

MEDIUM AND LONG-RUN TRENDS IN INTEREST RATES – CAUSES AND IMPLICATIONS FOR MONETARY POLICY: AN OVERVIEW

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This volume brings together a set of papers presented at the XXVII Annual Conference of the Central Bank of Chile, held in Santiago in November 2024. The conference examined one of the most consequential questions in contemporary macroeconomics: the evolution of medium- and long-run interest rates and the forces shaping their behavior. Its objective was to convene leading scholars working at the frontier of this field to assess both the historical trajectory of interest rates and the structural determinants that are likely to influence their future path.

The topic could hardly be more timely, particularly in light of the sharp and synchronized post-pandemic monetary tightening, which lifted policy rates worldwide from historically low levels. While 2025 marked the beginning of modest policy easing in several economies, policy rates remain well above their pre-pandemic levels. This has revived a fundamental debate in macroeconomics: will real interest rates eventually return to the very low levels that prevailed before

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2020, or has the global economy entered a new regime in which long-run equilibrium rates settle at higher values?

Experts disagree sharply on the future path of long-run rates. One strand of research emphasizes that the forces driving the secular decline in real rates—population aging, low productivity growth, rising inequality, elevated risk aversion, increased market concentration, and persistent global demand for safe assets—are unlikely to reverse soon. If these structural drivers continue to dominate, real interest rates may eventually resume their downward trend.

Recent developments, however, point in a different direction. Long-term real yields—particularly in the United States—have increased materially since 2020, and new estimates of the natural rate of interest suggest upward revisions in several advanced economies.¹ These developments suggest that structural conditions may have shifted, reflecting higher public debt burdens, geopolitical fragmentation, or emerging global investment needs.

Understanding this debate requires revisiting the extraordinary decline in interest rates from the early 1980s until the pandemic. Over these forty years, nominal US Treasury yields fell dramatically by more than ten percentage points at both short and long maturities. Inflation also declined over the same period, though by less, leaving real rates roughly five and four percentage points lower for two- and ten-year bonds respectively. Sovereign real rates approached zero—and occasionally turned negative—in several advanced economies. The decline extended beyond sovereign bonds to other so-called “safe” assets and beyond the United States: real long-term rates fell by several percentage points across both advanced and emerging economies.²

The sustained downward trend in risk-free rates points to a significant decline in the natural rate of interest—often referred to as R -star—the long-run equilibrium real rate consistent with stable inflation and output at potential. This secular decline coincided with a marked expansion in credit, while the marginal product of capital, returns on risky assets, and the investment rate remained relatively stable, particularly in advanced economies.³ These patterns are typically attributed to forces that lifted the overall supply of savings while redirecting those savings toward safe assets rather than productive investment.

1. See Benigno and others (2024).

2. See Obstfeld (2023).

3. See Farhi and Gourio (2025).

One prominent explanation for this long-run decline is the so-called global saving glut. Since the 1990s, several emerging economies have accumulated substantial savings driven by rapid economic growth, heightened precautionary motives, and favorable terms of trade. A significant portion of these savings flowed into safe assets issued by advanced economies. At the same time, rising wealth inequality in advanced economies contributed to a parallel increase in savings among top-income households. The “saving glut of the rich” became quantitatively comparable to the savings surpluses generated in emerging markets.⁴

Other explanations for the excess supply of savings emphasize broader structural forces. The secular stagnation hypothesis points to a long-term decline in potential growth that reduces profitable investment opportunities and channels savings toward safer assets. Demographic changes—lower population growth and rising life expectancy—have also raised the demand for savings across generations and regions. Rising risk aversion, the declining relative price of investment goods, and the growing concentration of corporate market power have all contributed to directing excess savings toward safe assets rather than productive investment.

Looking forward, several of these structural drivers may continue to exert downward pressure on equilibrium rates. Yet powerful countervailing forces are also emerging. These include the fiscal implications of large and rising public debt, the investment needs associated with the climate transition and geopolitical rearmament, demographic shifts that may eventually reduce saving propensities, and the potential productivity gains linked to advances in artificial intelligence. As these forces interact, the future path of the natural rate of interest, safe real interest rates, and the marginal product of capital remains deeply uncertain.

For policymakers, the stakes are high, and the different rates play distinct roles. For central banks, the natural rate provides a benchmark for the stance of monetary policy, yet it is inherently unobservable and harder than ever to estimate under elevated uncertainty. For fiscal authorities, the gap between the safe real rate and the growth rate determines public debt sustainability, while the level of debt in turn shapes the convenience yield on government bonds and the fiscal space available. For the broader economy, persistent wedges between safe returns and the marginal product of capital—arising from inequality,

4. See Mian and others (2020).

market power, and financial frictions—shape investment, leverage, and the distribution of wealth, reinforcing the very forces that generate those wedges.

The contributions in this volume examine the conceptual foundations, empirical behavior, and policy implications of the interest rates that anchor modern macroeconomic dynamics. The volume contains four research papers and two keynote addresses, each offering a distinct perspective on the forces driving medium- and long-run interest rates. Together, they address four broad themes: (i) the conceptual distinctions among the various interest rates relevant for macroeconomic analysis, (ii) the determinants and measurement of the natural rate of interest, (iii) the historical evolution of real interest rates and the structural shocks that have shaped them, and (iv) the emerging global forces likely to influence future savings-investment equilibria.

The volume opens with Ricardo Reis's keynote lecture, **The Four R-Stars: From Interest Rates to Inflation and Back**. Reis argues that one way to understand the future trajectory of interest rates is to focus on the natural rate of interest, R -star, which in the long run acts as a common component underlying several key interest rates in the economy.

Reis emphasizes that R -star is not a single number but a collection of four distinct equilibrium rates. He develops a framework that distinguishes among these rates and clarifies the economic mechanisms behind each, an exercise essential for both monetary and fiscal policymaking. The first rate corresponds to the return on productive capital, determined by its marginal product. The second is the expected return on safe savings, shaped by safety and liquidity premia as well as global savings flows. The third is the realized return on government bonds, reflecting the nominal yield adjusted for realized inflation. The fourth is the neutral monetary policy rate—the policy rate consistent with achieving the central bank's inflation objective.

Reis constructs a conceptual framework in which each interest rate arises from a distinct equilibrium condition: productive investment and savings, portfolio allocation between productive and safe assets, aggregate supply and realized inflation, and the conduct of monetary policy. Structural forces such as productivity growth, demographics, and inequality; financial factors including liquidity and risk premia; and policy decisions can therefore shift these equilibria independently, allowing the four rates to diverge for extended periods.

Empirically, Reis shows that the evolution of these four rates over the past three decades has differed substantially. The return on

productive capital has remained broadly stable, the expected return on safe assets has declined steadily, the realized return on government bonds fell until the mid-2010s and later rose following the inflation episode of 2021–2024, and the neutral monetary policy rate declined significantly until around 2015 before increasing modestly thereafter.

Looking ahead, Reis discusses three policy-dependent scenarios for the future evolution of interest rates. In a benevolent scenario, monetary policy recognizes a higher neutral policy rate and fiscal authorities adjust primary surpluses to maintain debt sustainability. In a forever-higher-inflation scenario, policymakers attempt to run the economy persistently hot, leading to rising inflation and declining real returns to bondholders. Finally, in a double-trap scenario, higher term premia and fiscal constraints leave both monetary and fiscal policy with limited room to stabilize the economy, thus resulting in persistent underemployment and inflation below target.

Galo Nuño's paper, **Three Theories of Natural Rate Dynamics**, challenges the conventional view that the natural rate depends solely on slow-moving structural forces such as productivity growth and demographics. Nuño argues instead that the natural rate can shift significantly in response to policy actions and shocks, primarily through their effects on precautionary saving.

The first mechanism operates through fiscal policy. Drawing on Campos and others (2024), Nuño shows that in a heterogeneous-agent New Keynesian (HANK) model, the natural rate depends positively on the long-run level of public debt. Because households face income risk and incomplete markets, the stock of government debt determines the extent to which they can self-insure against adverse income shocks. Higher public debt increases the supply of safe assets, reduces precautionary saving, and therefore raises the natural rate of interest.

The second mechanism relates to monetary policy and the zero lower bound (ZLB). Building on Fernández-Villaverde and others (2025), Nuño explains that precautionary savings motivated by the prospect of hitting the ZLB exert downward pressure on the natural rate. When households expect the economy to hit the ZLB more frequently, they save more to smooth consumption in adverse states. This creates a feedback loop: a lower natural rate raises the probability of hitting the ZLB, which induces further precautionary saving and pushes the natural rate down further.

Finally, the third mechanism focuses on persistent supply shocks and draws on Nuño and others (2024). In this framework, the economy can switch between “good” and “bad” states, for example, in response

to trade disruptions or geopolitical conflicts. When such regime shifts are possible, households accumulate additional savings during good states in order to insure themselves against the risk of transitioning to a bad state. This precautionary behavior depresses the natural rate even when the economy appears to be performing well. When the economy transitions to the adverse state, the natural rate can move sharply, reflecting the change in underlying risks and expectations.

Nuño concludes that the natural rate should not be viewed as a fixed or purely exogenous variable. It may instead respond endogenously to policy decisions and to changes in the economic environment. This perspective implies that central banks need to monitor the natural rate more actively, and to recognize that policy itself can shape its evolution.

The first two contributions focus on the conceptual interpretation of the natural rate of interest and on the mechanisms through which policy actions and shocks influence its dynamics. The next group of papers turns to how the evolution of interest rates interacts with broader macroeconomic forces, including fiscal policy, financial stability, and structural changes in the global economy. These contributions show how the behavior of interest rates—both policy rates and market rates—shapes macroeconomic outcomes and financial vulnerabilities.

The first paper in this group, **Fiscal Policy and Real Interest Rates**, by Francesco Bianchi, Renato Faccini, and Leonardo Melosi, studies how fiscal policy influences real rates in a class of general equilibrium models with partially unfunded debt. The authors distinguish between funded fiscal shocks, which are backed by future fiscal adjustments, and unfunded fiscal shocks, which are not expected to be offset by future tax increases or spending cuts.

The analysis shows that these two types of shocks have markedly different macroeconomic consequences. Funded fiscal shocks generate a modest increase in inflation and real interest rates because the central bank responds more than one-to-one to inflationary pressures. In contrast, unfunded fiscal shocks generate persistent inflation that is only partially offset by monetary policy, thus leading to a decline in real interest rates and an expansion in real activity.

To study these mechanisms quantitatively, the authors embed funded and unfunded transfer shocks into a two-agent New Keynesian (TANK) model with savers and hand-to-mouth households, nominal rigidities, and a detailed fiscal sector. They then use this framework to analyze the historical behavior of US real interest rates. Their results suggest that unfunded fiscal shocks account for a large share

of the low-frequency movements in real rates. The interaction between monetary and fiscal policy thus plays a central role in shaping long-run real rate dynamics, which implies that fiscal policy may be a key determinant of future movements.

The second paper, **Monetary Policy and Banking Stability**, by José-Luis Peydró, examines how the monetary policy cycle shapes banking-sector risk. Both prolonged periods of very low interest rates and the subsequent rapid rate hikes can jointly raise the likelihood of banking crises. Peydró characterizes this dynamic as a U-shaped path of monetary policy.

During the low-rate phase of the cycle, financial vulnerabilities tend to accumulate. Cheap credit encourages lending booms, rising asset prices, and increased risk-taking by banks. These vulnerabilities remain latent while interest rates stay low but become exposed once monetary policy begins to tighten. When interest rates rise, balance sheet fragilities become visible through higher defaults, declining asset prices, and stresses in the banking sector.

By using long-run historical data covering seventeen countries since 1870, together with detailed loan-level data from Spain, Peydró documents that banking crises are consistently preceded by such U-shaped monetary policy paths. The key mechanism is not the decline or the increase in interest rates in isolation, but the full cycle of prolonged accommodation followed by tightening. During the low-rate phase, banks expand credit supply, compress lending spreads, and extend loans to increasingly risky borrowers. When rates subsequently rise, these vulnerabilities materialize as higher defaults and weaker bank performance.

Evidence from Spanish administrative data further confirms that banks with higher risk exposure increase lending disproportionately to riskier borrowers during extended periods of monetary easing and subsequently experience larger increases in default rates once interest rates begin to rise.

Peydró concludes by emphasizing the policy implications of these findings. Monetary policy should take financial stability risks into account, and policymakers may need to tighten earlier in the cycle to prevent the buildup of vulnerabilities. Once vulnerabilities are already elevated, moderate rate increases combined with supervisory and macroprudential tools may be more effective than abrupt monetary tightening.

The third contribution, drawn from Atif Mian's keynote **Long-Run Interest Rates: Past, Present, and Future**, examines the persistent

rise in global debt alongside the sustained decline in long-run real rates since the early 1980s. Mian argues that two profound structural transformations—the sharp increase in extreme inequality and the expansion of financialization following the collapse of the Bretton Woods system—have jointly produced a macroeconomic environment of rising debt and falling rates.

At the core of Mian's narrative is the imbalance generated by extreme inequality and the heterogeneous saving behavior of households. The very rich save at disproportionately high rates, so as inequality rises, an ever-larger share of national income flows to high-saving households, thus generating excess savings. The macroeconomy must absorb these savings somewhere in equilibrium, yet they have not flowed into productive investment or corporate expansion. Instead, the financial system has reconciled the imbalance by channeling the surplus into debt. Before 2008, this took the form of household borrowing that financed consumption rather than investment. After the Global Financial Crisis, once households had reached their borrowing limits, public debt increasingly stepped in to support aggregate demand. The economy has held this together only by pushing interest rates progressively lower and by allowing debt—first private, then public—to grow continuously.

This adjustment mechanism reinforces the underlying structural problem. Lower interest rates raise asset prices, which disproportionately benefit the wealthy and amplify inequality, thus generating still more excess savings. Mian highlights the irony of this dynamic: extreme inequality produces the saving glut that pushes interest rates down and inflates asset valuations, which in turn concentrates wealth further. The process becomes increasingly fragile. Once private balance sheets saturate, governments must run deficits to sustain demand, but they too face limits: borrow too little and the economy slips into recession; borrow too much and interest rates, fiscal stress, and market instability rise. Mian calls this narrow window the fiscal “Goldilocks zone”—deficits large enough to offset depressed private demand, but not so large as to push borrowing costs into trouble.

Recent US data—large fiscal deficits, elevated debt-to-GDP ratios, and rising long-term interest rate expectations—suggest that the United States may already be approaching the limits of this narrow zone. Mian concludes that unless the structural drivers of extreme inequality are addressed, the global economy may remain trapped in a high-debt, low-rate equilibrium with limited policy space and

heightened vulnerability to fiscal and financial instability. Durable macroeconomic stability, in his view, ultimately requires addressing the root causes of the saving glut rather than relying on monetary and fiscal policy to manage its consequences.

The final paper, **The Impact of Climate Change and Geopolitical Tensions on Long-Term Interest Rates**, by Elías Albagli, Sofía Bauducco, Guillermo Carlomagno, Luis Gonzales, and Juan Marcos Wlasiuk, examines how two major global transformations—the climate transition and the resurgence of geopolitical tensions—are likely to reshape the global savings-investment balance over the coming decades.

The authors argue that, while some forces may continue to push global savings upward, the scale of the investment required to address climate change and heightened geopolitical risks is considerably larger. Achieving climate mitigation and adaptation goals will require a substantial and sustained increase in global investment. These needs are likely to be further amplified by rising defense expenditures and broader geopolitical fragmentation.

Because the investment required to meet these challenges is expected to exceed any plausible increase in global savings, the equilibrium marginal product of capital is likely to rise, exerting upward pressure on real interest rates. The authors stress, however, that the transmission from a higher cost of capital to risk-free rates and to the natural policy rate is not mechanical: it depends on risk premia, term premia, and the balance between public and private financing.

Their analysis suggests that the combined effects of climate-related investment, geopolitical fragmentation, and fiscal pressures from elevated public debt may produce a structural increase in long-term real interest rates over the coming decades—a potential reversal of the secular downward trend of the previous forty years.

Taken together, the contributions in this volume offer a comprehensive and nuanced view of the structural, fiscal, financial, and geopolitical forces shaping medium- and long-run interest rates. The future path of these rates remains uncertain, but the analyses presented here clarify the mechanisms at work and the policy challenges ahead. Amid accelerating structural change and rising global risks, understanding these forces is essential for designing robust monetary and fiscal frameworks capable of sustaining macroeconomic and financial stability.

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