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Fiscal Risk and its Drivers
An Empirical Analysis

Ugo Panizza
The Graduate Institute, Geneva & CEPR

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Chemin Eugène-Rigot 2
P.O. Box 136
CH - 1211 Geneva 21
Switzerland

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Abstract

This paper describes and quantifies fiscal risk in advanced and developing economies. Forecast errors in GDP growth explain nearly half of fiscal risk in advanced economies. However, errors in growth forecasts are less important in explaining fiscal risk in low- and middle-income countries. Most of the forecast errors in the debt-to-GDP ratio cannot be explained with standard debt-dynamics variables and needs to be attributed to the "the unexplained part of debt". Fiscal risk is high in bad-times, even when they are fully anticipated. In developing and emerging market economies this result is linked to negative balance sheet effects associated with foreign currency debt. The main drivers of fiscal risk in ADB borrowing countries are exchange rate volatility, commodity prices and small economic size.

Keywords: Fiscal policy, Public debt, Fiscal sustainability
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1 Introduction

The objective of this paper is to describe and quantify fiscal risk in advanced and developing economies and then examine the main drivers of fiscal risk. While the paper presents results for all advanced and developing economies, the paper has a special focus on Asian developing and emerging economies.

In quantifying fiscal risk, the paper concentrates on three fiscal outcomes: (i) public debt-to-GDP ratio; (ii) government budget balance-to-GDP ratio; and (iii) primary budget balance-to GDP ratio.[1] The paper measures fiscal risk by comparing the outturn for these variables with expectations 12 and 24 months before.[2] The paper does not focus on long-term sources of fiscal risk, such as climate change or unfunded pension liabilities.

Fiscal risk is normally defined as the possibility of deviations of fiscal outcomes from their expected values. As forecasts always contain a margin of error, a better definition of fiscal risk is the possibility of *large* or *systematic* deviations of fiscal outcomes from their expected values. There are four main sources of fiscal risk: (i) macroeconomic shocks (mostly GDP growth, exchange rate, inflation, and interest rates); (ii) policy shocks (such as policy slippages or changes in government policies); (iii) the realization of contingent liabilities; and (iv) strategic forecasts (governments that prefer tighter fiscal conditions may use pessimistic forecasts, and the other way around). Some of these sources of fiscal risk are easy to measure (for instance, GDP growth), others (such as contingent liabilities and policy slippages) are more difficult to identify and quantify without detailed country-level studies. In some cases the shocks are dictated by external factors (commodity prices, remittances, trading partners growth, grants from donor countries), in other cases they have domestic origins are linked to bad policies or political shocks.

[1] The government budget balance is defined as total government revenues minus total government expenditures. The primary budget balance is defined as the budget balance net of interest revenues and expenditure.

[2] While it would have been interesting to also examine risks associated with different components of the government balance (government revenues, public sector wage bill, etc.), lack of systematic forecasts for these variables prevented me from conducting such an exercise.

The paper finds that fiscal risk is substantial, especially in emerging and developing economies. The distribution is heavily right skewed for the debt-to-GDP ratio and left skewed for the budget balance-to-GDP ratio (indicating that positive forecast errors for the debt ratio are more common than negative forecast errors and that negative forecast errors for the budget balance are more common than positive forecast errors).[3]

Forecast errors in GDP growth explain about 40% of the variance of the forecast error of the debt-to-GDP ratio and budget balance-to GDP ratio in advanced economies, but errors in growth forecasts explain less than 10% of the variance of the forecast error in low- and middle-income countries (a results which also holds if we focus on Asian Development Bank borrowing countries). A decomposition based on the standard debt dynamics equation shows that in both advanced and developing economies forecast errors to GDP growth, interest rate bill, primary balance, and inflation contribute between 20% and 48% of the average debt-to-GDP forecast errors. More than 50% of the forecast error is associated with what Campos et al. (2006) call "the unexplained part of debt."

Fiscal risk is especially high in bad-times, even when these bad times are fully anticipated. This effect is due to negative balance sheet effects in developing and emerging market economies and to countercyclical policies in advanced economies. While currency depreciations are a large source of fiscal risk in developing and emerging economies, they have no effect on fiscal risk in advanced economies.

[3] In advanced economies, the interquartile range for the one-year (two-year) ahead forecast error is about 8% (11%) of GDP for debt and 2.5% (3.5%) of GDP for the budget balance. The interquartile range for the debt-to-GDP ratio in middle income countries is similar to that of advanced economies, but more right skewed than the latter. The interquartile range for the budget balance to-GDP ratio in middle income countries is instead wider than in advanced economies (close to 4%) and, also in this case, more skewed. If we augment the data with 2020 forecasts and compare forecast issued in June 2020 with forecasts issued in October 2019, we find even larger expected fiscal risk realizations associated with the COVID-19 epidemic.

Note that while the results of this paper are based on IMF forecast, they are likely to apply also to private sector forecasts as there is no evidence that the accuracy of IMF forecasts differs from that of private sector forecasts (Independent Evaluation Office, 2014).[4]

It is also worth noting that the analysis of this paper focuses on the general government without consolidating the accounts of the central bank. In recent years, non-standard monetary policies led central banks to accumulate large amounts of government bonds. While consolidating the central bank balance sheet with that of the government would lead to lower "net" debt ratios, it is not clear what the implications for fiscal risk of such consolidation would be. The same applies for central banks in emerging market countries that accumulate large international reserves. Such reserve accumulation could counteract the fiscal risk associated with balance sheet affects linked with foreign currency debt because it would reduce the net foreign currency exposure of the consolidated government (for a discussion of these issues, see Hausmann and Panizza, 2011)

There are certain dimensions along which ADB borrowing countries are different from the average developing and emerging economy: (i) forecasts are less optimistic in the average ADB country than in other developing and emerging economies; (ii) the volatility of forecast errors for the debt-to-GDP ratio in ADB borrowing countries is similar to that for other developing and emerging market economies, bub the standard deviation of the forecast error for the budget deficit is higher in ADB borrowing countries; (iii) ADB borrowing countries are overrepresented among outliers for which outturns were better than expected. All ADB borrowing countries in this group are small island economies.

These findings suggest that in ADB borrowing countries fiscal risk is driven by poor forecasting and data collection capacity by the intrinsic volatility of small economies and

[4] There is however evidence that the optimism on these forecasts may depend on the characteristics the economist in charge of a given country (Beaudry and Willems, forthcoming).

commodity exporters. In such a situation, technical assistance which allow these countries to invest in data collection and forecasting ability can have high returns. Countries subject to large shocks should instead make greater use of contingent debt instruments such as catastrophe bonds, GDP indexed bonds or commodity-linked bonds (see chapter on fiscal insurance in this volume).

This paper is related to a relatively small literature aimed at assessing fiscal risks and at developing policies for the mitigation of these risks. The paper contributes to this literature by bringing new data to the analysis, by studying the correlates of fiscal risk across groups of countries, and by conducting a detailed analysis of episodes with a large deviation between fiscal forecasts and outturns.

Schick (1998) is probably the first comprehensive study of the links between fiscal risk and public debt management and Brixi and Schick (2002) is an early collection of essays on fiscal risk with a particular focus on contingent liabilities.

Campos et al. (2006) do not focus on fiscal risk, but show that exchange rate shocks in the presence of foreign currency debt can play an important role in explaining debt explosions in emerging and developing economies (on the drivers of debt explosions see also Weber, 2012, and Jaramillo et al., 2016). This paper corroborates the results of Campos et al. (2006) by showing that exchange rate volatility is an important driver of fiscal risk. While Campos et al. (2006) focus on debt explosions, Celasun et al. (2006) study the distribution of fiscal shocks and develop a fan chart approach to evaluate fiscal risk in emerging market economies.

Cebotari et al. (2009) describe fiscal risk using a methodology similar to that used in this paper (i.e., by comparing IMF World Economic Outlook forecasts with outturns) and also provide an overview of fiscal risk management practices in several advanced and

developing countries.[5] These authors paper find that macroeconomic shocks (especially exchange rate shocks in the presence of foreign currency debt) and contingent liabilities in the banking system are important drivers of fiscal risk. In this paper, I update the data used by Cebotari et al. (2009) and present a detailed analysis of the correlated of fiscal risk.

Budina and Petrie (2013) provide a detailed discussion of fiscal risks and show that conventional cash-basis government accounting rules amplify fiscal risk because these rules do not allow for an adequate treatment of contingent liabilities. These authors study the drivers of the increase in the debt and deficit-to-GDP ratio in the aftermath of the global financial crisis. While Budina and Petrie do not conduct a similar analysis for developing and emerging economies, they provide a detailed discussion on how macroeconomic risk should be incorporate in in fiscal analysis and on how fiscal risk should be disclosed and mitigated (including a detailed discussion on risk allocation).

IMF (2016) presents a comprehensive analysis of best practices for analyzing and managing fiscal risk. Two key conclusions are that countries should aim at collecting "comprehensive, reliable, and timely fiscal data covering all public entities" and "make greater use of probabilistic forecasts methods when setting long-run objectives and medium-term targets for fiscal policy." It also points out that conventional analyses tend to underplay the importance of fiscal risk and that the balance of risks is skewed towards the downside because: (i) forecasts often suffer from an optimist bias; (ii) rare and hard-to-predict large negative events are more likely than equally large positive events; and (iii) negative shocks are often correlated, with a bunching of contingent liability realizations in crisis periods. This IMF report also develops a methodology that emphasizes tail risks and that is thus suitable for applying the probabilistic approach to debt dynamics in low-income countries.

[5] Cebotari et al. (2009) use a panel of 27 advanced economies for 1995-2007 and 131 emerging and developing economies for 2002-07.

Part of the analysis of IMF (2016) is based on a novel dataset on the fiscal costs of contingent liabilities assembled by Bova et al. (2019). These authors study 80 countries (34 advanced economies and 46 developing and emerging economies) over the period 1990-2014 and identify 192 contingent liability episodes. They find that, on average, the countries in their sample had a contingent liability realization with a cost of 6% of GDP once every 12 years. The most frequent (48% of the total) types of episodes are associated with financial sector problems. These are also the episodes with the highest fiscal cost (10% of GDP, on average). The second most frequent category is natural disasters (16% of the total number of episodes), with an average cost of 1.6% of GDP. Next come episodes associated with state-owned-enterprises (just below 16% of the total and with an average cost of 3.2% of GDP), followed by subnational governments (6% of the total with an average cost of 4.3% of GDP), and legal liabilities (less than 5% of the total but with high average costs, estimated at nearly 8% of GDP). The remaining types of contingent liabilities are associated with public private partnerships and with private non-financial corporations (the authors did not classify 8 of the 192 identified events). Bova et al. (2019) also find that contingent liabilities tend to materialize during periods of low growth and banking crises and that more transparent fiscal accounts and stronger governance indicators are negatively associated with the prevalence and cost of such episodes.

The remainder of this paper is organized as follows. Section 2 describe how we measure fiscal risk and provides descriptive statistics for fiscal risk across different groups of countries. Section 3 focuses on the role of GDP growth forecast errors, Section 4 studies the correlates of fiscal risk, Section 5 discusses large outliers, and Section 6 concludes.

2 Fiscal risk around the world

The quantify fiscal risk, I downloaded different vintages of the IMF World Economic Outlook (WEO) dataset and compared outturns for the debt-to-GDP ratio, general government balance-to-GDP ratio and primary balance-to-GDP ratio with their forecasts at time *t-1* and *t-2*.

I measure the outturn using data from a WEO vintage issued at time *t+2* (I do not use the latest available dataset to limit problems related to redefinition of variables).[6] I adopt the same procedure for GDP growth, inflation, and interest payments.

This section describes the forecasts errors for the debt-to-GDP ratio, budget balance to-GDP ratio and primary budget balance to-GDP ratio. It shows separate summary statistics for advanced economies, middle income economies, and low-income economies. I also classify the countries into 6 geographical regions used by the World Bank and present separate summary statistics for Asian Development Bank (ADB) borrowing countries, and for the 5 ADB sub-regions.[7]

The main findings of this section are that forecasts errors are large, skewed and downward biased (that is, deficits and debt levels often turn out to be larger than expected). This downward bias tends to be larger in developing countries, but there is substantial variance across developing regions, with the average downward bias being smaller in developing Asia (and in ADB borrowing countries) than in the rest of the developing world.

Debt-to-GDP ratio

Table 1 focuses on the debt-to-GDP ratio. The top two panels use all available data, and the bottom panels focus on the effect of the COVID pandemic. In the group of advanced economies, average outturns for the debt-to-GDP are about 0.4% of GDP higher than

[6] For instance, I compare the outturn for the debt-to-GDP ratio in 2018 (using 2020 WEO data) with the WEO forecasts of Fall 2017 (for *t-1* forecasts) and Fall 2016 (for *t-2* forecasts). For 2019 and 2020, I measure the outturn using data for the June 2020 WEO and compare them with October 2017 and October 2018 for 2019 and October 2018 and October 2019 for 2020.

[7] The World Bank regions are: East Asia and Pacific, East Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, South Asia, and Sub-Saharan Africa. The ADB sub-regions are: Central and Western Asia, South Asia, South-East Asia, East Asia, and Pacific.

forecasts at *t-1* and *t-2*, but the distribution is right skewed with a large dispersion in outcomes.[8]

Fiscal risk is higher in middle income countries, with outturns for the debt-to-GDP ratio which are on average 3.2% of GDP above the forecasts at *t-1* (5.2% at *t-2*). In this case, the difference is also positive for the median country-year and the distributions is extremely right skewed.[9] The situation for low-income countries is somewhere in between that of high- and middle-income countries.

Within developing countries, the average difference between outturns and forecasts is particularly large in Sub-Saharan Africa and in the Middle East and North Africa, while East Asia and Pacific and Eastern Europe and Central Asia have values similar to those of the advanced economies (especially for forecasts at *t-1*). South Asia is the only region for which the average country has an outturn for the debt to GDP ratio which is lower than the forecast and for which the distribution is left skewed (see top panel of Figure 1).

The data for ADB borrowing countries are somewhere in between those of East Asia and Pacific and that of South Asia. The average forecast error is negative, the median error is zero and the distribution is right skewed. While these values suggest that downside fiscal risk is, on average, smaller within ADB borrowing countries. The within group variance tends to be large with positive forecast errors in the East Asia sub-region and negative forecast errors in South Asia (Table A1, in the Appendix).

Focusing on 2020, we find very large differences between the WEO forecasts issued in October 2019 and those of June 2020 (see bottom panel of Figure 1). Differences are

[8] The median country has an outturn which is lower than what was forecasted at t-1 and t-2 and the country at the 90th percentile of the distribution has a difference between outturn and forecast which is 3 percentage points of GDP larger (in absolute value) than the country at the 10th percentile of the distribution. The standard deviation which is nearly 30 times the average value of the forecast error.
[9] The country at the 90th percentile of the distribution has a difference between outturn and forecast which is 11% of GDP larger, in absolute value, than the country at the 10th percentile of the distribution

particularly large for advanced economies (17% of GDP on average) and slightly smaller for middle- and low-income countries (10% of GDP and 7% of GDP, respectively). This difference is probably due to the greater ability of advanced economies to borrow after the COVID shock.

Among groups of developing countries, the average difference between outturns and forecasts is higher in Latin America, East Europe and Central Asia, and the Middle East and North Africa and much lower in East Asia and Pacific. The forecast errors are also positive and large for all ADB borrowers and they are especially large for South Asia.

Budget balance

Focusing on the budget balance (Table 2), I find that advanced economies had budget deficits which, on average, were 0.3% of GDP larger than what expected one year before. However, the median country had a smaller deficit (or a larger surplus) than expected and the distribution of outcomes is only slightly left skewed.[10]

In the case of middle-income countries, the average outturn for the budget balance is nearly 1% of GDP below the one-year ahead forecast (1.4% of GDP for two-year ahead expectations). The distribution is heavily left skewed with the value at the 10th percentile almost twice as large (in absolute value) than the value at the 90th percentile (see also Figure 2). As in the case of the debt-to-GDP ratio, the behavior of low-income countries is somewhere in between that for middle- and high-income countries.

Within the group of developing countries, we find that in East Asia and Pacific, the average outturn was actual 0.75% of GDP above one-year ahead expectations and almost identical

[10] The observation at the 10th percentile has an outturn which is 3.4% of GDP below expectations (5.2% of GDP for two-year ahead forecasts) and the observations at the 90th percentile having an outturn which is about 2.5% of GDP above expectations for both one-year ahead and two-year ahead forecasts.

to the two-year ahead forecast. In this region, we also find that the distribution of the forecast error is right skewed. However, there are large differences within the East Asia and Pacific region, with the deviation between outturns and one-year ahead expectations ranging from -4.4% of GDP for the country-year at the 10th percentile of the distribution and 5% of GDP for the country-year at the 90th percentile of the distribution. In the Middle East and North Africa, instead, deficits were, on average much larger than what expected, with a difference between outturn and one year-ahead forecasts of 1.2% of GDP (1.8% of GDP for two-year ahead expectations). Also, in this case, there is a large dispersion of outcomes.

The average ADB borrowing countries has a fiscal outturn which is a one percentage point of GDP above what expected at *t-1*, and the median country has a forecast error which is close to zero. The strong performance of ADB borrowing countries is however due the behavior of a few outliers in the pacific sub-region (Appendix table A2). In fact, Figure 4 and Table A3 show large positive values in some small island nations in the Pacific (Kiribati, Micronesia, Nauru, Solomon Islands, and Tuvalu). The forecast errors are instead negative in Central and Western Asia and in East Asia and they are close to zero in South Asia and South East Asia. Figure 4 and Table A3 show negative values (below 1% of GDP) in India, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Papua New Guinea, Samoa, and Sri Lanka. Commodity producing countries like Azerbaijan and Kazakhstan also have large swings in the difference between expected and actual budget balance. But the record in this swing goes to Kiribati with a range of -10%. For a discussion of these outliers, see Section 6.

Looking at data for 2020, I find large negative forecast errors for advanced economies (nearly -10% of GDP), with basically all the countries in negative territory. In middle income countries, the average of the difference between expectations in June 2020 and October 2019 is close to -5% of GDP, and in low-income countries this difference is -2.4% of GDP. Within developing countries, the difference between October 2019 and June 2020

forecasts is particularly large in East Europe and Central Asia (-7.3% of GDP) and lower in South Asia and Sub-Saharan Africa.

The overall pattern for the primary budget balance (Table 3 and Figure 3) is similar to that of the overall balance, but with larger negative values for advanced and low-income countries (in the pre-2020 sample), indicating that in some of these countries forecasts overstated real interest rate expenditures.

3 The role of forecast errors in debt dynamic variables.

The standard debt dynamics equation expresses the change in the debt-to-GDP ratio as function of the primary deficit, interest rates, inflation, and real GDP growth. This section studies how forecast errors in the debt dynamics variables contribute to errors in debt-to-GDP ratio forecasts.

Before considering all these variables together, I study the role of forecast errors in GDP growth. The reason for starting with GDP growth alone is that growth is a key component of fiscal risk.

Fiscal risk and GDP growth forecast errors

To study how forecast errors on GDP growth at time *t-1* and *t-2*, affect fiscal risk, I start by estimating the following regression:

$$d_{t,c} - E_{t-i}(d_{t,c}) = \alpha + \beta \left(g_{t,c} - E_{t-i}(g_{t,c}) \right) + \varepsilon_{t,c} \qquad (1)$$

Where $d_{t,c}$ and $g_{t,c}$ are the debt-to-GDP ratio and real GDP growth at time t in country c, and E_{t-i} denotes expectations taken at time t-i.

The first column of the top panel of Table 4 shows that when advanced economies growth is one percentage point lower than expected, the debt-to-GDP ratio grows 1.7 percentage points of GDP more than expected. Errors in growth forecasts explain 40% of the variance in errors of public debt-to-GDP forecasts. The second column of Table 4 estimates a model similar to that of column 1, but which also allows for country-specific fixed effects (*i.e.*, it controls for the fact that certain countries may make systematic errors in their debt-to-GDP ratio forecasts). Controlling for fixed effects does not alter the correlation between errors in growth forecasts and errors in debt-to-GDP forecasts and the fixed effects only explain 7% of the variance of debt-to-GDP forecast errors.

In middle income countries there is a much smaller correlation between errors in growth forecasts and errors in debt-to-GDP forecasts. In this sample of countries, when growth is one percentage point lower than expected, the debt-to-GDP ratio increases by 0.4 percentage point of GDP more than expected and errors in growth forecasts explain less than 10% of the variance of debt-to-GDP forecast errors (column 3). Controlling for country fixed effects increases the correlation between errors in growth forecasts and errors in debt-to-GDP from 0.4 to 0.7 and contributes to explaining 20% of the variance debt-to-GDP forecast errors (column 4). In low-income countries (columns 5 and 6), a one percentage point forecast error in GDP growth is associated with one percentage point error in the debt-to-GDP ratio. Also in this case, country-specific effects explain most of the variance of the forecast errors. The last two columns show that ADB borrowing countries are similar to the average middle-income country in terms of the share of variance explained by growth forecast errors but close to low-income countries in terms of point estimates.[11]

[11] The bottom panel of Table 4, which focuses on forecasts errors with respect to time t-2, reports results which are similar to those of the top panel (the only difference is that for two-year ahead forecast errors there is a stronger correlation between advanced economies GDP growth forecast errors and debt-to-GDP forecast errors).

Looking at regional subgroups, we find that forecasts errors in GDP growth are an important driver of forecast errors for the debt-to-GDP ratio in East Europe and Central Asia (the correlation between the two errors and the fit of the regression are similar to those of advanced economies), and that forecasts errors in GDP growth are not a key driver of forecast errors in debt-to-GDP in East Asia and Pacific, Middle East and North Africa, and Sub-Saharan Africa (Table A6).

There are also large differences across ADB sub-regions. GDP growth forecast errors are important in South Asia, while they seem to matter less in East Asia and the Pacific region. This is especially the case for two-year ahead forecasts. In this case, GDP growth forecast errors are not significantly correlated with debt-to-GDP forecast 2 in Central and Western Asia, East Asia, and Pacific.

Taken together, these results suggest that errors in growth forecasts play an important role (albeit not the most important) in explaining fiscal risk in advanced economies, but that country specific idiosyncratic factors are more important drivers of fiscal risk in middle- and low-income countries.

Fiscal risk and debt dynamics

It is possible to use the standard debt dynamics equation to explore the relative contributions of forecast errors for the primary balance, interest rates, inflation and GDP growth to forecast errors in the debt to GDP ratio.

Standard debt dynamic accounting allows to express the debt-to-GDP ratio as a function of its lagged value minus the primary balance over GDP, plus the interest rate bill, minus

nominal GDP growth (given by real GDP growth plus inflation) multiplied by the lagged debt-to-GDP ratio, plus the stock flow reconciliation.[12] Formally:

$$d_t = d_{t-1}(1 + i - \pi - g) - pb + sf \qquad (2)$$

Where *d* is the debt-to-GDP ratio, i the interest rate, g real GDP growth, π the inflation rate, *pb* the primary balance-to-GDP ratio and *sf* the stock-flow reconciliation.

Taking expectations at time t-1 yields:

$$E_{t-1}d_t = d_{t-1}(1 + E_{t-1}i - E_{t-1}\pi - E_{t-1}g) - E_{t-1}pb + E_{t-1}sf \qquad (3)$$

Subtracting (3) from (2) and diving by d_{t-1}, we obtain:

$$\frac{d_t - E_{t-1}d_t}{d_{t-1}} = (i - E_{t-1}i) - (\pi - E_{t-1}\pi) - \\ +(g - E_{t-1}g) - \frac{pb_t - E_{t-1}pb_t}{d_{t-1}} + \frac{sf_t - E_{t-1}sf_t}{d_{t-1}} \qquad (4)$$

As the only component of Equation (4) which is not observable is the stock flow reconciliation, this variable can be obtained as a residual.

The four components in the right-hand side of Equation (4) describe the relative contribution of measurement errors in the four elements of the debt dynamic equation to forecast errors in the debt-to-GDP ratio as a proportion of the lagged debt to GDP ratio.

Table 5 shows that in advanced economies forecast errors in the primary balance account for approximately 19% of the forecast error in the debt-to-GDP ratio, growth shocks

[12] As suggested by its name, the stock-flow reconciliation is a residual entity that reconciles the deficit, which is a 'flow' variable, with the evolution of debt, which is a 'stock' variable. Campos et al. (2006) call the stock-flow reconciliation "the unexplained part of public debt."

accounts for 8%, interest rate shocks for 3%, and inflation shocks for less than 1%. Most of the prediction error (72%) is not associated with the standard debt-dynamic components (a fact already shown in a different set-up by Campos et al, 2006), but with the residual stock-flow reconciliation. The second row of Table 5 shows that there is a large variation in these shares.

Middle income economies are similar to advanced economies, but in this case inflation shocks are more important. In low-income economies, primary balance and growth forecast errors are less important contributors to the debt-to-GDP ratio forecast error. More than 80 percent of this error forecast error is associated with the unexplained residual.

Within groups of developing countries, primary balance shocks are especially important in South Asia and in the Middle East and North Africa Region. South Asia is also the region with the smallest unexplained component (which, however, still accounts for 50% of the debt-to-GDP forecast error) and the region where all types of shocks play an important role in explaining debt-to-GDP forecast errors.

In ADB borrowing countries, on average nearly one quarter of the forecast error in debt-to-GDP is explained by forecasts errors in the primary balance and about 10% by forecast errors in nominal GDP growth (3% inflation and 7% real growth), the unexplained residual is associated with 60% of the forecast errors. There are large variations withing ADB sub-regions (Table A8). Errors in the primary balance are particularly important in Central and Western Asia (where they account for 60% of the forecast error in the debt-to-GDP ratio and the unexplained part "only" accounts for 24% of the forecast error), but also in South East Asia and the Pacific.

The case of East Asia is interesting because this sub-region is characterized by large forecast errors in the primary balance, but these errors go in the opposite direction with respect to other countries. East Asian countries have, on average, outturns for the budget deficit which are smaller than what predicted at time *t-1*. There also negative contributions

from interest rates and inflation. The counterpart of these negative contributions is a large share for the unexplained part which, in these countries, amounts to 200%. Is East Asia fiscal forecasts are too conservative![13]

Budget balance and growth forecast errors

As both GDP growth and the budget balance (especially the primary balance) are important drivers of forecast errors in the debt-to-GDP ratio, it is interesting to explore the correlation between forecast errors in these two variables.

Table 6 reports the results of an exercise similar to that of Table 4, but focusing on forecast errors in the budget balance over GDP instead of the debt-to-GDP ratio. Columns 1 and 2 show that in advanced economies a one percent error in growth forecast is associated with a 0.7% percentage points error in budget balance forecast. The regressions also show that in advanced economies, errors in growth forecast explain more than 40% of the variance budget balance forecast errors and country fixed effects explain less than 5% of this variance.

The relationship between forecasts errors in GDP growth and forecasts errors in the budget balance is much lower in middle-income countries. In this case, a one-percentage point errors in growth forecasts is associated with a 15-20 basis points error in budget balance forecasts (Table 6, columns 3-6). In middle-income countries, growth forecasts errors explain less than 5% of the variance in budget balance forecast errors. The last two columns focus on ADB borrowing countries. The share of variance explained by growth forecast errors is similar to that of middle-income countries, but the point estimates are larger than

[13] Note that things are different if we focus on two-year ahead forecasts. In this case East Asia is more in-line with other ADB sub-regions.

those in the full sample of middle-income countries and they remain significant for two-year ahead forecasts.[14]

As in the case of debt-to GDP ratio, I find that GDP growth shocks are an important factor in predicting forecast errors in the budget balance (and the primary budget balance) in East Europe and Central Asia and that they are less important in South Asia (where the correlation is not even statistically significant), Sub-Saharan Africa, and East Asia (table A2 and A3).

The main takeaway of this sub-section is that forecast errors in GDP growth are important drivers of fiscal risk. In the average middle-income economy, they contribute to about 8% to the debt-to-GDP ratio forecast error (Table 5). However, this is not their only contribution to fiscal risks as shocks to GDP growth are also strongly correlated with forecast errors in the primary balance which, in turn, explain 22% of the forecast errors in the debt-to-GDP ratio.

4 The correlates of fiscal risk

This section studies which variables are correlated with fiscal risk. As before, I start with forecast errors in the debt-to-GDP ratio and then move to forecasts errors in the budget balance. As Table 4 showed that forecast errors in GDP growth are a key driver of forecast errors in public debt-to-GDP, I start by unpacking Equation (1) and estimate the following model:

$$d_{t,c} - E_{t-i}(d_{t,c}) = a_c + \beta g_{t,c} + \gamma E_{t-i}(g_{t,c}) + \varepsilon_{t,c} \qquad (5)$$

[14] I obtain similar results if, instead of focusing on the overall budget balance, I study the correlation between forecast errors in GDP growth and forecast errors in the primary balance (Table 7). In this case, however, we find that the point estimates for ADB borrowing countries are very close to those for advanced economies (the share of variance remains lower, however).

Note that Equation (1) is equivalent to estimating Equation (5) together with the restriction that $\beta=-\gamma$.

The first 4 columns of Table 8 show that β is approximately equal to - γ in developing and emerging economies but that in advance economies $\beta=-2\gamma$, and that γ is not even statistically significant (γ is only marginally significant in ADB borrowing countries).

The point estimates suggest that in advanced economies, a one percentage point forecast error for GDP growth is associated with an 80-basis point increase in the debt-to-GDP ratio over and above what was expected, but that another 80-basis point surprise in the debt-to-GDP ratio is associated to the GDP growth outcome itself, irrespective to what expected growth was. The results indicate that there is a systematic underestimation of countercyclical fiscal policy in debt-to-GDP forecasts in advanced economies, but not in developing and emerging economies. This result is likely due to the fact that countercyclical fiscal policies are not in place in the average developing and emerging economy.

As a next step, I create "bad times" and "good times" dummy variables (the bad times dummy variable takes value one when GDP growth is below the country-specific median growth, the good times dummy is the opposite) and then augment Equation (5) with this dummy and the interaction between each of the two dummies and realized GDP growth.

Column 6 shows that, conditional on GDP growth, in advanced economies there are no differences in debt-to-GDP forecasts errors between good and bad times (the coefficient for the dummy is not statistically significant and with a point estimate close to zero) and that the correlation between GDP growth and debt-to-GDP forecasts errors tend to be higher during bad times. However, the difference in this correlation between good and bad times is small.

In developing and emerging countries, I also find that the correlation between GDP growth and debt-to-GDP forecasts errors is higher during bad times (twice as high than in good times, column 7). However, controlling for GDP growth, the debt-to-GDP ratio forecast error increases by 3 percentage points during bad-times. The results for ADB borrowing countries are similar to those of developing and emerging economies (column 8). Independent Evaluation Office (2014) found significant overprediction of GDP growth during recessions and crisis times, Table 8 shows that these biases extend to fiscal forecasts *even after controlling for the biases in GDP forecasts*.[15]

Table 9 studies the roles of exchange rate and inflation. It shows that exchange rate depreciations (*DXR<0*) play no role in advanced economies (column 2) but that they are an important determinant of fiscal risk in developing countries. The coefficient is particularly large in ADB borrowing countries (columns 3 and 4). This result is likely to be due to the fact that developing and emerging market countries tend to have part of their public debt denominated in foreign currency (Eichengreen et al., 2005 and Panizza and Taddei, 2020) The point estimates of columns 3 and 4 indicate that a 10 percent currency depreciation is associated with a 2.5 percentage point unexpected increase in the debt-to-GDP ratio of developing and emerging countries and 4 percentage points in ADB borrowing countries.

Inflation is associated with an unexpected increase in the debt-to-GDP ratio in advanced economies (column 6), but has no effect on public debt surprises in developing and emerging economies (columns 7 and 8).[16]

[15] One possible explanation for this result is that fiscal consolidations during good times are easier to forecasts than sudden deteriorations.

[16] The finding for advanced economies could be due to the fact that central banks that conduct monetary policy following a Taylor Rule increase real interest rates when inflation increases (it is, however, puzzling that regressions for the budget balance show no relation between inflation and the overall balance).

Table 10 augments the model of Table 9 with a set of fiscal indicators measured at time *t-1*. Columns 1-4 show that high debt-to-GDP ratios are associated with negative forecasts errors (the coefficient, however, is only significant in advanced economies). When advanced economies observe growing debt ratios, they tighten policy more than anticipated. Columns 5-8 control for government expenditure over GDP (also measured at time *t-1*) and show that this variable is not significantly correlated with fiscal risk. Finally, columns 9-12 control for interest expenditure over GDP at time *t-1* and show that this variable is negatively correlated with debt-to-GDP forecast errors, but the coefficient is only statistically significant in advanced economies. When I control interest expenditure, I find that the debt-to-GDP ratio is no longer associated with debt-to-GDP forecasts errors. This finding is in line with the idea that interest expenditure over GDP is a better indicator of fiscal sustainability than the debt-to-GDP ratio.

Table 11 shows that these results do not change if I control for lagged total government revenues over GDP (columns 1-4) or lagged tax revenues over GDP (columns 5-8). Since the debt-to-GDP ratio is no longer significant after controlling for the interest bill, I exclude it from the following regressions to save degrees of freedom. All results are robust to including the debt-to-GDP ratio.

Table 12 controls for the World Bank control of corruption indicator and finds that this variable is not significantly correlated with fiscal risk (this is also the case if we estimate the model with random effects instead of fixed effects, see columns 5-8). Next, I focus on budgetary transparency and find that, in the fixed effects regression, there is a weak positive correlation between debt-to-GDP forecast errors and the open budget index (an indicator of budgetary transparency assembled by the International Budget Partnership, see Table 13) in the full sample of developing and emerging countries (but not in ADB borrowing countries). This result suggests that as countries adopt more transparent budgets, they tend to have debt outturn which are larger than expected. This is likely due to the fact that a more transparent budget does not allow to hide "skeletons in the closets." However, this result only holds in the fixed effects regressions (which compare outcomes within

countries) and not in the random effect regressions which mostly focus on cross sectional variation.

Finally, Tables 14-16 show that there is no evidence that a more open capital account or higher credit ratings are associated with debt-to-GDP forecast errors in the average advanced economy and developing and emerging market country. However, I do find that when ADB borrowing countries open their capital account they tend to face lower fiscal risk. This result only holds in the fixed effects regressions (column 4, Table 14).

Appendix Tables A13-A22 repeat the exercises of Table 8-16 focusing on forecast errors for the budget balance. While most of the results are similar to those of Table 8-16, there are a few notable differences.

When studying the drivers of debt-to-GDP ratio forecast errors, I found that, controlling for GDP growth, debt tends to increase more than expected during bad times in developing countries but that there is no bad times effect in advanced economies. I also found that the correlation between GDP growth and debt-to-GDP forecasts errors is stronger (in absolute value) during bad times in both advanced and developing and emerging countries. Focusing on the budget balance, I now find that deficits tend to be larger than expected during bad times in advanced economies, but I find no bad times effect in developing and emerging market countries (columns 5-8, Table A13). Along similar lines, I find strong asymmetric effects (with a stronger correlation between GDP growth and deficits during bad times) in advanced economies but no asymmetry in developing and emerging economies (if anything the correlation is stronger during good times). The asymmetry, however, is still present if I only focus on ADB borrowing countries (column 8).

These findings suggest that what we observed for the debt-to-GDP ratio is mostly due to procyclical balance sheet effects in developing and emerging market countries (hence, the effect is not reflected in the budget) and to countercyclical fiscal policy in advanced economies (with the effect reflected in the budget). The importance of balance sheet effects

is also reflected by the role of the exchange rate which is statistically significant for debt-to-GDP ratio forecast errors in developing and emerging market countries but does not have a statistically significant effect on budget balance forecast errors (Table A14).

Another difference between the debt and budget balance regressions is that in the latter the lagged debt-to-GDP ratio remains statistically significant in advanced economies even after controlling for the interest rate bill (Table A15). Moreover, while higher past debt ratios are associated with positive prediction errors for the budget balance (indicating a more than expected budget tightening after large debt realizations), I find that a higher interest rate bill is associated with a negative forecasts errors (suggesting larger deficits or smaller surpluses after high interest bill realizations). This result is in contrast with what found in the debt-regressions of Table 11. One possible explanation is that interest payments are part of the budget balance (the relationship is not automatic because I use lagged interest payments, but if high interest rates reverse quickly, they could lead to higher budget deficits). However, if this were the case, we should not find an interest rate effects for the primary balance forecast error. But Table A16 still shows a negative and statistically significant interest bill effect in advanced economies and a positive and significant effect in emerging market countries.

5 Learning from outliers

In order to better understand the sources of large fiscal risk in ADB borrowing countries, I started by ranking all country-years by their one-year ahead forecast error in terms of debt-to-GDP, deficit-to-GDP, and primary deficit to GDP and identified the top ten and bottom ten countries in each group.

The regions most represented in the list of episodes for which fiscal outturns were much worse than expected were Sub-Saharan Africa (57% of episodes), Latin America and the Caribbean (21% of episodes), and Middle East and North Africa (16% of episodes).

The list of episodes in which fiscal outturns were better than expected includes a large number of ADB borrowing countries (48% of the total, the countries included in the list are all small island economies), followed by countries in Sub-Saharan Africa (33% of the total) and Latin America and the Caribbean (19%).

Next, I repeated the exercise by only focusing on ADB borrowing countries and conducted a detailed analysis of IMF Article IV reports for the top and bottom ranked countries, with the objective to identify the causes of the forecast errors in the top ten country-years that underperformed with respect one-year ahead forecasts (i.e., country-years with higher than expected debt and deficits) and the top ten country-year that overperformed with respect one-year ahead forecasts (i.e., country-years with lower than expected debt and deficits).

Tables 17 and 18 summarize the outcome of this exercise (Tables A23 and A24 provide more details on the size of the forecast errors and data on debt and deficit levels for countries with large forecast errors). Although the maximum number of underperformers is 30 (ten country-years and three indicators), countries that in a given year underperform in one fiscal indicator often underperform in other indicators. Hence, the list of underperformers (Table 17), only contains 20 observations. The same applies to the list of overperformers (Table 18).

The first two columns of Tables 17 and 18 report the countries and years with large forecast errors, the third column describes the fiscal indicators (D for debt-to-GDP, BB for budget balance, and PB for primary balance) with large forecast errors in a given country year, and the last column provides a short description of the drivers of the forecast errors based on the analysis of Article IV reports. The tables order country-years on the bases of the size of the debt forecast errors, followed by a ranking first based on the size of the budget deficit forecast error, and then the primary deficit forecast error.[17]

[17] Note that the country-years include in the list of Table 17 did not necessarily face deteriorating fiscal conditions. In about 30% of cases, fiscal indicators were improving, but less than expected. The same applies to the list of Table 18, which includes 4 country-years with deteriorating fiscal indicators, but where the deterioration of these indicators was smaller than expected.

While Tables 17 and 18 could include up to 40 countries (20 countries each), the tables only include 20 countries because there are a number of countries which appear multiple times in each of the two tables and even 7 countries (Azerbaijan, Kazakhstan, Kyrgyz Republic, Maldives, Tuvalu, and Vietnam) which appear in both lists. The data suggest that these countries have fiscal forecasts which are particularly noisy, with large overpredictions and underpredictions of fiscal outturns.

Moreover, each of Azerbaijan, Kazakhstan, the Maldives, the Solomon Islands, and Tajikistan appear twice in Table 17, Kiribati, Tuvalu, and Vanuatu appear three times in Table 18, and Azerbaijan and the Maldives appear two times in Table 18. These 10 countries account for 75% of the observations included in Tables 17 and 18. Azerbaijan, the Maldives, and Tuvalu, alone account for 33% of observations.

Looking at the characteristics of the countries included in the two lists, we find that in the list of underperformers there are 8 entries for commodity producers, 6 entries for small island states, and only three entries for countries with a more diversified economy and a substantial manufacturing sector. Focusing on the list of overperformers, we find 13 entries for small island economies and 4 entries for commodity exporters.

Besides being grouped is a small number of countries, the observations of Tables 17 and 18 are also grouped in a small number of years. In Table 17, 65% of observations are for two years in which commodity prices were decreasing (9 observations for 2016 and 4 for 2015) and in Table 18, 65% of observations are for two years in which commodity process were increasing (7 observations for 2018 and 6 for 2017).

Tables 17 and 18 also show that for commodity exporters fiscal risk is mostly driven by volatility in commodity prices. In small island states fiscal risk is driven by the volatile macro environment caused by the small size of the economy and by volatility in grants, tourism, and fishing revenues. Currency depreciations in the presence of foreign currency

debt are an important source of fiscal risk with respect to the debt indicator (40% of the debt surprised listed in Table 17 are associated with currency depreciations).

6 Conclusions

Forecasts always have a margin or errors, but unbiased forecasts should be correct on average (that is the error should have mean zero). However, fiscal plans often go ashtray in a specific direction as debt and deficits that are larger than expected are much more likely that debt and deficits that are smaller than expected. It is probably for this reason that all the IMF documents reviewed for this paper include the sentence: "Risks to the outlook are tilted to the downside."

The concept of fiscal risk reflects this presence of large or systematic deviations of fiscal outcomes from their expected values. This paper describes and quantifies fiscal risk focusing on public debt-to-GDP ratio and fiscal deficit (both overall and primary) to GDP ratio. The paper finds that fiscal risk is substantial, especially in emerging and developing economies. In advanced economies about 40% of the variance of fiscal risks is explained by GDP growth shocks, in emerging and developing countries growth shocks explain less than 10% of the variance of fiscal risk. Focusing on the debt-to-GDP ratio, the paper finds that it is difficult to explain forecast errors by simply focusing on forecast errors in the standard debt dynamics variables equation. In both advanced and emerging economies, more than 50% of the forecast error is associated with a non-easily observable residual entity. This is what Campos et al. (2006) call "the unexplained part of debt."

The paper also finds that fiscal risk is especially high in bad-times, even when there are no forecast errors for GDP growth. This finding is often due to fiscal slippages in advanced economies and to the presence of negative balance sheet effects in developing and emerging market economies.

There are a few dimensions along which ADB borrowing countries are different from the average developing and emerging economy. First, if we measure fiscal risk by the mean difference of outturn versus forecasts or by the skewedness of this difference, we find that forecasts are less optimistic in the average ADB country than in other developing and emerging economies. Second, the standard deviation of the forecast errors for the debt to GDP ratio in ADB borrowing countries is similar to that for other developing and emerging market countries, but the standard deviation of forecast errors for the budget deficit is much higher in ADB borrowing countries. Third, the analysis out outliers shows that ADB borrowing countries are underrepresented among outliers for which fiscal outturns were worse than expected and overrepresented among outliers for which outturns were better than expected. And among these outliers, all ADB borrowing countries are small island economies.

These findings have important policy implications. When forecasts errors are biased in one specific direction, the main policy priority should be to eliminate the source of this bias, especially if this bias leads to overly optimistic forecasts (see Beaudry and Willems, forthcoming). The results of this paper suggest that this is less of problem for the typical ADB borrowing country than for the typical emerging and developing country.

Forecasts errors that are instead large but with no obvious bias could instead be driven with by poor forecasting capacity or by the fact that an economy is subject to very large shocks. Small economies are likely to be subject to both of these problems as they are unlikely to have enough resources to invest in data collection and forecasting capacity which mostly involve fixed costs (the forecasts used in this paper are by IMF economists but based on national data) and also tend to be less diversified and, hence, more volatile than larger economies.

Investing in better forecasting capacity can have high returns as there is evidence that better data quality and transparency is associated with lower spreads (Sangyup and Hashimoto, 2017). For countries which are subject to large external shocks (both weather-related and

linked to commodity price fluctuations) there isn't much that can be done in terms of baseline forecasts (countries can however incorporate uncertainty with a fan-chart approach that allows for tail events; see IMF, 2016). Countries subject to large exogenous shocks can however increase resilience by issuing contingent debt instruments as discussed in the chapter on fiscal insurance in this volume.

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Table 1: Debt-to-GDP ratio (%), outturn vs forecasts

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
AE	0.36	-0.36	9.48	-7.87	-4.00	3.95	10.61	0.42
MIC	3.16	1.89	8.28	-4.18	-1.71	5.91	15.11	1.02
LIC	0.85	0.32	13.32	-11.59	-4.92	5.68	13.02	1.07
EAP	0.48	0.00	8.00	-6.90	-3.06	3.66	7.69	0.48
ECA	0.50	-0.38	9.53	-8.34	-4.15	4.17	10.50	1.04
LAC	1.25	1.10	11.97	-10.61	-3.68	6.08	12.52	0.17
MNA	3.25	2.06	10.54	-9.32	-2.52	8.37	18.69	0.41
SA	-1.23	0.84	13.77	-17.15	-1.34	4.07	9.63	-1.66
SSA	4.09	2.55	15.23	-12.42	-3.21	10.21	21.39	0.91
ADB	-0.23	-0.02	9.67	-8.04	-3.33	3.46	7.78	-0.81
Outturn - E_{t-2} (all available years)								
AE	0.4	-0.3	11.3	-12.1	-4.9	5.7	14.2	0.13
MIC	5.2	2.8	10.8	-5.4	-0.8	9.8	19.3	0.82
LIC	2.0	1.5	15.8	-12.7	-4.7	8.1	17.7	0.21
EAP	1.0	0.5	8.9	-8.1	-3.3	5.7	10.0	-0.02
ECA	1.2	0.2	11.9	-12.0	-5.0	6.6	15.1	0.65
LAC	1.9	1.9	14.6	-12.4	-4.0	8.2	17.6	-0.43
MNA	6.4	3.9	14.0	-8.9	-2.4	14.8	24.9	0.46
SA	-1.8	1.7	17.9	-18.7	-3.0	6.1	11.1	-1.84
SSA	6.5	5.0	17.6	-11.3	-2.8	14.7	27.9	0.30
ADB	-0.03	0.46	11.95	-10.74	-4.56	5.38	11.10	-1.42
Outturn - E_{t-1} (June 2020)								
AE	16.68	15.04	9.65	6.06	9.54	23.54	30.32	0.10
MIC	10.44	8.99	6.83	2.34	6.01	15.11	18.83	0.85
LIC	6.72	5.11	12.01	-6.98	1.09	8.85	17.80	2.10
EAP	6.07	5.11	8.60	-1.36	0.06	8.99	18.92	1.29
ECA	12.58	10.53	8.70	1.94	7.10	17.81	24.96	0.71
LAC	14.16	11.12	9.86	5.98	8.69	16.03	23.73	2.16
MNA	13.95	16.73	9.13	0.02	6.82	19.66	25.17	-0.33
SA	9.88	6.40	9.96	0.84	4.18	12.53	32.02	1.51
SSA	9.13	6.72	12.62	-4.00	3.59	14.79	24.92	1.31
ADB	6.1	5.3	8.1	-1.0	0.8	8.7	12.8	1.59
Outturn - E_{t-1} (June 2020)								
AE	17.22	15.85	10.12	5.12	11.52	23.20	31.41	0.28
MIC	11.77	11.10	12.66	1.61	5.83	18.28	21.85	0.53
LIC	4.49	5.51	16.99	-7.83	-0.67	12.93	21.88	-2.25
EAP	5.54	7.01	9.23	-4.63	-0.70	8.53	17.63	0.81
ECA	11.90	11.84	12.19	-3.30	5.12	18.37	29.14	0.25
LAC	14.69	14.26	12.57	2.39	8.15	18.28	26.96	0.79
MNA	18.78	18.48	13.22	-1.36	13.95	25.46	38.93	-0.27
SA	11.90	8.66	11.89	-0.67	3.32	18.11	35.73	0.95
SSA	7.81	7.38	19.42	-11.12	0.01	15.05	31.24	-1.20
ADB	4.8	5.3	10.8	-4.6	-2.0	8.5	17.4	0.38

Source: Own calculations based on different vintages of WEO data.

Table 2: Budget Balance-to-GDP ratio (%), outturn vs forecasts

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
AE	-0.28	0.22	3.21	-3.39	-1.16	1.31	2.51	-1.39
MIC	-0.90	-0.43	5.33	-5.58	-2.63	1.12	2.99	-1.16
LIC	-0.58	-0.21	4.90	-5.47	-2.20	1.41	3.82	-1.57
EAP	0.75	0.20	7.68	-4.40	-1.59	1.86	5.06	2.41
ECA	-0.33	0.24	3.36	-4.53	-1.50	1.44	2.77	-0.99
LAC	-0.42	-0.30	4.59	-4.79	-2.10	0.98	3.03	3.29
MNA	-1.22	-0.72	8.38	-9.40	-4.31	1.88	6.11	-0.84
SA	-0.32	-0.08	4.30	-3.97	-1.77	0.98	3.54	-0.21
SSA	-0.97	-0.52	5.57	-6.78	-3.12	1.42	4.73	-1.06
ADB	1.0	0.0	7.6	-4.6	-2.0	1.9	5.6	3.17
Outturn - E_{t-2} (all available years)								
AE	-0.57	0.07	3.77	-5.24	-1.95	1.42	2.78	-1.06
MIC	-1.39	-0.76	6.30	-6.78	-3.13	0.79	3.24	-1.17
LIC	-0.99	-0.77	6.45	-6.23	-2.99	1.30	4.19	-1.15
EAP	-0.08	-0.05	9.77	-5.43	-2.14	1.90	4.89	-0.31
ECA	-0.63	0.01	3.73	-5.52	-2.14	1.42	2.97	-1.16
LAC	-0.57	-0.87	6.15	-5.85	-2.82	1.00	3.63	5.52
MNA	-1.83	-0.97	9.74	-12.25	-5.28	1.89	7.75	-0.75
SA	-0.75	-0.51	4.47	-5.59	-2.77	1.06	3.64	-0.15
SSA	-1.42	-1.13	6.46	-7.38	-3.76	1.03	4.92	-1.60
ADB	0.6	-0.2	8.6	-5.3	-2.4	2.0	5.8	1.62
Outturn - E_{t-1} (June 2020)								
AE	-9.74	-9.68	2.84	-13.17	-11.34	-8.16	-6.26	-0.39
MIC	-4.98	-4.96	5.95	-11.93	-7.33	-3.40	-1.71	3.03
LIC	-2.36	-2.10	2.59	-4.43	-3.09	-0.94	-0.38	-2.26
EAP	-5.51	-4.57	5.10	-13.27	-7.93	-2.60	-0.19	-0.62
ECA	-7.28	-7.75	3.20	-11.34	-9.94	-5.37	-3.03	0.12
LAC	-4.96	-4.50	3.20	-8.83	-7.98	-3.16	-1.02	0.08
MNA	-5.10	-5.04	8.40	-15.03	-9.01	-2.79	-0.71	2.26
SA	-3.61	-3.41	1.76	-6.95	-4.48	-2.32	-1.50	-0.64
SSA	-3.36	-2.60	3.57	-8.03	-4.20	-1.66	0.51	-1.52
ADB	-4.7	-4.4	3.9	-10.2	-5.4	-1.8	-0.8	-1.56
Outturn - E_{t-1} (June 2020)								
AE	-9.83	-9.55	2.65	-12.56	-11.38	-8.18	-7.06	-1.01
MIC	-6.11	-5.65	6.77	-13.02	-8.13	-3.45	-2.06	1.36
LIC	-2.20	-2.03	3.99	-6.11	-3.04	-0.93	1.68	-0.57
EAP	-6.86	-4.84	6.81	-19.43	-9.83	-2.27	-0.44	-1.10
ECA	-7.41	-7.89	3.48	-11.55	-9.84	-5.32	-2.62	-0.18
LAC	-4.82	-5.07	3.34	-8.72	-7.30	-3.06	-2.06	1.18
MNA	-7.36	-7.80	9.37	-20.70	-10.80	-4.16	-1.24	1.45
SA	-4.21	-4.00	1.90	-6.96	-5.82	-2.54	-2.00	-0.17
SSA	-2.92	-2.35	5.01	-8.31	-5.63	0.04	1.70	-0.28
ADB	-5.2	-4.0	5.4	-11.1	-5.9	-1.9	-1.0	-1.62

Source: Own calculations based on different vintages of WEO data.

Table 3: Primary Budget Balance-to-GDP ratio (%), outturn vs forecasts

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
AE	-0.53	0.06	3.41	-4.39	-1.27	1.10	2.29	-1.30
MIC	-0.90	-0.35	5.87	-5.75	-2.03	1.18	3.13	-2.56
LIC	-0.99	-0.38	4.41	-4.36	-1.97	0.99	2.05	-5.00
EAP	0.98	0.39	7.74	-3.77	-1.40	1.62	4.99	3.40
ECA	-0.44	0.08	3.36	-4.62	-1.33	1.31	2.61	-1.04
LAC	-1.06	-0.52	3.56	-5.78	-2.57	0.88	2.28	-0.88
MNA	-1.72	-0.91	8.27	-10.32	-3.82	1.17	5.63	-1.66
SA	0.11	-0.18	3.48	-3.35	-1.81	1.32	3.01	1.85
SSA	-0.97	-0.48	4.70	-4.93	-2.37	0.85	2.98	-3.32
ADB	1.5	0.3	8.2	-4.1	-1.8	2.0	6.4	3.79
Outturn - E_{t-2} (all available years)								
AE	-0.95	-0.29	3.87	-5.98	-2.12	1.16	2.34	-1.16
MIC	-1.40	-0.61	6.12	-8.50	-3.19	0.88	3.08	0.34
LIC	-1.69	-0.80	6.25	-5.49	-2.56	0.70	2.39	-4.92
EAP	0.02	0.04	7.39	-5.28	-2.24	1.62	4.03	1.19
ECA	-0.83	-0.28	3.78	-5.80	-2.12	1.18	2.76	-1.12
LAC	-1.63	-1.32	3.76	-6.67	-3.36	0.61	2.49	-0.70
MNA	-2.65	-1.61	8.71	-12.94	-7.26	0.78	6.19	0.60
SA	-0.29	-0.29	3.64	-4.86	-2.55	0.91	2.32	1.29
SSA	-1.63	-0.88	6.38	-6.15	-3.02	0.70	2.50	-3.74
ADB	0.7	0.0	7.5	-5.3	-2.4	1.8	6.0	2.36
Outturn - E_{t-1} (June 2020)								
AE	-9.51	-9.31	2.76	-12.43	-11.38	-8.16	-6.23	-0.34
MIC	-4.95	-5.12	6.04	-11.44	-7.18	-3.08	-1.91	2.81
LIC	-2.41	-1.99	2.71	-4.64	-3.31	-1.24	-0.25	-1.59
EAP	-4.98	-4.36	4.86	-12.93	-7.93	-1.86	-0.11	-0.62
ECA	-7.31	-7.54	3.16	-11.53	-9.80	-5.36	-2.95	0.10
LAC	-4.79	-4.05	3.23	-8.93	-7.67	-2.96	-0.75	-0.07
MNA	-5.15	-5.54	8.54	-15.46	-8.80	-2.86	-0.39	2.11
SA	-3.59	-3.23	1.82	-7.60	-3.88	-2.79	-1.36	-1.32
SSA	-3.32	-2.84	3.40	-7.23	-4.23	-1.64	-0.47	-1.27
ADB	-4.6	-4.2	3.7	-8.6	-5.8	-2.0	-0.9	-1.32
Outturn - E_{t-2} (June 2020)								
AE	-9.83	-9.39	2.76	-12.61	-11.25	-8.15	-7.23	-0.90
MIC	-6.13	-5.72	6.91	-12.77	-8.50	-3.31	-0.98	1.16
LIC	-2.29	-1.94	4.04	-6.29	-3.04	-0.96	1.08	-0.70
EAP	-5.98	-4.32	6.05	-17.87	-8.22	-1.97	0.25	-0.97
ECA	-7.61	-7.72	3.40	-11.74	-10.06	-5.44	-3.03	-0.28
LAC	-4.81	-4.66	3.34	-9.16	-6.95	-2.96	-2.12	0.84
MNA	-7.59	-8.69	9.64	-19.09	-10.89	-4.00	-0.44	1.30
SA	-4.05	-3.94	2.29	-8.22	-5.18	-2.47	-0.98	-0.45
SSA	-2.87	-2.30	4.73	-8.33	-4.63	-0.78	1.60	-0.40
ADB	-5.1	-3.9	5.3	-9.9	-7.3	-1.8	-1.0	-1.49

Source: Own calculations based on different vintages of WEO data.

Table 4: Debt-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) AE	(2) AE	(3) MIC	(4) MIC	(5) LIC	(6) LIC	(7) ADB	(8) ADB
				Outturn - E_{t-1}				
GR-E(GR)	-1.658***	-1.648***	-0.421***	-0.720***	-1.067***	-0.904***	-0.82***	-1.02***
	(-16.27)	(-16.09)	(-5.85)	(-6.83)	(-6.31)	(-4.95)	(-4.94)	(-6.39)
Const.	-0.011***	-0.011***	0.024***	0.018***	-0.006	-0.004	-0.01*	-0.01**
	(-2.932)	(-2.976)	(5.295)	(4.046)	(-0.832)	(-0.561)	(-1.77)	(-2.32)
N. Obs.	407	407	347	347	341	341	232	232
R2	0.3953	0.4723	0.0904	0.2994	0.1051	0.3321	0.0963	0.3425
				Outturn - E_{t-2}				
GR-E(GR)	-1.963***	-1.898***	-0.338***	-0.490***	-1.031***	-0.772***	-0.82***	-1.06***
	(-16.58)	(-16.74)	(-4.03)	(-5.94)	(-4.89)	(-3.62)	(-3.83)	(-5.53)
Const.	-0.019***	-0.019***	0.045***	0.042***	0.003	0.007	-0.01	-0.01*
	(-4.049)	(-4.197)	(7.271)	(7.616)	(0.304)	(0.849)	(-1.296	(-1.97)
N. Obs.	331	331	307	307	300	300	201	201
R2	0.4554	0.5840	0.0505	0.3526	0.0741	0.3827	0.0687	0.4389
Country FE	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 5: Debt-to-GDP ratio (%) and GDP growth, decomposition of outturn vs forecasts

	pb	***int***	***inf***	***gr***	***ε***	***pb***	***int***	***inf***	***gr***	***ε***
			Outturn - E_{t-1}					Outturn - E_{t-2}		
AE μ	18.6	3.1	-0.3	7.9	71.9	20.1	1.0	-1.6	7.6	89.6
AE σ	56.7	14.4	26.1	25.6	81.2	53.5	13.7	24.4	23.0	69.6
MIC μ	21.7	2.8	1.8	7.8	76.2	29.2	2.0	0.9	4.7	70.3
MIC σ	77.3	14.9	28.8	25.6	96.7	66.7	12.9	26.0	19.7	78.1
LIC μ	12.9	1.8	0.7	4.1	82.9	15.8	3.2	1.0	2.9	72.1
LIC σ	63.7	11.2	26.9	21.5	75.8	51.3	11.0	23.9	21.4	63.5
EAP μ	20.7	2.6	1.3	3.8	75.4	14.6	1.7	-0.9	4.6	84.1
EAP σ	78.5	12.4	24.4	22.7	100.1	65.1	12.2	21.5	20.7	74.2
ECA μ	22.8	3.0	-0.3	7.9	68.6	21.0	1.5	0.4	6.3	81.1
ECA σ	60.0	13.4	27.3	24.1	81.8	58.6	13.0	23.5	20.5	70.0
LAC μ	17.5	1.2	-1.4	3.4	79.9	16.2	2.1	-2.8	1.0	90.5
LAC σ	63.0	14.4	31.2	27.9	82.3	57.2	9.4	25.6	22.3	72.5
MNA μ	23.7	2.5	-0.7	5.8	77.0	27.9	0.9	0.5	5.1	66.2
MNA σ	74.8	14.7	24.8	21.7	101.8	50.7	14.3	25.1	21.8	72.7
SAS μ	31.7	5.3	6.1	12.8	51.9	27.8	4.7	13.6	-4.2	61.9
SAS σ	76.6	14.3	28.0	30.4	111.2	70.8	12.0	33.5	26.4	74.3
SSA μ	10.4	2.2	0.2	3.2	87.8	12.2	3.2	1.2	5.4	77.2
SSA σ	55.5	9.2	26.2	21.1	71.6	45.2	9.3	22.7	20.7	58.4
ADB μ	23.3	2.7	3.4	7.1	59.8	17.0	2.0	3.7	-0.2	70.8
ADB σ	126.5	12.7	30.6	23.7	137.6	91.3	10.8	24.8	20.1	97.7

Source: Own calculations based on different vintages of WEO data.
(μ=mean, σ=standard deviation)

Table 6: Budget balance-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) AE	(2) AE	(3) MIC	(4) MIC	(5) LIC	(6) LIC	(7) ADB	(8) ADB
				Outturn - E_{t-1}				
GR-E(GR)	0.698***	0.713***	0.157***	0.162***	0.208***	0.190***	0.32***	0.26***
	(25.07)	(25.48)	(4.96)	(4.90)	(5.56)	(5.12)	(4.11)	(3.87)
Const.	0.0014*	0.002*	-0.007***	-0.006***	-0.003	-0.003*	0.01***	0.01***
	(1.69)	(1.82)	(-3.08)	(-3.09)	(-1.44)	(-1.69)	(3.62)	(4.16)
N. Obs.	842	842	647	647	641	641	473	473
R2	0.428	0.47	0.036	0.134	0.046	0.227	0.0346	0.3724
				Outturn - E_{t-2}				
GR-E(GR)	0.71***	0.73***	0.015	0.005	0.23***	0.205***	0.39***	0.34***
	(21.37)	(21.91)	(0.46)	(0.16)	(4.26)	(3.86)	(4.18)	(3.78)
Const.	0.001	0.001	-0.014***	-0.014***	-0.007**	-0.007***	0.01**	0.009**
	(0.82)	(1.04)	(-5.10)	(-5.2)	(-2.32)	(-2.61)	(2.36)	(2.44)
N. Obs.	794	794	567	567	562	562	413	413
R2	0.366	0.422	0.0004	0.105	0.031	0.222	0.0409	0.2602
Country FE	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 7: Primary balance-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) AE	(2) AE	(3) MIC	(4) MIC	(5) LIC	(6) LIC	(7) ADB	(8) ADB
				Outturn - E_{t-1}				
GR-E(GR)	0.719***	0.738***	0.147***	0.117**	0.271***	0.161**	0.67***	0.62***
	(22.32)	(22.92)	(2.979)	(2.125)	(4.338)	(2.526)	(4.54)	(4.70)
Const.	-0.001	-0.001	-0.006*	-0.007*	-0.005*	-0.007***	0.02***	0.02***
	(-0.780)	(-0.68)	(-1.758)	(-1.847)	(-1.8582)	(-2.88)	(4.01)	(4.51)
N. Obs.	628	628	299	299	267	267	195	195
R2	0.443	0.497	0.029	0.090	0.066	0.435	0.0967	0.4492
				Outturn - E_{t-2}				
GR-E(GR)	0.703***	0.727***	0.134**	0.109**	0.207**	0.042	0.66***	0.61***
	(19.00)	(19.78)	(2.48)	(2.19)	(2.28)	(0.42)	(4.95)	(4.50)
Const.	-0.003*	-0.002*	-0.012***	-0.011***	-0.012***	-0.016***	0.01***	0.01***
	(-1.95)	(-1.82)	(-2.73)	(-3.18)	(-2.67)	(-3.77)	(2.97)	(2.98)
N. Obs.	592	592	258	258	228	228	164	164
R2	0.379	0.450	0.023	0.328	0.023	0.386	0.1316	0.3831
Country FE	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 8: Debt surprises and GDP growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GR	-0.957***	-1.694***	-0.831***	-1.028***				
	(0.0997)	(0.210)	(0.100)	(4.77)				
E(GR)	0.746***	0.865	0.694***	0.992*	0.629***	0.765	0.561***	0.951*
	(0.145)	(0.879)	(0.141)	(1.982)	(0.177)	(0.913)	(0.183)	(1.89)
GRxGT					-0.549**	-1.514***	-0.378	-0.568
					(0.235)	(0.299)	(0.269)	(1.18)
GRxBT					-0.933***	-1.800***	-0.791***	-1.10***
					(0.132)	(0.267)	(0.132)	(3.71)
BT					0.027**	-0.001	0.033**	0.027
					(0.011)	(0.014)	(0.015)	(0.86)
N. Obs	1,697	317	1,380	232	1,697	317	1,380	232
N. Cy	190	26	164	31	190	26	164	31
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Sample	All	AE	EM&DEV	ADB	All	AE	EM&DEV	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 9: Debt surprises, GDP growth, exchange rate and inflation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.420	-1.537***	-0.133	0.042	-0.429*	-1.479***	-0.131	0.042
	(0.261)	(0.240)	(0.291)	(0.11)	(0.258)	(0.215)	(0.288)	(0.115)
GRxBT	-0.493***	-2.099***	-0.382**	-0.1950	-0.556***	-2.048***	-0.451**	-0.191
	(0.166)	(0.496)	(0.152)	(0.528)	(0.187)	(0.527)	(0.176)	(0.479)
BT	0.0230*	0.00353	0.0343*	0.026	0.0241*	0.00241	0.0364**	0.026
	(0.0135)	(0.0113)	(0.0177)	(0.93)	(0.0137)	(0.0110)	(0.0180)	(0.869)
DXR	-0.203***	-0.0212	-0.242***	-0.412***	-0.209***	-0.0430	-0.250***	-0.412***
	(0.0430)	(0.0524)	(0.0511)	(3.2819)	(0.0466)	(0.0548)	(0.0564)	(3.08)
INF					-0.0892	0.987**	-0.0886	0.011
					(0.0788)	(0.376)	(0.0893)	(0.041)
E(GR)	0.678**	0.936	0.673**	0.623	0.631**	0.646	0.621**	0.622
	(0.260)	(0.824)	(0.276)	(1.32)	(0.248)	(0.837)	(0.262)	(1.332)
N. Obs	1,507	291	1,216	201	1,504	291	1,213	201
N. Cy	189	26	163	31	189	26	163	31
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&DEV	ADB	All	AE	EM&DEV	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 10: Debt surprises, GDP growth, exchange rate and inflation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GRxGT	-0.405	-1.46***	-0.105	0.057	-0.412	-1.45***	-0.114	0.014	-0.386	-1.45***	-0.0634	0.06
	(0.260)	(0.234)	(0.283)	(0.150)	(0.251)	(0.260)	(0.278)	(0.041)	(0.270)	(0.214)	(0.293)	(0.13)
GRxBT	-0.66***	-1.80***	-0.55***	-0.176	-0.66***	-1.80***	-0.55***	-0.142	-0.67***	-1.96***	-0.58***	-0.12
	(0.200)	(0.493)	(0.194)	(0.44)	(0.199)	(0.500)	(0.19)	(0.34)	(0.201)	(0.472)	(0.200)	(0.32)
BT	0.027**	0.0024	0.039**	0.0246	0.027**	0.0021	0.039**	0.02	0.0276**	0.003	0.042**	0.02
	(0.013)	(0.011)	(0.017)	(0.833)	(0.013)	(0.011)	(0.017)	(0.80)	(0.013)	(0.011)	(0.018)	(0.71)
DXR	-0.21***	-0.039	-0.25***	-0.412***	-0.20***	-0.037	-0.25***	-0.41***	-0.22***	-0.072	-0.25***	-0.42***
	(0.045)	(0.053)	(0.055)	(0.07)	(0.046)	(0.053)	(0.055)	(3.02)	(0.046)	(0.051)	(0.056)	(3.03)
INF	-0.097	0.734	-0.095	0.006	-0.097	0.728*	-0.096	0.03	-0.100	1.071**	-0.105	-0.018
	(0.074)	(0.430)	(0.085)	(0.02)	(0.075)	(0.415)	(0.086)	(0.09)	(0.076)	(0.460)	(0.089)	(0.07)
Debt/Y	-0.060*	-0.060**	-0.053	-0.103	-0.069*	-0.065**	-0.0588	-0.081	-0.043	-0.0466	-0.006	-0.09
	(0.035)	(0.029)	(0.061)	(0.68)	(0.036)	(0.030)	(0.062)	(0.56)	(0.035)	(0.0312)	(0.063)	(-.67)
GEX/Y					0.208	0.0900	0.198	-0.11				
					(0.151)	(0.147)	(0.175)	(0.60)				
INT/Y									-0.991**	-0.92***	-1.504	-2.75
									(0.399)	(0.294)	(1.145)	(0.65)
E(GR)	0.473**	0.244	0.483**	0.5105	0.456**	0.270	0.466**	0.5774	0.488**	0.657	0.492**	0.39
	(0.195)	(0.832)	(0.214)	(1.0098)	(0.190)	(0.817)	(0.209)	(1.0841)	(0.198)	(0.767)	(0.214)	(0.791)
N. Obs	1,497	290	1,207	201	1,493	287	1,206	201	1,463	287	1,176	197
N. Cy	188	26	162	31	188	26	162	31	182	26	156	29
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 11: Debt surprises, GDP growth, exchange rate, inflation, and fiscal variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.387	-1.439***	-0.0617	0.101	-0.371	-1.256***	-0.00891	0.054
	(0.270)	(0.216)	(0.293)	(0.20)	(0.287)	(0.128)	(0.314)	(0.116)
GRxBT	-0.678***	-1.980***	-0.592***	-0.161	-0.636***	-1.541***	-0.586***	-0.037
	(0.203)	(0.474)	(0.204)	(0.403)	(0.196)	(0.502)	(0.198)	(0.094)
BT	0.027**	0.0034	0.0432**	0.028	0.0295*	-0.000816	0.0494**	0.023
	(0.013)	(0.011)	(0.018)	(0.81)	(0.015)	(0.0106)	(0.0194)	(0.579)
DXR	-0.219***	-0.070	-0.255***	-0.430***	-0.228***	-0.0493	-0.263***	-0.4216***
	(0.046)	(0.051)	(0.055)	(2.99)	(0.050)	(0.0570)	(0.0582)	(-3.08)
INF	-0.099	0.980**	-0.104	-0.033	-0.0987	0.881**	-0.107	-0.007
	(0.075)	(0.445)	(0.089)	(0.12)	(0.0801)	(0.417)	(0.0887)	(-0.03)
Debt/Y	-0.043	-0.040	-0.0028	-0.09				
	(0.036)	(0.030)	(0.065)	(0.655)				
INT/Y	-0.986**	-0.908***	-1.509	-2.384	-1.147**	-0.947**	-1.549	-3.307
	(0.398)	(0.300)	(1.141)	(0.533)	(0.498)	(0.345)	(1.130)	(0.58)
GR/Y	0.0169	-0.152	0.0612	0.089				
	(0.0901)	(0.091)	(0.104)	(0.925)				
TR/Y					0.118	-0.469	0.265	0.418
					(0.184)	(0.373)	(0.211)	(0.533)
E(GR)	0.485**	0.691	0.481**	0.355	0.541**	0.523	0.483**	0.363
	(0.199)	(0.778)	(0.213)	(0.709)	(0.220)	(0.797)	(0.216)	(0.737)
N. Obs	1,463	287	1,176	197	1,356	234	1,122	177
N. Cy	182	26	156	29	170	22	148	26
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 12: Debt surprises, GDP growth, exchange rate, inflation, fiscal variables, and control of corruption

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.342	-1.267***	0.0292	0.105	-0.473	-1.550***	-0.151	-0.018
	(0.292)	(0.129)	(0.317)	(0.226)	(0.291)	(0.156)	(0.320)	(0.04)
GRxBT	-0.651***	-1.539***	-0.599***	-0.133	-0.638***	-1.555***	-0.579***	0.073
	(0.199)	(0.493)	(0.200)	(0.35)	(0.177)	(0.468)	(0.175)	(0.173)
BT	0.031*	-0.001	0.051***	0.0278	0.0242	-0.0064	0.0395**	0.013
	(0.0157)	(0.010)	(0.02)	(0.755)	(0.0154)	(0.011)	(0.019)	(0.401)
DXR	-0.223***	-0.0495	-0.257***	-0.418***	-0.221***	-0.0313	-0.255***	-0.405***
	(0.050)	(0.056)	(0.059)	(2.99)	(0.042)	(0.051)	(0.049)	(3.00)
INF	-0.109	0.822*	-0.119	0.0037	-0.0393	0.590**	-0.0426	-0.032
	(0.083)	(0.464)	(0.093)	(0.015)	(0.048)	(0.286)	(0.052)	(0.11)
INT/Y	-1.116**	-0.976**	-1.485	-3.015	-0.486*	-0.520	-0.356	-0.387
	(0.494)	(0.348)	(1.120)	(0.71)	(0.279)	(0.317)	(0.411)	(-0.421)
Corr.	0.116	-0.442	0.268	0.018	0.031	-0.197**	0.078	0.013
	(0.186)	(0.372)	(0.215)	(0.39)	(0.072)	(0.0765)	(0.080)	(1.180)
E(GR)	-0.0068	0.022	-0.0180	0.481	-0.008	0.0004	-0.008	0.537
	(0.0287)	(0.039)	(0.032)	(0.992)	(0.005)	(0.009)	(0.007)	(1.477)
N. Obs	1,334	234	1,100	197	1,334	234	1,100	197
N. Cy	166	22	144	29	166	22	144	29
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 13: Debt surprises, GDP growth, exchange rate, inflation, fiscal variables, and budget institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.587*	-0.517	-0.532	-0.611	-0.499*	-0.298	-0.470	-0.447
	(0.321)	(1.479)	(0.361)	(0.81)	(0.278)	(0.913)	(0.319)	(0.722)
GRxBT	-0.742***	-2.251**	-0.647***	-0.793	-0.564***	-2.656**	-0.490***	-0.089
	(0.230)	(0.991)	(0.213)	(1.504)	(0.176)	(1.094)	(0.169)	(-0.19)
BT	0.0244	0.0256	0.0259	0.013	0.0245	0.0340	0.0255	-0.0040
	(0.016)	(0.037)	(0.0215)	(0.320)	(0.015)	(0.029)	(0.019)	(0.116)
DXR	-0.245***	-0.123	-0.261***	-0.403**	-0.252***	-0.0352	-0.266***	-0.365**
	(0.054)	(0.102)	(0.0601)	(2.20)	(0.046)	(0.077)	(0.0509)	(-2.01)
INF	-0.0403	1.086	-0.0340	-0.354**	0.0008	0.736	0.0029	-0.342**
	(0.055)	(0.876)	(0.0589)	(2.27)	(0.029)	(0.508)	(0.029)	(-2.008)
INT/Y	-1.600*	-4.263***	-1.311	-4.476	-0.114	0.317	-0.116	0.318
	(0.829)	(1.379)	(0.882)	(1.54)	(0.227)	(0.519)	(0.247)	(0.978)
OBI	0.0009*	0.0017	0.0008*	0.0003	0.0002	0.0002	0.0002	0.0003
	(0.0004)	(0.001)	(0.0004)	(0.300)	(0.0002)	(0.0007)	(0.0002)	(0.72)
E(GR)	0.349**	-0.351	0.371**	0.391	0.411**	0.856	0.411**	0.564
	(0.160)	(1.818)	(0.173)	(0.961)	(0.187)	(1.266)	(0.190)	(1.235)
N. Obs	793	106	687	132	793	106	687	197
N. Cy	112	14	98	19	112	14	98	29
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 14: Debt surprises, GDP growth, exchange rate, inflation, fiscal variables, and capital controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.387	-1.516***	-0.00220	-0.644	-0.503*	-1.618***	-0.124	-0.666
	(0.290)	(0.241)	(0.334)	(1.42)	(0.295)	(0.312)	(0.324)	(1.459)
GRxBT	-0.557***	-2.140***	-0.451**	-0.234	-0.476**	-2.149***	-0.397**	-0.151
	(0.196)	(0.563)	(0.187)	(0.740)	(0.187)	(0.532)	(0.166)	(0.435)
BT	0.0247	0.00362	0.0426**	-0.020	0.0169	-0.00492	0.0343*	-0.024
	(0.0151)	(0.0117)	(0.0204)	(0.637)	(0.016)	(0.0152)	(0.0194)	(-0.732)
DXR	-0.222***	-0.0881	-0.260***	-0.366**	-0.208***	-0.0731	-0.244***	-0.353**
	(0.0464)	(0.0575)	(0.0552)	(2.557)	(0.0439)	(0.0549)	(0.0524)	(-2.472)
INF	-0.0653	1.541***	-0.0660	0.128	-0.0658	1.334***	-0.0694	-0.021
	(0.0756)	(0.520)	(0.0844)	(0.492)	(0.0599)	(0.487)	(0.0661)	(-0.083)
INT/Y	-1.128**	-0.996***	-1.471	-6.035	-0.471*	-1.094***	-0.123	-0.874
	(0.461)	(0.288)	(1.142)	(1.51)	(0.283)	(0.331)	(0.391)	(-0.789)
Ka Open	0.0275	0.0963	0.0164	-0.262***	-0.0135	0.0188	-0.0153	-0.077
	(0.0420)	(0.0783)	(0.0483)	(4.268)	(0.0127)	(0.0744)	(0.0136)	(-1.396)
E(GR)	0.621**	1.153	0.552**	0.704*	0.567***	0.897	0.562**	0.709**
	(0.265)	(0.893)	(0.259)	(1.7735)	(0.200)	(0.859)	(0.222)	(2.055)
N. Obs	1,415	278	1,137	191	1,415	278	1,137	191
N. Cy	173	25	148	28	173	25	148	28
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 15: Debt surprises, GDP growth, exchange rate, inflation, fiscal variables, and rating

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	-0.648*	-1.507***	-0.200	-0.354	-0.682**	-1.600***	-0.163	0.364
	(0.329)	(0.206)	(0.428)	(0.481)	(0.338)	(0.300)	(0.413)	(0.599)
GRxBT	-0.595**	-2.107***	-0.276	-1.001*	-0.376	-2.107***	-0.205	-0.126
	(0.285)	(0.482)	(0.238)	(1.99)	(0.244)	(0.501)	(0.156)	(0.368)
BT	0.0131	0.0016	0.0262	0.024	0.0063	-0.0075	0.0278	0.035
	(0.0143)	(0.011)	(0.021)	(0.800)	(0.016)	(0.015)	(0.022)	(1.233)
DXR	-0.212***	-0.076	-0.257***	-0.333	-0.204***	-0.0680	-0.248***	-0.345
	(0.050)	(0.0531)	(0.063)	(1.457)	(0.045)	(0.049)	(0.0567)	(1.588)
INF	0.0239	1.050**	0.030	-0.245	0.0143	1.179***	0.0218	-0.093
	(0.044)	(0.466)	(0.050)	(1.263)	(0.032)	(0.423)	(0.029)	(0.471)
INT/Y	-1.014**	-1.058***	-1.597	-5.147	-0.523*	-1.076***	-0.109	0.641
	(0.420)	(0.309)	(1.200)	(1.693)	(0.274)	(0.345)	(0.386)	(1.602)
S&P	-0.0027	0.00548	-0.0106	0.0001	-0.0016	0.0006	-0.0017	0.004**
	(0.006)	(0.005)	(0.009)	(0.016)	(0.001)	(0.003)	(0.0014)	(2.195)
E(GR)	1.119***	0.724	1.102***	0.254	0.853***	0.784	0.954***	0.447
	(0.378)	(0.740)	(0.412)	(0.594)	(0.261)	(0.710)	(0.290)	(0.850)
N. Obs	1,131	288	843	108	1,131	288	843	108
N. Cy	137	26	111	16	137	26	111	16
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 16: Debt surprises, GDP growth, exchange rate, inflation, fiscal variables, corruption, capital controls and rating

	(1)	(2)	(3)	(4)
GRxGT	-0.551	-1.464***	-0.107	0.1943
	(0.352)	(0.158)	(0.431)	(0.2704)
GRxBT	-0.352	-2.022***	-0.203	-0.248
	(0.232)	(0.494)	(0.152)	(0.714)
BT	0.014	0.0066	0.0302	0.028
	(0.016)	(0.010)	(0.023)	(0.825)
DXR	-0.203***	-0.061	-0.246***	-0.345
	(0.047)	(0.048)	(0.058)	(1.548)
INF	0.016	1.101***	0.0252	-0.106
	(0.031)	(0.397)	(0.0303)	(0.545)
INT/Y	-0.382*	-0.703***	-0.164	0.467
	(0.230)	(0.267)	(0.356)	(0.7918)
Corr.	0.006	-0.0240*	0.0125	-0.0012
	(0.007)	(0.012)	(0.008)	(0.076)
Ka Open	-0.0033	0.0432	-0.009	-0.0205
	(0.013)	(0.029)	(0.014)	(0.918)
S&P	-0.0023	0.003	-0.0028	0.004*
	(0.0015)	(0.003)	(0.0017)	(1.880)
E(GR)	0.997***	1.020	1.081***	0.491
	(0.252)	(0.704)	(0.284)	(0.923)
N. Obs	0.0102	-0.0682*	-0.0113	108
N. Cy	(0.0251)	(0.0351)	(0.0276)	16
Cy FE	No	No	No	No
Sample	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

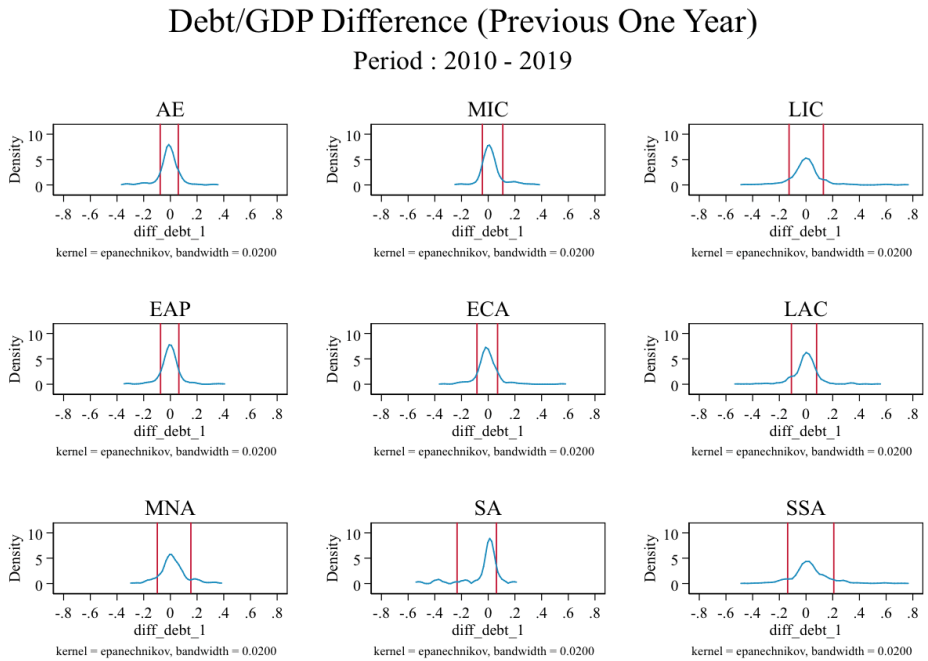
Table 17: Outliers, countries for which the outturn was worse than expected

Country	Year	Type of Slippage	Description or the main drivers of the forecast error
Azerbaijan	2016	D	Low oil prices; banking crisis, currency depreciation with FX debt, slow growth in trading partners
Azerbaijan	2015	D	Low oil prices; currency depreciation with FX debt, slow growth in trading partners
Vanuatu	2016	D	Cyclone Pam (2015), but most of the debt increase is related to concessional debt. Very small economy subject to large external shocks and volatile grants
Kyrgyz Republic	2015	D	Currency depreciation with FX debt, Low gold prices, fiscal slippages linked to elections
Lao P.D.R.	2014	D	High initial debt levels and more than expected debt issuance to finance investment projects
India	2015	D	High debt levels, forecast errors are partly due to higher than expected real interest rates but no indication of other reasons for the forecast error in IMF Article IV
Philippines	2017	D	The increase in gross debt was mostly associated with an increase in liquid assets held by the government. Hence net debt did not deviate much from what was forecasted in period t-1
Tajikistan	2016	D, BB, PB	Article IV reports are not available for this period. Press releases on the IMF visits include the following statement: "Since late-2014, Tajikistan's economy has suffered from external shocks, which affected economic confidence, reduced fiscal space and external buffers, and increased vulnerabilities"
Kazakhstan	2015	D, BB, PB	Low oil prices, Lower than expected revenues, exchange rate depreciation in the presence of FX debt
Tuvalu	2016	D	Very small economy subject to large external shocks and volatile budget support from Australia, New Zealand and the United Kingdom. Note that in 2016 fiscal indicators were improving, but less than expected.
Mongolia	2016	BB, PB	Substantial loosening of fiscal policy and increase in interest rates. Anemic growth linked to low commodity prices. Judicial Settlement with a mining company. Currency depreciation.
Kazakhstan	2016	BB, PB	Lower than expected growth, as a consequence the decrease of the primary deficit was slower than expected. . Note that in this period fiscal indicators were improving, but less than expected.
Papua New Guinea	2016	BB, PB	Drought and decrease in price of commodity exports led to a sharp growth slow-down and drop in revenues. Large recognition of contingent liabilities.
Vietnam	2013	BB, PB	Tax revenues fell short because of low economic growth, tariff reductions, and new exemptions. Capital expenditure was higher than planned.
Solomon Islands	2017	BB, PB	Lower tax revenues and grants, development partners pulled out of financing an undersea fiber-optic cable
Solomon Islands	2016	BB	Unexpected decrease in grants.
Nepal	2018	BB	Lower than expected grants and higher than expected primary expenditure
Tajikistan	2017	BB, PB	Article IV reports are not available for this period. Besides what mentioned in 2017, press releases on the IMF visits states that: "There are downside risks to the fiscal outlook owing to infrastructure projects." . Note that in this period fiscal indicators were improving, but less than expected.
Maldives	2014	PB	Large increase of the primary deficit to higher expenditures for subsidies, public sector wages and social welfare
Maldives	2016	PB	Lower lower-than-expected revenues and large arrears clearance despite unchanged current spending.

Table 18: Outliers, countries for which the outturn was better than expected

Country	Year	Type of overperformance	Description or the main drivers of the forecast error
Bhutan	2015	D	Lover than expected public investment in hydropower investment projects. Debt was still increasing but less than expected
Azerbaijan	2018	D	Increase in oil price and higher than expected growth
Vietnam	2018	D	High growth, tight fiscal policy
Azerbaijan	2017	D	Debt was still growing but a slower pace than expected because of lower contingent liabilities realization than expected.
Kyrgyz Republic	2017	D	Currency appreciation and debt relief from Russia. Debt was still increasing but less than expected.
Myanmar	2014	D	Currency appreciation against a basket of currencies in which Myanmar's external debt is denominated.
Cambodia	2018	D	Higher than expected growth and lower than expected fiscal deficit.
Kiribati	2018	D	Strong fishing revenues and string economic performance. Very small economy subject to large external shocks and volatile grants
Tuvalu	2018	D, BB, PB	Very small economy subject to large external shocks and volatile budget support from Australia, New Zealand and the United Kingdom
Kazakhstan	2011	D	High GDP growth linked to high commodity prices, small appreciation of the currency
Tuvalu	2013	BB, PB	Very small economy subject to large external shocks and volatile budget support from Australia, New Zealand and the United Kingdom
Tuvalu	2015	BB	Very small economy subject to large external shocks and volatile budget support from Australia, New Zealand and the United Kingdom
Kiribati	2017	BB, PB	Fiscal indicators were deteriorating but less than expected because of stronger than expected economic growth and fishing revenues. Very small economy subject to large external shocks and volatile grants. Grants did not decrease as much as expected.
Tuvalu	2017	BB, PB	Very small economy subject to large external shocks and volatile budget support from Australia, New Zealand and the United Kingdom
Kiribati	2016	BB, PB	Fishing revenues exceeded the budget projection by 25 percent leading to an unexpected budget surplus. Very small economy subject to large external shocks and volatile grants
Micronesia	2018	BB	Higher than expected economic growth, fishing license fees, corporate tax payment from investment companies domiciled in the islands, and foreign grants. Very small economy subject to large external shocks and volatile grants
Vanuatu	2017	BB	Very small economy subject to large external shocks and volatile grants. The deficit was lower than expected because of a pickup in GDP growth and lower than expected public investment for reconstruction after PAM
Vanuatu	2018	BB, PB	Very small economy subject to large external shocks and volatile grants. The deficit was lower than expected because of a pickup in GDP growth and lower than expected public investment for reconstruction after PAM
Maldives	2017	BB, PB	Higher than expected growth and lower than expected primary expenditure (with revenues remaining constant)
Maldives	2013	PB	A rebound in growth rebound improved the fiscal situation even though the fiscal deficit remains high.

Figure 1: Debt-to-GDP ratio (%), outturn vs forecasts



Debt/GDP Difference (Previous One Year)

Period : 2020

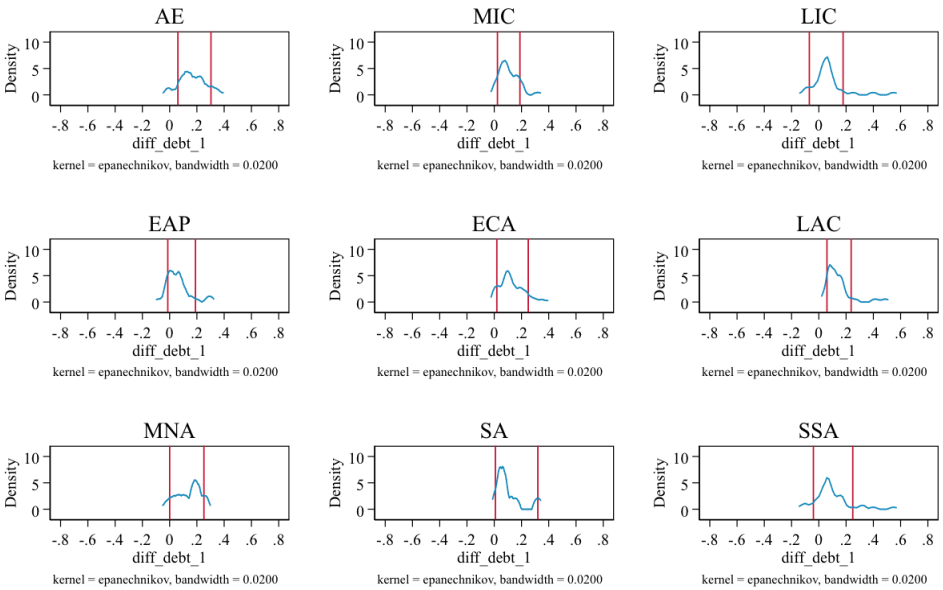
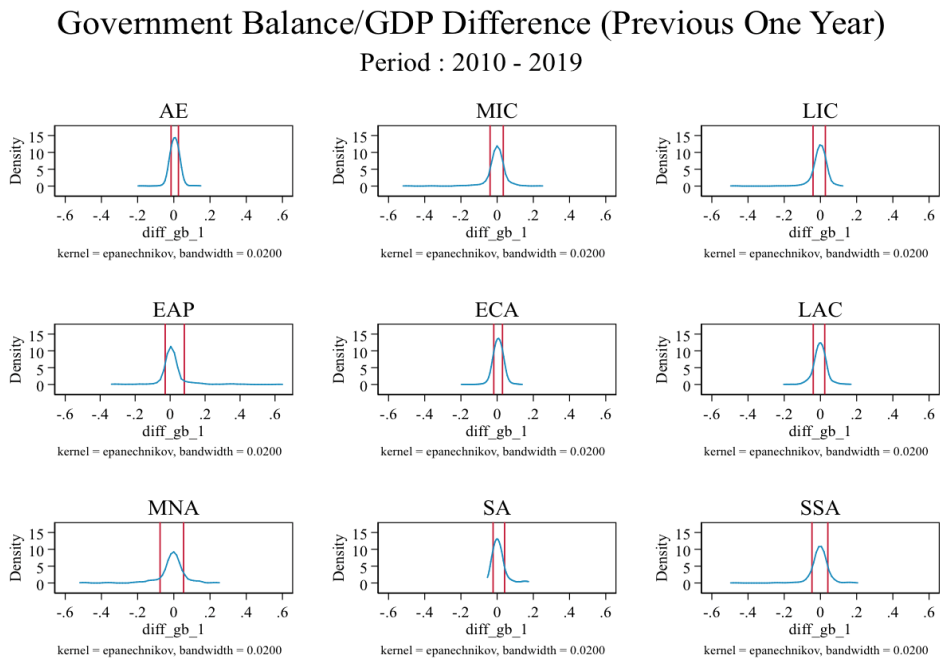


Figure 2: Government Balance-to-GDP ratio (%), outturn vs forecasts



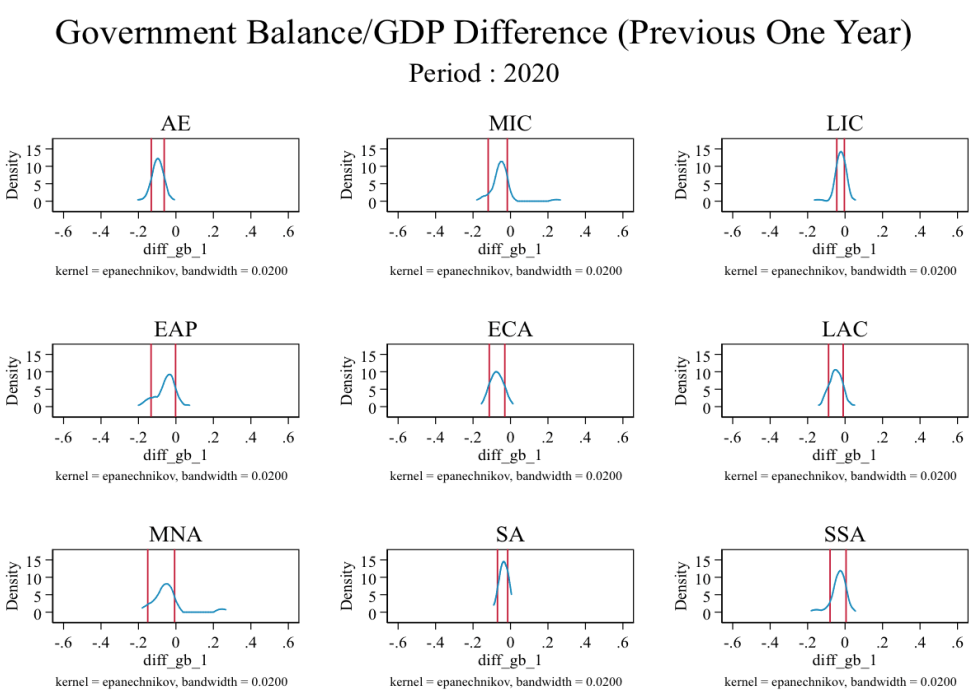
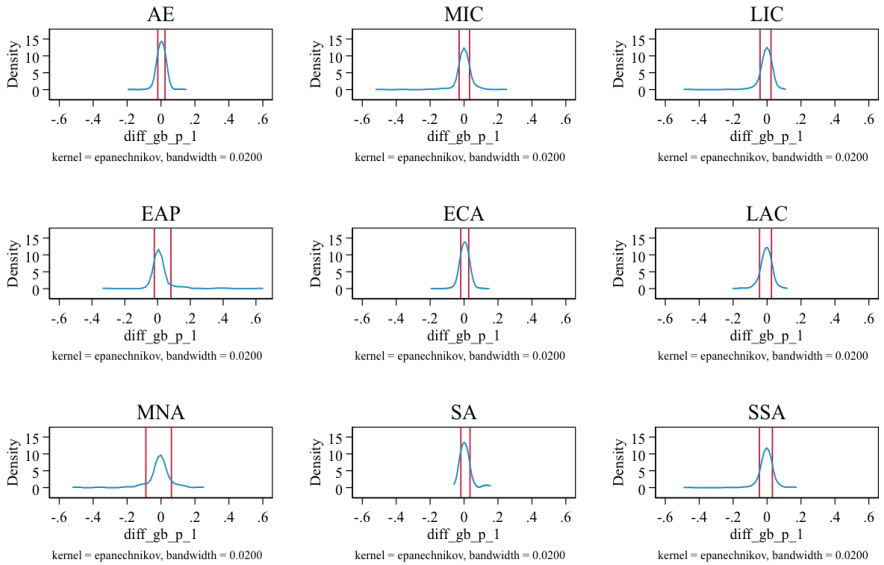


Figure 3: Primary Government Balance-to-GDP ratio (%), outturn vs forecasts

Primary Government Balance/GDP Difference (Previous One Year)

Period : 2010 - 2019



Primary Government Balance/GDP Difference (Previous One Year)

Period : 2020

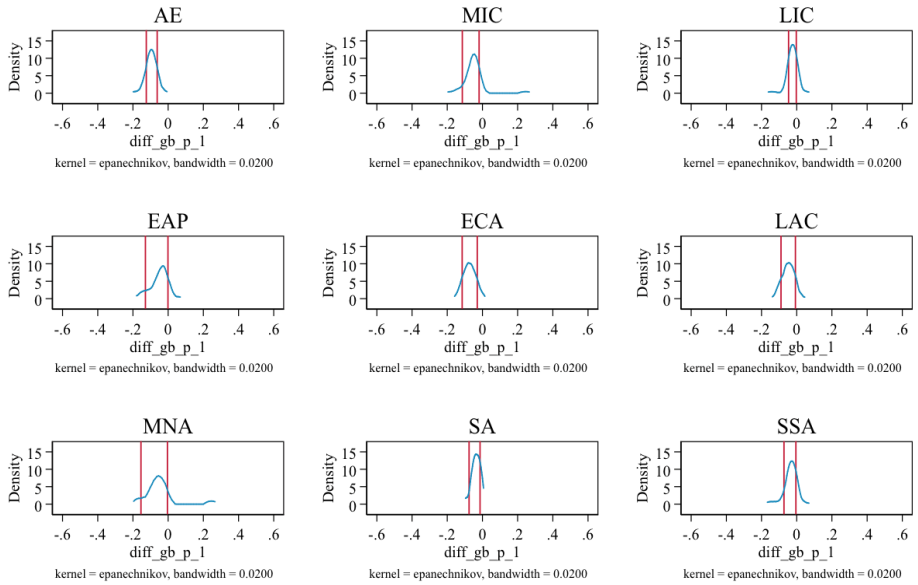


Figure 4: Debt-to-GDP ratio (%), outturn vs forecasts in ADB borrowing countries

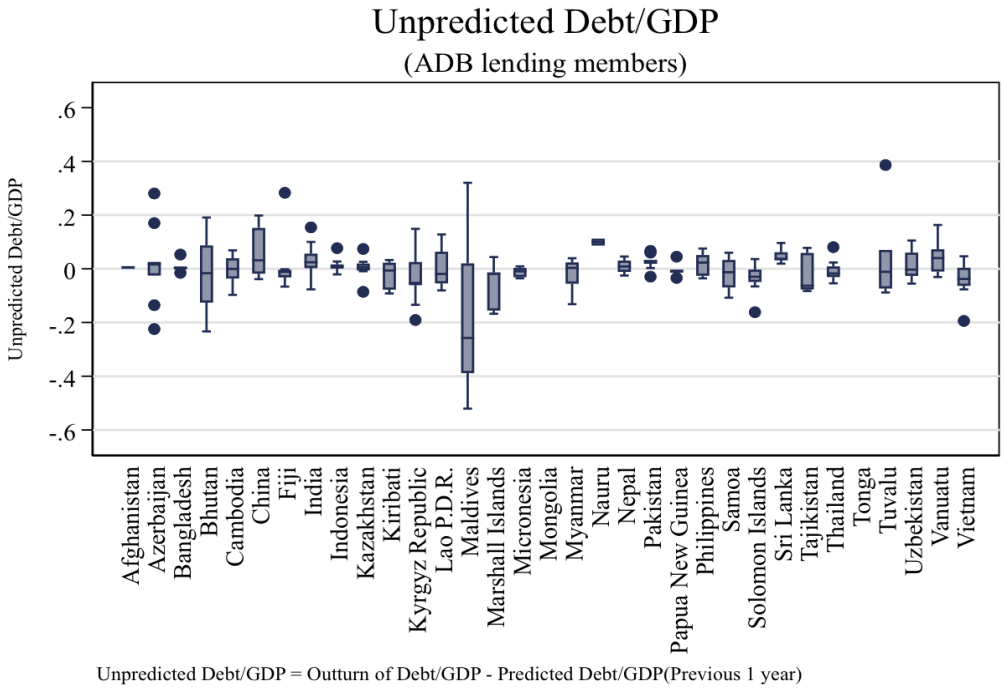


Figure 5: Budget balance-to-GDP ratio (%), outturn vs forecasts in ADB borrowing countries

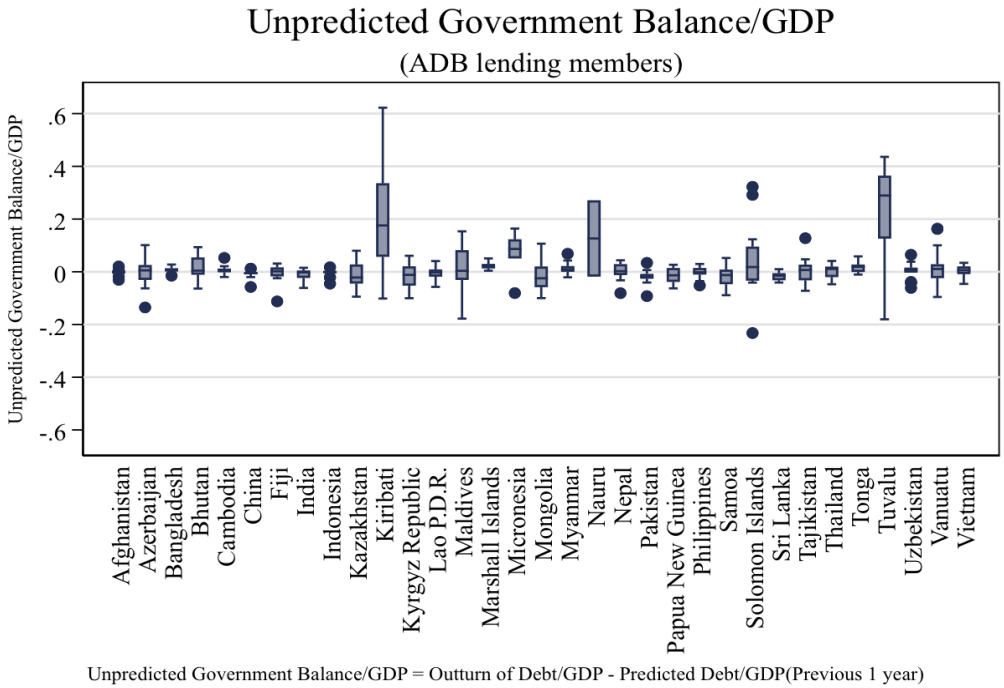


Figure 6: Primary Budget balance-to-GDP ratio (%), outturn vs forecasts in ADB borrowing countries

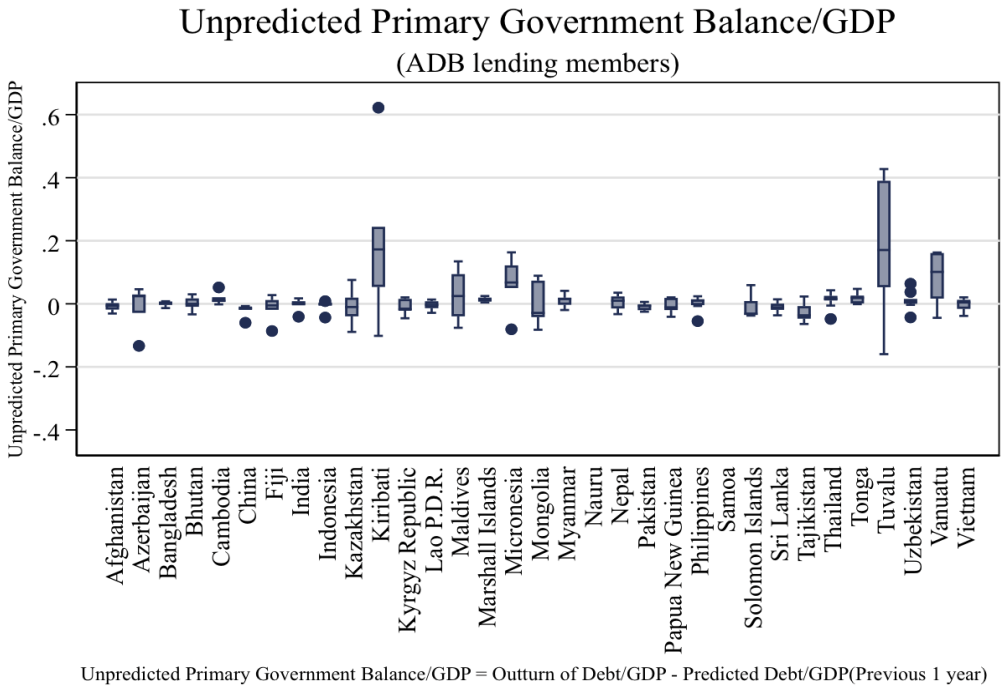


Table A1: Debt-to-GDP ratio (%), outturn vs forecasts, ADB regions

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
All	-0.23	-0.02	9.67	-8.04	-3.33	3.46	7.78	-0.81
CWA	0.08	0.54	8.17	-8.28	-5.25	2.98	7.78	0.24
SA	-2.12	0.74	15.39	-23.31	-2.48	4.74	10.00	-1.35
SEA	-0.36	0.06	5.57	-6.34	-3.78	3.33	6.70	-0.47
EA	6.40	3.17	9.70	-3.85	-1.80	15.20	19.85	0.33
PA	0.01	-1.00	8.75	-8.82	-3.25	2.63	7.27	1.84
Outturn - E_{t-2} (all available years)								
All	-0.03	0.46	11.95	-10.74	-4.56	5.38	11.10	-1.43
CWA	1.24	1.84	10.23	-11.84	-3.55	7.65	12.95	-0.03
SA	-3.59	0.69	19.69	-36.81	-7.03	5.03	12.63	-1.51
SEA	-0.25	0.47	6.70	-8.91	-4.60	5.36	7.88	-0.66
EA	10.72	13.16	11.71	-5.60	-0.11	21.37	22.56	-0.22
PA	-0.08	-1.80	9.33	-8.83	-3.92	1.93	14.63	1.23
Outturn - E_{t-1} (June 2020)								
All	6.09	5.29	8.07	-1.00	0.84	8.68	12.78	1.59
CWA	5.60	6.01	3.94	0.84	1.94	9.74	10.53	0.03
SA	12.04	8.20	10.68	3.07	5.29	15.43	32.02	1.23
SEA	4.67	6.70	6.53	-7.67	1.18	8.06	12.78	-0.85
EA	3.17	3.17		3.17	3.17	3.17	3.17	
PA	4.15	-0.29	9.18	-1.35	-1.00	5.99	18.49	2.03
Outturn - E_{t-1} (June 2020)								
All	4.84	5.30	10.83	-4.63	-2.00	8.54	17.43	0.38
CWA	2.19	6.89	12.14	-22.19	-3.49	11.10	12.93	-1.25
SA	13.76	11.82	13.13	-0.67	5.07	18.78	35.73	0.65
SEA	2.89	7.41	8.07	-11.47	-4.63	8.53	9.95	-0.90
EA	7.01	7.01		7.01	7.01	7.01	7.01	
PA	2.49	0.24	9.22	-5.74	-2.02	5.30	16.62	1.52

Source: Own calculations based on different vintages of WEO. The subregions are defined as follows: CWA: central and Western Asia; SA: South Asia; SEA: Southeast Asia; EA: East Asia; and PA: Pacific.

Table A2: Budget Balance-to-GDP ratio (%), outturn vs forecasts, ADB regions

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
All	0.99	0.00	7.60	-4.57	-2.01	1.93	5.57	3.17
CWA	-0.70	-0.23	4.05	-5.28	-3.06	1.70	3.39	-0.06
SA	-0.09	-0.03	4.79	-4.07	-1.87	1.45	4.55	-0.27
SEA	0.17	0.24	2.18	-2.48	-1.06	1.48	2.58	-0.17
EA	-0.91	-0.78	4.65	-5.85	-3.74	0.61	2.00	0.64
PA	4.34	1.41	12.53	-6.02	-2.08	5.07	21.97	1.89
Outturn - E_{t-2} (all available years)								
All	0.61	-0.17	8.58	-5.30	-2.40	1.97	5.78	1.62
CWA	-1.27	-0.89	4.58	-6.80	-3.73	1.21	4.98	-0.80
SA	-0.57	-0.41	5.03	-5.93	-3.10	1.46	5.10	-0.22
SEA	0.15	0.01	2.28	-2.91	-0.96	1.22	3.25	0.16
EA	-1.25	-1.02	5.43	-9.51	-3.22	0.30	5.00	0.61
PA	3.87	0.61	14.48	-5.08	-2.11	4.63	23.82	0.66
Outturn - E_{t-1} (June 2020)								
All	-4.67	-4.40	3.94	-10.16	-5.36	-1.85	-0.81	-1.57
CWA	-5.35	-4.46	3.82	-13.54	-5.60	-3.08	-1.71	-1.57
SA	-4.01	-3.91	1.84	-6.95	-4.87	-2.92	-1.50	-0.31
SEA	-2.78	-2.14	2.01	-5.20	-4.74	-0.88	-0.19	-0.04
EA	-5.08	-5.08	0.97	-5.76	-5.76	-4.40	-4.40	0.00
PA	-5.74	-4.57	5.69	-11.24	-10.16	-0.81	-0.09	-0.87
Outturn - E_{t-1} (June 2020)								
All	-5.23	-4.02	5.38	-11.13	-5.93	-1.94	-0.96	-1.62
CWA	-5.15	-3.01	5.69	-17.25	-7.03	-1.42	-1.14	-1.59
SA	-4.73	-5.35	1.94	-6.96	-5.93	-2.76	-2.00	0.42
SEA	-2.20	-1.94	2.86	-5.52	-4.52	-0.44	2.89	0.63
EA	-4.36	-4.36	4.81	-7.76	-7.76	-0.96	-0.96	0.00
PA	-7.64	-4.84	7.13	-19.88	-11.13	-2.98	-1.88	-0.97

Source: Own calculations based on different vintages of WEO. The subregions are defined as follows: CWA: central and Western Asia; SA: South Asia; SEA: Southeast Asia; EA: East Asia; and PA: Pacific.

Table A3: Budget balance-to-GDP ratio (%), outturn vs forecasts in ADB borrowing countries

	Mean	SD	Median	Min	Max	Mean	SD	Median	Min	Max
	Outturn - E_{t-1}					Outturn - E_{t-2}				
Afghanistan	-0.13	1.13	-0.15	-3.08	2.03	-0.49	1.60	-0.61	-3.76	1.53
Azerbaijan	-0.61	5.65	0.51	-13.50	10.10	-1.41	7.53	1.78	-17.20	5.94
Bangladesh	0.56	1.05	0.48	-1.50	2.74	0.29	0.98	0.35	-2.00	2.22
Bhutan	1.43	4.20	0.43	-6.38	9.33	-0.29	6.13	0.43	-12.90	9.19
Cambodia	0.76	2.11	0.69	-1.98	5.27	0.91	2.04	0.57	-2.41	4.02
China	-0.77	1.58	-0.58	-5.76	1.20	-1.33	2.09	-1.02	-7.76	1.47
Fiji	-0.36	3.38	0.18	-11.20	3.12	-0.90	3.39	0.27	-11.10	2.59
India	-1.01	2.32	-0.22	-6.14	1.51	-1.45	2.75	-0.46	-5.97	1.92
Indonesia	-0.29	1.40	-0.18	-4.50	1.72	-0.59	1.27	-0.33	-4.52	1.09
Kazakhstan	-1.17	4.67	-2.18	-9.45	7.98	-2.25	5.52	-2.81	-10.30	5.96
Kiribati	19.90	21.30	17.60	-10.20	62.30	15.50	31.10	22.90	-60.40	59.50
Kyrgyz Republic	-1.59	4.98	-1.18	-10.00	6.07	-2.40	5.78	-2.45	-15.60	5.77
Lao P.D.R.	-0.52	2.24	-0.25	-5.74	4.06	-0.36	2.11	-0.77	-3.66	4.48
Maldives	0.10	10.00	0.35	-17.80	15.30	0.31	9.66	0.35	-17.10	14.20
Marshall Islands	2.36	1.63	2.23	0.40	5.07	3.11	2.36	2.56	0.21	6.08
Micronesia	7.16	8.49	8.65	-8.09	16.40	7.73	11.70	9.42	-9.83	22.80
Mongolia	-1.09	6.84	-2.46	-10.00	10.60	-1.16	8.00	-2.09	-10.50	13.00
Myanmar	1.20	2.31	0.85	-2.10	6.83	1.40	2.41	0.82	-1.84	7.23
Nauru	12.60	20.50	12.60	-1.85	27.10					
Nepal	0.31	3.16	0.23	-8.11	4.35	0.19	3.67	0.92	-8.11	5.10
Pakistan	-1.84	2.56	-1.71	-9.24	3.39	-2.05	2.04	-2.33	-5.94	2.10
Papua New Guinea	-1.52	3.06	-1.34	-6.29	2.66	-2.09	3.02	-2.26	-7.60	2.49
Philippines	-0.19	2.01	-0.18	-5.20	2.96	-0.12	2.05	0.15	-5.52	2.20
Samoa	-1.85	3.94	-1.27	-8.89	5.22	-1.19	2.82	-0.77	-7.91	3.56
Solomon Islands	4.22	13.20	1.79	-23.20	32.20	6.37	14.60	-0.14	-11.80	33.40
Sri Lanka	-1.75	1.63	-1.44	-4.08	0.98	-2.42	1.69	-2.15	-5.93	0.69
Tajikistan	0.38	4.99	0.66	-7.21	12.70	-0.23	4.89	-0.85	-8.03	9.20
Thailand	0.26	2.50	1.05	-4.74	4.11	0.05	2.72	0.31	-4.42	3.91
Tonga	1.83	2.15	1.89	-1.05	5.84	1.33	2.54	2.27	-2.98	4.38
Tuvalu	22.20	20.70	28.90	-18.00	43.60	21.60	24.80	26.40	-21.10	45.40
Uzbekistan	0.23	3.24	0.58	-6.13	6.45	-0.01	2.82	0.39	-4.34	6.37
Vanuatu	1.75	6.96	1.06	-9.56	16.30	1.41	7.16	0.66	-9.56	19.60
Vietnam	0.19	2.41	0.56	-4.60	3.40	0.10	2.76	0.94	-3.89	4.94

Table A4: Primary Budget Balance-to-GDP ratio (%), outturn vs forecasts, ADB regions

Group	Mean	Median	SD	P10	P25	P75	P90	Skew
Outturn - E_{t-1} (all available years)								
All	1.50	0.32	8.17	-4.11	-1.85	2.03	6.37	3.79
CWA	-0.73	-0.56	3.75	-4.70	-2.60	1.54	3.72	-0.70
SA	0.40	-0.02	3.91	-3.66	-1.48	1.46	3.51	1.55
SEA	0.32	0.84	2.19	-2.86	-0.70	1.57	2.39	-0.63
EA	-1.01	-1.56	5.37	-7.12	-4.20	-0.72	8.12	0.77
PA	6.47	1.87	14.47	-4.44	-1.38	10.48	24.40	1.87
Outturn - E_{t-2} (all available years)								
All	0.66	-0.04	7.48	-5.26	-2.40	1.76	6.02	2.37
CWA	-1.39	-0.81	4.42	-7.26	-3.00	1.07	4.82	-1.09
SA	-0.06	-0.10	4.07	-5.05	-2.55	1.28	4.84	1.08
SEA	0.20	0.35	2.27	-3.41	-0.89	1.69	2.93	-0.61
EA	-1.42	-1.81	6.91	-11.97	-5.29	2.07	10.69	0.22
PA	4.38	0.97	13.27	-8.52	-2.72	10.44	22.67	1.13
Outturn - E_{t-1} (June 2020)								
All	-4.59	-4.20	3.70	-8.63	-5.76	-1.97	-0.87	-1.32
CWA	-5.47	-4.58	3.64	-13.35	-5.76	-3.08	-2.50	-1.67
SA	-3.86	-3.50	2.06	-7.60	-4.10	-3.10	-1.36	-0.90
SEA	-2.78	-1.97	2.07	-5.49	-4.81	-1.11	-0.18	-0.15
EA	-5.11	-5.11	1.28	-6.01	-6.01	-4.20	-4.20	0.00
PA	-5.67	-4.44	5.47	-15.96	-8.63	-0.87	0.42	-0.56
Outturn - E_{t-1} (June 2020)								
All	-5.06	-3.92	5.31	-9.89	-7.26	-1.80	-0.98	-1.49
CWA	-5.07	-3.00	5.61	-16.88	-7.26	-1.64	-0.98	-1.53
SA	-4.73	-4.96	2.16	-8.22	-5.31	-3.01	-1.95	-0.34
SEA	-2.19	-1.87	2.90	-5.91	-4.32	-0.98	2.86	0.47
EA	-3.93	-3.93	5.70	-7.96	-7.96	0.10	0.10	0.00
PA	-7.74	-5.26	7.30	-20.67	-9.89	-2.72	0.25	-0.77

Source: Own calculations based on different vintages of WEO. The subregions are defined as follows: CWA: central and Western Asia; SA: South Asia; SEA: Southeast Asia; EA: East Asia; and PA: Pacific.

Table A5: Primary Budget balance-to-GDP ratio (%), outturn vs forecasts in ADB borrowing countries

	Mean	SD	Median	Min	Max	Mean	SD	Median	Min	Max
	Outturn - E_{t-1}					Outturn - E_{t-2}				
Afghanistan	-0.75	1.55	-0.59	-3.08	1.35	-0.73	1.68	-0.31	-3.00	1.23
Azerbaijan	-1.25	7.32	2.41	-13.30	4.61	-1.75	10.30	1.93	-16.90	6.02
Bangladesh	0.05	0.81	0.25	-1.36	0.80	-0.64	0.83	-0.44	-1.95	0.20
Bhutan	0.08	2.45	-0.02	-3.35	3.01	-2.74	2.17	-2.81	-5.31	-0.02
Cambodia	1.61	1.90	0.94	-0.18	5.19	1.88	1.68	2.08	-0.07	4.03
China	-2.21	2.17	-1.22	-6.01	-0.72	-3.55	2.98	-2.38	-7.96	-1.47
Fiji	-1.42	4.40	-0.51	-8.63	2.76	-2.68	4.07	-1.30	-8.52	0.38
India	-0.31	1.82	-0.13	-4.10	1.72	-0.39	2.31	0.13	-4.86	1.69
Indonesia	-0.76	2.06	-0.12	-4.36	0.84	-0.94	2.36	-0.32	-4.32	1.18
Kazakhstan	-0.90	5.08	-1.02	-8.91	7.56	-2.55	6.11	-3.87	-9.66	5.30
Kiribati	19.80	27.10	17.20	-10.20	62.20	8.50	21.00	12.70	-20.70	29.30
Kyrgyz Republic	-0.95	2.74	-1.86	-4.58	2.03	-2.03	1.78	-2.21	-3.92	0.22
Lao P.D.R.	-0.41	1.46	-0.31	-2.86	1.35	0.00	1.57	-0.22	-1.85	2.93
Maldives	2.71	7.88	2.46	-7.60	13.50	2.86	7.37	1.28	-8.22	12.00
Marshall Islands	1.33	0.87	1.22	0.42	2.47	2.14	2.25	1.55	0.25	4.63
Micronesia	6.43	9.27	6.75	-8.08	16.30	7.22	13.50	8.06	-9.89	22.70
Mongolia	0.19	7.53	-2.88	-8.23	8.91	0.72	9.52	2.07	-12.00	10.70
Myanmar	1.15	2.08	1.55	-1.97	4.12	0.66	1.62	1.42	-1.87	2.00
Nepal	0.27	2.55	0.99	-3.27	3.51	0.04	3.17	0.51	-5.28	4.84
Pakistan	-0.87	1.06	-0.64	-2.50	0.59	-1.27	1.66	-0.90	-3.57	1.07
Papua New Guinea	-0.74	2.36	-1.12	-4.11	2.03	-1.55	1.90	-1.94	-2.97	1.75
Philippines	0.13	2.46	1.11	-5.49	2.39	-0.18	2.63	0.33	-5.91	1.71
Solomon Islands	-0.73	4.17	-3.18	-3.74	5.92	-2.47	1.69	-2.78	-4.01	-0.29
Sri Lanka	-1.05	1.79	-1.11	-3.66	1.42	-1.17	2.55	-0.27	-5.05	1.67
Tajikistan	-2.64	3.45	-3.65	-6.40	2.32	-3.20	2.87	-2.57	-7.10	-0.56
Thailand	1.07	2.57	1.57	-4.81	4.28	1.22	2.70	1.50	-4.12	3.93
Tonga	1.83	1.98	1.85	-0.11	4.73	1.00	2.69	2.30	-3.03	2.44
Tuvalu	19.10	21.30	17.10	-16.00	42.70	16.70	22.50	12.60	-17.90	44.20
Uzbekistan	1.04	2.92	0.35	-4.31	6.37	0.67	2.51	0.38	-1.82	6.25
Vanuatu	7.94	9.13	10.10	-4.44	16.30	5.30	11.10	3.57	-5.26	19.30
Vietnam	-0.44	2.20	0.41	-3.84	2.05	-1.10	2.17	-1.44	-3.89	1.41

Table A6: Debt-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) EAP	(2) EAP	(3) ECA	(4) ECA	(5) LAC	(6) LAC	(7) MNA	(8) MNA	(9) SA	(10) SA	(11) SSA	(12) SSA
						Outturn - E_{t-1}						
G-E(G)	-0.70***	-0.76***	-1.47***	-1.45***	-0.82***	-0.92***	-0.38***	-0.59***	-1.24***	-1.66***	-0.93***	-0.74***
	(-4.74)	(-4.91)	(-15.68)	(-15.7644)	(-5.71)	(-6.72)	(-4.07)	(-3.82)	(-2.81)	(-4.32)	(-6.07)	(-4.96)
Const.	-0.004	-0.005	-0.009**	-0.008**	-0.003	-0.005	0.021**	0.014	-0.033*	-0.040**	0.024***	0.027***
	(-0.83)	(-0.96)	(-2.40)	(-2.48)	(-0.38)	(-0.70)	(2.49)	(1.62)	(-1.75)	(-2.55)	(3.07)	(3.83)
N. Obs.	252	252	495	495	286	286	165	165	56	56	406	406
R2	0.0825	0.2031	0.3328	0.4685	0.1032	0.3240	0.0925	0.2549	0.1283	0.4816	0.0836	0.3259
						Outturn - E_{t-2}						
G-E(G)	-0.65***	-0.77***	-1.63***	-1.52***	-0.97***	-1.02***	-0.32***	-0.39***	-1.71***	-2.29***	-0.92***	-0.83***
	(-3.70)	(-4.59)	(-13.93)	(-13.62)	(-5.35)	(-6.18)	(-2.85)	(-3.35)	(-2.93)	(-5.51)	(-5.30)	(-5.16)
Const.	-0.0002	-0.002	-0.012**	-0.010**	-0.003	-0.004	0.056***	0.054***	-0.049*	-0.060***	0.042***	0.045***
	(-0.023)	(-0.349)	(-2.312)	(-2.188)	(-0.346)	(-0.534)	(4.882)	(5.040)	(-1.882)	(-3.407)	(4.332)	(5.163)
N. Obs.	214	214	420	420	254	254	145	145	48	48	358	358
R2	0.0608	0.3396	0.3173	0.5066	0.1021	0.4266	0.0539	0.2818	0.1576	0.6847	0.0734	0.3890
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A7: Debt-to-GDP ratio (%) and GDP growth, outturn vs forecasts, ADB regions

	(1) ADB	(2) ADB	(3) CWA	(4) CWA	(5) SA	(6) SA	(7) SEA	(8) SEA	(9) EA	(10) EA	(11) PA	(12) PA
						Outturn - E_{t-1}						
G-E(G)	-0.82***	-1.02***	-0.97***	-1.19***	-1.43***	-1.75***	-0.7***	-0.72***	-0.64	-0.64	-0.47*	-0.55**
	(-4.94)	(-6.39)	(-3.31)	(-3.75)	(-2.79)	(-3.96)	(-2.82)	(-2.82)	(-0.29)	(-0.29)	(-1.91)	(-2.19)
Const.	-0.01*	-0.01**	-0.007	-0.009	-0.05**	-0.05***	-0.01	-0.01	0.06	0.06	-0.005	-0.005
	(-1.77)	(-2.32)	(-0.73)	(-0.91)	(-2.05)	(-2.76)	(-1.43)	(-1.46)	(1.60)	(1.60)	(-0.39)	(-0.47)
N. Obs.	232	232	57	57	44	44	63	63	9	9	59	59
R2	0.0963	0.3425	0.1668	0.2651	0.1569	0.4842	0.1157	0.2297	0.0124	0.0124	0.0606	0.2559
						Outturn - E_{t-2}						
G-E(G)	-0.82***	-1.06***	-0.49	-0.69	-1.98***	-2.38***	-0.67**	-0.68**	-1.87	-1.87	-0.35	-0.45
	(-3.83)	(-5.53)	(-1.30)	(-1.62)	(-3.01)	(-5.06)	(-2.23)	(-2.20)	(-0.81)	(-0.81)	(-1.17)	(-1.61)
Const.	-0.01	-0.01*	0.006	0.003	-0.07**	-0.08***	-0.008	-0.009	0.08	0.08	-0.005	-0.006
	(-1.296	(-1.97)	(0.39)	(0.22)	(-2.38)	(-3.84)	(-0.97)	(-1.00)	(1.73)	(1.73)	(-0.38)	(-0.53)
N. Obs.	201	201	50	50	38	38	56	56	8	8	49	49
R2	0.0687	0.4389	0.0342	0.1286	0.2011	0.6805	0.0844	0.2219	0.0991	0.0991	0.0288	0.3872
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A8: Debt-to-GDP ratio (%) and GDP growth, decomposition of outturn vs forecasts, ADB sub-regions

	pb	***int***	***inf***	***gr***	***ε***	***pb***	***int***	***inf***	***gr***	***ε***
			Outturn - E_{t-1}					Outturn - E_{t-2}		
ADB μ	23.25	2.71	3.35	7.12	59.81	17.01	1.96	3.73	-0.16	70.78
ADB σ	126.54	12.65	30.55	23.70	137.61	91.29	10.77	24.84	20.07	97.65
CWA μ	60.34	2.34	2.27	7.01	23.83	38.76	0.61	1.73	2.65	53.78
CWA σ	113.01	8.69	27.08	21.95	143.17	75.18	8.80	24.35	11.91	112.63
SA μ	5.71	6.86	3.41	17.12	72.85	24.66	4.13	18.87	-6.16	62.78
SA σ	98.28	17.58	29.60	34.70	135.75	69.62	11.66	29.79	27.87	80.00
SEA μ	16.06	2.11	10.45	2.48	69.77	10.81	2.41	2.94	0.09	73.38
SEA σ	83.97	10.73	35.35	15.73	82.84	77.08	7.03	21.92	19.95	48.56
EA μ	-35.51	-4.38	-8.64	2.00	208.45	45.61	2.47	2.16	5.84	58.34
EA σ	154.95	9.37	19.22	5.85	145.09	139.64	19.93	15.25	7.55	201.47
PA μ	20.24	0.84	-1.34	5.40	50.25	-12.80	0.57	-3.04	-0.45	101.21
PA σ	203.95	12.71	29.93	23.07	189.09	135.50	14.28	23.36	22.37	142.38

Source: Own calculations based on different vintages of WEO data.
(μ=mean, σ=standard deviation*)*

Table A9: Government balance-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) EAP	(2) EAP	(3) ECA	(4) ECA	(5) LAC	(6) LAC	(7) MNA	(8) MNA	(9) SA	(10) SA	(11) SSA	(12) SSA
						Outturn - E_{t-1}						
G-E(G)	0.5518***	0.4448***	0.3494***	0.3701***	0.3282***	0.3468***	0.2171***	0.2521***	0.0561	0.0765	0.1882***	0.1834***
	(5.9934)	(5.4843)	(17.3799)	(17.5949)	(7.0290)	(7.7847)	(4.6072)	(5.0420)	(0.5481)	(0.7463)	(5.4398)	(5.2710)
Const.	0.0119***	0.0110***	0.0010	0.0012	0.0001	0.0003	-0.0070	-0.0061	-0.0027	-0.0025	-0.0064***	-0.0065***
	(3.5445)	(3.9185)	(0.9894)	(1.2482)	(0.0482)	(0.1835)	(-1.4831)	(-1.3244)	(-0.6957)	(-0.6527)	(-3.0477)	(-3.2530)
N. Obs.	514	514	920	920	533	533	319	319	133	133	731	731
R2	0.0656	0.3862	0.2476	0.2937	0.0851	0.2609	0.0628	0.1544	0.0023	0.0664	0.0390	0.1967
						Outturn - E_{t-2}						
G-E(G)	0.828***	0.600***	0.418***	0.448***	0.373***	0.312***	0.026	0.016	0.205*	0.205*	0.168***	0.186***
	(7.452)	(6.006)	(14.798)	(15.112)	(5.687)	(4.838)	(0.502)	(0.305)	(1.883)	(1.867)	(4.318)	(4.941)
Const.	0.008*	0.006	-0.0004	0.0001	0.0002	-0.0007	-0.018***	-0.018***	-0.005	-0.005	-0.011***	-0.011***
	(1.862)	(1.542)	(-0.306)	(0.038)	(0.074)	(-0.266)	(-3.058)	(-3.121)	(-1.239)	(-1.233)	(-4.17)	(-4.41)
N. Obs.	461	461	843	843	469	469	280	280	117	117	641	641
R2	0.1079	0.4178	0.2066	0.2662	0.0648	0.2245	0.0009	0.0929	0.0299	0.0834	0.0284	0.2490
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A10: Government balance -to-GDP ratio (%) and GDP growth, outturn vs forecasts, ADB regions

	(1) ADB	(2) ADB	(3) CWA	(4) CWA	(5) SA	(6) SA	(7) SEA	(8) SEA	(9) EA	(10) EA	(11) PA	(12) PA
						Outturn - E_{t-1}						
G-E(G)	0.32***	0.26***	0.09	0.09	0.08	0.12	0.23***	0.24***	0.57***	0.58***	0.83***	0.62***
	(4.11)	(3.87)	(1.46)	(1.31)	(0.54)	(0.78)	(4.46)	(4.37)	(2.85)	(2.80)	(3.06)	(2.68)
Const.	0.01***	0.01***	-0.005	-0.005	-0.0001	0.0002	0.003	0.003*	-0.01	-0.01	0.048***	0.047***
	(3.62)	(4.16)	(-1.29)	(-1.30)	(-0.0277)	(0.04)	(1.63)	(1.66)	(-1.4770)	(-1.4565)	(4.47)	(5.21)
N. Obs.	473	473	103	103	100	100	110	110	31	31	129	129
R2	0.0346	0.3724	0.0209	0.0589	0.0030	0.0532	0.1561	0.2140	0.2189	0.2206	0.0690	0.4007
G-E(G)	0.39***	0.34***	0.03	0.01	0.29*	0.30*	0.20***	0.19***	0.51**	0.57**	1.11***	0.92***
	(4.18)	(3.78)	(0.39)	(0.13)	(1.77)	(1.79)	(3.97)	(3.59)	(2.26)	(2.39)	(3.48)	(3.00)
Const.	0.01**	0.009**	-0.01**	-0.01**	-0.003	-0.003	0.003	0.003	-0.01	-0.01	0.05***	0.05***
	(2.36)	(2.44)	(-2.34)	(-2.38)	(-0.48)	(-0.46)	(1.23)	(1.21)	(-1.31)	(-1.30)	(3.66)	(3.71)
N. Obs.	413	413	89	89	88	88	97	97	27	27	112	112
R2	0.0409	0.2602	0.0018	0.0419	0.0352	0.0801	0.1427	0.1987	0.1707	0.1933	0.0994	0.2834
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A11: Primary balance-to-GDP ratio (%) and GDP growth, outturn vs forecasts

	(1) EAP	(2) EAP	(3) ECA	(4) ECA	(5) LAC	(6) LAC	(7) MNA	(8) MNA	(9) SA	(10) SA	(11) SSA	(12) SSA
						Outturn - E_{t-1}						
G-E(G)	0.772***	0.737***	0.592***	0.634***	0.254***	0.260***	0.105	0.081	0.208*	0.253**	0.220***	0.189***
	(5.555)	(5.846)	(19.067)	(20.141)	(5.826)	(5.841)	(1.454)	(0.965)	(1.735)	(2.047)	(4.200)	(3.935)
Const.	0.018***	0.018***	0.0006	0.0010	-0.005**	-0.005**	-0.014*	-0.015*	0.004	0.005	-0.005	-0.005**
	(3.695)	(4.292)	(0.547)	(0.888)	(-2.181)	(-2.138)	(-1.899)	(-1.888)	(0.849)	(0.989)	(-1.564)	(-2.090)
N. Obs.	241	241	618	618	240	240	138	138	54	54	306	306
R2	0.1144	0.4568	0.3712	0.4503	0.1248	0.2560	0.0153	0.0591	0.0547	0.1914	0.0549	0.4035
						Outturn - E_{t-2}						
G-E(G)	0.737***	0.658***	0.586***	0.638***	0.289***	0.2823***	0.0848	0.0468	0.4540***	0.5065***	0.1075	0.0870
	(5.541)	(4.962)	(16.969)	(18.166)	(6.029)	(5.595)	(1.047)	(0.605)	(4.105)	(4.706)	(1.409)	(1.212)
Const.	0.011**	0.0010**	-0.0009	-0.0003	-0.009***	-0.009***	-0.024***	-0.025***	0.005	0.006	-0.013***	-0.014***
	(2.143)	(2.087)	(-0.697)	(-0.220)	(-3.188)	(-3.243)	(-2.843)	(-3.297)	(1.053)	(1.336)	(-2.865)	(-3.377)
N. Obs.	211	211	570	570	208	208	118	118	46	46	261	261
R2	0.1281	0.3846	0.3364	0.4308	0.1500	0.2965	0.0094	0.3225	0.2769	0.4853	0.0076	0.3795
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A12: Primary Government balance -to-GDP ratio (%) and GDP growth, outturn vs forecasts, ADB regions

	(1) ADB	(2) ADB	(3) CWA	(4) CWA	(5) SA	(6) SA	(7) SEA	(8) SEA	(9) EA	(10) EA	(11) PA	(12) PA
						Outturn - E_{t-1}						
G-E(G)	0.67***	0.62***	0.46***	0.53***	0.20	0.23	0.38***	0.45***	1.12***	1.14***	1.26***	1.01**
	(4.54)	(4.70)	(3.26)	(3.33)	(1.41)	(1.60)	(3.89)	(4.97)	(4.10)	(4.49)	(2.86)	(2.30)
Const.	0.02***	0.02***	-0.00	-0.00	0.00	0.008	0.008**	0.009***	0.0007	0.0009	0.081***	0.078***
	(4.01)	(4.51)	(-0.46)	(-0.33)	(1.12)	(1.19)	(2.67)	(3.27)	(0.06)	(0.08)	(3.97)	(4.10)
N. Obs.	195	195	46	46	41	41	51	51	10	10	47	47
R2	0.0967	0.4492	0.1920	0.2875	0.0486	0.1622	0.2362	0.4575	0.6782	0.7565	0.1540	0.4085
G-E(G)	0.66***	0.61***	0.40**	0.46**	0.49***	0.521***	0.31***	0.37***	1.36**	1.44***	1.04**	0.76
	(4.95)	(4.50)	(2.30)	(2.24)	(3.83)	(4.22)	(2.97)	(3.93)	(3.09)	(4.04)	(2.56)	(1.65)
Const.	0.01***	0.01***	-0.006	-0.005	0.008	0.008	0.006	0.007**	0.005	0.005	0.06***	0.05**
	(2.97)	(2.98)	(-0.92)	(-0.73)	(1.333)	(1.522)	(1.817)	(2.314)	(0.274)	(0.422)	(2.920)	(2.605)
N. Obs.	164	164	39	39	35	35	44	44	8	8	38	38
R2	0.1316	0.3831	0.1253	0.2115	0.3082	0.4943	0.1740	0.4379	0.6150	0.7914	0.1545	0.3186
C. FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A13: Budget balance surprises and GDP growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GR	0.297***	0.720***	0.264***	0.254***				
	(0.0432)	(0.0878)	(0.0421)	(3.635)				
E(GR)	-0.222***	-0.187	-0.212***	-0.436**	-0.220***	-0.178	-0.233***	-0.433**
	(0.0631)	(0.221)	(0.0673)	(-2.32)	(0.053)	(0.206)	(0.052)	(-2.237)
GRxGT					0.284***	0.347**	0.319***	0.112
					(0.082)	(0.143)	(0.090)	(0.746)
GRxBT					0.283***	0.829***	0.239***	0.241***
					(0.060)	(0.0707)	(0.059)	(2.959)
BT					-0.002	-0.012**	0.0026	-0.013
					(0.004)	(0.004)	(0.006)	(1.295)
N. Obs	3,235	683	2,552	473	3,235	683	2,552	473
N. Cy	197	26	171	33	197	26	171	33
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&DEV	ADB	All	AE	EM&DEV	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A14: Budget balance surprises, GDP growth, exchange rate and inflation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.282***	0.314**	0.318***	0.102	0.282***	0.313**	0.319***	0.1001
	(0.0712)	(0.120)	(0.080)	(0.608)	(0.071)	(0.120)	(0.0809)	(0.619)
GRxBT	0.256***	0.706***	0.233***	0.083	0.256***	0.704***	0.232***	-0.0076
	(0.058)	(0.080)	(0.063)	(0.601)	(0.059)	(0.082)	(0.064)	(0.049)
BT	0.0009	-0.010***	0.006	0.00003	0.0009	-0.0105***	0.0063	0.0025
	(0.004)	(0.003)	(0.006)	(0.003)	(0.0044)	(0.003)	(0.0056)	(0.208)
DXR	0.0037	0.0078	0.0024	0.0004	0.0038	0.007	0.0026	-0.019
	(0.010)	(0.006)	(0.0127)	(0.009)	(0.0108)	(0.006)	(0.0127)	(0.401)
INF					-0.0005	-0.013	-0.0002	-0.016
					(0.0016)	(0.081)	(0.001)	(1.340)
E(GR)	-0.175***	-0.119	-0.195***	-0.231	-0.175***	-0.113	-0.195***	-0.284
	(0.056)	(0.197)	(0.055)	(-1.247)	(0.0564)	(0.180)	(0.056)	(1.523)
N. Obs	3,013	657	2,356	435	3,010	657	2,353	435
N. Cy	197	26	171	33	197	26	171	33
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&DEV	ADB	All	AE	EM&DEV	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A15: Budget balance surprises, GDP growth, exchange rate and inflation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GRxGT	0.306***	0.263**	0.363***	0.298	0.300***	0.245*	0.368***	0.288	0.295***	0.261**	0.365***	0.3703
	(0.086)	(0.116)	(0.102)	(0.833)	(0.097)	(0.130)	(0.122)	(0.67)	(0.086)	(0.123)	(0.108)	(0.867)
GRxBT	0.224***	0.658***	0.191**	-0.053	0.156***	0.676***	0.0917*	-0.104	0.154***	0.663***	0.0896*	-0.143
	(0.073)	(0.079)	(0.081)	(0.26)	(0.048)	(0.085)	(0.051)	(-0.38)	(0.045)	(0.0794)	(0.047)	(-0.429)
BT	0.00224	-0.011***	0.0091	0.017	0.0029	-0.012***	0.0116	0.016	0.0029	-0.012***	0.0119*	0.024
	(0.0046)	(0.003)	(0.0061)	(0.82)	(0.005)	(0.0033)	(0.007)	(0.74)	(0.004)	(0.0033)	(0.006)	(1.147)
DXR	0.0201*	0.0112*	0.0210	-0.005	0.031**	0.010	0.0337*	0.011	0.028**	0.0114*	0.0302*	-0.011
	(0.0105)	(0.0062)	(0.012)	(-0.087)	(0.013)	(0.006)	(0.017)	(0.12)	(0.012)	(0.006)	(0.016)	(-0.113)
INF	0.0012**	0.0503	0.001**	-0.0102	0.0070	0.0521	0.0052	0.0003	0.0095	0.0927	0.0079	-0.0062
	(0.0004)	(0.074)	(0.0004)	(-0.794)	(0.0141)	(0.088)	(0.0136)	(0.023)	(0.006)	(0.0827)	(0.005)	(-0.452)
Debt/Y	0.0136	0.017***	0.0129	-0.0039	0.0112	0.021***	0.009	0.0134	0.0086	0.021***	0.0076	0.0119
	(0.008)	(0.005)	(0.009)	(-0.409)	(0.007)	(0.0061)	(0.009)	(0.411)	(0.006)	(0.0057)	(0.008)	(0.312)
GEX/Y					-0.021***	-0.053	-0.019***	-0.071				
					(0.0058)	(0.0318)	(0.006)	(-0.46)				
INT/Y									-0.0878	-0.146*	-0.128	1.0550
									(0.139)	(0.072)	(0.241)	(0.992)
E(GR)	-0.193***	0.0109	-0.226***	-0.310	-0.164**	-0.0271	-0.211***	-0.402	-0.16***	0.0521	-0.212***	-0.108
	(0.055)	(0.192)	(0.0550)	(-1.64)	(0.071)	(0.192)	(0.0782)	(-1.608)	(0.0626)	(0.208)	(0.0683)	(-0.83)
N. Obs	2,810	647	2,163	393	2,477	620	1,857	341	2,439	615	1,824	320
N. Cy	192	26	166	33	191	26	165	32	185	26	159	30
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A16: Primary Budget balance surprises, GDP growth, exchange rate and inflation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GRxGT	0.251**	0.238	0.409*	0.79802	0.262**	0.229	0.444**	0.691	0.226*	0.250	0.381*	0.759
	(0.124)	(0.165)	(0.207)	(0.675)	(0.130)	(0.171)	(0.200)	(0.492)	(0.129)	(0.168)	(0.224)	(0.623)
GRxBT	0.182**	0.753***	0.0043	-0.356	0.165**	0.758***	-0.00527	-0.280	0.176**	0.739***	0.0142	-0.314
	(0.081)	(0.0902	(0.099)	(0.578)	(0.0817)	(0.0888)	(0.101)	(0.503)	(0.0808)	(0.0933)	(0.101)	(0.51)
BT	-0.0004	-0.012***	0.016		0.00036	-0.013***	0.0176*		-0.00109	-	0.0152	
				0.060				0.0474		0.0123***		0.055
	(0.0054)	(0.0042)	(0.0107)	(1.260)	(0.0056)	(0.004)	(0.0104)	(0.677)	(0.00557)	(0.00431)	(0.0113)	(1.113)
DXR	0.0351***	0.0107	0.044**	0.0165	0.0286**	0.0101	0.0362*	0.030	0.0347***	0.00961	0.0407**	0.023
	(0.0120)	(0.0083)	(0.0203)	(0.126)	(0.011)	(0.0080)	(0.0196)	(0.202)	(0.0120)	(0.00819)	(0.0200)	(0.178)
INF	0.0614***	0.243**	0.038**	-0.064	0.058***	0.240**	0.0366*	-0.015	0.0596***	0.263***	0.0406**	-0.030
	(0.017)	(0.092)	(0.0183)	(0.345)	(0.019)	(0.0918)	(0.0207)	(-0.078)	(0.0179)	(0.0824)	(0.0180)	(0.16)
Debt/Y	0.0266**	0.018***	0.055*	-0.403	0.04***	0.021***	0.0644**	-0.342	0.0247**	0.0229***	0.0313	-0.44
	(0.010)	(0.005)	(0.0301)	(-1.482)	(0.012)	(0.0076)	(0.0287)	(1.259)	(0.0107)	(0.00691)	(0.0364)	(1.602)
GEX/Y					-0.201**	-0.0272	-0.245*	-0.189				
					(0.098)	(0.0556)	(0.129)	(0.700)				
INT/Y									0.170	-0.202***	0.828**	2.619
									(0.111)	(0.0688)	(0.371)	(1.53)
E(GR)	-0.027	0.0615	-0.110*	-0.452	-0.0245	0.0413	-0.0840	-0.3413	-0.0315	0.125	-0.108*	-0.348
	(0.0614)	(0.220)	(0.0604)	(-1.32)	(0.0602)	(0.215)	(0.0580)	(0.778)	(0.0619)	(0.225)	(0.0565)	(1.155)
N. Obs	1,437	510	927	156	1,431	504	927	156	1,417	504	913	156
N. Cy	182	26	156	29	182	26	156	29	181	26	155	29
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A17: Budget balance surprises, GDP growth, exchange rate, inflation, and fiscal variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.295***	0.260**	0.366***	0.3744	0.306***	0.223*	0.369***	0.5526
	(0.0883)	(0.123)	(0.110)	(1.03)	(0.0932)	(0.111)	(0.115)	(1.019)
GRxBT	0.150***	0.660***	0.0803	-0.169	0.145***	0.617***	0.0954*	-0.1123
	(0.0489)	(0.0779)	(0.0527)	(0.51)	(0.0471)	(0.0874)	(0.0491)	(0.296)
BT	0.00275	-0.0117***	0.0119*	0.0241	0.00452	-0.0120***	0.0122*	0.0354
	(0.00487)	(0.00334)	(0.00675)	(1.265)	(0.00521)	(0.00307)	(0.00694)	(1.387)
DXR	0.0286**	0.0114*	0.0303*	-0.0128	0.0303*	0.0155*	0.0317	-0.0298
	(0.0136)	(0.00638)	(0.0181)	(0.143)	(0.0154)	(0.00797)	(0.0200)	(0.256)
INF	0.0114	0.0871	0.00950	-0.001	0.0129	0.287**	0.0106	-0.0016
	(0.0132)	(0.0879)	(0.0127)	(0.129)	(0.0140)	(0.107)	(0.0137)	(0.108)
Debt/Y	0.00871	0.0209***	0.00825	0.0034	0.00768	0.0275**	0.00744	-0.0191
	(0.00675)	(0.00556)	(0.00872)	(0.077)	(0.00765)	(0.0109)	(0.00940)	(0.264)
INT/Y	-0.0954	-0.145*	-0.149	1.2192	-0.0588	-0.164*	-0.120	1.564
	(0.143)	(0.0712)	(0.260)	(1.103)	(0.154)	(0.0825)	(0.264)	(1.150)
GR/Y	0.0124	-0.0131	0.0232	0.132				
	(0.0690)	(0.0476)	(0.0733)	(1.0589				
TR/Y					-0.0740	0.0160	-0.0871	0.2556
					(0.0827)	(0.0402)	(0.0910)	(1.705)
E(GR)	-0.162**	0.0552	-0.209***	-0.1024	-0.175***	0.0581	-0.218***	-0.2561
	(0.0645)	(0.208)	(0.0701)	(0.734)	-0.175***	0.0581	-0.218***	(1.0921)
N. Obs	2,408	615	1,793	320	2,172	469	1,703	267
N. Cy	192	26	166	30	192	26	166	26
Cy FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A18: Budget balance surprises, GDP growth, exchange rate, inflation, fiscal variables, and control of corruption

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.230***	0.248*	0.288***	0.809	0.236***	0.215	0.288***	0.6835
	(0.0621)	(0.127)	(0.0839)	(1.2888)	(0.0604)	(0.133)	(0.0800)	(1.146)
GRxBT	0.201***	0.621***	0.124**	0.091	0.205***	0.635***	0.128**	-0.0727
	(0.0569)	(0.0792)	(0.0580)	(0.299)	(0.0554)	(0.0855)	(0.0553)	(0.270)
BT	-0.000979	-0.0104***	0.00647	0.045	-0.00143	-0.0120***	0.00550	0.0400
	(0.00409)	(0.00364)	(0.00595)	(1.487)	(0.00391)	(0.00427)	(0.00568)	(1.360)
DXR	0.0245	0.0181**	0.0225	-0.0419	0.0221	0.0134	0.0195	-0.050
	(0.0157)	(0.00820)	(0.0224)	(0.331)	(0.0156)	(0.00835)	(0.0220)	(0.395)
INF	0.0192	0.319***	0.0129	-0.058	0.0126	0.229**	0.00670	-0.1063
	(0.0336)	(0.0893)	(0.0318)	(0.623)	(0.0246)	(0.0902)	(0.0229)	(1.044)
Debt/Y	0.0146	0.0216**	0.0144	0.029	0.0118	0.0194**	0.0126	-0.002
	(0.0101)	(0.00974)	(0.0130)	(0.562)	(0.00799)	(0.00864)	(0.0102)	(0.055)
INT/Y	-0.0714	-0.106	-0.173	1.085	-0.180	-0.188**	-0.306	-0.553
	(0.184)	(0.0752)	(0.307)	(1.313)	(0.166)	(0.0837)	(0.244)	(1.452)
Corr.	-0.0798	-0.0223	-0.102	-0.0248	-0.0782	0.0364	-0.0906	0.0180
	(0.0857)	(0.0404)	(0.0957)	(1.089)	(0.0581)	(0.0236)	(0.0656)	(0.925)
E(GR)	0.00288	-0.0227**	0.00657	-0.1104	0.00506	0.00130	0.00823**	-0.3677
	(0.00665)	(0.00943)	(0.00758)	(0.596)	(0.00325)	(0.00231)	(0.00416)	(1.381)
N. Obs	1,801	429	1,372	272	1,801	429	1,372	272
N. Cy	167	22	145	30	167	22	145	30
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A19: Budget balance surprises, GDP growth, exchange rate, inflation, fiscal variables, and budget institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.301**	0.503***	0.395**	0.0903	0.284**	0.606***	0.366***	0.0474
	(0.126)	(0.147)	(0.153)	(0.50)	(0.118)	(0.133)	(0.141)	(0.233)
GRxBT	0.146	0.710***	0.0932	-0.0121	0.160**	0.727***	0.0992	-0.2287*
	(0.0925)	(0.219)	(0.0962)	(0.074)	(0.0696)	(0.226)	(0.0707)	(1.676)
BT	0.00870	-0.00140	0.0174**	0.0031	0.00820	0.00101	0.0160*	0.0104
	(0.00631)	(0.00581)	(0.00865)	(0.175)	(0.00621)	(0.00526)	(0.00820)	(0.627)
DXR	0.0546***	0.0308	0.0530***	0.0991*	0.0580***	0.0312	0.0597***	0.087
	(0.0132)	(0.0360)	(0.0141)	(1.854)	(0.0125)	(0.0337)	(0.0134)	(1.554)
INF	0.0626***	0.346**	0.0570***	0.1248**	0.0498***	0.267***	0.0423***	0.065
	(0.0153)	(0.155)	(0.0152)	(2.441)	(0.0136)	(0.103)	(0.0128)	(0.984)
Debt/Y	0.0385*	0.0252	0.0338	0.0579	0.0224**	0.0100***	0.0327*	0.027
	(0.0205)	(0.0142)	(0.0282)	(0.690)	(0.00949)	(0.00317)	(0.0176)	(1.353)
INT/Y	0.539**	-0.373*	0.783**	2.2210**	-0.0146	-0.367***	-0.0647	-0.378*
	(0.245)	(0.191)	(0.320)	(2.418)	(0.122)	(0.139)	(0.183)	(1.942)
OBI	-0.0003	-0.0002	-0.0002	-0.0001	-4.22e-05	-0.0002	-2.61e-05	-0.0001
	(0.0001)	(0.0002)	(0.0001)	(0.647)	(6.31e-05)	(0.0002)	(7.68e-05)	(1.037)
E(GR)	-0.0233	-0.110	-0.0370	0.1747	-0.0595*	-0.0847	-0.0741**	0.0880
	(0.0430)	(0.383)	(0.0430)	(1.146)	(0.0342)	(0.308)	(0.0328)	(0.850)
N. Obs	848	130	718	150	848	130	718	150
N. Cy	113	14	99	19	113	14	99	19
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A20: Budget balance surprises, GDP growth, exchange rate, inflation, fiscal variables, and capital controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.266***	0.259*	0.334***	0.246	0.265***	0.231	0.328***	0.0053
	(0.0743)	(0.127)	(0.0953)	(0.535)	(0.0790)	(0.148)	(0.102)	(0.015)
GRxBT	0.141***	0.664***	0.0772	-0.152	0.145***	0.697***	0.0836*	-0.2812
	(0.0455)	(0.0825)	(0.0486)	(0.437)	(0.0411)	(0.0832)	(0.0432)	(-0.928)
BT	0.00169	-0.0116***	0.0104*	0.013	0.00135	-0.0137***	0.00953	0.0011
	(0.00420)	(0.00332)	(0.00577)	(0.643)	(0.00444)	(0.00445)	(0.00615)	(0.070)
DXR	0.0284**	0.00897	0.0301*	-0.0107	0.0267**	0.00909	0.0282	-0.0058
	(0.0134)	(0.00692)	(0.0174)	(0.102)	(0.0136)	(0.00687)	(0.0176)	(-0.058)
INF	-0.0116	0.155*	-0.0142	-0.060	-0.00824	0.0814	-0.00987	-0.0874
	(0.0214)	(0.0819)	(0.0206)	(0.478)	(0.0185)	(0.0875)	(0.0178)	(-0.682)
Debt/Y	0.0108*	0.0205***	0.0104	0.0379	0.00680	0.00954***	0.00634	0.0039
	(0.00640)	(0.00582)	(0.00804)	(1.299)	(0.00525)	(0.00334)	(0.00655)	(0.152)
INT/Y	-0.110	-0.130*	-0.158	0.6508	-0.146	-0.0880*	-0.220	-0.4825
	(0.144)	(0.0720)	(0.246)	(0.689)	(0.115)	(0.0449)	(0.177)	(-1.199)
Ka Open	-0.0142*	0.0163	-0.0182*	-0.038*	-0.00233	0.000956	-0.00278	0.0073
	(0.00859)	(0.0109)	(0.00944)	(1.729)	(0.00484)	(0.00770)	(0.00572)	(0.338)
E(GR)	-0.132***	0.0545	-0.178***	-0.0315	-0.136***	-0.112	-0.179***	-0.2574
	(0.0454)	(0.212)	(0.0506)	(0.245)	(0.0512)	(0.173)	(0.0588)	(-1.219)
N. Obs	2,357	594	1,763	311	2,357	594	1,763	311
N. Cy	174	25	149	29	174	25	149	29
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A21: Budget balance surprises, GDP growth, exchange rate, inflation, fiscal variables, and rating

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GRxGT	0.176**	0.262**	0.235**	0.133	0.201***	0.245*	0.288***	-0.305
	(0.0720)	(0.122)	(0.117)	(0.541)	(0.0646)	(0.141)	(0.101)	(1.02)
GRxBT	0.321***	0.667***	0.0903	-0.031	0.339***	0.688***	0.123*	-0.2836**
	(0.0891)	(0.0761)	(0.103)	(0.277)	(0.0673)	(0.0770)	(0.0646)	(2.01)
BT	-0.00741**	-0.0118***	0.00296	0.0083	-0.00717**	-0.0129***	0.00409	-0.0173
	(0.00328)	(0.00332)	(0.00634)	(0.460)	(0.00317)	(0.00420)	(0.00578)	(0.91)
DXR	0.0297***	0.0120*	0.0381***	0.0452	0.0264***	0.0108*	0.0312***	0.076*
	(0.00972)	(0.00682)	(0.0135)	(1.232)	(0.00906)	(0.00641)	(0.0115)	(1.81)
INF	0.0467**	0.0973	0.0325**	-0.0066	0.0405***	0.0582	0.0312***	-0.0739***
	(0.0203)	(0.0807)	(0.0140)	(0.138)	(0.0146)	(0.0845)	(0.00902)	(2.696)
Debt/Y	0.0284***	0.0172***	0.0602***	-0.0131	0.0204***	0.00876**	0.0405***	0.0111
	(0.00898)	(0.00561)	(0.0179)	(0.283)	(0.00591)	(0.00362)	(0.0113)	(0.427)
INT/Y	-0.0790	-0.142*	-0.375*	0.424	-0.134*	-0.126**	-0.341**	-0.227
	(0.0925)	(0.0744)	(0.204)	(0.528)	(0.0772)	(0.0564)	(0.161)	(0.773)
S&P	-0.000260	-0.000760	-0.000830	0.0028	0.000391	-0.000646	0.00111*	0.0030**
	(0.000760)	(0.000988)	(0.00104)	(1.293)	(0.000281)	(0.000499)	(0.000619)	(1.962)
E(GR)	-0.164	0.0671	-0.243**	0.0001	-0.253***	-0.0214	-0.359***	-0.1477
	(0.111)	(0.210)	(0.112)	(0.0011)	(0.0944)	(0.176)	(0.0997)	(1.140)
N. Obs	1,638	615	1,023	153	1,638	615	1,023	153
N. Cy	136	26	110	16	136	26	110	16
Cy FE	Yes	Yes	Yes	Yes	No	No	No	No
Sample	All	AE	EM&D	ADB	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A22: Budget balance surprises, GDP growth, exchange rate, inflation, fiscal variables, corruption, capital controls and rating

	(1)	(2)	(3)	(4)
GRxGT	0.212***	0.148	0.292**	-0.451
	(0.0701)	(0.131)	(0.115)	(1.469)
GRxBT	0.332***	0.676***	0.132*	-0.364***
	(0.0685)	(0.0765)	(0.0672)	(-3.514)
BT	-0.00539	-0.0147***	0.00462	-0.015
	(0.00351)	(0.00434)	(0.00655)	(0.789)
DXR	0.0269***	0.00748	0.0346***	0.1385***
	(0.00899)	(0.00767)	(0.0115)	(3.970)
INF	0.0483***	0.220**	0.0401***	0.028
	(0.0105)	(0.106)	(0.00500)	(0.927)
Debt/Y	0.0194***	0.00890**	0.0391***	0.011
	(0.00610)	(0.00370)	(0.0118)	(0.476)
INT/Y	-0.160*	-0.0467	-0.400**	0.035
	(0.0904)	(0.0628)	(0.157)	(0.109)
Corr.	0.00178	0.00721***	0.00368	0.016**
	(0.00182)	(0.00222)	(0.00242)	(2.554)
Ka Open	0.00491	0.00644	0.00558	0.041***
	(0.00406)	(0.00904)	(0.00419)	(3.087)
S&P	6.66e-05	-0.00133*	0.000725	0.003***
	(0.000399)	(0.000790)	(0.000549)	(3.172)
E(GR)	-0.276***	-0.109	-0.376***	0.0295
	(0.103)	(0.178)	(0.102)	(0.376)
N. Obs	1,449	504	945	138
N. Cy	130	24	106	16
Cy FE	No	No	No	No
Sample	All	AE	EM&D	ADB

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A23: Outliers, countries for which the outturn was worse than expected

Country	Year	Outturn minus expectations (%)			Debt (%)		Bal (%)		P. Bal. (%)		Ranking		
		Debt	Bal	P. Bal.	t	t-1	t	t-1	t	t-1	Debt	Bal	P. Bal.
Azerbaijan	2016	28.0	2.8	3.0	50.7	35.0	-1.2	-4.8	-0.8	-4.4	1		
Azerbaijan	2015	17.0	-3.0	-2.9	35.0	11.2	-4.8	3.2	-4.4	3.3	2	11	15
Vanuatu	2016	16.3	1.6	1.7	46.1	27.5	-6.1	6.1	-5.1	7.0	3		
Kyrgyz Republic	2015	14.9	2.1	2.0	64.9	52.3	-1.2	1.9	-0.2	2.7	4		
Lao P.D.R.	2014	10.1	0.2	0.4	61.2	57.0	-4.5	-5.6	-3.7	-4.5	5		
India	2015	10.0	-0.4	-0.2	69.5	68.3	-7.1	-7.3	-2.5	-2.8	6		
Philippines	2017	7.5	1.1	1.0	39.9	39.0	-0.4	-0.4	1.3	1.5	7		
Tajikistan	2016	7.5	-7.2	-6.4	42.0	34.3	-9.8	-1.9	-8.3	-1.5	8	3	3
Kazakhstan	2015	7.4	-9.4	-8.9	21.9	14.1	-6.3	1.7	-5.9	1.3	9	1	1
Tuvalu	2016	7.0			47.2	53.6					10		
Mongolia	2016		-9.0	-8.2			-17.0	-8.5	-13.0	-5.6		2	2
Kazakhstan	2016	0.9	-5.1	-4.0	19.7	21.9	-5.3	-6.3	-4.7	-5.9		4	6
Papua New Guinea	2016	4.5	-4.1	-4.1	36.9	30.8	-5.2	-4.3	-3.1	-2.5		5	4
Vietnam	2013	1.9	-4.0	-3.8	52.6	48.5	-7.4	-6.8	-5.9	-5.6		6	8
Solomon Islands	2017		-3.8	-3.7	9.5	7.9	-4.4	-3.9	-4.2	-3.8		7	9
Solomon Islands	2016		-3.4	-3.5	7.9	10.1	-3.9	-0.2	-3.8	0.2		8	11
Nepal	2018	3.1	-3.2	-3.3	30.2	26.1	-6.7	-3.1	-6.2	-2.8		9	13
Tajikistan	2017		-3.2	-3.6			-6.0	-9.8	-5.5	-8.3		10	10
Maldives	2014		-2.4	-3.9			-9.4	-8.2	-6.6	-5.7		14	7
Maldives	2016		-2.2	-4.0			-9.1	-7.5	-7.2	-5.4			5
Average		9.7	-2.8	-2.8	39.7	33.6	-6.1	-3.5	-4.7	-2.3			

Table A24: Outliers, countries for which the outturn was better than expected

Country	Year	Outturn minus expectations (%)			Debt (%)		Bal (%)		P. Bal. (%)		Ranking		
		Debt	Bal	P. Bal.	t	t-1	t	t-1	t	t-1	Debt	Bal	P. Bal.
Bhutan	2015	-23.3	2.2	1.7	94.3	93.8	-0.2	2.9	1.4	4.7	139		
Azerbaijan	2018	-22.4	4.9	4.6	18.7	22.5	5.5	-1.4	6.2	-0.8	138		
Vietnam	2018	-19.4	2.4	1.6	44.2	58.2	-3.5	-4.7	-1.9	-2.7	137		
Azerbaijan	2017	-13.5	2.6	2.4	22.5	50.7	-1.4	-1.2	-0.8	-0.8	136		
Kyrgyz Republic	2017	-13.4	-1.9	-1.9	58.8	55.9	-4.6	-5.9	-3.5	-4.8	135		
Myanmar	2014	-13.2	4.3	4.1	29.7	34.8	-0.6	-1.8	0.8	-0.2	134		
Cambodia	2018	-9.7	5.3	5.2	28.6	30.0	0.7	-0.8	1.1	-0.5	133		
Kiribati	2018	-9.2	5.7	5.4	19.7	21.6	-1.1	11.7	-0.9	11.9	132		
Tuvalu	2018	-8.8	28.9	35.3	25.3	37.0	32.0	13.9	30.9	9.8	131	160	161
Kazakhstan	2011	-8.6	8.0	7.6	10.4	10.7	6.0	1.5	5.8	1.9	130		
Tuvalu	2013	-1.1	36.5	42.7	41.1	43.0	26.3	9.3	26.0	7.4		162	162
Tuvalu	2015	4.9	34.1	5.3	53.6		29.7		-1.7			161	
Kiribati	2017	-7.8	24.8	24.4	21.6	22.9	11.7	9.9	11.9	10.1		159	160
Tuvalu	2017	-7.3	18.1	17.1	37.0	47.2	13.9	7.2	9.8	1.8		158	158
Kiribati	2016	3.3	17.3	17.2	22.9	22.1	9.9	41.9	10.1	42.0		157	159
Micronesia	2018	-3.5	16.4	16.3	18.8	22.1	25.0	14.6	25.2	14.8		156	157
Vanuatu	2017		16.3	16.3	52.1	46.1	-0.9	-6.1	0.1	-5.1		155	156
Vanuatu	2018		16.2	16.1	48.5	52.1	6.4	-0.9	7.4	0.1		154	155
Maldives	2017		15.3	13.5	61.6	61.7	-3.1	-9.1	-1.7	-7.2		153	154
Maldives	2013		15.3	13.4	66.7	75.4	-8.2	-9.4	-5.7	-6.3		152	153
Average		-9.6	13.6	12.4	38.8	42.5	7.2	3.8	6.0	4.0			