictions appears successful (Baylis and Boomhower, 2023).

¹⁵For example, the ECB and EIOPA have jointly proposed a public-private reinsurance scheme to pool risks across European countries (see <https://www.ecb.europa.eu/ecb/climate/climate/html/index.en.html>)

¹⁶For example, recent floods in Germany have sparked calls for mandatory property insurance (see, e.g., <https://um.baden-wuerttemberg.de/de/umwelt-natur/wasser/hochwasser/pflichtversicherung-fuer-elementarschaeden>). Property insurance against natural disasters has been mandatory in the German state of Baden Wuerttemberg until 1994.

C. Portfolio allocations

Euro area insurers are among the largest institutional investors in both equity and debt securities, alongside pension funds, investment funds and banks (see Figure 5) and their portfolios also include real estate and in some markets, mortgage loans - varying considerably across business models and countries (see Figure 6).

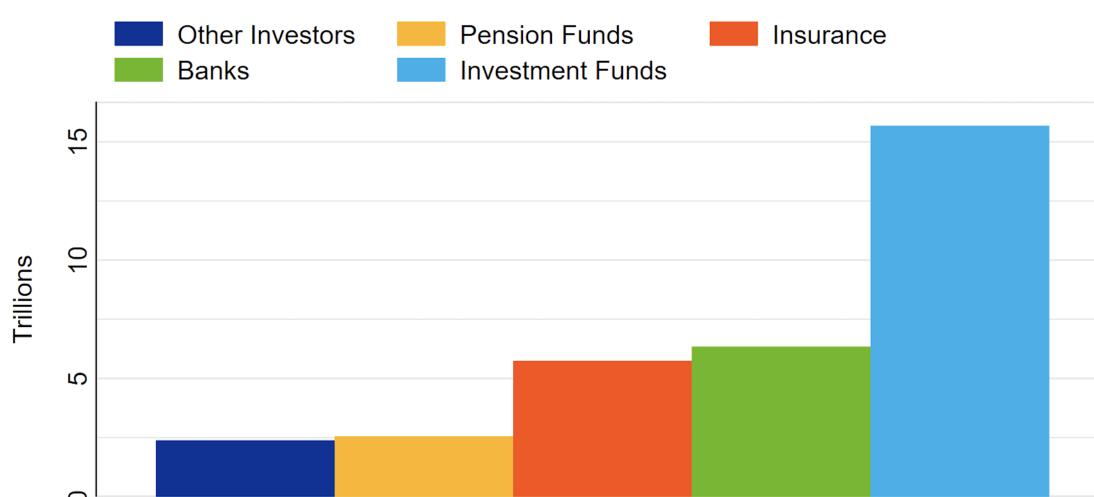


Figure 5: Importance of euro area insurers. Debt and equity securities held by euro area sectors at the end of 2024. Equity does not include unlisted shares and residual equity categories (ESA F.512 and F.519). Source: Securities Holdings Statistics and own computations.

Composite and life insurers tend to have the largest proportion of sovereign bonds in their portfolios and sovereign bond holdings are particularly large in countries with a small corporate market (Du et al. (2025)). Sovereign bonds typically have longer maturities than corporate bonds, aligning more closely with life insurers' long-term liabilities. The “zero risk asset” regulatory treatment of euro area sovereign bonds makes them more attractive for insurers' balance sheets.¹⁷ Instead, non-life companies are more exposed to corporate

¹⁷Under the Solvency II regulatory framework for the European insurance sector, euro area sovereign bonds are treated as assets with zero credit risk.

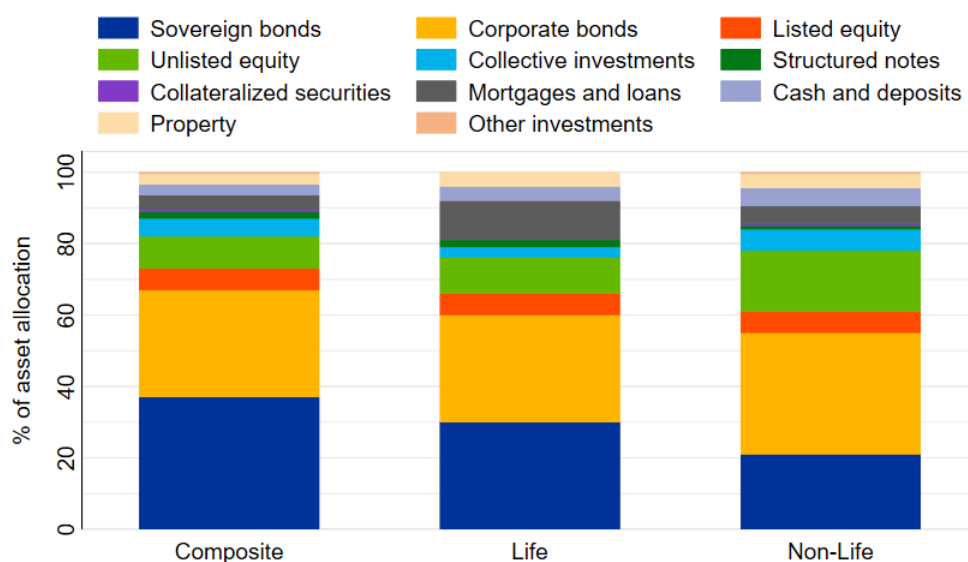


Figure 6: Split of investments by type of insurers. Figures based on look-through for funds. Assets held for unit-linked business are excluded. Equities include holdings in related undertaking. Source: EIOPA Financial Stability Report June 2024. Data: EIOPA Quarterly Reporting Solo. Reference period: Q4 2023.

bonds and allocate more to unlisted equities, primarily equity participations (i.e., ownership interest in other companies).¹⁸

During the prolonged period of low interest rates, until 2022, insurers sought higher-yielding investments, raising investment in less liquid assets with more complex structures.¹⁹ Such investments offer higher yields compared to traditional investments like sovereign bonds and publicly traded corporate bonds and equity, albeit sometimes with higher credit risk and lower liquidity. Life insurers are relatively more exposed to alternative assets (around 25% of their total investments) compared to other types of insurers, with non-life insurers allocating 19% and reinsurers 8% to alternative assets. Within the category of alternative assets, life insurers have relatively higher exposure to real estate, especially via mortgages (EIOPA (2025)).

Overall, this trend suggests that the investments of life insurers have become less liquid, hampering their ability to swiftly respond to sudden liquidity shocks or changes in market conditions. This trend in euro area life insurers' asset allocation mirrors the increased investments of U.S. life insurers into less liquid assets (Foley-Fisher et al., 2023; Fringuellotti and Santos, 2025; Meisenzahl et al., 2025). While liquidity risk is not explicitly governed by capital requirements in Solvency II, EIOPA has increased scrutiny of liquidity risk management by insurers in recent years. Whereas large and sudden insurance claims can drain P&C insurers' liquidity (see Section IV), high surrender rates may drain life insurers' liquidity, especially with rising interest rates (Kubitza et al. (2025a)). Moreover, large margin calls on derivatives positions may force insurers and pension funds to sell assets (Alfaro et al. (2024);

¹⁸Composite insurers are insurance companies that are licensed to provide both life and non-life insurance products.

¹⁹Termed as “alternative assets” or “alternative investments,” these assets lack a globally recognized definition. The International Association of Insurance Supervisors (IAIS) proposed defining alternative assets based on risk-based characteristics, emphasizing substance over form. These characteristics include illiquidity, difficulty in valuation, and complex structures. Alternative assets include categories such as private equity, private debt (i.e., loans and non listed corporate bonds), real estate, and infrastructure investments. Alternative assets often feature intricate structures and cater to a more limited investor base, resulting in reduced liquidity.

[Jansen et al. \(2024\)](#)).

An important aspect of insurers' investments are the linkages to other parts of the financial sector, in particular banks. [Damast \(2024\)](#) provides evidence that insurers invest in bonds issued by banks in order to diversify their investment portfolio. As a result, shocks in the banking sector might propagate to insurers through their holdings of equity and bonds issued by banks. Euro area insurers' exposure to banks through holdings of equity issued by banks is relatively small ([EIOPA \(2024\)](#)). Instead, insurers are primarily exposed to banks through corporate bonds, which includes both secured and unsecured bonds. The former are covered bonds and are relatively safer due to the dual recourse.²⁰ The latter can be characterised by various degrees of risk. Senior preferred bonds, for example, are senior to both senior non-preferred bonds, as well as subordinated bonds, in the event of liquidation or bankruptcy.

Euro area insurers predominantly invest in euro area assets, which is reflected in small holdings of financial assets issued in other geographies or in foreign currencies. Up to 20% of their corporate bond' portfolio is invested in assets issued in non-euro countries, mostly the US and UK, of which some remain euro denominated ([EIOPA \(2024\)](#)). The non-euro area share is lower among sovereign bonds (below 10%). Insurance companies also use derivatives to hedge against currency as well as interest rate risk. Life insurers in particular hedge against declining interest rates because their liabilities tend to have longer durations than their investments. For this reason, life insurers use interest rate derivatives (primarily interest rate swaps, where they receive the fixed rate) to increase the sensitivity of their investments to interest rate changes, effectively lengthening their duration and maintaining stable capital positions ([Khetan et al., 2025](#)). Insurers also use foreign exchange derivatives to hedge cross border investment in foreign currencies.²¹ They also engage in repo markets,

²⁰Covered bonds are debt obligations issued by credit institutions which offer a so-called double-recourse protection to bondholders: if the issuer fails, the bondholder has a direct and preferential claim against certain earmarked assets and an ordinary claim against the issuer's remaining assets

²¹Euro area insurance companies' FX derivatives exposure is small compared to other sectors ([Kubitza](#)

where they lend or sell the bonds: approximately 5% of sovereign bonds held by insurers are pledged in repo transactions with banks as counterparties (EIOPA (2023b)).

III. Portfolios of traditional life insurers: Home bias and unconventional monetary policy

In this section, we focus on the portfolio allocation of traditional life insurers. First, we show that the allocation is characterized by a strong home bias, which implies a high sensitivity of insurers to domestic sovereign yields. Then, we analyse how the Eurosystem’s monetary policy, in particular the asset purchase programs, have shaped insurers’ asset allocation.

A. Portfolio allocation and home bias

Insurance companies invest a large share of their portfolio in fixed income securities, especially euro area sovereign bonds and investment-grade corporate bonds. This portfolio allocation is consistent with the long maturity of their liabilities.

Figure 7 reports the home bias in the financial portfolios of life insurers for sovereign (top-panel) and corporate (bottom-panel) bonds over the period 2017-2024 based on the publicly available EIOPA asset exposures data. The measure of home bias in the figure is computed as the share of holdings of an insurance sector’s domestic bonds relative to total sovereign bond holdings. The findings are robust to the use of alternative measures of home bias that remove differences in bond supply, such as that in Coeurdacier and Rey (2013) (see Figure A2 in the Appendix). Home bias is qualitatively significant in a number of countries, including large euro area countries, for both sovereign and corporate bonds. This evidence complements previous studies (Koijen et al., 2021), which show that insurance companies in vulnerable countries exhibit a strong home bias.

et al., 2025b).

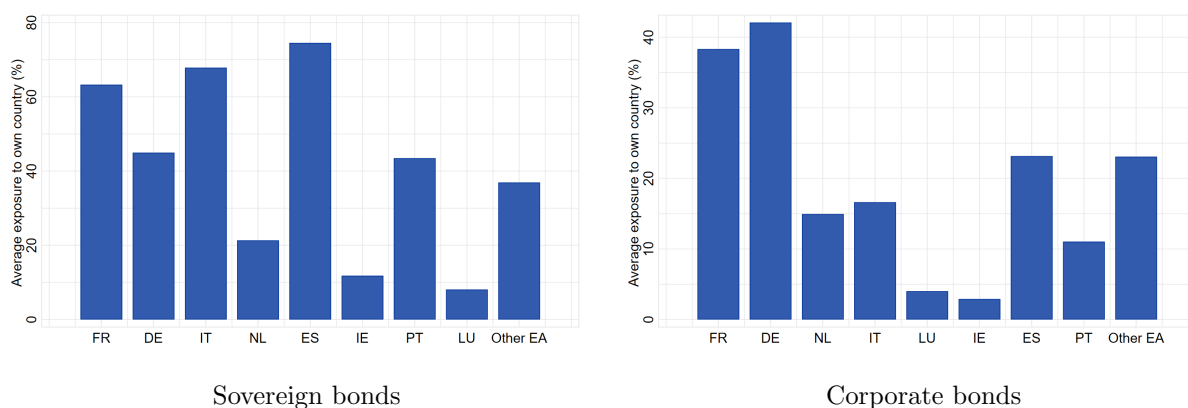


Figure 7: Home bias of traditional life insurers. Data from EIOPA for the period from the fourth quarter of 2017 to the fourth quarter of 2023. Home bias is computed as the share of holdings of an insurance sector’s domestic bonds relative to total sovereign bond holdings. The countries are sorted by their average total exposure to sovereign or corporate bond holdings, respectively. “Other euro area countries” represents a weighted average, by asset size, of the home bias of all other euro area countries not shown separately.

Home bias in financial investment is pervasive in the euro area especially in the banking sector and different explanations have been put forward to explain this evidence.²² For example, [Acharya and Steffen \(2015\)](#) argue that banks in the euro area earn a spread by borrowing cheaply from the ECB, pledging collateral at favorable haircuts and investing in high-yield fixed income securities (“risk-taking channel”). In contrast, insurance companies do not have direct access to the ECB balance sheet. [Farhi and Tirole \(2018\)](#) provide a conceptual framework of the feedback loop, whereby banks anticipate a collapse and subsequent bailout of their own sector in the event of sovereign distress (“gambling for resurrection”). However, insurance liabilities are less (or not) runnable, implying a low vulnerability to aggregate shocks, and government bailouts of the insurance sector are less common. Another possible explanation is financial repression: governments may induce financial institutions to purchase their domestic bonds ([Becker and Ivashina \(2018\)](#), [Ongena et al. \(2019\)](#)). Whereas

²²For an overview, see [Dell’Ariccia et al. \(2018\)](#).

this channel might partly also apply to insurers, anecdotal evidence from industry practitioners suggests that financial repression in the insurance sector is limited.

An additional channel that may explain home bias for insurers is “hedging home risk”, induced by supervisory or regulatory rules. The macroeconomic literature has suggested that investments in the domestic economy allow the investor to uniquely hedge home risks such as domestic inflation, real exchange rate risk, and non-tradable forms of wealth such as human capital (see, for example, [Baxter and Jermann \(1999\)](#)). In the euro area, the return to policyholders on life insurance savings contracts broadly depends on the underlying asset portfolio return and a guaranteed minimum return (see previous section).²³ The level of this guarantee is typically determined as a function of lagged domestic sovereign bond yields ([Eling and Holder, 2013](#)). For example, the minimum guaranteed rate for traditional Italian life insurance contracts was set at 60% of the 10-year Italian sovereign yield until December 2015, when Solvency II was introduced. Although this explicit link has been abandoned, the legacy regulation may still significantly impact current guaranteed returns because domestic sovereign yields are a natural way to evaluate the performance of traditional life contracts.

Figure 8 shows how the average returns on traditional life contracts in Italy, as well as in France and Germany, very closely follow the level of domestic sovereign yields. Until 2021, we observe a persistent decline in policy returns and domestic sovereign yields. However, we also observe a significant gap between policy returns and domestic sovereign yields between 2014 and 2021, suggesting that the low interest rate environment has negatively impacted investment profitability and raised sustainability concerns for countries with high guaranteed returns. Another key pattern is that the return on a traditional life policy contract is an order of magnitude less volatile than domestic sovereign yields. This provides investors with protection against movements in market and credit risk.

²³See [Hombert and Lyonnet \(2022\)](#) for French traditional life contracts and [Hombert et al. \(2021\)](#) for German traditional life contracts.

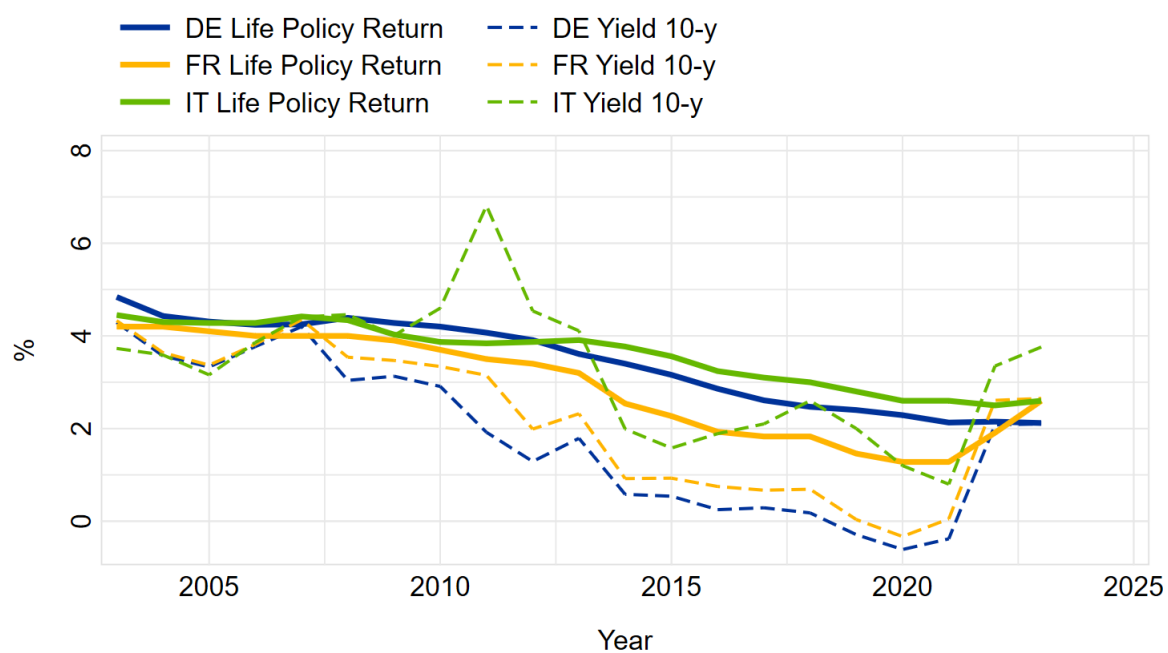


Figure 8: Traditional life policy returns and domestic sovereign yields. The graph shows the annual 10-year sovereign yields and the average policy return on traditional life contracts credited to policy holders for Germany, France and Italy.

B. Portfolio allocation and central bank asset purchases

Due to their long durations, life insurance portfolios are highly sensitive to changes in interest rates and, therefore, to monetary policy. Central banks' asset purchase programs (quantitative easing; QE) directly affect the prices and supply of (certain) financial assets and, therefore, may induce significant changes in the portfolio allocation of insurers.²⁴

Previous literature, based on QE programs in non-euro area jurisdictions, suggests that asset purchases steer domestic insurer demand away from sovereign bonds and towards riskier assets (see [Joyce et al. \(2014\)](#) for UK and [Saito and Hogen \(2014\)](#) for Japan). For the euro area, [Koijen et al. \(2021\)](#) document that the Eurosystem purchased bonds mainly from non-euro area investors between 2015 and 2017, suggesting that the portfolios of euro area investors changed little in response to QE.

By analysing the most recent cases of central bank asset purchases of sovereign bonds in the euro area and using granular information on the portfolio allocation of insurers, we find evidence of some portfolio re-balancing of the insurance sector towards riskier assets, consistent with the risk-taking channel of monetary policy.²⁵

Specifically, we use a shift-share approach and estimate changes in the portfolio investment in each asset class with the following empirical specification for the traditional life insurance sector in country c and year-quarter t :

$$\begin{aligned} \text{share asset holdings}_{c,t} = & \beta \times \text{ECB exposure}_{c,t} \\ & + \mu \times \text{ECB exposure}_{c,t} \times \text{D. home bias}_{2017,c} + \gamma_c + \delta_t + \epsilon_{c,t}, \end{aligned} \quad (1)$$

²⁴More general analyses on the impact of interest rates on (life) insurers' portfolio allocations are provided by [Kaufmann et al. \(2024\)](#) for the euro area and [Kirti and Singh \(2025\)](#) and [Li \(2025\)](#) for the US.

²⁵The purchases of sovereign bonds under the QE programme were carried out through the Public Sector Purchase Programme (PSPP) and the Pandemic Emergency Purchase Programme (PEPP).

where the main explanatory variable is

$$\text{ECB exposure}_{c,t} = \sum_h \left(\frac{\text{Sov. Bonds}_{c,2017,h}}{\text{Sov. Bonds}_{c,2017}} \times \frac{\text{ECB holdings}_{h,t}}{\text{Out. Sov. Bonds}_{h,t}} \right). \quad (2)$$

This measure captures the accumulation of ECB holdings over time while exploiting heterogeneity in exposure to ECB purchases by accounting for the ex-ante exposure of the traditional life insurance sector in country c to sovereign securities held by the ECB. Specifically, the first component measures the ex-ante exposure of traditional life insurers located in country c to sovereign bonds issued by country h , where $\text{Sov. Bonds}_{c,2017,h}$ is the total investment of traditional life insurers located in country c in sovereign bonds issued by country h at the end of 2017.²⁶ The second component is the share of ECB holdings of sovereign bonds issued by country h relative to the outstanding amount. Thus, $\text{ECB exposure}_{c,t}$ can be interpreted as a shift-share instrument, measuring the differential exposure of insurance sectors to the ECB's asset purchases. In addition, we interact this measure with a dummy for home bias $\text{D. home bias}_{2017,c}$, to examine the effect of home bias on insurers' response to QE. The variable is equal to one when the home bias—defined as the proportion of a country's domestic sovereign bonds held by the traditional life insurance sector relative to the total sovereign bond holdings—is above the median computed across all euro area countries at the end of 2017 (see Figure 7), and zero otherwise.

Figure 9 presents the estimated coefficients separately for the following asset classes: sovereign bonds, corporate bonds, equity, investment funds, and other investments. The top panel shows the estimates for β in Equation (1). It reflects the effect of changes in central bank asset holdings in the absence of home bias. The results suggest that QE induced a shift in the portfolio composition of insurers' assets toward "other investments" (or alternative

²⁶We use holdings in 2017 to measure ex-ante exposure because it is the earliest available information on insurer asset exposures in the data from EIOPA. As a robustness, we computed a similar measure using the portfolio holdings of insurances which are available aggregated by sector for a longer period of time obtaining consistent results.

investments). This category includes infrastructure and private equity funds, loans and direct real estate holdings.²⁷ The estimate implies that when the central bank purchases 1% of the amount outstanding of bonds that are present in the insurers' portfolio, the insurer would rebalance approximately 0.5% of its portfolio to other investments. This shift is consistent with insurers seeking to boost investment returns in a low interest rates environment. At the same time, such “alternative” assets are typically associated with higher credit and liquidity risk.

In the bottom panel, we report estimates for μ , which reflects the additional impact of home bias. Home bias slightly attenuates the shift to “other investments” in favor of rebalancing towards sovereign bonds, whose portfolio share increases by approximately 0.25 ppt in response to QE purchases of 1% of outstanding amounts. This suggests that in countries where insurers' portfolios have a strong home bias, central bank asset purchases have resulted in an increase in the exposure to sovereign bonds, potentially reflecting higher convenience premia (Corradin and Schwaab (2023), Corell et al. (2025)) and lower credit risk premia (Costain et al., 2025). These results are robust to different definition of home bias. In Figure A3 and A4 of the Appendix, we present the estimated coefficients obtained using also a definition of home bias that accounts for the outstanding amount of sovereign bonds.²⁸

Finally, we modify our empirical specification by replacing the home bias variable with a measure of the duration gap at country level. This allows us to test whether the ECB's asset purchases have different effects depending on the duration gap of traditional life insurers.²⁹

²⁷In this analysis, the asset category “other investments” is used for assets that are not part of the main groups of sovereign bonds, corporate bonds, equities, and investment funds. This asset category includes mortgages and loans, property, and structured notes.

²⁸The latter variable is defined as the difference between the sovereign exposure to country c over the entire euro area bond exposure and the ratio of total domestic bonds outstanding for country c over the total amount of all euro area sovereign bonds outstanding.

²⁹We compute the duration gap as the difference between the duration of assets and liabilities at the country level at the end of 2016. The asset duration of the insurer sector in country c is based on the sovereign and corporate fixed-rate and zero-coupon debt holdings reported in the ECB's Security Data Holdings at security level. We retrieve the liability duration from EIOPA's Insurance Stress Test Report,

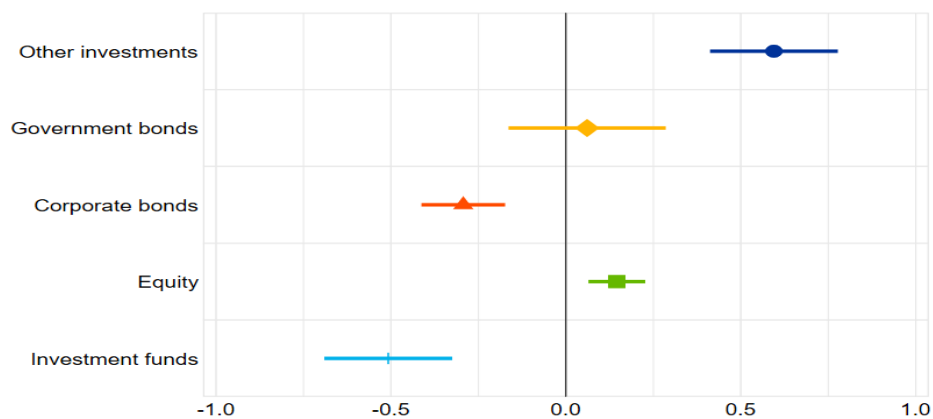
When interest rates fall due to central bank purchases, the duration of insurers' liabilities increases faster than that of their assets, widening the duration gap. In order to reduce the mismatch, insurers seek more long-term, high-duration assets ([Domanski et al., 2017](#)).³⁰ In a number of euro area countries, the duration of insurers' liabilities exceeds that of their fixed income portfolios substantially. Austrian, Dutch and German insurers run negative duration gaps of about ten years, while Finnish and French insurers run gaps of about five years (see Figure [A5](#) and [EIOPA \(2014\)](#)).

The results of our analysis show that the duration gap reinforces the shift towards “other investments” (or alternative investments), suggesting that central bank asset purchases more strongly boost such investments in countries in which insurers have particularly long-dated liabilities (see Figure [A6](#)). This shift is consistent with our previous findings that insurers seek to boost investment returns in a low interest rate environment. At the same time, alternative investments may support traditional life insurers in reducing their duration gaps.

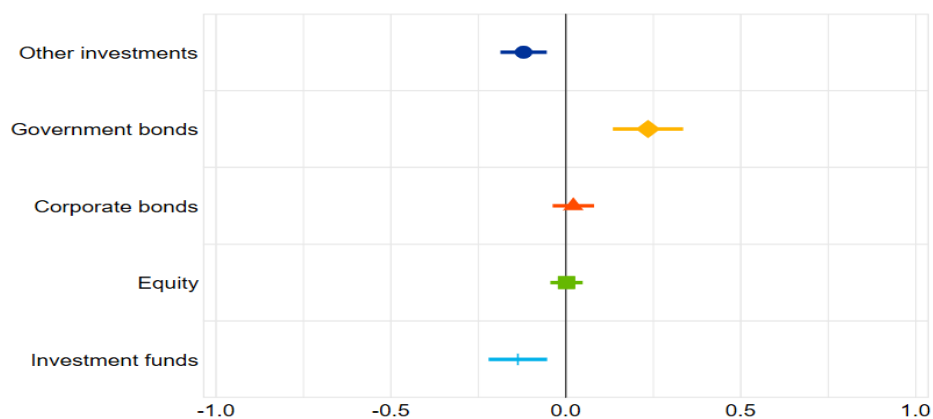
Overall, our results illustrate the significant impact of central bank asset purchases on the portfolio composition of insurance companies, with important implications for financial stability.

published in 2016.

³⁰[Domanski et al. \(2017\)](#) argue that life insurance companies and pension funds, in their 'hunt for duration' (or long-term assets) in a low-interest-rate environment, can create perverse, self-reinforcing feedback loops that pose a systemic risk to financial stability. They provide suggestive evidence that is consistent with such an amplification mechanism, estimating price elasticity of bond demand by the German insurance sector for sovereign and corporate bonds before the ECB started implementing QE in 2015.



(a) QE effect



(b) Additional home bias effect

Figure 9: Estimated effects of the ECB’s asset purchases on traditional life insurers’ portfolio allocation. The panels show OLS estimates of the coefficients in Equation (1). The dependent variable is the share of asset holdings of an asset class (i.e. other investments) of the traditional life insurance sector in country c at time t . The main explanatory variable $\text{ECB exposure}_{c,t}$ measures the impact of the ECB’s QE programmes on portfolio allocation. We interact the latter variable with the home bias dummy $D. \text{home bias}_{2017,c}$, which is equal to one when the home bias variable is above the sample median, and zero otherwise. We separately estimate the specification for different asset classes. Home bias is computed as the share of the traditional life insurance sector’s domestic bonds in country c relative to total sovereign bond holdings. The top-panel shows the coefficient on $\text{ECB exposure}_{c,t}$. The bottom-panel shows the coefficient on the interaction between $D. \text{home bias}_{2017,c}$ and the $\text{ECB exposure}_{c,t}$. The specification controls for country and time fixed effects. The sample period for all estimates is from 2017 to 2024. Data are from EIOPA Solvency II public insurance statistics.

IV. Natural disasters and insurer liquidity management

In this section, we empirically analyse how euro area insurance companies manage their liquidity in response to natural disasters. Disasters trigger large insurance claims. For example, the 2021 “Ahrtal” flood in Germany resulted in insurance claims of EUR 8.75 billion and the floods in Spain in October 2024 are estimated to result in claims of more than EUR 4 billion.³¹ Owing to the substantial amount of claims, insurers may not be able to fund them with regular cash inflows. For example, the “Ahrtal” flood insurance claims amounted to more than 90% of German homeowners insurance premiums.³² In order to pay damages arising from natural disasters, insurers can borrow, through bank loans or credit lines, issue bonds or equity, or sell assets in their portfolios. Previous studies have documented that U.S. property & casualty insurance companies sold bonds to fund insurance claims resulting from 2005 hurricane Katrina (Massa and Zhang (2021), Girardi et al. (2021)) and amplifying systemic risk (Kubitza, 2025b). Such forced asset sales can depress asset prices (Shleifer and Vishny (1997)) and might therefore contribute to an adverse impact of natural disasters on borrowers, such as local governments. In the following section, we explore this channel by focusing on floods in the euro area.

³¹Sources: <https://www.gdv.de/gdv/medien/medieninformationen/zwei-jahre-ahrtaflut-schadenregulierung-vom-wiederaufbau-tempo-abhaengig-137192> and <https://www.reuters.com/business/finance/spanish-floods-may-lead-total-insured-losses-above-4-bln-euros-analyst-2024-11-14/>.

³²German insurers collected EUR 9.337 billion in property (homeowners) insurance premiums in 2021, according to the GDV’s Statistics on the German Insurance Industry 2024, available at <https://www.gdv.de/gdv/statistik/statistiken-zur-deutschen-versicherungswirtschaft-uebersicht>.

A. Data and empirical specification

A.1. Natural disasters

We obtain data on natural disasters in the euro area from EM-DAT (Emergency Events Database), a database of mass disasters run by the Centre for Research on the Epidemiology of Disasters (CRED) at UCLouvain. EM-DAT records disasters that meet at least one of the following criteria: it has resulted in at least ten fatalities, affected 100 or more people, lead to a declaration of a state of emergency, or prompted international assistance. Its data includes variables such as disaster type, location, date, and estimated damages.

Figure 10 illustrates the total damages and number of natural disasters (at country-event level) in the euro area. Floods and storms are the most frequent events and dominate total damages compared to other types of disasters. Floods in particular are responsible for more than half of the damages from natural disasters between 2000 and 2023, which emphasizes their importance as a financial risk in the euro area.

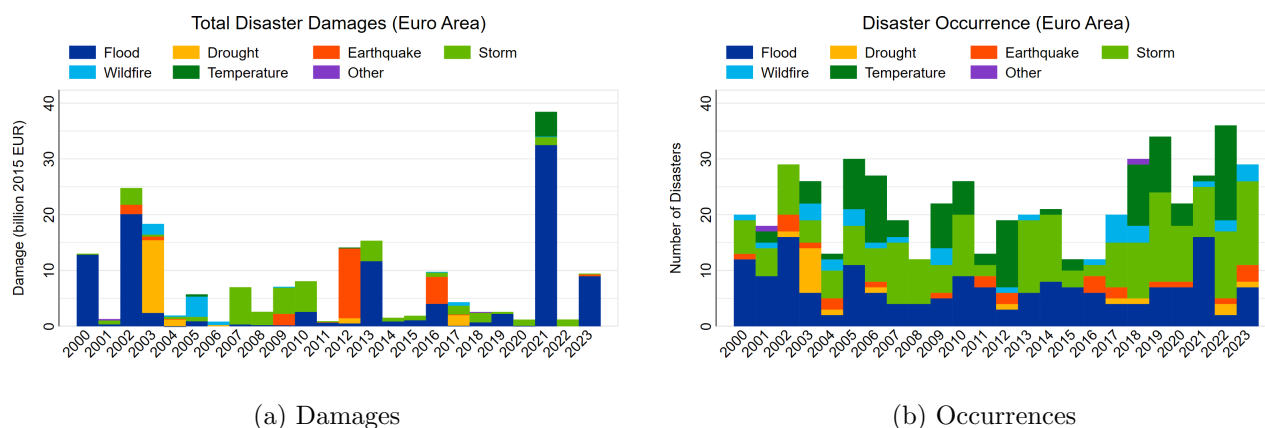


Figure 10: Natural disasters occurrences and damages. Figures (a) and (b) show the annual amount of disaster damages (adjusted by inflation to reflect EUR in 2015) and number of disasters in the euro area depending on the type of disaster, respectively. Source: EM-DAT.

A.2. Insurer balance sheets

We use quarterly information on the asset composition of euro area non-life insurers from EIOPA's solo-level reporting insurance statistics. The data is aggregated at the country-insurer type level and spans from 2016:Q3 to 2023:Q4. It describes the dynamics of the entire balance sheet of non-life insurers at market values.³³ Because the data does not include information on nominal amounts, an important drawback is that quarter-to-quarter changes conflate changes in prices and changes in quantities, e.g., in the amount of security holdings. To overcome this obstacle, we enrich our analysis with data from the ECB's securities holdings statistics at sector level (SHS-S).

We merge insurer balance sheet data with information on the quarterly damage from floods at the country level. Taking regional differences in flood exposure into account, we define by $\text{Damage}_{c,t}$ the flood damage in country c in year-quarter t relative to the country-specific average flood damage.³⁴ We estimate the following empirical specification:

$$\Delta \log Y_{c,t-1:t+x} = \beta_x \text{Damage}_{c,t} + \Gamma' C_{c,t-1} + \epsilon_{c,t} \quad (3)$$

where $\Delta \log Y_{c,t-1:t+x}$ is the (cumulative) growth in balance sheet item $Y_{c,t}$ (e.g., sovereign bond holdings) of non-life insurers in country c from quarter $t - 1$ to $t + x$ and $C_{c,t-1}$ is a vector of control variables, namely quarterly GDP growth, quarterly growth in the Harmonised Index of Consumer Prices, and the quarterly change in 1-year sovereign bond rates, all lagged by one quarter. β_x estimates the response of $Y_{c,t}$ to floods.³⁵

³³Or, if no market values are available, reporting is based on market-consistent values. Not all euro area countries report separate balance sheets for life and non-life insurers. We select those countries that report bond holdings of non-life insurers, which are Austria, Belgium, Cyprus, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, and Slovenia.

³⁴Thereby, we exclude countries that did not report damages from floods over the sample period. The countries in the final sample are Belgium, Germany, Greece, Spain, France, and Italy.

³⁵Standard errors are heteroskedasticity robust.

A.3. Security holdings

From the ECB’s securities holdings statistics, we obtain quarterly information from 2013:Q1 to 2024:Q1 on the security-level holdings of euro area insurers aggregated at the sector-by-country level, e.g., the amount held by all French insurers of a particular bond. Importantly, holdings are reported at both market and nominal values, where the latter remove changes in bond prices. An important drawback is that the securities holding statistics do not distinguish between the holdings of life and non-life insurer holdings. Nonetheless, floods (and other natural disasters) have a negligible impact on life insurance claims (see [Damast et al. \(2025\)](#) for evidence from U.S. life insurers). At the same time, bond holdings by life insurers account for approximately 90% of total bond holdings in the average country. To tease out the impact of floods on non-life rather than life insurers, we focus on countries in which non-life insurers account for a large share of total bond holdings, indicated by the dummy variable $P\&C_c$, and compare these to other countries.³⁶ We estimate the following empirical specification:

$$\Delta \log Held_{b,c,t-1:t} = \beta Damage_{c,t-1} \times P\&C_c + \gamma Damage_{c,t-1} + \Gamma' C_{c,t-1} + u_{b,c} + v_{b,t} + \epsilon_{b,c,t} \quad (4)$$

where the dependent variable is the quarterly change in holdings of bond b by insurers in country c and $C_{c,t-1}$ is a vector of the same control variables as above. In contrast to above, holdings are measured in nominal instead of market values and, thus, are not affected by changes in bond prices. Moreover, bond-by-time fixed effects $v_{b,t}$ absorb any bond-specific shocks, including issuer fundamentals such as credit risk or the issuer’s exposure

³⁶More specifically, the sample is constructed as follows: For each country, we compute the ratio of average total bond holdings of non-life insurers relative to the average bond holdings of the entire insurance sector from the EIOPA insurance statistics (available for 14 countries). After merging with security holdings and flood damages, the final sample comprises 7 countries (Austria, Belgium, Germany, Greece, Spain, France, and Italy), which report some flood damages from 2013q1 to 2023q4. The median share of non-life bond holdings for these is 4.6% and we flag countries with a non-life bond holding share at or above the median with the indicator variable $P\&C_c$, which is equal to one for these countries and zero otherwise.

to floods, and bond-by-country fixed effects $u_{b,c}$ absorb time-invariant variation in holdings, e.g., differences in the investment preferences of insurers in different countries. The main coefficient of interest β estimates the response of bond holdings to lagged flood damages in countries with a large non-life sector relative to other countries. Importantly, since non-life insurer bond holdings amount to less than half of total observed bond holdings even in P&C_c countries, β provides a lower bound for the actual amount sold by non-life insurers.

A.4. Sovereign bond yields

Finally, we obtain information on daily sovereign bond yields for constant times to maturity from Bloomberg. We hypothesize that floods exert stronger upward pressure on domestic yields when domestic insurers exhibit a larger home bias and, thus, sell disproportionately more domestic bonds. To test this hypothesis, we estimate the following empirical specification:

$$\Delta Yield_{c,t-1:t+x} = \beta Damage_{c,t} \times HomeBias_c + \gamma Damage_{c,t} + \Gamma' C_{c,t-1} + u_c + v_t + \epsilon_{c,t}, \quad (5)$$

where the dependent variable is the cumulative change in the yield of sovereign bonds of country c from quarter $t - 1$ to $t + x$ and $HomeBias_c$ is a dummy variable that is equal to one if country c is in the upper half of the cross-country distribution of home bias and zero otherwise.³⁷ $C_{c,t-1}$ is a vector of the same control variables as above. The main coefficient of interest β estimates the response of sovereign bond yields to floods in countries with large home bias relative to other countries. We focus our analysis on three-month yields, which display an average yield of 31 bps and a quarterly change of between -7.6 bps to 10.3 bps at the 25th and 75th percentiles, respectively.

³⁷We measure home bias as the total share of domestic sovereign bonds in the bond sovereign bond portfolios of non-life insurers in country c .

B. Results

Figure 11 plots the estimated coefficients from Equation (3), which reflect the change in sovereign bond holdings of non-life insurers to floods, scaled to illustrate the impact of an average flood. These results show a significant downward trend in sovereign bond holdings in response to floods, with 7.5% of bonds disposed cumulatively after two years. The persistent impact of floods is not surprising given the existence of a significant time-lag between the occurrence of natural disasters and insurance claims being filed and paid.³⁸ In Figure A7, we show that holdings of corporate bonds display a similar downward trend, although with weak statistical significance and approximately half the magnitude. Instead, neither insurers' equity investments nor cash holdings are significantly affected by floods. This suggests that insurers fund insurance claims primarily by selling sovereign bonds, while maintaining existing cash buffers in the medium and long run.³⁹ Consistent with this interpretation, total borrowing by non-life insurers (composed of loans, other bank credit, and subordinated liabilities) does not change after the occurrence of major floods.

B.1. Bond portfolio rebalancing

Natural disasters may affect the market values of (domestic) bonds and thus, in the presence of home bias, may create a negative correlation between domestic insurers' sovereign bond holdings and disaster damages even in the absence of portfolio rebalancing. Teasing out the portfolio rebalancing effects, Figure 12 displays the estimated coefficients from Equation (4), which uses the nominal values of bond holdings and controls for issuer fundamentals by using granular fixed effects.

In contrast to the previous results, by the nature of the security-level data, these estimates

³⁸Property insurance claims are typically being filed after repairs of property damages are finalized.

³⁹Given the quarterly frequency of our data, we cannot rule out that cash buffers are used in the short run to pay claims and, subsequently, are re-filled by selling sovereign bonds.

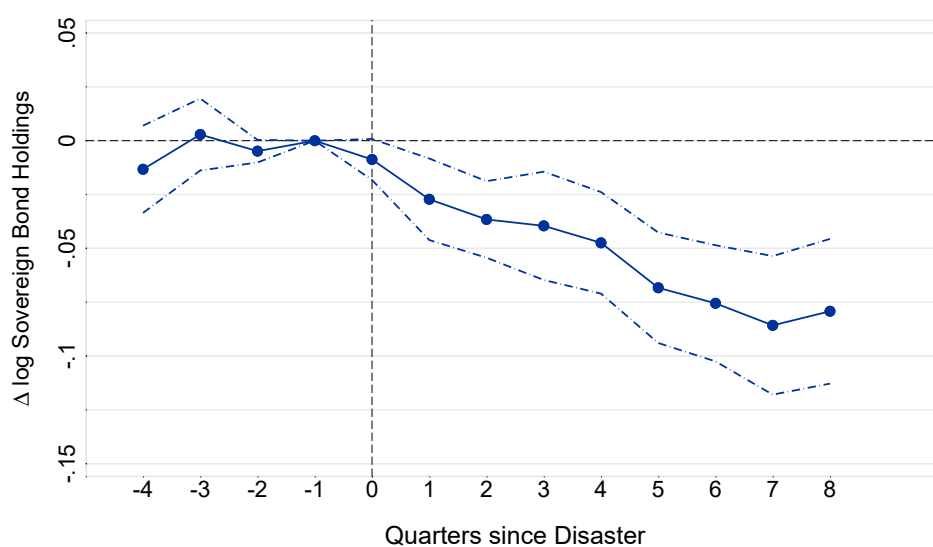


Figure 11: Impact of floods on non-life insurers' sovereign bond portfolio. Note: The figure depicts the point estimate β_x and 90% confidence intervals based on Equation (3) scaled to reflect the impact of an average flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$), where x is the time horizon for the cumulative change in bond holdings.

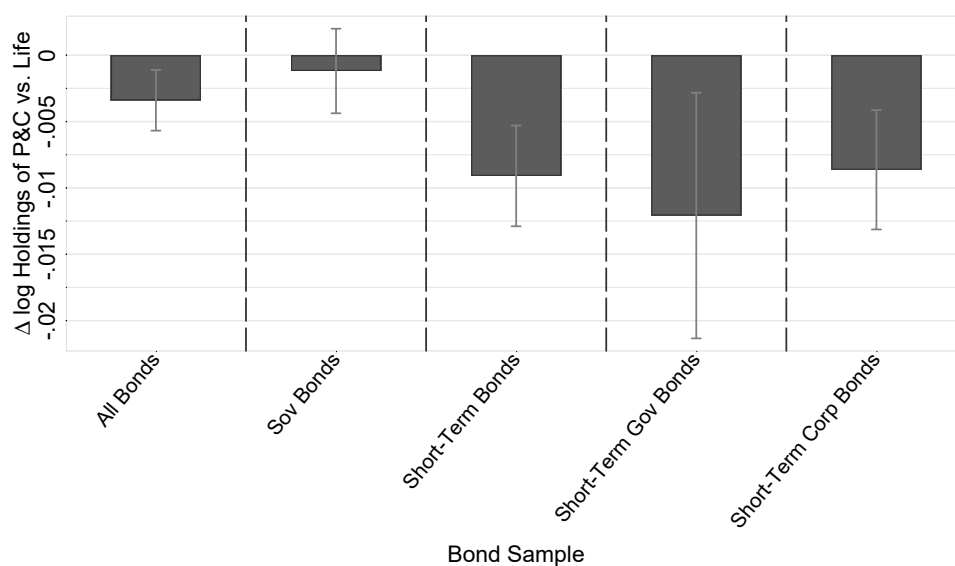


Figure 12: Impact of floods on bond holdings. Note: The figure depicts the point estimates β and 90% confidence intervals based on Equation (4) scaled to reflect the impact of an average flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$). Short-term bonds are defined as those with at maximum three years remaining time to maturity. The coefficients differ based on the type of bonds included in the regression sample.

reflect portfolio rebalancing of the average bond rather than of the total bond portfolio size and, thus, magnitudes are not directly comparable. The average bond investment and the average sovereign bond investment do not change after a major natural disaster. Instead, there is a significant response in the holdings of short-term bonds to flood damages. This is driven by a decrease in short-term sovereign bond holdings and, to a slightly smaller extent, in short-term corporate bond holdings. Importantly, these results show that insurers do not proportionally liquidate bond holdings to fund insurance claims but, instead, choose those bonds that exhibit the highest market liquidity, namely short-term bonds.⁴⁰

B.2. Yield impact

When insurers dispose of bonds in response to natural disasters, the resulting selling pressure may increase bond yields, with potentially adverse consequences for bond issuers (Coppola (2025); Kubitza (2025a)). Chart 13 presents the estimated coefficients based on Equation (5) with 3-month yields as dependent variable. The coefficient is scaled to reflect the change in sovereign bond yields after average floods in countries in which non-life insurers tilt a large part of their portfolio to domestic sovereign bonds relative to that in other countries.

The estimated coefficient implies a significant increase in bond yields after natural disasters when domestic insurers exhibit large home bias in their portfolios, relative to countries with small home bias. When home bias is larger, insurers dispose a larger share of domestic bonds in response to disasters. This result highlights an important transmission channel of the effect of natural disasters on government finances. Home bias contributes to an increase in government funding costs after disasters, a time at which additional government funding is presumably needed to support the population affected by the disasters. At the peak, home bias amplifies the impact of a flood with average damages by approximately 5 bps. Given the

⁴⁰In Figure A8, we report consistent results based on comparing the holdings of insurers with those of other sectors (banks, investment funds, and pension funds) within those countries that exhibit a large share of non-life bond holdings.

average yield of 31 bps in our sample and the relatively high liquidity of this bond segment, this impact is also economically significant.

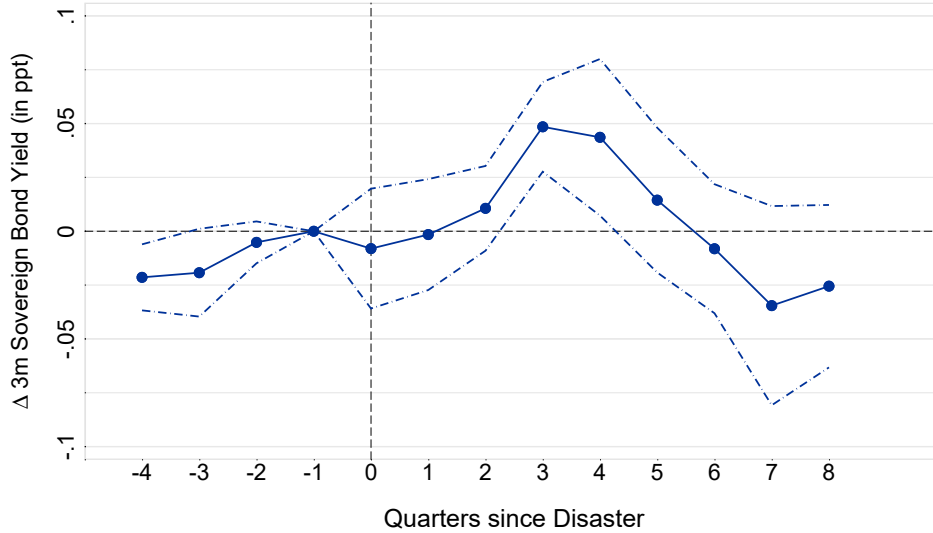


Figure 13: Impact of floods on bond yields through insurers. Note: The figure depicts the point estimates β_x and 90% confidence intervals based on Equation (5) scaled to reflect the impact of an average flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$), where x is the time horizon for the cumulative change in bond holdings.

Yields spike three to four quarters after disasters, which is consistent with the time-lag of bond disposals by insurers. In Figure A9, we show that the yield dynamics are similar for bonds with six months to maturity, which provides further robustness to the result. Instead, we do not find significant results for longer maturities, consistent with bond disposals being concentrated in the shorter bond segment.

V. Conclusions and policy implications

Insurers are key financial intermediaries in the financial system and are often viewed as long-term, stabilising investors in financial markets (Chodorow-Reich et al., 2021; Coppola, 2025).

They manage large and diversified portfolios, predominantly composed of sovereign and corporate bonds, and operate under prudent regulatory and business frameworks. However, their growing footprint in financial markets warrants continued monitoring and analysis, given their central role in market dynamics and monetary policy transmission, particularly through their substantial sovereign bond holdings.

Two main policy-relevant insights emerge from our empirical analysis. First, the prolonged period of low interest rates until 2022 encouraged insurers to increase their exposure to riskier and less liquid assets in search of yield, heightening potential financial stability concerns. Life insurers, in particular, maintain substantial investments in domestic sovereign bonds—a legacy of contracts with guarantees linked to domestic yields. The evidence from our analysis of the Eurosystem’s asset purchase programmes (QE) further suggests that such unconventional monetary policies significantly influenced insurers’ portfolio choices. ECB purchases of sovereign bonds induced a portfolio rebalancing away from sovereign securities toward riskier and less liquid assets such as private equity, infrastructure, and real estate, consistent with a risk-taking channel of monetary policy. This shift, while supporting returns in a low-yield environment, may have increased insurers’ exposure to credit and liquidity risk. At the same time, insurers with strong home bias rebalanced rather toward sovereign bonds than other investments, amplifying the effects of QE on sovereign bonds. These findings underscore the need to consider the interaction between monetary policy and institutional portfolio behaviour when assessing the broader transmission and financial stability implications of central bank balance sheet policies.

Second, we show that non-life insurers manage their liquidity risk by relying heavily on short-term sovereign bonds. This finding aligns with evidence that insurers and pension funds sell sovereign bonds to meet liquidity needs arising from margin calls on derivatives (Jansen et al., 2024; Alfaro et al., 2024). It highlights the critical importance of market depth and liquidity in sovereign bond markets. Although sovereign bonds are often considered the most liquid financial assets, even U.S. Treasury markets have recently experienced

episodes of stress and illiquidity (He et al., 2022). During such periods, insurers' bond sales may exert disproportionate price pressure, contributing to market dislocation while simultaneously suffering from declining market liquidity, creating self-reinforcing feedback loops between insurers and sovereign bond markets.

This is especially true in light of the pronounced home bias in insurers' sovereign bond portfolios, limiting the benefits of cross-border risk sharing following natural disasters. Domestic bond markets experience stronger upward pressure on yields after disasters when local insurers primarily hold domestic bonds rather than a more geographically diversified portfolio. Consequently, large home bias can amplify sovereign funding costs precisely when governments face elevated financing needs to support disaster-affected regions. This link between disaster-related liquidity shocks and insurers' bond market activity reinforces the broader connection between environmental risks and financial stability.

Taken together, our findings underscore the need to view insurers not only as long-term investors but also as potential amplifiers of shocks during periods of financial, monetary, or environmental stress. Strengthening market depth, liquidity, and cross-border integration, particularly through advancing the Capital Markets Union, would enhance insurers' ability to diversify sovereign bond portfolios and mitigate destabilising feedback effects. A more integrated and liquid European capital market would also facilitate the smooth transmission of monetary policy and improve the resilience of both financial markets and sovereign funding conditions, while reducing the procyclicality of insurer investment behaviour during stress episodes.

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Appendix for “Insurance Companies in the Euro Area: Asset Allocation and Impact on Financial Markets”

I. Figures

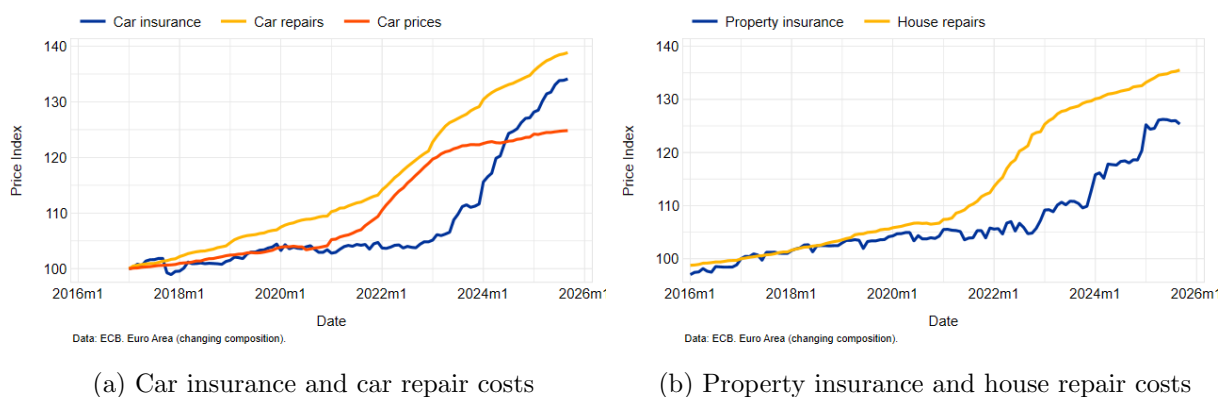
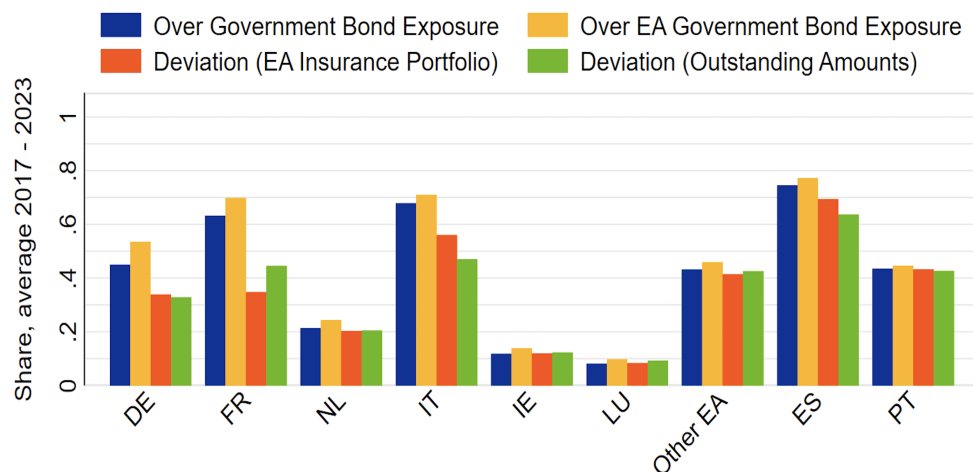
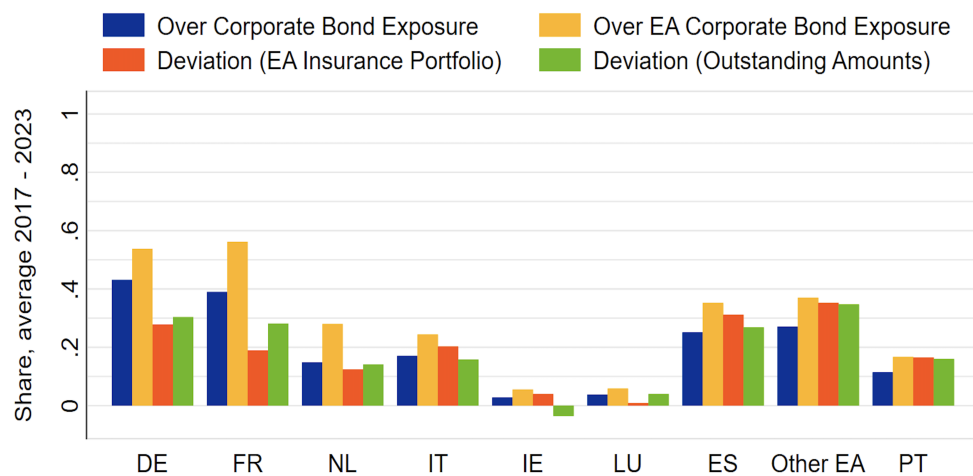


Figure A1: Insurance Price Indices for the Euro Area: Additional Evidence.

We show the harmonised indices of consumer prices (HICPs) for (a) car insurance and car repairs as well as for (b) property insurance and house repairs in the euro area, normalized to 100 in January 2017.

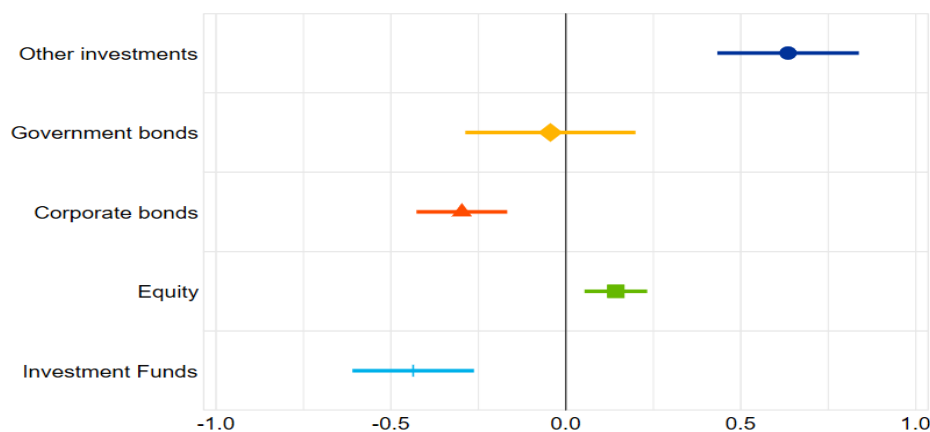


(a) Sovereign

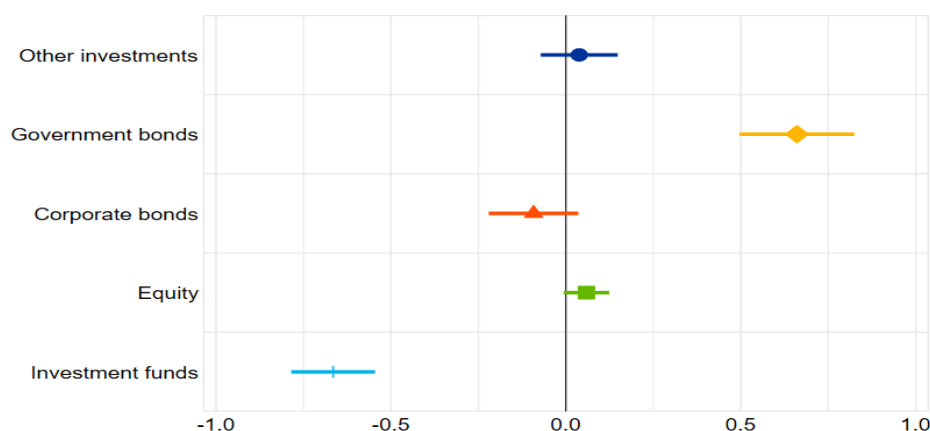


(b) Corporate

Figure A2: Home Bias - Alternative definitions. The panels shows different measures of home bias for sovereign and corporate debt holdings. Measure 1 - Blue: sovereign exposure over entire bond exposure (including non-euro area); Measure 2 - Yellow: sovereign exposure over entire euro area bond exposure; Measure 3 - Red: difference between the yellow bar and how much all other insurers invest in country A, as a share of their euro area bond portfolio; Measure 4 - Green: the difference between the yellow bar and the ratio of total domestic bonds outstanding for country A over the total amount of all euro area sovereign bonds outstanding.

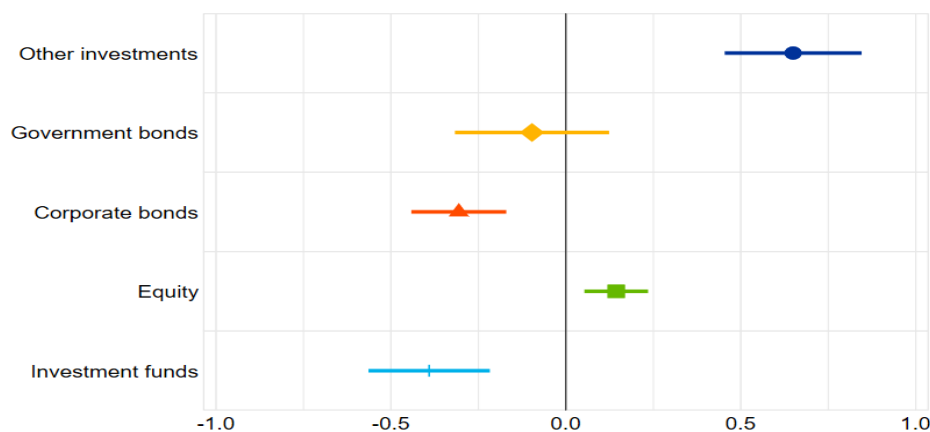


(a) QE effect

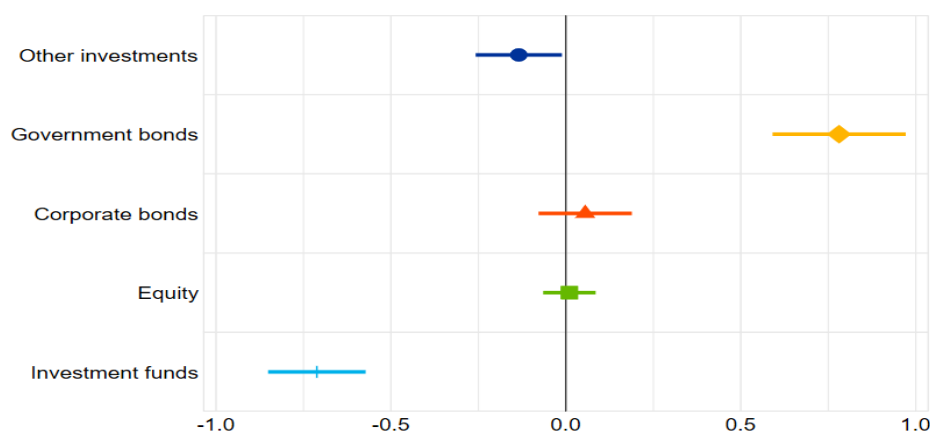


(b) Additional home bias effect

Figure A3: QE regression results - Alternative definition of home bias (I). The panels show coefficient estimates from a shift-share regression. The left-hand variable is the share of asset holdings of asset class a (i.e. other investments) of the traditional life insurance sector in country c at time t . The right-hand variable $ECB\ exposure_{c,t}$ measures the impact of the ECB's QE programmes on the portfolio allocation across different asset categories. We interact the latter variable with a home bias variable $Home\ bias_{2017,c}$ that is computed as the share of the traditional life insurance sector's domestic bonds in country c relative to total sovereign bond holdings at the end of 2017. The top-panel shows the coefficient of the variable $ECB\ exposure_{c,t}$. The bottom-panel shows the coefficient of the interaction between $Home\ bias_{2017,c}$ and the $ECB\ exposure_{c,t}$. The specification controls for country and time fixed effects. The sample period for all estimates is from 2017 to 2024. Data are from EIOPA Solvency II public insurance statistics.



(a) QE effect



(b) Additional home bias effect

Figure A4: QE regression results - Alternative definition of home bias (II). The panels show coefficient estimates from a shift-share regression. The left-hand variable is the share of asset holdings of asset class a (i.e. other investments) of the traditional life insurance sector in country c at time t . The right-hand variable $ECB\ exposure_{c,t}$ measures the impact of the ECB's QE programmes on the portfolio allocation across different asset categories. We interact the latter variable with a home bias variable $Home\ bias_{2017,c}$ that is computed as the difference between the sovereign exposure to country c over the entire euro area bond exposure and the ratio of total domestic bonds outstanding for country c over the total amount of all euro area sovereign bonds outstanding at the end of 2017. The top-panel shows the coefficient of the variable $ECB\ exposure_{c,t}$. The bottom-panel shows the coefficient of the interaction between $Home\ bias_{2017,c}$ and the $ECB\ exposure_{c,t}$. The specification controls for country and time fixed effects. The sample period for all estimates is from 2017 to 2024. Data are from EIOPA Solvency II public insurance statistics.

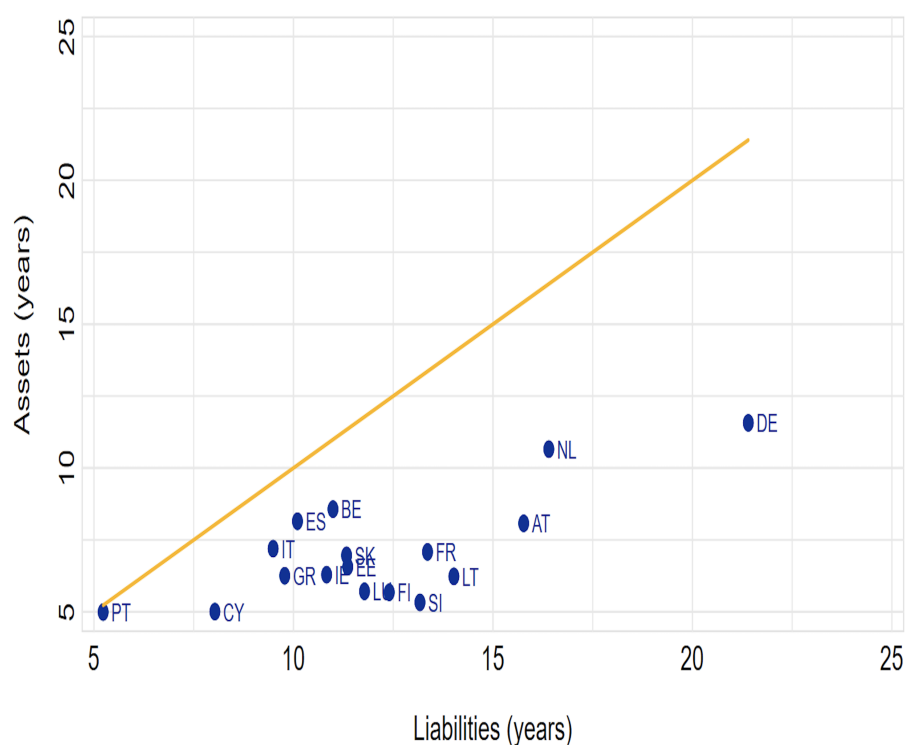
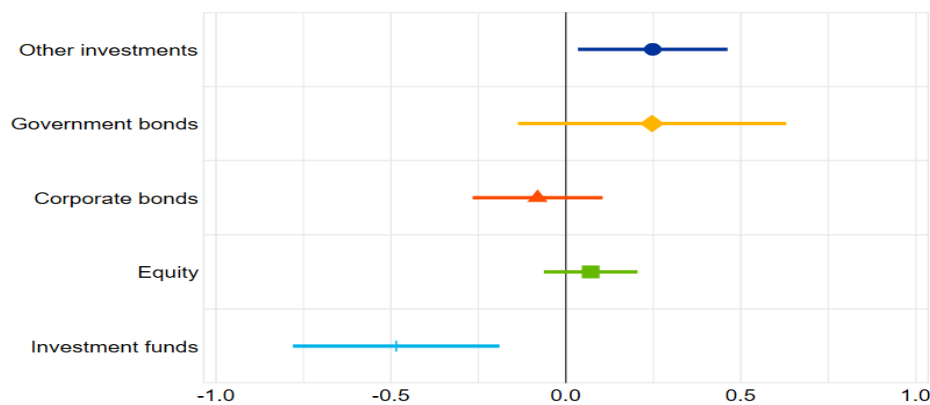
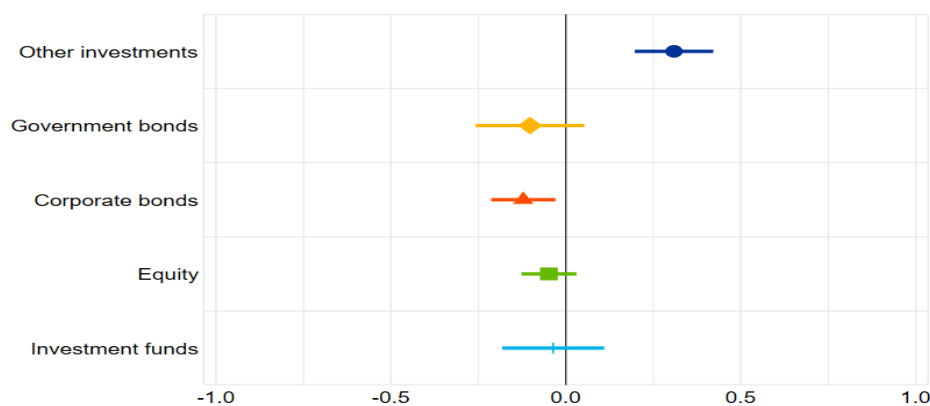


Figure A5: Duration gap. The figure shows the duration of assets and liabilities at the country level at the end of 2016. The assets duration of the insurer sector in country c is computed based on the sovereign and corporate fixed-rate and zero-coupon debt holdings reported in the ECB’s Security Data Holdings at security level. We retrieve the liability duration from EIOPA’s Insurance Stress Test Report, published in 2016.

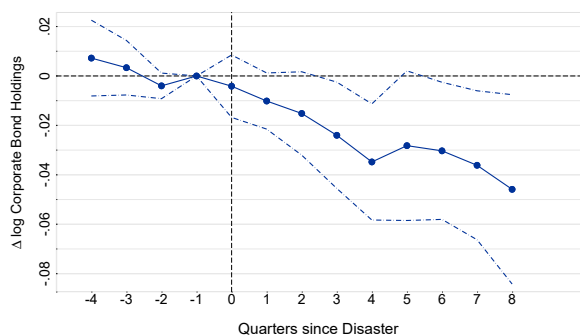


(a) QE effect

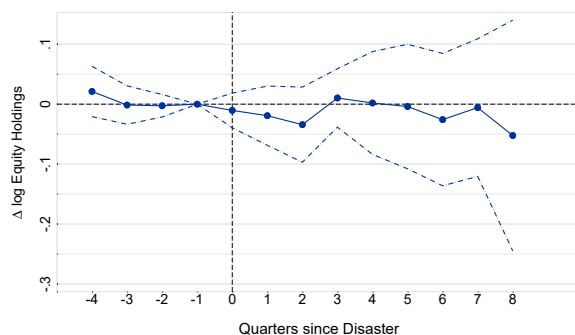


(b) Additional duration gap effect

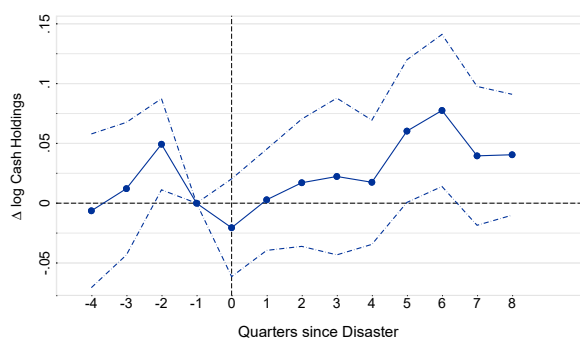
Figure A6: QE regression results - Duration gap. The panels show coefficient estimates from a shift-share regression. The left-hand variable is the share of asset holdings of asset class a (i.e. other investments) of the traditional life insurance sector in country c at time t . The right-hand variable $\text{ECB exposure}_{c,t}$ measures the impact of the ECB's QE programmes on the portfolio allocation across different asset categories. We interact the latter variable with a duration gap variable $\text{Duration gap}_{2016,c}$ computed as the difference between the duration of assets and liabilities at the country level at the end of 2016. The assets duration of the insurer sector in country c is computed based on the sovereign and corporate fixed-rate and zero-coupon debt holdings reported in the ECB's Security Data Holdings at security level. We retrieve the liability duration from EIOPA's Insurance Stress Test Report, published in 2016. The top-panel shows the coefficient of the variable $\text{ECB exposure}_{c,t}$. The bottom-panel shows the coefficient of the interaction between $\text{Duration gap}_{2016,c}$ and the $\text{ECB exposure}_{c,t}$. The specification controls for country and time fixed effects. The sample period for all estimates is from 2017 to 2024. Data are from EIOPA Solvency II public insurance statistics.



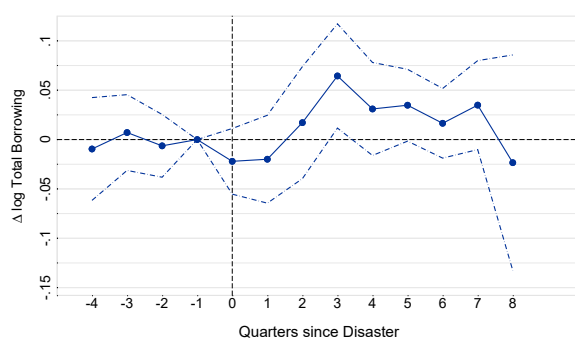
(a) Corporate bond holdings



(b) Equity investments



(c) Cash holdings



(d) Borrowings

Figure A7: Floods and non-life insurer balance sheets: Additional evidence.

The figures display estimated coefficients β_x based on Equation (3) scaled to reflect the impact of an flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$), where x is the time horizon for the cumulative change in bond holdings.

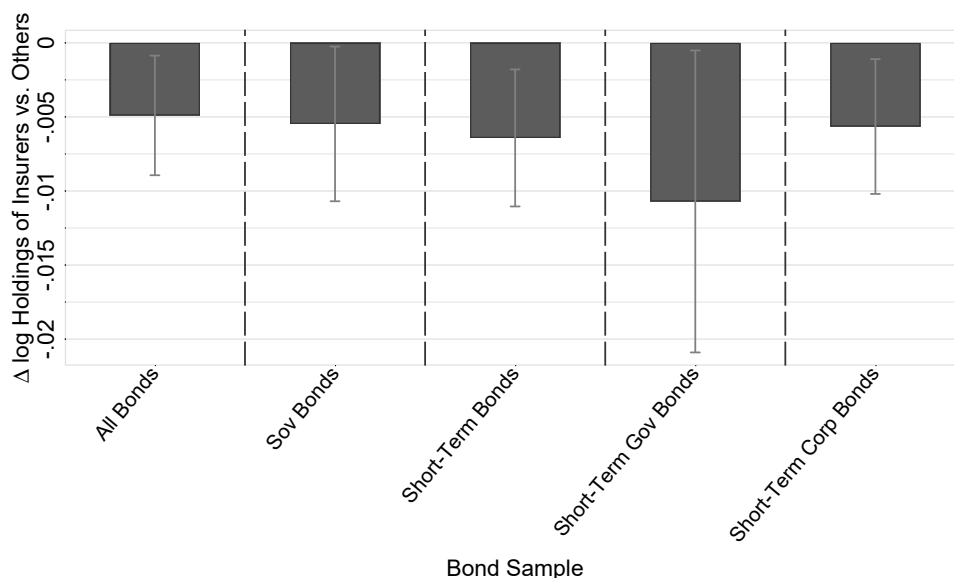
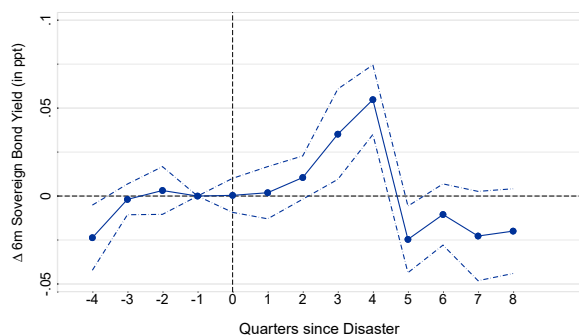
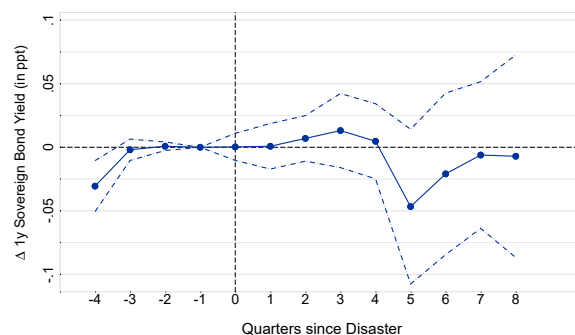


Figure A8: Floods and insurer bond holdings: Additional evidence. The figures display estimated coefficients β for the following specification for bond b , investor country c , investor sector s and year-quarter t :

$\Delta \log Held_{b,c,s,t-1:t} = \beta Damage_{c,t-1} \times Insurer_s + \Gamma' C_{c,t-1} + u_{b,c,s} + v_{s,t} + w_{c,t} + x_{b,t} + \epsilon_{b,c,s,t}$ estimated for the set of countries with high non-life insurer bond holdings (i.e., with $P\&C_c = 1$), where $Insurer_s = 1$ equals one for insurers and zero for banks, and pension and investment funds. The estimated coefficient is scaled to reflect the impact of an flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$). The coefficients differ based on the type of bonds included in the regression sample.



(a) 6-month Yield



(b) 1-year Yield

Figure A9: Impact of floods on bond yields through insurers: Additional evidence. The figures depict the point estimates β_x and 90% confidence intervals based on Equation (5) with (a) 6-month and (b) 1-year sovereign bond yields as dependent variable scaled to reflect the impact of an flood (i.e., the mean of $Damage_{c,t}$ conditional on $Damage_{c,t} > 0$), where x is the time horizon for the cumulative change in bond holdings.

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