

The European fiscal compact will be hard to implement

Dimitrios Malliaropoulos

Economic Research Advisor
dmalliaropoulos@eurobank.gr

Vasilis Zarkos

Economic Analyst
vzarkos@eurobank.gr

- The cyclically adjusted budget balance (CAB) has taken center stage as a policy decision tool in the recently agreed fiscal compact, which aims at enhancing fiscal surveillance among euro area members.
- A major merit of the CABs is that they provide a more accurate picture of a country's underlying fiscal stance, independent of business cycle variations. However, real time data, available at the time of decision making, may differ from the revised figures, raising concerns about their accuracy.
- We find evidence that substantial revisions of real time CAB data limit their reliability in measuring both the level and the change of a country's budget balance, underestimating both fiscal slippages and fiscal consolidations.
- The limited reliability of real time CABs raises enforcement risks of the fiscal compact, challenging its effectiveness to lead to a fiscally sounder Euro zone.

Overview

The use of structural budget balance data in the fiscal surveillance and discipline framework of the European Union has become increasingly important over the years. Initially, it was mainly used as an analytical tool to assess the fiscal stance of the EU members. After the revision of the Stability and Growth Procedure framework in 2005, the measure acquired an upgraded role, as it was decided that a country's progress towards the medium term budgetary objective be measured in cyclically adjusted terms. The structural budget balance took center stage in the recently approved fiscal compact. Under the compact, the cyclically adjusted budget balance measure has become the main fiscal policy decision tool, used to assess the health of a country's public finances, provide policy recommendations in case of deviations, monitor its efforts to return to budgetary balance and finally, impose fines if the country systematically fails to adopt corrective fiscal action.

substantially from the revised figures due to several sources of measurement errors, raising concerns about their accuracy¹. The impact of the revisions on the reliability of CAB figures as a policy decision tool in the conduction of fiscal policymaking motivates this study. Substantial revisions of the budget balance figures imply that real time CABs may not reveal the true state of a country's public finances. This raises the likelihood that the European authorities adopt wrong policy recommendations and decisions, including fines. In addition, data revisions may lead EU members to question the necessity of engaging in fiscal consolidation before some time elapses and a clearer picture of their fiscal situation is available. Hence, measurement errors of real time CABs could raise enforcement risks of the fiscal compact, challenging its effectiveness to lead to a fiscally sounder European Union.

In practice, the implementation of the fiscal compact is based on the real time cyclically adjusted budget balance data (hereafter CABs) available at the time of decision making. However, real time data may differ

¹ For a review of the literature on revisions in fiscal data see Cimadomo J. (2011)

In our study we examine the effectiveness of real time CAB data to accurately assess in a timely manner a country's structural fiscal stance. We find evidence that substantial revisions of real time CAB reduce the reliability of the measure. Our results are broadly in line with the findings reported in Hughes et al (2012). First, we examine whether real time CABs can detect a structural fiscal deficit larger than 0.5%, implying that the country has violated the fiscal rule incorporated in the fiscal compact. We find that real time CAB exhibit a detection failure rate equal to 16.5%. More worryingly to the fiscal surveillance framework's reliability, it turns out that there is 8.3% probability that a country is "caught" for breaking the rule is ex-post proven to be "innocent". By increasing the deficit that real time CABs are called to detect we find that the failure rate increases for higher "trigger" values of the deficit. Hence a looser fiscal rule is less effective than a stricter one.

We also find evidence that the reduced capacity of real time CAB to correctly assess the true state of the structural balance pertains to both periphery members and the fiscally more prudent core countries. In particular, Greece has a lower probability to get away with a budget deficit larger than 0.5% of GDP without being caught than Austria, Belgium and the Netherlands.

As a further step, given the EU members' obligation to take fiscal adjustment action in case of excessive deficits, we analyze the accuracy of real time CABs in measuring changes of the structural budget balance. We find that there is 27% probability of erroneously signaling a fiscal slippage that could potentially lead to the imposition of unfair fiscal retrenchment recommendations or even punishment. Finally, we find that for every percentage point of true change of the cyclically adjusted balance only 0.25% is showed up in real time. Hence, real time data tend to underestimate both fiscal slippages and efforts of member states to improve their public finances.

Main elements of the fiscal compact

The fiscal compact is a set of rules intended to foster budgetary discipline of the European Union members. The compact establishes a "golden fiscal rule", according to which a country's structural deficit must not exceed 0.5% of nominal GDP. The structural balance refers to the annual cyclically adjusted balance net of one-off and temporary measures. To enhance fiscal surveillance, all contracting members are required to submit tax and spending plans to be checked by European authorities. In case of deficits larger than 0.5% of GDP, the country must ensure rapid convergence towards a balanced budgetary position, in structural terms. In case the ratio of general government debt to GDP is significantly lower than 60% and risks to the sustainability of public finances are low, the lower limit of the structural deficit can reach 1% of GDP. When the debt ratio exceeds the aforementioned 60% reference value,

contracting members are obliged to reduce it at an average rate of 1/20 per year.

Under the compact, a correction mechanism in the event significant deviations from a balanced budget are observed is triggered automatically, unless a majority is opposed (reversed majority principle). The concerned member is required to put in place a structural reform program to correct the deviations in a sustainable manner over a specific period of time. The program will be endorsed by the European Commission and the Council, which will also be monitoring its implementation.

EU members may temporarily deviate from structural budget balance only in exceptional circumstances. These refer to unusual events outside government control or to periods of severe economic downturn. In our view, this is an important provision of the compact, as it empowers governments to constrain the adverse effects on the economy in times of recession by allowing them to adopt counter-cyclical expansionary fiscal policy.

The rules of the fiscal compact must take effect in the national law of all contracting countries through constitutional or equally binding and permanent provisions. If the European Commission or another EU member concludes that the provisions are not strong enough, the matter is brought to the Court of Justice, whose judgment is binding. The concerned country must comply with the judgment or the Court may impose a penalty payment that shall not exceed 0.1% of its GDP.

Pros and cons of the cyclically adjusted measure of budget balance

The rationale behind the use of the structural budget balance as a tool to strengthen the fiscal pillar of the European Union is that by subtracting the effect of the business cycle on the automatic stabilizers from the headline measure, the remaining figure reveals a more accurate picture of a country's public finances. When the output gap is positive, i.e. the economy is expanding at a rate above the potential rate, the headline figures benefit from increased tax revenues and lower unemployment benefits, whereas when the output gap is negative, the budget balance is adversely affected by lower tax receipts and higher unemployment benefits. The subtraction of the cyclical component from the headline figures removes the effect of the business cycle on public expenditures and revenues, as well as the impact of other discretionary fiscal policy measures. The remaining "structural" deficit or surplus can be attributed to the fundamentals of the economy.

For monitoring purposes, using a measure for the evaluation of an EU member's budget balance, which is independent to the noise of cyclical and one-off variations, facilitates the assessment of the credibility of that member's policy towards its budget balance target.

In addition to accuracy, structural budget balances may lead to more prudent fiscal policy. When the economy is in a boom, higher tax receipts and lower expenses on unemployment benefits will contribute to the improvement of the headline budget balance, tempting policymakers to follow expansionary fiscal policy, which later may prove unsustainable. On the other hand, when the economy is in a recession, the budget balance suffers from low tax revenues and higher costs for unemployment benefits, prompting policymakers to recommend an excessively strict fiscal consolidation. Overall, the headline figure of the budget balance may lead to pro-cyclical fiscal policy. Instead, using cyclically adjusted budget balances to assess public finances reduces the incentive of policymakers to follow pro-cyclical fiscal policy.

However, a serious caveat of the cyclically adjusted budget balances is that they are prone to significant revisions. The approach used by the IMF, OECD ECB and the European Commission to calculate the cyclically adjusted budget balance is described by the following formula: $CAB = HBB - \varepsilon \cdot OG$. HBB stands for headline budget balance, OG stands for output gap and ε is the budgetary sensitivity parameter, obtained by aggregating the elasticities of the individual expenditure and revenue budgetary parameters. The revisions result mainly from the vagueness in the calculation of the output gap, which is the benchmark used to adjust the headline budget balance. The output gap is notoriously known for its difficulty to measure, as it is not a directly observable variable but a notion of statistical nature. The level of an economy's potential growth rate itself as well as the distance of the economy from that level of potential growth depends heavily on the method used to estimate it, thus affecting the determination of the structural budget balance.

Other sources of revisions comprise changes in the headline budget balances and variations in the sensitivities of budgetary components, which are considered constant. For example, a change in the composition of tax revenues (perhaps due to a change in the contribution of household consumption to tax revenues) may result in consumption tax elasticity departing from its normal value, introducing a measurement error in the CAB calculation².

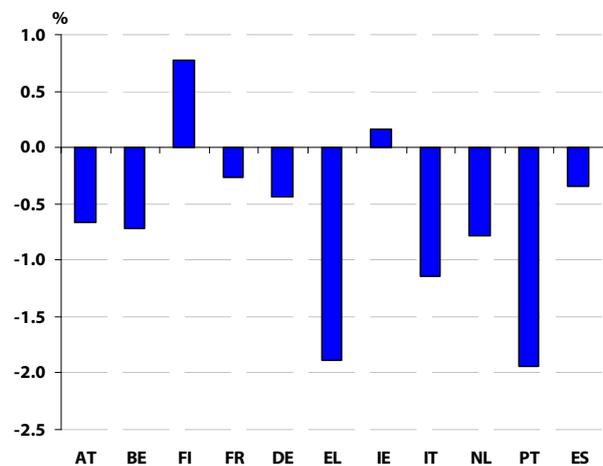
Analysis and results

The cyclically adjusted budget balances data we use are drawn from the OECD database. The data span the period from 1997 to 2006, inclusive and include the following Euro area members: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain. The real time cyclically adjusted budget balance of a given year is taken from that year's December OECD Economic Outlook. We consider that the ex-post CAB of a year is the revised CAB as reported in the December's Economic Outlook, five years later. We assume that

the ex-post CAB are the true values of the cyclically adjusted budget balances.

Figure 1 depicts the average revision of the CAB for each country from 1997 to 2006. To calculate the revision, we subtract the real time CAB from the ex-post CAB. With the exception of Finland and Ireland, in all other countries the average revision is negative. This implies that the real time data most often present a better picture of the state of the public finances than what the ex-post data reveal. This is most evident in Greece and Portugal, where cyclically adjusted budget deficits, on average, turned out to be nearly two percentage points higher than what the real time data suggested.

Figure 1
Inter-temporal average revision of cyclically adjusted budget balances



To further investigate the reliability of real time CABs to correctly assess the current state of the structural budget deficit we perform the following exercise. For several trigger values of CAB, we count how many times the real time deficit is correctly bigger than the trigger value, i.e. the ex-post deficit is also bigger than the trigger value. We denote these cases as correct alarms. We also count how many times the real time figures fail to pick up deficits larger than the trigger value, while the ex-post CABs are bigger than the trigger value (missed alarms). We finally count how many times the real time CABs give false alarms, i.e. the real time CABs are bigger than the trigger value, whereas the ex-post CABs are not.

The importance of this exercise lies in the fact that judgment of the fiscal discipline of EU member states and subsequent recommendations on measures are based on the estimates of their structural balances available at that time. Therefore, frequent failure of real time CABs to capture the true magnitude of budget deficits, either by underestimating them or, most importantly, by exaggerating them, would harm the reliability of the European fiscal surveillance framework.

² For more information on the advantages and caveats of the cyclically adjusted budget balances see: Larch M. and Turrini A. (2010).

Table 1 shows the correct, missed and false alarms when we are trying to detect structural deficits larger than 0.5% of GDP, which is the trigger value incorporated in the recently approved “golden fiscal rule”. Overall, out of 110 cases (11 countries, 10 years) in 74 cases the ex-ante CAB recorded higher budget balance than the ex-post. Out of 79 cases where the ex-post deficit was larger than 0.5%, the real time data detected 66 whereas they missed 13, i.e. the failure rate is 16.5% (13/79). Real time data triggered 6 false alarms. That is to say that 8.3% (6/72) of the total alarms were wrong. This percentage can be interpreted as the conditional probability that, among all countries “caught”, a country will turn out to be “innocent”. In our view, these percentages of missed and false alarms reveal that real time CABs as a policy decision tool suffer from an uncomfortable degree of inaccuracy which is likely to cause disputes among the Euro area members over the implementation of the “golden rule”.

Table 1

Success of real time CABs to detect structural deficits larger than 0.5% of GDP

	Number of alarms	Probability (%)	Average real time CAB (% of GDP)	Average ex-post CAB (% of GDP)	Average surprise (% of GDP)
Correct alarms	66	83.5*	-2.06	-2.97	-0.91
False alarms	6	8.3**	-1.17	0.03	1.20
Missed alarms	13	16.5***	0.31	-1.56	-1.87

Note: The average surprise is defined as the difference between average ex-post CAB and real time CAB.

*Probability of correctly picking up a case of deficit larger than 0.5% of GDP

**Probability of an alarm sounded being wrong

*** Probability of missing a case of deficit larger than 0.5% of GDP

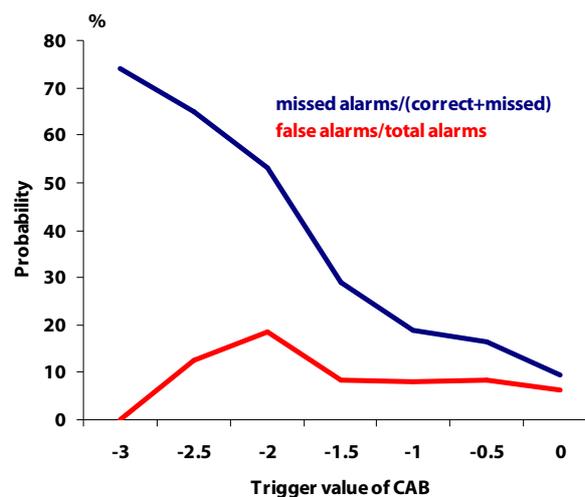
The last column of Table 1 is the difference between average ex-post CAB and real time CAB, which we call “average surprise”. It turns out that, as expected, countries with large budget deficits are correctly sorted out by the rule as offenders. The average real time CAB across all correct alarms is -2.06%, while ex-post the deficit of these countries turned out to be higher by 0.91% of GDP on average. In contrast, the rule sounds missed alarm for countries with reasonably high ex-post deficits (on average 1.56% of GDP). The average downward revision for the missed cases is 1.87% of GDP, i.e. almost double the average revision across correct alarms. In other words, the rule misses the cases where the deterioration of budget balance was ex-post the biggest. Finally the rule sounded false alarms for countries which ex-post turned out to have a very small budget surplus.

Increasing the trigger value of structural deficits, the limitations of the ability of real time CABs to correctly measure the

structural balance become more pronounced (see Figure 2). This suggests that the reliability of real time CABs diminishes when it is most needed, i.e. when the tool is used to detect severe budget deficits. Real time CABs fail to detect a structural deficit larger than 3% more than seven times in ten. On the other hand, false alarms approach 20% of total alarms sounded when we try to detect structural deficits larger than 2%.

Figure 2

Capability of real time CAB to measure accurately the structural budget balance.



We further look more closely at the distribution of missed alarms among the individual member states for different trigger values. Our findings suggest that setting a looser fiscal rule, i.e. setting a large deficit as trigger value, would allow more countries to avoid detection than a strict trigger value of a deficit equal to 0.5% of GDP. The benchmark deficit value of 0.5% of GDP seems to work more effectively for France, Germany Portugal and Italy, as at this trigger value the aforementioned countries never avoid detection.

Interestingly, our findings also suggest that the reduced capacity of real time CAB to correctly assess the true state of the structural balance pertains to both periphery members and to the fiscally more prudent core countries (see Table 2). We notice that Germany, Austria and the Netherlands exhibit a high percentage of missed alarms for trigger values spanning almost all the range from zero to 3% deficits. In other words, the real time CAB rule exhibits limited ability to detect both low and high budget deficits in these countries. For the benchmark deficit value of 0.5% of GDP, the periphery members, with the exception of Spain, have a low probability to avoid detection whereas the probability is higher for Austria, Belgium and the Netherlands.

Table 2
Percentage distribution of missed alarms for structural budget balance values spanning from -3% to 0% of GDP

Trigger value (% of GDP)	-3	-2.5	-2	-1.5	-1	-0.5	0	Average Probability
Austria	8.70	15.38	12.00	11.11	15.38	15.38	0.00	11.14
Belgium	0.00	0.00	4.00	11.11	7.69	30.77	50.00	14.80
Finland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
France	8.70	11.54	4.00	0.00	0.00	0.00	0.00	3.46
Germany	13.04	7.69	8.00	5.56	15.38	0.00	0.00	7.10
Greece	17.39	15.38	16.00	16.67	15.38	7.69	0.00	12.65
Ireland	0.00	0.00	0.00	5.56	0.00	7.69	12.50	3.68
Italy	17.39	15.38	20.00	22.22	23.08	0.00	0.00	14.01
Netherlands	0.00	7.69	12.00	16.67	15.38	15.38	25.00	13.16
Portugal	34.78	26.92	20.00	5.56	0.00	0.00	0.00	12.47
Spain	0.00	0.00	4.00	5.56	7.69	23.08	12.50	7.55
Sum	100	100	100	100	100	100	100	
Average probability of missed alarms across all countries and trigger values								9.10%

The last column of Table 2 is interpreted as the average conditional probability of a country getting away without being caught across all trigger values from 0% of GDP to -3% of GDP. The average probability among all countries and trigger values is 9.1%.

As a further step, we test the effectiveness of real time CABs to give early warnings of the direction of change of a country's structural budget balance. The rationale of this exercise is that under the Stability and Growth Pact, countries that have not yet reached their medium-term budget balance objective will have to pursue an annual improvement of 0.5% of GDP in cyclically adjusted terms. Moreover, member states under the excessive deficit procedure are required to achieve a minimum annual budgetary effort of at least 0.5% of GDP in structural terms (unless exceptional circumstances prevail). Therefore, in addition to trustfully capturing the state of public finances, real time CABs as a policy decision tool, also need to correctly assess whether a member state has undertaken the required fiscal adjustment effort.

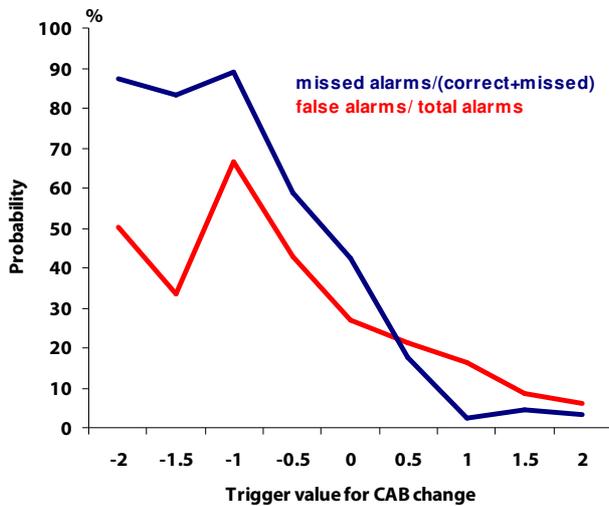
In our exercise, we consider changes of the structural budget balance over 1 year. We calculate real time changes as this year's real time CAB minus this year's revision of the previous year's CAB. The ex-post change of the structural balance is the difference of the two ex-post CAB values of the respective years.

Our results show serious weaknesses in measuring accurately changes in the structural budget balance based on real time CAB. In a total of 47 cases of fiscal slippage (defined as any deterioration of the ex-post CAB), we detected 27 whereas we missed 20. We also obtained 10 false alarms (i.e. wrong indication of slippage). In other words 27% (10/37) of total alarms would impose unfair fiscal retrenchment recommendations or even punishments, whereas 42.5% (20/47) of the slippages would get away without being detected. Once again, we find serious reasons why countries may question the reliability of the fiscal rule proposed in the compact and remain reluctant to adopt unpopular measures and reforms. The diagnostic ability of real time CABs diminishes when we try to detect larger fiscal slippages (Figure 3), in line with their reduced ability to capture poor conditions of public finances (Figure 2).

We finally regress the real time change of the structural balance on the ex-post change, to investigate whether the real time figures overestimate or underestimate the true change of the structural budget balance. To perform the regression we assume that there are no country specific effects. Our results show that the coefficient is statistically significant at any conventional level, while its value implies that for every percentage point of true change of the cyclically adjusted balance only 0.25% is captured by the real time figures. Hence, real time data tend to underestimate both fiscal slippages and efforts of member states to improve their public finances.

Figure 3

Reliability of real time CAB to detect changes of the structural budget balance.



Conclusions

In this note we analyze the reliability of real time cyclically adjusted budget balance figures as a policy decision tool in the European fiscal surveillance framework. Our findings provide evidence that due to substantial revisions the effectiveness of real time CABs to provide an accurate and timely assessment of a country's structural fiscal stance is limited. In particular, our findings suggest that CABs have limited ability to measure both the true level and the true change of a country's budget balance, systematically underestimating both fiscal slippages and fiscal consolidations. As a result, real time CAB data should be used with extreme caution. With respect to their central role in the recently approved fiscal compact, the flaws of real time CABs may affect negatively the reliability of the compact. There is a non-negligible probability that a country may be wrongly accused of running an excessive deficit, raising enforcement risks of the fiscal compact.

References

- Cimadomo J. (2011): "Real time data and fiscal policy analysis. A survey of the literature", ECB Working Paper, No. 1408
- Hughes-Hallett, A., R. Kattai, and J. Lewis (2012): "How Reliable are Cyclically-Adjusted Balances in Real Time?", *Contemporary Economic Policy*, Vol. 30, No. 1
- Larch, M., and A. Turrini (2010): "The Cyclically Adjusted Budget Balance in EU Fiscal Policymaking", *Intereconomics: Review of European Economic Policy*, Vol. 45, No. 1

Research Team

Financial Markets Research Division

Platon Monokroussos: *Head of Financial Markets Research Division*

Paraskevi Petropoulou: *G10 Markets Analyst*

Galatia Phoka: *Emerging Markets Analyst*

Sales Team

Nikos Laios, *Head of Sales*

Vassillis Gulbaxiotis, *Head of International Sales*

Yiannis Seimenis, Ioannis Maggel, *Corporate Sales*

Stogioglou Achilleas, *Private Banking Sales*

Alexandra Papathanasiou, *Institutional Sales*

Economic Research & Forecasting Division

Dimitris Malliaropoulos: *Economic Research Advisor*

Tasos Anastasatos: *Senior Economist*

Ioannis Gkionis: *Research Economist*

Vasilis Zarkos: *Economic Analyst*

Stella Kanellopoulou: *Research Economist*

Olga Kosma: *Economic Analyst*

Maria Prandeka: *Economic Analyst*

Theodosios Sampaniotis: *Senior Economic Analyst*

Theodoros Stamatiou: *Research Economist*

Eurobank EFG, 20 Amalias Av & 5 Souri Str, 10557 Athens, tel: +30.210.333.7365, fax: +30.210.333.7687, contact email: Research@eurobank.gr

Eurobank EFG Economic Research

More research editions available at <http://www.eurobank.gr/research>

- **New Europe:** Economics & Strategy Monthly edition on the economies and the markets of New Europe
- **Economy & Markets:** Monthly economic research edition
- **Global Economic & Market Outlook:** Quarterly review of the international economy and financial markets

Subscribe electronically at <http://www.eurobank.gr/research>

Follow us on twitter: http://twitter.com/Eurobank_EFG

