Confronting the Hazards of Rising Private Sector Leverage

Author Adolfo Barajas

By Adolfo Barajas

Benefits & Hazards of Private Sector Leverage

Leverage, the ability to borrow, is a double-edged sword. It can boost economic activity by allowing firms to invest in machinery to expand their scale of production, or by allowing people to purchase homes and cars or invest in education. During economic crises, it can play a particularly important role, making it possible for firms and households affected by sharp disruptions to their incomes to continue to make payments on essential items. In this way, leverage can provide a bridge to an economic recovery.

The Benefits

Several decades of research have shown that, at the macroeconomic level, leverage by the private sector is indeed associated with quantifiable benefits. As reviewed by Ross Levine ("Finance and Growth: Theory and Evidence" in *Handbook of Economic Growth*: Philippe Aghion & Steven Durlauf (ed.), Elsevier, 2005) and Alexander A. Popov ("Evidence on Finance and Economic Growth" in *Handbook of Finance and Development*, Edward Elgar, 2018), studies have shown that countries that have a greater ratio of private sector borrowing from the banking system to their GDP – also commonly referred to as the country's *financial depth* – tend to experience higher economic growth rates over long periods of time. Delving deeper into the channels through which these effects materialize, work by Raghuram G. Rajan and Luigi Zingales ("Financial Dependence and Growth", *American Economic Review*, Vol. 88, No. 3, 1998) highlighted a crucial role played by private borrowing: it helps to relax financing constraints on firms. That is, it allows the sectors and firms that naturally require greater funding from outside sources to expand more rapidly. In addition, a broad group of studies uncovered benefits on other fronts, in particular facilitating greater rates of capital accumulation, and lower inequality and poverty rates.

The Hazards

The other edge of the sword is that leverage may pose hazards as well. Its positive impacts may evaporate or even reverse at very high levels or when its growth is particularly rapid. Researchers such as Jean-Louis Arcand, Enrico Berkes, and Ugo Panizza ("Too Much Finance", *Journal of Economic Growth*, 20 (2), 2015) have identified a "too much finance" phenomenon, whereby countries at already very high levels of financial depth may actually experience a reduction in long-run growth when they deepen further. This is partly due to a greater propensity for financial instability when levels of private sector borrowing are high and growing rapidly. As documented by Moritz Schularick and Alan M. Taylor ("Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008", *American Economic Review*, Vol. 102, 2012), while not all such episodes – *credit booms* – result in financial distress or crises, certainly most financial crises have been preceded by credit booms. Particularly destabilizing, as Atif Mian, Amir Sufi, and Emil Verner find ("Household Debt and Business Cycles Worldwide", *Quarterly Journal of Economics*, Vol. 132, 2017), are rapid increases in borrowing by households. These episodes tend to produce a boom-bust cycle, whereby increased spending spurs greater economic activity and feeds asset prices in the short run, but leaves the economy more exposed to a severe downturn in activity or a sharp correction in asset prices in the future.

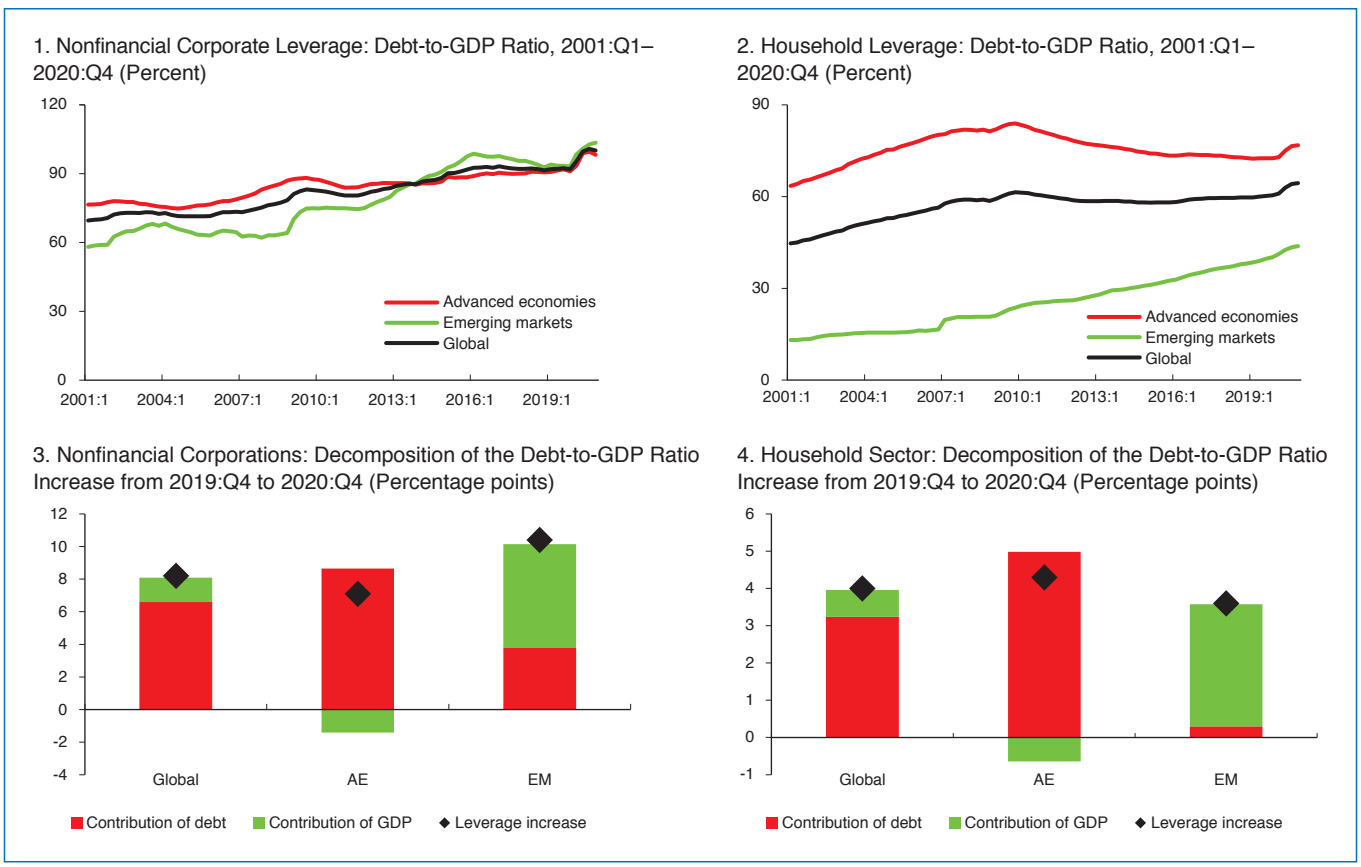
In this article I discuss the two blade edges of private sector leverage in the context of an almost uninterrupted buildup since the global financial crisis. Drawing on results from recent research by our team in the International Monetary Fund (IMF), I argue that, because facilitating borrowing was part of the policy package pursued by many governments to provide support to their private sectors during the Covid-19 crisis, a policy dilemma or tradeoff emerges: the short-run benefits of these policies might be generated at the cost of future financial stability risk. Our analysis implies then that policymakers should be aware of this tradeoff and stand ready to reverse the Covid-era policies when no longer needed. In addition, we show that a particular set of tools – macroprudential policies – can be deployed early to lessen or even eliminate the tradeoff between easing credit conditions today and increasing financial stability risk tomorrow.

Rising Leverage, Before & During the Covid-19 Crisis

During the decade following the global financial crisis and leading up to the outbreak of Covid-19, leverage in the nonfinancial private sector – comprising households and nonfinancial firms – had been increasing steadily in many countries. We use a broader definition of leverage than the financial depth measure described above, as we

CHART 1

Private nonfinancial sector leverage, by country group



Notes: The figure includes 27 advanced economies (AEs) and 25 emerging markets (EMs). Leverage is measured as the ratio of debt to GDP. Global, AE, and EM leverage are measured as the ratio of aggregate debt to aggregate GDP across different country groups. Nonfinancial corporate debt figures are nonconsolidated.

Sources: Institute of International Finance; and "Loose Financial Conditions, Rising Leverage, and Risks to Macro-Financial Stability" by Adolfo Barajas, Woon Gyu Choi, Ken Zhi Gan, Pierre Guérin, Samuel S. Mann, Manchun Wang and Yizhi Xu (IMF Working Paper WP/21/222, 2021)

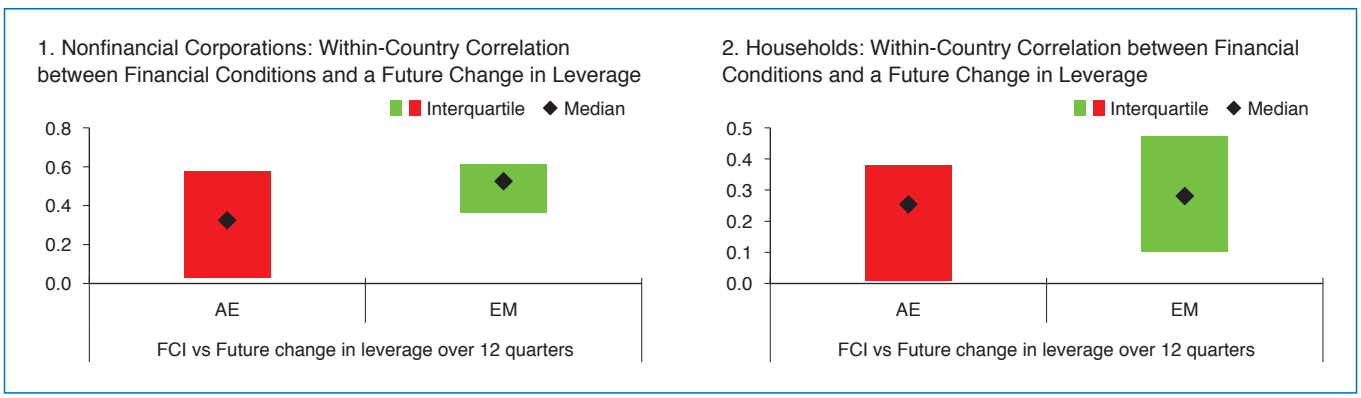
include bond issuance in addition to bank credit received, and also scale it by the country's GDP to approximate the economy's capacity to service this debt. As Panels 1 and 2 of *Chart 1* show, from 2010 to 2019 global leverage of the nonfinancial private sector rose from 138% to 152%, with leverage of firms reaching a historical high of 91% of GDP.

More recently, amid the sharp contraction in economic activity brought on by lockdowns and social distancing practices during the Covid-19 pandemic, policymakers took actions to ensure that firms and households could continue to access credit markets and borrow to cushion the downturn. Many firms managed to limit the number of workers they had to lay off. And cash-strapped households could continue to spend on necessary items such as rent, utilities, or groceries.

As a result, leverage increased even further. Panels 3 and 4 of *Chart 1* show that during 2020 nonfinancial firms increased their leverage by over 8 percentage points, to just over 100% of GDP, while households increased theirs by 4 percentage points of GDP, to 64.5% of GDP. The figure also highlights the diverging phases of the economic cycle between advanced economies (AEs) and emerging market economies (EMs). With a nascent recovery in AEs, the decomposition of the change in the ratio into changes in the amount of debt (numerator) and GDP (denominator) reveals that the increase was driven solely by additional debt taken on by the private sector in these countries, as GDP had a negative contribution. For EMs, the continuing depressed economic activity through the last quarter of 2020 meant that GDP was responsible for about 60% of the increase in the leverage ratio for nonfinancial firms and almost 90% for households. But debt levels increased for both AEs and EMs.

CHART 2

Financial conditions & leverage



Notes: The sample includes 19 advanced economies (AE) and 10 emerging markets (EMs) over the period 1996:Q1 – 2020:Q4. Panels 1 and 2 show the correlation of the negative of the Financial Conditions Index (FCI) (that is, higher values indicate looser financial conditions) and changes in the debt-to-GDP ratio over the subsequent 12 quarters.
Sources: Institute of International Finance; and "Loose Financial Conditions, Rising Leverage, and Risks to Macro-Financial Stability" by Adolfo Barajas, Woon Gyu Choi, Ken Zhi Gan, Pierre Guérin, Samuel S. Mann, Manchun Wang and Yizhi Xu (IMF Working Paper WP/21/222, 2021)

Key Factor in Leverage Buildup: Easy Financial Conditions

Many factors can influence the capacity and willingness of the private sector to take on additional debt, such as fiscal performance of the public sector, the rate of unemployment, and the speed of aging of the population, but one in particular stands out: financial conditions. These reflect the price that different private sector actors in the economy assign to taking on additional financial risk. When financial conditions are "loose" or "easy", the price of risk is low, whereas under "tight" financial conditions, risk taking is deemed costly by the main players in markets involved in financial transactions. Thus, one should expect that when financial conditions are loose, firms and households have greater incentives and ability to borrow, and banks and purchasers of corporate bonds are also more likely to provide the desired financing. In short, an easing of financial conditions should result in greater private sector leverage.

This is verified by analysis undertaken by our team for Chapter 2 of the April 2021 IMF Global Financial Stability Report (GFSR) and described in detail in a recent paper ("Loose Financial Conditions, Rising Leverage, and Risks to Macro-Financial Stability" by Adolfo Barajas, Woon Gyu Choi, Ken Zhi Gan, Pierre Guérin, Samuel S. Mann, Manchun Wang and Yizhi Xu, IMF Working Paper WP/21/222 (Washington, D.C., 2021). We use a financial conditions index, or FCI, constructed by the Monetary and Capital Markets Department of the IMF as part of its continuous surveillance of financial developments throughout the world. The FCI is a composite measure, encompassing market data on real short-term interest rates, equity prices, sovereign and corporate debt spreads, exchange rates, and real house prices. It is calculated for each country, and then can be aggregated into regional and global averages.

In *Chart 2* we calculate the correlation between each country's financial conditions – a higher level denoting easier financial conditions – and the growth of leverage over the subsequent 12 quarters, and show the average correlations as well as the interquartile range over 19 AEs and 10 EMs. As illustrated, there is a visible positive association for both groups of countries and for nonfinancial firms as well as households. Our analysis further reveals that this association holds for other time horizons, such as eight or 16 quarters ahead, and when controlling for the other key factors affecting leverage. Thus, the pre-Covid buildup in leverage is partly explained by the easy financial conditions prevailing in most countries in the years following the global financial crisis, as is the more recent increase in leverage, amid financial conditions that eased considerably after initially tightening sharply in the first quarter of 2020.

Financial Stability Risk

Our analysis then turns to the potential financial stability risk of rising private sector leverage. Following work of previous GFSRs and of Tobias Adrian, Nina Boyarchenko, and Domenico Giannone ("Vulnerable Growth", *American Economic Review*, Vol. 109, 2019), we adopt a particular perspective: Growth at Risk (GaR). Put simply, GaR summarizes the possibility that economic activity may suffer a severe downturn, as the analysis focuses on the lower tail of the distribution of future outcomes. GaR therefore provides a signal of future financial distress, which is often the result of a buildup of

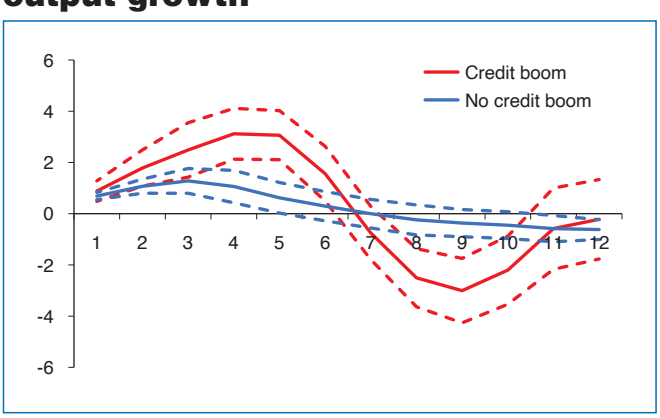
vulnerabilities that would require either a sharp correction in asset prices or an abrupt deleveraging by the private sector. That is, if leverage is indeed a source of vulnerability and therefore poses a hazard for financial stability, this should show up as an intensified downside risk to future economic activity.

We find this to be the case, in several ways. *Chart 3* shows one of our main results, the effect of an easing of financial conditions – which, as we saw, induces an increase in private sector leverage – on GaR up to 12 quarters into the future. Note that GaR expresses the lower tail of the distribution of future economic growth outcomes; therefore an increase means that downside risk is attenuated, whereas a decrease implies that downside risk is accentuated. The chart shows evidence of a tradeoff. Easing financial conditions tends to provide a short-term boost to output as downside risk is attenuated in the first few quarters, but then at the cost of greater downside risk starting around the seventh or eighth quarter. Furthermore, the chart shows that this tradeoff is visibly more pronounced during credit booms, that is, the near-term boost is greater, while the medium-term downside risks are also larger.

Our analysis also finds that, regardless of their causes, upswings in leverage of firms and households tend to be followed by increased downside risk to economic activity, further evidence that sharp buildups of private sector leverage can increase risks to financial stability.

CHART 3

Amplification effects of credit booms: impact of loosening financial conditions on the 10th percentile of output growth



Notes: The chart shows the 10th percentile impact of a one-standard-deviation easing in the FCI on future year-on-year real GDP growth. A credit boom is defined as a period in which the eight-quarter change in private nonfinancial sector leverage is higher than the top 3rd decile and financial conditions are looser than median in a country. The control variables in all regressions include year-on-year real GDP growth, inflation, and policy rate change (all one-period lagged), and country fixed effects. Dashed lines indicate 90% confidence intervals based on standard errors computed from bootstrapping.

Source: International Institute of Finance; Bank for International Settlements; and "Loose Financial Conditions, Rising Leverage, and Risks to Macro-Financial Stability" by Adolfo Barajas, Woon Gyu Choi, Ken Zhi Gan, Pierre Guérin, Samuel S. Mann, Manchun Wang and Yizhi Xu (IMF Working Paper WP/21/222, 2021)

Policy Dilemma

Policymakers face a dilemma. Accommodative policies, such as cuts in monetary policy rates in conjunction with quantitative easing aimed at reducing firms' and households' borrowing costs, tend to result in easier financial conditions which, in turn, spur a buildup in private sector leverage. While such a buildup has been instrumental in the short term to cushion the global economy from the devastating impact of the pandemic, our results indicate that it can be a vulnerability that poses a risk to financial stability further down the road, particularly as the post-pandemic recovery takes hold.

For policymakers, the question becomes how to ensure that the fledgling recovery is not endangered, while at the same time avoiding an excessive buildup of leverage that could have a sharp contractionary effect on the economy in a few years' time.

Macroprudential Policies Can Help

Our analysis suggests there are measures policymakers can take to resolve, or at least lessen, this dilemma. Macroprudential policies – such as setting limits on borrower eligibility, raising minimum capital or liquidity ratios for banks – can tame buildups in nonfinancial sector leverage and help to attenuate downside risk to future economic activity.

We draw on an extensive IMF database documenting changes in each of 17 macroprudential policy tools, available for up to 179 countries and from 1990 to 2018. By summarizing the tools into seven categories, we are able to observe all actions that either tighten or loosen tools in a particular category in a given quarter, and then test whether these actions have had an impact on leverage buildups or financial stability.

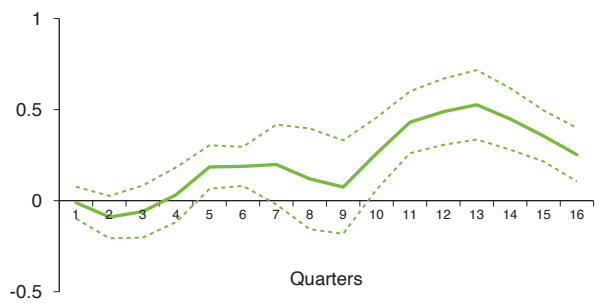
Our analysis shows that certain targeted macroprudential tools can in fact arrest leverage buildups in different segments of the private sector. After countries tighten borrower-related tools (for example, lowering the maximum loan-to-value ratio for mortgage borrowers), we observe that leverage for households slows. When policymakers tighten liquidity regulations on banks (for example, raising the minimum amount of liquid assets that must be held in proportion to total assets), leverage of firms slows in response. And when policymakers in emerging markets tighten foreign currency constraints on banks (for example, limiting their open foreign currency positions), leverage of firms slows down as well.

Importantly, macroprudential tightening can mitigate downside

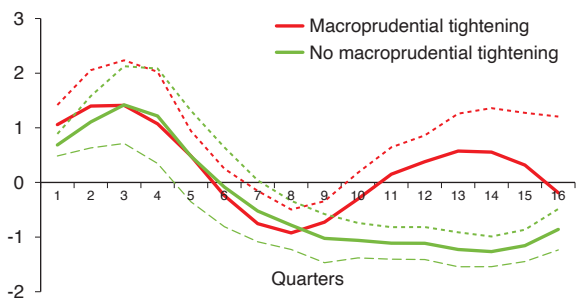
CHART 4

Macroprudential measures & downside risks to future growth

1. Impact of Macroprudential Tightening on the 10th Percentile of GDP Growth (Percentage points)



2. Impact of Loosening Financial Conditions on 10th Percentile of GDP Growth (with vs. without Macroprudential Tightening) (Percentage points)



Notes: Panel 1 shows the effects of a net tightening event across the 17 types of macroprudential measures found in the IMF Integrated Macroprudential Policy database. Panel 2 shows the effect of a one-unit loosening in the FCI. The "macroprudential tightening" regime contains all quarters with net macroprudential tightening in the past year. The dependent variable is the year-over-year growth of real GDP over horizons of 1–16 quarters ahead. The control variables in all regressions are the change in the private nonfinancial sector leverage over the past eight quarters, year-over-year GDP growth, and inflation. All the responses are estimated with county fixed effects using quantile local projections at the 10th percentile of the growth distributions. Dashed lines indicate 90% confidence intervals.

Source: International Institute of Finance; and "Loose Financial Conditions, Rising Leverage, and Risks to Macro-Financial Stability" by Adolfo Barajas, Woon Gyu Choi, Ken Zhi Gan, Pierre Guérin, Samuel S. Mann, Manchun Wang and Yizhi Xu (IMF Working Paper WP/21/222, 2021)

risk to growth, thus alleviating the key policy tradeoff. In *Chart 4* we show the estimated impact of a macroprudential tightening on GaR up to 16 quarters into the future. Panel 1 shows that, while there may be a slight increase in downside risk in the near term, the policy's strongest effects are to dampen downside risk in the medium term, beginning 10 quarters out. Panel 2 shows that when policymakers loosen financial conditions – for example, undertaking accommodative monetary policy – without taking macroprudential policy actions, we observe the familiar short-to-long term tradeoff. However, if they accommodate and also concurrently tighten macroprudential tools, medium-term downside risks to economic activity can be mostly contained.

When to Act

In the current context, charting a course for macroprudential tightening is not straightforward and its timing should be tailored to countries' individual circumstances.

Many countries are experiencing a nascent recovery and broad tightening of financial conditions could hurt growth. Yet, given the lags that we detect between the activation of macroprudential tools and their mitigating impact, early action is called for. In some countries, the toolkit is also in its early stages of development and/or has not been tested in practice. Moreover, even in the most advanced countries, the toolkit is aimed solely at banks, while credit provision to the private sector is increasingly migrating toward nonbank financial institutions.

These considerations build a strong case for policymakers to swiftly develop and tighten macroprudential measures to tackle pockets of elevated vulnerabilities, while avoiding a general tightening of financial conditions while the recovery is still in its infancy. Policymakers will also need to urgently design new tools to address leverage beyond the banking system.

Note: The views expressed herein are those of the author and should not be attributed to the IMF, its Executive Board, or its management.

 JS

Adolfo Barajas is a senior economist in the Global Financial Stability Analysis Division of the Monetary and Capital Markets Department at the IMF, where his primary responsibility is to work on analytical chapters for the IMF's semi-annual Global Financial Stability Report.