

Bank of England

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Domestic and foreign insurer corporate bond demand and monetary policy

Marcel Brambeer,⁽¹⁾ Michael Joyce⁽²⁾ and Alex Kontoghiorghe⁽³⁾

Abstract

UK insurance companies hold a large share of UK corporate bonds, while US insurers are also significant investors in dollar-denominated issues by UK firms. Using a unique security-level dataset combining UK and US regulatory transactions data, we study how UK and US monetary policy shocks affect the demand of life insurers for UK corporate bonds. Employing a panel local projections framework, we find that UK monetary tightening raises domestic insurer demand but reduces foreign demand, counteracting the overall demand impact. US monetary contractions generate similar asymmetries, increasing demand from UK insurers and decreasing it from US insurers. These patterns are consistent with differences in regulation, portfolio allocation incentives, and liability structures across UK and US insurers.

Key words: International portfolio choice, insurance companies, corporate debt, monetary policy.

JEL classification: E44, G11, G15, G23, G30.

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1 INTRODUCTION

The insurance industry is a key investor in fixed income markets in the UK. At the end of 2022, the UK life and non-life sectors held a combined total portfolio of invested assets of GBP 928 billion, with corporate and government bonds comprising 30% and 17%, respectively. The life sector alone held almost a fifth of the outstanding stock of GBP-denominated UK corporate bonds.

Given the important role of corporate bonds in financing UK firms, the portfolio allocation of the sector—and particularly the life sector which dominates the non-life sector in terms of the size of its asset holdings—plays a significant role in the transmission of monetary policy to the real economy.

The focus of this paper is to examine how monetary policy shocks affect life insurer demand for UK corporate bonds. Our paper therefore fits into a recent burgeoning literature that examines the impact of monetary policy on insurer portfolio allocation (see e.g. Kirti and Singh, 2025 for the US, Kaufmann et al., 2025 for the euro area, and further discussion in Section 2).

The unique contribution of the paper is that we examine the differential impact of monetary policy on both domestic and foreign insurer demand for UK corporate bonds. As we show in the paper, the US life industry also holds a large portfolio of UK corporate bonds. The difference relative to domestic demand is that these bonds are predominantly USD-denominated, reflecting home currency bias. The large UK corporate bond holdings of US insurers mean that the impact of monetary policy through UK insurers could potentially be offset or reinforced by the actions of these overseas investors. At the very least, the aggregate demand response to monetary policy will be mismeasured if only domestic investors are considered.¹ This overseas life insurer effect is a mechanism absent from most empirical and theoretical studies of institutional investor bond demand.

In order to examine the consequences for monetary transmission of the presence of overseas and domestic life insurer demand for UK corporate bonds, we combine security-level regulatory data for the UK and for the US to construct a novel dataset of life insurer transactions in UK corporate bonds over a sample from January 2018 to December 2022. We then examine how net transactions in corporate bonds respond to monetary policy shocks in the UK and US using a panel local projections approach.

We find that over our sample period, UK insurers tended to increase their net purchases of corporate bonds in response to UK monetary contractions. This is in line with earlier analysis suggesting that UK insurers act countercyclically, potentially stabilising corporate bond price movements by buying in response to rising yields (Czech and Roberts-Sklar, 2019). Quantitatively, we find that a 1 percentage point increase in the 10-year gilt yield raises UK insurers' net purchases of GBP-denominated bonds by about 0.5 percentage points of outstanding amounts after two months, increasing to approximately 2.5 percentage points after 14 months. Drawing on evidence for the US, even a short-run shift of 0.5

1 European insurers also have substantial holdings: European Economic Area (EEA) life insurers' holdings of UK corporate bonds totalled EUR 20.3 billion at market value, excluding unit- and index-linked assets, in 2022 Q4 according to the European Insurance and Occupational Pensions Authority (EIOPA).

percentage points is economically meaningful. Comparable shifts in insurer demand are associated with an increase in firms' investment expenditures, scaled by outstanding bonds, of approximately 3 percentage points (Kubitza, 2026). We further find that the positive response in insurers' net bond purchases is driven by longer-term maturities and by bonds issued by both financial and non-financial firms.

The reaction of US insurer demand to UK corporate debt has, however, tended to move in the opposite direction to UK insurers following UK monetary shocks: a 1 percentage point increase in the 10-year gilt yield leads to a decrease in US insurers' net USD purchases of about 1 percentage point of outstanding amounts after one year. So it has acted to partly offset the impact on net purchases of corporate bonds and therefore may have reduced the transmission of UK monetary policy to the real economy. This effect is concentrated in the short- and medium-term maturity buckets, as well as in bonds issued by financial firms.

The responses of life insurers to US monetary policy contractions mirror those of changes in UK rates, in the sense that tighter monetary policy increases corporate bond demand from UK life insurers (for GBP-denominated bonds), while reducing it from US life insurers (for USD-denominated bonds). The economic magnitudes are of a broadly similar size: a 1 percentage point increase in the 10-year US Treasury yield raises UK insurers' net purchases of GBP-denominated bonds by about 1.2 percentage points of outstanding amounts after one year, while reducing US insurers' net purchases of USD-denominated bonds by about 0.5 percentage points over the same horizon.

We evaluate a number of possible explanations that might help explain the differences in behaviour of domestic and foreign insurers, including exchange rate effects, regulatory differences and home currency bias. Our evidence points to there being systematically different drivers for UK and US insurers, reflecting the differences in their regulatory environments and the currency denomination of their liabilities. For UK insurers, the response to UK and US monetary policy shocks appears closely linked to the domestic regulatory environment and balance-sheet considerations, in particular the interaction between higher long-term yields and duration gap management under the Solvency II framework. In this setting, increases in yields strengthen capital positions (by reducing liabilities more than assets), allowing insurers to take on extra duration risk by rebalancing towards long-duration domestic corporate bonds. By contrast, the behaviour of US insurers is less affected by liability-matching considerations. Instead, their responses following a UK monetary tightening are consistent with portfolio allocation by internationally diversified investors, who may adjust their UK corporate bond exposure as the relative attractiveness of UK assets changes compared with investment opportunities elsewhere. Following a US monetary tightening, reach-for-yield behaviour and liability-side pressure arising from policyholder behaviour (for example, higher surrender rates in life insurance contracts) are likely to play a more prominent role.

Our results have implications for recent preferred-habitat models of bond and currency markets, which emphasise segmented investor demand across maturities and currencies and limited arbitrage

between these segments (Vayanos and Vila, 2021; Greenwood et al., 2023; Gourinchas et al., 2025). By holding the investor entity fixed and examining how portfolios adjust across currencies following shocks to long-term yields, we provide direct evidence on how large institutional investors behave in practice. We find that portfolio adjustment takes place along clearly defined currency-specific margins and unfolds gradually over time, rather than immediately. Our findings suggest that a key adjustment mechanism operates through the quantity decisions of long-horizon investors, and that currency-level segmentation and dynamic portfolio rebalancing play a central role in transmitting shocks across markets. Incorporating these features more explicitly would bring preferred-habitat models closer to the behaviour observed in investor-level data.

One clear policy conclusion is that it is important to calibrate these cross-border effects in any analysis of the impact of policy through the insurance sector. Our analysis suggests that the effects through foreign insurer demand could materially reduce the impact of monetary policy through this transmission mechanism. From a broader perspective, our findings highlight that preferred-habitat models without an explicit international dimension may miss an important aspect of monetary transmission that is quantitatively relevant in open economies.

The rest of this paper is structured as follows. In Section 2 we discuss how our paper relates to various other strands of literature. Section 3 describes the portfolio allocation of UK and US life insurers and specifically their respective holdings of UK corporate bonds and the role of home currency bias. We also discuss the highly granular transactions data that underlies our analysis, which combines net purchases of UK corporate bonds by individual UK and US insurers. Section 4 explains our empirical methodology, which uses a panel local projections approach to examine the transmission of high-frequency monetary shocks to insurer transactions in corporate bonds. Section 5 describes our empirical results and draws out the most likely explanations of the underlying drivers. Section 6 offers some conclusions and suggestions for further research.

2 RELATED LITERATURE

Our paper relates to several strands of literature. Primarily, it relates to the growing empirical literature on portfolio rebalancing by long-term investors in response to monetary policy changes. Czech and Roberts-Sklar (2019) document how corporate bond investors, including insurance companies, adjust their portfolios following yield changes, finding that their buying behaviour is countercyclical. Kaufmann et al. (2025) find that monetary loosening leads to an increase of the balance sheet size of insurers from the euro area and a reallocation towards riskier assets. Kirti and Singh (2025) show that a monetary contraction reduces US life insurers' demand for corporate bonds, as higher long-term rates make duration-matching government bonds relatively more attractive. In contrast, Li (2025) argues that duration mismatches generate equity valuation gains for life insurers following increases in long-term rates, leading them to expand purchases of riskier corporate bonds and thereby compress

credit risk premia. The literature has also documented further determinants of insurers' portfolio allocation, including their hunt for duration, reach-for-yield behaviour, policyholder surrenders and regulatory constraints (Ellul et al., 2011; Becker and Ivashina, 2015; Domanski et al., 2017; Ozdagli and Wang, 2019; Ellul et al., 2022; Kubitz et al., 2025), with implications for firms' financing conditions through bond demand (Kubitz et al., 2026). Moreover, insurers use derivatives to hedge interest rate and foreign exchange risk, which can trigger bond sell-offs through margin calls (Czech et al., 2021; Pinter and Walker, 2023; Alfaro et al., 2024). Our contribution relative to this strand of the literature is to examine rebalancing in response to monetary policy shocks across both domestic and foreign life insurers and how this affects net demand for UK corporate bonds. We show that offsetting responses across jurisdictions are crucial for understanding how monetary policy affects aggregate corporate bond demand, a dimension that has received little attention in the existing literature.

The paper is also relevant to the older literature on preferred habitat behaviour (Modigliani and Sutch, 1966), which was reinvigorated by the modern interpretation provided by Vayanos and Vila (2021). This framework provides one explanation for the potency of unconventional monetary policies, specifically central bank asset purchases, so-called quantitative easing (QE). The presence of preferred habitat investors means that assets are not fully substitutable, so central bank asset purchases lead to portfolio rebalancing. Life insurers play an important role in this framework, as they typically try to match their long-term liabilities with assets of similar duration. For example, Joyce et al. (2017) study the portfolio rebalancing of UK insurance companies and pension funds (ICPFs) from government bonds into corporate bonds induced by quantitative easing policies in the UK. Complementary evidence from UK QE and Quantitative Tightening (QT) auctions suggests that preferred-habitat demand for long-maturity bonds is state-dependent and can become saturated over time (Kaminska et al., 2025). Since we analyse the investment behaviour of both domestic and overseas insurers, our analysis is particularly informed by more recent extensions of Vayanos and Vila (2021) to a multi-country multiple-currency setting, i.e. international preferred habitat models. In Greenwood et al. (2023) and Gourinchas et al. (2025), national bond markets are segmented by investor clienteles and only partially integrated by arbitrageurs with limited risk-bearing capacity. These models emphasise transmission through shifts in bond demand across currencies rather than frictionless arbitrage. By holding the investor entity fixed, we provide direct evidence on this demand channel, documenting currency-specific portfolio reallocation by large institutional investors following monetary policy shocks. Our results are consistent with segmented demand across currencies, while highlighting that portfolio adjustment is gradual and heterogeneous across domestic and foreign institutions—a feature that appears important for understanding monetary transmission in open economies.

Given our focus on the international spillovers from US life insurers, the paper is also relevant to the international finance and macroeconomics literature that emphasises the role of investors' preferences for their home currency in shaping international bond portfolios. Boermans and Vermeulen (2016) show that currency denomination is a key determinant of cross-border bond holdings, while the

residence of the issuer plays a secondary role. Burger et al. (2018) provide early evidence that classical home country bias (see e.g. French and Poterba, 1991; Coeurdacier and Rey, 2013) can be partly explained by a home currency bias. Maggiori et al. (2020) confirm this finding using security-level data on corporate bond holdings of global mutual funds and exchange-traded funds. Using holdings data for investors from the euro area, Boermans and Vermeulen (2020), Faia et al. (2023), and Zhou (2024) document a pronounced home currency bias in both corporate and government bond markets, which is substantially stronger for insurance companies and pension funds than for other investor groups, including mutual funds. The findings on home currency bias complement Liao (2020), who shows that credit market segmentation and investor demand influence firms' choice of issuance currency through currency-hedged borrowing costs. Our analysis corroborates the presence of a strong home currency bias among both UK and US insurers in the UK corporate bond market. Building on this evidence, we investigate the extent to which foreign investors' portfolio responses to domestic and cross-border monetary policy shocks differ from those of domestic investors. While Faia et al. (2023) study how investors' currency preferences amplify the effects of central bank asset purchases on euro-dollar return differentials, we focus on how net purchases by domestic and foreign insurers respond to monetary policy changes across different currency markets. Related work by Bergant et al. (2023), Zhou (2024), and Faia et al. (2025) analyses heterogeneity with respect to foreign investors and bond currencies, but primarily in the context of macroeconomic spillovers from advanced economies to emerging markets.

More broadly, our paper relates to the literature on international bond portfolio allocation (Bijlsma and Vermeulen, 2016; Du et al., 2024) and on the role of nonbanks in the transmission of monetary policy (see e.g. Elliott et al., 2024, 2025). Studies on the propagation of aggregate fluctuations to financing costs and quantities have shown that institutional investors, particularly insurers, act as shock absorbers (Chodorow-Reich et al., 2021; Zhou, 2024; Coppola, 2025; O'Hara et al., 2025). Asset demand systems based on Kojien and Yogo (2019) use estimated elasticities of different investor groups to study the transmission of monetary policy in bond markets (see e.g. Eren et al., 2023; Fang and Xiao, 2024). Argimon et al. (2019) explore how monetary policy is globally transmitted via cross-border claims of different financial institutions. Related research on cross-border spillovers to developed and emerging market economies focuses on bank capital flows (Bruno and Shin, 2015; Buch et al., 2019; Bräuning and Ivashina, 2020; Correa et al., 2021) and international bond markets (Albagli et al., 2019; Faia et al., 2025). However, transaction-level evidence from the corporate bond market on how these spillovers operate through investors' currency-specific investments is scarce.

In summary, we contribute to the literature by providing transaction-level evidence on how currency-segmented institutional demand shapes the cross-border transmission of monetary policy. Our analysis links preferred-habitat mechanisms to regulation, liability structure, and global portfolio allocation, showing how these features can generate offsetting responses by domestic and foreign insurers in the same corporate bond market.

3 INSURER CORPORATE BOND HOLDINGS AND TRANSACTIONS

In this section, we first set out some stylised facts on the asset holdings of UK and US life insurers drawing on regulatory data for the UK produced by the Prudential Regulation Authority (under the Solvency II Directive) and for the US from the National Association of Insurance Commissioners (NAIC), as well as S&P Capital IQ (CIQ) data on corporate bonds (more details on data sources are contained in Appendix Section A.1). The next few subsections focus mainly on 2019 Q4 to avoid any distortions arising from the Covid period, but the main regularities described are consistent over the full sample. We then turn to describing the unique UK and US corporate bond transactions dataset, which is the basis for the econometric analysis reported in the paper. Unless indicated otherwise, all references to insurers in the paper are to life insurance companies.

3.1 INSURER PORTFOLIO ALLOCATION

The total assets of the UK insurance industry (life and non-life) were GBP 2.6 trillion at the end of 2019, measured at market prices. Of this, GBP 988 billion consisted of invested assets (assets that are actively managed) such as bonds, equities and cash, excluding unit- and index-linked assets and other non-invested assets such as reinsurance recoverables and participations (see Appendix Figure 18). Life insurers' invested asset holdings were almost six times as large as non-life insurers' invested asset sizes (see Appendix Figure 18). Despite some fluctuations in the absolute amount of invested assets, the relative composition of asset types has remained stable over time for both life and non-life insurers. Corporate bonds are the most important asset category within invested assets with about 31% in 2019 Q4, followed by government bonds and collective investment undertakings (see Appendix Figure 18).²

US insurers' total assets are almost three times as large as those of UK insurers and their invested assets, excluding separate accounts and other non-invested assets, are more than five times as large as UK insurers' holdings of invested assets (see Appendix Figures 18 and 19). Disaggregating US holdings, life insurers' invested assets are more than twice as large as those of property and casualty (P&C) insurers. Similar to the UK, the asset size per insurer is considerably larger for life insurers than for P&C insurers. US life insurers have a high exposure to fixed-income assets with about 43% of their invested assets held in corporate bonds, 17% in collateralised securities (mortgage-backed securities, asset-backed securities) and 9% in government bonds in 2019. In contrast, P&C insurers have a higher exposure to equity with about 34% of invested assets in 2019, followed by 20% in government bonds and 18% in corporate bonds.

² The Bank of England and Prudential Regulation Authority publish the composition of invested assets of all UK-authorised solo insurance firms and third-country branches subject to the Solvency II Directive in their Insurance Aggregate Data Quarterly Report from 2024 Q3. Collective investment undertakings refer to pooled investments such as mutual funds or unit trusts held by both life and non-life insurers as part of their investment portfolios. Life insurers may use them to back with-profits insurance plans, which blend insurance coverage with investment opportunities and participation in the insurer's surplus.

3.2 CURRENCY DENOMINATION OF UK CORPORATE BONDS

In our sample of corporate bonds sourced from CIQ, annual issuance by UK firms ranged between GBP 100 and 300 billion over the period 2018–2022 (see Appendix Figure 20). In 2019, this corresponded to approximately 12% of UK GDP. USD-denominated bonds constituted the largest share of UK corporate bond issuance, reaching around 30% in 2019 (see Appendix Figure 20). After the US dollar, bonds denominated in GBP and EUR were the most prevalent, each accounting for about 20% of issuance in 2019. This currency composition breakdown is also reflected in outstanding amounts (see Appendix Figure 21).

Overall, the share of UK corporate bond issuance that is denominated in foreign currency is remarkably high and among the highest across non-US developed economies (Lo Duca and Nicoletti, 2014). A large share of UK corporate bonds is issued by financial firms: in 2019, around 75% of total issuance was by financial-sector firms (see Appendix Figure 20).³ But this cannot fully explain the high foreign-currency share, since non-financial UK firms also issue substantial amounts of USD- and EUR-denominated bonds each year. Instead, the high share of UK corporate bonds denominated in foreign currency may partly reflect the presence of large multinational firms incorporated in the UK. Multinational firms that earn revenues or invest in multiple currencies have an incentive to hedge currency risk by issuing bonds in the corresponding currencies. As discussed in Section 3.2.1, currency preferences on the demand side can further incentivise firms to issue in the currencies preferred by investors. Hence, differences in investor composition may help explain cross-country differences in corporate debt denomination.

3.2.1 INSURERS AND HOME CURRENCY BIAS

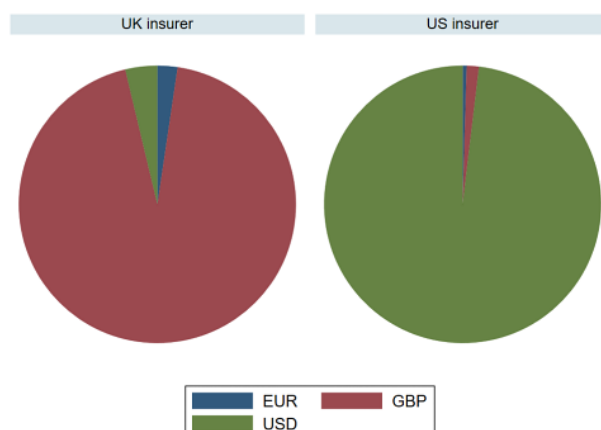
Figure 1 shows the distribution of UK and US life insurers' UK corporate bond holdings in 2019 Q4 by currency, based on par values converted to GBP. Among GBP-, USD-, and EUR-denominated bonds, approximately 94% of UK insurers' holdings are denominated in GBP, while about 4% are denominated in USD. In contrast, around 98% of US insurers' UK corporate bond holdings are denominated in USD, with only about 1% denominated in GBP.

The strong segmentation of UK and US life insurers' bond holdings by currency could in principle be driven by differences in other bond characteristics or issuer fundamentals rather than currency preferences. For example, US insurers may demand bonds with particular maturities or issued by larger firms than those in UK insurers' portfolios. If these attributes correlate with currency denomination, our aggregate evidence might not reflect investors' currency preferences per se. However, security-level

3 It is possible that some non-financial firms access capital markets through (cross-border) financial affiliates or subsidiaries incorporated in the UK (Coppola et al., 2021; Beck et al., 2024). More generally, our focus is on investors' behaviour across currencies rather than on issuers and their financing structure. Accordingly, we retain financial bonds in the sample, which account for the majority of issuance.

Figure 1
Insurers' UK corporate bond holdings by currency

This figure shows the distribution of UK and US life insurers' UK corporate bond holdings by currency. The sample is restricted to GBP-, USD-, and EUR-denominated bonds. The shares are based on GBP par values of bond holdings at the end of 2019. *Data sources: Solvency II, NAIC, CIQ.*



analysis reported in Appendix Section A.3 shows that the bulk of home currency bias persists after controlling for issuer fixed effects and bond-level characteristics.

The literature has documented home currency bias at the security level in the corporate bond market for global mutual funds and exchange-traded funds (Maggiori et al., 2020), as well as for other investor groups from the euro area, notably insurance companies and pension funds, in government and corporate bond markets (Faia et al., 2023; Zhou, 2024). Our granular data confirm this home currency bias for UK and US insurance companies in the corporate bond market and suggests that it is particularly strong for life insurers.

In contrast to other institutional investors, such as mutual funds, regulation plays a major role in insurers' portfolio allocation. In the UK, insurers incur a capital cost for unhedged currency risk under the Solvency II regulation through the Solvency Capital Requirement. In addition, risk-management requirements mandate that insurers hold admissible assets in each currency covering at least 80% of liabilities denominated in the same currency, subject to certain exceptions. Moreover, life insurers using the Matching Adjustment (MA) may discount their liabilities at a higher rate only if the matched assets are denominated in the same currency or if the associated foreign-exchange risk is appropriately hedged (see Appendix Section A.5.2).⁴

While the NAIC in the US does not impose a stand-alone capital charge for foreign-exchange risk under the Risk-Based Capital framework, state-level investment regulations constrain foreign-currency exposure. In particular, the NAIC provides model provisions that cap unhedged foreign-currency

⁴ The regulatory framework is set out in the PRA Rulebook under *Solvency Capital Requirement – Standard Formula, Currency Risk Sub-Module* and *Insurance Company – Risk Management, Currency Matching of Assets and Liabilities*. Detailed assessments of MA eligibility for assets and liabilities are provided in the PRA supervisory statements.

exposure at 10% of admitted assets for life insurers and 15% for P&C insurers, though adoption and exact limits vary across states.⁵

Even in the absence of regulation, insurers may have strong incentives to limit foreign-exchange risk on their asset holdings, as technical provisions are predominantly denominated in their home currency. Avoiding foreign-currency investments provides a simple way of ensuring currency alignment while circumventing hedging costs.

In Appendix Section A.4, we show that home currency bias also exists for government bonds, even after controlling for issuer fixed effects and other bond characteristics such as maturity and offering amount.

3.2.2 THE ROLE OF US INSURERS IN THE UK CORPORATE BOND MARKET

In absolute terms, UK life insurers held around GBP 130 billion of UK corporate bonds in 2019, corresponding to approximately 15% of their total invested assets. US life insurers held around GBP 33 billion of UK corporate bonds in the same year (see Figure 2). This demonstrates that UK and US insurers' holdings of UK corporate bonds are both substantial, with the US holdings especially notable given that US insurers have no natural home bias toward UK assets.

The strong presence of US life insurers is a distinctive feature of the UK corporate bond market. Figure 2 reveals that US insurers' largest foreign corporate bond exposure stems from Canada and the UK. This high exposure to the UK can be attributed to the relatively high share of USD-denominated bond issuance by UK firms compared with other countries, combined with insurers' home currency bias. The prevalence of foreign-currency issuance may in part reflect UK firms' desire to attract foreign capital, in addition to their own currency-hedging motives, resulting in a high degree of foreign capital integration in the UK corporate bond market. UK insurers invest the majority of their corporate bond portfolios in UK and US bonds, followed by the Netherlands, France and Ireland.

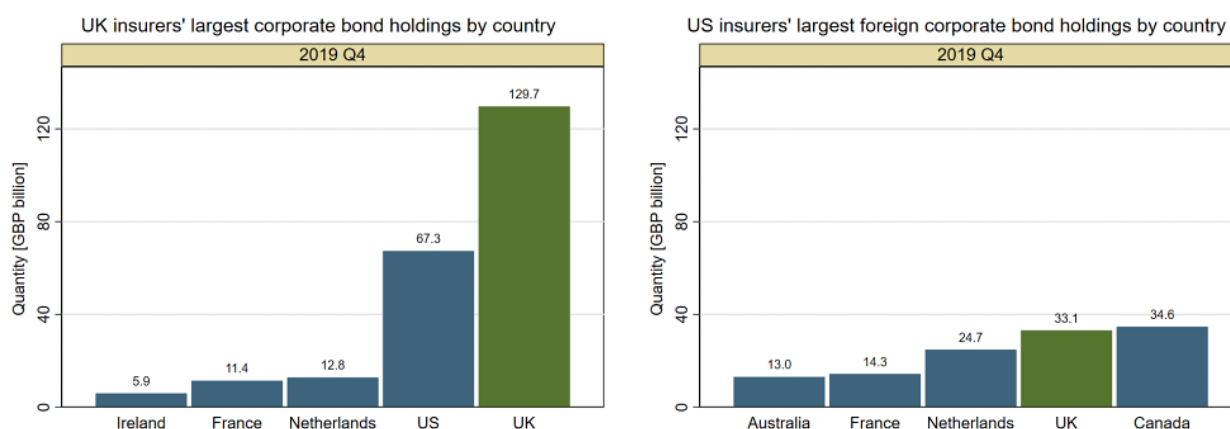
Consistent with the importance of UK and US insurers in the GBP and USD markets for UK corporate bonds, UK life insurers held about 19% of outstanding GBP-denominated UK corporate bonds but only around 1% of USD-denominated outstanding UK corporate bonds (see Appendix Figure 22). By comparison, US life insurers held around 11% of the outstanding amount of USD-denominated UK corporate bonds at the end of 2019 (see Appendix Figure 22). A further implication of insurers' home currency bias is that US insurers almost entirely refrain from investing in gilts, which are exclusively GBP-denominated, while UK insurers held around GBP 58 billion in gilts at the end of 2019 (see Appendix Figure 23).

To summarise, UK and US insurers both hold economically meaningful positions in the UK corporate bond market, indicating a high degree of integration between domestic and foreign investors, albeit with strong segmentation by currency. These are implications of the relatively large share of USD-

⁵ Information on the model provisions and their implementation by US states is published on the NAIC website under *Model Laws – Investments of Insurers Model Act (Model 280)*.

Figure 2
UK and US insurers' corporate bond holdings by country

This figure compares UK and US life insurers' largest corporate bond exposure by country in 2019 Q4. UK and US life insurers' holdings are indicated as par values, denominated in GBP. For easier comparison, we exclude US life insurers' holdings of US corporate bonds. *Data sources: Solvency II, NAIC, LSEG.*



NB: US life insurers held GBP 1.14 trillion of US corporate bonds.

denominated bonds issued by UK firms, coupled with the preference of insurers for investing in their home currency and the large investment volumes associated with the size of the US insurance sector.

3.3 CORPORATE BOND TRANSACTIONS

In this section, we turn to the unique transactions dataset we use to study the implications of the high degree of integration between US and UK life insurers for the transmission of monetary policy. By using transactions data, we are able to look at how demand changes at a higher frequency than would be possible using holdings data, which is available quarterly at best. Moreover, to study the portfolio responses of life insurance companies to monetary policy shocks across different currency markets, we combine UK and US bond market transactions over a common sample.

3.3.1 DATA SOURCES ON BOND TRANSACTIONS

Our empirical analysis is based on security-level regulatory data from NAIC and Markets in Financial Instruments Directive (MiFID) II reports, which we use to construct a monthly dataset of UK and US life insurer transactions in UK corporate bonds from January 2018 to December 2022. The full sample includes 2,436 USD-, GBP-, and EUR-denominated bonds from CIQ, issued by 619 firms and traded by 72 UK and 550 US insurance companies (see Appendix Table 6).

UK insurers' bond transactions

We retrieve transaction reports of corporate bonds from the regulatory MiFID II database, which is collated and provided by the Financial Conduct Authority (FCA), the UK's financial markets regulator.

Our dataset covers trades of debt instruments since 2018 that are admitted to trading, or traded on a UK or EU trading venue, or for which a request for admission has been made.⁶ It also includes trades by MiFID investment firms, including overseas branches of UK firms, irrespective of whether they are domiciled in the European Economic Area (EEA) or anywhere else globally. It also captures UK branches of non-UK firms, irrespective of where the parent is based. Over-the-counter transactions are also included as long as the bond is admitted to trading or traded on a trading venue.⁷ Hence, UK insurers' transactions are captured whenever the trade is executed on a UK/EU venue or a MiFID investment firm is party to the trade, provided the instrument is admitted to trading or traded on a venue. Because insurers' bond trading is typically intermediated by investment firms, such as dealers executing the trade, this covers the large majority of their transactions. Purely over-the-counter trades with a non-reporting counterparty are not necessarily captured. Moreover, transactions reported under MiFID II are attributed to the party that makes the investment decision, which for unit- and index-linked products is typically the external fund or asset manager rather than the insurer, so we focus on bond transactions that are actively managed by insurers.

Firms must submit information on the ISIN, Classification of Financial Instruments (CFI) code, quantity, price, and time of each instrument traded, as well as the Legal Entity Identifiers (LEIs) of each buyer and seller. For corporate bonds, we implement the cleaning procedure outlined in Jurkatis (2024) to overcome any problematic data issues, such as misreporting and duplicates arising from the simultaneous reporting of counterparties. The supervisory Solvency II data (discussed in Appendix Section A.1) allows us to obtain a list of LEIs of all insurance companies in the UK, which we use to filter all the UK corporate bond transactions of these companies from the MiFID II data.

US insurers' bond transactions

Insurance companies in the US must report detailed financial statements to the NAIC, mainly for supervisory and regulatory purposes. We collect daily transaction-level data for the general account at the security level from Schedule D Part 3, 4, and 5. The data are available up to 2022. US insurers always report quantities in USD, independent of the bond's currency at issuance.

The MiFID II data report only active trades of investors. In contrast, the NAIC transaction data contain any changes in positions of US insurers, which may reflect calls, prepayment, maturities or defaults. Our focus is on the actual trading activity of insurers. Therefore, we apply the procedure proposed by Becker et al. (2022) to filter NAIC transactions for active investor trading, further ensuring comparability between the MiFID II and NAIC datasets.

Measuring quantities

We measure quantities in par values, unless otherwise specified, and drop observations whose traded

⁶ Further information on the regulatory requirements can be found on the website of the FCA.

⁷ This represents a significant advance compared to the pre-2018 MiFID I framework, which required reporting only for bonds eligible for trading on a regulated market.

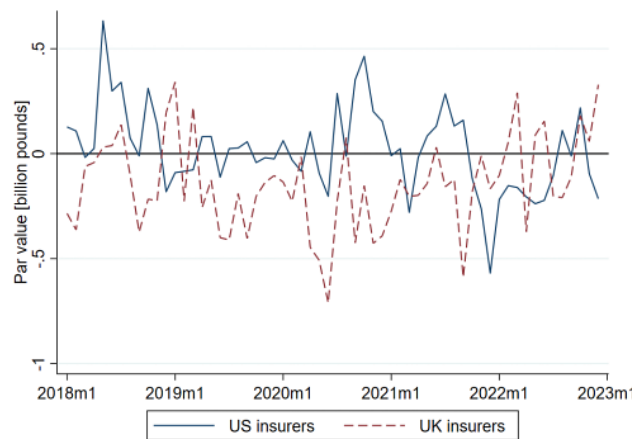
volume is larger than the offered amount of the corresponding bond. We use the opening exchange rate on the respective trading date to convert par values of bonds into other currencies, especially when we compare UK and US insurers' bond investments.

3.3.2 KEY FEATURES OF THE TRANSACTIONS DATA

Figure 3 shows aggregate net purchases of UK corporate bonds in the secondary market by UK and US insurers over the common sample we consider, where net purchases are measured in GBP par value terms.

Figure 3
Net UK corporate bond purchases by UK and US insurers in the secondary market

This figure shows the net purchases of UK corporate bonds in the secondary market by UK and US life insurers between 2018 M1 and 2022 M12. Net purchases are measured in GBP par value terms. Secondary market transactions are defined as sales occurring after the bond's offering date and purchases taking place at least four days after the offering date. *Data sources: MiFID II, NAIC, CIQ.*



The characteristics of transactions vs. asset holdings

The key patterns documented for life insurers' holdings in Section 3 are mirrored in transaction activity. Over our sample, UK and US life insurers traded total volumes of GBP 86 billion and GBP 59 billion, respectively, indicating substantial absolute exposure to UK corporate bonds by both UK and US insurers. As presented in Figure 4, transactions are strongly segmented by currency across UK and US insurers. In the following analysis, we do not consider US insurers' transactions in GBP-denominated bonds because they are negligible. Consistent with the sectoral breakdown of outstanding UK corporate bonds, bonds issued by financial firms account for more than 70% of traded bonds. Relative to US insurers, UK insurers trade a higher share of long-maturity bonds with residual maturity above 15 years and a lower share of short-maturity bonds. Overall, 47% of traded bonds are GBP-denominated and 34% are USD-denominated (see Table 1), implying that UK and US life insurers do not transact in the full set of USD-denominated bonds available in the broader CIQ universe, where USD issuance exceeds GBP issuance (see Section 3.2).

Figure 4
Characteristics of UK corporate bond transactions by UK and US insurers

This figure shows characteristics of UK corporate bond transactions by UK and US life insurers from 2018 to 2022. Percentages are based on par values of transacted bonds. The panels show breakdowns by (a) currency, (b) remaining maturity, and (c) industry sector. Maturity buckets are defined in years as follows: Ultra Short $\in [0, 3)$, Short $\in [3, 7)$, Medium $\in [7, 15)$, Long $\in [15, \infty)$. *Data sources: MiFID II, NAIC, CIQ.*



4 EMPIRICAL APPROACH

In order to examine the dynamic effects of monetary policy shocks on net corporate bond purchases, we apply a local projections approach (Jordà, 2005), using high-frequency monetary policy shocks. We describe our empirical approach below, including how we identify monetary policy shocks, and provide some descriptive statistics over our common UK-US sample period.

4.1 LOCAL PROJECTIONS APPROACH

Our first approach involves aggregating UK and US life insurers' UK corporate bond transactions separately and constructing a (quasi-)balanced panel at the bond-month level, indexed by b and t . The panel comprises all bonds that are transacted at least once by UK or US life insurers over the sample period from 2018 M1 to 2022 M12 and includes all bond-month observations with a positive outstanding amount for bond b .

We estimate the following specification for different currency-denomination subsamples:

$$\sum_{k=0}^h Y_{b,t+k} = \mu_b^h + \beta^h 10YSurp_t + \sum_{k=1}^5 \delta_k^h Y_{b,t-k} + \Gamma^h \mathbf{X}_{t-1} + \varepsilon_{b,t+h}, \quad (1)$$

for $h = 0, \dots, H$. The dependent variable, $Y_{b,t+h}$, measures the cumulative net purchases of bond b from the beginning of month t through the end of month $t + h$, expressed as a fraction of the bond's outstanding amount at $t - 1$. Net transactions and outstanding amounts are measured at par value and converted to GBP. $10YSurp_t$ denotes 10-year monetary policy surprises (described below). In different specifications, we use surprises to 10-year gilt yields and the 10-year US Treasury yields, as well as alternative monetary policy shock measures. $\mathbf{X}_{t-1}$ denotes lagged macroeconomic controls, including the monthly UK CPI inflation rate, year-on-year changes in the monthly UK unemployment rate, and year-on-year percentage changes in quarterly UK real GDP. To account for autocorrelation in the dependent variable, we include monthly purchases of bond b , scaled by the outstanding amount, separately for lags $t - 1$ to $t - 5$. We further include bond fixed effects at horizon h , μ_b^h , and cluster standard errors at the issuer level.

While estimating Equation (1) separately for UK and US insurers provides a transparent view of the response of each investor group, comparing coefficients across separate regressions does not establish whether the responses are statistically different from one another. To formally test for heterogeneity across insurers' jurisdictions, we therefore also pool the observations from UK and US insurers and estimate the following interactive specification, which builds on Equation (1):

$$\sum_{k=0}^h Y_{c,b,t+k} = \mu_{i(b),t}^h + \nu_{c,b}^h + \beta^h 10YSurp_t \times 1[UK \text{ insurers}]_c + \sum_{k=1}^5 \delta_k^h Y_{c,b,t-k} + \Gamma^h \mathbf{X}_{c,b,t-1} + \varepsilon_{c,b,t+h}, \quad (2)$$

for $h = 0, \dots, H$, where $c \in \{UK, US\}$ denotes whether insurers are UK- or US-based. We interact the monetary policy surprise, $10YSurp_t$, with $1[UK \text{ insurers}]_c$, which is an indicator equal to one if insurers are UK-based and zero if insurers are US-based. In this specification, the interaction coefficient β^h measures the differential response of UK insurers relative to US insurers following a monetary policy shock. For identification, we exploit the fact that UK and US insurers transact corporate bonds of the same UK issuer, albeit potentially in different currencies, by including issuer-time fixed effects at horizon h , $\mu_{i(b),t}^h$. This way, we use within-issuer variation in UK and US insurers' transactions in a given month to absorb supply-side determinants of investment allocations (Khwaja and Mian, 2008), including issuer-specific determinants such as size and credit rating that are correlated with insurers' investment decisions. Other variables are as defined above. We cluster standard errors at the issuer level.

4.2 IDENTIFYING MONETARY POLICY SHOCKS

Our approach relies on how we identify monetary policy shocks. For this, we follow the conventional practice of measuring them from the high-frequency market reaction to central bank monetary policy announcements. We use these reactions both directly as our shock measures and, in alternative specifications, as instruments for the monthly change in yields. Our measures of UK monetary policy surprises are taken from the UK Monetary Policy Event-Study Database (UKMPD) constructed by Braun et al. (2024). The database contains intra-day surprise movements of various asset prices, including 1-, 2-, 5-, and 10-year gilt yields and 1-, 2-, and 3-month OIS yields, around monetary policy events.⁸ The events comprise the Bank of England’s Monetary Policy Committee’s (MPC) announcements and the press conference following the publication of the quarterly Monetary Policy Report. In addition, the authors derive the target, path and QE factors according to Swanson (2021) to disentangle the different dimensions of monetary policy, which we also examine. We retrieve analogous monetary policy surprises for the US through the US Monetary Policy Event-Study Database (USMPD), which is based on Bauer and Swanson (2023) and updated on the website of the Federal Reserve Bank of San Francisco.

We aggregate the surprises to a monthly frequency to align them with our monthly transactions data. Of the 60 common sample months, 40 months include UK monetary policy events and 41 months include US monetary policy events. We set the surprise variable to zero when there is no monetary policy announcement.

4.3 DESCRIPTIVE STATISTICS

A summary description of the data we use is shown in Table 1. This includes the macroeconomic variables we include as controls, including UK GDP, inflation and the unemployment rate obtained from LSEG. While insurers in our sample trade a larger number of GBP-denominated bonds than USD-denominated bonds, the average issuance size is considerably higher for the latter, even after accounting for exchange rate differences. Between 2018 and 2022, the average maturity at issuance of GBP-denominated bonds traded by insurers was about 12.5 years, compared with around 7.6 years for USD-denominated bonds.

Our sample period spans several major macroeconomic and financial shocks, including the Covid-19 pandemic and the LDI crisis. During the Covid-19 episode, the Bank of England also intervened directly in bond markets through large-scale purchases of UK government bonds under its Quantitative Easing (QE) programme and of GBP-denominated corporate bonds issued by UK non-financial firms via the Corporate Bond Purchase Scheme (CBPS) (see Busetto et al. (2022) for further details).

8 Since insurance companies are long-term investors, they are unlikely to adjust their portfolios at very high frequencies around monetary policy announcements. Using monetary policy shocks identified in narrow event windows therefore addresses concerns about endogeneity arising from insurers’ trading activity that may contribute to high-frequency asset price movements.

These developments likely affected both fixed income markets and the investment behaviour of institutional investors. However, our empirical strategy isolates variation in asset demand using high-frequency interest rate shocks, allowing us to identify the average differential response of UK and US investors to monetary policy surprises, abstracting from lower-frequency macroeconomic and policy-driven shifts in the environment.⁹ While we are able to distinguish between financial bonds (unaffected by the CBPS) and non-financial bonds (affected by the CBPS), we find broadly similar patterns across these segments in our subsequent analysis and observe broadly stable patterns in net purchasing behaviour (see Figure 3).

Table 1
Descriptive statistics

This table shows summary statistics of macroeconomic variables (monthly) and bond characteristics used in the analysis of UK corporate bond transactions by UK and US life insurers from January 2018 to December 2022.

Macroeconomic variables: *GiltYld10Y* and *USTYld10Y* are end-of-month 10-year gilt and US Treasury yields, respectively. *MpSurpUk10Y* and *MpSurpUs10Y* are the corresponding high-frequency monetary policy surprises aggregated to monthly frequency. *UK GDP growth* is year-on-year real GDP growth (quarterly). *UK unempl. rate change* is the year-on-year change in the unemployment rate. *UK inflation* is monthly CPI inflation rate. Δ denotes the monthly change of the corresponding variable.

Bond variables: *Issuance amount* is the offering amount in the bond's denomination currency (GBP, USD, or EUR), expressed in millions of the respective currency. *Maturity at issuance* is years to maturity at offering and is reported separately for bonds denominated in GBP, USD, and EUR; it is winsorised at the 1% level. *Currency composition* reports the share of bonds denominated in each currency.

Data sources: LSEG, CIQ, Braun et al. (2024), Bauer and Swanson (2023).

	N	Mean	SD	1 st	25 th	Median	75 th	99 th
Macroeconomic variables								
MpSurpUk10Y	60	-0.00	0.04	-0.16	-0.01	0.00	0.01	0.09
MpSurpUs10Y	60	-0.00	0.04	-0.26	-0.00	0.00	0.01	0.05
GiltYld10Y (%)	60	1.15	0.87	0.10	0.55	0.99	1.43	4.10
USTYld10Y (%)	60	2.05	0.93	0.54	1.44	1.87	2.85	4.08
Δ GiltYld10Y (%)	60	0.04	0.29	-0.57	-0.10	0.01	0.14	1.30
Δ USTYld10Y (%)	60	0.02	0.25	-0.51	-0.12	0.03	0.16	0.67
Δ UK GDP (%)	60	0.01	0.09	-0.22	-0.01	0.01	0.04	0.25
Δ UK Unempl. rate (pp)	60	-0.12	0.69	-1.10	-0.40	-0.30	0.25	1.60
Δ UK Inflation rate (%)	60	3.35	3.14	0.20	1.50	2.10	3.70	11.10
Bond variables								
Issuance amount (mn)	2,430	665.90	510.13	22.50	300.00	500.00	1,000.00	2,500.00
GBP bonds issuance amount (mn)	1,140	372.13	265.67	23.10	210.00	300.00	450.00	1,250.00
USD bonds issuance amount (mn)	820	987.29	592.85	10.00	500.00	1,000.00	1,250.00	2,800.00
EUR bonds issuance amount (mn)	470	817.74	386.15	230.00	500.00	750.00	1,000.00	2,000.00
Maturity at issuance (years)	2,379	9.62	10.69	0.14	3.02	5.65	11.15	57.21
GBP bonds maturity at issuance (years)	1,108	12.53	11.50	0.16	4.34	8.42	18.19	50.18
USD bonds maturity at issuance (years)	807	7.59	9.43	0.14	2.52	4.61	8.04	57.21
EUR bonds maturity at issuance (years)	464	6.21	8.73	0.14	2.53	4.51	6.86	57.21
Currency composition	2,436	33.7% USD, 47.0% GBP, 19.3% EUR						

9 See D'Amico and Kaminska (2025) for evidence on the impact of the CBPS on corporate bond prices and issuance.

5 RESULTS

5.1 AGGREGATE RESPONSES

We begin by examining how the net purchases of UK life insurers react to a UK monetary contraction. Figure 5 shows the impulse responses from Equation (1) estimated for UK life insurers in the GBP and USD UK corporate bond markets. Following a 1 percentage point contractionary monetary policy surprise, measured as the unanticipated change in the 10-year gilt yield in a narrow window around the MPC announcement, UK insurers increase their net purchases of GBP-denominated bonds, expressed as a share of each bond's outstanding amount. The response becomes statistically significant after one month and peaks at around 3 percentage points about 14 months after the shock. This pattern is broadly consistent with the findings of Czech and Roberts-Sklar (2019), who find that insurers increase their corporate bond holdings when interest rates rise. By contrast, aside from an initial small negative impact response, we find no persistent or statistically significant response in the USD market. Hence, UK insurers' aggregate portfolio responses differ materially across currency markets.¹⁰

Figure 5
Aggregate response of UK insurers to a UK monetary policy tightening

This figure shows the estimated response of UK life insurers in the GBP and USD markets to the 10-year gilt yield surprise. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*

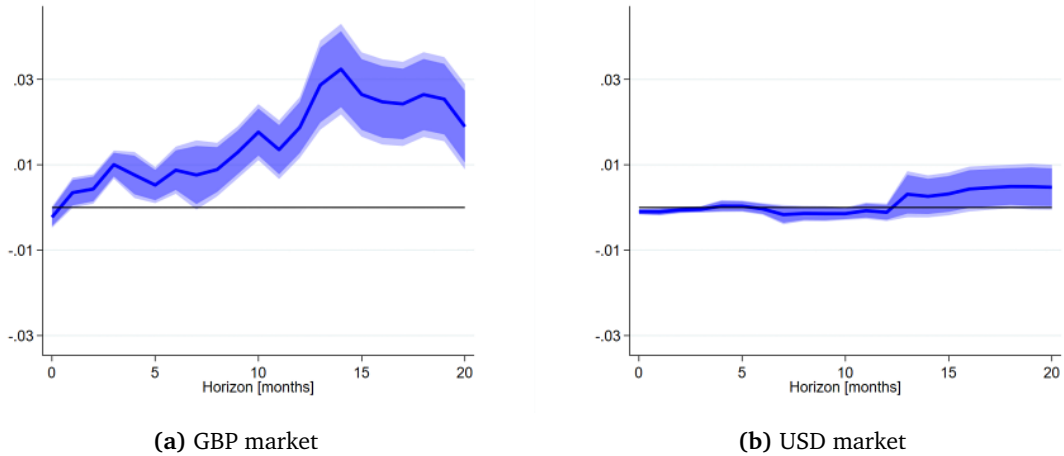


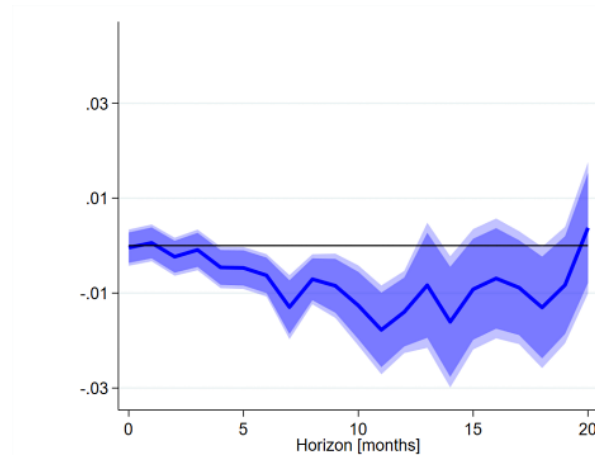
Figure 6 presents the corresponding impulse response estimates for net purchases of USD-denominated UK corporate bonds by US life insurers in response to the same surprise in the 10-year gilt yield. The estimated coefficients are negative for almost all horizons out to 20 months and statistically significant

¹⁰ We also extended the sample for UK life insurers' transactions to cover the period from 2018 M1 to 2025 M8. Appendix Figure 24 shows that the main patterns remain unchanged: UK insurers exhibit a positive response in the GBP market especially 10 months after the shock and no clear response in the USD market. Our main analysis focuses on a shorter time period due to US data access limitations.

between 4 and 14 months after the shock. Figures 5 and 6 show our first key result: in response to the same interest rate shock, aggregate demand from UK and US life insurers reacts in opposite directions. The former increase their net purchases, while the latter decrease theirs. We investigate potential drivers of this divergence in Section 5.5.

Figure 6
Aggregate response of US insurers to a UK monetary policy tightening

This figure shows the estimated response of US life insurers in the USD market to the 10-year gilt yield surprise. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: NAIC, CIQ, LSEG, Braun et al. (2024).*



We re-estimate Equation (1) by regressing our dependent variable on monthly changes in the 10-year gilt yield, instrumented with the corresponding monthly high-frequency yield surprises. This serves as a robustness check of our results and slightly refines the interpretation of the economic magnitudes, as we now identify changes in gilt yields that are induced by our surprise series. The first stages are consistently strong, with Kleibergen–Paap rk Wald statistics exceeding 1,000. Panels (a) and (b) of Appendix Figure 25 corroborate our baseline results for UK insurers. Quantitatively, a 1 percentage point increase in the 10-year gilt yield raises UK insurers' net purchases of GBP-denominated bonds by about 0.5 percentage points of outstanding amounts after two months, increasing to roughly 2.5 percentage points after 14 months. Panel (c) of Appendix Figure 25 confirms US insurers' negative response in the USD market: a 1 percentage point increase in the 10-year gilt yield leads to a decrease in US insurers' net purchases of about 1 percentage point of outstanding amounts after one year.

To gauge the economic magnitude of these effects, we can benchmark our estimates against US evidence provided by Kubitzka (2026), who shows that a secondary-market purchase by insurers equal to 1% of a firm's outstanding bonds accelerates the firm's bond debt growth by about 6 percentage points and raises investment expenditures, scaled by outstanding bonds, by a similar magnitude. Our

estimated responses for UK insurers in the GBP market therefore imply economically meaningful effects.¹¹

As an alternative outcome measure, we also consider unscaled net transactions in GBP millions. Appendix Figure 27 reports results using the same instrumental-variable strategy. The qualitative patterns are similar to those obtained with scaled net purchases for UK and US life insurers, with US insurers' negative response becoming statistically significant for additional periods following the monetary shock. Following a 1 percentage point increase in the 10-year gilt yield, UK life insurers' net purchases rise on average by around GBP 5.4 million per bond after one year (Appendix Figure 27, Panel (a)). Aggregated across bonds, this corresponds to an increase of roughly 5% of UK life insurers' total GBP-denominated UK corporate bond holdings. US insurers' unscaled responses reach similar magnitudes, with net sales of around GBP 7.7 million per bond after one year (Appendix Figure 27, Panel (c)).

We also assess the robustness of our findings to using alternative monetary policy shock measures taken from Braun et al. (2024). Using surprise measures based on shorter maturities, including 5-, 2-, or 1-year gilt yields and 3-, 2-, or 1-month OIS rates, also leads to an expansion of net purchases by UK insurers in the GBP market, although the response is strongest for the 10-year yield surprise. This is consistent with long-term gilt yields serving as a key reference point for life insurers' asset allocation decisions. Responses in the USD market remain insignificant for UK insurers and negative, although weaker, for US insurers.

Repeating the analysis for monetary policy shocks decomposed into target, path, and QE factors reveals that the QE factor drives the positive response of UK insurers in the GBP market and the negative response of US insurers in the USD market, suggesting that insurers react more strongly to long-term yield movements induced by unconventional monetary policy measures. This is perhaps not surprising as our sample covers a period when the Bank of England undertook a large QE programme in response to the Covid-19 pandemic. Shocks to the target factor generate no significant reactions, while the path factor is associated with modest net sales for UK insurers and modest net purchases for US insurers.

Our aggregate response results are important for both academic and policy reasons. From an academic perspective, our results highlight that aggregate responses can mask offsetting behaviour by different investor groups operating in segmented currency markets, even within a single asset class. While international preferred-habitat models emphasise transmission through portfolio rebalancing across currencies, our evidence shows that, in practice, domestic and foreign insurers can respond in opposite directions to the same interest-rate shock, reflecting differences in regulation, balance-sheet constraints, and portfolio objectives. From a policy perspective, this implies that assessing monetary

11 Since our dependent variable is defined as the cumulative sum of net transactions, primary-market purchases generate level shifts that are absorbed by bond fixed effects in our specification. The estimated responses therefore reflect secondary-market trading. In unreported robustness checks, we restrict the sample to transactions occurring at least four days after a bond's issuance date and obtain virtually identical results.

transmission in a relatively small open economy such as the UK requires accounting explicitly for foreign investor behaviour. When domestic and foreign investors respond differently and operate primarily in different currency segments, price effects and financing conditions may diverge across markets, even for the same issuer. Ignoring the potential selling pressure from foreign investors therefore risks overstating the strength of monetary transmission through domestic balance-sheet channels.

5.2 DISAGGREGATED RESPONSES

To shed light on the channels that may drive UK and US insurers' aggregate responses, we examine the heterogeneity of the responses along two economically relevant dimensions: the maturity of bonds purchased and the sector of the issuer. We run the first empirical specification discussed in Section 4 for different subsamples. We return to these findings and their interpretation in Section 5.5.

5.2.1 DURATION RISK

In this section, we examine the maturity breakdown of net corporate bond purchases by UK and US insurers in response to a UK monetary policy shock.

Figure 7 shows the maturity breakdown for UK insurers. The increase in net purchases following a monetary contraction is concentrated in longer-term corporate bonds with maturities above 7 years. In the 3-7 year maturity bucket, the response is muted and insignificant, while demand for bonds with maturities below three years declines, with the response statistically significant at 7 and 12 months after the shock. Thus, while increasing their overall exposure to corporate debt, UK insurers also shift toward longer-duration bonds within their portfolios.

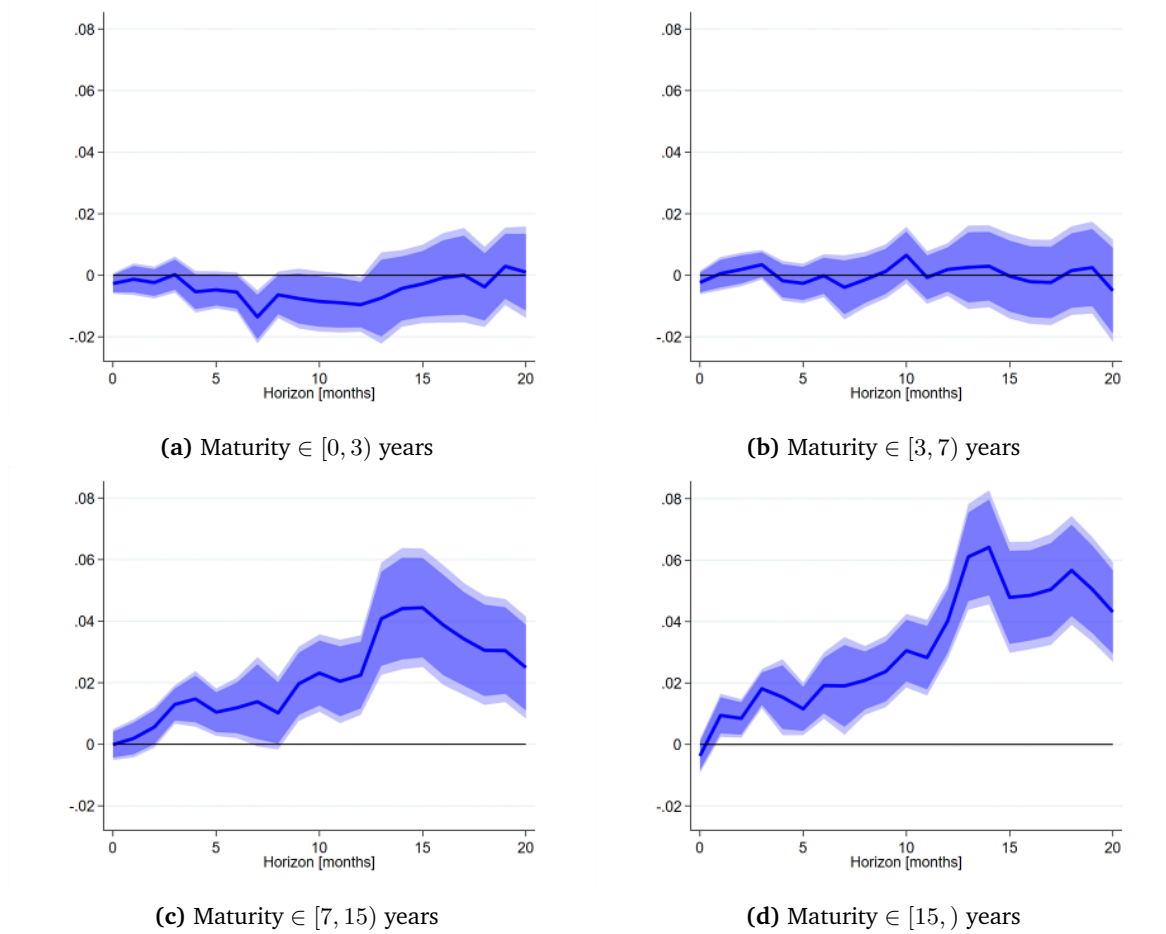
Figure 8 repeats the maturity breakdown for US insurers. The decline in net purchases following a UK monetary contraction is concentrated in shorter-maturity bonds. The response is most pronounced in the 3–7 year bucket, where the decline peaks around 11 months after the shock. Bonds in the 7–15 year range show a weaker and less persistent reaction. For maturities above 15 years, a significant decline emerges only later, around 18–19 months after the shock.

5.2.2 SECTORAL ALLOCATION

In Figures 9 and 10, we examine whether the impact of a monetary contraction on life insurer corporate bond net purchases differs across financial and non-financial issuers. The reaction of UK insurers is qualitatively similar across sectors, with net purchases of both financial and non-financial corporate bonds increasing significantly, although the peak response in the non-financial sector is around twice the size of that in the financial sector. In the case of US insurers, however, the negative reaction to a UK monetary shock is concentrated in corporate bonds issued by the financial sector, with no clear or significant response in non-financials.

Figure 7
Aggregate response of UK insurers to a UK monetary policy tightening across maturities

This figure shows the estimated response of UK life insurers in the GBP market to the 10-year gilt yield surprise for subsamples of bonds with different remaining maturity in years. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*



Taken together, these disaggregated results reveal sharp differences in both the maturity segments and issuer sectors at which UK and US insurers adjust their portfolios, pointing to distinct underlying mechanisms, which we discuss in Section 5.5.

5.3 INTERNATIONAL MONETARY POLICY SPILLOVERS

The previous analysis focused on UK monetary policy shocks. We now ask whether the asymmetric responses of UK and US life insurers in the UK corporate bond market also arise when the shock originates in the US. Given the outsized role of US monetary policy in shaping global financial conditions (see e.g. Albagli et al., 2019; Faia et al., 2025), understanding how US rate shocks affect institutional investors' portfolio behaviour in foreign bond markets is of independent interest. Moreover, comparing the responses across different shock origins can shed light on the channels through which UK and US monetary shocks may operate.

Figure 8
Aggregate response of US insurers to a UK monetary policy tightening across maturities

This figure shows the estimated response of US life insurers in the USD market to the 10-year gilt yield surprise for subsamples of bonds with different remaining maturity in years. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: NAIC, CIQ, LSEG, Braun et al. (2024).*

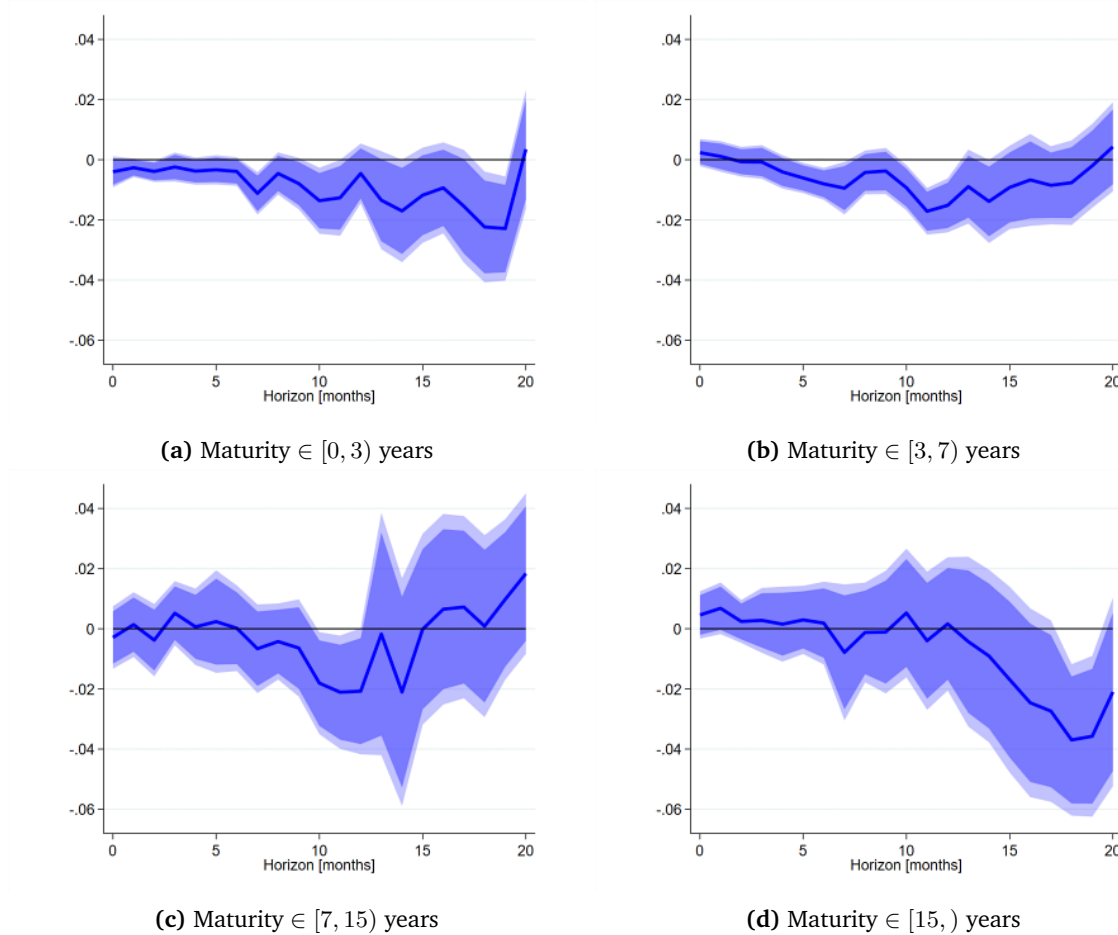
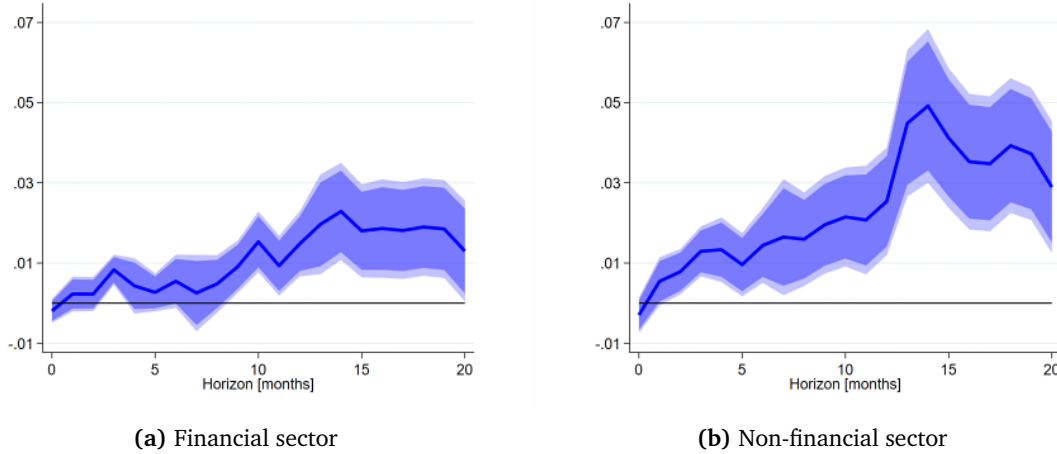


Figure 11 shows the impact on UK insurers of a rise in US policy rates. Mirroring the response to a UK monetary contraction, UK insurers increase their net purchases of GBP-denominated corporate bonds, while there is little evidence of a clear reaction in USD-denominated bonds. As for the aggregate responses to a UK monetary policy tightening, evidence from an instrumental-variable approach corroborates our findings (see Appendix Figure 26, Panels (a) and (b)). Quantitatively, a 1 percentage point increase in the 10-year US Treasury yield raises UK insurers' net purchases of GBP-denominated bonds by about 0.5 percentage points of outstanding amounts after two months, rising to nearly 1.5 percentage points after 14 months (Appendix Figure 26, Panel (a)).

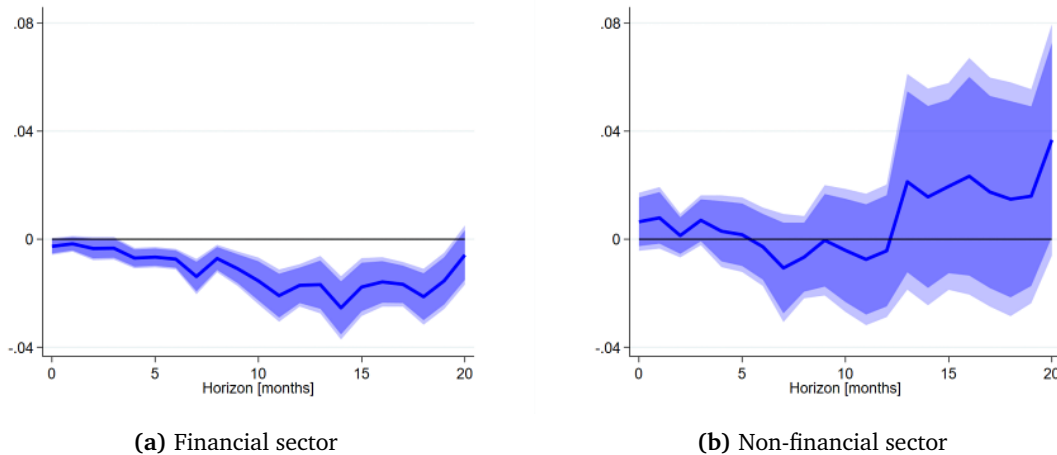
Figure 12 shows the corresponding dynamic responses for US insurers. US insurers decrease their net purchases in response to a US monetary tightening, with the effect becoming significant six months after the shock. The direction of the response is similar to that observed following a UK monetary contraction. Here, too, our instrumental-variable approach confirms the negative response: a

Figure 9**Aggregate response of UK insurers to a UK monetary policy tightening across bond issuer sectors**

This figure shows the estimated response of UK life insurers in the GBP market to the 10-year gilt yield surprise for subsamples of bond issuers from the financial and non-financial sector. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*

**Figure 10****Aggregate response of US insurers to a UK monetary policy tightening across bond issuer sectors**

This figure shows the estimated response of US life insurers in the USD market to the 10-year gilt yield surprise for subsamples of bond issuers from the financial and non-financial sector. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: NAIC, CIQ, LSEG, Braun et al. (2024).*



1 percentage point increase in the 10-year US Treasury yield leads to a decrease in US insurers' net purchases of about 0.5 percentage points of outstanding amounts after one year (Appendix Figure 26, Panel (c)).

The results confirm that US monetary policy spills over to the UK corporate bond market through insurers' transactions. The response patterns broadly mirror those observed for UK monetary shocks.

Figure 11
Aggregate response of UK insurers to a US monetary policy tightening

This figure shows the estimated response of UK life insurers in the GBP and USD market to the 10-year US Treasury yield surprise. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Bauer and Swanson (2023).*

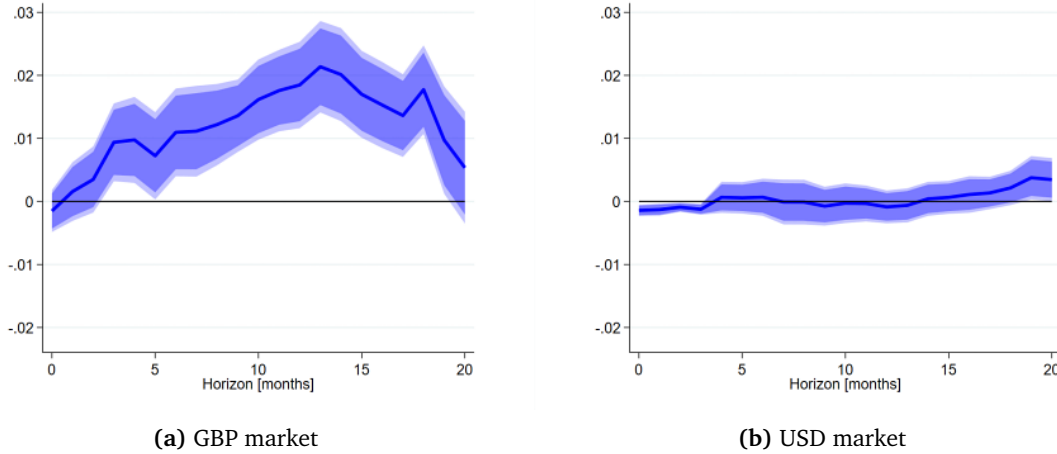
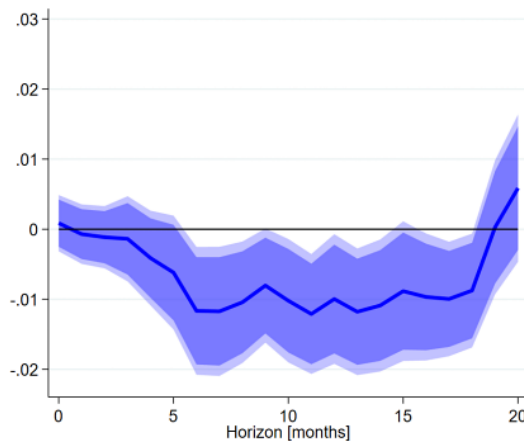


Figure 12
Aggregate response of US insurers to a US monetary policy tightening

This figure shows the estimated response of US life insurers in the USD market to the 10-year US Treasury yield surprise. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: NAIC, CIQ, LSEG, Bauer and Swanson (2023).*



5.4 DIFFERENCE IN RESPONSES

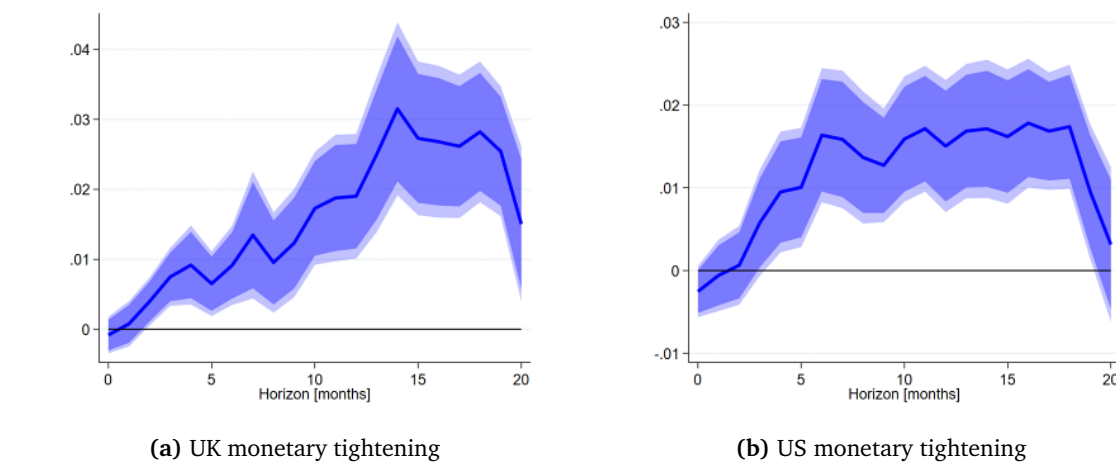
To test the statistical significance of the difference in investment responses between UK and US insurers in the UK corporate bond market in response to UK and US monetary policy shocks, we estimate Equation (2). A statistically significant coefficient estimate of β^h provides direct evidence that insurers

from different jurisdictions respond differently to the same shock. We use within-issuer variation to isolate this differential response between the two investor groups, UK and US insurers, and to obtain a more precise estimate in a single regression.

Figure 13 Panels (a) and (b) plot the coefficient estimates of Equation (2) for UK and US 10-year bond yield surprises, respectively. Consistent with earlier results that UK insurers' aggregate response is larger than US insurers' aggregate response to a positive monetary policy shock, we see positive and significant dynamic portfolio responses for both specifications. This result further reinforces the evidence of a differential UK-US insurer response in the UK corporate bond market for the same monetary policy shock.

Figure 13
Difference in UK and US insurers' responses to a UK and US monetary tightening

This figure shows the estimated difference in responses between UK and US life insurers to (a) the 10-year gilt yield surprise and (b) the 10-year US Treasury yield surprise. The coefficients β_h of the local projection estimation in Equation (2) are displayed for different time horizons, so the y-axis measures the estimated differential response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises all UK and US life insurers' UK corporate bond net purchases in the GBP and USD market between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, NAIC, CIQ, LSEG, Braun et al. (2024), Bauer and Swanson (2023).*



In Section 5.5, we discuss the channels through which these responses may operate and the extent to which they differ across the origin of the shock.

5.5 DISCUSSION

Insurers face a complex optimisation decision when deciding on their corporate bond portfolios. Specifically, their portfolios are likely to reflect the needs of liability matching and their actions are typically tightly regulated. At the same time, they will also be mindful of how their corporate bond investments fit with their wider, often global, portfolio allocation. A monetary policy shock affects all these factors simultaneously, and the different results we obtain for UK and US insurers in our empirical analysis suggest that different channels are at work. The responses of UK and US insurers are therefore unlikely to reflect a single mechanism, and we interpret our findings as reflecting a

combination of forces whose relative importance depends on the institutional setting of the insurer, the currency denomination of their assets, and the source of the shock. In what follows, we discuss the channels most plausibly at work, map them to our aggregate and disaggregated results, and close by ruling out several alternative explanations.

The existing literature offers no clear-cut conclusions on the response of insurer demand for corporate debt to a monetary policy contraction, but provides a number of theories explaining the underlying drivers. The simplest explanation for a rise in demand for corporate bonds has to do with simple portfolio rebalancing. The demand for corporate bonds increases because the fall in price results in valuation losses on existing holdings. The latter may trigger rebalancing towards the insurer's target portfolio weights, necessitating higher purchases.

Another explanation stems from the fact that, despite the incentives for duration matching, life insurers typically exhibit a negative duration gap, with liabilities that are longer in duration than their asset portfolios. So when long-term interest rates rise, the duration of liabilities falls relative to assets, narrowing the duration gap and weakening incentives to hold very long-duration assets, including government bonds (on duration matching see Domanski et al., 2017; Czech and Roberts-Sklar, 2019). Insurers may then rebalance toward corporate bonds, which generally offer competitive yields though with lower relative duration. At the same time, the negative duration gap means that increases in long-term rates expand insurers' risk-bearing capacity and create room to take on more credit risk (Li, 2025). Under this duration gap channel, positive interest rate shocks are associated with increased corporate bond purchases.

On the other hand, other studies suggest that insurers face a trade-off between asset duration and investment yields. As long-term risk-free rates rise, government bonds become a more attractive option for liability matching and insurers may shift from corporate bonds into government debt, implying negative net purchases of corporate bonds (Kirti and Singh, 2025).

Reach-for-yield motives predict a response in the same direction. Performance benchmarks or target returns may incentivise portfolio managers to seek higher yields by incurring excessive credit risk (Becker and Ivashina, 2015). This motive becomes stronger when interest rates decline and insurers may respond by reallocating toward higher-yielding assets, including corporate bonds. But when interest rates rise, the reach-for-yield incentive weakens, leading insurers to scale back exposure to assets such as corporate bonds.

For UK life insurers, the duration gap channel appears to provide the best explanation of their reaction to UK monetary policy shocks. The simple rebalancing story explains the increase in demand for GBP-denominated corporate bonds, but would suggest a counterfactual reduction in USD-denominated bonds to the extent that GBP appreciates with higher interest rates. That does not necessarily mean it is unimportant, but it cannot be the only channel at work. The duration gap channel is reinforced by the Solvency II Matching Adjustment (MA) framework. The MA allows UK life insurers to recognise part of the illiquidity premium earned on assets held to maturity, such as corporate bonds, by discounting

their maturity- and currency-matched liabilities at a rate above the risk-free rate. This increases the attractiveness of long-duration GBP-denominated corporate bonds, especially relative to government bonds, and leaves UK insurers incentivised and operationally prepared to rebalance towards additional long-duration GBP corporate bonds when tightening compresses duration mismatches and strengthens capital. To the extent that US monetary shocks transmit to UK rates, the same considerations would apply. Our disaggregated results line up with this reading: the aggregate increase in UK insurers' net purchases is concentrated in long-maturity bonds and spans both financial and non-financial issuers (see Section 5.2). In an additional subsample exercise, we show that results are mainly driven by MA-approved life insurers and not by non-MA-approved life insurers in response to both UK and US monetary policy shocks (see Appendix Figures 28 and 29).¹²

The MA mechanism described, which requires currency matching between assets and liabilities, is also consistent with our finding that UK insurers increase their net purchases of GBP-denominated bonds rather than USD-denominated ones. While foreign-currency bonds can in principle enter MA portfolios through long-dated cross-currency swaps, the associated hedging costs and collateral requirements create a strong economic preference for GBP-denominated assets, amplifying UK insurers' home currency bias. In Appendix Section A.5.1, we use within-issuer cross-currency variation to show that the differential response between UK insurers' GBP- and USD-denominated bond purchases is significant and peaks around one year after the shock. Since the comparison holds with issuer-time fixed effects, we can isolate investors' demand for bonds of different currencies rather than bond-supply factors, including issuer-specific fundamentals such as size and credit risk.

These findings can also be interpreted through the lens of preferred-habitat models of bond markets (e.g. Vayanos and Vila, 2021; Greenwood et al., 2023; Gourinchas et al., 2025), in which investor clienteles exhibit strong preferences for specific maturities and currencies, and markets are only partially integrated through arbitrage. In this framework, shocks are absorbed through portfolio rebalancing by segmented investors rather than frictionless adjustment across assets. Our evidence speaks directly to this mechanism: by holding the investor entity fixed, we document quantity adjustment along clearly defined currency and maturity dimensions, consistent with segmented demand. At the same time, our results highlight features that are typically abstracted from in theoretical models, notably the gradual nature of portfolio rebalancing and the systematic differences between domestic and foreign institutions operating in the same market.

The behaviour of US insurers seems to reflect a different set of incentives. US insurers hold UK corporate bonds predominantly in USD as part of their globally diversified portfolios, and they do not benefit from a UK-specific regulatory framework that favours long-duration UK exposures. A UK

12 An additional channel that may also be relevant is the trend over recent years for UK defined benefit pension schemes to transfer their financial liabilities to life insurers through bulk purchase annuities. A monetary tightening that improves pension funding ratios may lower the cost of such annuities, thereby increasing demand for life insurance (MA-related) products and freeing up capital for insurers' bond investments. How sensitive these transfers are to high-frequency monetary policy shocks is unclear and we leave investigating its importance to future research.

monetary tightening likely alters the attractiveness of UK corporate bonds through several channels. These include changing expectations about UK growth and changing the relative appeal of UK credit versus alternative global opportunities. Consistent with this, US insurers reduce net purchases of USD-denominated UK corporate bonds following UK tightening. The response is concentrated in short- and medium-maturity financial bonds, which is consistent with UK financial issuers being directly exposed to UK monetary conditions through their domestic operations, even when they issue in USD. A pure duration-management channel fits this pattern less well, since US insurers' liabilities are USD-denominated and their balance-sheet mechanics respond primarily to US rather than UK rates.

When the shock originates in the US, the picture changes. Here, the trade-off between duration matching and the level of risk-free yields described by Kirti and Singh (2025), as well as reach-for-yield motives, are likely more directly relevant and help account for the decline in US insurers' corporate bond net purchases. To the extent that UK yield surprises also spill over to US markets through investors' cross-border portfolio rebalancing (see e.g. Stedman, 2020; Avalos et al., 2025; Stedman and Hanson, 2026), this may also partially account for US insurers' response to a UK monetary contraction. Apart from this, policyholder behaviour may also play a role in the response of US life insurers to domestic monetary policy shocks. The literature documents that higher interest rates increase surrender rates by improving outside options for policyholders, forcing asset liquidations (Ozdagli and Wang, 2019; Kubitz et al., 2025). Indeed, US life insurers rely more heavily on cash-value products with surrender options, whereas lifetime annuity products of UK life insurers, in particular those subject to MA, are legally irreversible and cannot be surrendered once issued, effectively shielding UK annuity books from surrender-driven liquidations. Hence, liability-side pressures help explain the decline in US life insurers' net purchases following domestic monetary tightening, whereas the response of UK insurers to UK domestic shocks appears dominated by duration and regulatory incentives rather than liquidation motives.

Several other potential channels, however, do not survive closer scrutiny. Although MA-approved insurers account for the bulk of the UK response, the MA does not itself act as a dynamic transmission channel. In Appendix Section A.5.2, we estimate that the response of the MA to a UK or US monetary contraction is either statistically insignificant, or implies a tightening rather than a loosening of regulatory capital conditions in both GBP and USD markets. These results reject both the hypothesis that monetary tightening relaxes capital constraints through the MA and the hypothesis that MA dynamics differ meaningfully across currencies following monetary policy shocks. The MA therefore shapes insurers' baseline exposure to long-duration GBP corporate bonds as a structural feature of the UK regime, rather than responding dynamically to monetary policy. Likewise, we rule out exchange rate valuation effects in Appendix Section A.5.3. Expressing all transaction values in USD leaves our estimates qualitatively unchanged and only marginally different in magnitude.

Taken together, our results highlight how the transmission of monetary policy through institutional investors depends on the interaction of liability-matching incentives, regulatory regimes, and currency

denomination. Duration management, yield-based forces and global portfolio management motives are important channels, but their net effect depends on the institutional setting of the investors, producing systematically different responses across UK and US insurers and across GBP and USD segments of the same market. These asymmetries shape the cross-border transmission of monetary policy to corporate bond markets.

In simple terms, our results suggest that monetary policy shocks do not trigger a uniform response from life insurers. Instead, UK and US insurers adjust their holdings of UK corporate bonds in different ways, reflecting differences in their regulatory environments, liability structures, and portfolio objectives. As a result, the overall impact of monetary policy on corporate bond demand depends not only on the shock itself, but also on who holds the bonds.

6 CONCLUSIONS

In this paper we examine how monetary policy shocks affect life insurer demand for UK corporate bonds and thereby the transmission of monetary policy through the corporate bond market. The main contribution of the paper is that we examine the differential impact of monetary policy on both domestic and foreign insurer demand for corporate bonds. As we show in the paper, both the UK and US life insurance industries hold substantial portfolios of UK corporate bonds. In order to examine the consequences for monetary transmission empirically, we combine security-level regulatory data for the UK and for the US to construct a novel dataset of life insurer transactions in UK corporate bonds. We then examine how net transactions in corporate bonds respond to monetary policy shocks in the UK and US.

We find that over our sample period, UK insurers have tended to increase their net purchases of corporate bonds in response to UK monetary contractions. The reaction of US insurer demand for UK corporate debt has, however, tended to move in the opposite direction to UK insurers following UK monetary shocks. It has therefore partly offset the impact on net purchases of corporate bonds. In this way, it may have acted to reduce the transmission of UK monetary policy to the real economy. At the same time, US monetary contractions have themselves acted to increase UK insurers' net purchases while decreasing, though to a lesser extent, those of US insurers.

Our findings reinforce existing evidence that home currency bias in investor portfolios, often reinforced by regulatory frameworks, acts as a barrier to bond market integration when issuers are not flexible in issuing debt across currencies. While a large body of work in international corporate finance studies firms' currency choice in bond issuance (see e.g. Bruno and Shin, 2017; Coppola et al., 2023; Eren et al., 2025), indirect demand pressures stemming from investors' home currency bias are likely to remain a key determinant of market segmentation.

In our setting, market segmentation is further compounded by regulatory differences. The Matching Adjustment not only drives home currency bias but may also shape how UK life insurers, as opposed to US life insurers, adjust their corporate bond holdings in response to monetary policy.

More broadly, our findings provide an empirical perspective on preferred-habitat models of bond markets, which emphasise segmented investor demand and limited arbitrage as key forces shaping asset prices and the transmission of monetary policy (Vayanos and Vila, 2021; Greenwood et al., 2023; Gourinchas et al., 2025). By focusing on investor-level transactions, we show that these mechanisms operate through gradual, quantity-based portfolio adjustment by long-horizon institutional investors, and that such adjustment can differ systematically between domestic and foreign investors within the same market. In practice, this implies that preferred-habitat behaviour can generate offsetting cross-border responses that attenuate monetary transmission. Accounting explicitly for investor heterogeneity across borders, currency-specific segmentation, and dynamic portfolio rebalancing therefore appears important when applying preferred-habitat frameworks to real-world monetary policy transmission.

Finally, our results highlight the importance of foreign investors for monetary policy transmission. This echoes recent evidence on the central role of foreign investors and their broader macroeconomic implications (Richter and Diebold, 2023; Zhou, 2024; Boermans and Burger, 2023).

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A APPENDIX

A.1 DATA SOURCES ON ASSET HOLDINGS AND CORPORATE BOND CHARACTERISTICS

The background facts on asset holdings and corporate bonds reported in Section 3 are based on the following data sources.

UK and US insurers' asset holdings

For the UK, the data come from the Prudential Regulation Authority (PRA), which regulates life and non-life insurers in the UK. Since 2016, insurance companies in the UK have been subject to the Solvency II Directive, which provides a consistent source of quarterly balance sheet data and security-level asset holdings data. For the US, we obtain comparable data from the National Association of Insurance Commissioners (NAIC), which collects financial information from US regulated and domiciled insurers. Our data contain end-of-year bond holdings at the security level from Schedule D Part 1 from 2018 to 2022 as well as additional balance sheet items, such as total assets, equity, and cash, available up to 2020. In the analysis of bond holdings, we focus on those bonds that are actively managed by insurers, so we exclude unit- and index-linked assets for UK insurers and assets within the separate account for US insurers.¹³ We focus on 2019 Q4 to avoid any potential distortions arising from the onset of the Covid-19 pandemic.¹⁴

UK corporate bonds

Our data for corporate bonds are obtained from S&P Capital IQ (CIQ). We closely follow the sample selection criteria for corporate bonds by Jurkatis (2024). Our sample of corporate bonds in CIQ covers most UK corporate bonds denominated in GBP, USD, and EUR. We identify UK corporate bonds based on the issuer's country of incorporation.¹⁵ Further details on our cleaning and classification procedure

13 Unit- and index-linked assets back investment-linked insurance and pension contracts, whose payouts are tied directly to the performance of a specific underlying fund or index chosen by the policyholder. These assets are not available to meet the insurer's general liabilities in the event of insolvency. Similar to unit- and index-linked assets, separate accounts are pegged to investment-linked pass-through products, such as variable-rate annuities and pension products. The return of a variable annuity depends on the performance of the portfolio in separate accounts, which are structured similarly to mutual funds. Separate accounts are shielded from any changes in insurers' general accounts, including insurers' insolvency. The general account backs liabilities with guaranteed returns to customers, such as life insurance policies and fixed-rate annuities (Chodorow-Reich, 2014). Unit- and index-linked assets and separate accounts make up a significant portion of insurers' assets (see Section 3.1).

14 Since insurers' broader investment patterns remain relatively stable over time (see Appendix Figures 18 and 19 and Kubitza, 2026; Bretscher et al., 2024 for the corporate bond market), our findings are also broadly in line with the rest of the common sample period.

15 The issuer's country of incorporation does not necessarily coincide with the country of incorporation of the issuer's ultimate parent company. First, a UK parent company may issue bonds through a non-UK subsidiary; for example, via an entity incorporated in a lower tax jurisdiction. As a result, we do not capture all bonds that could ultimately be attributed to UK firms. Second, an issuer incorporated in the UK may itself be a subsidiary that issues bonds on behalf of a parent company located outside the UK, for example, for regulatory or tax reasons. This implies that our sample includes bond issuances whose ultimate parent company is not UK-based. Both issues are relevant in the UK context (Coppola et al., 2021; Beck et al., 2024). Since our analysis focuses on determinants operating on the investor side while holding the supply side fixed, we do not further distinguish between residency- and nationality-based classifications.

are contained in Appendix Section A.2. Moreover, we complement our data on corporate bonds with information from the London Stock Exchange Group (LSEG) and CIQ on bond characteristics, such as the maturity date, issuance date, history of outstanding amounts, bond type etc. at the ISIN level.

A.2 DATA: CLASSIFICATION OF CORPORATE BONDS

To classify UK corporate bonds over the sample period from 2018 to 2022, we focus on debt instruments

1. whose CFI code starts with 'D',
2. that are classified as 'Corporate Debentures', 'Corporate PIK Bond', 'Retail Note' or 'Corporate Zero' according to CIQ, and all instruments that are classified as 'Eurobond', 'Corporate MTN', 'Corporate MTN Zero' or 'Euro MTN' if their CFI code starts with 'DB' or 'DT' (where T denotes medium-term note),
3. that are issued in GBP, USD or EUR,
4. whose issuers are public or private companies according to CIQ and
5. whose issuers' country of incorporation is the UK.

There is a change in the classification of corporate bonds' security type in CIQ around 2022. Therefore, when testing our results for the longer sample from 2018 to 2025, we change our classification requirement 1. and 2. to debt instruments whose CFI code starts with 'DB' or 'DT' and that are classified as 'Eurobond', 'Corporate MTN', 'Corporate MTN Zero', 'Euro MTN', 'Corporate Debentures', 'Corporate PIK Bond', 'Retail Note', 'Corporate Zero', 'Corporate Note' or 'Corporate Bond'.

A.3 HOME CURRENCY BIAS IN THE CORPORATE BOND MARKET

We conduct a security-level analysis to test whether the home currency bias observed in aggregate holdings reflects genuine currency preferences or is explained by other bond or issuer characteristics, and to quantify the strength of this bias. Our sample comprises UK corporate bonds held by UK and US life insurers at the end of 2019. We aggregate the bond holdings of UK and US insurers separately at the bond level. The bonds in our sample are issued by 397 UK firms, of which 33 issue both USD- and GBP-denominated bonds. We estimate the following regression:

$$Bond\ investment_b = \mu_{i(b)} + \beta 1[USD]_b + \gamma' Bond\ characteristics_b + \varepsilon_b, \quad (3)$$

where $Bond\ investment_b$ represents different measures of insurers' investment in bond b , capturing both the extensive and intensive margins. We include bond-issuer fixed effects, $\mu_{i(b)}$, which control for firm-level fundamentals such as asset size, riskiness, and leverage. As a result, identification relies on within-firm variation arising from insurers' investments in bonds with different characteristics. The coefficient of interest is β , which captures whether insurers invest more in USD-denominated bonds

relative to GBP-denominated bonds. Identification exploits that many UK firms issue bonds in both GBP and USD. In our sample, UK and US life insurers hold both USD- and GBP-denominated bonds issued by the same firm for 25 and 8 issuers, respectively. We additionally control for other bond characteristics that may be correlated with currency denomination and could also influence insurers' investment decisions, including maturity and issued amount.

Table 2 reports the results of our estimation. Column (1) shows that, for a given firm, UK insurers are about 67 percentage points less likely to invest in USD-denominated bonds relative to GBP-denominated bonds. Column (3) confirms that the number of insurers investing in USD bonds, relative to GBP bonds, is also lower. In contrast, column (2) indicates that US insurers are about 79 percentage points more likely to invest in a firm's USD-denominated bonds relative to its GBP-denominated bonds. This effect extends to the number of investing insurers. These estimated coefficients are significant at the 1% level. As these patterns hold for a given bond issuer that issues bonds in multiple currencies, we attribute this segmentation to a strong home currency bias of life insurers.

In column (3), we further estimate that fewer UK insurers invest in EUR- relative to GBP-denominated bonds. While the coefficients on EUR are also negative in columns (1) and (4), they are not statistically significant.

Table 2
Home currency bias

This table shows the results of the estimation in Equation (3). Our sample comprises UK corporate bonds held by UK and US life insurers at the end of 2019. The indicator $1[\text{Invested insurers}]_b$ equals one if insurers hold bond b . $\text{Number of invested insurers}_b$ counts the number of insurers invested in bond b , including zero holdings. Our explanatory variables include indicators for whether a bond is denominated in USD or EUR, as well as indicators for maturity buckets of [3,7), [7,15), or [15,) years. We also control for the natural logarithm of the issued amount. Robust standard errors are indicated in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. *Data sources: Solvency II, NAIC, CIQ.*

Dep. variable:	1[Invested insurers] _b		Number invested insurers _b	
Insurers' origin:	UK (1)	US (2)	UK (3)	US (4)
1[USD] _b	-0.672*** [0.03]	0.787*** [0.03]	-9.530*** [0.52]	2.652*** [0.62]
1[EUR] _b	-0.036 [0.02]	0.011 [0.04]	-8.178*** [0.44]	-0.366 [0.49]
Log(Issued Amount) _b	-0.003 [0.02]	0.028* [0.02]	1.366*** [0.28]	0.773 [0.52]
Maturity ∈ [3,7) _b	0.025 [0.03]	0.037 [0.05]	0.778*** [0.33]	0.359 [0.71]
Maturity ∈ [7,15) _b	0.008 [0.03]	0.052 [0.07]	1.215*** [0.40]	3.322 [3.28]
Maturity ∈ [15,) _b	0.034 [0.03]	0.073 [0.05]	0.737 [0.44]	1.156 [0.79]
Issuer FE	Yes	Yes	Yes	Yes
No. of obs.	1,133	1,133	1,133	1,133
R ²	0.651	0.740	0.700	0.062

In Table 3, we show that UK insurers' strong preference for their home currency also extends to the intensive margin. Specifically, we estimate that the share of USD-denominated bond holdings

in UK insurers' total UK corporate bond portfolio is approximately 18 basis points lower than the corresponding share of GBP-denominated bonds. In contrast, the estimated coefficients on home currency bias for US insurers are positive in columns (2) and (4), though not statistically significant.

Table 3
Home currency bias - intensive margin

This table shows the results of the estimation in Equation (3). Our sample comprises UK corporate bonds held by UK and US life insurers at the end of 2019. Our dependent variable in the first two columns is the share of insurers' total UK corporate bond holdings invested in bond b , expressed in per cent and excluding zero holdings. $\text{Log}(\text{Holdings})_b$, our dependent variable in columns (3) and (4), denotes the natural logarithm of holdings in bond b , converted to GBP. Our explanatory variables include indicators for whether a bond is denominated in USD or EUR, as well as indicators for [3,7), [7,15), or [15,) years of remaining maturity. We also control for the natural logarithm of the issued amount. Robust standard errors are indicated in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. *Data sources: Solvency II, NAIC, CIQ.*

Dep. variable:	Share insurers' holdings of total UK corporate bond holdings _{<i>b</i>} (%)		Log(Holdings) _{<i>b</i>}	
Insurers' origin:	UK (1)	US (2)	UK (3)	US (4)
1[USD] _{<i>b</i>}	-0.175*** [0.02]	0.455 [0.49]	-1.705*** [0.21]	0.057 [0.39]
1[EUR] _{<i>b</i>}	-0.171*** [0.01]	0.590 [0.64]	-2.702*** [0.18]	0.083 [0.43]
Log(Issued Amount) _{<i>b</i>}	0.074*** [0.01]	0.186 [0.20]	0.780*** [0.14]	0.230 [0.24]
Maturity ∈ [3,7) _{<i>b</i>}	0.033*** [0.01]	-0.052 [0.14]	0.318** [0.15]	0.466** [0.21]
Maturity ∈ [7,15) _{<i>b</i>}	0.080*** [0.02]	0.942 [0.99]	0.443** [0.18]	0.628** [0.27]
Maturity ∈ [15,) _{<i>b</i>}	0.055*** [0.02]	-0.002 [0.17]	0.240 [0.19]	0.558** [0.27]
Issuer FE	Yes	Yes	Yes	Yes
No. of obs.	806	427	780	427
R ²	0.490	0.057	0.571	0.230

A.4 HOME CURRENCY BIAS IN THE GOVERNMENT BOND MARKET - EVIDENCE FROM US INSURERS'

FOREIGN BOND HOLDINGS

To provide evidence of US life insurers' dollar bias in the government bond market, Table 4 reports US life insurers' largest foreign government bond exposures by country at year-end 2019, distinguishing between countries with positive USD-denominated holdings and those with zero USD-denominated holdings. Large economies such as Japan, India, Spain or the United Kingdom play only a minor role in US insurers' foreign government bond portfolios compared to countries such as Colombia, Qatar, or Indonesia. The table shows that government bonds denominated in domestic currencies are substantially less targeted by US insurers than government bonds denominated in USD, both in terms of invested amounts and the number of investing insurers. Since gilts are exclusively denominated in GBP, this provides compelling evidence that US insurers' limited investment in gilts is largely driven by a strong preference for bonds denominated in their domestic currency.

Table 4
US insurers' largest foreign government bond exposure

This table reports US life insurers' largest foreign government bond exposures. We distinguish between countries for which insurers hold USD-denominated government bonds and countries whose bonds held by insurers are exclusively denominated in currencies other than USD. For each country, we report the par value of government bonds held by insurers, the share of these holdings in insurers' total foreign government bond portfolio, the number of investing US insurers, and the share of a country's bonds held by insurers that is denominated in USD. All data are measured at year-end 2019. We construct the dataset by combining insurers' holdings from NAIC with government bond information from LSEG. Johnson and Carelus (2020) report different levels of US insurers' foreign bond exposure in the NAIC Capital Market Special Report, which we attribute to differences in the classification of government bonds and to our focus on the subsample of life insurers. Importantly, both sources imply the same qualitative conclusions for our analysis. For reference, US life insurers held approximately USD 169.43 billion in US government bonds at year-end 2019. *Data sources: NAIC, LSEG.*

Insurers' holdings of country's bonds denominated in USD > 0				
	Insurers' holdings (million dollars)	Insurers' share out of total foreign holdings (%)	Number of invested insurers	Insurers' share of country's bond holdings denominated in USD (%)
Colombia	1,679	6.74	57	96.8
Qatar	1,632	6.56	72	100
Indonesia	1,592	6.39	62	95.1
Israel	1,561	6.27	59	98.8
Panama	1,352	5.42	52	100
Saudi Arabia	1,350	5.42	59	100

Insurers' holdings of country's bonds denominated in USD = 0				
	Insurers' holdings (million dollars)	Insurers' share out of total foreign holdings (%)	Number of invested insurers	Insurers' share of country's bond holdings denominated in USD (%)
Bangladesh	1,368	5.49	1	0
Japan	676	2.71	3	0
India	99	0.40	1	0
Spain	23	0.10	1	0
New Zealand	11	0.05	1	0
...	...	...	...	...
United Kingdom	0.35	0.00	1	0

The currency denomination of a country's bonds may, however, be correlated with other bond characteristics or with characteristics of the issuing country. We address this concern and corroborate our hypothesis about US life insurers' dollar bias in their foreign government bond holdings using a bond-level analysis with the following empirical specification:

$$Bond\ investment_b = \mu_{i(b)} + \beta 1[USD]_b + \gamma' Bond\ characteristics_b + \delta' Issuing\ country\ characteristics_{i(b)} + \varepsilon_b, \quad (4)$$

where $Bond\ investment_b$ denotes alternative dependent variables measuring insurers' investment in bond b , including the share of holdings in total foreign government bond portfolios, the number of investing insurers, and the natural logarithm of bond holdings in 2019. $Bond\ characteristics_b$ includes maturity buckets and the bond's issued amount. Using data on GDP, inflation, and unemployment from the World Development Indicators of the World Bank, we additionally control for characteristics of the bond-issuing country, $i(b)$. We further include continent fixed effects, and, in a more restrictive specification, country fixed effects, $\mu_{i(b)}$. Thus, we dispel endogeneity concerns that issuer fundamentals

drive our estimates. Our sample comprises government bonds issued by 92 countries, 26 of which issue both USD- and non-USD-denominated bonds (not necessarily in their home currency). In total, we cover 924 government bonds held by 195 US life insurance companies.

Table 5 reports our findings. The coefficient on USD denomination is highly significant across all six specifications and largely exceeds those on other covariates, such as the developed-country indicator or bond maturity. On average, for the same issuing country, a USD-denominated government bond is associated with a 14 basis point higher share of insurers' total foreign government bond holdings relative to bonds denominated in other currencies (column (2)). Given that the average share of a single bond in insurers' aggregate foreign government bond portfolio is approximately 0.108%, this effect is economically meaningful. Consistent with this result, USD-denominated foreign government bonds are held, on average, by about five more US insurers and feature invested amounts that are more than seven times larger ($= \exp(1.972)$) than those of non-USD-denominated bonds issued by the same country (columns (4) and (6)). Hence, these estimates with country fixed effects exploit within-country variation arising from countries that issue both USD- and non-USD-denominated bonds.

Notably, the analysis is conditional on bonds in which at least one US insurer holds a positive position, and therefore excludes insurers' extensive-margin decision not to invest in certain bonds. Since Table 4 indicates that most bonds that are omitted from our sample are not USD-denominated, the estimated preference for USD-denominated bonds is likely a lower bound. For example, we track several other outstanding GBP-denominated gilts that do not appear in our sample.

Table 5
US insurers' home currency bias in the government bond market

This table shows the results from estimating Equation (4). The sample is at the bond level and covers all non-US government bonds in which US life insurers held positive positions in 2019 Q4. The dependent variables are insurers' share of a bond in their total foreign government bond holdings, the number of investing insurers, and the natural logarithm of insurers' holdings in a bond. The explanatory variables include bond characteristics, such as issued amount and indicators for [3,7), [7,20), or [20,) years of remaining maturity, as well as characteristics of the bond-issuing country, $i(b)$. Robust standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. *Data sources: NAIC, LSEG, World Bank.*

Dep. variable:	Share insurers' holdings out of foreign holdings _b (%)		Number invested insurers _b		Log(Holdings) _b	
	(1)	(2)	(3)	(4)	(5)	(6)
1[USD] _b	0.121*** [0.02]	0.139*** [0.02]	4.420*** [0.56]	5.422*** [0.59]	1.873*** [0.23]	1.972*** [0.24]
Log(Issued Amount) _b	0.021*** [0.00]	0.018*** [0.01]	0.586*** [0.11]	0.595*** [0.14]	0.133*** [0.04]	0.060 [0.07]
Maturity ∈ [3,7) _b	0.008 [0.01]	0.006 [0.01]	0.201 [0.39]	0.361 [0.39]	-0.028 [0.18]	0.156 [0.18]
Maturity ∈ [7,20) _b	0.010 [0.02]	0.008 [0.02]	0.989** [0.49]	1.234** [0.53]	0.093 [0.18]	0.273 [0.18]
Maturity ∈ [20,) _b	0.133*** [0.04]	0.116*** [0.03]	3.969*** [1.30]	3.357*** [0.83]	0.489** [0.22]	0.539*** [0.20]
1[Developed Country] _{i(b)}	0.058*** [0.02]		0.370 [0.57]		0.062 [0.20]	
Log(GDP) _{i(b)}	-0.000 [0.01]		0.089 [0.36]		0.259*** [0.05]	
Inflation Rate _{i(b)}	-0.007*** [0.00]		-0.188*** [0.06]		-0.102*** [0.02]	
Unemployment Rate _{i(b)}	-0.002 [0.00]		-0.077 [0.07]		0.023* [0.01]	
Continent FE	Yes		Yes		Yes	
Country FE		Yes		Yes		Yes
No. of obs.	740	729	740	729	740	729
R ²	0.113	0.274	0.111	0.294	0.191	0.413

A.5 ADDITIONAL DISCUSSION

A.5.1 CURRENCY BIAS

The aggregate responses to a UK monetary contraction differ markedly between the GBP and USD markets (see Section 5.1). This raises the question of whether it is the currency of denomination itself which matters for life insurer portfolio responses to monetary policy or other factors, like the specific characteristics of the bonds in issuance (e.g. their maturity) or of the bond issuer.

To address this question, we test whether the difference in responses across currencies is statistically significant while holding both the investor and the supply side fixed. For identification, we exploit the fact that, despite a strong home currency bias, almost 4% of UK life insurer corporate bond transactions are in USD-denominated bonds alongside transactions in GBP-denominated bonds issued by the same firms. This residual USD activity generates within-issuer, cross-currency variation in bond net purchases by the same investing entity, UK insurers, allowing us to isolate the role that currency denomination plays in driving insurers' responses to monetary policy shocks.

Using the notation from Section 4 and combining the (quasi-)balanced bond-month panels of UK life insurers' GBP- and USD-denominated net purchases into a single dataset, we estimate:

$$\sum_{k=0}^h Y_{b,t+k} = \mu_{i(b),t}^h + \nu_b^h + \beta^h 10YSurp_t \times 1[GBP]_b + \sum_{k=1}^5 \delta_k^h Y_{b,t-k} + \mathbf{\Gamma}^h \mathbf{X}_{b,t-1} + \varepsilon_{b,t+h}, \quad (5)$$

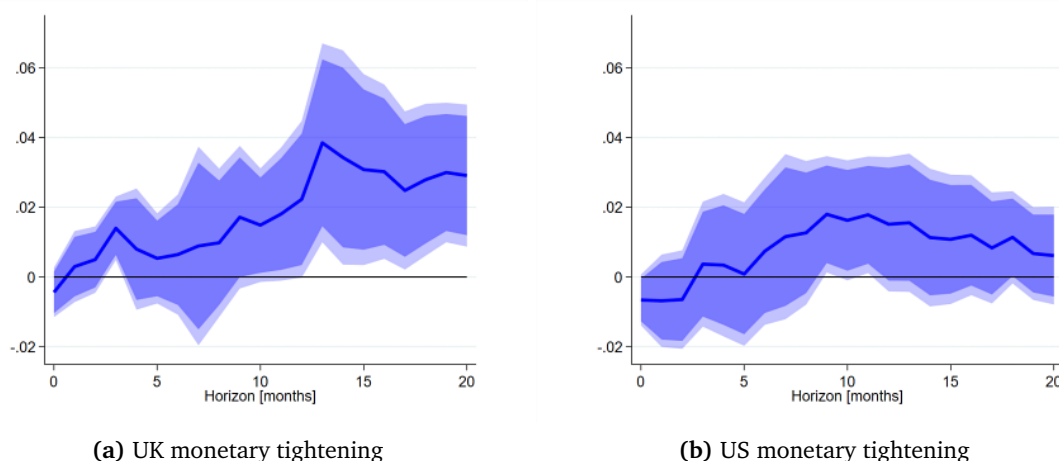
for $h = 0, \dots, H$, where we interact the monetary policy surprise, $10YSurp_t$, with $1[GBP]_b$, which is an indicator equal to one if bond b is denominated in GBP and zero if it is USD-denominated. Crucially, we include issuer-time fixed effects at horizon h , $\mu_{i(b),t}^h$, which absorb supply-side determinants (Khwaja and Mian, 2008), including issuer-specific fundamentals such as size and credit rating that may be correlated with the currency of issuance. $\mathbf{X}_{b,t-k}$ denotes our lagged macroeconomic controls interacted with the indicator variable $1[GBP]_b$. Throughout our analysis, we focus exclusively on insurers' active transactions and exclude supply-driven changes such as calls, prepayments, maturities, or defaults (see Section 3.3.1), ensuring that changes in outstanding amounts do not drive our results. We cluster standard errors at the issuer level.

Panel (a) in Figure 14 shows that UK life insurers' responses to the 10-year gilt yield surprise differ markedly across currency markets. The differential response becomes statistically significant after three months and peaks 13 months after the shock. In a robustness check, we augment $\mathbf{X}_{b,t-k}$ with interactions between the monetary policy surprise and bond maturity bucket indicators, since GBP bonds may systematically differ in maturity from USD bonds, potentially confounding our estimates. The estimated coefficients remain virtually unchanged, confirming that the observed responses are currency- rather than maturity-specific. In other words, following the same UK monetary policy shock, UK insurers increase net purchases more for GBP-denominated bonds than for USD-denominated bonds, even when comparing bonds of the same maturity bucket and issued by the same firm.

In Section 5.3, we document that UK insurers respond positively and significantly to US monetary policy shocks in the GBP market, while their response in the USD market is statistically insignificant at most horizons. Panel (b) of Figure 14 exploits within-issuer variation to estimate the differential response across the two markets to the 10-year US Treasury yield surprise, following Equation (5). Although less pronounced than the response to the gilt-yield surprise, the differential turns positive from month three onwards and peaks around 10 months after the shock. As in Panel (a), augmenting the controls with interactions between the US monetary policy surprise and maturity-bucket indicators leaves the estimates virtually unchanged. Cross-border monetary spillovers to investor demand therefore also operate through a currency-specific channel: even within the same issuer and maturity bucket, UK insurers respond more strongly to US monetary policy shocks in the GBP market than in the USD market.

Figure 14
UK insurers' differential response in the GBP and USD markets to a UK and US monetary tightening

This figure shows the estimated differential response of UK life insurers in the GBP and USD market to the (a) 10-year gilt yield surprises and (b) 10-year US Treasury yield surprises. The coefficients β_h of the local projection estimation in Equation (5) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024), Bauer and Swanson (2023).*



A.5.2 INSURER REGULATION

A key regulatory distinction between the UK and US insurance regimes is the Matching Adjustment (MA) under Solvency II. While US life insurers remain more exposed to interest rate risk, partly reflecting different product structures such as variable annuities (Sen, 2023), the MA framework under Solvency II leaves UK insurers with little incentive for flexible duration management. Eligible insurers may apply the MA to designated portfolios of long-term liabilities that are closely matched with assets held to maturity. The MA allows insurers to discount these liabilities at a higher rate by recognising part of the illiquidity premium earned on the backing assets.

The MA applies at the level of approved portfolios and requires a close match between asset and liability cash flows, including maturity and currency.¹⁶ The MA is defined as the asset spread over the risk-free rate, derived from market bond prices and yields, minus the fundamental spread. The fundamental spread is calibrated by the regulator based on historical data to reflect expected credit losses and downgrade risk. As a result, the MA can vary over time with changes in market credit spreads or regulatory parameters embedded in the fundamental spread.

If a UK or US monetary tightening were to increase the MA, insurers would be able to discount matched liabilities at a higher rate, effectively relaxing regulatory capital constraints. Such a capital

¹⁶ Importantly, currency matching can be achieved either directly by holding assets denominated in the same currency as the liabilities or synthetically, for example by hedging foreign-currency bonds using currency swaps. Detailed descriptions of MA eligibility criteria and its application across currencies are provided in PRA supervisory statements.

relief channel could incentivise insurers to expand balance sheets by underwriting new business and increasing investment, particularly in long-duration, GBP-denominated corporate bonds that are eligible for the MA. This mechanism could therefore rationalise the positive response of UK life insurers' net purchases in the GBP corporate market. By contrast, the absence of a significant response in the USD market may reflect the fact that USD-denominated bonds are less frequently included in MA portfolios, or are subject to different MA dynamics across currencies.

In our disaggregated results in Section 5.2.1, we find that UK life insurers' increase in net purchases following a UK monetary tightening is concentrated in long-maturity bonds. We further split life insurers into those that use the MA and those that do not. The results indicate that life insurers with MA approval account for the bulk of the increase in GBP-denominated UK corporate bond purchases in response to both a UK and US monetary policy tightening (see Appendix Figures 28 and 29). While non-MA life insurers also increase net purchases, their response is noticeably weaker.

To directly assess whether dynamic changes in MA regulation can explain our findings, we analyse the response of the MA itself to monetary policy shocks. UK insurance firms subject to Solvency II are required to use MA parameters published by the Prudential Regulation Authority in monthly releases on its website to calculate their technical provisions.¹⁷ The MA is reported by risk category, currency, maturity, and issuer sector (financial versus non-financial). We identify 17 UK life insurers that use the MA.

Figure 15 plots the average MA for GBP-, USD-, and EUR-denominated assets over time. The MA declines steadily between 2018 and 2022 and is highest for USD, followed by GBP and EUR. While the MA series comove across currencies, their magnitudes and adjustments slightly differ, indicating time-varying and cross-currency differences in MA treatment.

To test how the MA responds to monetary policy shocks, we estimate the following specification:

$$\frac{MA_{t+h} - MA_{t-1}}{10YYield_{t-1}} = \mu^h + \beta^h 10YSurp_t + \sum_{k=1}^5 \delta_k^h \frac{MA_{t-k} - MA_{t-k-1}}{10YYield_{t-1}} + \Gamma^h \mathbf{X}_{t-1} + \varepsilon_{t+h}, \quad (6)$$

for $h = 0, \dots, H$. MA_{t+h} denotes the average MA for GBP and USD, aggregated across maturities, risk categories, and issuer sectors within month $t + h$. The dependent variable scales changes in the MA for GBP by the 10-year gilt yield and changes in the MA for USD by the 10-year US Treasury yield. We regress this measure on the 10-year gilt yield surprise and the 10-year US Treasury yield surprise. We further include first differences of the scaled MA at lags one through five as controls. $\mathbf{X}_{t-1}$ denotes lagged macroeconomic controls, including the UK CPI inflation rate, unemployment rate, and real GDP. We use robust Newey–West standard errors. The sample period is restricted to 2018–2022, and we focus on bonds with maturities of 15 years and above, as UK insurers exhibit a particularly pronounced portfolio response to monetary policy shocks for these maturities (see Section 5.2.1).

¹⁷ All releases prior to 2023 can be found on the UK National Archives website and European Insurance and Occupational Pensions Authority (EIOPA) website.

Figure 15
Matching Adjustment over time

This figure shows the Matching Adjustment by currency (GBP, EUR, and USD) over time. The Matching Adjustment, measured in percentage points, is aggregated by averaging across maturities, risk categories, and issuer sectors. *Data sources: PRA, EIOPA.*

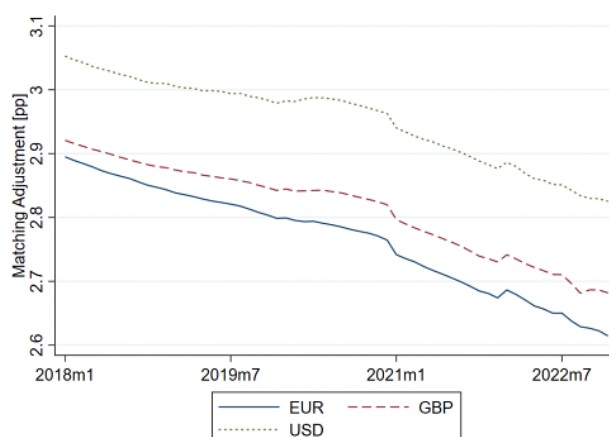


Figure 16 shows that the MA response to a UK monetary contraction is negative but statistically insignificant in both the GBP and USD markets. A US monetary tightening leads to a significantly negative MA response over the first 10 months in both currencies, indicating a tightening rather than a relaxation of insurers' regulatory capital conditions. These results reject two hypotheses: first, that monetary tightening relaxes capital constraints through the MA, and second, that MA dynamics differ meaningfully across currencies following monetary policy shocks.

A.5.3 EXCHANGE RATES

Our dependent variables are measured in GBP par values. To assess whether the estimated differences in responses between UK and US insurers merely reflect exchange rate movements following monetary policy shocks, we convert all transacted par values into USD. As shown in Figure 17, the estimates for UK and US insurers' response to a UK monetary policy tightening remain qualitatively unchanged and differ only marginally in magnitude. In unreported results we also find that insurers' responses to a US monetary policy tightening are virtually identical whether measured in USD or in GBP. This suggests that exchange rate movements are unlikely to drive our results.

Figure 16
Response of Matching Adjustment to a UK and US monetary policy tightening

This figure shows the estimated response of the Matching Adjustment for GBP and USD to the 10-year gilt yield surprise and 10-year US Treasury yield surprise. The coefficients β_h of the estimation in Equation (6) are displayed for different time horizons, so the y-axis measures the estimated response of changes in the MA, expressed as a fraction of UK gilt yields in Panels (a) and (c) and of US Treasury yields in Panels (b) and (d). The sample runs from 2018 M1 until 2022 M12, and we focus on bonds with maturities of 15 years and above. We use robust Newey-West standard errors, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: PRA, EIOPA, LSEG, Braun et al. (2024), Bauer and Swanson (2023).*

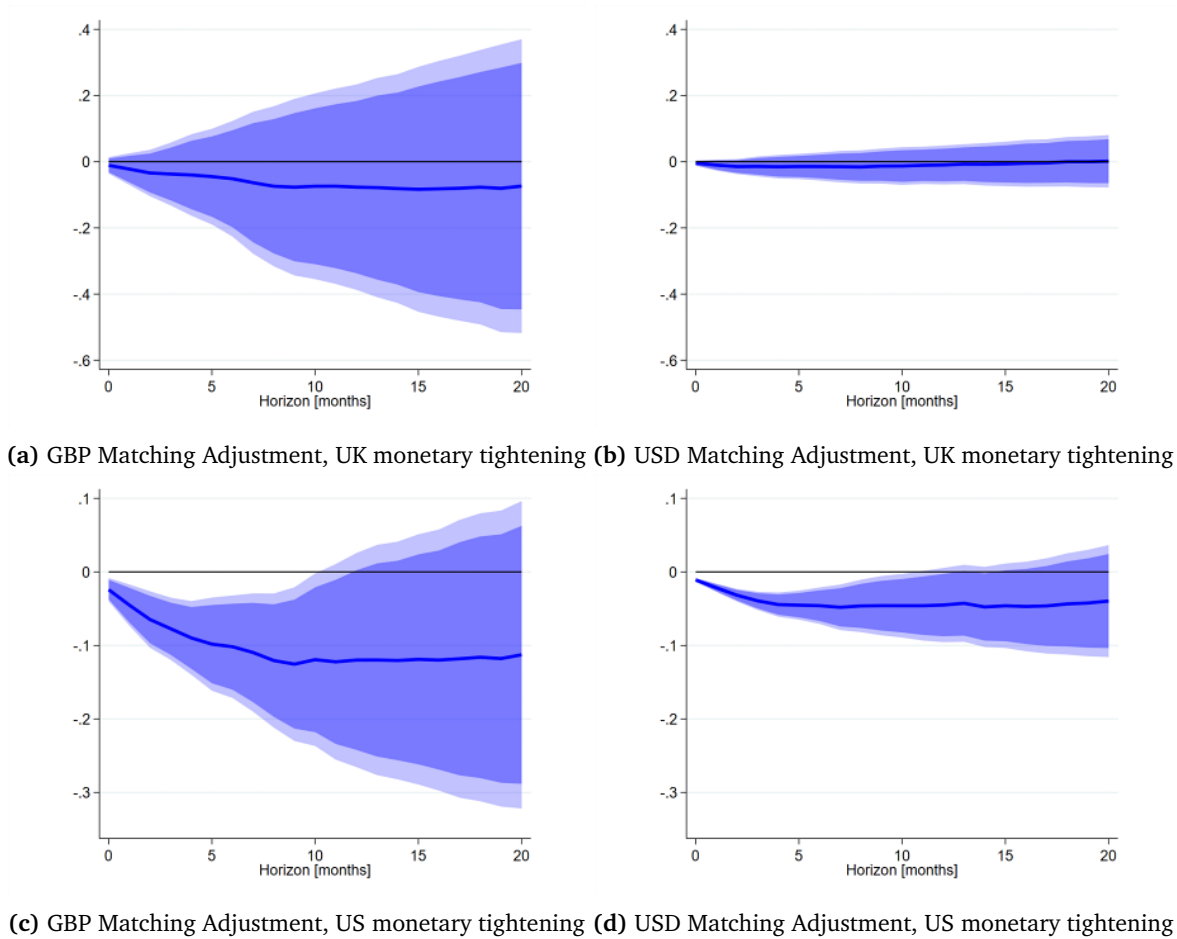
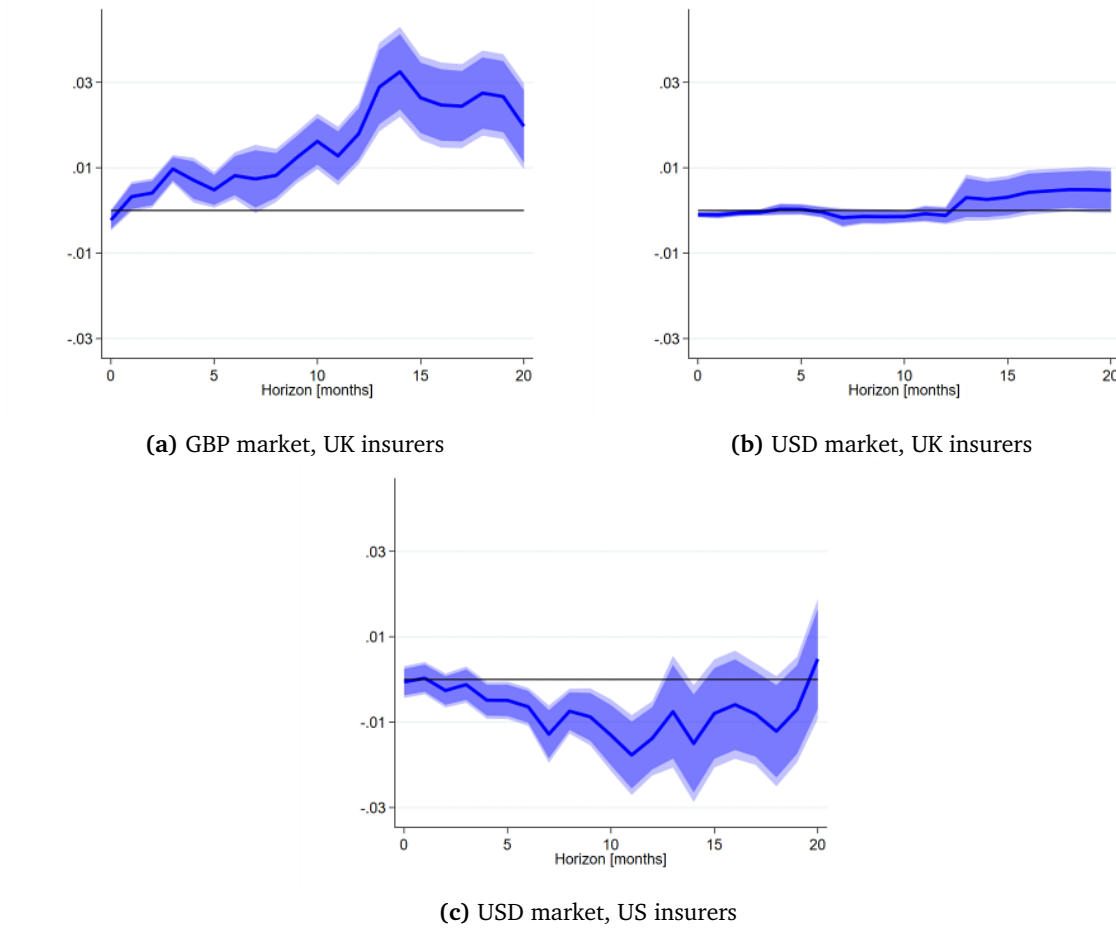


Figure 17

Aggregate response of UK and US insurers to a UK monetary policy tightening - denomination in USD

This figure shows the estimated response of UK life insurers in the GBP and USD markets to the 10-year gilt yield surprise (Panels (a) and (b)) and of US life insurers in the USD market to the 10-year gilt yield surprise (Panel (c)). We employ the estimation framework in Equation (1), but convert the dependent variable to USD. We plot the estimated coefficients β_h from Equation (1) across different horizons h , so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in USD par value terms. The sample comprises UK and US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*



A.6 ADDITIONAL FIGURES

Figure 18
UK insurers' composition of assets

This figure shows the composition of UK life and non-life insurers' assets over time, where amounts are based on those reported in the Insurance Aggregate Data Quarterly Report from 2024 Q3 published on the website of the Bank of England. *Invested assets* back the insurer's own account and the insurer bears the investment risk. These assets include government bonds, corporate bonds, collateralised securities, equity, cash and deposits, mortgages and loans, collective investment undertakings and other investments. The investment risk of *unit- and index-linked assets* is borne by the policyholder, so the insurer acts largely as an intermediary. *Other assets* include reinsurance recoverables, insurance-related receivables, participations, operating assets and remaining assets of small magnitudes. The reported amounts are in Solvency II valuation, which is market value for financial investments. Some assets, such as recoverables from reinsurers, are instead valued on a regulatory basis derived from the underlying liability values. The sample period comprises 2018 Q1–2022 Q4. *Data sources: PRA.*

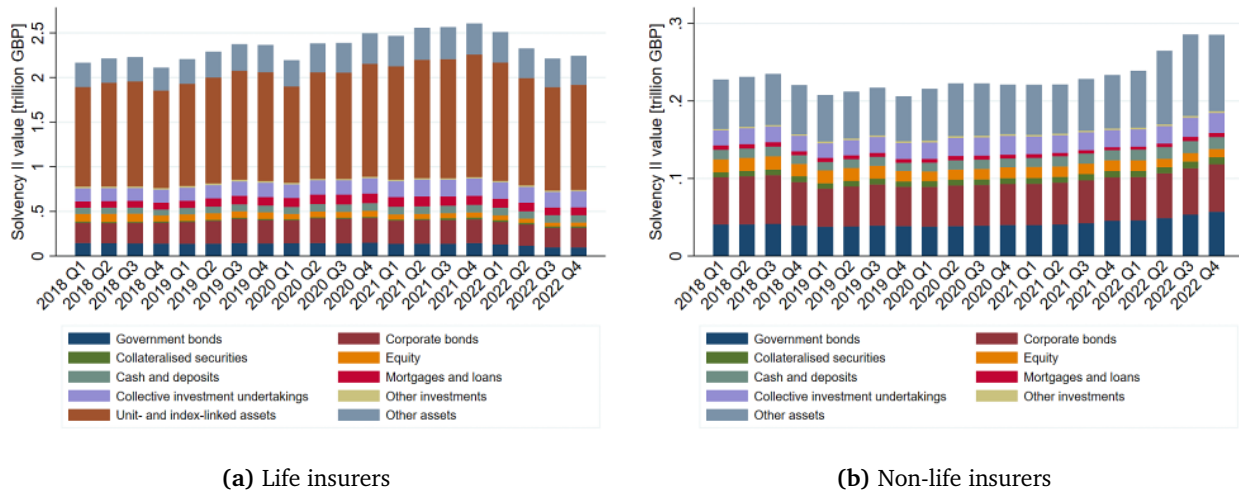


Figure 19
US insurers' composition of assets

This figure shows the composition of US life and P&C insurers' assets over time, where amounts are reported as book-adjusted carrying value (BACV), converted to GBP. We combine both insurer-level balance sheet data and more granular information on the classification of invested securities from NAIC Schedule D Part 1. *Invested assets* are part of the insurer's general account and the insurer bears the investment risk. These assets include government bonds, corporate bonds, collateralised securities, equity, cash, mortgages and loans and other investments. *Separate accounts* are shielded from any changes in the insurer's general account and the investment risk is borne by the policyholder. *Other assets* include, for example, recoverables from reinsurers, uncollected premiums and other receivables. The sample period comprises 2018–2020. *Data sources: NAIC.*

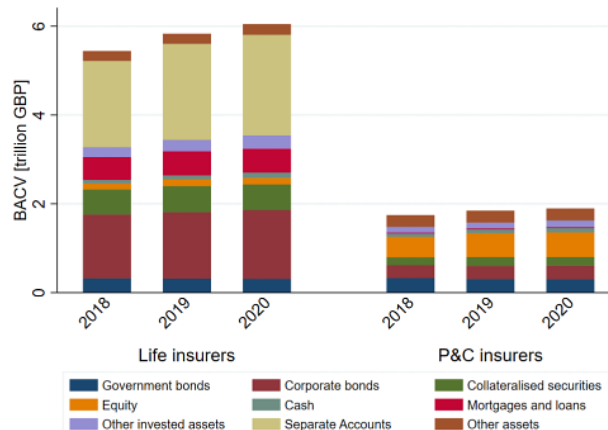


Figure 20
UK corporate bond issuance by currency and sector over time

Panel (a) shows the issuance amount of UK corporate bonds across currencies over time. Issuing amounts are winsorised at the 1% level. Panel (b) shows the distribution of GBP, USD and EUR UK corporate bonds across currency and sector over time. The sample of both figures spans 2018 to 2022. *Data sources: CIQ.*

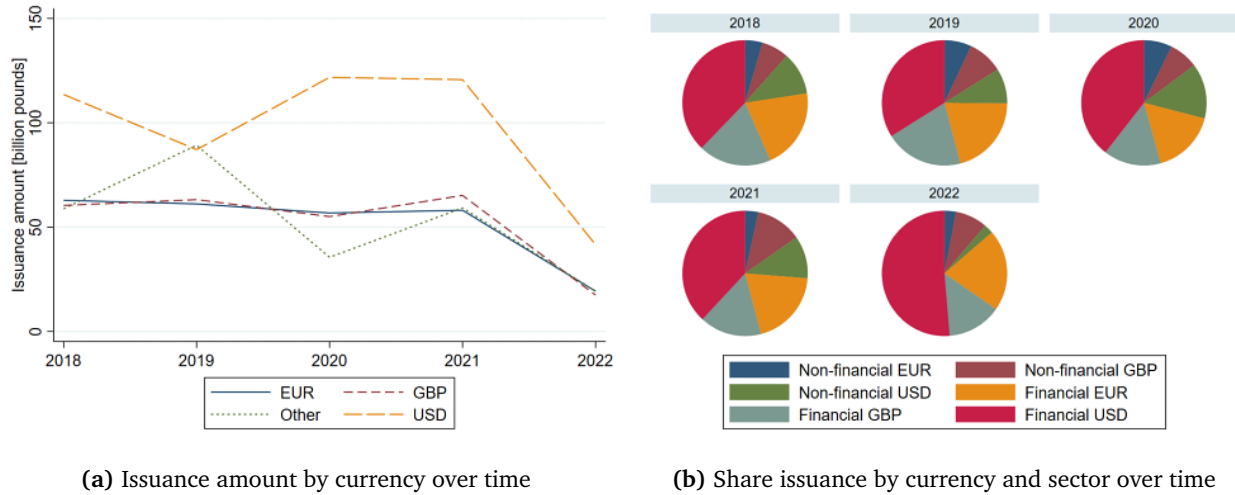


Figure 21
UK corporate bonds' outstanding amount by currency over time

This figure shows the outstanding amount of UK corporate bonds by currency over time. The sample comprises only those UK corporate bonds that are transacted by UK or US insurers between 2018 and 2022 and that are denominated in GBP, USD or EUR. 'Bonds outstanding' refers to the sum of the amount of GBP-, USD- and EUR-denominated bonds outstanding. *Data sources: LSEG, CIQ, MiFID II, NAIC.*

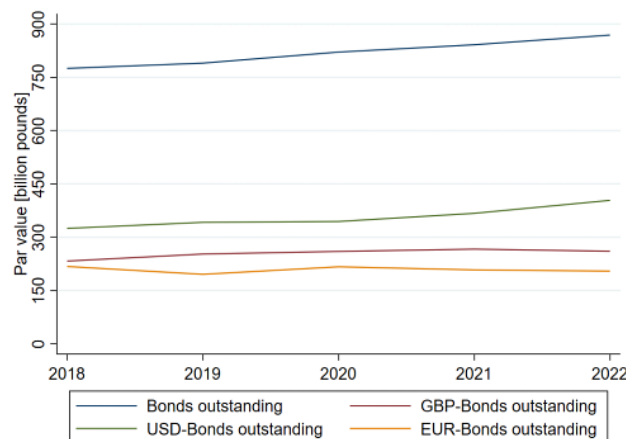


Figure 22
Share of insurers' UK corporate bond investments in amounts outstanding by currency

This figure shows the share of life insurers' investments in UK corporate bonds out of the outstanding amount by currency. The sample is restricted to USD-denominated bonds that are transacted by US life insurers and USD- and GBP-denominated bonds that are transacted by UK life insurers between 2018 and 2022. As US insurers hold negligible amounts in GBP-denominated UK corporate bonds, we do not display these holdings. *Data sources: Solvency II, NAIC, MiFID II, CIQ, LSEG.*

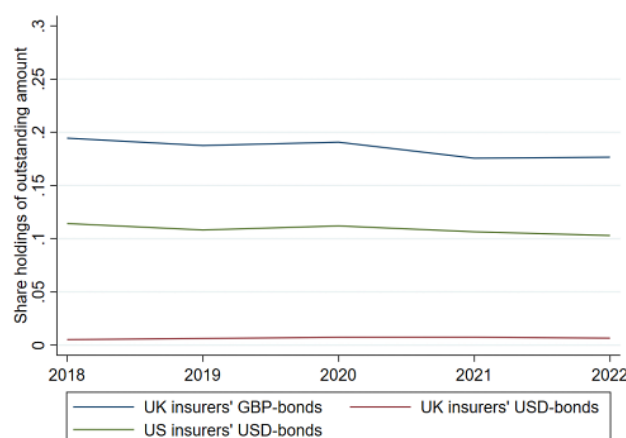


Figure 23
UK and US insurers' gilt holdings versus their UK corporate bond holdings

This figure compares UK and US life insurers' holdings of UK gilts and UK corporate bonds in 2019 Q4, measured at par value and denominated in GBP. *Data sources: Solvency II, NAIC, LSEG.*

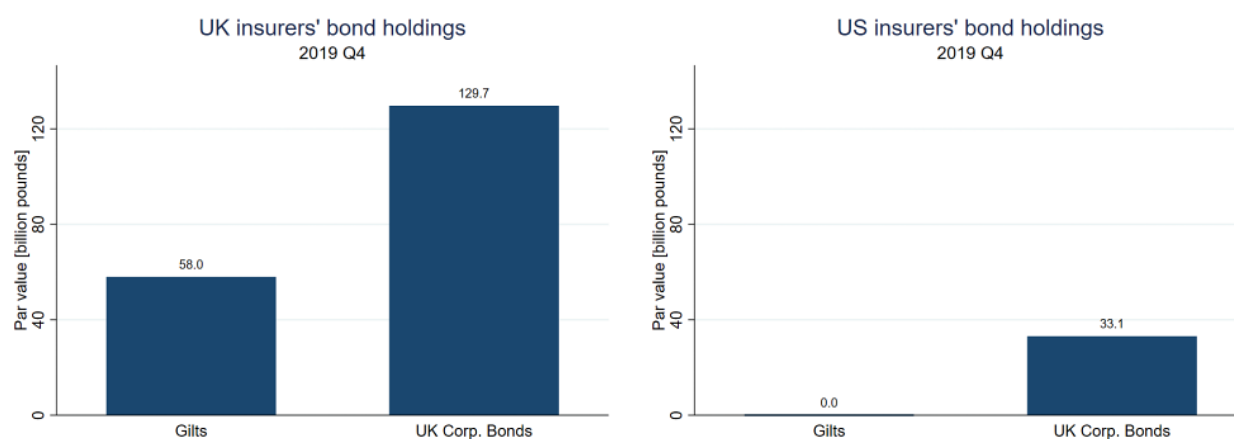


Figure 24

Aggregate response of UK insurers to a UK monetary policy tightening over extended sample

This figure shows the estimated response of UK life insurers in the GBP and USD market to the 10-year gilt yield surprise. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK life insurers' UK corporate bond net purchases between 2018 M1 and 2025 M8. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*

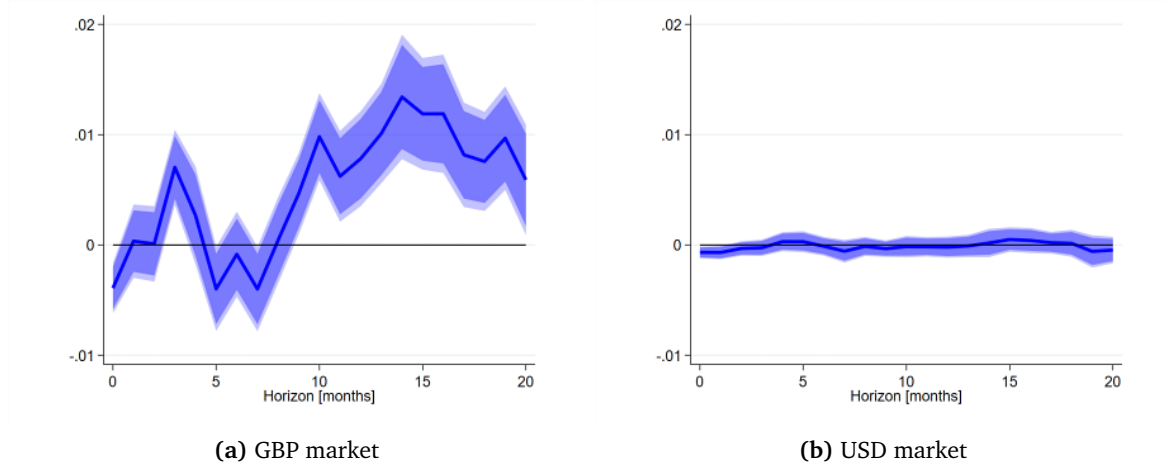


Figure 25
Aggregate response of UK and US insurers to a UK monetary policy tightening - yields
instrumented by monetary surprises

This figure shows the estimated response of UK life insurers in the GBP and USD market to a UK monetary policy tightening (Panels (a) and (b)) and of US life insurers in the USD market to a UK monetary policy tightening (Panel (c)). We employ the estimation framework in Equation (1), but instead of regressing directly on monetary policy surprises, we instrument the 10-year gilt yield using 10-year gilt yield surprises from Braun et al. (2024). We plot the estimated coefficients β_h from Equation (1) across different horizons h , so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The first stage is consistently strong, with Kleibergen–Paap rk Wald statistics exceeding 1,000 throughout. The sample comprises UK and US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*

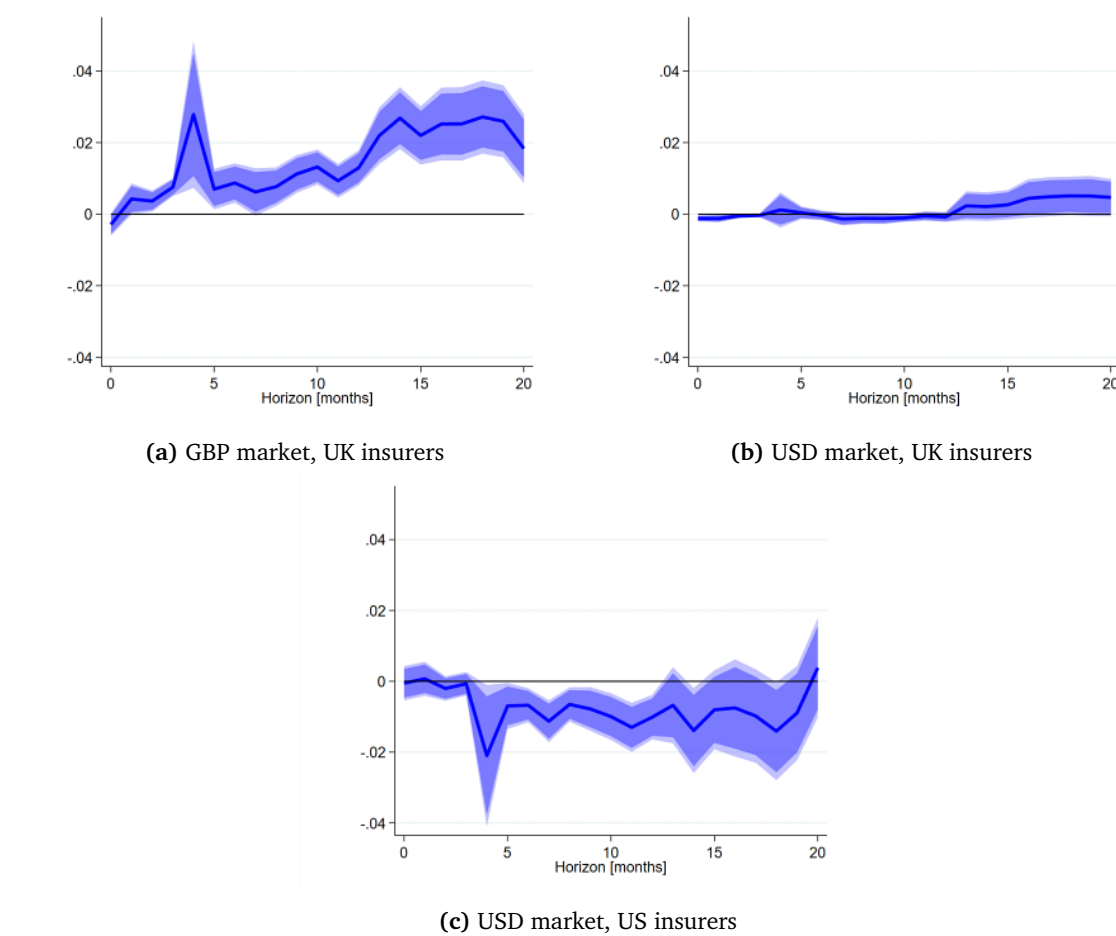


Figure 26
Aggregate response of UK and US insurers to a US monetary policy tightening - yields
instrumented by monetary surprises

This figure shows the estimated response of UK life insurers in the GBP and USD market to a US monetary policy tightening (Panels (a) and (b)) and of US life insurers in the USD market to a US monetary policy tightening (Panel (c)). We employ the estimation framework in Equation (1), but instead of regressing directly on monetary policy surprises, we instrument the 10-year US Treasury yield using 10-year US Treasury yield surprises from Bauer and Swanson (2023). We plot the estimated coefficients β_h from Equation (1) across different horizons h , so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The first stage is consistently strong, with Kleibergen–Paap rk Wald statistics exceeding 1,000 throughout. The sample comprises UK and US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Bauer and Swanson (2023).*

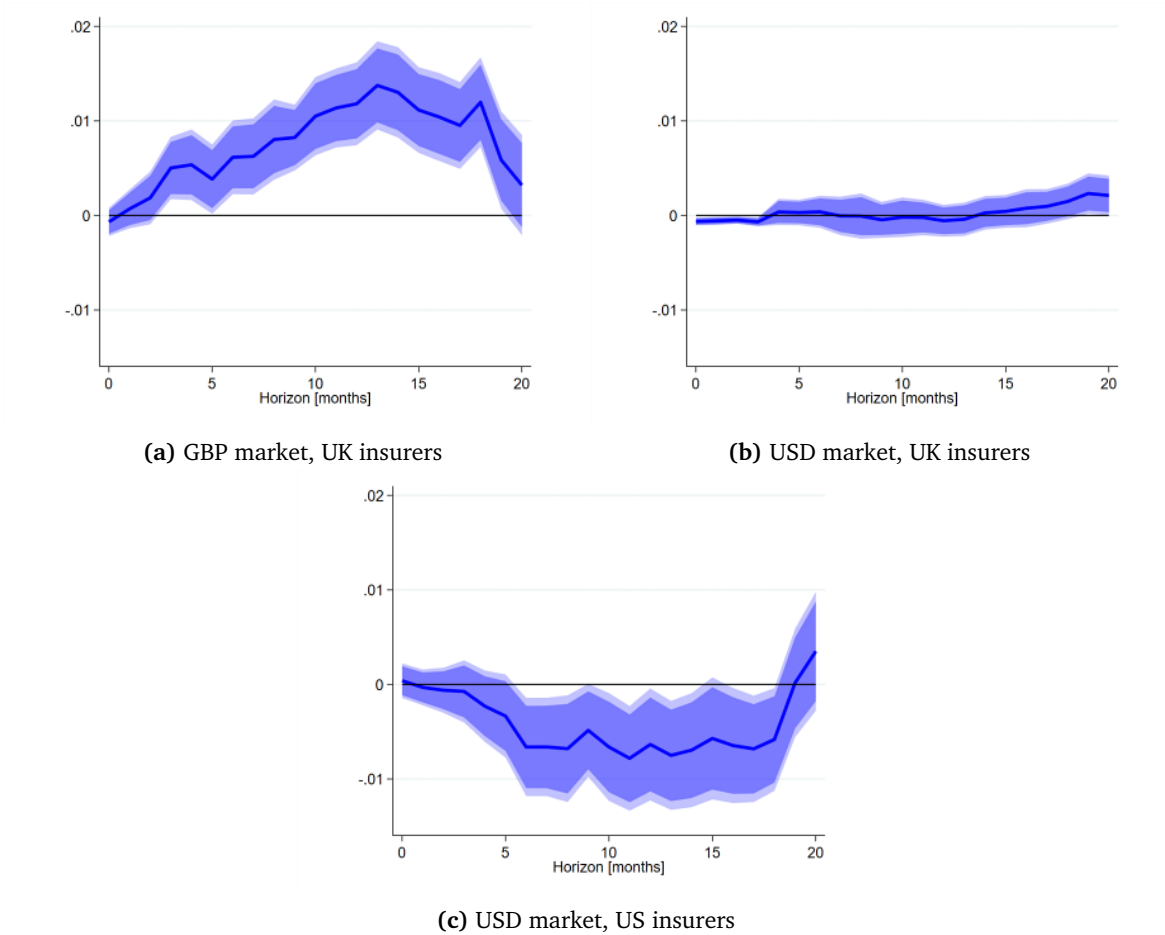


Figure 27

Aggregate response of UK and US insurers to a UK monetary policy tightening - unscaled net purchases and yields instrumented by monetary surprises

This figure shows the estimated response of UK life insurers in the GBP and USD market to a UK monetary policy tightening (Panels (a) and (b)) and of US life insurers in the USD market to a UK monetary policy tightening (Panel (c)). We employ the estimation framework in Equation (1), but instead of regressing directly on monetary policy surprises, we instrument the 10-year gilt yield using 10-year gilt yield surprises from Braun et al. (2024). Moreover, instead of scaling by the bond's outstanding amount, we use net bond purchases, measured in GBP millions, as our dependent variable. We plot the estimated coefficients β_h from Equation (1) across different horizons h , so the y-axis measures the estimated response of cumulative net purchases. The first stage is consistently strong, with Kleibergen–Paap rk Wald statistics exceeding 1,000 throughout. The sample comprises UK and US life insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, CIQ, LSEG, Braun et al. (2024).*

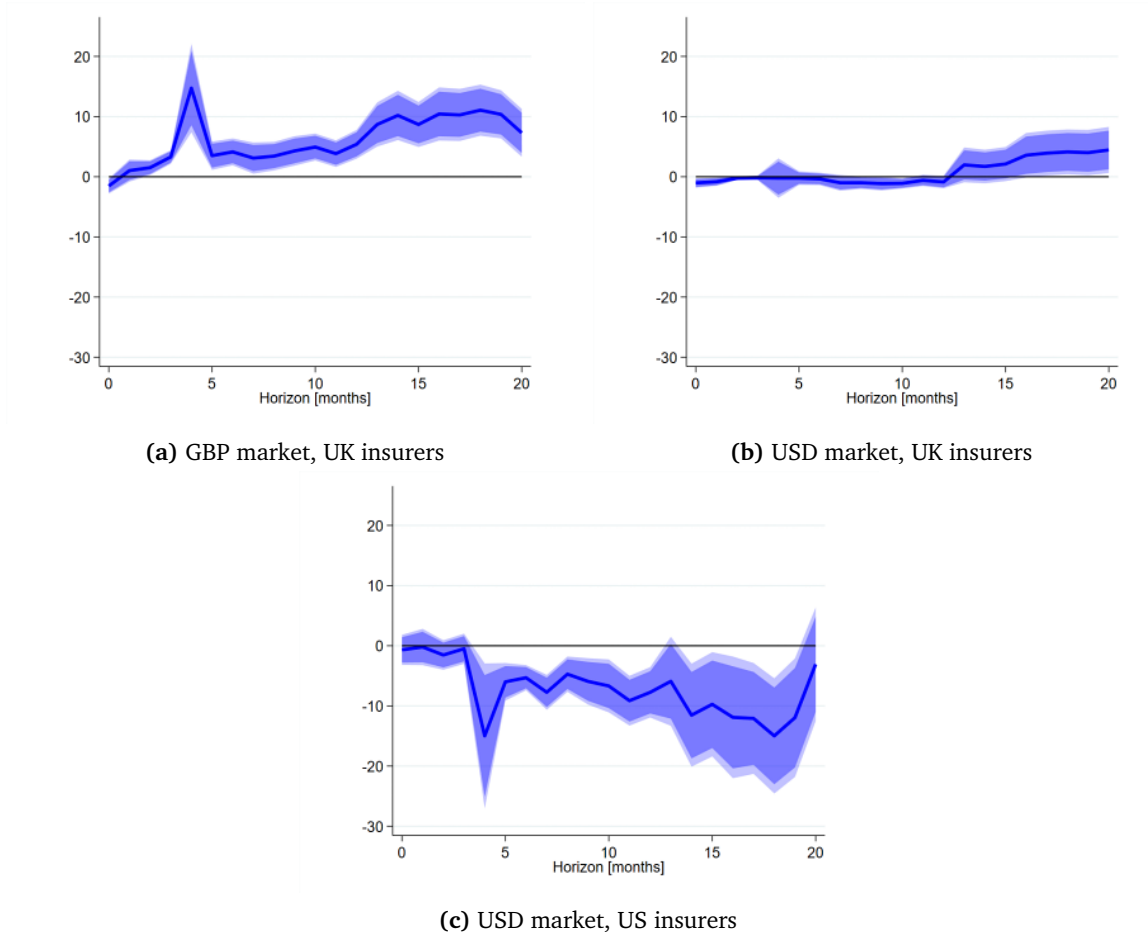


Figure 28
Heterogeneity in aggregate response of UK insurers to a UK monetary policy tightening across Matching Adjustment status

This figure shows the estimated response of UK life insurers in the GBP market to a 10-year gilt yield surprise, separately for insurers subject to the Matching Adjustment and those not subject to the Matching Adjustment. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, Solvency II, CIQ, LSEG, Braun et al. (2024).*

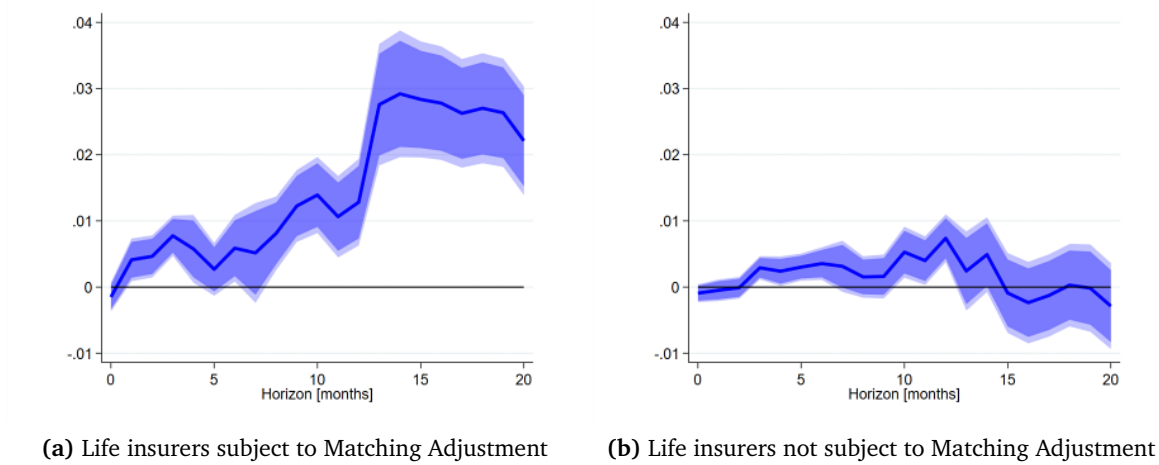
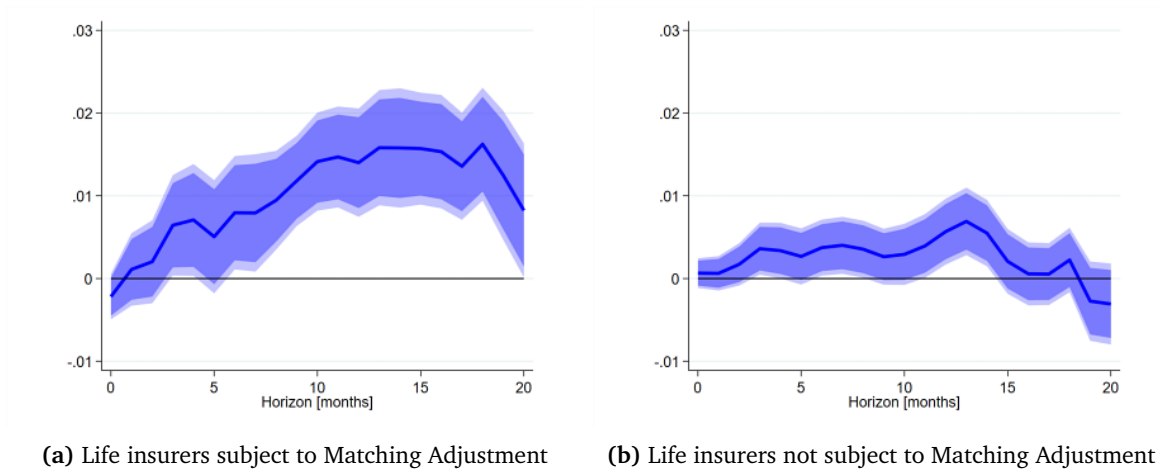


Figure 29
Heterogeneity in aggregate response of UK insurers to a US monetary policy tightening across Matching Adjustment status

This figure shows the estimated response of UK life insurers in the GBP market to a 10-year US Treasury yield surprise, separately for insurers subject to the Matching Adjustment and those not subject to the Matching Adjustment. The coefficients β_h of the local projection estimation in Equation (1) are displayed for different time horizons, so the y-axis measures the estimated response of cumulative net purchases, expressed as a fraction of the bond's outstanding amount. Net purchases are measured in GBP par value terms. The sample comprises UK insurers' UK corporate bond net purchases between 2018 M1 and 2022 M12. We cluster standard errors at the issuer level, and the shaded areas represent 90% and 95% confidence intervals. *Data sources: MiFID II, Solvency II, CIQ, LSEG, Bauer and Swanson (2023).*



A.7 ADDITIONAL TABLES

Table 6
Sample size

This table summarises our sample of UK and US life insurers' UK corporate bond transactions from 2018 to 2022, including the number of insurers, trading days, monetary policy event months, bonds, and issuers. *Data sources: MiFID II, NAIC, CIQ, Braun et al. (2024).*

Number of insurers	622
US insurers	550
UK insurers (solo)	72
Trading days	1,317
UK monetary event months	40
US monetary event months	41
UK corporate bonds	2,436
UK corporate bond issuers	619
