

# **Government Debt & Real Interest Rates in Brazil – Reviving the ‘Fiscal’ Hypothesis\***

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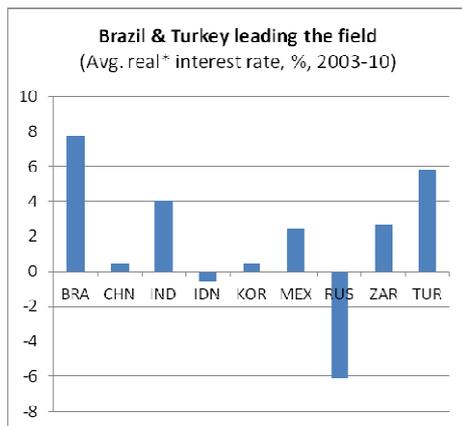
## **Abstract**

Various explanations have been proposed to account for the unusually high levels of real interest rates in Brazil. This paper narrowly focuses on the ‘fiscal weakness’ hypothesis, according to which continued high real interest rates are a reflection of government-debt-related fundamentals. A stylised comparison with Turkey – an economy that has recently experienced a very sharp fall in interest rates – and with other emerging economies shows that with respect to a variety of fiscal indicators Brazil does not compare favourably. Brazil has made progress in absolute terms, consistent with the observed decline in interest rates. In a comparative perspective, however, Brazil continues to stand out in terms of the level of domestic government debt and, more importantly, large domestic government financing requirements. This paper will argue that the large stock of short-term domestic government debt does offer a plausible explanation for why Brazilian real interest rates have not yet converged to levels more commonly associated with investment-grade-rated emerging economies.

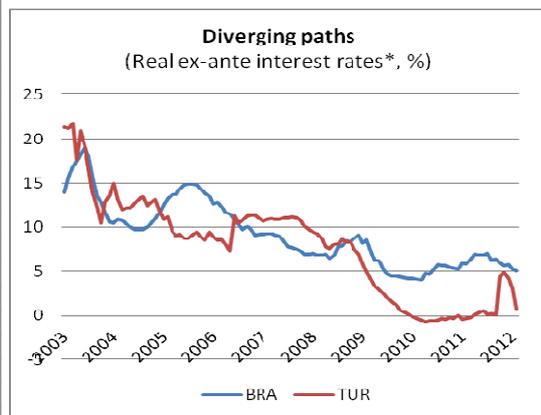
*\* I would like to thank Edmar Bacha, José Carlos Carvalho, Márcio Garcia and Fernando Sotelino for helpful comments and suggestions. All errors are mine, naturally.*

*\*\* The views expressed in this paper are those of the author only and do not necessarily reflect the views or opinions of any institution he is/ was affiliated with.*

Brazil continues to be the country with the world's highest real interest rates in the world. Real ex-ante interest rates have fallen from more than 10% at the beginning of the last decade to around 5% today. Many analysts find such a high level of interest rates 'puzzling', especially given the significant progress Brazil has made in terms of economic stability over the past ten years. Inflation and inflation volatility have declined tangibly. Public debt indicators have improved. External financial risks have fallen to negligible levels. For what it is worth, Brazil carries an investment grade rating. Nonetheless, domestic real interest rates remain high



Source: WEFA  
\* Money market rate – CPI



Source: Bloomberg, Author's calculation  
\* Overnight - 12M ahead CPI expectations

### Explaining high real interest rates

Not surprisingly, the 'interest rate puzzle' has received a lot of attention and commentary. A recent paper on this issue provides a comprehensive survey of the literature (Segura-Ubierto 2012). Hence there is no need to discuss the various attempts to explain Brazil's high real interest rates in detail. By way of a brief summary, high domestic interest rates are variably attributed to:

- (1) Fiscal weaknesses. High interest rates are due to high levels of public debt and/ or a history of past defaults and/ or some form of fiscal dominance. The empirical evidence for these claims seems to be mixed.
- (2) Low domestic savings rate. The greater the investment/ savings imbalance, the higher the real interest rates. This explanation has received some empirical support. However, if linearity is assumed, real interest rates in Brazil (and Turkey) are (were) apparently much higher than what the model would predict.

- (3) Institutional shortcomings. Weak property rights and/ or a weak legal system and/ or a lack of central bank independence keep the risk premium high. Empirical evidence for either hypothesis seems to be limited.
- (4) Past history of high inflation and inflation volatility. The taming of inflation and the decline in inflation volatility observed in Brazil over the past 15 years has contributed to a decline in interest rates. The empirical evidence seems to bear this out. Given the observed decline in volatility, real interest rates remain nonetheless relatively high.
- (5) Credit market segmentation. The central bank policy rate has only a limited effect on domestic credit due to the existence of subsidised lending in Brazil. The (unobservable) equilibrium real interest rate is therefore lower than the observed market interest rate.

By way of comparison, this paper will argue that the 'fiscal weakness' hypothesis remains of relevance for understanding continued high real interest rates. Such a comparison reveals that while Brazil has made undeniable progress in terms of debt sustainability it continues to compare unfavourably to virtually all its emerging economy peers with regards to a number of important government debt related indicators. The results of the stylised comparison presented below are, at a minimum, consistent with the 'fiscal weakness' hypothesis<sup>1</sup>.

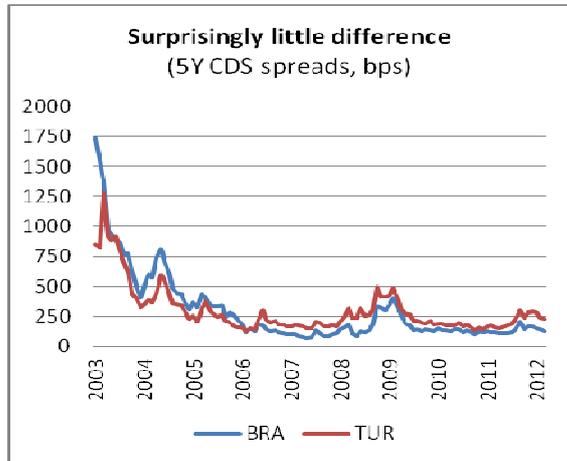
### **Comparing Brazil and Turkey**

Brazil and Turkey experienced major financial crises in 2002 and 2000-01, respectively. Both Brazil and Turkey were characterised by very high domestic interest rates during 2000-09 period, averaging 9% in real terms. Interest rates were significantly higher than in other emerging economies. The average disguises, however, the overall decline in real interest rates that both economies experienced, coinciding with increased economic stability and a substantially improved government debt position. External default risk, as

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<sup>1</sup> It is noteworthy that the 'fiscal weakness' hypothesis seems to have found empirical support in the other major 'puzzling' case, Turkey (Kannan 2009).

measured by CDS spreads, has declined sharply in both countries, and is today lower than in many advanced economies.



Source: Bloomberg

Interestingly, Turkey started with higher domestic real rates than Brazil, but ended the decade with interest rates lower than Brazil<sup>2</sup>. Meanwhile, Turkish CPI inflation fluctuated between 6-10%, averaging 8.2% during 2004-11. By contrast, Brazilian CPI was lower, ranging between 3.7% and 6.7% in terms of yearly averages. Average CPI for the period as a whole was 5.3%. Turkey also overshoot its inflation target more often and by a larger margin than Brazil. All other things equal, this suggests that for Turkey to achieve the same level of inflation as Brazil, domestic real interest rates would have had to be higher than they actually were. Nonetheless, the faster decline of Turkish real interest rates over time suggests that Turkey has made greater progress with regards to whatever it was that kept interest rate very high than Brazil. Lower Turkish interest rates may also suggest that Turkey's 'equilibrium' interest rate – reflecting better fundamentals in absolute term – is lower than Brazil's, even though continued inflation differentials make this a somewhat more debatable proposition.

### Government debt dynamics & solvency

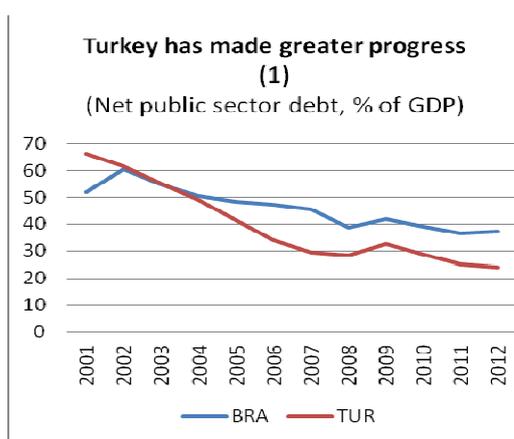
Turkish government debt experienced a more pronounced fall than Brazilian debt. Turkish gross general government debt<sup>3</sup> fell from 78% of GDP<sup>4</sup> in 2001 to below 40% of

<sup>2</sup> Admittedly, a comparison of real interest rates has become somewhat more complicated in the past couple of years, as both the CBRT and the BCB started to use a number of other policy instruments in addition to short-term interest rates to conduct monetary policy. See also IMF, Turkey: 2011 Article IV Consultation, Country Report, No. 16, 2012, p. 10

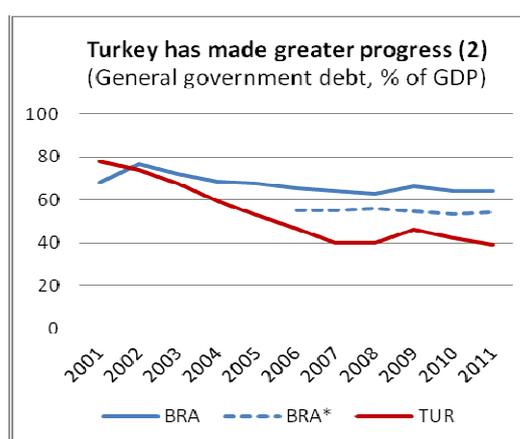
<sup>3</sup> The general government sector comprises all three levels of government and social security funds.

<sup>4</sup> Turkey re-estimated its GDP in the mid-2000s Pre-revision, gross general government debt was at the time thought to have reached a peak of around 110% of GDP in 2001 and 93% of GDP in 2002.

GDP in 2011. Brazil's gross general government debt fell from a peak of 82% of GDP in 2002 to only 63% of GDP. (Its gross government debt under the new definition<sup>5</sup> has remained unchanged at 55% of GDP since 2006.) Meanwhile, Turkish net public sector debt declined from a peak of 66% of GDP in 2001 to an estimated 22% in 2011<sup>6</sup>. Brazilian net public sector debt<sup>7</sup>, by comparison, has declined less dramatically, falling from 61% of GDP to 37% of GDP. In short, Turkey has registered both a greater decline in debt levels than Brazil.



Source: National authorities



Source: IMF

\* Brazilian definition

Debt projections point to the continued reduction of government debt in both countries. Primary surpluses are large enough to reduce the net-debt-to-GDP ratio over the medium term. The debt-stabilising primary surplus in Brazil is less than 1.5% of GDP under quite conservative assumptions (real interest rates = 6% and real GDP growth = 3%), compared to a projected primary structural surplus of 3% of GDP. The debt-stabilising primary surplus in Turkey is around zero (or even less than zero) under similarly conservative assumptions ( $r = 4\%$ ,  $g = 4\%$ ) versus a projected primary structural surplus of 0% of GDP (IMF 2012). The future path of the net debt to GDP ratio will also be affected by the evolution of the real exchange rate, but much less so than before (see below). The projected cyclically-adjusted overall fiscal balance is around 2.0-2.5% of GDP in both countries. Given strong underlying nominal GDP growth, both

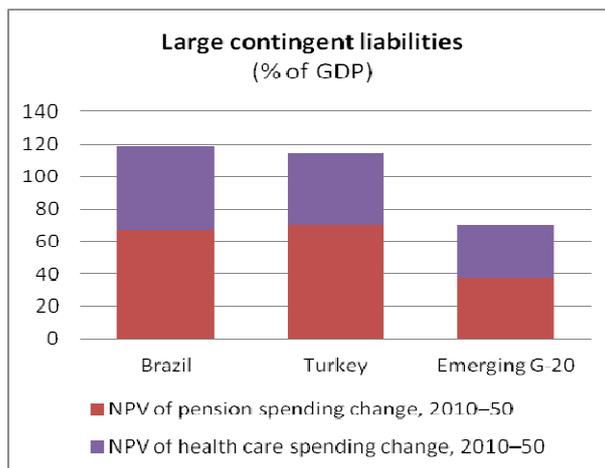
<sup>5</sup> The Brazilian authorities started using a modified general government debt concept a few years ago. This 'adjusted' concept excludes government debt held by the central bank, but includes central bank repos, thus capturing 'government debt held by the public'. The authorities only provide data under this definition starting December 2006.

<sup>6</sup> The IMF, seemingly using a slightly adjusted public sector debt definition, forecasts net debt to fall from 37% of GDP in 2010 to 31% of GDP in 2012. See IMF, Turkey: 2011 Article IV Consultation, Country Report, No. 16, January 2012, p.63

<sup>7</sup> In addition to the general government, the public sector includes government-owned non-financial enterprises as well as the central bank. The Brazilian authorities exclude a number of large state-owned enterprises from the definition.

gross and net debt is projected to decline in both countries, albeit gradually (see also IMF 2011).

How about the long-term fiscal outlook? Both countries are similarly positioned as far as the projected increase in terms of pension and health expenditure is concerned. Due the significant increase in the old-age dependency ratio, fiscal policy will come under pressure – more so in Brazil than in Turkey (UN 2012). According to the IMF (2011), the NPV value of the increase in pension spending until 2050 is 67% of GDP in Brazil and 60% of GDP in Turkey. (Only Russia and the Ukraine face larger increases, countries with incomparably worse demographics.) Furthermore, the NPV value of health care spending is estimated to be another 52% of GDP and 44% of GDP, respectively. This again places both countries near the top in terms of age-related contingent liabilities among emerging economies.



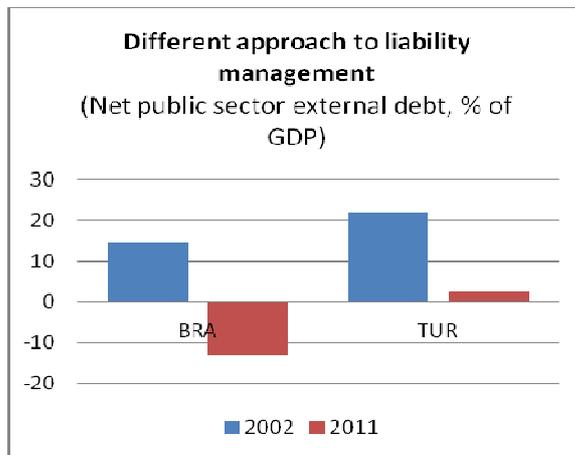
Source: IMF

On balance, Turkey looks stronger than Brazil as far as the long-term debt outlook is concerned. Not only is the gross and net burden smaller at present. A combination of higher underlying growth and, currently, lower domestic real interest rates require a smaller fiscal effort to stabilise the debt ratio in the event of unforeseen exogenous shocks as well as longer-term ‘endogenous’ trends such as the projected increase in age-related public expenditure. While this might explain differences in real interest rates, it is far from obvious why – given favourable short- and medium-term debt dynamics – the *long-term* outlook should weigh on *short-term* interest rates.

### Government external debt & foreign currency exposure

In terms of the public sector's external and FCY balance sheet, Brazil looks stronger than Turkey. The gross external<sup>8</sup> debt of the Brazilian general government amounted to almost 20% of GDP during the height of the financial crisis in 2002. It has since fallen to a mere 2% of GDP. More importantly, net external public sector debt today is a negative 12% of GDP. The public sector achieved this improvement via a reduction in external debt and, more importantly, via a significant increase in FX reserves, which rose from USD 40 bn to USD 360 bn or so (or 14% of GDP) over the past ten years.

Turkey's public sector external debt stock has risen slightly in dollar terms, while FX reserves increased much more modestly from USD 20 bn in 2002 to USD 88 bn (or around 11% of GDP) than in Brazil. The public sector's net external debtor position is nonetheless much smaller than in the past, amounting to around 1% of GDP as of end-2011, compared to 22% of GDP in 2002. In other words, the Turkish public sector has pretty much squared its net external position but, unlike Brazil's, it is not a net foreign creditor.



Source: National authorities

Last but not least, the two countries' public sectors have seen a dramatic change in their FCY exposure, resulting in a substantially increased tolerance toward exchange rate volatility and a reduction in debt sustainability risks. In addition to externally-issued FCY obligations, both countries used to issue significant quantities of domestic FCY debt. In the case of Brazil, the central bank also took on additional off-balance FCY exposure

<sup>8</sup> Defined on a jurisdictional basis.

through swaps. As a result, every time the exchange rate depreciated significantly, the government and public sector debt ratios increased sharply, raising doubts as to the sustainability of public sector debt (Brazil in 1999, 2002; Turkey in 2000 and 2001).

Improving investor confidence after the 2002 crisis allowed the Brazilian authorities to systematically reduce domestic FCY debt, in addition to retiring FCY-denominated external debt. In 2002, around 40% of domestic government debt was FCY debt. Today this share has fallen to virtually zero. Only 5% of gross general government debt is FCY-denominated/ -linked<sup>9</sup>. The central bank also took advantage of greater demand for LCY assets and squared its swap book (and even started to build a net long FCY position). In net terms, the public sector was a net FCY debtor to the tune of 30% of GDP in 2002, while today it is a net FCY creditor to the tune of 12% of GDP.

Similarly, Turkey reduced its domestic FCY debt from 35% of total domestic debt in 2003 to basically nil today. As regards net public sector debt, around 45% (worth 30% of GDP) was FCY denominated in 2001 – very similar to Brazil. Today net public sector FCY debt amounts to around 1% of GDP with FX reserves offsetting the 12% of GDP or so worth of (mainly external) FCY debt. The FCY risk of the public sector is almost nil.

The external and FCY debt position of the Brazilian public sector is superior to Turkey's. The same applies to the two countries' external debt position more generally. Aggregate (public and private sector) Brazilian net external debt has declined to a negative 3% of GDP from 33% of GDP in 2002. Brazil's liquidity ratio<sup>10</sup> amounts to 200%. By comparison, Turkey's aggregate net external public debt only fell from 40% of GDP in the early 2000s to 14% of GDP in 2011. Turkey's external liquidity position is far less favourable than Brazil's, amounting to significantly less than 100% (Fitch 2011). Last but not least, Brazil is running a current account deficit of 2-3% of GDP, which is easily financed by non-debt-creating inflows. By contrast, Turkey's current account deficit is running at close to 10% of GDP and only 1/5 or so is financed by equity-type flows.

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<sup>9</sup> In fact, 15% of the general government's external debt is denominated in BRL, while less than 1% of domestic debt is FCY debt, thus roughly offsetting each other, FCY-exposure-wise.

<sup>10</sup> The liquidity ratio is defined as liquid external assets over liquid external liabilities. Assets comprise FX reserves and commercial banks' foreign assets, while liabilities include external debt service plus short-term external debt plus non-resident holdings of MT/ LT LCY debt.

One would therefore expect Turkish CDS spreads to be significantly higher than Brazil's. Interestingly, this does not seem to be the case. As of April 2012, 5Y Turkish CDS spreads trade at 240 bp vs 120 bp in Brazil. At first sight this looks surprising, but relatively low Turkish spreads can probably be explained by the fact that neither Turkey's public sector nor the systemically important banking sector, which, like in Brazil, is prohibited from taking on excessive FCY exposure, is at risk in the event of significant currency volatility<sup>11</sup>.

### **Gross domestic debt & debt composition**

The level of risk attaching to public sector external debt is very low by historical standards. This should limit the 'spill over' of external risk to domestic risk and interest rates. It is therefore presumably the size and/ or composition of *domestic* LCY debt that determines the level of domestic interest rates, rather than any residual risks related to the external debt position of the public sector (or the economy).

Once more: Brazilian net public sector debt has declined from a peak of 61% of GDP in 2002 to 37% of GDP today. Gross general government debt has remained largely unchanged at 55% of GDP since 2006. Interestingly, gross general *domestic* government debt (more or less equivalent to 'federal debt securities held by the public' under the 'new' definition) has in fact increased to 52% of GDP from 47% of GDP in 2006, due to the domestic debt financed accumulation of assets by the public sector<sup>12</sup>. This may help explain why domestic real interest rates, while having declined, have not fallen *more dramatically* in the past few years. In the absence of asset accumulation financed by domestic debt issuance, domestic LCY government debt would today amount to 40% of GDP (or less) rather than the current 52% of GDP<sup>13</sup>. The larger supply of domestic government debt relative to the counterfactual has helped prevented a faster decline in domestic interest rates. By comparison, Turkey's domestic LCY debt amounts to 29% of GDP today compared with 33% of GDP in 2003 – and compared with more than 50% of GDP worth of LCY debt in Brazil.

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<sup>11</sup> Assuming that CDS spreads correctly reflect credit risk, this suggests that the benefits in terms of lower external borrowing costs (for the economy as a whole) stemming from the large accumulation of FX reserves is much more limited than one might have expected. Leaving aside the issue of currency valuation and economic stability, this makes the policy of FX reserve accumulation look financially costly, not least because it has likely prevented a more rapid decline in domestic real interest rates.

<sup>12</sup> FX reserves amount to 14% of GDP and loans to official financial institutions to almost 8% of GDP.

<sup>13</sup> Note, for instance, that FX reserves alone have risen by more than USD 150 bn since the end of the 2008-09 financial crisis (or 6% of 2011 GDP).

Overall domestic debt related risks have unquestionably declined, explaining the observed decline in real interest rates. Substantial progress has also been made in Brazil with regards to the sensitivity to market shocks. As discussed above, currency depreciation has little effect on gross debt levels today and even helps reduce net debt levels. The sensitivity to interest-rate shocks has also fallen sharply. In early 2002, a significant 55% of domestic debt<sup>14</sup> (or roughly 26% of GDP) was linked to the Selic rate. Today 1/3 of domestic debt (or 14% of GDP) is linked to the overnight interest rate. By contrast, fixed-rate and inflation-linked debt amounted to a combined 15% of the total in 2002 (the remainder was FCY debt), while today it amounts to 2/3. The sensitivity of the public debt to a sustained interest-rate shock is significantly lower than ten years ago, while the magnitude of any potential future shock is also undoubtedly far lower. Similar to Brazil, Turkey has virtually eliminated domestic FCY debt. Like in Brazil, 1/3 of domestic debt is floating (that is, linked to the interest rate), while 52% and 17% of domestic debt is fixed-rate or CPI-linked, respectively. In 2003, 50% of domestic debt was still linked to the interest rate.

In short, the domestic debt structure has not only improved in both countries. It also looks like Brazil and Turkey are characterised by very similar debt structures. The higher level of Brazilian debt, however, means that Brazil remains more sensitive to a shock of a similar magnitude.

### **Gross domestic financing requirements**

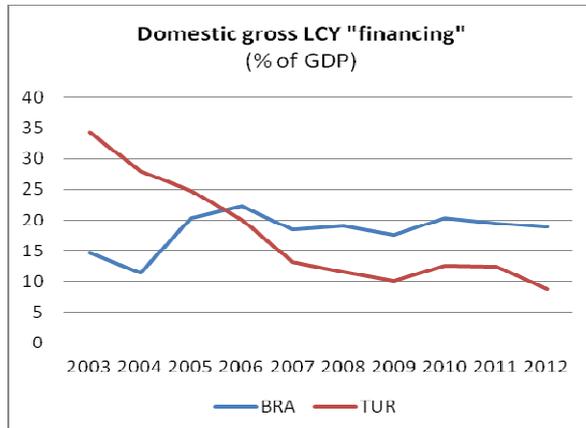
The most significant difference in terms of debt indicators relates to the size of domestic, especially short-term, debt and – and this is very much related – the size of gross domestic government financing requirements (that is, debt maturing plus net financing needs). In Brazil, the latter amount to almost 19% of GDP (IMF 2011)<sup>15</sup>. Gross domestic LCY (!) financing requirements have not changed much in recent years. This is not very surprising as, as already noted, the stock of domestic debt has actually increased from 47% of GDP in 2006 to 52% of GDP today. Meanwhile, Turkey succeeded in reducing its gross financing requirements to less than 13% of GDP in 2011 and less than 9% in

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<sup>14</sup> Under IMF definition.

<sup>15</sup> The amount of debt maturing reported by the Treasury differs quite a bit from the IMF numbers. According to the Treasury, total debt amortization peaked at 20% of GDP in 2004-05 and has since fallen to slightly more than 10% of GDP in 2011-12. The IMF numbers seem to include central bank repo operations, which add to the stock of short-term debt held by the public. For the sake of comparison, I will rely on the readily comparable and standardised IMF figures.

2012 (and 2013). Turkey's as well as Brazil's net financing requirements (fiscal deficits) are at the same level of 2-3% of GDP. It is worth pointing out that Turkey also makes somewhat greater use of external FCY funding than Brazil (around 10% versus typically less than 5% of total financing).



Source: Banco Central, Turkish Treasury, Author's calculations

\* Assumes all central bank repos mature over next 12M & all net financing needs are covered by domestic LCY debt issuance

\*\* Effective gross domestic borrowing (assumes that all domestic borrowing is domestic LCY debt). 2012 figure is based on Turkish treasury's financing programme ([www.hazine.gov.tr](http://www.hazine.gov.tr))

The considerable decline in Turkish financing requirements relative to Brazil can be explained by faster average economic growth, an initially more restrictive fiscal policy and a less aggressive policy of asset accumulation (requiring a lower level of domestic debt issuance). The stock of debt maturing within the next 12 months is almost three times as large as a share of GDP in Brazil (> 16% of GDP) than in Turkey (< 6%).

Interestingly, the share of domestic debt coming due over the next 12 months is very similar (around 1/3). The large difference in financing requirements would therefore seem to be largely due to the different size of the domestic debt stock, and less so to differences in terms of the share of total debt maturing and/ or net financing requirements and/ or the share of external financing.

Had the Brazilian authorities not accumulated any assets after December 2008, gross domestic debt would be closer to 40% of GDP rather than more than 50% of GDP today (actually lower still once the lower net interest payments are factored into the

equation<sup>16</sup>). FX reserve accumulation has amounted to 6% of GDP since then. Domestic debt issuance related to the financing the official financial sector to another 7% or so. Assuming that FX reserve accumulation was fully sterilised through short-term repos and assuming that 1/3 of the issuance related to treasury loans extended to official financial institutions consists of short-term debt (roughly in line with overall share), 2012 gross financing requirements could have amounted to 10-11% of GDP rather than 18-19% of GDP, all other things equal, roughly comparable to Turkey's 2011 financing needs.

Far from being a definitive proof, the evolution of financing requirements in Brazil and Turkey is more or less compatible with the evolution of real interest rates in both countries. Turkey has seen a significant decline in domestic financing requirements, while Brazil has not. Turkey's real interest rates have declined sharply, while Brazil's have fallen far less. Naturally, other factors also affect the level of real interest rates. Otherwise Brazil's interest rates would not have fallen to the extent that they did given that gross *domestic* LCY government financing requirements did not change much at all in the past few years. Theoretically, however, it makes good sense that a large supply of short-term debt helps keep interest rates high<sup>17</sup>. A comparison with other emerging economies also lends some qualified support to this account.

### **How does Brazil stack up against other emerging economies?**

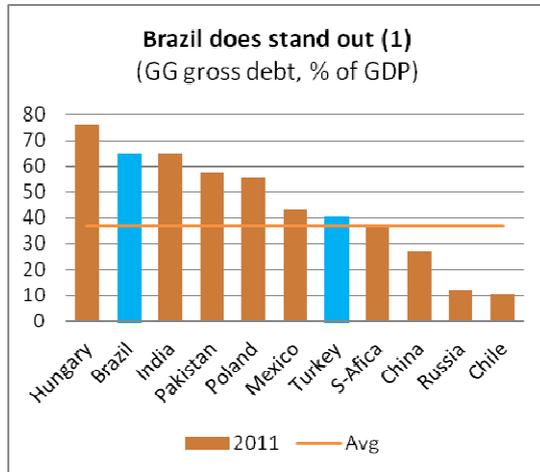
Although fiscal and debt indicators have improved across the board in Brazil, they do not compare favourably with those of the vast majority of emerging economies. Brazil's gross general government debt (as conventionally measured) remains high compared to most other emerging economies (IMF 2011). Only Hungary and India have higher gross general government debt. Moreover, Brazil is the country with one of the highest *domestic* government debt ratios among emerging economies. Only Jamaica, Egypt, Lebanon and India (not counting Israel as an emerging economy) have higher domestic

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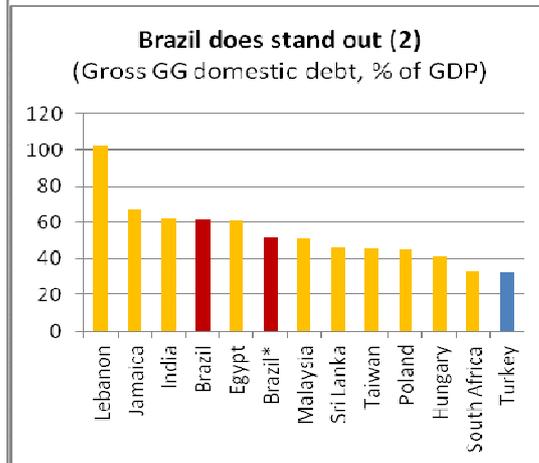
<sup>16</sup> Public sector asset accumulation adds to net interest payments and the fiscal deficit and, thus ultimately, prevents a faster decline in domestic debt. The net long FCY position has averaged 8% of GDP since 2006. This added on average around 0.8% of GDP to net public sector interest payments a year (assuming a 1,000bp 'negative carry'). In other words, the gross and net debt could be 4% of GDP lower than it is today. Note that the 'negative carry' resulting from lending to official financial institutions is significantly smaller (especially once the dividends the treasury receives are accounted for).

<sup>17</sup> Note that gross financing requirements in advanced economies are often significantly larger. To the extent that this does not result in high domestic real interest rates, it is clear that 'supply' side factors do not explain everything and other (demand side) factors matter, too (e.g. level of domestic savings, investor risk aversion and liquidity preference, inflation and credit history). Nonetheless, the Turkish example demonstrates that these factors can be neutralised through a reduction of gross domestic debt and domestic financing requirements. In this sense, the debt level/ financing requirements can be said to 'explain' or at least 'account for' high-ish interest rates.

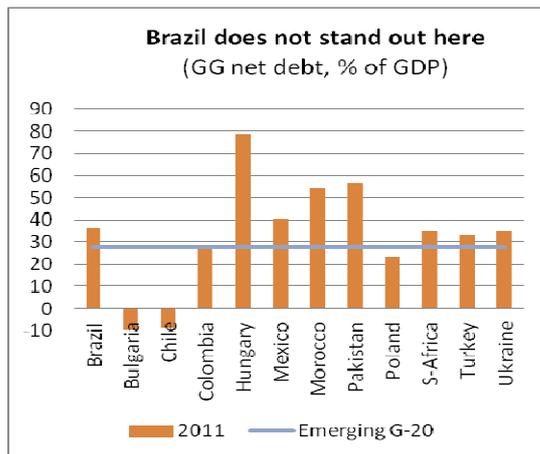
debt ratios. Interestingly, Brazil seems to stand out far less in terms of net debt levels, where it is more of a middling performer compared to other emerging economies.



Source: IMF

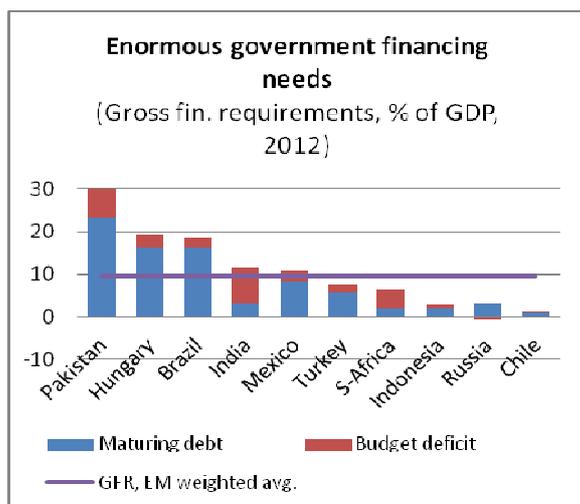


Source: Fitch, National authorities



Source: IMF

Brazil certainly stands out in terms of the size of its gross financing requirements – among the emerging G20 at least. Gross funding needs are the highest among the major emerging markets. Only Pakistan and Hungary have higher gross funding needs. (Over a 24 month horizon, almost half of Brazilian domestic government debt comes due, not accounting for central bank repos.)



Source: IMF 2012

It should be noted that virtually all the maturing debt as well as the fiscal deficit is (re)financed in the form domestic *LCY* debt (unlike in some of the other countries with large domestic debt burdens). Moreover, almost all the debt is financed by resident investors, as only about 10% of domestic government is held by foreigners (compared to 20-30% in Hungary). Last but not least, in Brazil no (or less) regulation (e.g. financial repression, capital controls) exists that obliges certain classes of domestic investors to buy government debt (like in India or Pakistan).

### **Large stock of short-term debt has kept interest rates high**

The evidence presented here by way of a stylised comparison allows one to weave together a theoretically and empirically plausible story whereby the absolute decline in fiscal and debt related risk in both Brazil and Turkey over the past ten years has resulted in a substantial decline in real interest rates.

Both Brazil and Turkey have made very important progress in terms of debt sustainability. Public debt levels have declined. FX reserve accumulation has helped to sharply reduce or even, as in the case of Brazil, completely eliminate risks historically associated with exchange rate volatility. Last but not least, unlike a decade ago, the short- and medium-term outlook in terms of debt sustainability is fair in both countries.

Gross domestic *LCY* debt has experienced less dramatic changes in both countries. In Brazil, gross domestic BRL debt (held by the public) has actually increased, while domestic TRY debt has fallen only modestly in Turkey. Clearly, the level of gross

domestic debt is not the only factor determining real interest rates. Turkey's more rapid decline in total net debt may account for the faster decline of and, maybe, the lower absolute level of interest rates. From a broader cross-country perspective, however, it needs to be pointed out that there are a number of emerging economies with similar or higher net debt ratios, but significantly lower real interest rates.

This would point to the continued high level domestic debt and related large gross financing requirements accounting as a plausible explanation for the difference in Brazilian and Turkish real interest rates as well as the high level of Brazilian interest rates more generally. In Brazil, gross government domestic LCY financing requirements (measured as a share of GDP) have remained largely unchanged over the past decade. By contrast, Turkey's financing requirements have declined tangibly in the past few years, coinciding with a sharp decline in domestic real interest rates.

In sum, Brazil stands out most with regard to continued large gross financing requirements. There are good theoretical and empirical reasons to link large domestic financing requirements to high real domestic interest rates (Franco 2006). In short, short-term government has remained very elevated in Brazil, helping to keep real interest rates quite high.

### **Policy implications**

To the extent that a government-debt-related premium is embedded in domestic interest rates, the real interest should have fallen in both Brazil and Turkey over the past ten years, as indeed it has. The continued high level of real interest rates in Brazil relative to its emerging economy peers can be explained by the relatively larger supply of short-term government debt. Brazil also compares less favourably to Turkey, a country that has been significantly more successful in terms of reducing government debt, domestic government debt and, especially, government domestic financing requirements in the past few years.

If it is indeed the size of domestic financing requirements, which, in turn, is largely a reflection of large domestic debt, that has kept real interest rates high in spite of the more general improvement in fiscal and debt indicators, the policy implications are straightforward. First, the government should reduce the pace of domestic-debt-financed

public sector asset accumulation. (It might even consider disposing of financial assets in order to reduce its domestic liabilities, where practical.) This would allow for a faster decline in the domestic debt to GDP ratio and hence in gross financing requirements<sup>18</sup>. Second, the government could make a greater (!) fiscal effort, the economic cycle permitting<sup>19</sup>. Both lower net financing requirements and a more rapidly declining debt stock as a result of a fiscal adjustment will result in lower overall gross financing requirements. Third, theoretically, the government could reduce domestic LCY financing requirements by issuing more FCY debt. Admittedly, this would require a *de-real-isation* of government liabilities and is likely to conflict with the government's revealed policy preferences regarding the exchange rate. Last but not least, the government could seek to more aggressively lengthen the maturity structure of the domestic debt. But at this point this is bound to be expensive. It would be preferable to do this following a further decline in interest rates.

Tackling higher interest rates via an accelerated reduction in domestic government debt would run into some of government's other policy objectives and preferences (e.g. exchange rate policy, state-directed 'developmentalist' credit policy, sustained level of government expenditure, including investment). So where, realistically, do we go from here? Absent more decisive action on the fiscal front, the currently reasonably tight fiscal policy will keep primary surpluses large enough to gradually reduce government (domestic) debt and gross funding requirements, especially once the pace of sterilised FX intervention and/ or financing of official financial institutions diminish. However, even if gross domestic debt and financing requirements remain at present levels due to continued public sector debt accumulation, an improving net debt position may help lower interest rates over time. It will simply take longer to bring down real interest rates to levels seen in most other emerging economies. There is no free lunch, after all.

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<sup>18</sup> Refraining from extending further loans to official financial institutions would also help address the credit market segmentation/ subsidised lending issue mentioned above.

<sup>19</sup> The literature on 'expansionary fiscal adjustments' has received some criticism recently (Alesina and Ardagna 2010, but also see Guajardo et al. 2011). However, given high interest rates and a freely floating exchange rate, such an adjustment should be quite effective in Brazil.

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