

WHY LESS CAN BE MORE: ON THE CROWDING-OUT EFFECTS OF GOVERNMENT FINANCING¹

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I am delighted and honoured to be delivering the Hormis Memorial Lecture today. I thank the Federal Bank Managing Director and Chief Executive Officer, Mr. Shyam Srinivasan, and the dignitaries from the Federal Bank's top management and the Board, that deemed me suitable for this honour. I had the pleasure of reading over the past week the biography of Shri K. P. Hormis, founder of the Federal Bank, "*Hormis – legend of a great banker with passion for development,*" written by Shri K. P. Joseph.

Shri Hormis, as the biography vividly recounts, was not just an institution-builder, whose legacy in setting up the Federal Bank in 1931 survives today and well, but also someone who epitomised a passion for excellence, morality and development. In particular, his interest in setting up the Federal Bank was to help build a modern Kerala and India. To this end, he laid great emphasis on the role of funding entrepreneurship at grass-root level for long-term stability of the economy, while never compromising on financial stability:

"The purpose must be to develop the small man and his profession by providing him with the necessary funds. But by no means should this be done at the risk of the bank's profit or the nation's economy."

This simple principle in itself, if implemented well throughout the financial system, would address many of country's development challenges. Taking inspiration from this focus of Shri Hormis on unleashing balanced entrepreneurial growth, let me turn to my remarks for today and start with the title of my talk.

¹ This speech was delivered at the 16th K P Hormis Commemorative Lecture organised by the Federal Bank Hormis Memorial Foundation on November 17, 2018 at Kochi. I thank Nirupama Kulkarni and Bhavika Nanawati of Centre for Advanced Financial Research and Learning (CAFRAL), and Seema Saggur of the Reserve Bank of India with whom I have developed the body of results in this speech. I am grateful to Sitikanta Pattanaik and Vineet Srivastava for useful inputs. The views expressed herein do not necessarily reflect the views of the Reserve Bank of India.

What do I mean when I say, ‘less can be more’? What I have in mind is that sometimes less of the government can be more for the economy. When governments undertake a lot of expenditure, they may spend beyond immediate revenues and raise financing but may be constrained by the limited pool of savings in the economy. In turn, when a government dissaves and takes away a large portion of these savings, there is less left for the private sector, eventually “crowding out” investments by the private sector. Crowding-out can imply that (i) the private sector is unable to generate adequate financing; (ii) the private sector has to pay higher costs to raise its financing; and (iii) the private sector needs to rely on external financing, i.e., dip into savings abroad.

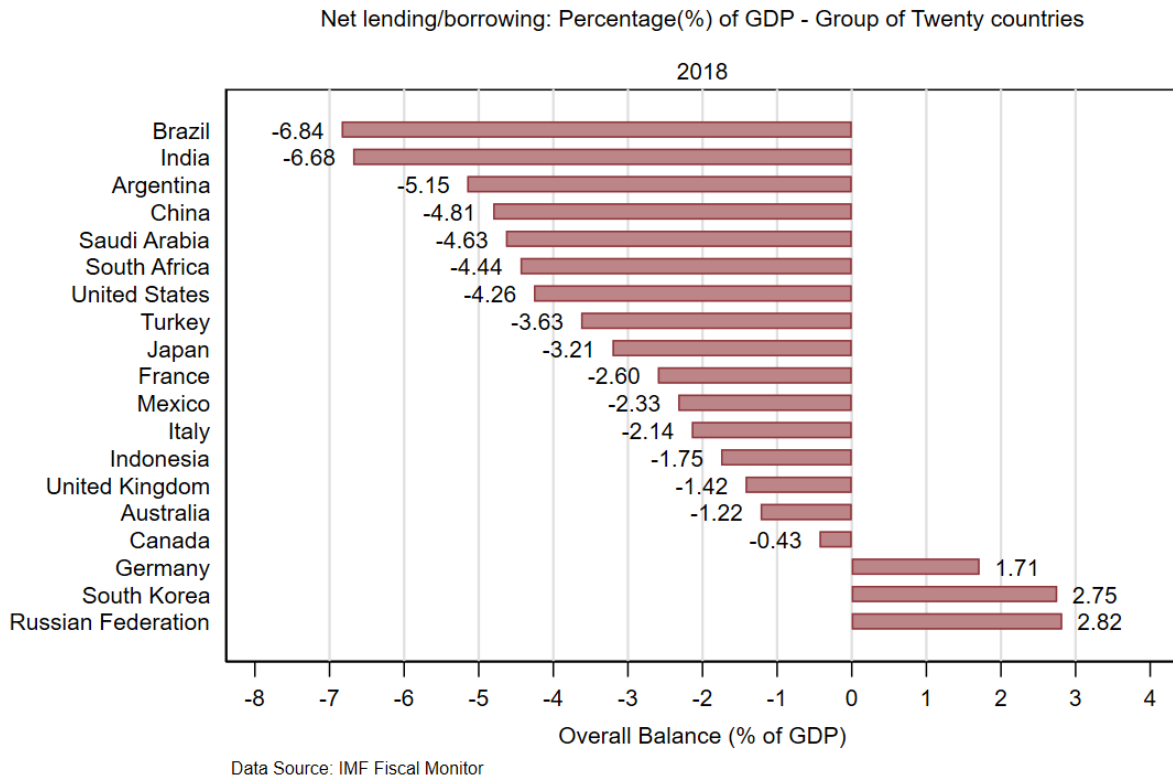
These phenomena form the basis of my speech today. The question I will raise and try to answer is: Does government borrowing crowd out the private sector in India and what are its ramifications? I will first set up the global context and then move on to why this is an important question to ask in the Indian context. After characterising and quantifying the crowding-out channels for India, I will explain how crowding-out can interact with external sector fragility, lead to financial sector fragility, and weaken the transmission of monetary policy. I will conclude with some possible remedies.

1. THE GLOBAL CONTEXT

Many countries in the world today have a “fiscal deficit” – defined as fiscal spending that is not met by revenues collected by the government. Governments are able to spend beyond their immediate tax collection because they can collect taxes in future and can borrow from markets against the expected future stream of tax collections. In essence, they can float government bonds or employ financial repression of banks so as to channel domestic savings to finance fiscal deficits. Barring Germany, Russia and South Korea, all G-20 countries were running a fiscal deficit as of 2018. While India is not an exception in terms of *having* a fiscal deficit, it stands out in terms of the *size* of its fiscal deficit which was recorded at 6.68% of GDP in 2018², surpassed only by Brazil at 6.84% (Figure 1a).

² A more precise indicator of the financing gap of the domestic economy, i.e., Public Sector Borrowing Requirements (PSBR), which includes borrowings by general government (central, state and local government), public non-financial corporations [central and state Public Sector Undertakings (PSUs)], and public financial corporations (banks and financial institutions), is estimated for India to be between 8% and 9% in 2017-18 and 2018-19 (please see, [“India’s interim budget tries to strike a balance, but the real story is off-balance sheet; RBI is a close-call next week”](#); and [“India in 2019: still waters run deep”](#)).

Figure 1a. Fiscal Deficit of G-20 countries in 2018



Fiscal deficits need not always be harmful. At many stages of the development of a country, the government needs to play a coordination role in providing public goods such as education, health, infrastructure, etc. Usually, in economics, *capital* expenditure undertaken by the government is thought of as “good” spending if it is for creating public goods, since these can be used over a period of time by private individuals and enterprises to invest more and thereby potentially contribute to higher growth. Viewed this way, certain types of government investments “crowd in” private investments and increase the size of the overall pie.

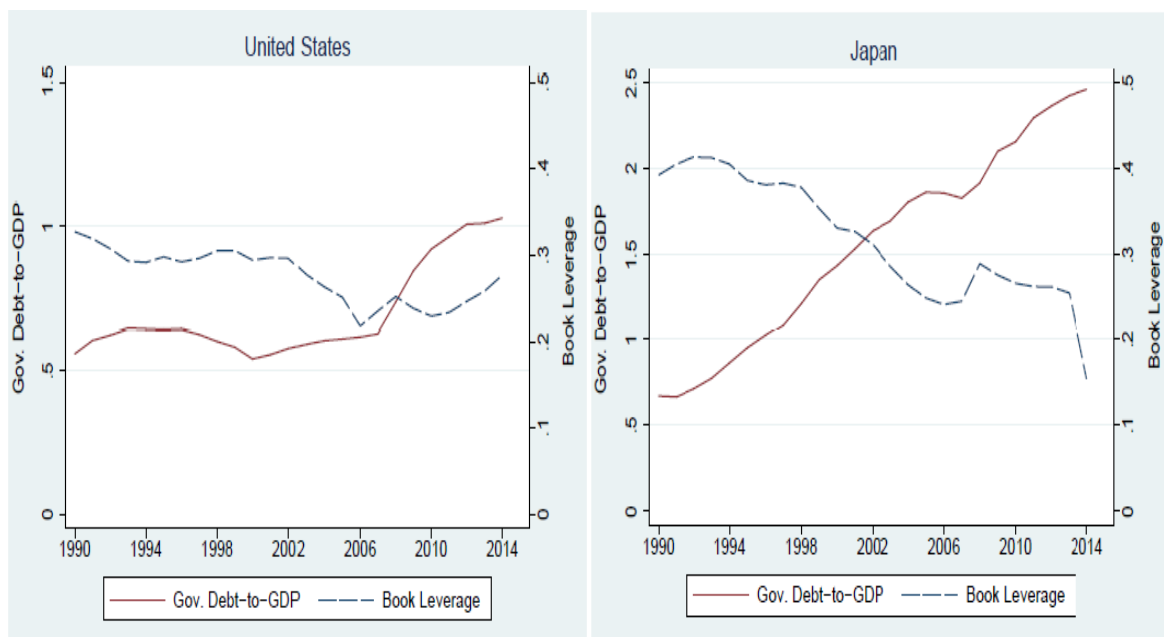
In contrast, if most of the government spending is *revenue* expenditure — for example, subsidies or various kinds of social welfare programs — then it may improve economic stability in the short term by giving a temporary boost to consumption and demand, but usually will not lead to long-term growth. By and large, such spending does not catalyze the private sector to invest more, and hence, does not have growth multiplier effects as from the investment in public goods. Furthermore, when most of the government’s fiscal deficit is due to revenue expenditures, the overall pie does not expand because the private sector possibly shrinks. This is because the private sector too may need to borrow in order to invest, but can get “crowded out” if the government is using up most of the savings in the economy for revenue expenditures.

Hence, the simplest test of the crowding-out phenomenon is often to look for an inverse relationship between private debt and government debt.

2. INTERNATIONAL EVIDENCE OF CROWDING -OUT

Consider two advanced economies which have extremely large government borrowing programs: The United States (US) and Japan. The US (left panel, Figure 1b) has more than 100% of GDP in borrowings, while Japan (right panel, Figure 1b) has even higher borrowing. Of course, these advanced economies have sophisticated bond markets and high-quality institutions. They are “safe havens”, that is, investors perceive that it is with almost certainty that these governments will repay their debt. Furthermore, global trading is predominantly in US dollars, so investors are especially keen to buy and hold US government bonds due to their unique safety and liquidity features.

Figure 1b. Government debt to GDP and corporate leverage: United States and Japan



Note: Left-hand panel shows the time-series data for government debt to GDP and corporate leverage (book) for United States. Right-hand panel shows the corresponding data for Japan.

Source: Demirci, Huang and Sialm (2019)³.

³ Demirci, Irem, Jennifer Huang and Clemens Sialm. “[Government Debt and Corporate Leverage: International Evidence](#).” *Journal of Financial Economics*, 2019, Vol.133, Issue 2, Pages 337-356.

Importantly, if we examine the leverage of the corporate sector in these economies (Figure 1b), we see that there has been a fall in corporate leverage over time while government borrowings have risen. Economists are reaching the conclusion through a variety of tests that in times when governments increase their borrowing, corporate sector leverage comes down.⁴ Broadly, time-series data in Figure 1 do seem to confirm that there is an *inverse* relationship between government borrowing and corporate leverage, suggesting that when the government does more, there is less for the private sector of these economies. Therefore, what I am going to show in the rest of the talk for India is not country-specific — the laws of economics seem to work in a similar way even in the advanced economies.

3. THE INDIAN CONTEXT

Why is crowding-out potentially an important issue in the Indian context?

First, India's mix of expenditure at the government level is heavily skewed towards revenue expenditure. Capital expenditure as a proportion of total government expenditure has been consistently below 15%. In fact, if we examine the budgets of the central government over a period of time, almost 90% of the budget composition is the same year after year; hence, there is only a small proportion over which some leeway is left to undertake capital expenditure. In other words, fiscal deficits in India are less likely to “crowd in” long-run growth and more likely to “crowd out”.

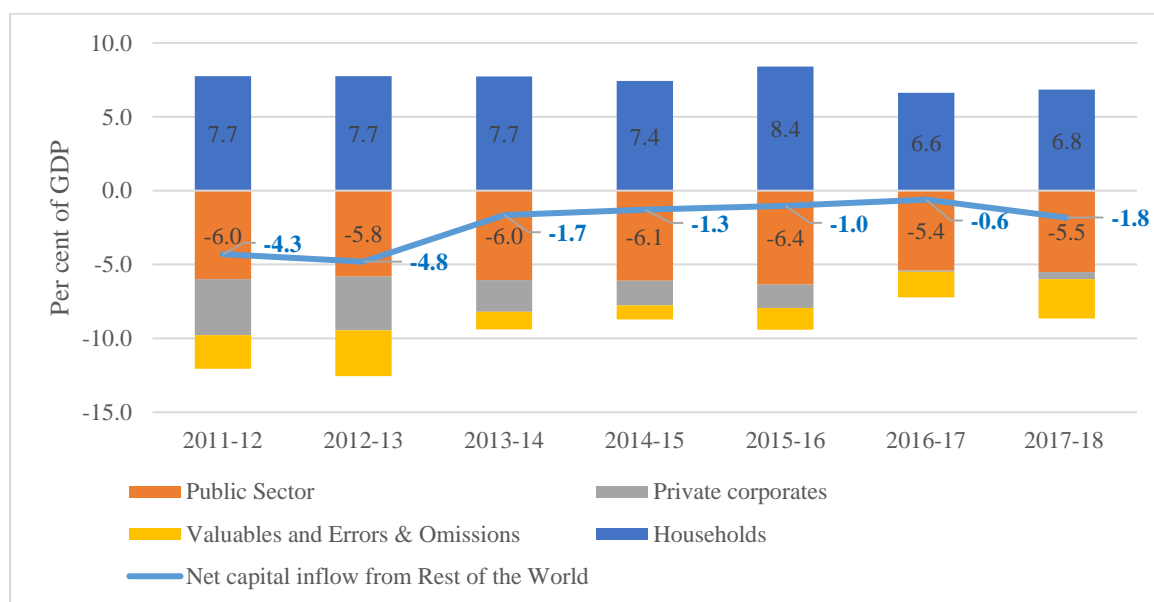
Secondly, if domestic savings available for funding private investment demand are not enough, then the excess investment demand can only be met through capital inflows. In an open economy, the financing constraint to growth for the private sector is not as binding as in a closed economy; nevertheless, external sector challenges linked to the risk of a “sudden stop” of capital flows — as witnessed during the “taper tantrum” episode of 2013 — set the limit on the extent to which saving-investment imbalances can be funded by foreign capital on a sustained basis without amplifying vulnerabilities. In India, the magnitude of the challenge is too obvious from the saving-investment imbalance positions of key sectors in the economy, as per the national accounts data (Figure 2 and Annex Table 1). The household sector is the only sector which generates net financial savings (i.e., net of financial liabilities); the public sector and the private corporate sector are both deficit sectors. The general government sector

⁴ Graham, John, Mark T. Leary and Michael R. Roberts, 2014. “[How Does Government Borrowing Affect Corporate Financing and Investment?](#)”, *NBER Working paper*.

(adjusted for valuables and errors and omissions) exhausts the entire financial savings of households, leaving no domestic financial savings for the private corporate sector (in the sense of national accounts identity).

The net capital flows line in Figure 2 moves with the magnitude of the savings-investment imbalance of the private corporate sector. This shows clearly how foreign capital inflows absorbed in the economy, i.e., the current account deficit, often exceed what are considered sustainable levels and approach 5% of GDP, when the saving-investment imbalance in the private corporate sector widens (as in 2011-12 and 2012-13 before the taper tantrum). Figure 2 also shows how subdued private investment activity and associated lower saving-investment imbalance in the private corporate sector help keep the external imbalance or the current account deficit within sustainable levels (as in the post taper tantrum period). Lower net resource gaps from the public sector — which is possible only through fiscal consolidation — can thus significantly contain external vulnerabilities and also allow higher proportions of domestic savings to be used by the private sector, possibly with greater efficiency and multiplier for growth.

Figure 2. Sectoral Resource Gaps (Net Financial Saving-Investment Balance) for India

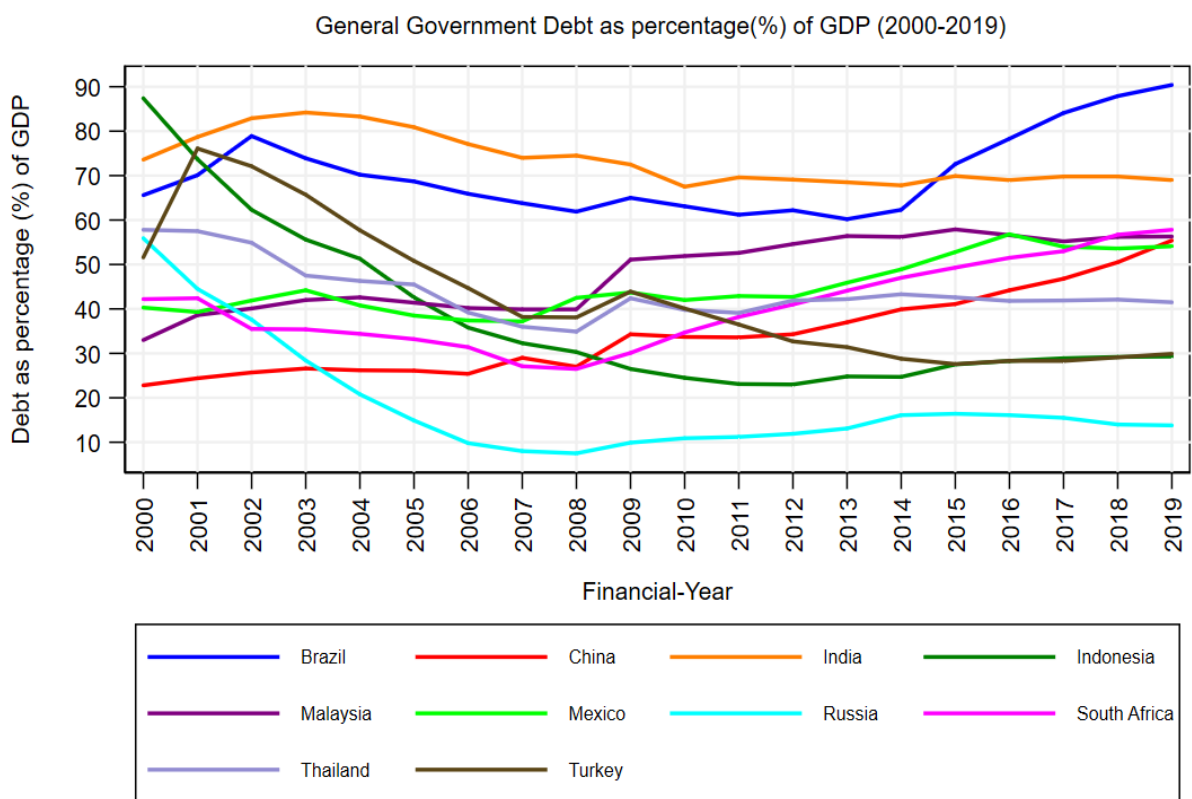


Source: Central Statistics Office.

Finally, a coincident phenomenon with India’s sustained high fiscal deficit is that over a period of time, government borrowing in India from the market has increased. Historically,

the government relied on “automatic financing” wherein the Reserve Bank of India (RBI) purchased government debt and monetized government expenditure which would then flood the economy with money. However, such monetization of fiscal deficits by the central bank can be inflationary and hence is considered a poor mix of fiscal and monetary policy. Over a period of time, the RBI, following the Fiscal Responsibility and Budget Management Act (FRBM Act, 2003), has gradually distanced itself from automatic funding of government deficits.⁵ Consequently, the government has increased its market-based borrowing.

Figure 3. General Government Gross Debt (Percent of GDP) for select EMEs



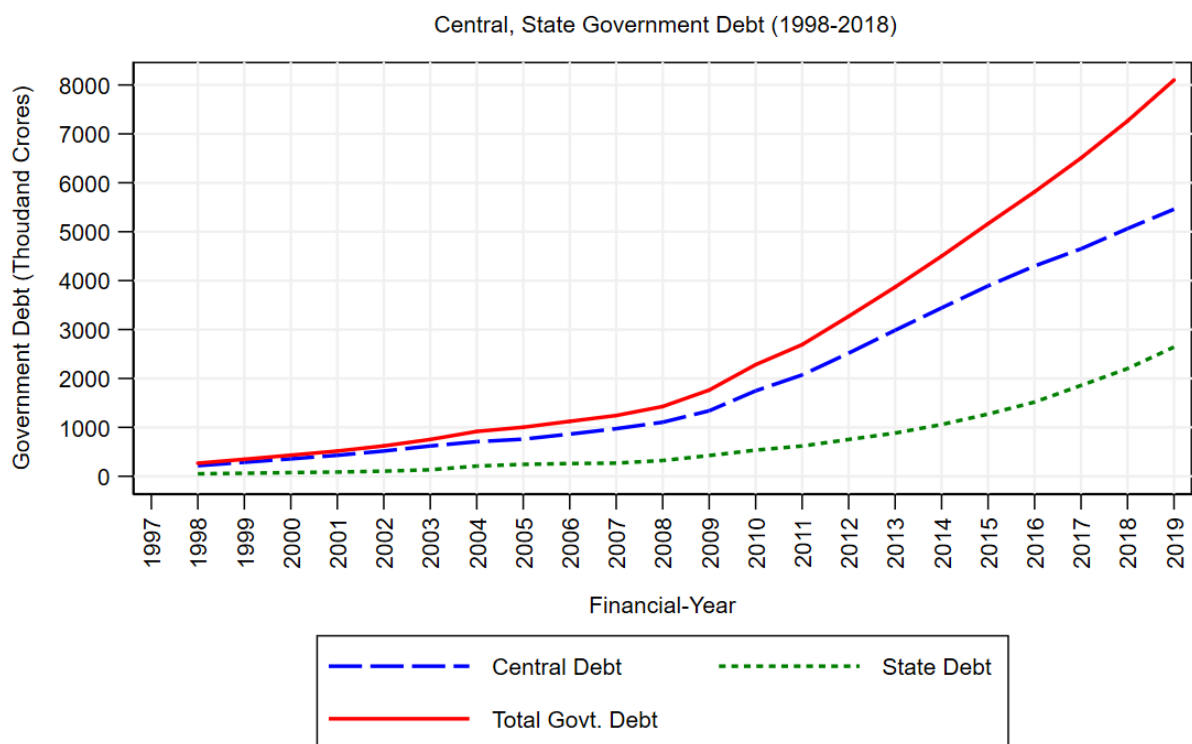
Source: IMF World Economic Outlook, April 2019 (Data for 2019 are projections)

As Figure 3 shows, government borrowing relative to GDP for India has ranged from 67% to 85% of GDP since 2000. This ratio has outpaced the ten emerging markets shown and only since 2015 has Brazil overtaken India. The high government borrowing to GDP numbers

⁵ For historical developments regarding gradual transition towards market-based government financing, please refer to my speech “On the Importance of Independent Regulatory Institutions – The Case of the Central Bank” delivered as the A. D. Shroff Memorial Lecture in Mumbai on Friday, October 26, 2018 (https://www.rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1066), and the Kale Memorial Lecture on “Central Banking in India: Retrospect and Prospects” delivered by Dr. Y.V. Reddy, on February 8, 2019.

point to the large dissaving by the Indian government. Figure 4 shows that Indian government’s absolute borrowing level has increased exponentially since 1997, particularly so since the global financial crisis. Indeed, this phenomenon is observed for many economies, including developed ones, being driven in part by increasing populist pressures to spend on welfare programs in the wake of weak economic growth.

Figure 4. Central and state government borrowing (India)



Source: Reserve Bank of India.

These three phenomena, namely, the government focus on revenue expenditure as opposed to capital expenditure, external financing of fiscal deficit and private investment net of domestic savings, and the fiscal deficit being increasingly funded through market borrowing, make India a good candidate for the study of crowding-out effects and their manifestations in the banking sector and financial markets.

Has the exponential growth of government and state debt in India led to a reduction in the debt-raising capacity of the private sector in the economy? We could in principle ask another question: when the government increases its borrowing by say, 1% of GDP, does that,

through some multiplier, lead to growth that is greater than the growth that the private sector could have generated by borrowing 1% of GDP? These “fiscal multiplier” questions are not that straightforward to answer. So I will do something simpler. A recent body of research that I have undertaken with Nirupama Kulkarni, Bhavika Nanawati, and Seema Saggar makes an attempt to estimate how large some of the quantity and price effects of crowding-out might be for India; the research doesn’t necessarily lead to a conclusion as to whether or not India should be incurring the presently high levels of fiscal deficit or government borrowings. Nevertheless, I hope to convince you of the important potential costs to bear in mind if governments keep doing more and more rather than enabling more and more of the private sector.

4. CHANNELS OF CROWDING-OUT IN THE INDIAN CONTEXT

Before proceeding to the evidence on crowding-out effects for India, let us understand the most basic channels through which crowding-out can occur.

Why should good companies not be able to offer higher returns to convince investors and savers if they are indeed the better growth engines of the economy compared to the government? In that case, perhaps there wouldn’t be much crowding-out in the first place. However, there are three channels through which this logic breaks down.

First, if government borrowing increases, then investors in corporate debt may expect corporate taxes to increase in the future because the government will need to repay higher levels of debt. Corporates will also anticipate that investment will not be as profitable if taxes increase in the future and hence they may dial back on investment today. These channels may lead to a fall in private sector borrowing and investment when government borrowing rises.

Besides this *real* channel of crowding-out, there are two other important *financial* channels of crowding-out: (i) the *bank lending* channel and (ii) the *corporate bond market* channel. Let me explain each one of these in detail.⁶

⁶ For a theoretical treatment of how government myopia and populism affect sovereign debt dynamics, entangle sovereign debt with the financial sector (banks), and induce economic repression (crowding out), see Viral V. Acharya and Raghuram G. Rajan, "[Sovereign Debt, Government Myopia and the Financial Sector](#)" 2013, *the Review of Financial Studies*, 26(6), 1526-1560; and Viral V. Acharya, Itamar Drechsler and Philipp Schnabl, "[A Pyrrhic Victory? - Bank Bailouts and Sovereign Credit Risk](#)" *Journal of Finance*, 2015, 69(6), 2689-2739. For an earlier treatment with context that is specific to India, also see Willem H. Buiter and Urjit R. Patel, “Fiscal Rules in India: Are they Effective?”, Chapter 21, *The Oxford Handbook of the Indian Economy*, 2012, Oxford University Press. There are other channels of crowding-out specific to India such as the impact on deposit rates and deposit base of banks due to competition from above-market rates on National Small Savings Fund (NSSF); see [Urjit Patel Committee Report, 2014](#).

4.1 BANK LENDING CHANNEL OF CROWDING-OUT

When government debt to GDP ratio increases, banks end up buying a huge chunk of the incremental issuance of government bonds. Historically, India has had extremely repressive levels of statutory liquidity requirement (SLR), which is the proportion of deposits (formally, net deposit and time liabilities or NDTL) that a bank must hold in the form of government bonds. At its peak, the SLR was close to 40%. That is, of Rs. 100 deposited in a bank, Rs. 40 would automatically be used to fund government deficits. The SLR, in effect, became a coercive tool to facilitate excessive government borrowing. Over a period of time, the SLR levels have been brought down by the RBI to presently below 20%.⁷ When SLR is at a high level of 40%, of the Rs. 100 deposited in a bank, only Rs. 60 is available to the bank for credit creation to the private sector. If instead the SLR goes down to 20%, then an additional Rs. 20 is freed up for potential deployment by banks towards private sector credit creation. If a private company's bonds provide a more desirable risk-return profile for the bank, then the bank would lend to the private company rather than to the government.

This is considered as the “bank lending channel” — if banks end up with balance-sheets that are stuffed with government bonds, they engage in less credit creation for the private sector of the economy. This is a simple but important point. Every time the government does more, the banking sector is generally less able to lend to others in the economy. This channel likely affects most adversely those private borrowers in the economy that are most reliant on bank financing such as the Micro, Small and Medium-sized enterprises (MSMEs).

4.2 CORPORATE BOND MARKET CHANNEL OF CROWDING-OUT

A second financial channel through which crowding-out occurs is the “corporate bond market channel”. As I previously mentioned, government debt tends to be safer than non-government debt as governments have taxation power that private enterprises do not. Given their safety, investors (and central banks) are more readily prepared to lend against government debt as collateral than with non-government debt as collateral. In other words, government debt provides a *convenience yield* to investors in the form of safety and liquidity relative to corporate bonds. In turn, when the supply of government bonds increases, investors such as banks, mutual funds, pension funds, insurance companies, etc., argue that on the margin, they would prefer

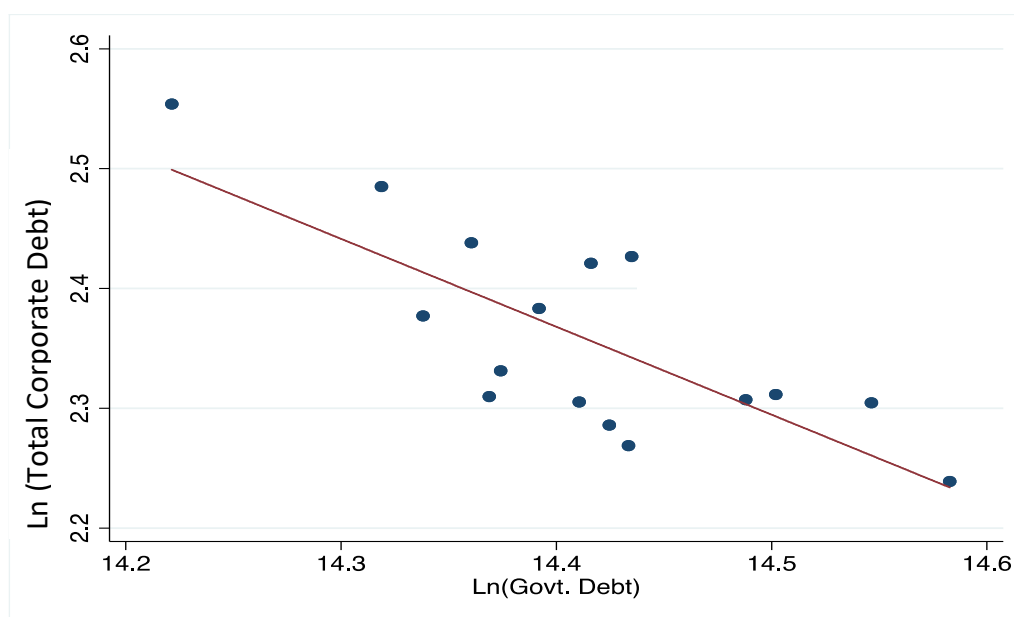
⁷ A significant carve-out from the SLR is also permitted for being reckoned as High Quality Liquid Assets (HQLA) for the purpose of Liquidity Coverage Ratio (LCR).

to hold government bonds as opposed to even the highest-rated corporate bonds or securitized paper against housing and MSME loans. This relative preference creates another potential channel for crowding-out.

4.3 QUANTITY EFFECTS OF CROWDING-OUT

I now turn to the evidence on crowding-out in India.⁸ Figure 5 shows a simple illustration of this phenomenon. The y-axis measures total debt of the corporate sector – including bank credit, corporate bonds, and some other forms of financing such as External Commercial Borrowings (ECBs) that corporations rely on for borrowing from the international markets. The x-axis measures the level of government debt (includes both central and state government debt) in the economy. The graph shows that the relationship between government and corporate borrowing is strongly negative. That is, in times when Indian government’s debt is high, corporations in the economy are borrowing less.

Figure 5. Government borrowing and total corporate debt (India)



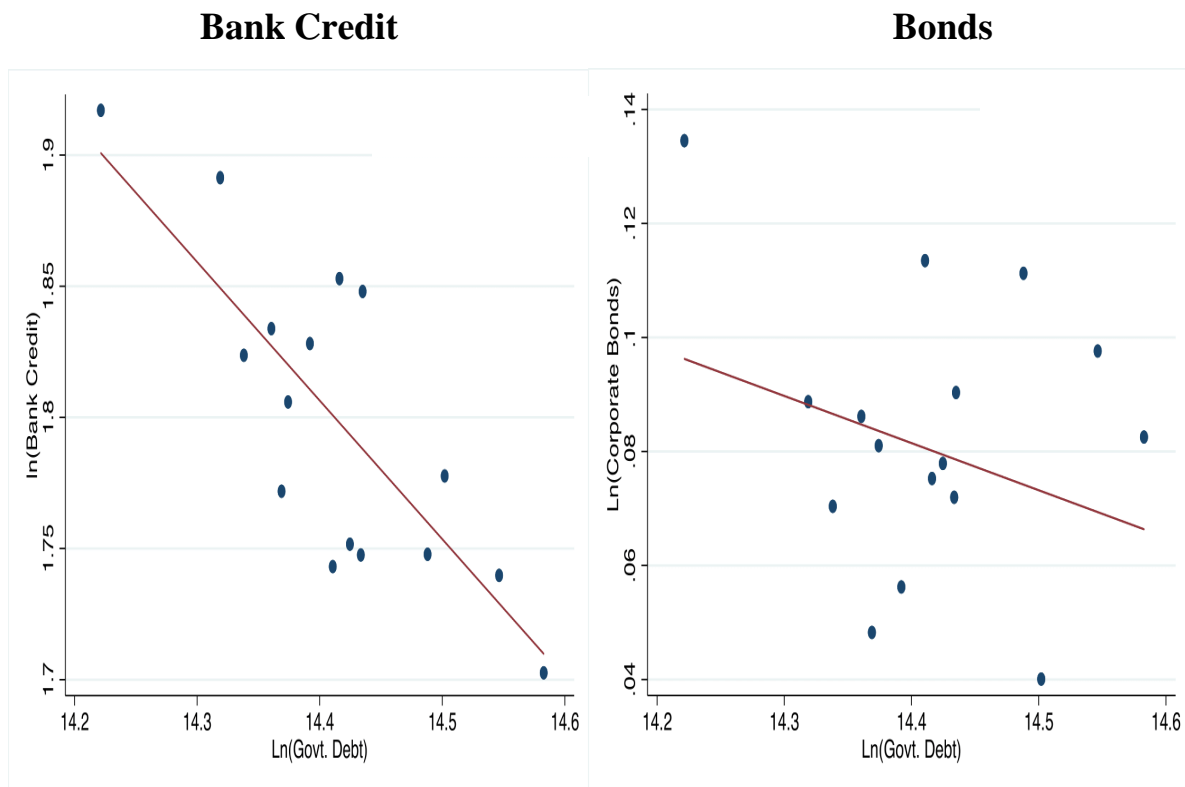
“Ln”: Natural Logarithm.

Source: Center for Monitoring Indian Economy (CMIE) and RBI (1997-2016).

⁸ While the time-series patterns to follow clearly capture some years of “shocks” to private debt that were unrelated to government borrowing, such as due to the twin balance-sheet deleveraging of corporates and banks post 2014, the body of evidence presented reflects a robust set of patterns over two decades from 1997 to 2016 and needs to be seen in its totality and consistency across various tests. Several graphs to follow employ variables on the natural logarithmic (Ln) scale in order to reduce the impact of outliers on the observed patterns.

Now, let us break up this effect into the two channels that I described above: the effect of bank lending and the effect of bond market borrowing. Figure 6 summarizes the results. The left panel shows the impact on bank credit. When Indian government’s debt increases, there is less bank credit to private enterprises (MSME loans, large corporate loans, etc.). The right panel shows that corporate bonds also fall when government borrowing increases, though the impact is smaller compared to the left panel. As you can imagine, the typical MSME is not able to issue bonds in the market and needs to access bank loans for funding. Only the large companies can access the bond markets to fulfil their funding needs. This possibly explains the stronger crowding-out effect of government borrowing on bank credit (for a relatively bank-dominated economy such as India) than on bond market financing.

Figure 6. Government debt, bank credit and corporate bond debt (India)



“Ln”: Natural Logarithm.

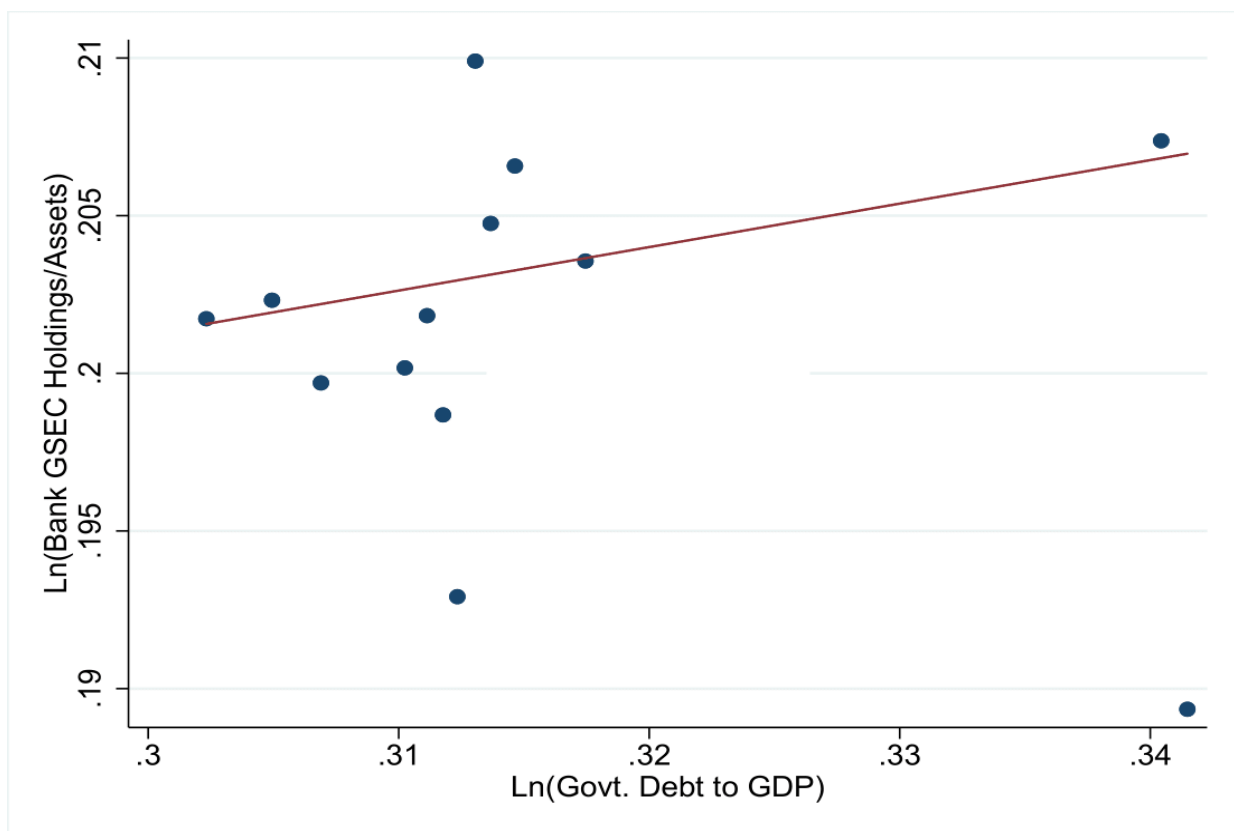
Note: Left-hand panel shows the impact of government borrowing on bank credit. Right-hand panel shows the impact of government borrowing on corporate bonds (1997-2016).

Source: CMIE and RBI.

The effects are in fact rather large. When government debt increases by 10% of GDP, corporate debt issuances fall by 7.3%. In 2015-16, when total government debt increased by 12.6%, corporate debt declined by 9.1%. The bulk of this effect operated through the bank credit channel which accounted for 6.7% of the decline in corporate borrowing.

Next, I show some direct evidence for the bank lending channel of crowding-out. The y-axis in Figure 7 shows how much of government bonds banks hold out of total assets on their balance-sheets, and the x-axis shows the total government debt to GDP. The slope of the relationship is positive. When Indian government debt to GDP increases by 10 percent, the bank holdings of government bonds as a percentage of their assets increase by 1.4 percent. In unreported results, the relationship is found to hold for both public sector and private banks.

Figure 7. Government debt and bank holdings of government debt (India)



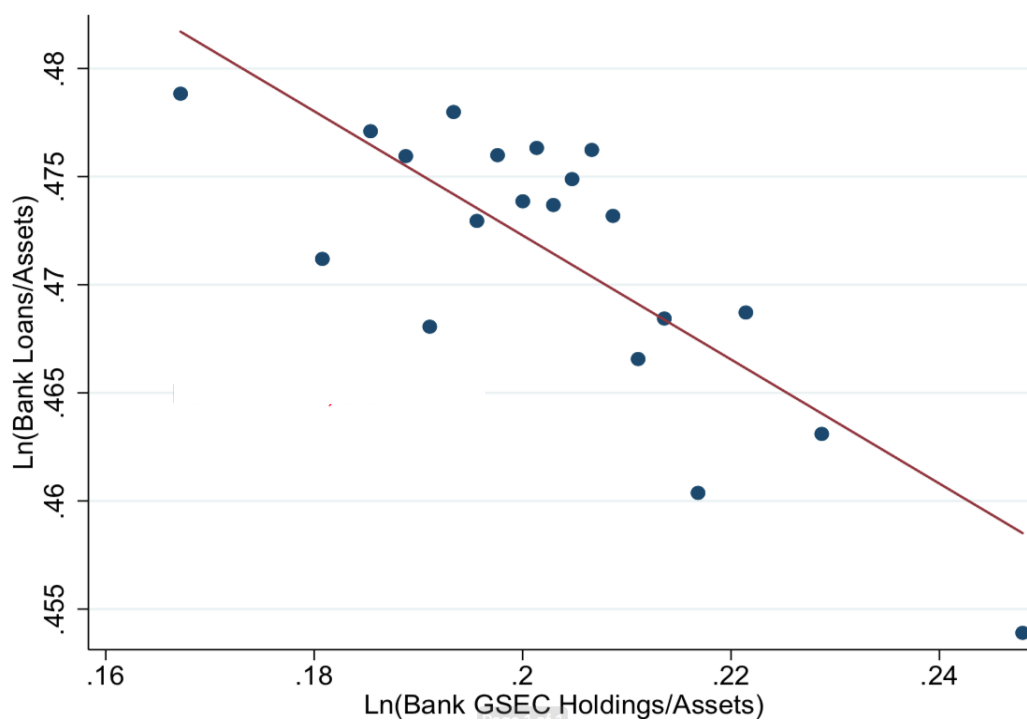
“Ln”: Natural Logarithm.

Source: CMIE and RBI (1997-2016).

Now, what happens to bank credit when banks hold more of government bonds? To answer this, I explicitly link bank holdings of government debt to the amount of bank credit to

the private sector. The y-axis in Figure 8 shows bank loans to the private sector as a percentage of bank assets and the x-axis shows the holdings of government bonds on bank balance-sheets as a percentage of bank assets. Figure 8 reveals that the more banks lend to the government, less is the availability of loans to the private sector in the economy. In terms of magnitude, this is indeed the primary crowding-out channel that appears to be at work in the Indian economy.

Figure 8. Bank holdings of government debt and bank loan advances (India)



“Ln”: Natural Logarithm.

Source: CMIE and RBI (1997-2016).

Let us remind ourselves of the three results so far: (1) the more there is of government debt, the less there is of corporate sector debt; (2) the more there is of government debt, the more government debt there is on banks’ balance-sheets; and, (3) the more banks own of government bonds, the less they provide as credit or loans to the private sector of the economy.

4.4 THE IMPACT OF FOREIGN CAPITAL FLOWS ON CROWDING-OUT

I will next limit attention to the corporate bond channel and explain the important role played by external capital flows in affecting the magnitude of this channel of crowding-out.

Both government and corporate bonds in India are at present held in part by foreign investors. There are mutual funds and institutional investors from, among other places, New York, London, Singapore and Hong Kong, who increasingly fund India's investments. Overall, this is a healthy development. India is a high growth economy compared to the rest of the world, but as shown in Figure 2 and Annex Table 1, savings in the domestic economy are not adequate to fund all of its consumption expenditure and investment. Conversely, advanced economies in the rest of the world whose savings exceed their investment needs find it attractive to invest in India.

For sake of illustration, consider years such as 2016-17, or most of 2017-18, when there was much foreign money chasing India. In 2017-18, for example, about \$20.8 billion of foreign portfolio investment (FPI) came into the country. In striking contrast in 2018-19, about \$12.5 billion (up to March 1, 2019) of FPI money had left the country. About two-thirds of the FPI outflows had, in fact, been in government debt and corporate debt.

What does this fluctuation in foreign capital flows have to do with crowding-out?

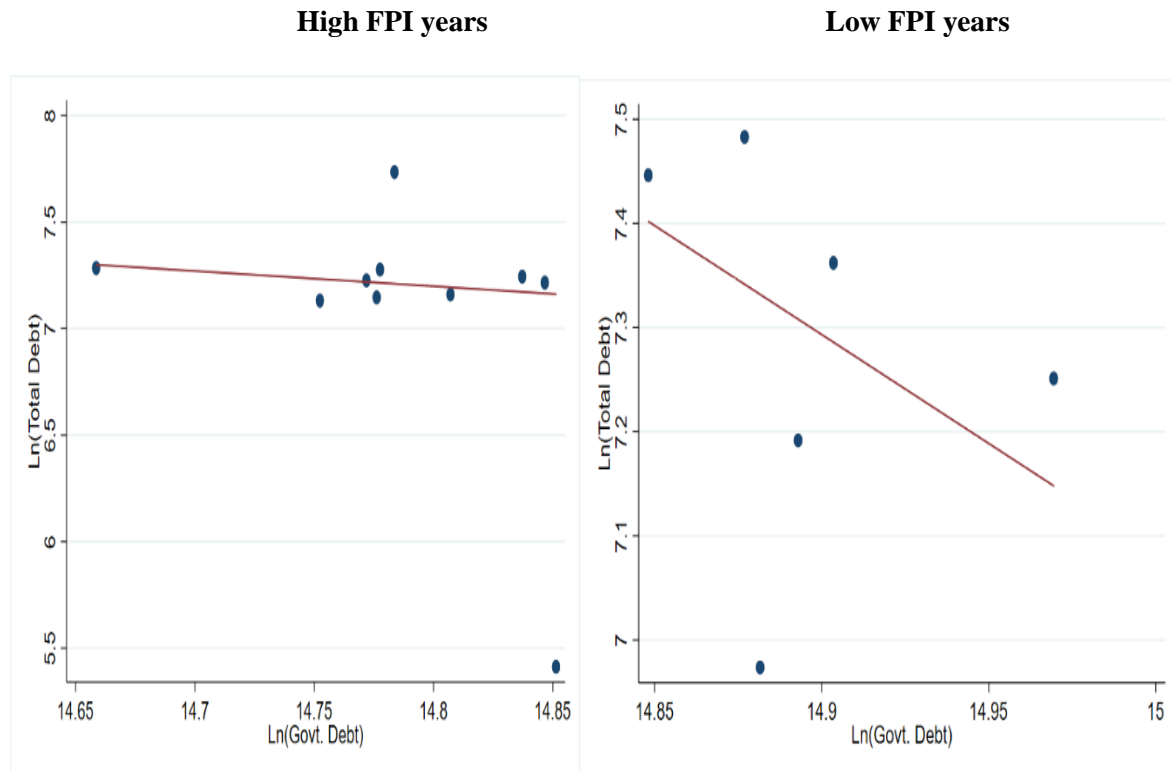
In a globally integrated Indian economy, the pool of savings that is available for investment is not just domestic savings, but also the savings of the rest of the world that are earmarked for investments in India. If investors start pulling out money from India, for example, to invest in the United States instead, then the global pool of savings for investment in the Indian economy shrinks and the crowding-out effects of high government borrowing will be particularly severe on the private sector.

Let me elaborate.

When the government increases its borrowing, large and well-rated private companies which are internationally visible and have transparent balance-sheets can borrow from foreign investors that are willing to invest in these companies. Then, domestic dissaving by the government does not bite as much because there are global savings that can fund the private sector. The empirical evidence in Figure 9 confirms this intuition. The left panel shows that in times of high foreign portfolio (FPI) investments in the economy (i.e., annual FPI flow is above the median level during 1997 to 2016), there is no crowding-out as there appears to be little impact of increased government borrowing on the level of corporate debt. Governments can borrow more and yet the level of corporate debt remains virtually unaffected because whatever is the crowding-out impact on the private sector from the government dissaving, foreign investors substitute for it by financing the private sector. In fact, there could be an indirect

benefit even to the MSMEs. If the large corporations can borrow directly from foreign investors, then greater proportion of bank credit is available for the MSMEs.

Figure 9. Government debt and corporate borrowing for firms with access to the bond markets (India)



“Ln”: Natural Logarithm.

Note: Left-hand panel shows the impact of government borrowing on total debt when foreign portfolio investment (FPI) is high. Right-hand panel shows the impact of government borrowing on corporate bonds when FPI is low. High FPI refers to periods where the annual FPI is above median during 1997 to 2016.

Source: CMIE and RBI.

In contrast, consider a year like 2018-19, when FPI investment in debt of the economy was not that large (in fact, it was negative). Foreign investors were unwilling to invest even in government bonds. If government increases borrowing in such a year, then more government bonds will have to be held by banks, mutual funds, pension funds, insurance companies, etc., in the domestic economy. Foreign investors are unwilling to invest in corporate bonds, so corporations will *also* be vying for the domestic pool of savings. As the right-hand panel of Figure 9 shows, crowding out begins to rear its ugly head in such a scenario. The figure shows that when FPI flows are low (i.e., annual FPI flow is below the median level during 1997 to

2016), a 10% increase in government borrowing results in a 6.9% decline in total corporate borrowing. Put simply, if the government chooses to expand borrowing in a year when foreign investors are unwilling to invest in the country, the pie of savings available to the private sector doesn't have any room to expand globally. Ideally, in such a year, it might be desirable that the government borrowing contracts in order to sustain the availability of bank loans and bonds for the private sector of the economy.

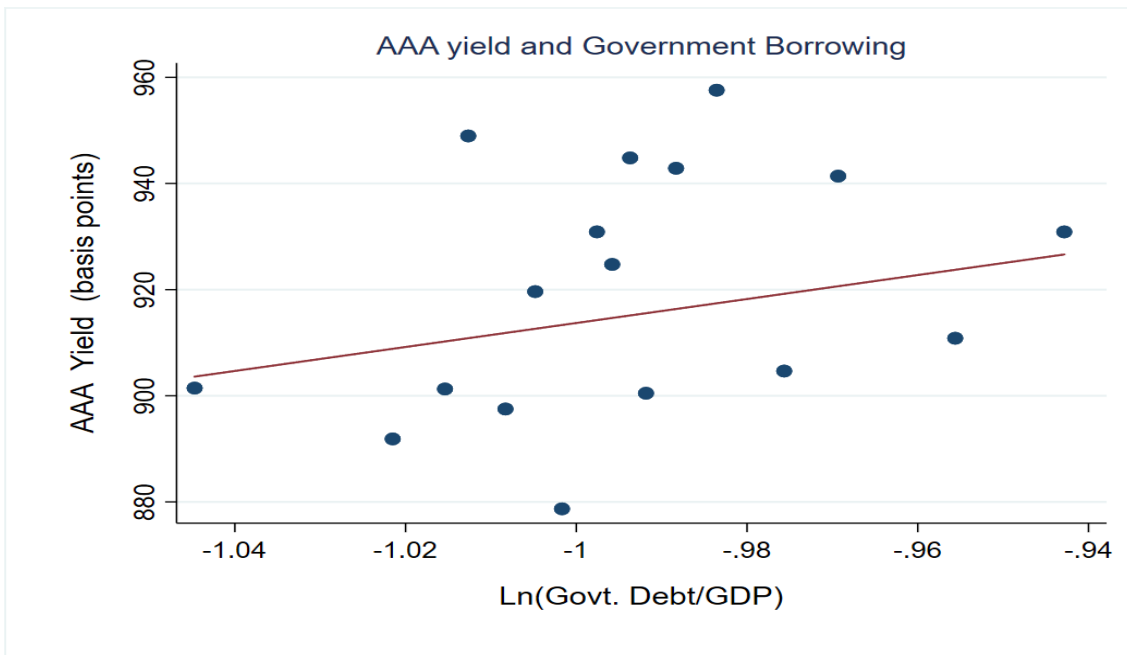
4.5 CROWDING-OUT EFFECTS ON THE CORPORATE COST OF BORROWING

To further examine the mechanism driving the crowding-out of corporate debt by government borrowing, let us study the impact of government borrowing on the price of debt or bond yields. When government debt to GDP increases by 1 percentage point, Figure 10a implies that the yields of the highest-rated (AAA) bonds increase by 2.3 percentage points. Interestingly, there is only a limited impact on the yields of lower-rated (AA) bonds. In a relative sense, the AA–AAA yield spread in fact declines when government debt increases. Figure 10b illustrates this graphically: a 1 percentage point increase in government debt to GDP results in a 1.7 percentage point decrease in the AA–AAA yield spread.

One concern in analysing the crowding-out effects of government debt is that governments may increase borrowing particularly in periods when the economy as a whole is doing poorly (see also footnote 8). Thus the decline in corporate borrowing may be due to an increase in credit risk and/or a decline in the demand for corporate debt issuance. The fact that the AA–AAA spread *declines* when government debt increases gives assurance that this is not what is driving the evidence. Since a market- or economy-wide decline should affect the lower rated firms more severely, such a competing hypothesis would predict an *increase* in the AA–AAA spread. Contrary to this hypothesis, we find increases in government debt are accompanied by decreases in the AA–AAA spread.

This evidence points to a crowding-out channel at work, especially for the cost of AAA-rated corporate debt, which has safety and liquidity features closer to those of the government debt; with large issuances of government debt, AAA-rated bonds are not valued as much for these features by corporate bond investors.

Figure 10a. Corporate and Sovereign spreads and government debt to GDP (India)

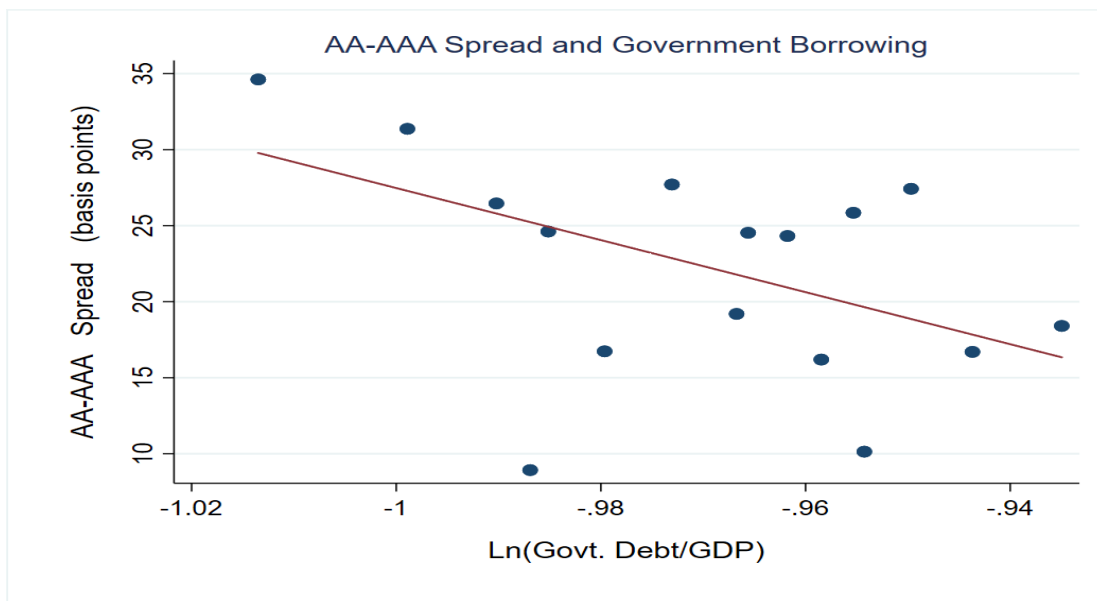


“Ln”: Natural Logarithm.

Note: Above panel shows the impact of government borrowing on AAA corporate yields (2006-2016).

Source: Bloomberg and RBI.

Figure 10b. Corporate and Sovereign spreads and government debt to GDP (India)



“Ln”: Natural Logarithm.

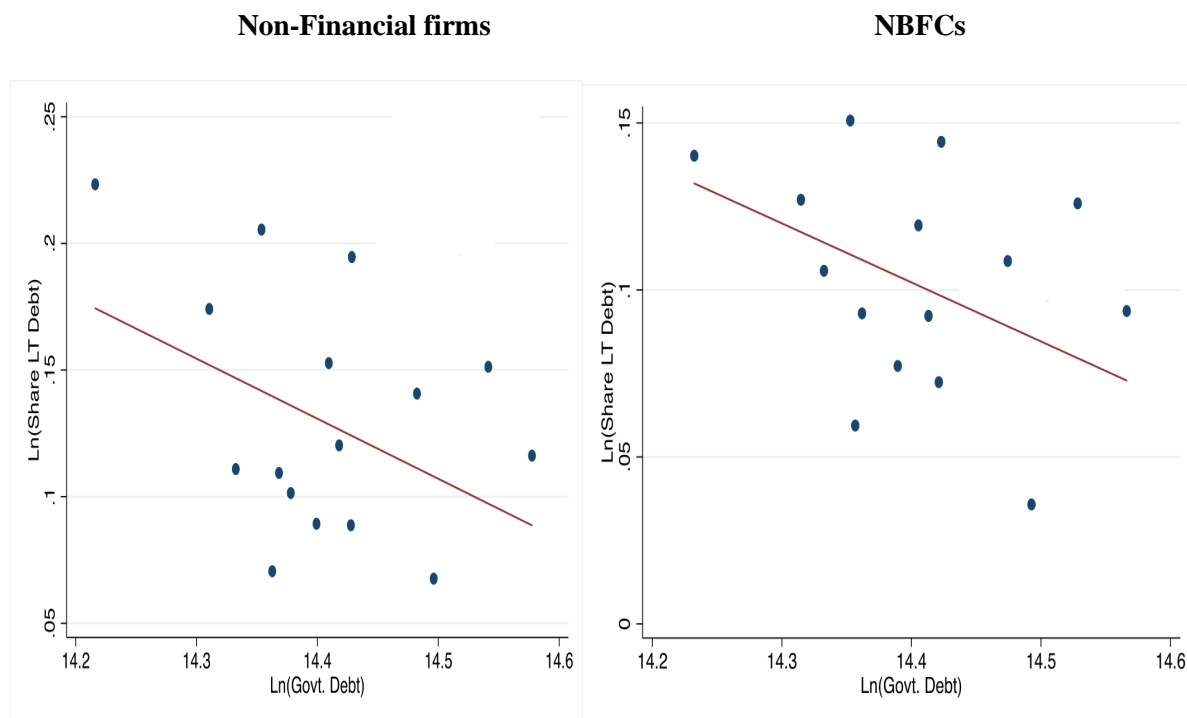
Note: Above panel shows the impact of government borrowing on the spread of corporate AA bonds over AAA bonds (2006-2016).

Source: Bloomberg and RBI.

4.6 CROWDING-OUT EFFECTS ON FINANCIAL STABILITY

Interestingly, the crowding-out effect of government borrowing can have significant implications also for financial stability. If the cost of credit for corporations rises because the supply glut of government debt is flooding the savers (as shown in Section 4.5, especially for the highest-rated borrowers), then corporations are induced to borrow at shorter maturities. This is because usually it costs less to borrow at the short-term, say up to one year, rather than to borrow at the long-term, say for five to ten years (where governments typically tend to borrow). Over five to ten years, economic outcomes are typically more uncertain; hence, if corporations want to borrow at these maturities rather than three or six months, banks and corporate bond markets will be willing to fund them only at a higher cost or risk premium.

Figure 11. Government debt and the share of long-term borrowing by corporates (India)



“Ln”: Natural Logarithm.

Source: CMIE and RBI (1997-2016).

It turns out that not only does the corporate sector borrow less when the government borrowings increase, but also it borrows more short-term. In Figure 11, the y-axis shows the proportion of corporate borrowing in the form of long-term borrowings (i.e., of maturity greater than one year) and the x-axis shows the amount of government debt. The left panel shows that

the relationship between government borrowing and the share of corporate debt that is long-term is negative for non-financial firms. In terms of economic magnitude, when government debt increases by 10%, the share of long-term debt in corporate borrowings falls by 2.3%.

To understand the significance of this result, let us ask: Why is it important for a corporation to borrow long-term? Suppose the enterprise has a business of auto ancillary parts. In order to produce the right ancillary parts for the new brand of cars (say, electric vehicles) that are coming to the market, it needs to undertake capital expenditure so as to change the kind of axels and shafts it is producing. In particular, it should ideally invest in state-of-the-art machines and plants that will produce the right calibrations for the new vehicles. By its very nature, such capital expenditure implies that there will be an upfront investment and it will be some time before there is a payback on investment. The enterprise may have to wait for sales to pick up before the revenues increase. If the enterprise borrows short-term, then it can become difficult to undertake and sustain large capital expenditure because within a quarter or two, the bank or the market may not roll over the debt and instead ask the enterprise to pay back the borrowed money giving rise to funding stress or rollover risk. Hence, ordinarily it is desirable for an enterprise to borrow at a maturity that is long enough to match the average duration of cash flows from its underlying projects. However, the enterprise may be tempted to borrow short-term and willingly court the rollover risk if the cost of borrowing long-term becomes unduly high due to crowding-out from increased government borrowing at long maturities.

What is particularly striking is that this is true even for the financial sector. The Non-Banking Financial Companies (NBFCs) are increasingly playing a greater role in credit creation in the Indian economy. The ability and willingness of NBFCs to borrow long-term comes down when government borrowing increases; not only does their total debt come down in response, but they rely more and more on short-term paper. The right panel in Figure 10 shows that when government debt increases by 10 percent, the share of long-term debt for NBFCs comes down by 1.7 percent. If NBFCs rely on short-term debt and are hit by a shock, such as loan defaults or an inability to roll over the financing against illiquid assets, then they can experience the unfortunate confluence of asset-quality and funding pressures with adverse impact on their balance-sheets and future intermediation activity.

Thus, not only does government borrowing crowd out the private sector, but it can also induce the private sector to borrow more short-term, which can increase financial fragility. Might such forces have partly contributed to the surge in asset-liability mismatch of the NBFC

sector for twelve months starting in the second half of 2017 when there was an upward revision in the quantum of government borrowings? I find this an intriguing possibility that is worthy of further inquiry.

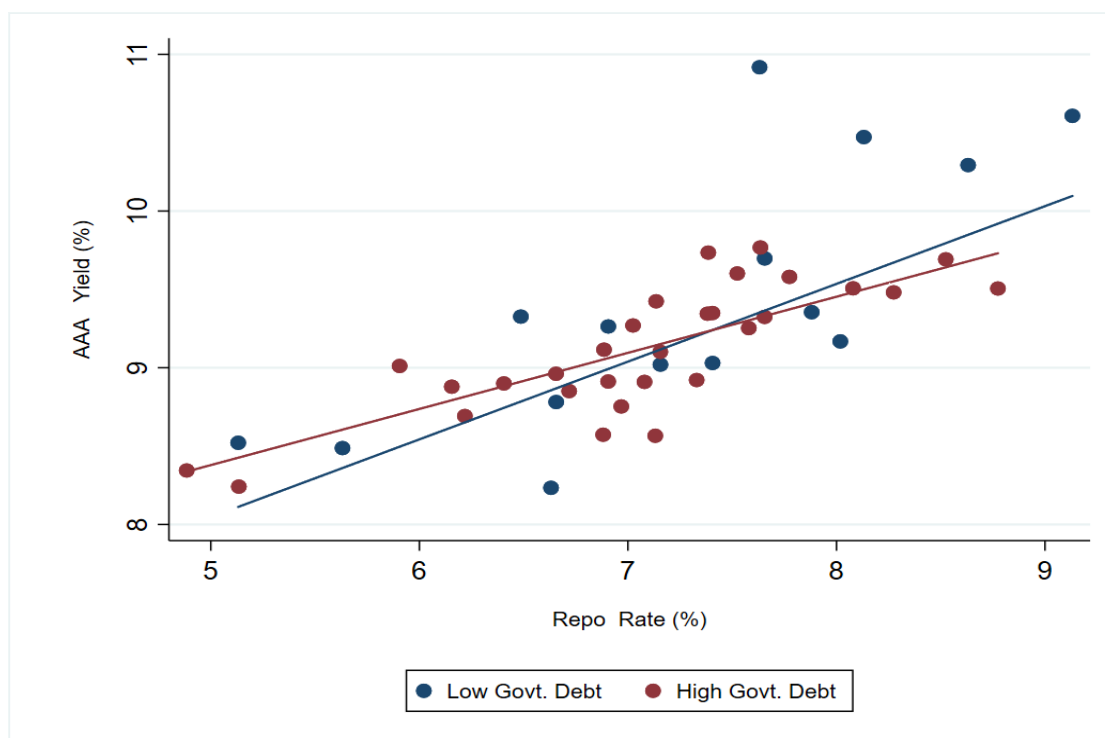
4.7 CROWDING-OUT EFFECTS ON MONETARY POLICY TRANSMISSION

Let us now situate the issue of government borrowing in matters of importance to policymakers who set interest rates such as the RBI's Monetary Policy Committee (MPC). When the central bank cuts the policy rate with a view to reduce economy-wide cost of funds, the ultimate objective is to make more and cheaper credit available to the economy, in part also by getting corporate bond market participants to accept lower yields. Such pass-through of the RBI's interest rate decisions ("monetary policy transmission") is generally seen to be much weaker than one-for-one; a standard quarter-point (25 basis points or bps) cut in the repo rate translates during the quarter into a 7.5 bps fall in yields for AAA-rated bonds and a mere 4.25 bps for BBB-rated ones. However, these averages mask differences that arise as a result of the crowding-out effects arising from debt issuance by the government.

Concretely, transmission of a rate cut in India is found to be about twice as strong when the government debt is below the median level: a 25 bps cut in the repo rate results in a 15 bps fall in the yields of the AAA-rated bonds and a 7.5 bps fall in the yields of the BBB-rated bonds. In contrast, if we focus only on episodes when government debt is above the median level, a repo rate cut decreases yields by only 7.5 bps and 3.25 bps for AAA- and BBB-rated borrowers, respectively. Figure 12 graphically illustrates that the sensitivity of the yields of the AAA-rated bonds to the repo rate is lower during periods of high government debt.

This evidence suggests that high levels of issuance of public debt can render monetary policy actions ineffective by interfering with the sound transmission of monetary policy. The rationale is possibly linked to the pricing effects documented in Section 4.5. As more government debt floods markets, the relative safety and liquidity premium attached by investors to high-rated corporate bonds diminishes, raising the cost of borrowing especially for AAA-rated borrowers and making it relatively less sensitive to policy rate cuts.

Figure 12. Monetary Policy Transmission during period of high and low government borrowing (India)



What are some possible remedies to alleviate the crowding-out effects of government financing in India that I have highlighted?

One possible solution is for the government to improve the share of capital expenditures which currently stands at a meagre 14% for India. Serious rationalisation could be undertaken in the form of cutting back on subsidies and programs that are not delivering long-run growth, and instead, focusing on the provision of public goods such as education, health and infrastructure.

Another way is for the government to reduce its borrowings in the market by divesting more of its public sector enterprise shares. There could be efficiency gains if there are more private investors playing an effective role in the governance of public sector enterprises. This would reduce the need for market borrowings by the government and that way reduce the crowding-out; it would enhance productivity, raise net government dividends and facilitate a greater balanced budget compared to outcomes under high government borrowings.

Yet another way would be for the government to improve adherence to the FRBM targets (and reduce the ease with which goalposts are shifted to future) by adopting recommendation of the Fourteenth Finance Commission and the FRBM Review Committee (2016-17) to establish an independent “fiscal council.” Such a council could monitor the government’s performance on sticking to the fiscal targets and roadmap by assessing regularly the progress in fiscal consolidation or lack thereof, and providing standardised reports on the displacement of fiscal deficits into off-balance sheet borrowings (as noted by the Comptroller and Auditor General (CAG), 2019; also see footnote 2).

Finally, there could be continued emphasis on efficient rollouts of important structural reforms such as the time-bound resolution of non-performing assets under the Insolvency and Bankruptcy Code (IBC) and the creation of national markets via the Goods and Services Tax (GST). The much-needed land, labour and agricultural reforms could be undertaken, all of which can help crowd-in private sector growth.

To conclude with a recollection of my favourite composer... when it comes to borrowings and fiscal deficit, governments should take inspiration from Sachin Dev Burman’s sublime but masterfully minimalistic music for the songs of *Pyasa*; Burman-da proved that less can indeed be more by crowding in everyone else, so can the government!

Annex Table 1: Financial Resource Gaps of the Private Corporate Sector and the Public Sector Relative to Available Household Financial Savings (India)

(as percentage of GDP)

| | 2011- 12 | 2012- 13 | 2013- 14 | 2014- 15 | 2015- 16 | 2016- 17 | 2017- 18 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| I. Available Financial savings of Households for use by the Public Sector and the Private Corporate Sector | | | | | | | |
| a. Households' Financial Savings | 7.7 | 7.7 | 7.7 | 7.4 | 8.4 | 6.6 | 6.8 |
| II. Net HH financial savings available for the private corporate sector after use by the Public sector (including valuables and E&Os) | | | | | | | |
| b. Public sector resource gap | -6.0 | -5.8 | -6.0 | -6.1 | -6.4 | -5.4 | -5.5 |
| c. Valuables and E&O | -2.3 | -3.1 | -1.2 | -0.9 | -1.5 | -1.7 | -2.7 |
| d (=a-b-c). Net resource gap of the public sector (net of valuations and E&O) after fully absorbing household financial savings | -0.5 | -1.2 | 0.5 | 0.4 | 0.6 | -0.5 | -1.3 |
| III. Corporate sector financing savings, financial investment and net resource gap | | | | | | | |
| e. Savings | 8.3 | 8.7 | 9.6 | 10.3 | 11.1 | 10.7 | 10.8 |
| f. Investment | 12.9 | 13.4 | 12.7 | 12.9 | 13.1 | 11.5 | 11.5 |
| g (= e-f). Private corporate sector resource gap | -4.6 | -4.7 | -3.1 | -2.6 | -2.0 | -0.8 | -0.7 |
| IV. Private Financial Corporate Sector | | | | | | | |
| h. Savings | 1.2 | 1.3 | 1.2 | 1.4 | 0.8 | 0.9 | 0.9 |
| i. Investment | 0.4 | 0.3 | 0.2 | 0.4 | 0.4 | 0.1 | 0.6 |
| j (=h-i). Net | 0.8 | 1.0 | 1.0 | 1.0 | 0.4 | 0.8 | 0.3 |
| Both public sector (net of valuables) and private corporate sector depend on private capital flows to meet their net resource gaps. | | | | | | | |
| h (=d+g+j). Net capital inflows from ROW (CAD) | -4.3 | -4.9 | -1.6 | -1.2 | -1.0 | -0.5 | -1.7 |

Source: Central Statistics Office.