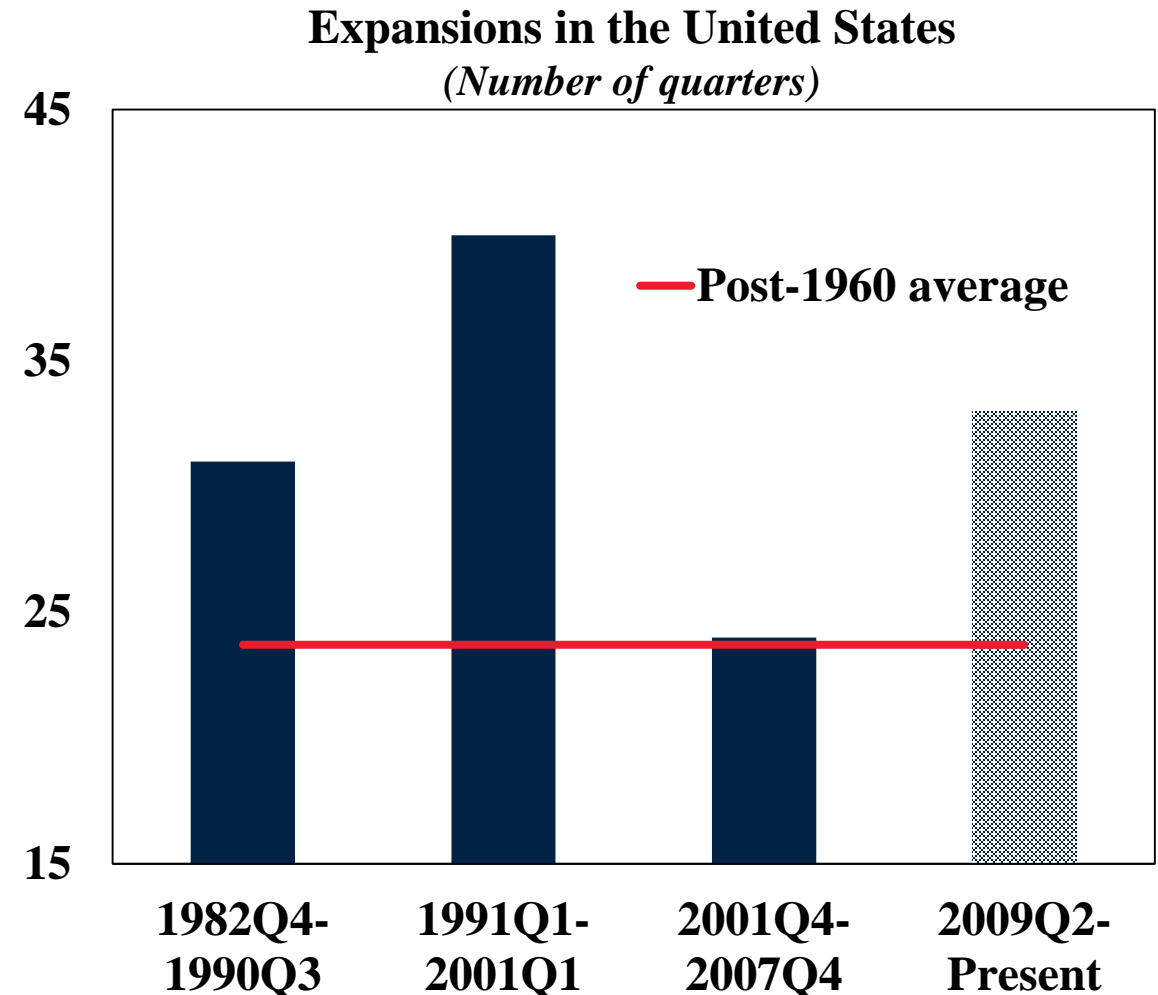
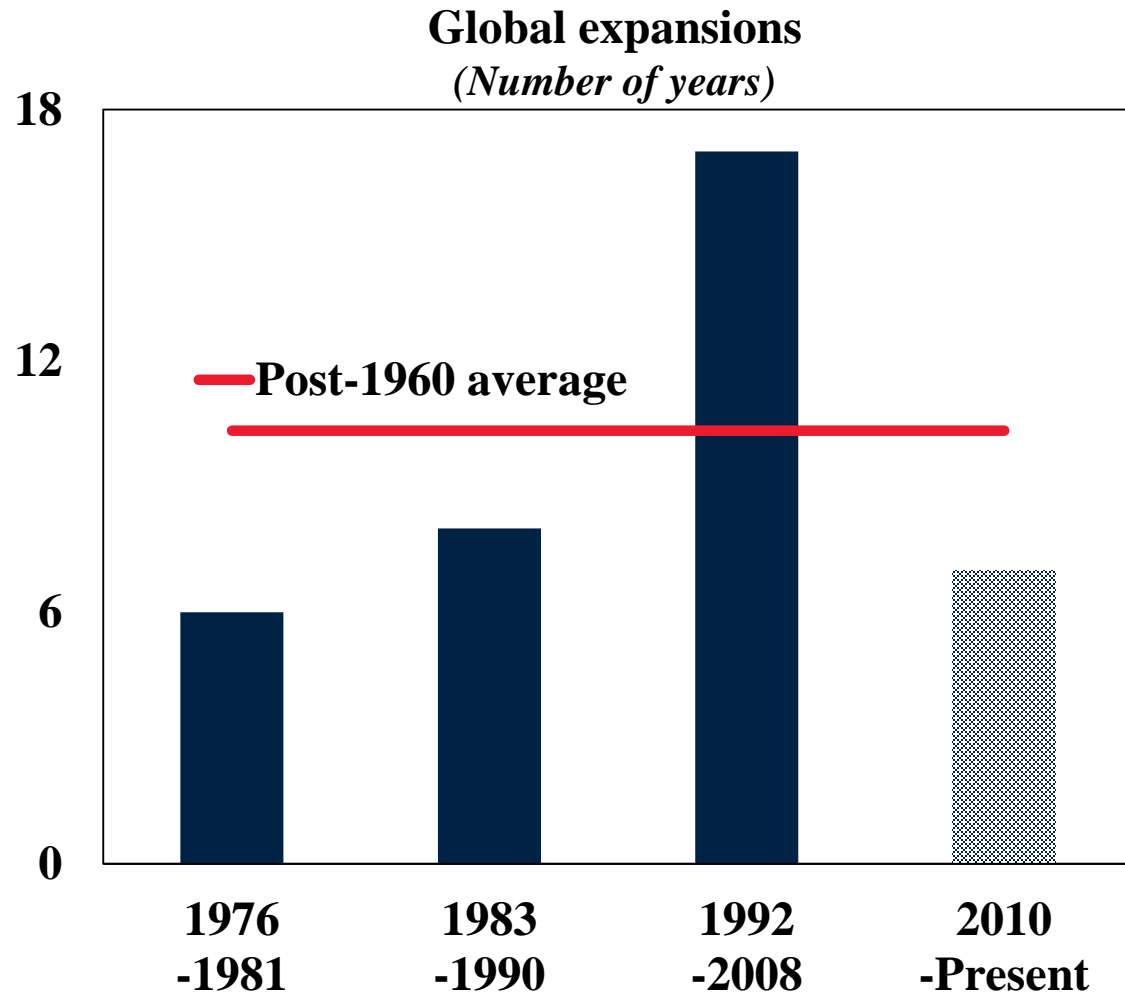


# Fiscal Policy: Ready for The Next Shock?

Franziska Ohnsorge

December 2017

# Duration of Global Expansions: *Getting Older Although Not Yet Dying of Old Age*

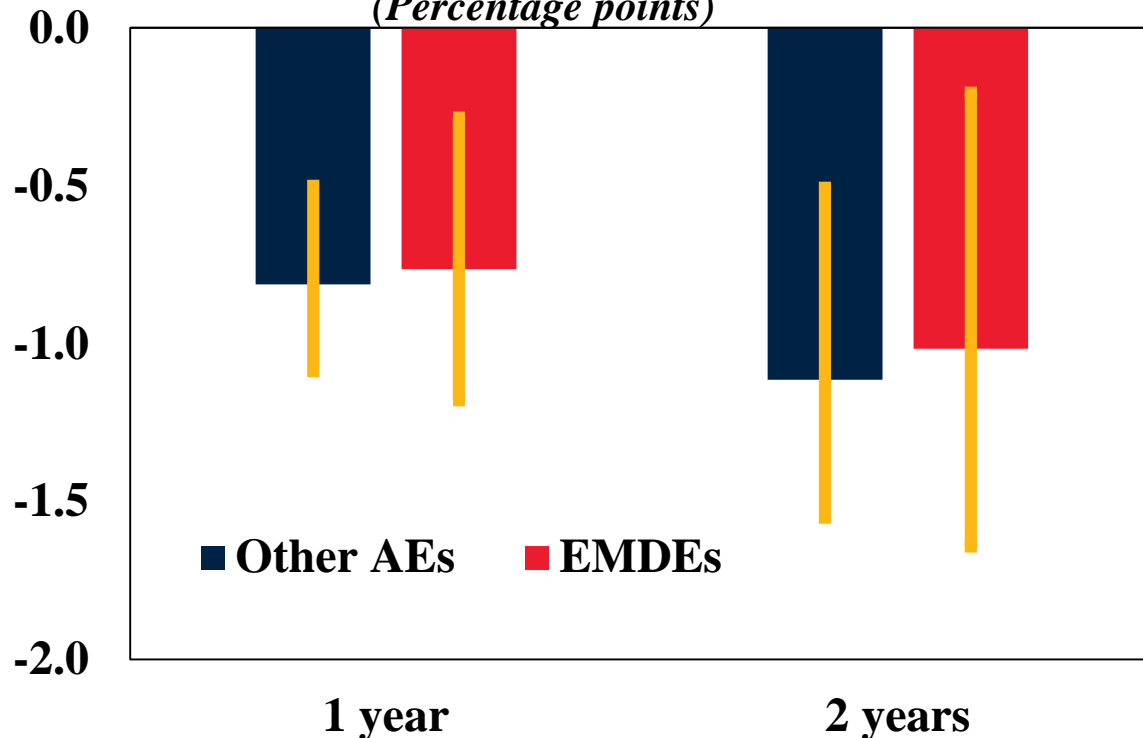


Sources: International Monetary Fund, Kose and Terrones (2015), National Bureau of Economic Research, U.S. Bureau of Economic Analysis, World Bank.

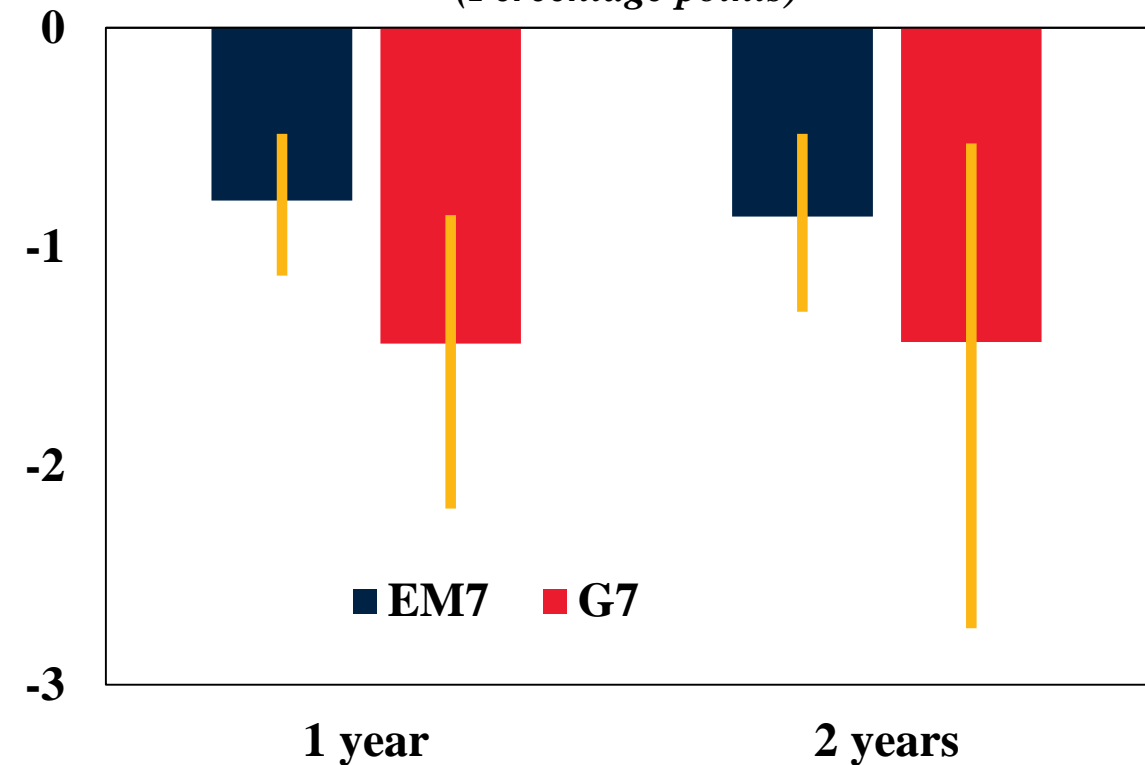
Left Panel. Post-1960 average is an average length of past three global expansions (excluding the current ongoing expansion). Right Panel. Post-1960 average is an average length of seven historical episodes since 1960 (excluding the current ongoing expansion).

# Spillovers from Growth in Major Economies: *Sizable Impact on the Rest of the World*

**Growth effect of 1-percentage-point decrease  
in U.S. growth  
(Percentage points)**



**Impact of 1-percentage-point decrease in EM7  
and G7 growth on growth in other EMDEs  
(Percentage points)**



Sources: World Bank, Haver Analytics, Organisation for Economic Co-operation and Development.

Left Panel. Cumulative impulse response of weighted average output growth in non-U.S. advanced economies (other AEs) and emerging market and developing economies (EMDEs) to a 1-percentage-point increase in growth in real GDP in the United States. Growth spillovers to other AEs and EMDEs based on a Bayesian vector autoregression of global GDP growth excluding the United States and other AEs or EMDEs, U.S. GDP growth, U.S. 10-year government bond yields plus J.P. Morgan's EMBI index and GDP growth in other AEs or EMDEs. The oil price is exogenous. Bars represent median values, and error bars 16-84 percent confidence bands. Other AEs consist of Euro Area (19 countries), Canada, Japan and the United Kingdom and 20 EMDEs are included. Data are for 1998Q1-2016Q2. Right Panel. Cumulative impulse response after one year on output growth in 23 other AEs and 20 EMDEs to a 10-percent increase in VIX. Vector autoregressions are estimated for 1998Q1-2016Q2 with two lags. The model for other AEs includes VIX, MSCI index for advanced economies (MXGS), U.S. 10-year government bond yields, aggregate real output and investment growth in 23 other AEs. The model for EMDEs includes VIX, MSCI emerging market equity price index, J.P. Morgan's EMBIG spreads, aggregate real output and investment growth in 20 EMDEs. G7 real GDP growth, U.S. 10-year government bond yields and MSCI world equity price index are added as exogenous regressors.

# Three Questions

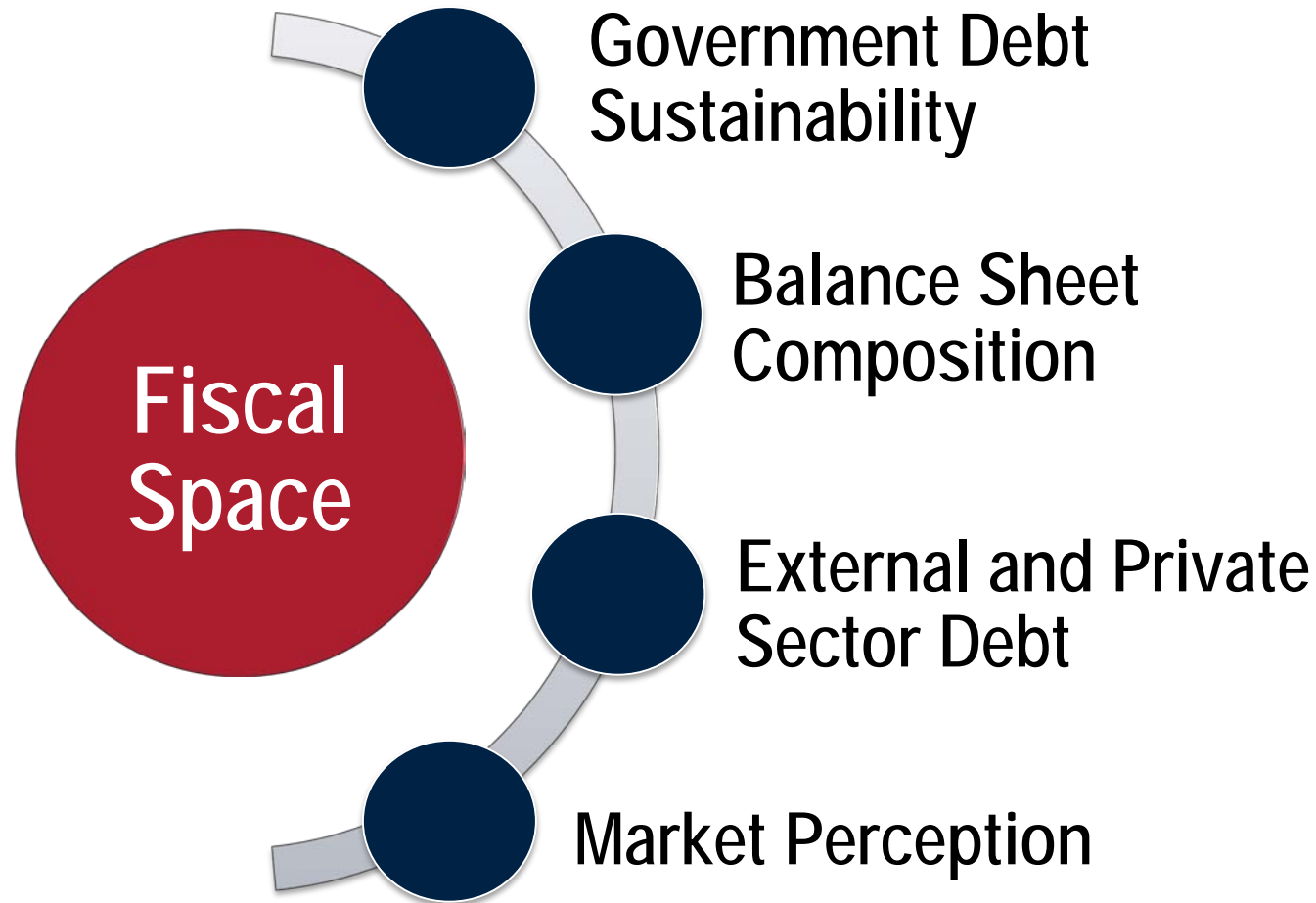
- 1 What is fiscal space? *Fiscal space is a government's ability to service its obligations. It has four distinct dimensions.*
- 2 Why is fiscal space a key challenge in EMDEs (Emerging Market and Developing Economies)? *It has narrowed over the past decade.*
- 3 What does narrower fiscal space mean for fiscal policy? *Fiscal stimulus is less effective.*

# Three Questions

1

What is fiscal space? *Fiscal space is government's ability to service its obligations. It has four distinct dimensions.*

# Fiscal Space: *Four Major Dimensions*



Source: Kose et al. (2017) "A Cross-Country Database of Fiscal Space."

Note: The database contains a total of 28 indicators: 12 indicators from Government Debt Sustainability showing the longer-run capacity of the government to finance its obligations (including general government gross debt, overall fiscal balance, and sustainability gaps); six indicators from Balance Sheet Composition showing the structure of sovereign debt (including the shares of government debt held by nonresidents and in foreign currency, and maturity of debt); eight indicators from External and Private Sector Debt showing the potential fiscal impact caused by liabilities in the external and private sectors, for example contingent liabilities (including external debt, short-term external debt, and credit to the private sector); and two indicators from Market Perception showing the ability of government to access capital market and roll over debt (sovereign CDS spreads and long-term sovereign debt ratings).

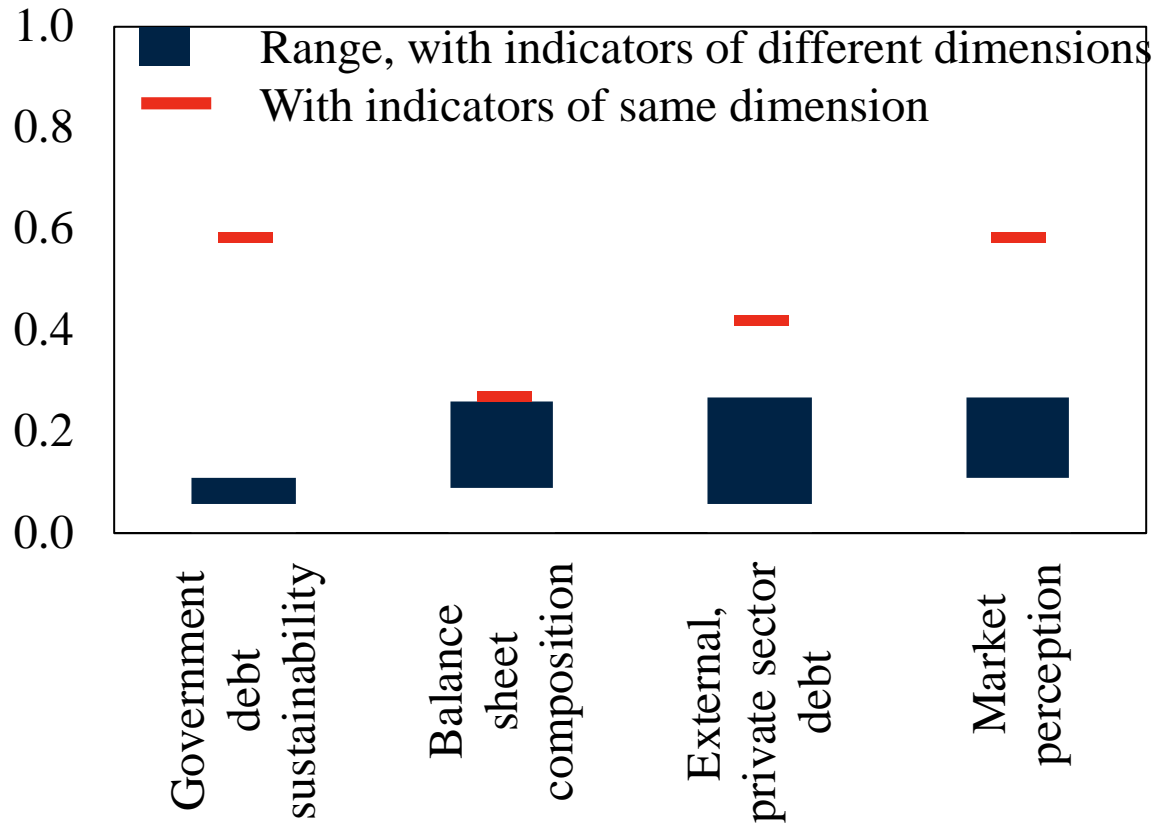
# Definition of Fiscal Space and Database:

## *Fiscal Space is the Ability of a Government to Service Its Debt*

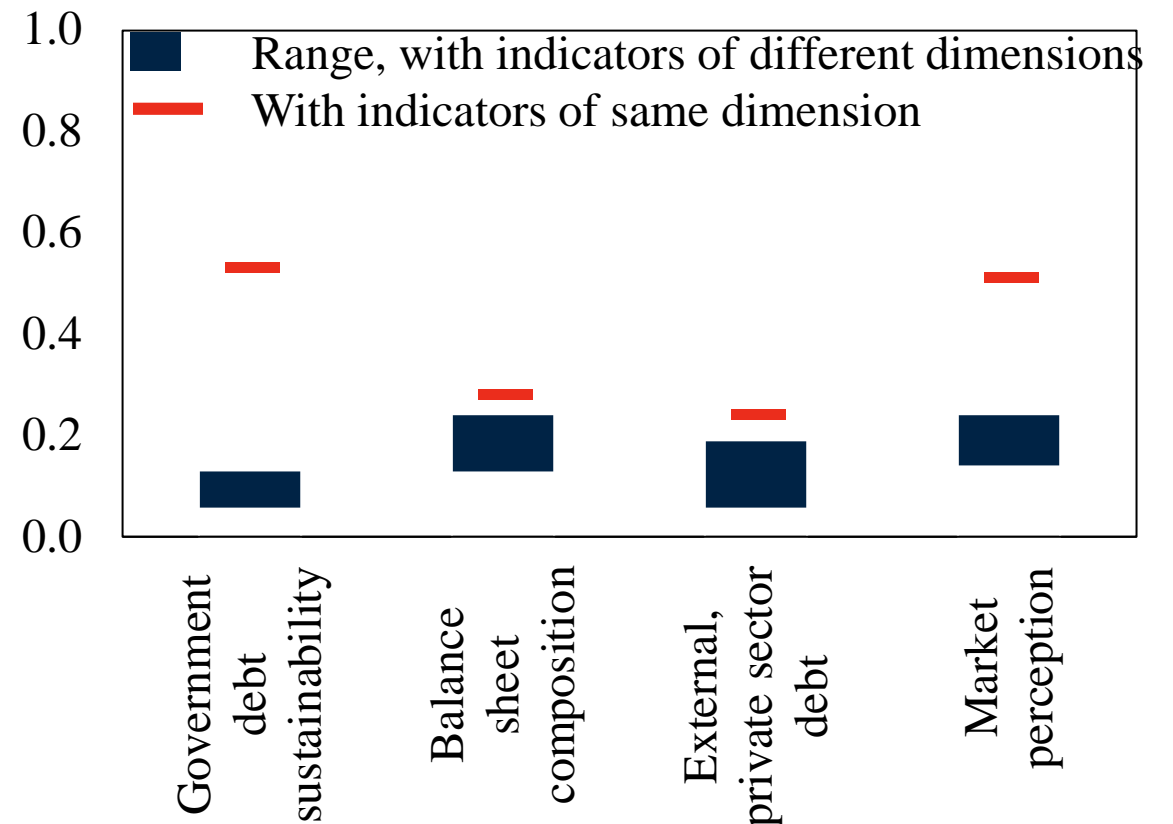
- **Country coverage:** 41 advanced economies, 159 EMDEs
- **Time coverage:** 1990-2017
- **28 indicators:**
  - 12 indicators of government debt sustainability (including general government gross debt, overall fiscal balance, and sustainability gaps);
  - 6 indicators of government debt composition (including the shares of government debt held by nonresidents and in foreign currency, and maturity of debt);
  - 8 indicators of external and private sector debt (including external debt, short-term external debt, and credit to the private sector);
  - 2 indicators of market perception (sovereign CDS spreads and long-term sovereign debt ratings).

# Fiscal Space: Four Major Dimensions

**Correlations of Indicators of Fiscal Space: All Countries**  
(Average correlation coefficients)



**Correlations of Indicators of Fiscal Space: EMDEs**  
(Average correlation coefficients)

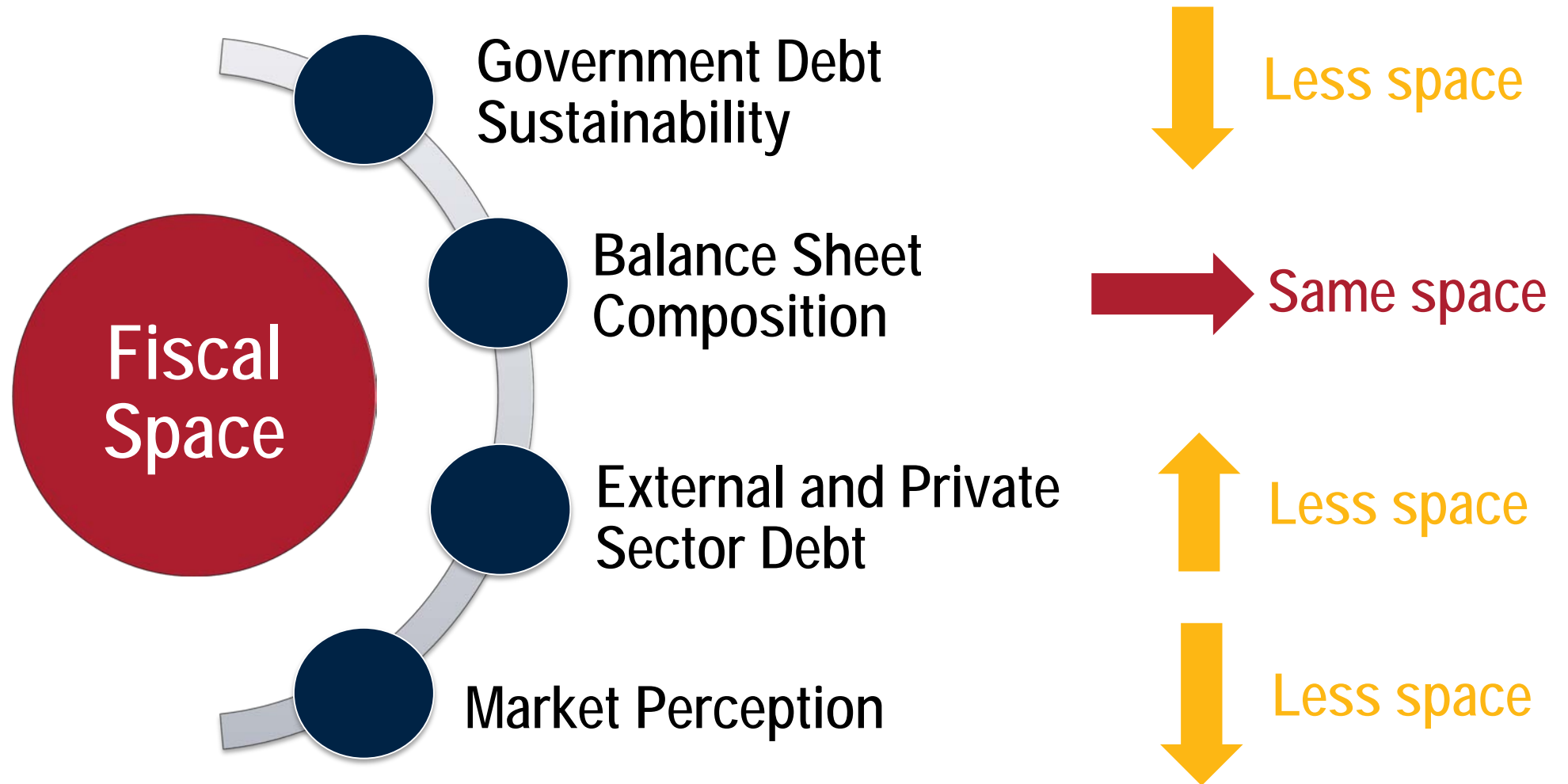


Source: Kose et al. (2017) "A Cross-Country Database of Fiscal Space."

Note: Correlations coefficients between different indicators of fiscal space, average within each dimension (red lines) and range of averages across dimensions (blue bars). From Table 3 of Kose et al. (2017).



# Fiscal Space in EMDEs: *Has Deteriorated in Multiple Dimensions since 2007*



Source: Kose et al. (2017) "A Cross-Country Database of Fiscal Space."

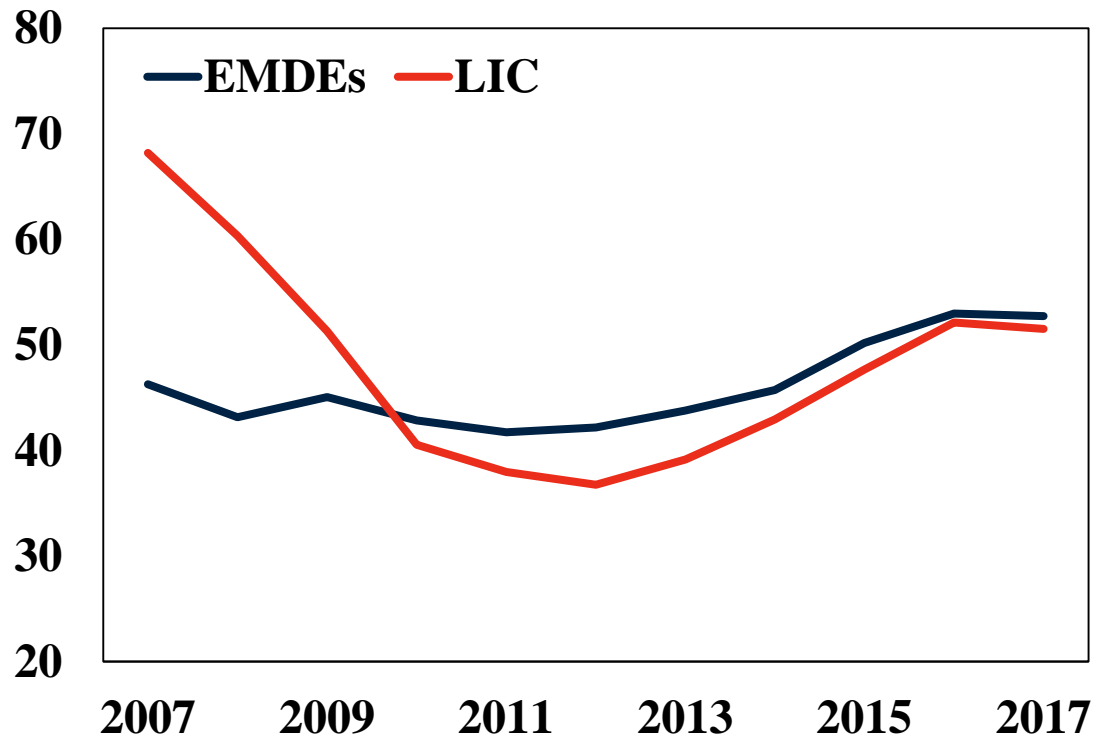
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# Three Questions

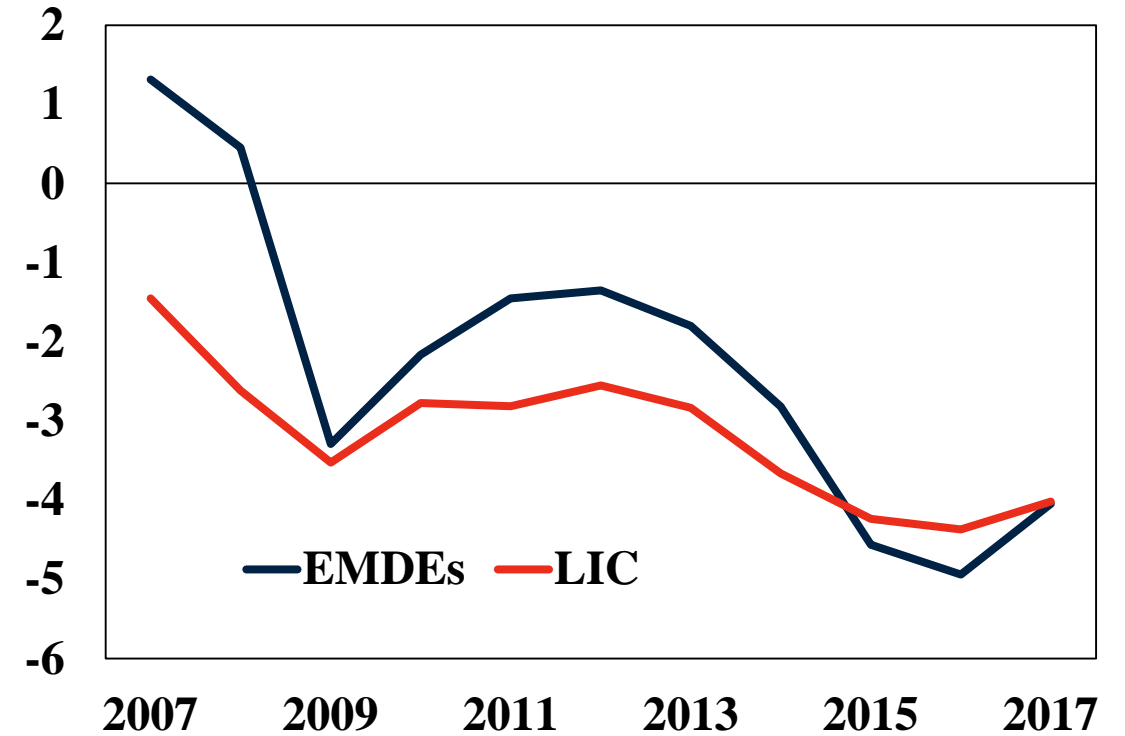
- 1 What is fiscal space? *Fiscal space is a government's ability to service its obligations. It has four distinct dimensions.*
- 2 Why is fiscal space a key challenge in EMDEs (Emerging Market and Developing Economies)? *It has narrowed over the past decade.*

# Government Debt and Deficits in EMDEs: *Deteriorated Over Past Decade*

**General government gross debt**  
*(Percent of GDP)*

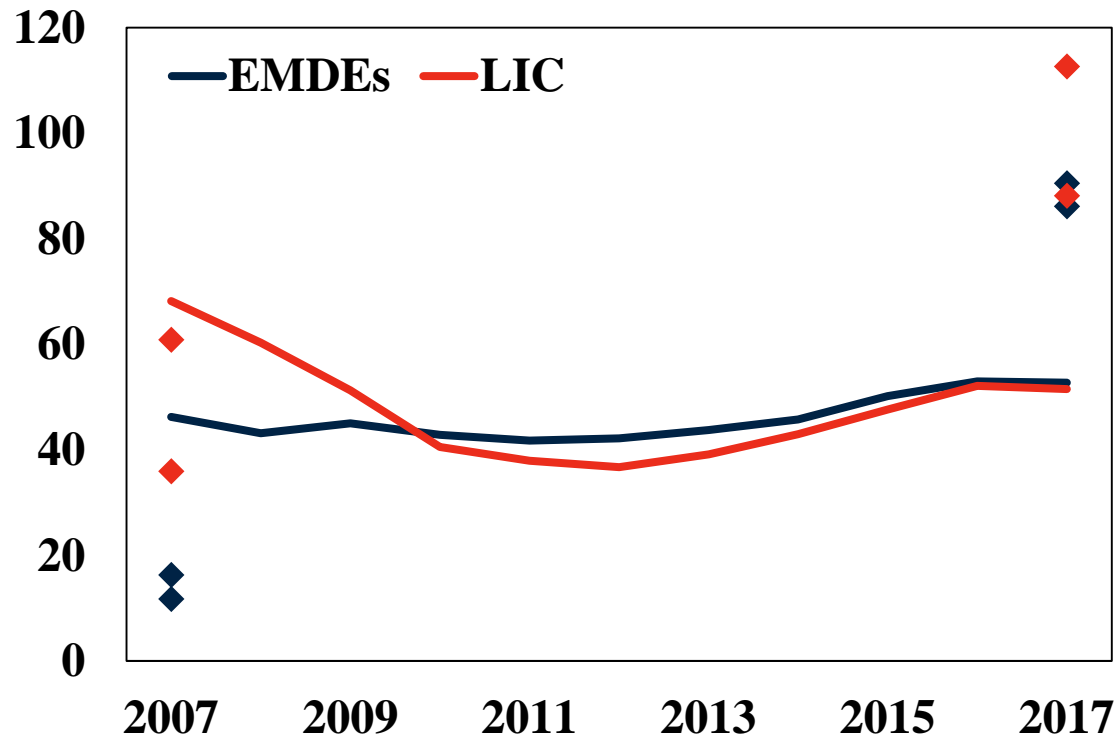


**Overall fiscal balance**  
*(Percent of GDP)*

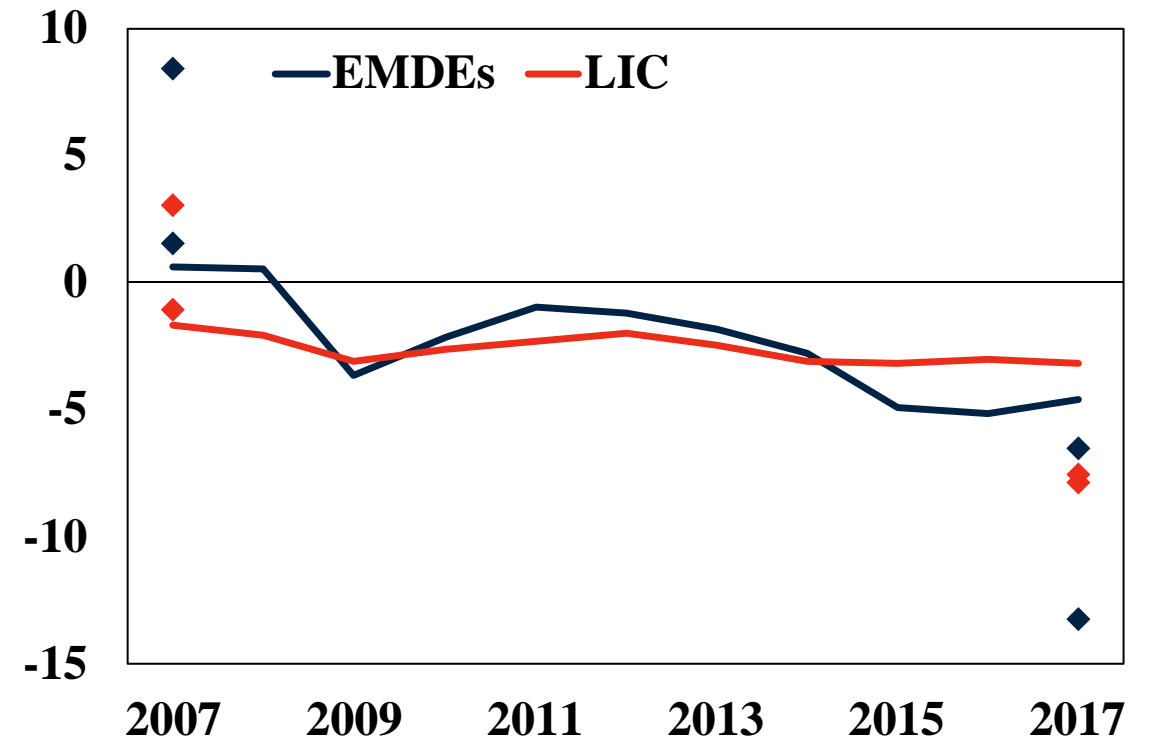


# Government Debt and Deficits in some EMDEs: *Especially in Some Countries*

**General government gross debt**  
*(Percent of GDP)*



**Overall fiscal balance**  
*(Percent of GDP)*

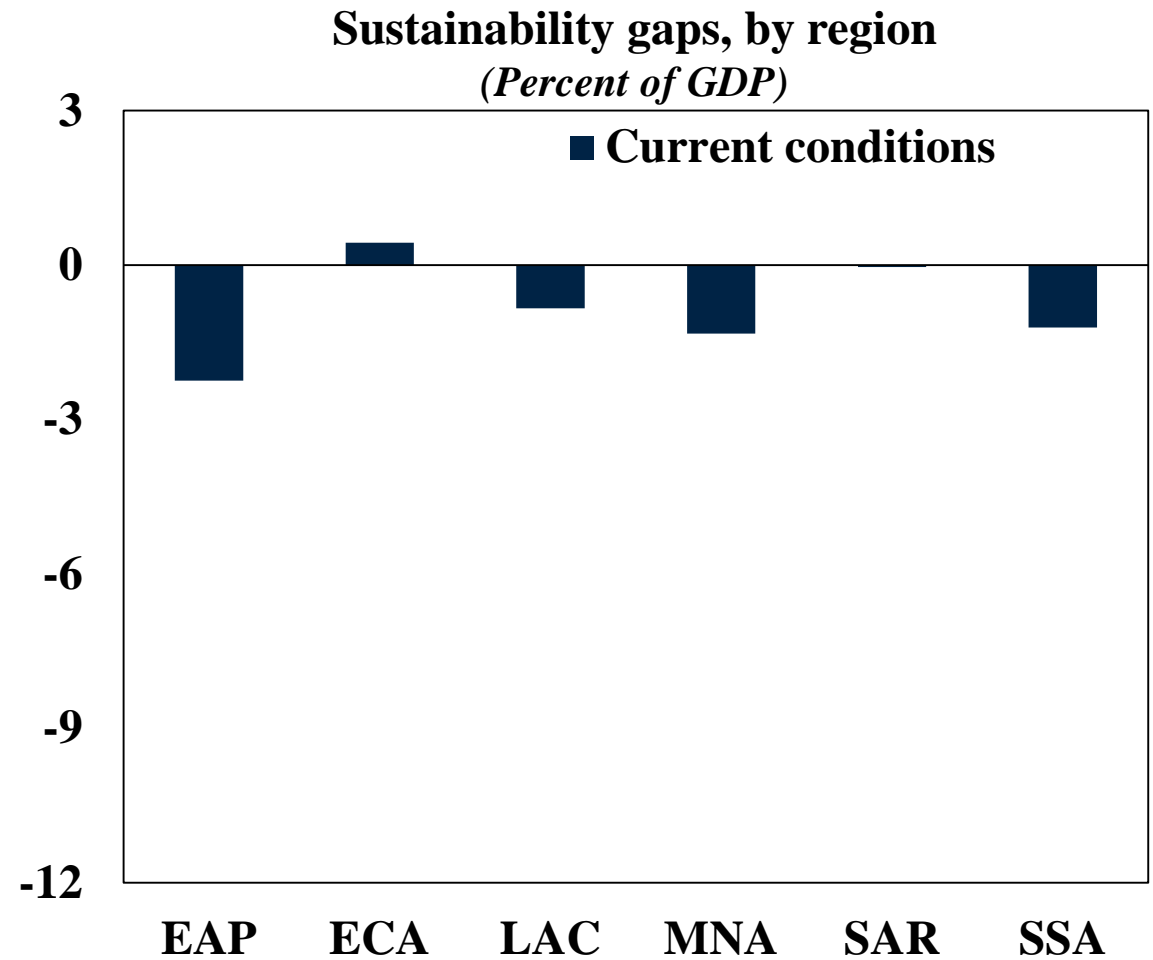
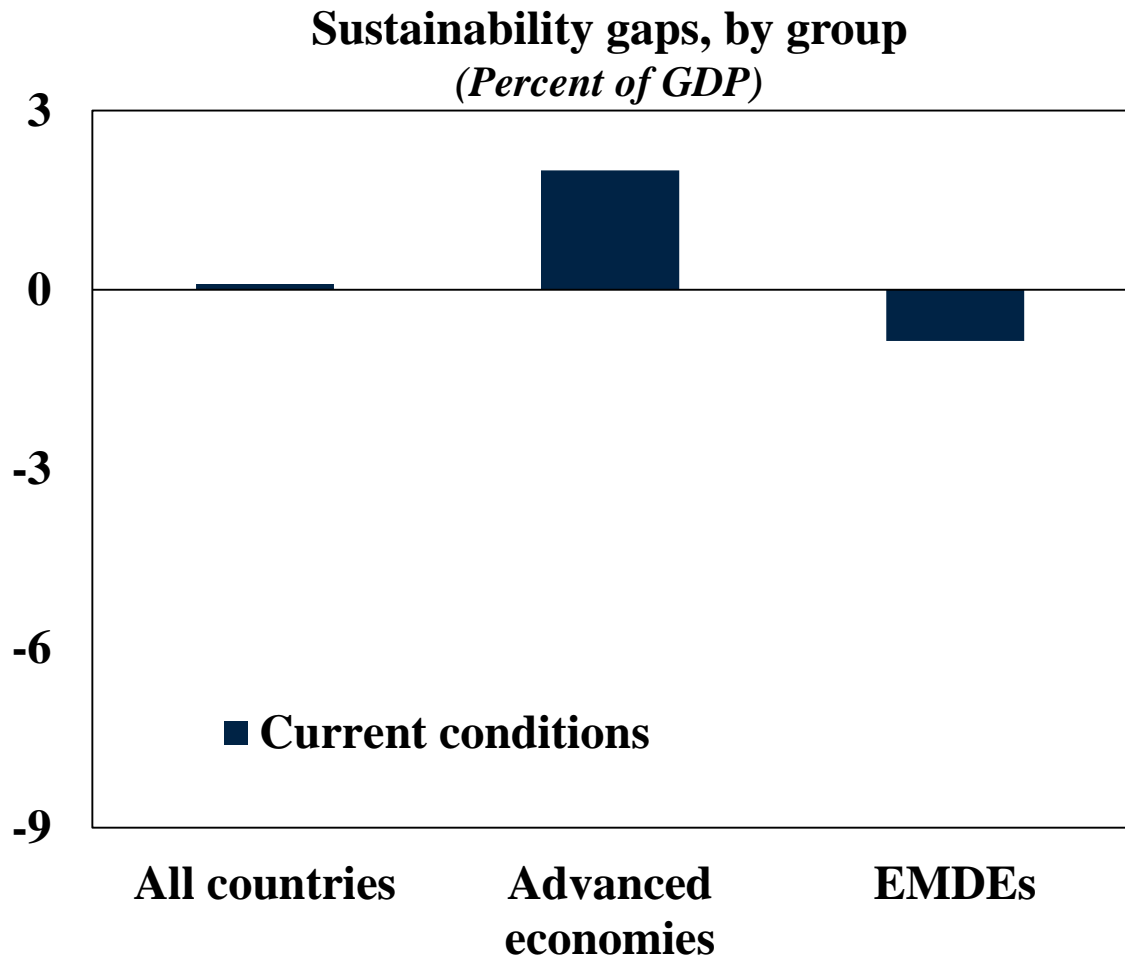


# Fiscal Sustainability Gap:

## *What Fiscal Consolidation Would Stabilize Debt?*

- A summary metric of government debt dynamics. Compares a country's fiscal balance with the balance that stabilizes government debt at a level (under different assumptions of output growth, long-term interest rate, and target debt level).
- Assumptions of output growth and interest rate (median debt by country group as a target):
  - Historical conditions: Median
  - Stressed conditions: Growth: Median - one standard deviation; Interest rate: Median + one standard deviation
- A positive (negative) gap implies that government debt will go below (above) the target debt level if the gap is sustained.

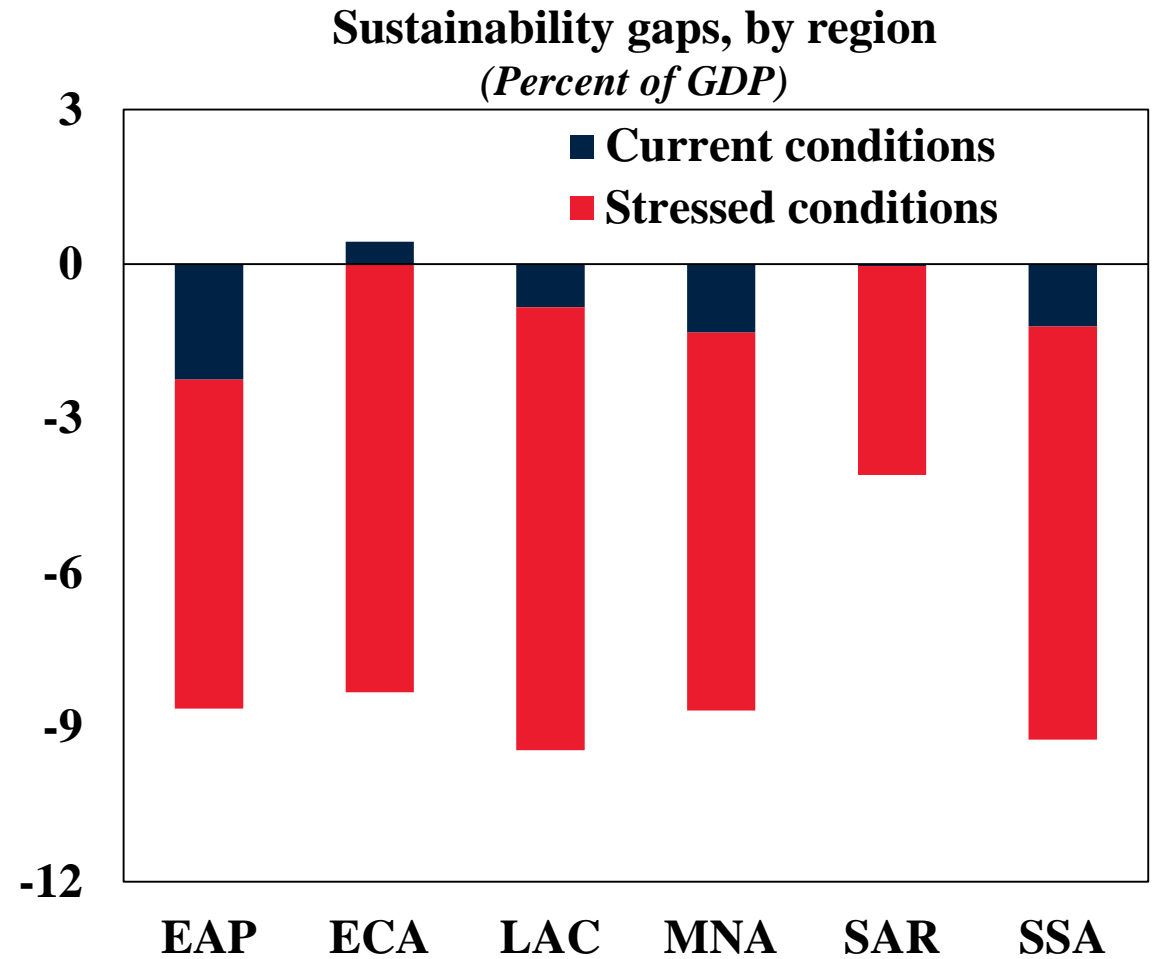
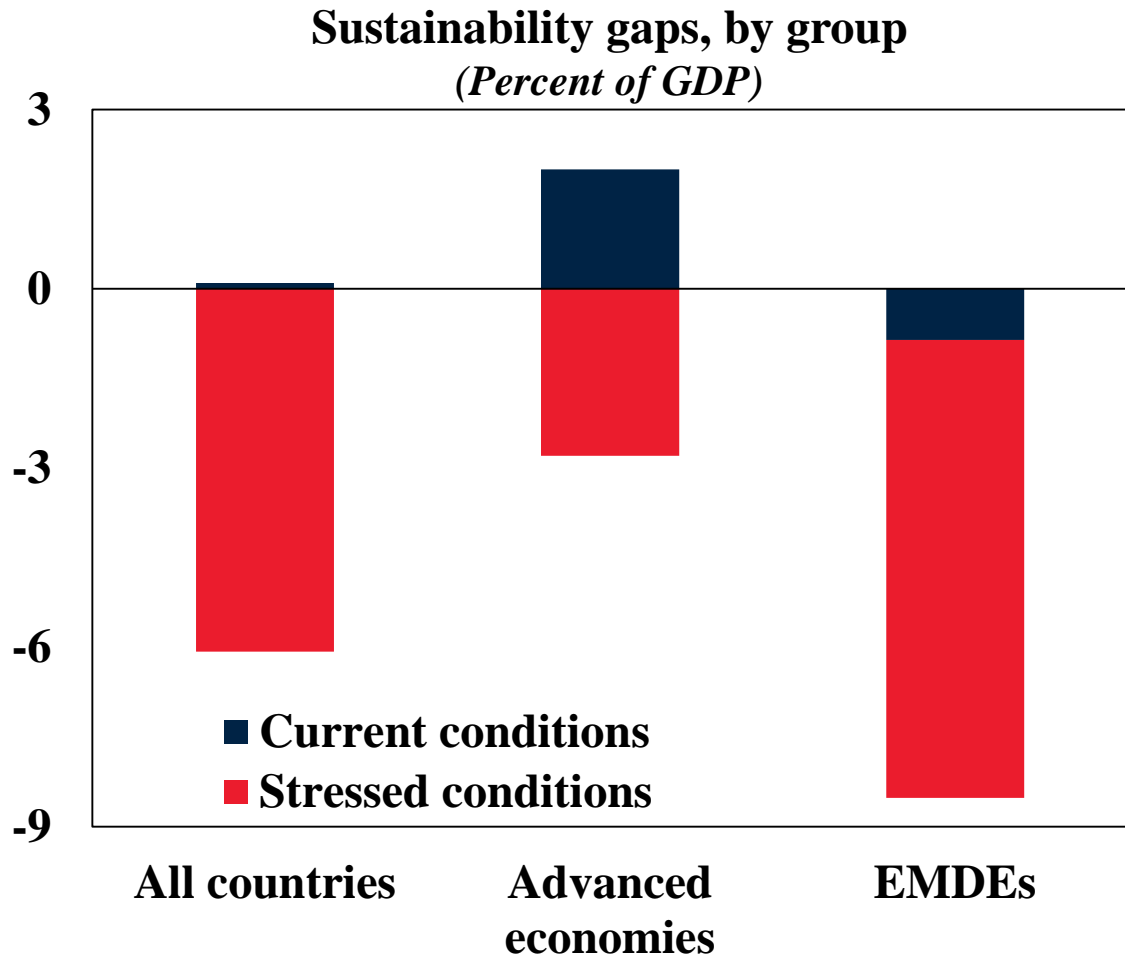
# Sustainability Gaps: *Obvious Need for Improvements in Fiscal Balances*



Source: Kose et al. (2017).

Note: Simple average of latest data (for 2017) by country group. A sustainability gap is defined as the difference between the actual fiscal balance and the debt-stabilizing balance that captures cumulative impact of sustained fiscal balance on debt stocks. A sustainability gap under “current conditions” is based on contemporaneous growth and interest rates. Under “stressed conditions” it is assumed that output growth is one standard deviation lower and interest rate is one standard deviation higher in computing a debt-stabilizing balance. Left Panel. Based on 107 countries (35 advanced economies and 72 EMDEs). Right Panel. Based on 10 countries, 14 countries, 20 countries, 8 countries, 5 countries, and 15 countries in East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and North Africa (MNA), South Asia (SAR), and Sub-Saharan Africa (SSA), respectively.

# Sustainability Gaps: *Obvious Need for Improvements in Fiscal Balances*



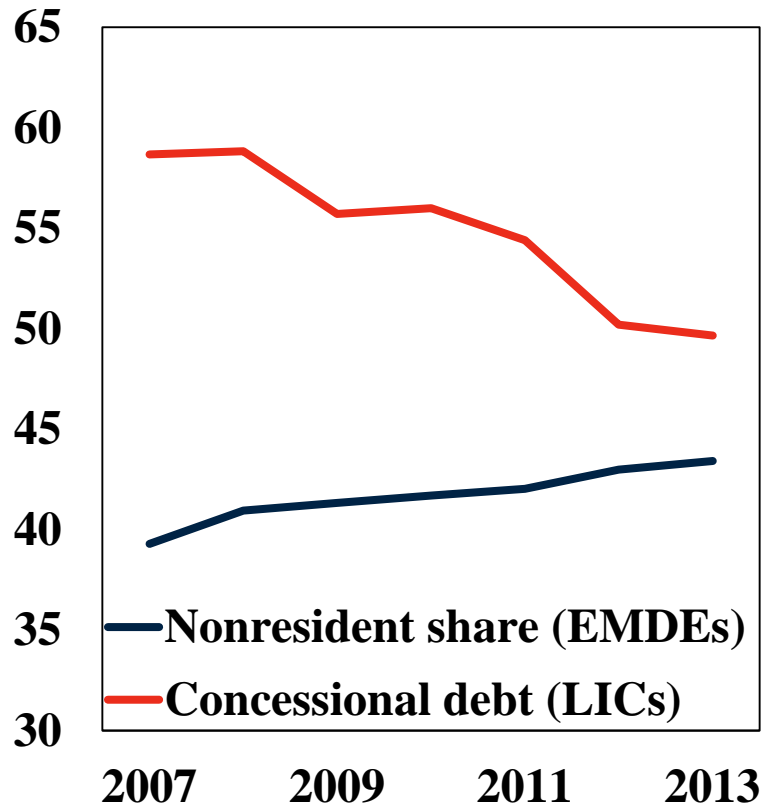
Source: Kose et al. (2017).

Note: Simple average of latest data (for 2017) by country group. A sustainability gap is defined as the difference between the actual fiscal balance and the debt-stabilizing balance that captures cumulative impact of sustained fiscal balance on debt stocks. A sustainability gap under “current conditions” is based on contemporaneous growth and interest rates. Under “stressed conditions” it is assumed that output growth is one standard deviation lower and interest rate is one standard deviation higher in computing a debt-stabilizing balance. Left Panel. Based on 107 countries (35 advanced economies and 72 EMDEs). Right Panel. Based on 10 countries, 14 countries, 20 countries, 8 countries, 5 countries, and 15 countries in East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and North Africa (MNA), South Asia (SAR), and Sub-Saharan Africa (SSA), respectively.

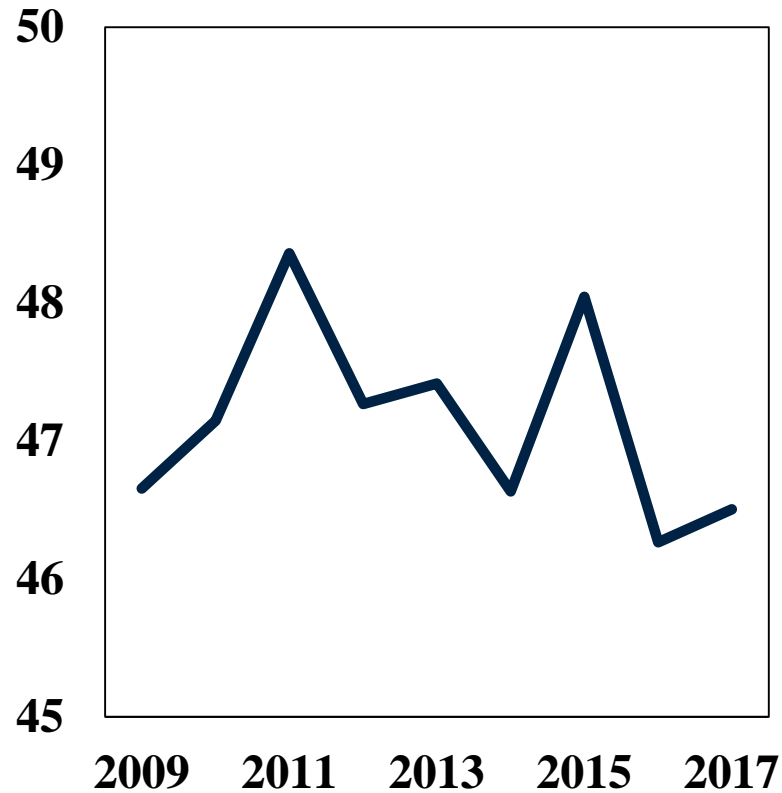
# EMDE Balance Sheet Composition:

*Weakened in Some Aspects, Improved in Others over Past Decade*

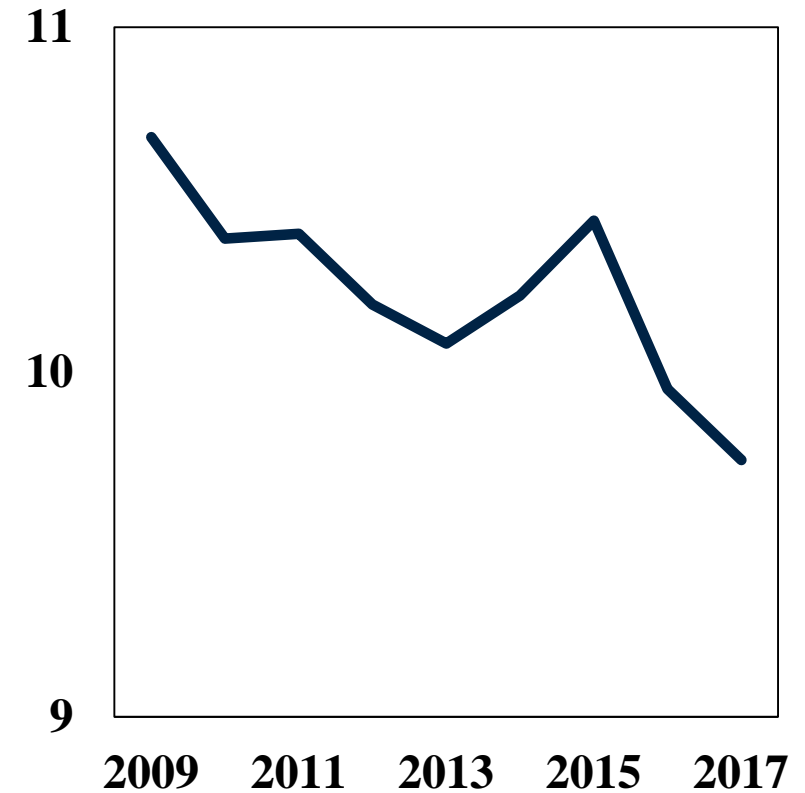
**Government debt held by nonresidents,  
Concessional debt**  
(Percent of government debt)



**Government debt in foreign currency**  
(Percent of government debt)



**Sovereign debt average maturity**  
(Years)

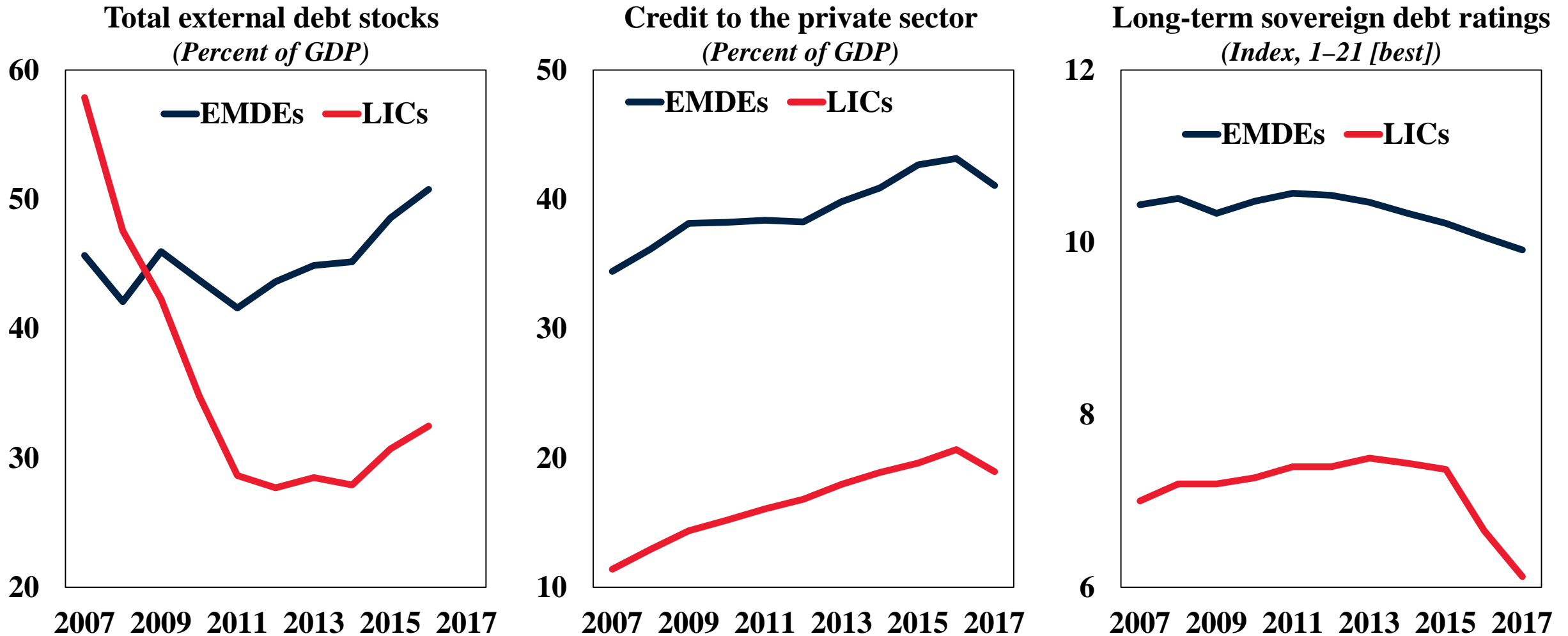


Source: Kose et al. (2017).

Note: Simple average of EMDEs. Data for 2017 are year-to-date. Left Panel. Data are for general government in all countries but Kenya and Uganda (public sector). Based on 35 economies. Center Panel. Data are for general government in all countries but Kenya and Uganda (public sector). Based on 16 economies. Right Panel. Average maturity (average time of principal repayment) of sovereign and quasi-sovereign instruments denominated in U.S. dollars. Based on 36 economies.



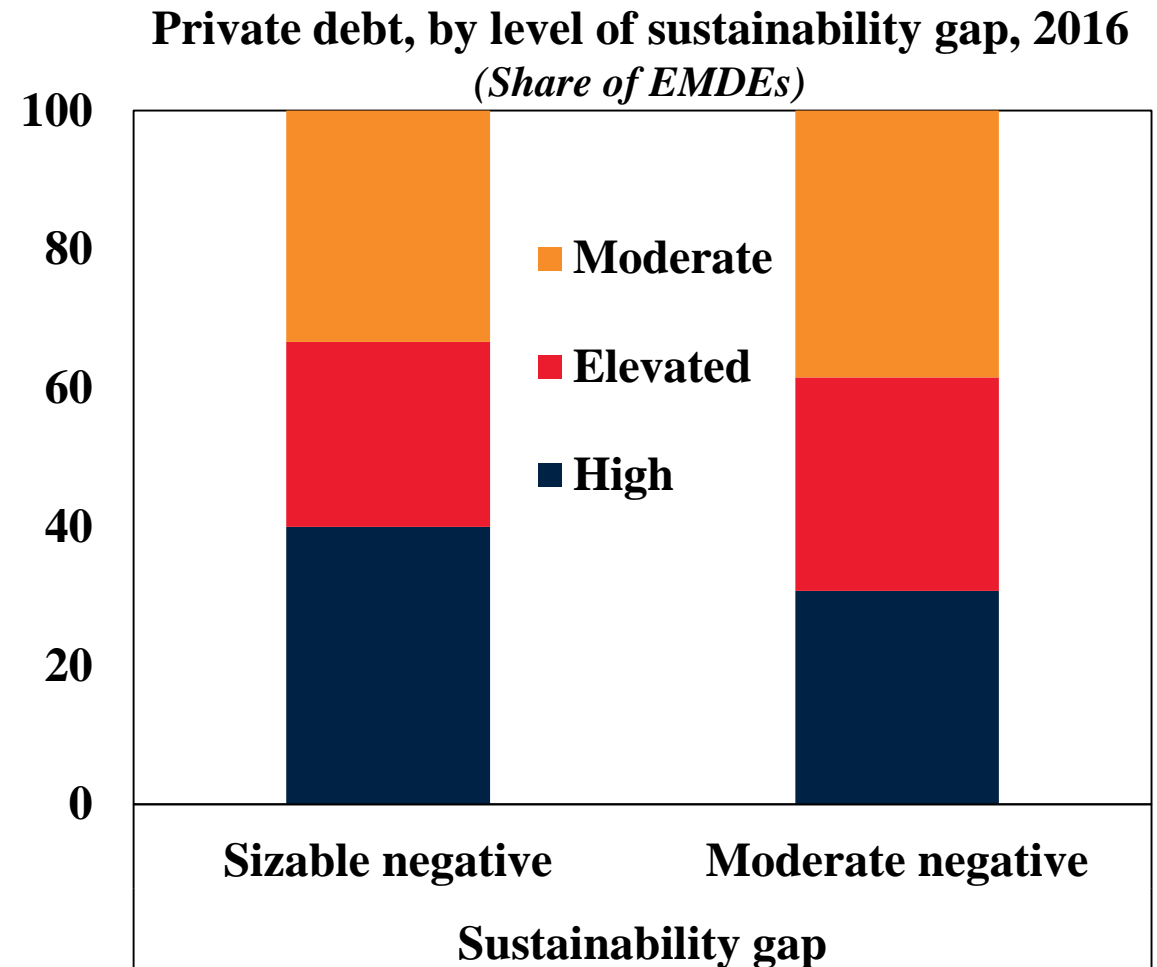
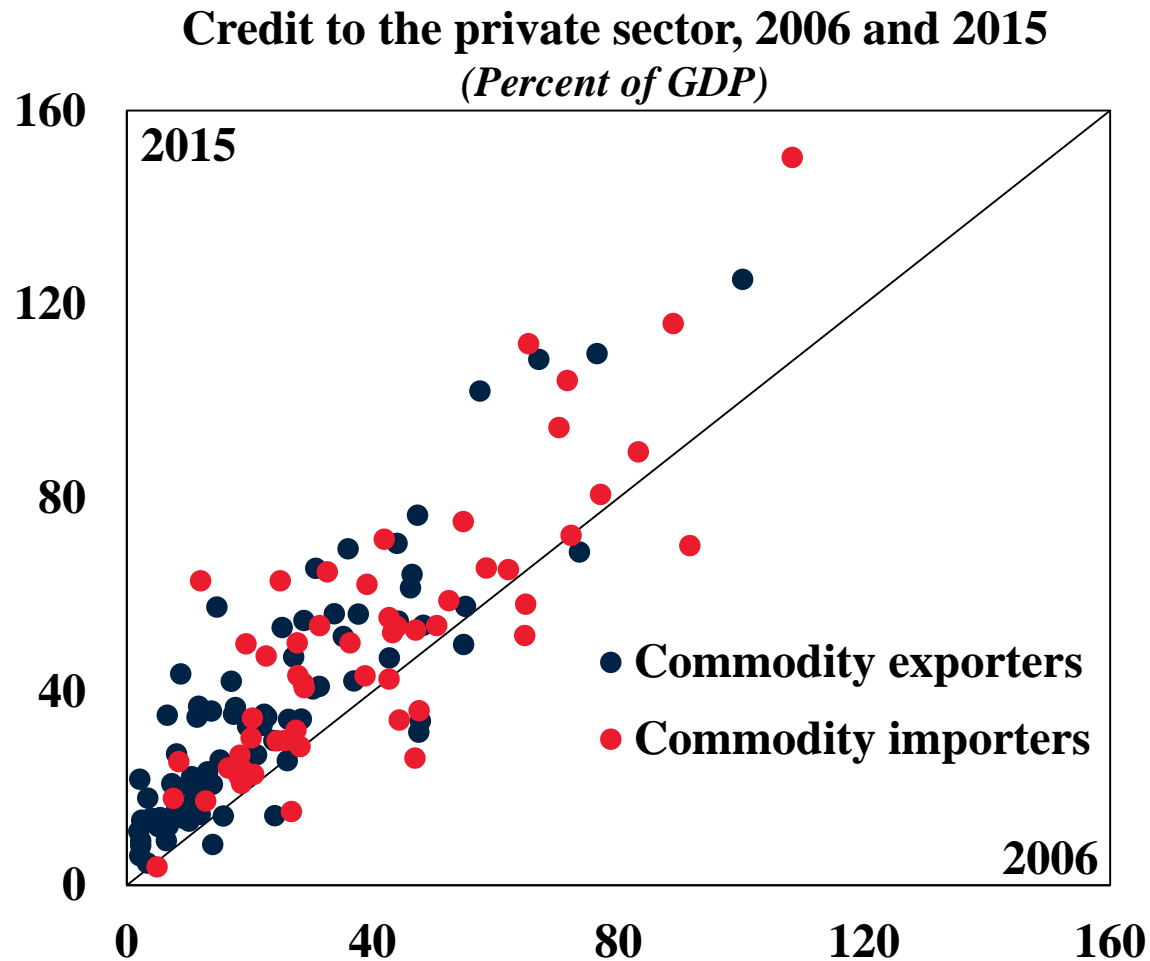
# EMDE External Debt, Private Debt and Market Perception: *Deteriorated over Past Decade*



Source: Kose et al. (2017).

Note: Simple average of respective country groups. Data for 2017 are year-to-date. LICs (low-income countries) are as classified by the World Bank in June 2017. Left Panel. Based on 127 EMDEs and 28 LICs. Center Panel. Domestic credit to the non-financial private sector provided by commercial banks and, if data are available, by other financial corporations. Based on 123 EMDEs and 21 LICs. Right Panel. Averages of foreign-currency long-term sovereign debt ratings by Moody's, Standard & Poor's, and Fitch Ratings. Each rating is first converted to a numerical scale ranging from 1 to 21 (higher, better rating). The scores below 12 are the non-investment grades. Based on 89 EMDEs and 5 LICs.

# Private and Public Debt: Dimensions of Fiscal Space Amplify Each Other

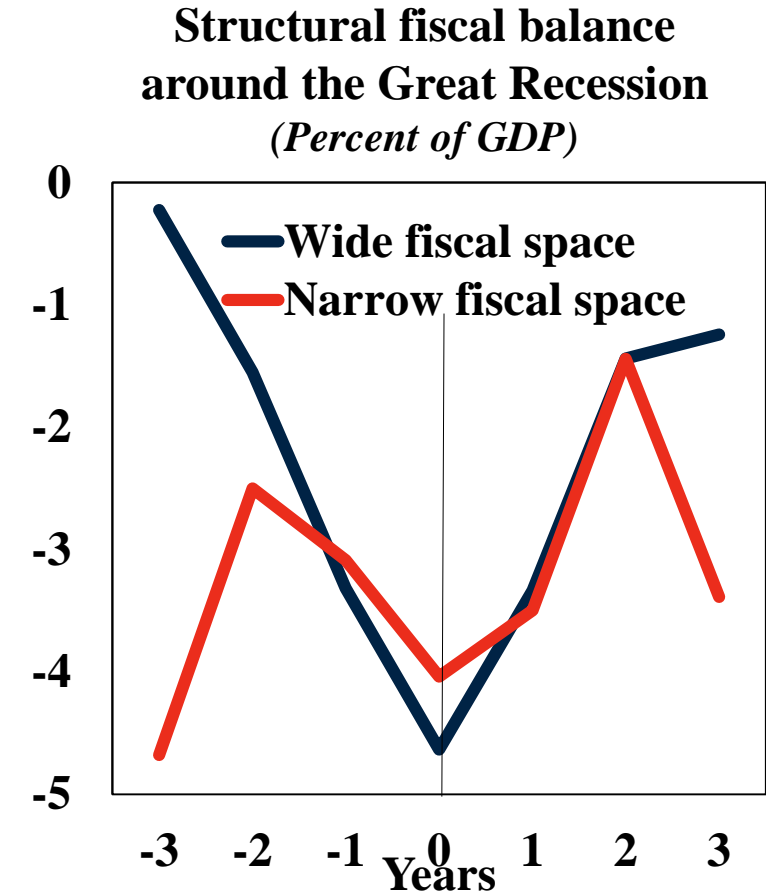
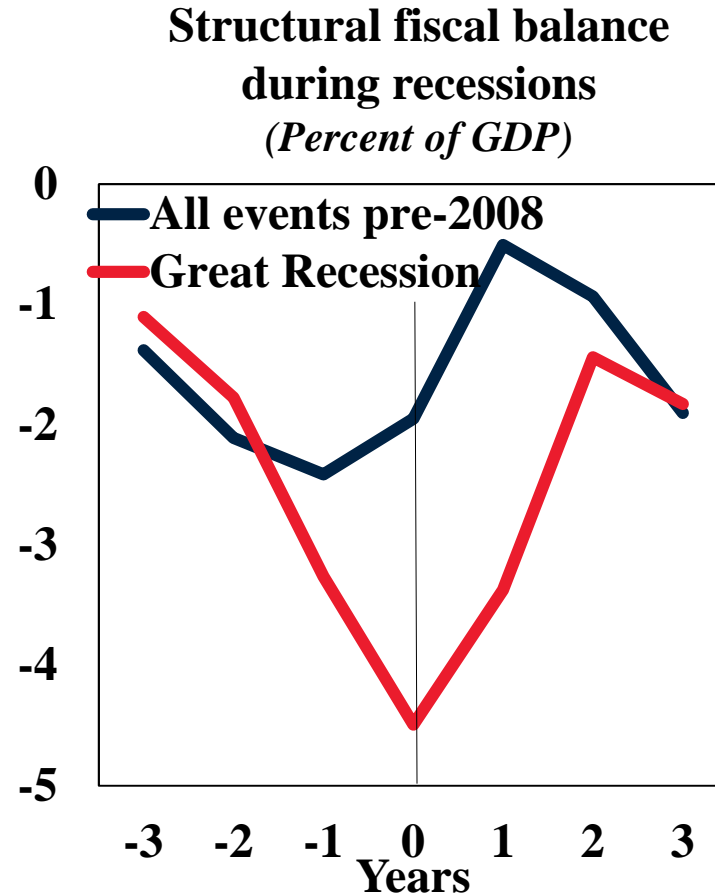
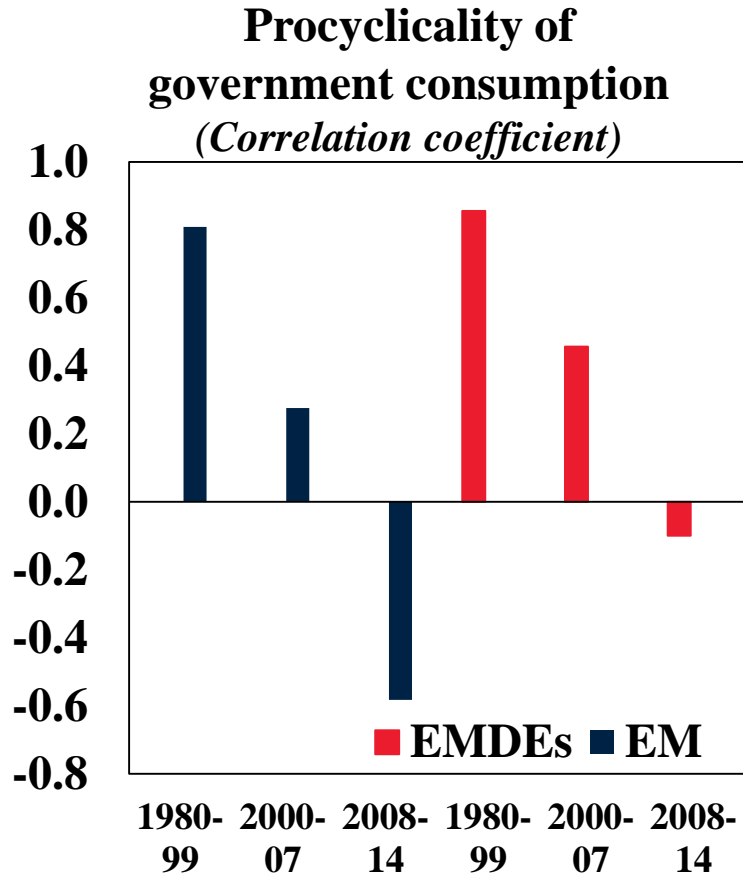


Sources: International Monetary Fund, World Bank.

Left Panel. Credit to the private sector in percent of GDP in 2006 on the horizontal axis and in 2015 on the vertical axis. Right Panel. Share of EMDEs with respective levels of private debt out of those with “sizable negative” or “moderate negative” sustainability gaps. A sustainability gap is defined as the difference between the actual fiscal balance and the debt-stabilizing balance. Sample includes 70 EMDEs where data on sustainability gaps and private debt are available in 2016. Sustainability gaps are considered to be “sizable negative” when negative gaps are in excess of 1 percent of GDP and “moderate negative” when negative gaps are below 1 percent of GDP. “High” private debt is defined as private sector credit in the top quartile of the distribution among 70 EMDEs during 2000-16 (53 percent of GDP). “Elevated” private debt is defined as private sector credit in the second highest quartile (32–53 percent of GDP).

# Why Has Fiscal Space Narrowed in EMDEs?

## *Because of More Countercyclical Fiscal Policy ...*

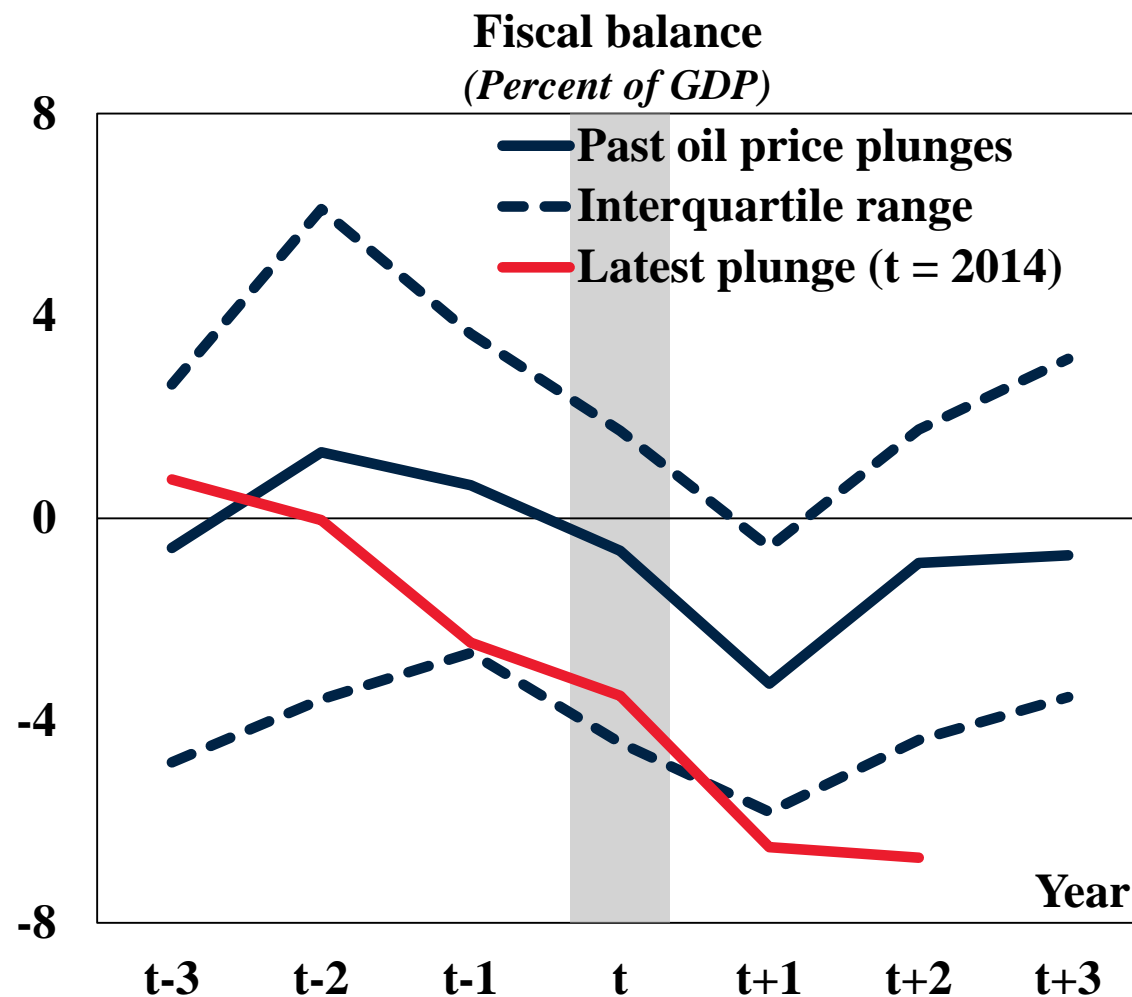
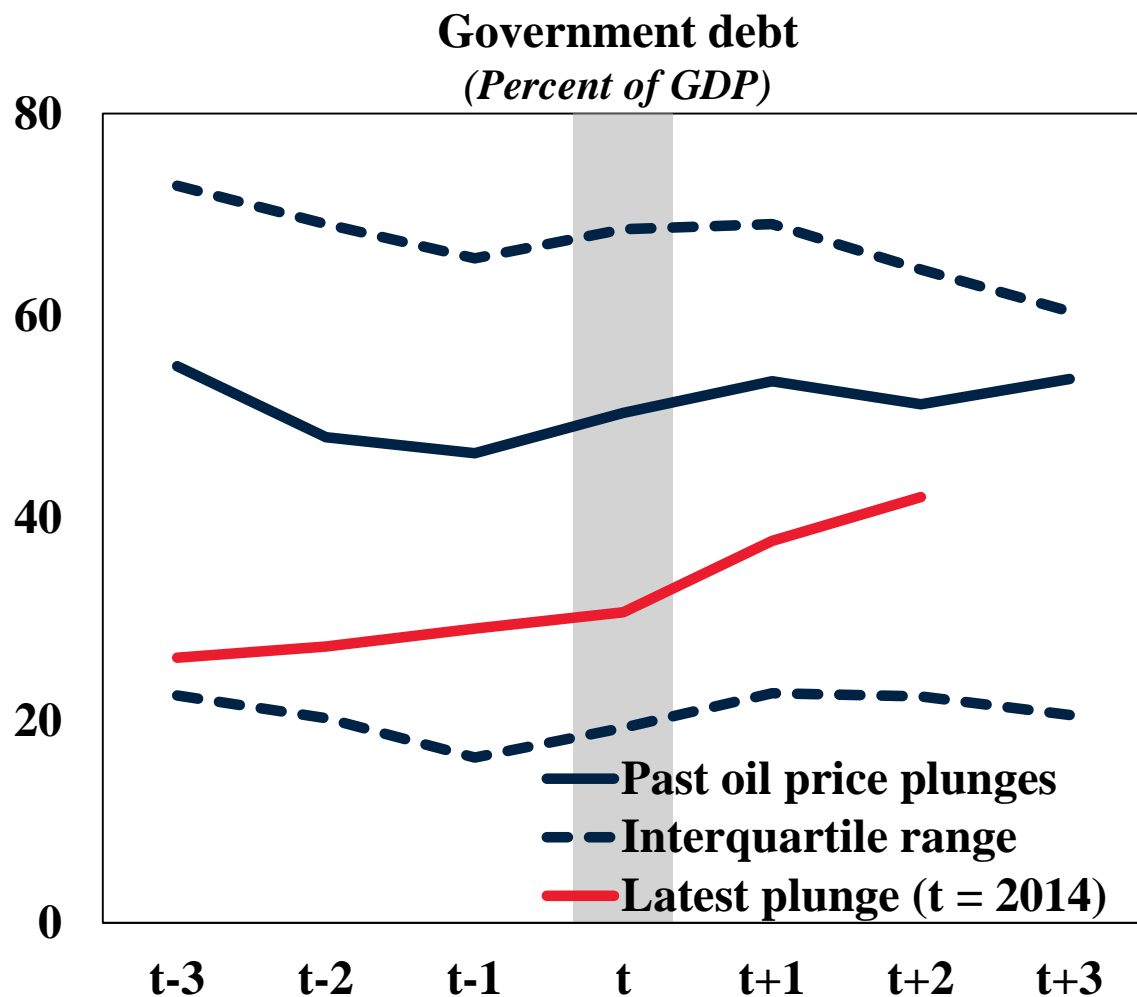


Sources: Huidrom, Kose and Ohnsorge (2016), World Bank.

Left panel: Correlations between the cyclical components of government consumption and GDP from an unbalanced panel of annual data for 60 EMDEs, including 31 emerging markets (EM) with global financial market access. All correlations are statistically significantly different from zero and differences in correlations across time are also statistically significant. Positive (negative) correlations suggest procyclical (countercyclical) fiscal policy. Center panel: 't=0' is the year of the trough of the contraction episode. All variables refer to the unweighted sample mean. The structural balance is defined as the difference between cyclically adjusted revenues and cyclically adjusted expenditures. Right panel: 't=0' is the year of the trough of the contraction episode. All variables refer to the unweighted sample mean. These results are based on the data sample of the event study which includes the 21 EMDEs that experienced contractions during the 2008-09. The median debt-to-GDP ratio in the full sample of 107 EMDEs is 44 percent. Countries with debt-to-GDP ratios above the median are considered to have narrow fiscal space, while those with debt-to-GDP ratios below the median are considered to have wide fiscal space.

# Why Has Fiscal Space Narrowed in EMDE Oil Exporters?

## ... And The Oil Price Plunge



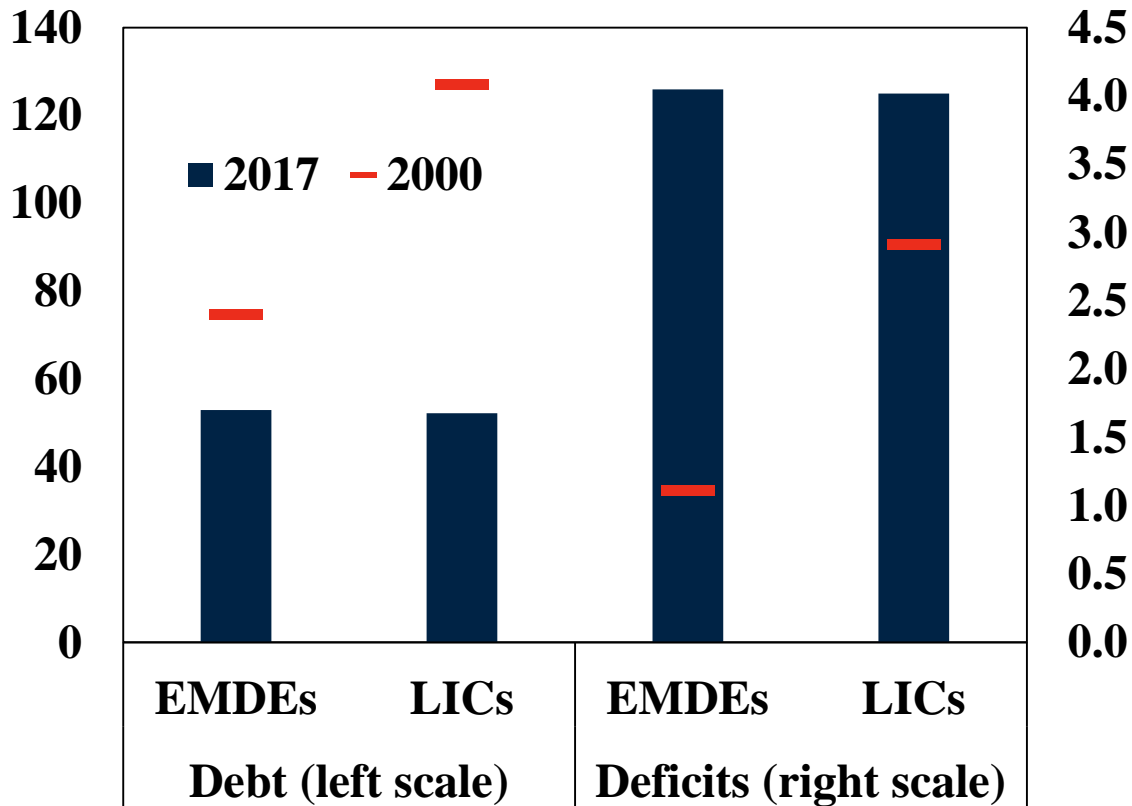
Sources: International Monetary Fund, World Bank.

Note: Past oil price plunges include collapses in global oil prices in 1991, 1998, 2001, and 2008, as identified in the June 2015 *Global Economic Prospects*. Simple averages, based on 36 EMDE oil exporters. Government debt refers to liabilities that require payments of interest and principal by governments and includes, for example, debt liabilities in the form of currency and deposits, debt securities, and loans. It is for general government; therefore, all transactions among government entities are consolidated.

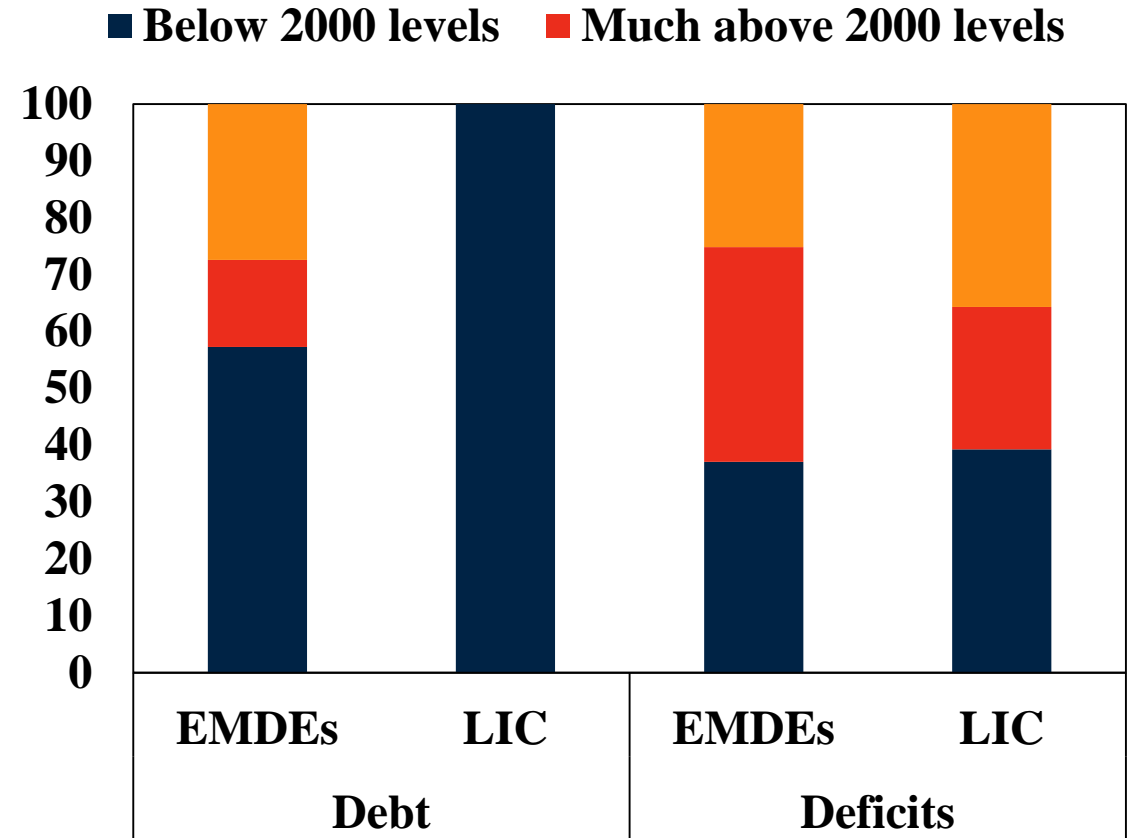
# EMDE Government Debt and Deficits in Historical Context:

## *Debt Still Lower, But Deficits Much Wider*

**General government debt and deficits**  
(Percent of GDP)

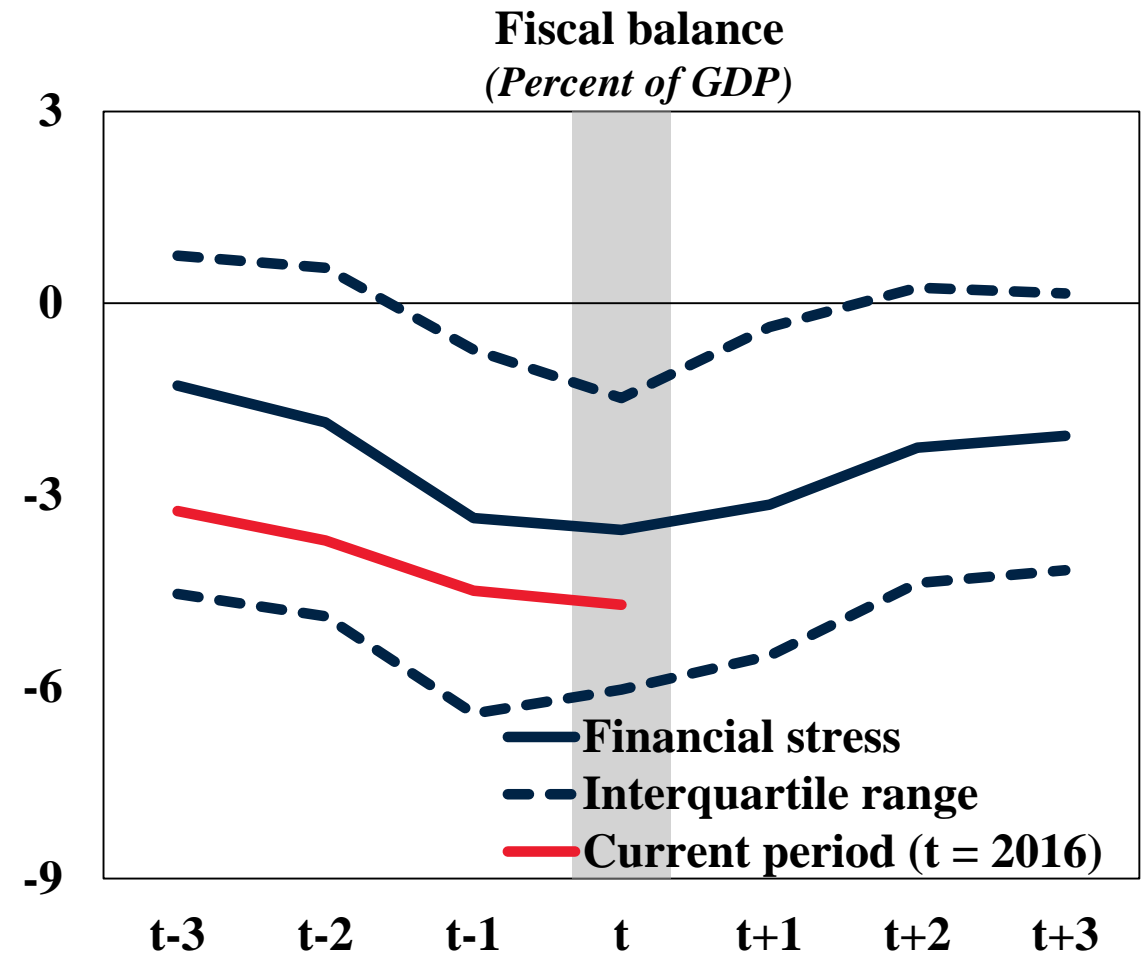
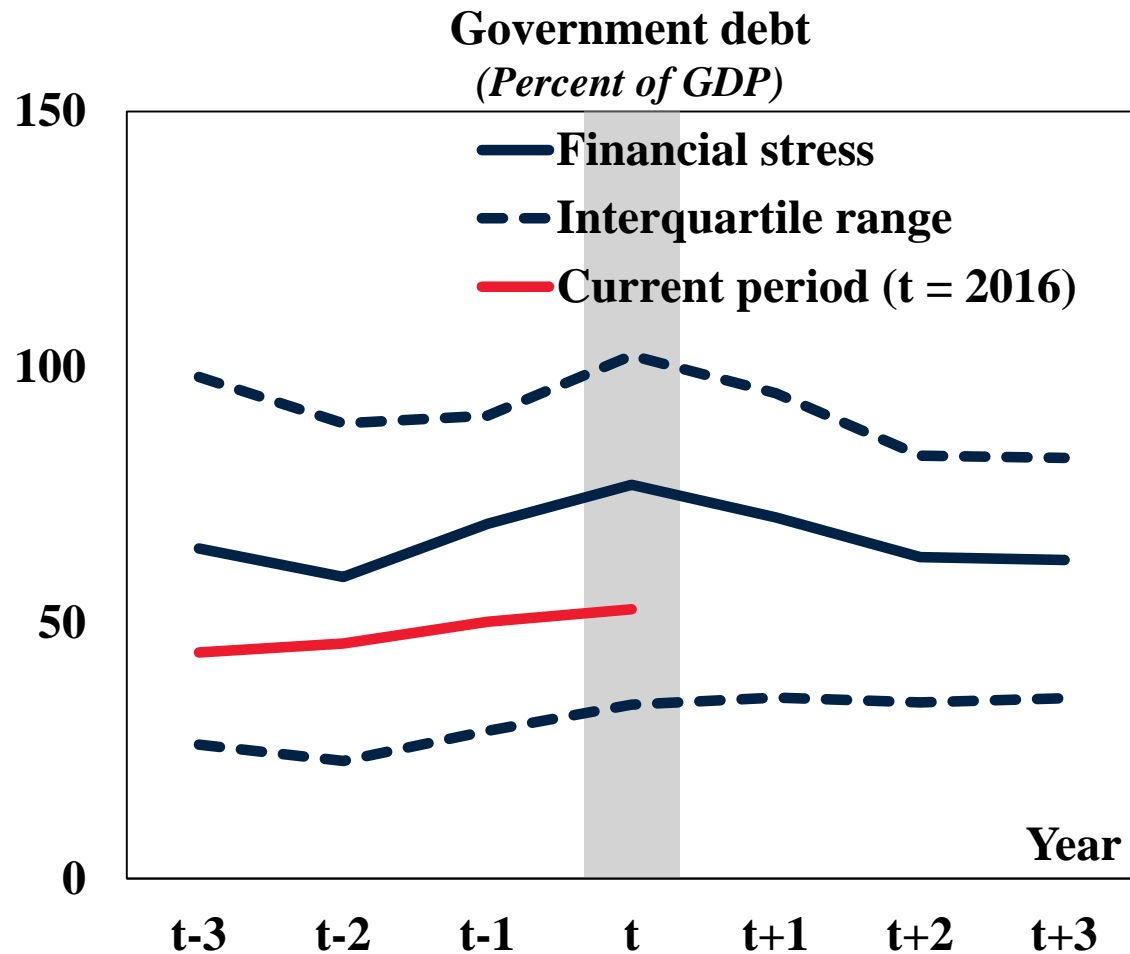


**General government debt and deficits in 2017**  
(Percent of countries)



Left panel: Simple averages. LIC includes 21 economies with available data in 2000 and 2017. Red bars are for 2000 (government debt) or for the 2000-06 average (fiscal deficits). Right panel: Share of EMDEs and share of LICs with government debt in percent of GDP in 2017 below levels in 2000 (“Below 2000 levels”) or 20 percentage points of GDP above levels in 2000 (“Much above 2000 levels”). Share of EMDEs and share of LICs with fiscal deficits in percent of GDP in 2017 below levels in 2000 (“Below 2000 levels”) or 3 percentage points of GDP above average levels in 2000-06 (“Much above 2000 levels”). Orange bars denote the remainder.

# EMDE Government Debt and Deficits in Historical Context: Somewhat Weaker Now than on the Eve of Previous Financial Crises



Sources: International Monetary Fund, World Bank.

Note: Unweighted averages. The dashed blue lines show interquartile ranges. Financial crises include all three types of crises: banking, currency, and debt crises. The red line is shown for reference and based on all EMDEs, although it is not a crisis episode. Crisis episodes are taken from Gourinchas and Obstfeld (2012) and Laeven and Valencia (2013). In any country, when consecutive crises are identified within the next five years, the one associated with the lowest real GDP growth is used. Left Panel. Government debt refers to liabilities that require payments of interest and principal by governments and includes, for example, debt liabilities in the form of currency and deposits, debt securities, and loans. It is for general government, and therefore, all transactions among government entities are consolidated.

# Three Questions

- 1 What is fiscal space? *Fiscal space is a government's ability to service its obligations. It has four distinct dimensions.*
- 2 Why is fiscal space a key challenge in EMDEs (Emerging Market and Developing Economies)? *Fiscal space has narrowed over the past decade in most dimensions.*
- 3 What does narrower fiscal space mean for fiscal policy? *Fiscal stimulus is less effective.*

# How Effective is Fiscal Policy?

## *The Size of the Fiscal Multiplier*

1\$ increase in  
spending

**Multiplier**



Change in  
output?

$$Y = C + I + G + NX$$

Why  $\Delta G \neq \Delta Y$ ? Because C,  
I, NX also respond to  $\Delta G$



# Large Literature on Fiscal Multipliers: *Wide Range of Estimates*

- **Unconditional multipliers.** A lot of research... But magnitudes range widely (-1.1 to +3.8)
- **Conditional multipliers.** Multipliers depend on circumstances.

## Country-specific features

Trade openness	Open economies (-0.5) < closed economies (+1.1)
Exchange rate regimes	Flexible exchange rate regimes (-0.7) < fixed exchange rate regimes (+1.4)

## Economic conditions

Business cycle	Expansions (-1.1) < recessions (+3.8)
Fiscal space	Little fiscal space (-3) < ample fiscal space (+0.7)

## Fiscal instrument

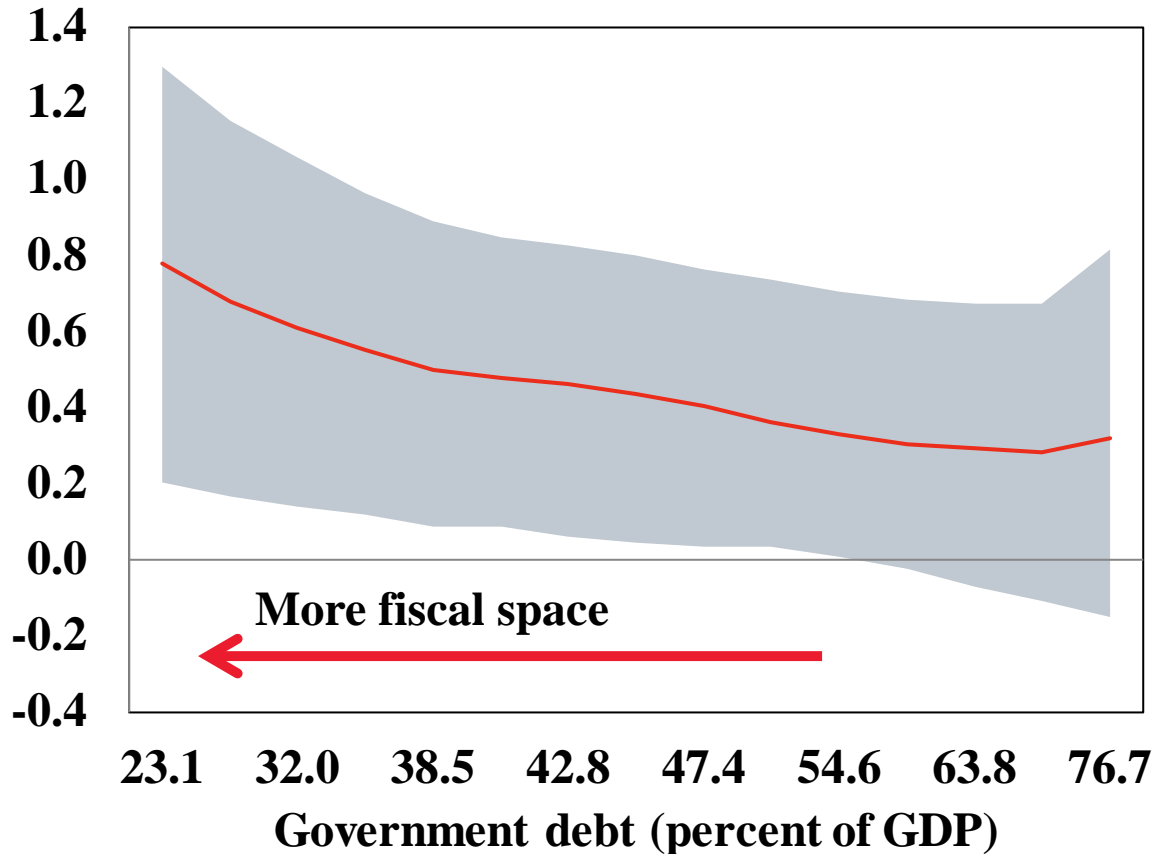
Revenues versus expenditures	Revenues (+0.3 to +0.6) < spending (+0.3 to +1.8)
Investment, consumption and transfers	Non-investment spending (+0.3 to +1) < investment spending (+0.5 to +1.8)

Sources: A review of the large literature to 2009 is provided in Spilimbergo, Symansky and Schindler (2009). Since then, fiscal multipliers have been estimated in Ilzetzi, Mendoza, and Vegh (2013); Auerbach and Gorodnichenko (2012 and 2013); Nickell and Tudyka (2014); Auerbach and Gorodnichenko (2017); Riera-Crichton, Vegh and Vuletin (2014); Corsetti et al. (2012 and 2013); , Gali, Lopez-Salido and Valles (2007); and Huidrom, Kose, Lim and Ohnsorge (2016). Multipliers by country-specific features and economic conditions are from Ilzetzi, Mendoza and Vegh (2013); Auerbach and Gorodnichenko (2012) and Huidrom, Kose, Lim and Ohnsorge (2016). Multipliers by fiscal instrument are from Spilimbergo, Symansky and Schindler (2009).

# Fiscal Multipliers and Fiscal Space: *Larger When Fiscal Space is Wider...*

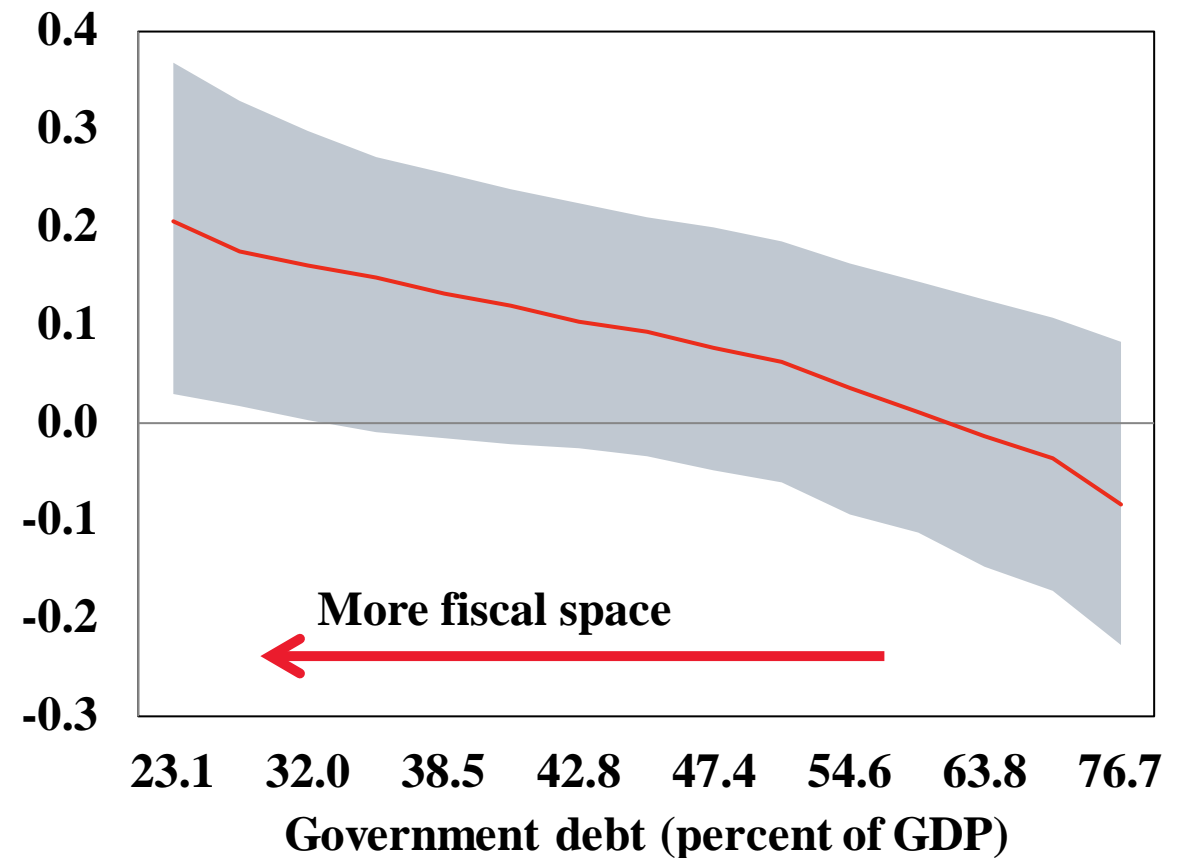
**Fiscal multiplier: On impact**

*(Change in GDP per unit of government spending)*



**Fiscal multiplier: After two years**

*(Cumulative change in GDP per unit of government spending)*



Source: Huidrom et al. (2016).

Note: The graphs show the conditional fiscal multipliers for different levels of fiscal position at select horizons. These are based on estimates from the IPVAR model, where model coefficients are conditioned only on fiscal position. Government debt as a percentage of GDP is the measure of fiscal position and the values shown on the x-axis correspond to the 15<sup>th</sup> to 85<sup>th</sup> percentiles from the sample. Fiscal position is strong (weak) when government debt is low (high). Solid lines represent the median, and dotted bands are the 16-84 percent confidence bands.

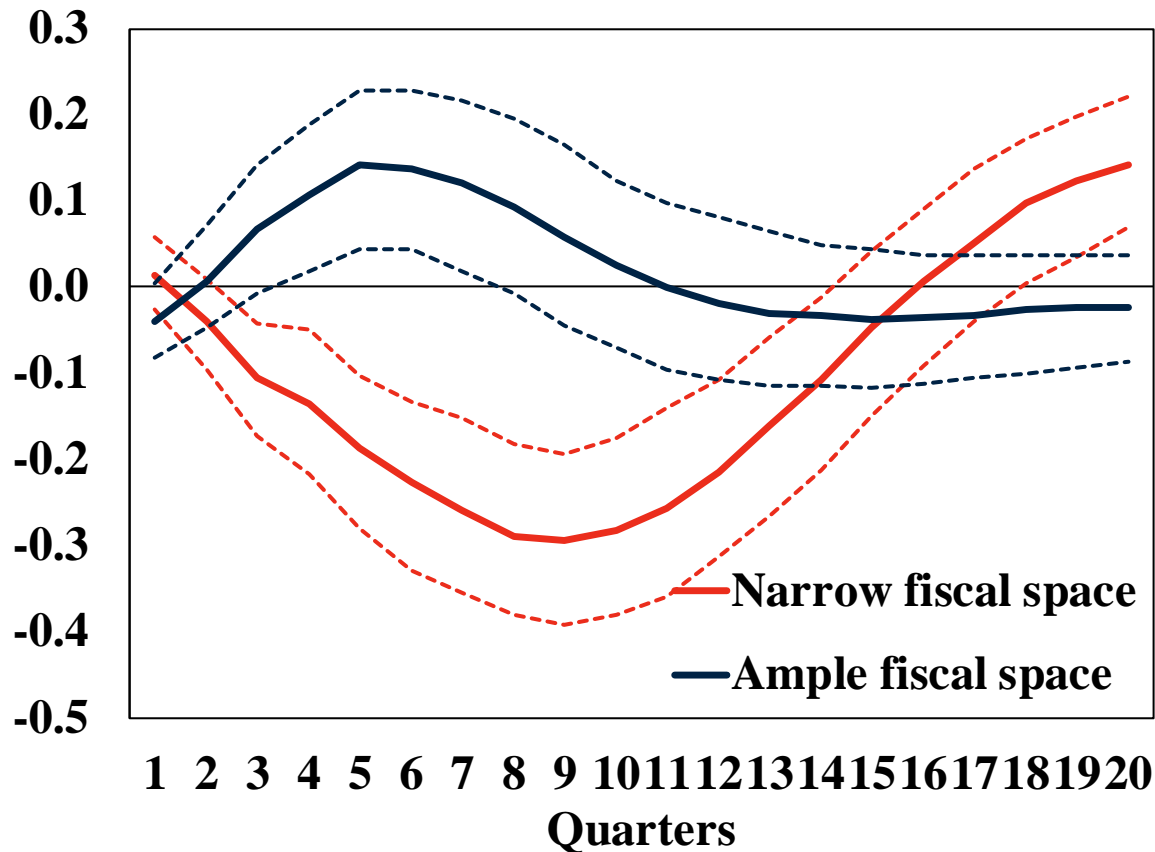
# Why Does Fiscal Space Matter for Fiscal Multipliers?

## *Because of Consumer and Investor Concerns*

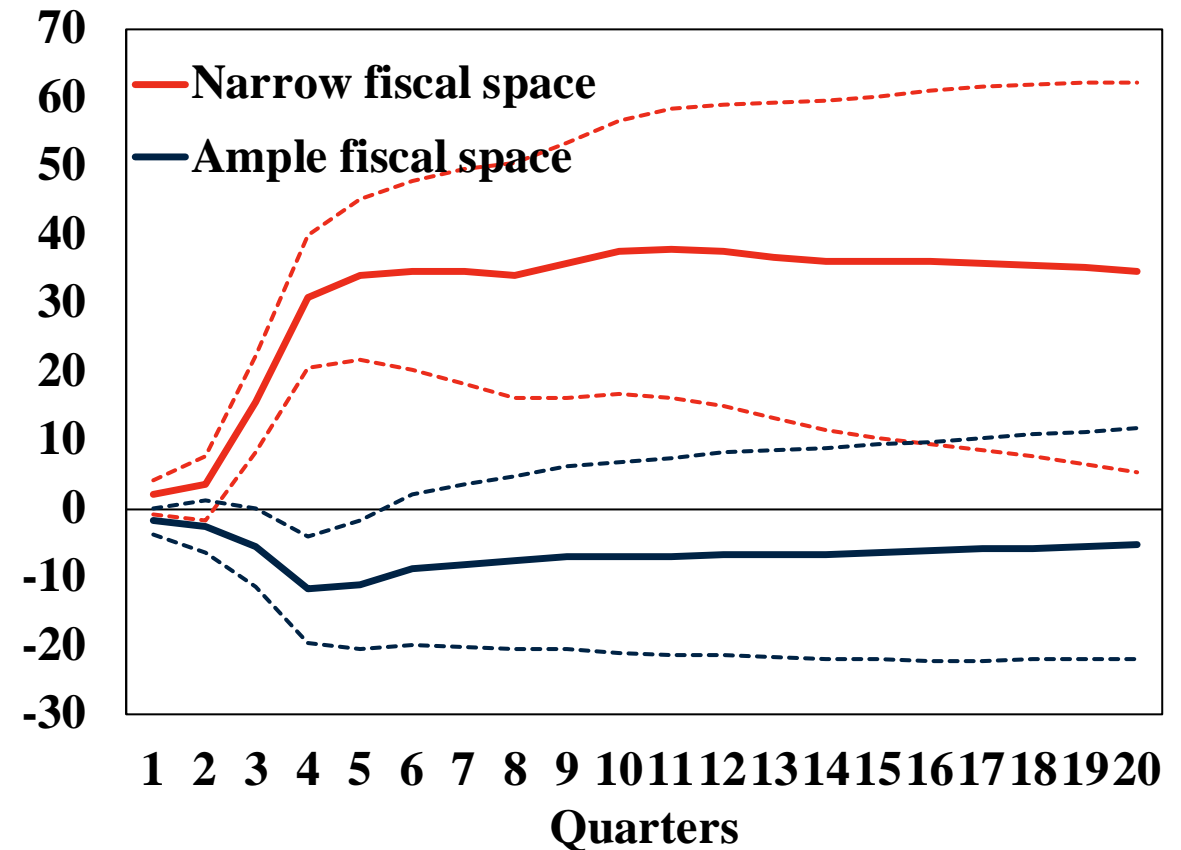
- ***Ricardian channel:*** When a government with little fiscal space implements stimulus, households anticipate tax hikes sooner. They save pre-emptively. This dampens private consumption (Perotti 1999).
- ***Interest rate channel:*** When a government with little fiscal space implements stimulus, investors become concerned about sovereign credit risk and raise their risk premia. This raises economy-wide borrowing cost and dampens private investment (Corsetti et al. 2012).

# Fiscal Multipliers and Fiscal Space: ... Because of Consumer and Investor Concerns...

**Impulse response of private consumption**  
(Cumulative percent deviation from baseline)



**Impulse response of CDS spreads**  
(Cumulative basis point deviation from baseline)



Source: Huidrom et al. (2016).

Note: The graphs show the conditional fiscal multipliers for different levels of fiscal position at select horizons. These are based on estimates from the IPVAR model, where model coefficients are conditioned only on fiscal position. Government debt as a percentage of GDP is the measure of fiscal position and the values shown on the x-axis correspond to the 15<sup>th</sup> to 85<sup>th</sup> percentiles from the sample. Fiscal position is strong (weak) when government debt is low (high). Solid lines represent the median, and dotted bands are the 16-84 percent confidence bands.

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- 3 What does narrower fiscal space mean for fiscal policy? *Fiscal stimulus is less effective.*

# References

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*Thank you!*

*Questions & Comments*

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