



BIS Bulletin

No 70

Private debt, monetary policy tightening and aggregate demand

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24 February 2023

BIS Bulletins are written by staff members of the Bank for International Settlements, and from time to time by other economists, and are published by the Bank. The papers are on subjects of topical interest and are technical in character. The views expressed in them are those of their authors and not necessarily the views of the BIS. The authors are grateful to Emese Kuruc and Jose Maria Vidal Pastor for excellent analysis and research assistance, and to Louisa Wagner for administrative support.

The editor of the BIS Bulletin series is Hyun Song Shin.

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ISSN: 2708-0420 (online)

ISBN: 978-92-9259-637-8 (online)

Private debt, monetary policy tightening and aggregate demand

Key takeaways

- Monetary policy is tightening globally while private debt levels stand at historical highs. When private debt to GDP is high, aggregate demand may be more sensitive to interest rate hikes.
- Yet, after a decade of low rates, the maturity of private debt has generally lengthened, the prevalence of variable rates has fallen, and household net worth has increased. This should counteract the higher demand sensitivity stemming from elevated debt.
- Both the level and composition of private debt are important factors, although not the only ones, for the calibration of monetary policy in the current economic environment.

As the global economy slows, inflation is subsiding on the back of tighter monetary policy. Amid historically high private debt levels in many jurisdictions, should central banks expect that the effect of interest rate hikes on aggregate demand will be amplified, so that they get more bang for the buck? And how will the characteristics and the composition of private debt affect this impact?

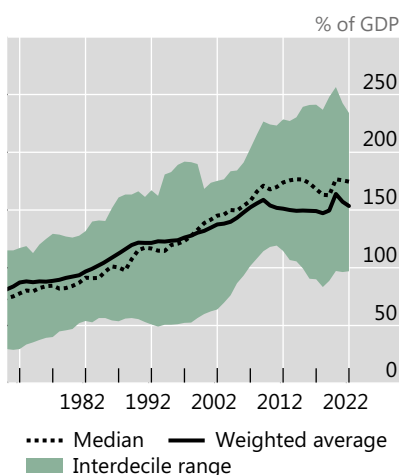
Private debt and the impact of monetary policy on expenditures

The total private debt of households and non-financial corporations (NFCs) has trended upwards since at least the 1970s. Long-run financial deepening but also credit booms especially in the run-up to the Great

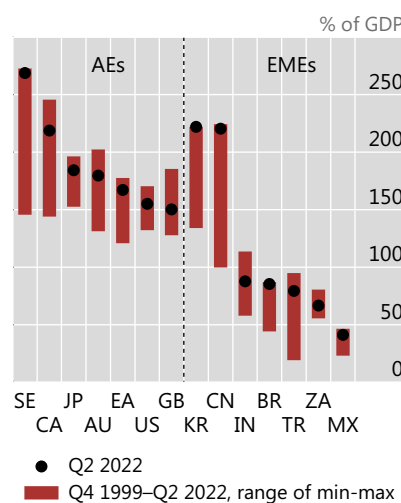
High debt paves the way to sharp increases in servicing costs as policy tightens

Graph 1

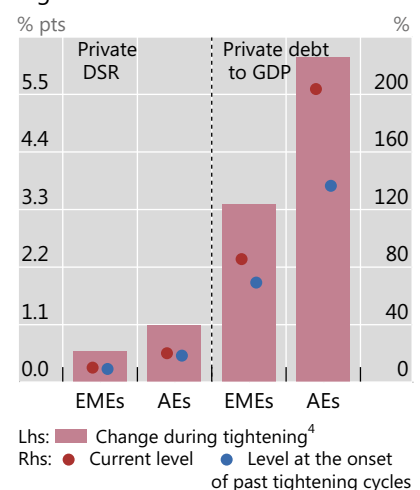
A. Private debt has barely fallen since the GFC...^{1,2}



B. ...with significant cross-country differences¹



C. Policy tightening historically led to higher service costs and debt ratios³



¹ Total credit of the non-financial private sectors. ² Sample of 20 AEs (US,JP,AU,CA,NZ,NO,SE,CH,DK,GB,AT,BE,DE,ES,FI,FR,GR,IT,NL,PT) and eight EMEs (IN,KR,MY,SG,TH,HU,ZA,SA). Latest available quarter for 2022. ³ Non-financial private sectors. Sample of nine AEs and seven EMEs. Median figures. ⁴ Change over six quarters relative to tightening start. Tightening cycle dating based on Cavallino et al (2022), excluding the most recent and ongoing episode.

Sources: Cavallino et al (2022); IMF; BIS.

Financial Crisis (GFC) have been the main driving forces behind this steady increase (Graph 1.A). However, the GFC did put a stop to the global upward trend in debt levels, even if global debt has barely fallen since.

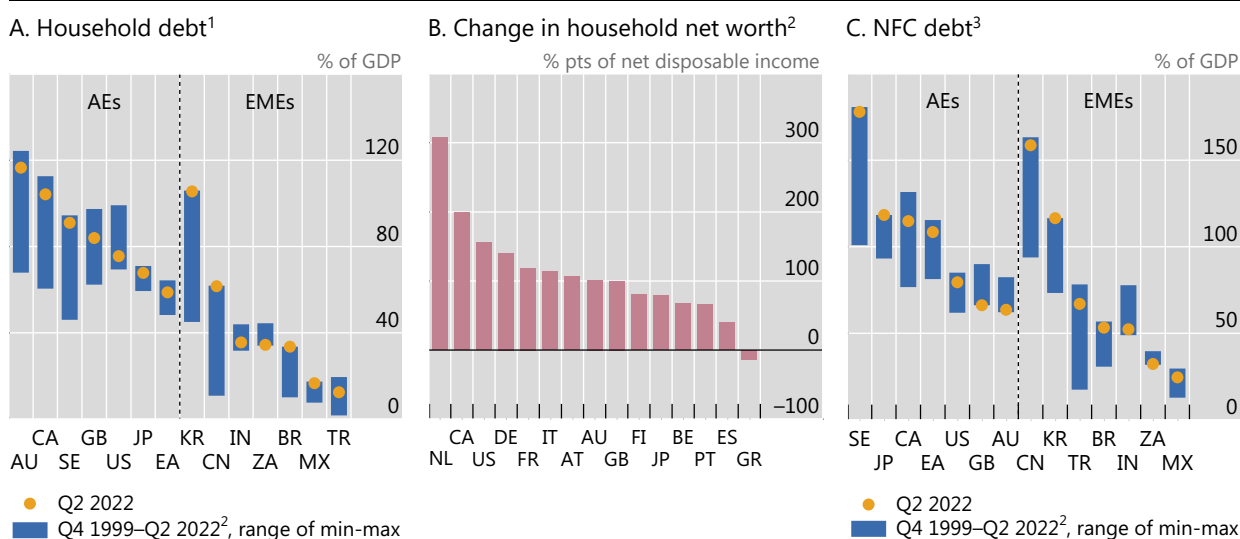
Flat debt at the global level hides considerable variations in the country by country trends. In those at the core of the GFC, notably the United States and the United Kingdom, debt-to-GDP ratios are far off historical peaks. But in several other jurisdictions, they are close to historical highs. For instance, current debt-to-GDP ratios exceed 150% in advanced economies (AEs), with levels above 200% in Sweden and Canada (Graph 1.B). In emerging market economies (EMEs), they tend to be lower, often below 100%, but Korea and China stand out at levels well above 200%.

Under these conditions, the current monetary policy tightening cycle is unprecedented, in that it coincides with significantly higher levels of private debt than in past cycles, particularly in AEs (Graph 1.C). By contrast, a decade of low interest rates has helped to keep debt service costs in check, although this could change rapidly as central banks proceed with tightening.

Separating household from NFC debt, some points stand out. First, household debt-to-GDP ratios are currently close to historical peaks in several jurisdictions. Yet in countries where household debt was at the heart of the financial stress during the GFC, such as the United Kingdom and the United States, deleveraging over the last decade has brought the ratio to lower levels (Graph 2.A). Moreover, in many countries, household net worth is currently greater than before the GFC, reflecting in part increased housing wealth (Graph 2.B). Regarding NFCs, their debt vis-à-vis GDP is now at historical highs or close to them in many of the major economies, including the United States (Graph 2.C).¹

Households and NFC debt levels

Graph 2



¹ Total credit. ³ For CN, Q1 2006–Q2 2022; for IN, Q2 2007–Q2 2022; for ZA, Q1 2008–Q2 2022. ² Changes between 2007 and latest available year (2021, 2020 or 2019 depending on country).

Sources: OECD; BIS.

High private debt makes aggregate demand more sensitive to tighter monetary policy through several channels. First, when debt is high, any increase in interest rates feeds through into larger debt service costs, putting additional pressure on disposable incomes, cash flows and expenditure (*flow effect*). Second, higher interest rates result in a larger income transfer from poorer households, who are typically net debtors and have a higher marginal propensity to spend, to wealthier savers with a lower propensity to spend (*distributional effect*). Third, high debts imply larger financial vulnerabilities, strengthening the

¹ Debt figures for NFCs include cross-firm borrowing, which accounts for part of the increase in NFC debt. Using consolidated debt figures for the NFC sector would probably show less of an increase.

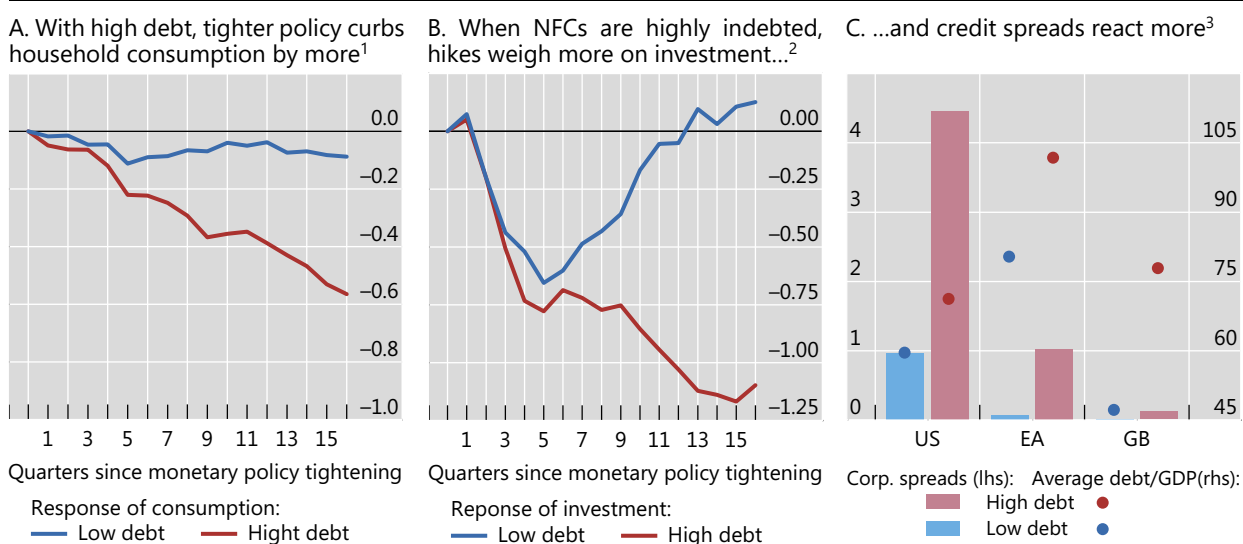
impact of tighter monetary policy, possibly leading to financial stress (*stock effect*). Last, reliance on foreign currency-denominated debt, especially in EMEs, creates spillovers and spillbacks of interest rate increases globally, also via adverse balance sheet effects (*FX effect*). Together, the stock and FX effects can produce an even larger impact if the exchange rate serves to amplify market stress.

Empirical evidence suggests that the level of private debt has a non-negligible impact on the sensitivity of aggregate demand to monetary policy (see Hofmann and Peersman (2017)). In the wake of a policy rate increase, for instance, output falls by more in countries with higher private debt. This is due to both flow effects, through lower disposable income, and stock effects via a lower credit supply, as financial conditions are more sensitive to policy rates in high-debt environments. Household consumption also tends to drop significantly more in response to a policy rate hike when household debt is higher (Graph 3.A). Similarly, more highly indebted firms cut their capital spending more severely following a rate hike (Graph 3.B). Both consumption and investment remain persistently lower in a high-debt environment after a rate hike, pointing to a larger tightening in credit conditions. Furthermore, tighter monetary policy exposes firms to a greater risk of bankruptcy, and corporate spreads increase more steeply (Graph 3.C).

High private debt and interest rate exposure compound the effect of tightening

In per cent

Graph 3



¹ Aggregate consumption response to a 25 bp tightening in the United Kingdom, when household debt to GDP is low (less than 75%) or high (above 75%). Red line statistically significant at 10% level, blue line insignificant. Estimation period: Q1 1983–Q4 2014. ² Aggregate investment response to a 25 bp tightening in the United States, when NFC debt to GDP is low (less than 60%) or high (above 60%). Difference between the red and blue lines statistically significant at the 10% level. Estimation period: Q1 1987–Q2 2016. Results qualitatively similar, but quantitatively larger for more indebted jurisdictions such as the euro area. ³ Peak responses relative to sample average of corporate bond (one- to three-year maturity) spreads to a 25 bp tightening, when NFC debt to GDP is low or high (debt cut-off: 65% for US, 90% for EA, 70% for GB). Estimation periods: Dec 1996–Jun 2016 for US, Jan 1991–Jun 2019 for EA and Dec 1996–Dec 2014 for GB.

Sources: Refinitiv Datastream; ICE Bank of America Merrill Lynch; BIS.

The role of debt composition

Beyond aggregate debt levels, granular information can shed further light on the transmission strength.

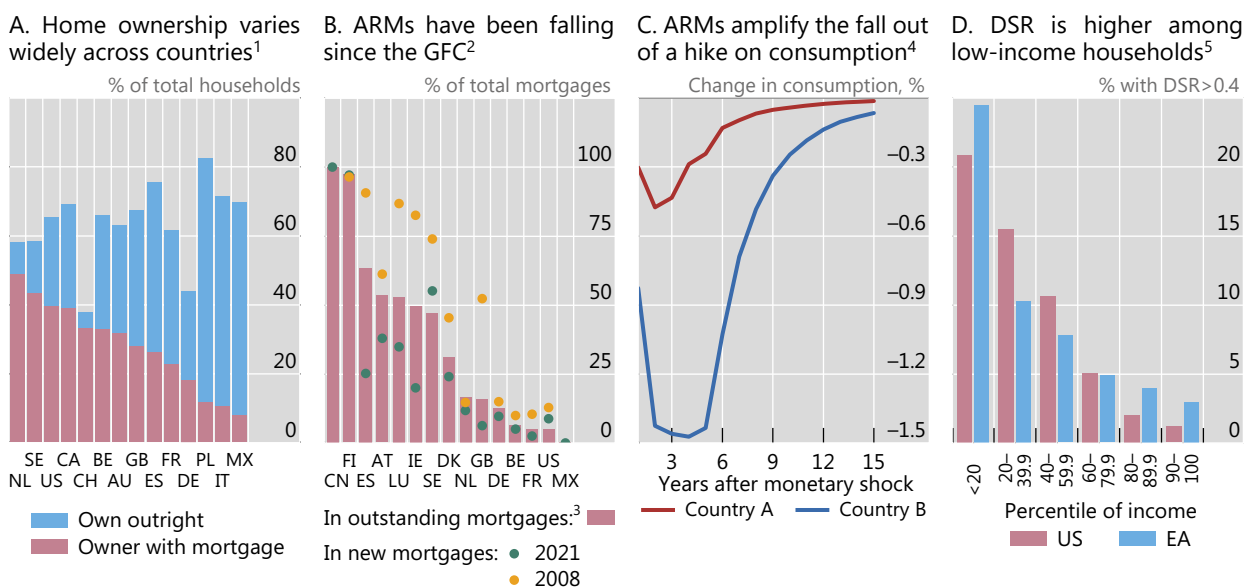
Starting with households and focusing on housing debt, the share of home owners with mortgages varies considerably from country to country, from about 10% in Mexico and Italy to more than 40% in the Netherlands and Sweden (Graph 4.A), even though overall home ownership differs less (above 60% in most jurisdictions except for Switzerland and Germany). Second, adjustable-rate mortgages (ARMs) account for a small share of total mortgages (well below 20%) in major AEs, including the United States, Germany, France or the United Kingdom (Graph 4.B). Conversely, they represent a large fraction of

outstanding mortgages in several jurisdictions, particularly in EMEs, with ARMs representing the vast majority of household mortgages. That said, looking at changes since the GFC, the prevalence of variable-rate debt has generally fallen, which probably reflects the desire to lock in the low rates that prevailed during the last decade.

These differences in the type and composition of household debt can have material effects on the transmission of monetary policy to consumption. A stylised, model-based comparison of two economies with realistic differences in home ownership and debt structures can be used for illustration (Graph 4.C).² In an economy where most households are renters or homeowners holding fixed rate mortgages (FRMs), an increase in the policy rate has only a minor effect on consumption (about –0.5% after two years). By contrast, in an economy where households are mostly owners and have ARMs, the fall in consumption is about three times larger, reflecting a larger and faster pass-through of policy rates to effective borrowing costs.

The distribution of debt across households is also relevant for monetary policy transmission. Data for the euro area and the United States show that low-income households tend to spend a larger fraction of their income on debt repayments, making such households more sensitive to interest rate hikes (Graph 4.D). Simulations confirm that, following a tightening in monetary policy, debt servicing costs increase by more at the low end of the income distribution, which would compound the drag on consumption for such low-income households with their high marginal propensity to consume.

The composition of household debt shapes the transmission of monetary policy Graph 4



¹ 2020 or latest available. ² Definitions differ among economies and variables. ³ Reference period is 2021–22, depending on data availability. Also includes BIS estimations. ⁴ Aggregate household consumption response to a 100 bp tightening in a life-cycle model with housing. Homeownership rate and share of ARM in countries A and B are similar to those in Germany and Spain, respectively. ⁵ Share of indebted households with a ratio of debt payments to gross income above 40%, in each percentile of income.

Sources: Agarwal et al (2022); Board of Governors of the Federal Reserve System, Survey of Consumer Finances (2019); ECB, Household Finance and Consumption Survey (2017); European Mortgage Federation; Refinitiv Datastream; OECD; national data; BIS.

Turning to NFCs, their debt composition has also changed significantly over the last two decades. Just as in the case of household debt, the variable-rate component has generally fallen since the mid-2000s (Graph 5.A). Similarly, the short-term components of NFC debt have declined across major jurisdictions (Graph 5.B), except for emerging Asia excluding China, where it has remained broadly stable since the GFC.

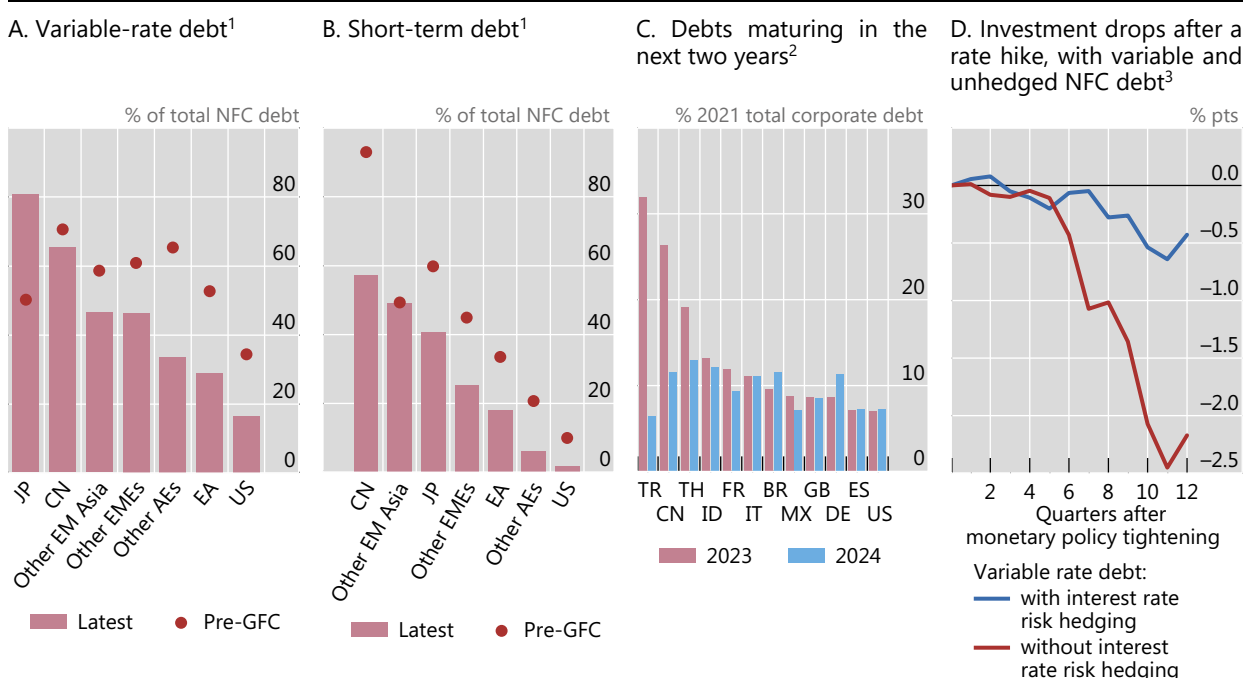
² Modelling assumptions reflect data for Germany and Spain according to the third wave of the Eurosystem’s Household Finance and Consumption Survey.

Among the largest declines, China stands out, as the share of short-term debt in the total debt of Chinese NFCs fell from more than 90% to less than 60%. In the United States and the euro area, the drop has been more modest, at around 10 percentage points. That said, substantial debt amounts are expected to mature over the next two years and will have to be rolled over at prevailing interest rates (Graph 5.C). Considering the countries listed in Graph 5.C, such debts account on average for about 18% of outstanding NFC debt in AEs, while in EMEs about 28% of NFC debt is expected to come due by the end of 2024.

The role of variable-rate debt for the transmission of monetary policy to corporate investment is similar to the one for household consumption. Firms with more unhedged variable-rate debt scale back investment following a monetary policy tightening while those which face the same exposure to variable-rate debt but use interest rate risk hedging instruments do not (Graph 5.D). This probably reflects a stronger pass-through from policy rates to the effective costs of external financing. Similarly, firms with large up-front financing needs and correspondingly high debt levels, as in the construction sector, could also be expected to scale investment back more forcefully in response to higher interest rates.

Higher NFC debt comes with different risk exposures

Graph 5



¹ For the regions, weighted averages based on GDP and PPP exchange rates across eight AEs, eight EM Asian economies and 12 other EMEs. Median value per country. Only firms reporting between 2008 and 2021 are used. ² Sum of NFC debt maturing in the respective year divided by total outstanding debt as of 2021. Sample of firms based on those reported in Capital IQ Capital Structure Details. ³ Investment response to a 100 bp tightening for firms with high exposure to variable-rate debt and with or without interest rate hedging. Red line is statistically significant at 10%, blue line insignificant. Estimation period: Q1 2000–Q4 2019.

Sources: S&P Capital; BIS.

Where does that leave us?

High private debt levels tend to raise the economy's sensitivity to monetary policy tightening. With more bang for the buck, will central banks need to tighten less to bring inflation down? If so, by how much less?

Following a decade of low interest rates, the shares of variable-rate and short-term debt for households and NFCs have fallen, which limits the pass-through of policy rate hikes, reduces the flow effect of tighter monetary policy and increases its transmission lags. This arguably counteracts the higher

sensitivity of aggregate demand to monetary policy stemming from elevated debt levels, so that the impact of tighter monetary policy will take more time to be fully transmitted.³

But several other aspects need to be considered. First, over the last decade, NFCs have significantly stepped up their borrowing from non-bank financial institutions (NBFIs), particularly in jurisdictions outside Asia. This diversification has some benefits for firms in terms of risk and funding sources, as it provides a “spare tyre”.⁴ However, NBFIs can have leverage and liquidity mismatches, often hidden, increasing their vulnerability to strains and making their credit supply more procyclical than that of banks.⁵ This can complicate firms’ debt (re)-financing in periods of rising interest rates.

Second, public debt levels are also at historical highs. As monetary policy tightening percolates through and government funding costs rise, fiscal space will eventually shrink, especially in jurisdictions where debt is high and fiscal sustainability at risk. This is likely to force governments to tighten their fiscal position, placing an additional drag on aggregate demand that high private debt could amplify.

Last, even if aggregate demand is now more sensitive to monetary policy, this is no assurance that central banks will be able to bring inflation back to target with less tightening. Tighter policy on the back of elevated debt levels could increase financial vulnerabilities, particularly in the corporate sector, leading firms to jack up prices even in the face of weakening demand. Central banks would then face harder trade-offs in the form of higher sacrifice ratios, as output would need to fall by more to achieve a given disinflation.

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³ Another important aspect relates to household savings. In jurisdictions where they are still high, they could reduce the sensitivity of aggregate demand to tighter monetary policy.

⁴ Elliot et al (2022) show that higher policy rates shift credit supply from banks to non-banks, thereby dampening any associated drop in consumption and investment.

⁵ See Fleckenstein et al (2020) and Aramonte et al (2022).

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