ORIGINAL PAPER

The effect of risk sharing on monetary policy transmission in the Euro Area

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Abstract

Effective monetary policy and adequate risk sharing mechanisms are essential for ensuring macroeconomic stability and consumption smoothing across member states of a monetary union. This paper reveals a significant and positive link between them for a sample of Euro Area countries over the period 2002–2019. In particular, we use quarterly data to measure the extent of inter-country risk sharing before interacting it with a contractionary monetary shock. High risk sharing significantly amplifies the effects of the monetary shock on real output and prices. For output, the effect emerges immediately after the shock but dies out about two years later, while in the case of prices it appears with a delay but remains persistent over the horizon. These patterns are similar across the three channels of risk sharing, although the effect is strongest for the factor market, followed by the fiscal system.

Keywords Monetary policy · Risk sharing · Euro Area

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1 Introduction

Cross-country heterogeneity is one of the key challenges for monetary policy in the Euro Area because uniform policy measures can have a differentiated (and often undesirable) effect across member states, which became particularly evident during the aftermath of the global financial crisis and the sovereign debt crisis (Burriel and Galesi 2018; Dominguez-Torres and Hierro 2018). Concerted efforts aimed at institutional harmonization and economic integration have contributed to more synchronized business cycles among member states, although this process experienced a setback in the late 2000 s and early 2010 s (Altavilla 2004; Camacho et al. 2020). In addition, financial cycles are still not strongly affiliated (Oman 2019), while new and potential members from Central and Eastern Europe do not exhibit a high degree of business cycle synchronization with the original euro adopters (Di Giorgio 2016; Stiblarova and Sinicakova 2020), indicating that this will remain a major problem for monetary policy in the Euro Area in the near future.

At the same time, cross-country variation in business and financial cycles coupled with the free flow of labor and capital across borders provides households with the opportunities to cushion idiosyncratic shocks to their income by migrating (or commuting) to or owning assets from other countries in the Euro Area unaffected by the shock. These market channels for sharing risk could be complemented by public mechanisms in the form of taxes and fiscal transfers. While the idea of a fiscal union across the Euro Area has been subject to an intense debate and is facing myriad hurdles (Berger et al. 2019), some temporary ad hoc measures like the European Financial Stabilization Mechanism or the Recovery and Resilience Facility have functioned as stopgap solutions in response to asymmetric shocks in the recent past. Funds provided under the EU Cohesion Policy, which are not primarily aimed at consumption smoothing, also help stabilize regional income fluctuations, especially in peripheral member states and during downturns (Giua et al. 2024). Nevertheless, the extent of risk sharing within the Euro Area is, on average, still relatively low, even in the face of increasing cross-country heterogeneity (Foresti and Napolitano 2022).

Although the ability of EU institutions to deal with regional economic asymmetries is at the heart of the debate about the future of the monetary union, the interaction between risk sharing and monetary policy has received surprisingly little attention in the literature. In this paper, we assess the impact of risk sharing across the Euro Area on monetary policy transmission. In particular, we use quarterly data for 11 countries over the period 2002–2019 to measure the share of shocks cushioned by various public and private channels. Then we investigate the effect of a contractionary monetary shock on output and prices, conditional on the degree of risk sharing.

Our paper is most closely related to Hauptmeier et al. (2022) who in a similar exercise look at the impact of within-country risk sharing on monetary policy transmission in the Euro Area using regional data at the NUTS2 level. In other words, they study how regions within a given member state stabilize asymmetric shocks, while we focus on risk sharing between countries. Beyond this subtle but highly important difference in the underlying question, we (a) do not use the monetary policy stance but shocks previously identified in the literature in our impulse responses; (b) investigate the impact on both real output and prices (rather than just output); (c) employ

a more recently developed smoothed local projections approach rather than the standard local projections; and (d) take advantage of quarterly data (rather than at annual frequency).

The rest of the paper is structured as follows. In the next two sections, we describe the empirical models and the data, while in Sect. 4 we present the results of our estimation. Section 5 provides conclusions and policy recommendations.

2 Methodology

The empirical procedure begins with estimating the levels of risk sharing before advancing to the investigation of the interaction between risk sharing and monetary policy.

2.1 Risk sharing

Our general specification follows the setup proposed in the seminal paper by Asdrubali et al. (1996), where the unsmoothed (not shared) component of risk (β_U) is estimated by regressing changes in the log of household consumption c on changes in the log of GDP:

$$\Delta c_{it} = \beta_U^{(i)} \Delta gdp_{it} + v_t + u_i + \varepsilon_{it}, \tag{1}$$

and then risk sharing ($1 - \beta_U$) is decomposed into a factor market channel (β_F), a fiscal policy channel (β_G), and a credit market channel (β_C), through:

$$\begin{aligned}
\Delta gdp_{it} - \Delta gni_{it} &= \beta_F^{(i)} \Delta gdp_{it} + v_t + u_i + \varepsilon_{it} \\
\Delta gni_{it} - \Delta gdi_{it} &= \beta_G^{(i)} \Delta gdp_{it} + v_t + u_i + \varepsilon_{it} \\
\Delta gdi_{it} - \Delta c_{it} &= \beta_C^{(i)} \Delta gdp_{it} + v_t + u_i + \varepsilon_{it},
\end{aligned} \tag{2}$$

where *gni* is the log of gross national income (GNI) and *gdi* is the log of gross disposable income (GDI) of households in country i at time t. Equations 1 and 2 include country (u_i) and time (v_t) fixed effects.

The difference between GDP and GNI captures the net income received from or paid to the rest of the world, including labor and capital income such as wages earned abroad, dividends, and interest payments. This component reflects the extent to which income from cross-border factor mobility, such as labor migration and capital investment, contributes to smoothing consumption across countries. Accordingly, the first line of Eq. (2) estimates the role of the factor market in risk sharing, as it isolates the impact of international factor income on a country's ability to cushion idiosyncratic output shocks.[1]

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[1] The factor market component captures all cross-border labor and capital income flows, regardless of their destination or origin. As a result, risk sharing via the factor market may also reflect flows between member states and countries outside the Euro Area. Our inability to disentangle intra-Euro Area from extra-union

The second line, which examines the difference between GNI and GDI, reflects the effects of fiscal redistribution mechanisms, including taxes paid and transfers received from domestic governments. This component captures the extent to which government policies, such as progressive taxation, social insurance, and intergovernmental transfers, absorb income fluctuations and help stabilize household resources. As such, this part of the decomposition provides an estimate of the contribution of fiscal policy to risk sharing.

Finally, the third line focuses on the gap between GDI and actual consumption, which represents private intertemporal smoothing via savings and borrowing. Households can respond to temporary income shocks by adjusting their savings or accessing credit markets, thereby stabilizing consumption even when current disposable income fluctuates. This equation thus captures the role of the credit market as a channel for risk sharing, reflecting the degree to which financial instruments and access to credit enable consumption smoothing over time.

In contrast to the standard approaches in the literature, we employ a mean group estimator pioneered by Pesaran and Smith (1995) which allows heterogeneous slope coefficients across countries. Existing research on large heterogeneous areas typically focuses on risk sharing within each region using subregional data or estimates a single coefficient of risk sharing across regions in a panel setting. For example, Asdrubali et al. (1996), Reiss (2022), and Fidrmuc et al. (2021) investigate in a panel framework risk sharing between US states, Austrian states, and Ukranian regions, respectively, while Hauptmeier et al. (2022) examine risk sharing across the Euro Area by measuring consumption smoothing within each country using NUTS-2 level regional data. By comparison, our approach looks at risk sharing between Euro Area countries but still allows for heterogeneity in the degree of risk sharing.[2]

2.2 Monetary policy transmission

We use local projections in the spirit of Jordà (2005). Since the general response of output and prices to monetary policy shocks in the Euro Area has been widely analyzed and is by and large uncontroversial, we exclusively focus on the difference between impulse responses conditional on differences in risk sharing.

We estimate local projections for horizons h ranging from 0 (i.e., the contemporaneous effect of the shock) to 12 (i.e., three years ahead) for both output and inflation using:

$$x_{i,t+h} = mp_t \times (\gamma_{F,h}\hat{\beta}_F^{(i)} + \gamma_{G,h}\hat{\beta}_G^{(i)} + \gamma_{C,h}\hat{\beta}_C^{(i)}) + \Gamma_h Z_{i,t} + \mu_t + \eta_i + e_{i,t,h}, \ (3)$$

where x is the log real GDP or the log consumer price level, mp is a measure of the monetary policy shock, $\hat{\beta}$ is one of the risk sharing coefficients estimated based on Eqs. 1 and 2, and Z is a vector of further controls that include the first two lags of x

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flows means that care is required in interpreting the results as exclusively reflecting internal Euro Area dynamics.

[2] Recent papers by Asdrubali et al. (2023) and Beck and Yersh (2024) also apply the mean group estimator in the context of risk sharing but do not explore the variation in the coefficient across countries.

and the respective other variable (i.e. real GDP for the price level local projections and the price level for the real GDP local projections).[3] We use cluster robust standard errors clustered at the country level.

We employ the semi-parametric smooth local projection estimator proposed by El-Shagi (2019) to generate IRFs that are more akin to traditional VAR impulse responses. By penalizing the second differences between adjacent points on the impulse response, this approach reduces the high volatility often found in local projections based impulse responses.

Rather than mere minimizing the sum of squared residuals, we add a penalty term, yielding a loss function of:

$$\ell = \sum_{i=1}^{N} \sum_{t=1}^{T-12} \sum_{h=1}^{12} \hat{e}_{i,t,h} + \lambda \left(\sum_{h=3}^{12} \Delta^2 \hat{\gamma}_{F,h} + \sum_{h=3}^{12} \Delta^2 \hat{\gamma}_{G,h} + \sum_{h=3}^{12} \Delta^2 \hat{\gamma}_{C,h} \right), \quad (4)$$

where λ is the weight of the penalty component.

It is trivial to see that only two coefficients per impulse response (a level and a constant slope) are effectively estimated when λ approaches infinity, producing a linear impulse response. Conversely, if λ is zero, separate coefficients are estimated for each forecast horizon (i.e., in our case, 12 coefficients per impulse response). Breitung and Roling (2014) show, using an equivalent approach to smooth coefficients on lagged explanatory variables in a mixed-frequency model, how this mapping of λ to an implied loss of degrees of freedom can be generalized, allowing one to compute the implicit number of estimated coefficients (which is not necessarily an integer) for any given λ. This enables the selection of λ via a standard information criterion (in our case, the AIC), analogous to how the optimal lag order is chosen in a typical time series model. Choosing λ through an information criterion, rather than making an ex ante decision, ensures that only relatively uninformative fluctuations in the unrestricted IRFs are smoothed out, while genuinely informative variation is preserved.[4]

The forecast equations for different horizons are estimated jointly in this approach, in a system akin to seemingly unrelated regressions (but augmented for the smoothing parameter). This allows more accurate confidence bounds, because we can account for the correlation of errors across horizons.

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[3] The risk sharing coefficients reflect short-term behavior based on quarterly changes. Although the local projections trace effects over a 12-quarter horizon, we view the short-term coefficients as proxies for institutional features (e.g., financial integration, labor mobility) that shape transmission dynamics throughout the adjustment period. Estimating long-horizon risk sharing is not feasible in our setting due to limited time-series observations per country.

[4] This is one of the key differences from the similar method proposed slightly later by Barnichon and Brownlees (2019).

3 Data

Both risk sharing and local projections employ quarterly data from 2002Q1, when the Euro cash was introduced, to 2019Q4, i.e., just before the beginning of the global COVID pandemic. We include all original euro adopters except Luxembourg and add Greece (i.e., the only non-original member state that had joined by the time euro currency was circulated), i.e. Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain. As local projections estimate direct forecasts (rather than indirect forecasts based on a one-step-ahead forecast in a VAR model), they are fairly data intensive in terms of the time dimension. We, therefore, do not include the later adopters of the euro.[5] GDP, GNI, and GDI used to estimate risk sharing are all in total levels, at current prices, and seasonally adjusted. For the price level, we use the harmonized index of consumer prices (HICP), which is also employed in deflating nominal GDP (used in the risk sharing regressions) to real GDP (used in the local projections).

Rather than estimating monetary policy shocks ourselves, we rely on the shock measure proposed by Jarociński and Karadi (2020).[6] The authors apply the high-frequency identification strategy that has become the gold standard since its introduction by Kuttner (2001), now adapted to the European context. See, for example, Faust et al. (2007), Gertler and Karadi (2015), and Nakamura and Steinsson (2018) for prominent applications. In this literature, changes in an appropriate (short-term) futures rate (typically federal funds futures in the US) within a narrow window around a monetary policy announcement are interpreted as the surprise component of the policy decision, i.e., under rational expectations, the shock.

However, this approach becomes problematic when interest rates are constrained by the zero lower bound (ZLB), and monetary policy is instead conducted via quantitative easing and forward guidance. In such circumstances, short-term interest rates may remain constant for extended periods, and futures prices no longer reflect shifts in policy expectations. Jarociński and Karadi (2020) address this issue by constructing a principal component from a range of interest rate futures with different maturities. This allows them to capture the response of the entire yield curve to policy announcements and to summarize this information in a single shock series.

This approach is closely related to the shadow rate literature (see, e.g., Wu and Xia 2016), which estimates an implied short-term rate in the absence of the ZLB through a factor model of the entire yield curve. These methods are relatively robust to ZLB periods, as most longer-term rates (unlike short-term money market rates) are not constrained by the lower bound.

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[5] We run a robustness check with data from 2001Q1, when Greece joined the euro area, to 2023Q3, i.e., including the COVID period. While our results for prices remain largely the same, most real GDP results become insignificant due to the strong and heterogeneous effects of COVID on growth that obfuscate the effects of monetary policy shocks on GDP. This issues is aggravated by the fact that 2020Q1 – when COVID hit – registers as a huge contractionary shock, as the ECB did not respond to the economic issues that were assumed to be transitory at the time.

[6] The updated shock time series are available on the authors' website: https://marekjarocinski.github.io/jk shocks/jkshocks.html.

4 Results

The extent of risk sharing and its components are displayed in Table 1. The results in the last column indicate that risk sharing across the member states of the Euro Area smooths around 65% of shocks and all coefficients are statistically significant. At the same time, there is a large variation in magnitude, ranging from just 29% in Greece to 99% in Ireland. The decomposition of risk sharing by channel (first three columns) reveals that the factor market and fiscal system are responsible for the lion's share of smoothed shocks, although there is again substantial cross-country heterogeneity. For instance, Germany smooths a third of its shocks via the factor market and another 50% through the fiscal system, whereas Finland or the Netherlands rely on the factor market to absorb more than 80–90% of shocks.

As noted earlier (see Footnote 1), one important limitation of our decomposition is that it does not allow us to isolate income flows within the Euro Area from those involving countries outside the monetary union. This is particularly relevant for the interpretation of the factor market channel, which captures all cross-border labor and capital income flows. Accordingly, the high factor market smoothing estimates for Finland, Ireland, and the Netherlands (three small, highly open economies) may in part reflect economic integration with non-euro countries. In the case of Finland, for example, close labor and investment ties with Sweden may contribute to the observed magnitude, while Ireland's financial and employment linkages with the UK likely influence its extremely high factor market score. Similarly, the Netherlands plays a prominent role as a conduit for global capital flows, which may also inflate its

**Table 1** Risk sharing and its channels

		Factor	Fiscal	Credit	Total
	AT	0.13	0.38	0.18	0.70***
		(0.75)	(1.35)	(0.72)	(4.55)
	BE	−0.39	0.92 **	−0.12	0.41***
		(−0.98)	(1.80)	(−0.47)	(3.64)
	DE	0.31 **	0.47 **	−0.02	0.76 ***
		(2.19)	(2.59)	(−0.11)	(5.77)
	ES	0.09	0.45	0.23	0.77 ***
		(0.44)	(1.17)	(0.49)	(3.45)
	FI	0.83 ***	0.09	0.05	0.96 ***
		(2.99)	(0.26)	(0.17)	(7.97)
	FR	0.19	0.79 ***	−0.45 **	0.52***
		(1.27)	(3.56)	(−2.37)	(4.66)
	GR	0.12	−0.13	0.30	0.29 ***
		(1.29)	(−0.68)	(1.41)	(3.08)
	IE	0.39 ***	0.61 ***	−0.01	0.99 ***
		(3.40)	(4.95)	(−0.09)	(18.16)
	IT	0.22	0.33 **	0.03	0.58 ***
The coefficients represent the estimated share of shocks smoothed by the different channels. t values in parenthesis. *** $p < .01$; ** $p < .05$; * $p < .10$		(1.40)	(1.77)	(0.17)	(6.79)
	NL	0.94 **	−0.49	0.21	0.66 ***
		(2.16)	(−0.86)	(0.58)	(4.70)
	PT	0.18	0.67	−0.34	0.50 ***
		(0.84)	(1.48)	(−0.80)	(3.88)

estimate. While these figures remain informative about the extent of risk sharing, caution is warranted when interpreting them as capturing exclusively intra-Euro Area mechanisms.

The credit market does not appear to contribute to risk sharing in a significant way. In fact, in some cases the credit market appears to have a counterproductive effect. For example, France exhibits a significantly negative coefficient for this channel, while Portugal's estimate, although statistically insignificant, is also negative. This may reflect structural limitations in domestic credit markets, such as procyclical lending behavior, collateral constraints, or limited financial inclusion, which prevent households from using credit as an effective consumption-smoothing mechanism. In such cases, credit access may decline during downturns and expand during booms, thereby amplifying rather than mitigating income volatility. Supporting evidence comes from Pouvelle (2012) who reports that during episodes of financial instability, French households face notably tighter credit constraints, suggesting that credit supply may be more sensitive and less countercyclical in downturns. In addition, Crook (2024) documents that households in France report higher rates of discouraged borrowing and credit application rejections than those in many other European countries. While a full institutional diagnosis lies beyond the scope of this paper, these findings point to important differences in credit market development and behavior, which may explain the limited or even negative role of the credit channel in facilitating cross-country risk sharing.

Figure 1 summarizes the conditional difference in IRFs between a high risk sharing and a low risk sharing economy in response to a one standard deviation contractionary monetary policy shock. The scale represents log changes multiplied by 100, approximating changes in percent. While some of the results seem quantitatively large, it is important to keep in mind that the scenarios implicitly compared are extreme cases of perfect risk sharing versus zero risk sharing through the respective channel. We observe a significantly negative impact on both output and prices, which

(a) rGDP   (b) HICP
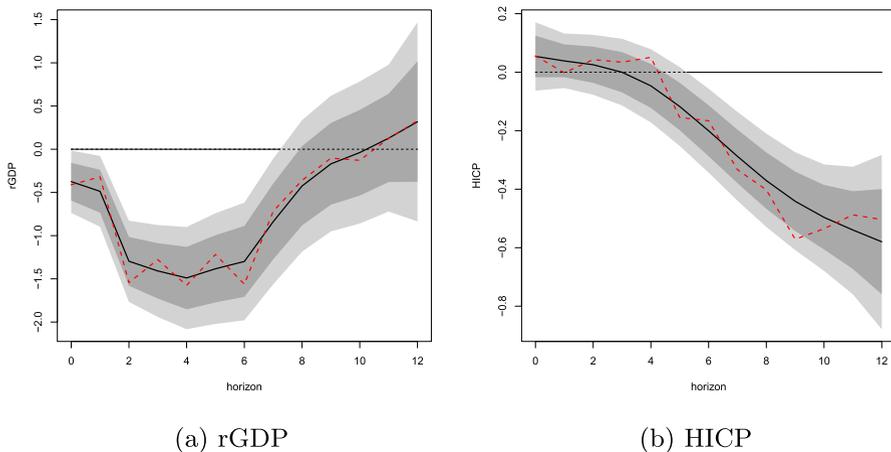
Fig. 1 Conditional differences in IRFs following a monetary policy shock (total risk sharing). *Note:* 90% confidence bounds in light grey, 67% confidence bounds in dark grey, standard (non smoothed) local projections as red dashed line for comparison

means that the contractionary effect of the monetary policy shock is stronger in economies with high levels of risk sharing. In other words, more risk sharing magnifies the impact of monetary transmission. At the same time, we see clear differences in the dynamics between the two macroeconomic variables. Output drops immediately following the shock and reaches a low point a year later before reverting back to its initial level by the end of the horizon. Prices, on the other hand, react with a delay and the decline becomes significant only after a year following the shock. Unlike output, the response of prices appears very persistent, continuing its drop over the horizon.

Next, we decompose risk sharing in its various components. The IRFs in Fig. 2 reveal that the patterns for risk sharing through the three channels are very similar to those for total risk sharing in the case of both output and prices. One major difference is that in the fiscal policy channel the conditional impact on output is weaker than in the factor market channel and the recovery occurs earlier. The effect is even weaker in the credit market channel for both output and prices, which concurs with our earlier finding that this channel does not contribute much to consumption smoothing.[7]

One possible explanation for the amplification of the contractionary effects of monetary policy in high-risk-sharing environments lies in the asymmetric exposure of member states to a common monetary policy shock. Although the ECB's actions affect all countries simultaneously, the transmission may be stronger in some economies due to structural differences in interest rate pass-through, debt composition, or cyclical position. In this context, risk sharing can act as a transmission conduit rather than a cushion. For instance, in a country where the shock causes a sharp rise in unemployment, mobile workers may emigrate to less affected countries, deepening the local contraction. Similarly, financial integration through cross-border asset holdings can transmit valuation losses across borders: if households in one country hold financial claims on more exposed economies, the resulting asset price declines may reduce their wealth or income, leading to spillovers even in countries less directly affected by the initial shock. Georgiadis (2015) shows that ECB monetary shocks produce asymmetric responses across member countries, with differences in financial openness and sectoral structure driving the extent of transmission. These results imply that deeper financial integration may not cushion but rather propagate policy effects across national borders. In this context, risk-sharing mechanisms, particularly those rooted in financial markets, may act more like conduits for a common shock than buffers against it.

The finding that stronger risk sharing is associated with greater sensitivity to monetary policy shocks may appear to contrast with the results of Hauptmeier et al. (2022), who report that regional risk sharing within countries tends to dampen the effects of monetary policy. However, this divergence can be understood in light of important conceptual and methodological differences. While their study focuses on subnational regions within fiscally and institutionally integrated countries, our analy-

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[7]As a robustness check, we replace the Jarociński and Karadi (2020) shock series with changes in the 3-month EURIBOR rate used in Hauptmeier et al. (2022). The results differ markedly, highlighting the endogeneity issues in using observed interest rate changes as policy shocks. Since monetary policy is forward-looking, rate changes often reflect responses to expected conditions, biasing estimates. The high-frequency approach of Jarociński and Karadi (2020) helps isolate true surprises and is thus better suited for our analysis. The results of this robustness check are available upon request.
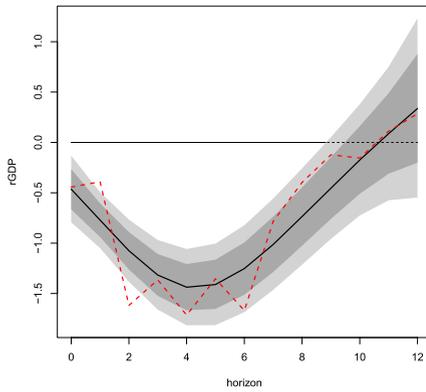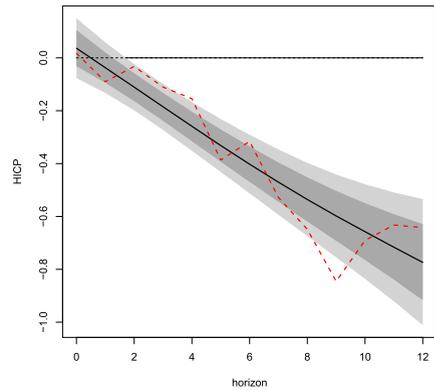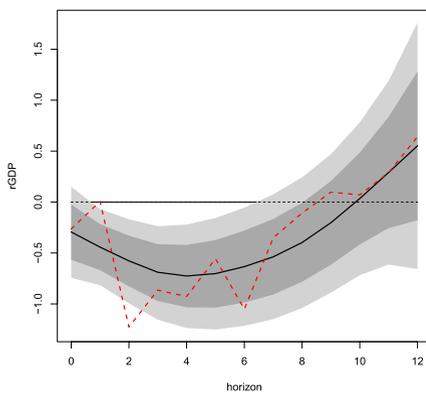
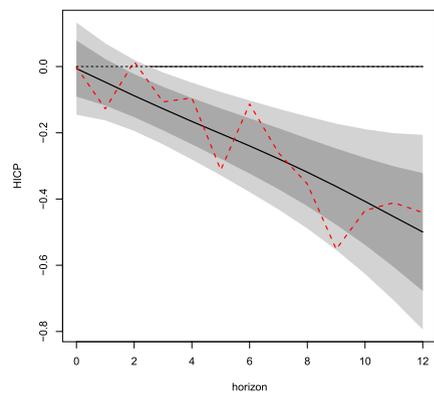(a) Factor market: rGDP
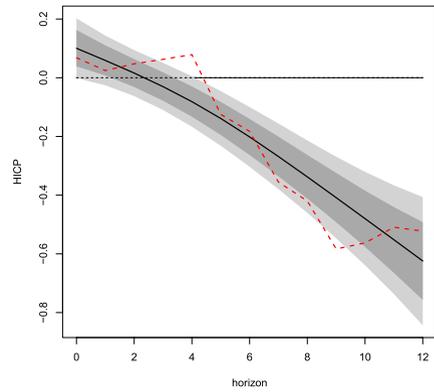
(b) Factor market: HICP
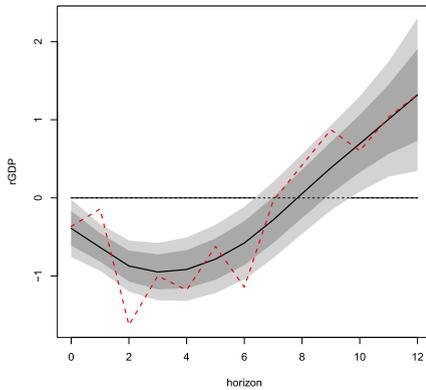
(c) Fiscal policy: rGDP

(d) Fiscal policy: HICP

(e) Credit market: rGDP

(f) Credit market: HICP

Fig. 2 Conditional differences in IRFs following a monetary policy shock (by risk sharing channel). *Note:* 90% confidence bounds in light grey, 67% confidence bounds in dark grey, standard (non smoothed) local projections as red dashed line for comparison

sis considers sovereign Euro Area member states with more fragmented adjustment mechanisms. Within countries, risk sharing may operate through centralized fiscal transfers or integrated financial systems, allowing for automatic stabilization. By contrast, in a multi-country monetary union with heterogeneous exposures to common shocks, cross-border financial and labor linkages may transmit the effects of monetary policy more broadly without necessarily mitigating them. In this context, stronger risk sharing does not buffer the initial shock but may instead help disseminate it across member states, particularly when the original exposure is uneven.

At the same time, our paper and that of Hauptmeier et al. (2022) concur on the relative importance of different channels in shaping monetary transmission. In both analyses, the factor market, and to a lesser extent the fiscal channel, emerge as more influential than the credit market. This common finding suggests that the structure and effectiveness of specific risk-sharing mechanisms may matter more than their aggregate strength when it comes to understanding their role in the monetary transmission process.

5 Conclusions

The effectiveness of uniform monetary policy and the extent of risk sharing across heterogeneous countries are key issues at the heart of the debate about the future of the European Monetary Union. We find a significant link between them, revealing that more risk sharing amplifies the transmission of monetary policy. In particular, a contractionary monetary shock produces a larger drop in real output and prices in the presence of higher risk sharing. The effect is most prominent for the factor market channel. It is possible that countries smoothing a larger share of their consumption via cross-border labor movements experience more substantial labor outflows (inflows) during contractions (expansions), which exacerbates the dampening (stimulating) effect of the aggregate monetary shock on the economy. Moreover, countries that diversify their financial assets more widely across the union in order to share risk would likely face higher losses (returns) during downturns (expansions) because all member states are affected equally.

For the fiscal channel, higher risk sharing indicates that a country is conducting a more active fiscal policy. Accordingly, a contractionary monetary shock would generally be accompanied by a coordinated fiscal response pursuing the same objective, which is what we observe in our results. The credit market channel of risk sharing behaves as expected by strengthening monetary policy transmission.

Our findings suggest that the degree and structure of cross-country risk sharing should be explicitly considered in the formulation and evaluation of Euro Area monetary policy. While risk sharing is often viewed as a stabilizing force, our results indicate that in the presence of a common monetary shock, high levels of financial or labor market integration may actually amplify the aggregate impact of the shock, particularly when member states differ in their exposure or sensitivity to policy changes. This can lead to unintended macroeconomic consequences and complicate the ECB's efforts to ensure smooth and symmetric transmission.

To mitigate such effects, both the ECB and EU institutions should prioritize not only the extent, but also the quality and composition of risk-sharing mechanisms. On the private side, completing the Capital Markets Union remains critical for enabling broader and more diversified channels of consumption smoothing, especially through equity markets. Improving the functioning and integration of credit markets is another key area. The credit channel currently contributes the least to cross-country risk sharing, yet offers substantial potential. The ECB can support integration by promoting regulatory convergence, addressing barriers to cross-border lending and encouraging deeper pan-European financial intermediation.

On the public side, advancing the fiscal architecture (e.g., through a central fiscal capacity or a Euro Area-wide unemployment reinsurance mechanism) could help stabilize economies with asymmetric responses to common shocks. Though politically complex, such instruments would reinforce the effectiveness of monetary policy by reducing reliance on private channels that may, under certain conditions, propagate rather than absorb shocks.

References

Altavilla C (2004) Do emu members share the same business cycle? J Common Market Stud 42(5):869–896

Asdrubali P, Kim S, Pericoli F, Poncela P (2023) Risk sharing channels in OECD countries: a heterogeneous panel var approach. J Int Money Financ 131:102804

Asdrubali P, Sørensen B, Yosha O (1996) Channels of interstate risk sharing: United states 1963–1990. Q J Econ 111(4):1081–1110

Barnichon R, Brownlees C (2019) Impulse response estimation by smooth local projections. Rev Econ Stat 101(3):522–530

Beck K, Yersh V (2024) Economic integration and consumption risk sharing: a comparison of eurozone and OECD countries. Int Rev Econ Financ 89:784–803

Berger H, Dell'Ariccia G, Obstfeld M (2019) Revisiting the economic case for fiscal union in the euro area. IMF Econ Rev 67(3):657–683

Breitung J, Roling C (2014) Forecasting inflation rates using daily data: a nonparametric?Midas?approach. J Forecast 33(7):526–538

Burriel P, Galesi A (2018) Uncovering the heterogeneous effects of ECB unconventional monetary policies across euro area countries. Eur Econ Rev 101:210–229

Camacho M, Caro A, Lopez-Buenache G (2020) The two-speed Europe in business cycle synchronization. Empir Econ 59(3):1069–1084

Crook, J. (2024) . Which households are credit constrained in Europe? evidence from the hfcs. University of Edinburgh Business School, credit research centre working paper. https://www.crc.business-school.ed.ac.uk/sites/crc/files/2024-12/Which-households-are-credit-constrained-in-Europe.pdf

Dominguez-Torres H, Hierro L (2018) Are there monetary clusters in the eurozone? the impact of ECB policy. J Policy Model 42(1):56–76

El-Shagi M (2019) A simple estimator for smooth local projections. Appl Econ Lett 26(10):830–834

Faust J, Rogers JH, Swanson E, Wright JH (2007) Identifying the effects of monetary policy shocks on exchange rates using high frequency data. J Eur Econ Assoc 5(6):1031–1057

Fidrmuc J, Moroz S, Reck F (2021) Regional risk-sharing in Ukraine. Empirica 49:645–660

Foresti P, Napolitano O (2022) Risk sharing in the emu: a time-varying perspective. J Common Mark Stud 60(2):319–336

Georgiadis G (2015) Examining asymmetries in monetary policy transmission in the euro area: evidence from a mixed cross-section global var model. Eur Econ Rev 75:195–215

Gertler M, Karadi P (2015) Monetary policy surprises, credit costs, and economic activity. Am Econ J Macroecon 7(1):44–76

Giorgio C (2016) Business cycle synchronization of CEECs with the Euro area: a regime switching approach. J Common Mark Stud 54(2):284–300

Giua M, Pericoli F, Pierucci E (2024) Eu cohesion policy and inter-regional risk-sharing: first evidence and lessons learned. J Common Mark Stud 62:142–167

Hauptmeier S, Holm-Hadulla F, Renault T (2022) . Risk sharing and monetary policy transmission, *ECB Working Paper* 2746

Jarociński M, Karadi P (2020) Deconstructing monetary policy surprises: the role of information shocks. Am Econ J Macroecon 12(2):1–43

Jordà Ò (2005) Estimation and inference of impulse responses by local projections. American Econ Rev 95(1):161–182

Kuttner KN (2001) Monetary policy surprises and interest rates: evidence from the fed funds futures market. J Monet Econ 47(3):523–544

Nakamura E, Steinsson J (2018) High-frequency identification of monetary non-neutrality: the information effect. Q J Econ 133(3):1283–1330

Oman W (2019) The synchronization of business cycles and financial cycles in the euro area. Int J Cent Bank 15(1):327–362

Pesaran M, Smith R (1995) Estimating long-run relationships from dynamic heterogeneous panels. J Econom 68(1):79–113

Pouvelle C (2012) . Household credit growth in france: structural features and recent developments, *IMF Working Paper WP/12/103*, International Monetary Fund

Reiss L (2022) Fiscal risk sharing and redistribution between Austrian states. Empirica 49:1–20

Stiblarova L, Sinicakova M (2020) Two sides of the same union? reviving the optimum currency areas theory from the business cycle synchronisation perspective. Post-Commun Econ 32(3):330–351

Wu JC, Xia FD (2016) Measuring the macroeconomic impact of monetary policy at the zero lower bound. J Money, Credit, Bank 48(2–3):253–291