THE NEW MEDIUM-TERM BUDGETARY OBJECTIVES
AND THE PROBLEM OF FISCAL SUSTAINABILITY AFTER THE CRISIS

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The paper analyses the medium-term objectives (MTOs) recently adopted by the EU Member States as a reference for the multilateral budgetary surveillance, assessing the ability of the new MTOs to promote long-term fiscal sustainability. The paper calibrates the (yet undisclosed) algorithm for computing the minimum budgetary targets that EU countries can declare as MTO and discusses two novel features of the algorithm: a supplementary debt-reduction effort requested from high-debt countries, and the partial frontloading of the expected future increases in age-related expenditure – the cost of ageing. The paper evaluates the impact of the crisis on EU countries' current as well as future MTOs through the channels of higher public debt, lower growth potential, and higher cost of ageing. On the basis of alternative scenarios for macroeconomic and budgetary conditions as of 2012 – when the next revision of MTOs is scheduled –, the paper concludes that prospective MTOs would be more stringent than the current ones. Therefore, a path for gradual fiscal tightening is already embedded into the European fiscal framework and should be considered when discussing exit strategies. Finally, an alternative indicator linking MTOs to the current fiscal and financial imbalances is presented.

1   Introduction

The reform of the Stability and Growth Pact (SGP) introduced a number of relevant amendments to both the preventive and corrective arm of the EU fiscal framework. In particular, a new definition of the medium-term objectives (MTOs), which inform the EU multilateral budgetary and macroeconomic surveillance, was incorporated in the Stability and Convergence Programmes (SCPs) and their assessment by the European Commission.

EU Member States indicate MTOs for budget balances in structural terms, *i.e.*, cyclically-adjusted and net of one-off and temporary measures. The revised SGP establishes that MTOs may be country-specific, depending on national macroeconomic and public finances conditions and having regard to risks to long-term sustainability of public finances. General criteria for determining the medium-term budgetary targets agreed by the European Council consider the government debt, the potential output growth, and a safety margin with respect to the Maastricht limit of 3 per cent of GDP for the nominal budget deficit.

Initially, the revised SGP did not provide a well-defined rule for implementing the MTO determination criteria and then large room for judgmental analysis was left to each Member State when setting budgetary targets. In 2009, Member States and the European Commission agreed on a methodology for computing MTOs that renders operational the MTO determination criteria. The methodology encompasses not only public debt, potential growth, and budgetary safety margins, but also the implicit government liabilities associated with rising expenditure due to ageing populations. Two novel features are incorporated: a supplementary debt-reduction effort – required from EU countries whose debt-to-GDP ratio exceeds the Maastricht 60 per cent reference value –

aimed at promoting convergence of debt ratios towards prudent levels; and a partial frontloading of cost of ageing – requested from all EU countries indistinctly – that seeks to cover part of the future increases in age-related spending. In the 2009 updates of SCP, 15 EU countries have declared MTOs calculated using the new methodology; however, neither they nor the European Commission have ever disclosed the new, specific algorithm for computing MTOs.

In the current debate on fiscal consolidation and high public indebtedness, the current MTOs could potentially play a role as part of the exit strategies. Being a formal constraint on fiscal policies in terms of medium-term budgetary outcomes, MTOs could help in planning a gradual reversal of expansionary stimulus. They could also facilitate coping with the problems of high debt and ageing-related implicit liabilities by requesting additional public savings through the supplementary debt-reduction effort and the partial front-loading of cost of ageing. There is a risk, on the other hand, that economic recovery falters because fiscal tightening starts too early and adjusts too much. In this regard, the current MTOs that many EU countries have declared in the 2009 updates of SCP are excessively demanding and imply unrealistically large budgetary consolidation efforts going forward. Furthermore, the prospective MTOs will probably be even more stringent than the current ones.

The paper is organized as follows. Section 2 describes the institutional framework of the new MTO methodology. Section 3 explores the analytical underpinnings of MTOs, conducts a calibration exercise to uncover the (yet undisclosed) algorithm for computing MTOs, and provides a critical assessment on the implications on fiscal sustainability of the supplementary debt-reduction effort and the frontloading of cost of ageing. Section 4 assesses the impact of the financial and economic crisis on EU Member States' MTOs. Section 5 elaborates an alternative modality for determining MTOs that replaces the supplementary debt-reduction effort by a synthetic exposure index that measures funding pressures and risks facing all sectors in a given country at a certain point in time. The index includes variables related to the short-term sustainability of public debt, the risk of distress in the financial and banking system, and the build-up of sectoral and external imbalances. Section 6 concludes.

2   Institutional framework of the new MTO methodology

The legal basis of the new MTO methodology is found in the Conclusions of the 2005 Spring Council of the European Union (2005a), which defined the main economic principles of the SGP reform and ensured the required political commitment to make the endorsement of the European fiscal framework fully credible (European Commission, 2005 and 2006). Given the previous failures by EU Member States to reach MTOs, the European Council strengthen the SGP preventive arm by allowing MTOs for structural budget balances to be country-specific and to take into account differences across countries in their economic fundamentals and risks to public finance sustainability.

MTO differentiation, in turn, had to consider the countries' government debt and implicit liabilities – especially those associated with rising age-related expenditure –, potential growth, and a safety margin minimizing chances of having budget deficits breaching the Maastricht 3 per cent reference value. In addition, the importance of fiscal soundness for monetary stability in a currency union warranted further differentiation by membership to the Euro Area and ERM II. Thus, Member States adopting the Euro, or in the process of doing it, were requested to declare MTOs in a range between a structural deficit of 1 per cent of GDP – for low debt/high potential growth countries – and a balanced or in surplus structural budgetary position for high debt/low potential growth countries.

The European Council made explicit a triple aim pursued by MTOs: (i) providing the aforementioned safety margin, (ii) ensuring rapid progress towards public finance sustainability; and (iii) allowing an appropriate budgetary margin of manoeuvre to support public investment. This triple aim suggested that MTOs would facilitate the use of fiscal policies for short-run stabilization purposes, while seeking the preservation of long-run fiscal soundness. General criteria for the quantitative determination of country-specific MTOs transpired from the triple aim as well as from the broad goals of the SGP reform. MTO determination criteria were, nevertheless, too general and even the European Council acknowledged that modalities for implementing and operationalizing them had to be carefully elaborated.

The consideration of public debt and implicit liabilities in the determination of country-specific MTOs raised a number of conceptual and methodological issues on the indicators of government liabilities to be used (stock vs flow measures) and the definition of implicit liabilities to be adopted (broad vs narrow definition, backward- vs forward-looking notions, inclusive or not of contingent liabilities such as financial bail-outs). While technical discussion were taking place, MTOs were determined on the sole basis of the government debt-to-GDP ratio, potential growth, and the budgetary safety margin, leaving implicit liabilities aside. Lacking clear indications on the hierarchical order to be attached to these three variables, the European Commission and the Member States agreed that the MTO determination criterion related to debt should be given more relevance.

Over the transition period, different modalities to combine the variables relevant for determining MTOs in a well-defined quantitative framework were discussed (European Commission, 2007). A final agreement was achieved in the Spring 2009 and officially came into force in November 2009 with the introduction of the corresponding provisions in the Code of Conduct (CoC). For the first time 15 EU Member States have declared MTOs computed using the new methodology in their 2009 updates of SCP. However, neither they nor the European Commission have ever disclosed the specific MTO algorithm.

3   Analytical underpinnings of the new MTO methodology

The MTO is a quantitative target for the structural budget balance that an EU Member State commits itself to achieve over a certain time horizon, usually the planning horizon of the SCP. The MTO should therefore constrain the country's fiscal policies to eventually deliver an overall budget balance – adjusted by cyclical fluctuations, net of one-offs and temporary measures, and expressed as percentage of GDP – that meets the target or improves upon it. The quantitative determination of country-specific MTOs has always been a politically-sensitive issue and the triple aim pursued largely shapes the determination criteria.

First, the MTO intends to provide a safety margin against the possibility that, given an unexpected worsening of economic conditions, the nominal budget deficit suddenly rises and exceeds the Maastricht 3 per cent of GDP reference value. This notion underpins the country-specific MTO minimum benchmark, calculated using a country's sensitivity of budget balance to output gap together with an estimate of output volatility – e.g., the extreme (negative) value of the country's output gap that might occur in the future with a certain probability (European Commission, 2007; Codogno and Nucci, 2007). Thus, a country whose budget balance is more (less) sensitive to cyclical fluctuations – probably as a result of institutional arrangements concerning the operation of automatic stabilisers – should be committed to a more (less) demanding MTO and therefore to a tighter (looser) medium-term target for the structural budget balance. A similar commitment is expected from a country exhibiting a business cycle with large

(small) output movements since an unexpected, large drop in economic activity is more likely (unlikely) to occur, dragging down the budget balance.

Second, the MTO aims to ensure progress towards sustainability of public finances, defined broadly to include both the explicit liabilities corresponding to the current stock of debt and the implicit liabilities associated with the expected deterioration of fiscal balances due to rising age-related expenditure induced by demographic trends (*i.e.*, the cost of ageing). As far as sustainability of explicit liabilities is concerned, the MTO seeks convergence of high debt levels towards the Maastricht 60 per cent of GDP reference value. Thus, a country whose debt-to-GDP ratio is above (below) that threshold should pursue a more (less) demanding MTO, as well as a country having low (high) prospective growth rates of potential GDP. High-debt and low-growth countries would then seek to achieve a stronger fiscal position leading to debt growth below nominal GDP growth, eventually converging to the Maastricht reference value. With respect to sustainability of implicit liabilities, the MTO aims at the partial frontloading of the cost of ageing. Such a frontloading requires a country to improve budget balances and increase public savings in the present (hence reducing the pace of debt accumulation or even increasing assets), so that it makes additional financial resources available in the future (under the form of a lower debt burden or even a higher stock of assets) to cope better with the increase in age-related expenditure when it eventually kicks in. According to this notion, a more (less) demanding MTO is therefore expected from a country facing a high (low) cost of ageing or is willing to frontload a larger (smaller) proportion of that cost.

Third, the MTO allows for room of manoeuvre for a country that chooses to undertake public investment as a means to support aggregate demand or to promote economic growth. In particular, a low-debt country is granted a less demanding MTO so that its fiscal budget can accommodate additional investment spending without failing to fulfil the committed MTO.

For the purpose of our analysis, we presume that the MTO determination criteria are implemented by a formal rule or algorithm that sets a minimum value for the MTO a country can declare and is committed to achieve. In fact, the CoC explicitly gives freedom to all EU countries to commit themselves to more ambitious targets than those implied by the MTO determination criteria, "as if" there was a formal rule for implementing them. In the 2009 updates of SCP, 15 EU countries have declared the MTOs that result from implementing the MTO determination criteria as agreed in Spring 2009. But they have not disclosed the MTO methodology underlying their committed budgetary targets. In the next part of this section, we attempt to uncover that algorithm on the basis of the CoC statements, official publications by the European Commission, some pieces of information collected from the 2009 updates of SCP, a few assumptions concerning the algorithm specification, and the countries' declared MTOs following the new methodology.

3.1   *A calibrated model for the MTO determination*

The algorithm implementing the MTO determination criteria loads as input the fiscal and macroeconomic variables relevant for the MTO triple aim, and delivers as output the minimum budgetary target that a country can go for. Given the minimum target resulting from the algorithm (hereinafter denoted MTOMT), a country must commit to achieve an MTO (denoted MTOD, with D standing for "declared") that is equal or more demanding than that minimum. While MTOD is observed, MTOMT is not, but it must satisfy MTOMT ≤ MTOD.

To uncover the MTOMT algorithm, we follow closely the CoC statements suggesting that MTOMT must be the most demanding value among three alternatives:[1] (i) the country-specific

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[1]   The more informative part of the CoC (2009, p. 4).concerning the MTO determination states: *"Specifically, the country-specific (continues)*

MTO minimum benchmark (MTOMB), which constitutes the aforementioned safety margin and whose value has been already disclosed by the European Commission (2007, p.107); (ii) the country-specific commitment by participants of Euro Area and ERM II to achieve at least a structural deficit of 1 per cent of GDP (MTOEA); and (iii) the country-specific MTO that addresses the issues of sustainability of public finances and budgetary manoeuvre granted to low-debt countries (MTOSM, with *S* standing for "sustainability" and M for "manoeuvre"). Hence, for country *i* the algorithm states:

$$MTOMTi = \text{Max } (MTOMBi, MTOEAi, MTOSMi) \tag{1}$$

with *MTOEAi* being –1 if country *i* belongs to Euro Area or ERM II and 0 otherwise.

The CoC gives some guidance on how to calculate the *MTOSM* by saying that it should encompass three components: (i) the budget balance that stabilises the debt-to-GDP ratio at 60 per cent given a country's long-term growth rate of potential GDP; (ii) a supplementary debt-reduction effort for countries whose debt exceeds 60 per cent of GDP; and (iii) a proportion of the adjustment needed to cover the present value of the future increase in age-related expenditure (*i.e.,* the cost of ageing). The precise algorithm for computing these three components of MTOSM, however, is not disclosed in the CoC but we now attempt to uncover it.

The debt-stabilising balance is a standard result in the analysis of debt dynamics and should be computed as $-(60\ gi)/(1+gi)$, where *gi* denotes country *i*'s long-term growth rate of potential GDP at current prices and is regularly estimated by the Ageing Working Group (AWG) for all EU countries (European Commission and Economic Policy Committee, 2008 and 2009).[2]

The adjustment needed to finance the country's cost of ageing is simply the S2E indicator calculated by AWG's assessment of long-term sustainability of public finances (European Commission, 2009b). By reading several 2009 updates of SCP, we find evidence that the CoC's required proportion of this adjustment is either 33 per cent of the S2E indicator or the annualized value of cost of ageing cumulated until 2040.[3] In the former case, we must use 0.33 *S2Ei* for country.

The supplementary debt-reduction effort is a novel feature of the MTOSM, with neither the literature on debt sustainability nor the AWG sustainability framework offering an apparent counterpart. We therefore must make a specification assumption taking into account the stated purpose of the effort, namely to induce convergence of debt-to-GDP ratios in high-debt countries towards the Maastricht 60 per cent reference value. Accordingly, we specify the effort to be proportional to the excess of the debt-to-GDP ratio over and above the 60 per cent reference value. Hence, we postulate $k\ (di–60)$ where *di* is country *i*'s debt-to-GDP ratio and the parameter *k* is calibrated below.

The three components of MTOSM for country *i* are given by:

$$MTOSMi = -(60\ gi)/(1+gi) + k\ (di - 60) + 0.33\ S2Ei \tag{2}$$

MTOs should take into account three components: i) the debt-stabilising balance for a debt ratio equal to the (60 per cent of GDP) reference value (dependent on long-term potential growth), implying room for budgetary manoeuvre for Member States with relatively low debt; ii) a supplementary debt-reduction effort for Member States with a debt ratio in excess of the (60 per cent of GDP) reference value, implying rapid progress towards it; and iii) a fraction of the adjustment needed to cover the present value of the future increase in age-related government expenditure. This implies a partial frontloading of the budgetary cost of ageing irrespective of the current level of debt. In addition to these criteria, MTOs should provide a safety margin with respect to the 3 per cent of GDP deficit reference value and, for euro area and ERM II Member States, in any case not exceed a deficit of 1 per cent of GDP".

[2]   The CoC (2009, p. 4) states: *"Potential growth and the budgetary cost of ageing should be assessed in a long-term perspective on the basis of the projections produced by the Working Group on Ageing attached to the Economic Policy Committee".*

[3]   Germany's SCP states: *"The medium-term objective of –½ per cent of GDP results under both possible calculation methods, i.e., whether 33 per cent of the costs as a result of ageing are prefinanced or all costs as a result of ageing are covered until 2040".* (p. 27). See also Bulgaria's SCP, p. 30, Italy's SCP, p. 17, and Luxembourg's SCP, p. 10-11.

To calibrate k, we take advantage of the countries' MTOs declared in the 2009 updates of SCP and proceed guided by an educated guess. Nowadays, high-debt EU countries – which would be relatively more penalized by the supplementary debt-reduction effort – are likely to prefer having as much fiscal space as possible in order to cope with the crisis and promote the recovery. Consequently, it is likely that in the 2009 updates of SCP, they have declared their MTOD equal to their minimum budgetary targets MTOMT. By assuming such a case, for a high-debt country j we can set $MTOMTj = MTODj$; or alternatively use (1) and (2) to obtain equation (3) below. By applying equation (3) to a high-debt country j, we obtain one equation in the unknown parameters k that allows us to calibrate it:

$$MTODj = \text{Max } (MTOMBj, MTOEAj, -(60\ gj)/(1+gj) + k\ (dj - 60) + 0.33\ S2Ej) \quad (3)$$

At the end of 2008 – the last year for which accurate data are available – Italy was the most indebted EU country. In its 2009 update of SCP, Italy declared MTOD of zero – *i.e.*, a balanced budget in structural terms –; since MTOMB is –1.4 and MTOEA is –1, then we assume it should have been MTOD = 0 = MTOMS. Taking on board the values of gj, dj, and $S2Ej$ for Italy reported in Table 2, the equation solves for the calibrated parameter $k = 0.033$.

The calibrated algorithm provides us with estimates of MTOMT and MTOSM, denoted MTOMT* and MTOSM*. Table 1 reports these estimates for EU countries together with their MTOD (if any). For the 15 countries that did declare MTO, two comparisons between MTOMT* and MTOD give us some comfort about the reliability of our estimates in terms of approaching the true (undisclosed, unobserved) MTOMT. First, the condition MTOMT ≤ MTOD must always hold and we find that our estimates do satisfy MTOMT* ≤ MTOD in 11 out of the 15 countries.[4] Second, using again an educated guess, a case can be made that countries would prefer either to declare MTOD very close to MTOMT – to gain as much fiscal space as possible, as argued before – or to declare MTOD well above MTOMT – to signal commitment towards fiscal discipline that might bring about gains in terms of market confidence and even financial stability.[5] MTOD being neither close nor far from MTOMT is unlikely to be a preferred option. Our estimates MTOMT* indeed reproduce the case made for extreme options: leaving Luxembourg aside, in 7 out of 14 countries the MTOMT* differs from MTOD by less than 0.3 percentage points – Germany, Ireland, Italy, Latvia, Hungary, Malta, Netherlands; in 6 countries the discrepancy between MTOMT* and MTOD is larger than 1 percentage point – Bulgaria, Estonia, France, Austria, Finland, and Sweden –; and only in Poland the discrepancy of 0.5 percentage points is neither small nor large.

3.2   Strengths and weaknesses of the new MTO methodology

The new methodology for implementing MTO determination criteria certainly improves upon the ad hoc approach adopted in the past. The MTO methodology enhances the transparency, simplicity, and political commitment of the procedures for setting medium-term budgetary targets. MTOs are now embedded into a well-defined quantitative framework: for each EU country, precise values can be computed for the MTO minimum benchmark, the debt-stabilising budget balance, the supplementary debt-reduction effort, and the partial frontloading of the cost of ageing. Furthermore, MTOs give now an explicit role to government liabilities, both explicit and implicit,

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[4]   For Ireland, Hungary and Netherlands, our MTOMT* only slightly exceeds the MTOD value or the lower bound of the MTOD range.

[5]   A country announcing a commitment to a very demanding MTO – *i.e.*, well above MTOMT – may lack credibility and hence it makes no sense to make such announcement. In addition, there is the risk of declaring a too ambitious MTO and subsequently find that recovery falters and it is difficult – even undesirable – to deliver fiscal consolidation, which would undermine the confidence sought in the first place. We think these arguments apply to Italy and hence warrant the educated guess underlying the algorithm calibration, namely that this country has declared an MTOD close to MTOMT.

Table 1

MTOMT* vs MTOs declared in SCP 2009
(percent of GDP unless otherwise specified)

Country		Growth Rate of Potential GDP at Current Prices *(average 2010-60, percent)*	Budget Balance Stabilising Debt-to-GDP Ratio at 60 per cent[1]	Debt at End-2008	Estimated Supplementary Debt-reduction Effort[2]	S2E	MTOSM*[3]	MTOMB	MTOEA	MTOMT* = Maximum (MTOMB, MTOEA, MTOSM*)	MTO Declared by Country in SCP 2009[4]
Belgium	BE	3.8	−2.2	89.8	1.0	4.8	0.3	−1.3	−1.0	0.3	no comm.
Bulgaria	BG	3.7	−2.1	14.1	0.0	1.5	−1.6	−1.8		−1.6	0.5
Czech Republic	CZ	3.6	−2.1	30.0	0.0	3.7	−0.9	−1.6		−0.9	no comm.
Denmark	DK	3.8	−2.2	33.4	0.0	1.4	−1.7	−0.5	−1.0	−0.5	no comm.
Germany	DE	3.2	−1.9	65.9	0.2	3.3	−0.6	−1.6	−1.0	−0.6	−0.5
Estonia	EE	3.8	−2.2	4.6	0.0	−0.1	−2.2	−1.9	−1.0	−1.0	0.0 or higher
Ireland	IE	4.4	−2.5	43.2	0.0	6.7	−0.3	−1.5	−1.0	−0.3	−0.5 to 0.0
Greece	EL	3.7	−2.1	99.2	1.3	11.5	3.0	−1.4	−1.0	3.0	no comm.
Spain	ES	3.9	−2.2	39.7	0.0	5.7	−0.4	−1.2	−1.0	−0.4	no comm.
France	FR	3.9	−2.2	67.4	0.2	1.8	−1.4	−1.6	−1.0	−1.0	0.0
Italy	IT	3.5	−2.0	105.8	1.5	1.5	−0.0	−1.4	−1.0	−0.0	0.0
Cyprus	CY	4.8	−2.7	48.4	0.0	8.3	0.0	−1.8	−1.0	0.0	n.a.
Latvia	LV	3.4	−2.0	19.5	0.0	1.0	−1.7	−2.0	−1.0	−1.0	−1.0
Lithuania	LT	3.5	−2.0	15.6	0.0	3.2	−1.0	−1.9	−1.0	−1.0	no comm.
Luxembourg	LU	4.6	−2.6	13.5	0.0	12.9	1.6	−1.0	−1.0	1.6	0.5
Hungary	HU	3.7	−2.1	72.9	0.4	1.5	−1.2	−1.6		−1.2	−1.5
Malta	MT	3.7	−2.1	63.6	0.1	5.7	−0.1	−1.7	−1.0	−0.1	0.0
Netherlands	NL	3.5	−2.0	58.2	0.0	5.0	−0.4	−1.1	−1.0	−0.4	-0.5 to 0.5
Austria	AT	3.7	−2.1	62.6	0.1	3.1	−1.0	−1.6	−1.0	−1.0	0.0
Poland	PL	3.5	−2.0	47.2	0.0	−1.2	−2.4	−1.5		−1.5	−1.0
Portugal	PT	3.9	−2.2	66.3	0.2	1.9	−1.4	−1.5	−1.0	−1.0	n.a.
Romania	RO	3.8	−2.2	13.6	0.0	4.9	−0.6	−1.8		−0.6	n.a.
Slovenia	SI	3.4	−2.0	22.5	0.0	8.3	0.7	−1.6	−1.0	0.7	no comm.
Slovakia	SK	3.7	−2.2	27.7	0.0	2.9	−1.2	−2.0	−1.0	−1.0	no comm.
Finland	FI	3.7	−2.1	34.2	0.0	4.5	−0.6	−1.2	−1.0	−0.6	0.5
Sweden	SE	3.9	−2.3	38.0	0.0	1.6	−1.7	−1.0		−1.0	1.0
United Kingdom	UK	4.1	−2.4	55.5	0.0	3.6	−1.2	−1.4		−1.2	no comm.

[1] Computed as $-(60*g)/(1+g)$ where g is average nominal potential GDP growth rate over 2010-60. – [2] Computed as $0.033*(d-60)$, where d is 2008 debt as percent of GDP. – [3] Computed as $-(60*g)/(1+g)+0.033*(d-60)+0.33*S2E$. – [4] Declared MTO: "no comm." indicates that no commitment is explicitly made by the country in the SCP 2009; "n.a." indicates SCP 2009 is not available.
Note: Luxembourg declared MTO is below MTOMT* because the country opted to cover cost of ageing cumulated up to 2040.
Sources: Debt levels are from 2009 Updates of Stability and Convergence Program, submitted by countries in January 2010. Debt for Cyprus, Portugal, and Romania in 2012 is from European Commission's (2009) *Autumn Forecast*, and refers to 2011. Average nominal potential GDP growth rates over 2010-60 and *S2E* indicators are from European Commission's *Ageing Report 2009* and *Sustainability Report 2009*.

in the setting of minimum budgetary targets. MTOs, therefore, can modulate the constraints imposed on budgetary policies of a Member State to its own fiscal behaviour in the past – summarized by the current public debt level – as well as to its fiscal challenges in the future, especially the impact of ageing on public spending.

The consideration of explicit liabilities as determinants of MTOs involves a clear distinction between low-debt and high-debt countries and allows for a differentiated treatment of both groups. Low-debt countries are granted a larger margin of manoeuvre in managing government debt – for instance, to finance additional public investment. They are not seen as posing immediate threats for the macroeconomic and financial stability of E(M)U, and any slight increase in their debt levels is not perceived as a potential source of destabilising, cross-border, financial spillovers. High-debt countries, on the other hand, are required to achieve more demanding MTOs, which boils down to generate higher public savings – as proportion of GDP – in order to gradually reduce their debt ratios and the potential threats they entail to the E(M)U. The supplementary debt-reduction effort implements such a requirement in practice.

The introduction of implicit liabilities in the MTOs, in particular, ensures that a budgetary safety margin is being procured so as to cope with the projected increase in age-related expenditure. A full frontloading of the cost of ageing would pre-finance the whole expected increase in age-related expenditure over a long term horizon, whereas a partial frontloading implies that the remaining gap will have to be somehow financed later on – e.g., through the implementation of additional structural reforms to cut prospective spending, or the reduction of other public expenditures unrelated to social security, or the increase in taxes, or a mix of the previous alternatives. To acknowledge Member States' ownership on the choice of policies financing the cost of ageing, the new MTO methodology opted for a minimum, partial degree of frontloading (the coefficient k discussed above).

In the remaining part of this section, we assess critically the extent to which the specific modalities for introducing government liabilities into the MTO algorithm make a contribution to the preservation of long-term fiscal sustainability, which admittedly should be the ultimate goal of those modalities. Contrary to the great expectations created by the new MTO methodology, the analysis shows that, on the one hand, the supplementary debt-reduction effort does not accelerate significantly the convergence of debt-to-GDP ratios towards the Maastricht 60 per cent reference value and, on the other, the partial frontloading of cost of ageing falls short of providing enough incentives to undertake structural reforms to reduce the future path of age-related expenditure *vis-à-vis* the alternative of engaging in a standard medium-term consolidation process.

According to the supplementary debt-reduction effort in equation (2), for a high-debt country, a 10-percentage-point increase in the debt-to-GDP ratio raises the MTOSM* by 0.33 percentage points of GDP, and, provided that MTOSM* is the maximum in equation (1), it also raises the MTOMT* by the same amount. To be sure, such an increase in the MTOMT* represents a significant adjustment on the structural budget balance that should be achieved in the medium term. It is then apparent that the required effort penalizes high-debt countries and imposes the necessity of further fiscal tightening in the next few years.

But the stated purpose of the supplementary debt-reduction effort is to ensure rapid progress towards sustainability, not to penalize high-debt countries for its own sake by triggering further requirements of fiscal discipline. Therefore, an assessment of the effort on its own merits should be based on how much it accelerates convergence of the debt ratio towards the Maastricht 60 per cent reference value, and not on how much medium-term consolidation it requires from high-debt countries. In this regard, it turns out that the effort has little impact, if any, on the pace at which the debt-to-GDP of a high-debt country would decline over time if the MTO were reached as scheduled, and even if the MTO were permanently hit. In other words, the supplementary

debt-reduction effort is ineffective as a means of inducing convergence, as the simple debt dynamics exercise below illustrates.

Consider a high-debt country having representative values for all the relevant variables and parameters involved in the dynamics of public debt and the determination of MTOs: nominal GDP growth rate is constant at 3.5 per cent, nominal interest rate is 5 per cent, the S2E is constant at 2.5 per cent of GDP (as the simple average for Germany, France, Italy, and UK), MTOMB is –1.5 per cent of GDP, and MTOEA is –1 percent of GDP. The country inherits a level of debt that could be 70, 90, or 110 per cent of GDP. Assume that in each and every year, the country declares MTOD identical to the MTOMT and is always capable of achieving the committed target by running a structural budget balance in line with MTOMT. Finally, consider two algorithms for computing MTOMT: the first MTOMT is the current one adopted in the EU given by equation (3) with k=0.033; the second MTOMT is similar to equation (3) but with $k = 0$, thus excluding the supplementary debt-reduction effort. The paths of debt-to-GDP ratio corresponding to the alternative initial debt levels and the two MTOMT algorithms are depicted in Figure 1. The paths of MTOMTs are depicted in Figure 2.

It is apparent that MTOMTs drive the dynamics of the debt ratios at any time. The MTOMT with supplementary debt-reduction effort initially follows the MTOSM, which is more demanding than MTOMB and MTOEA, and is updated periodically as the debt ratio declines over time; at some point, however, the MTOEA prevails and then MTOMT stabilises at –1 percent of GDP. The MTOMT without the supplementary debt-reduction effort is always constant at the MTOEA of –1 percent of GDP.

The exercise puts forward that the MTOMT with supplementary debt-reduction effort does not perform terribly better than the MTOMT without such effort in terms of inducing faster convergence of the debt-to-GDP ratios towards the 60 per cent value. For initial debt levels at 70 and 90 per cent of GDP, the paths of debt ratio for the two MTOMTs are almost indistinguishable. Starting with debt at 110 per cent of GDP, the MTOMT with effort needs 23 years to bring debt below 60 per cent of GDP, while the MTOMT without effort needs just 6 years more.

The intuition shown by the exercise can be extended to a formal argument: for high-debt countries the growth dividend largely dominates the net borrowing resulting from hitting MTOs and thus drives the pace of debt dynamics regardless of the size of MTOs. The argument indeed holds not only for very-high-debt countries but also for high-debt countries because both the MTOMT and the growth dividend are decreasing in the level of debt. Hence, for practical purposes, the inclusion of supplementary debt-reduction effort in the methodology for implementing the MTO determination criteria does little to ensure more rapid progress towards sustainability, *vis-à-vis* the exclusion of such effort. There is, on the other hand, the effect of imposing larger consolidation efforts in the medium term, but this is inconsistent with the purpose stated by the CoC.

Turning to the frontloading of the cost of ageing, it should be noted that explicit and implicit liabilities affect symmetrically the long-term solvency condition of the government. In the intertemporal budget constraint, the future increases in spending flows associated with ageing can be converted into a notional stock by computing net present values (NPV). That notional stock is fully comparable with the current stock of outstanding debt as both will imply the necessity of collecting taxes to pay for either additional primary spending or interests. For the same token, structural reforms that reduce future age-relating expenditure imply a reduction in the NPV of future spending flows that is comparable to a one-shot reduction in the outstanding debt stock.

The symmetry acknowledged in the solvency condition is absent in the MTO determination. Note first that the supplementary debt-reduction effort depends on the stock of explicit liabilities, while the frontloading of the cost of ageing is indeed a flow given by a proportion (say 0.33) of the

S2E indicator. Consider a country with a debt ratio of 100 per cent of GDP that undertakes pension reforms and improves permanently the primary balance-to-GDP ratio by 0.5 percentage points. The S2E indicator declines by a similar amount and hence the MTOMT would decrease by 0.17 percentage points through the frontloading of cost of ageing. Assuming the interest-growth differential to be constant at 1.5 per cent over time (as in the previous simulations), the NPV of the permanent improvement in the primary balance ratio is 33.3 per cent of GDP. Therefore, from the point of view of intertemporal solvency, the pension reforms deliver an improvement equivalent in NPV to a one-shot reduction in the outstanding debt of 33.3 percentage points of GDP. But as far as MTOMTs are concerned, such a one-shot reduction in the debt-to-GDP ratio would bring about a decline in MTOMT of 1.09 percentage points through the supplementary debt-reduction effort.

It is apparent then that, for a Member State considering a standard short-term budgetary consolidation that reduces the debt ratio against the alternative of launching a long-term

**Debt Paths Under MTOMT With and Without
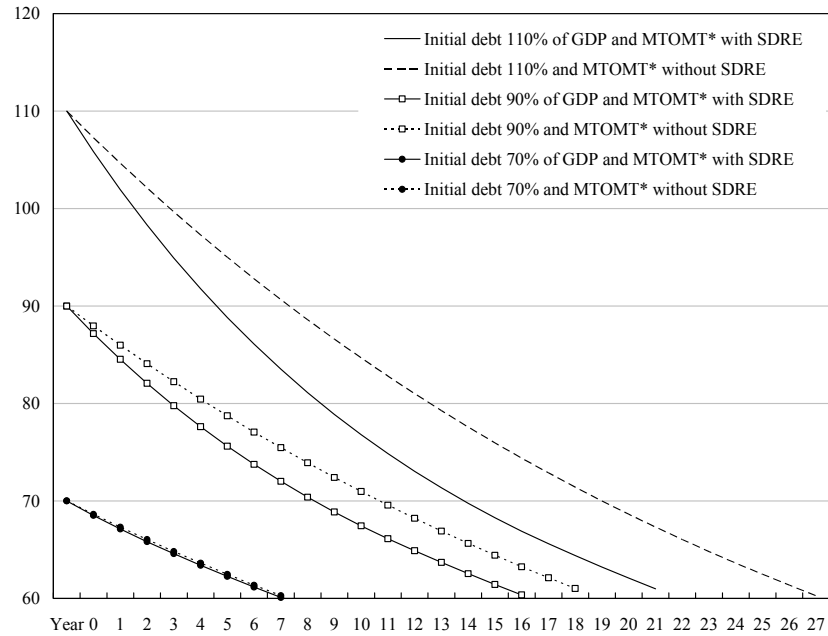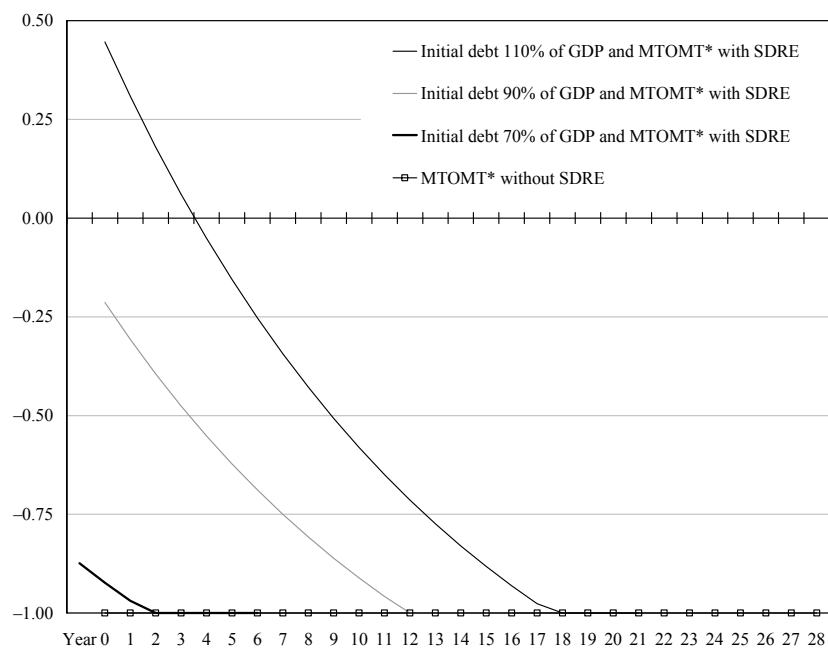Supplementary Debt-reduction Effort SDRE**
(percent of GDP)

**Paths of MTOMT With and Without
Supplementary Debt-reduction Effort SDRE**
(percent of GDP)

structural reform, but both having the same impact on solvency, the MTOs do not offer a balanced incentives but a clear preference for consolidation and very limited gains for structural reforms. It might be argued that there are reasons why explicit and implicit liabilities are not directly comparable, but still the difference between the gains in terms of lower MTOs resulting from reducing one or the other (1.09 vs 0.17) is too large and probably unwarranted.

4   The impact of the financial and economic crisis on MTOs

The financial and economic crisis along with the expansionary policies undertaken to support aggregate demand have led to sizable budget deficits and borrowing needs. The budgetary outcomes are not expected to recover rapidly in the next few years and indeed the mounting debt levels will have to be carried over for many years. The severity of the 2008-09 crisis and the magnitude of the fiscal challenges going forward are apparent from a comparison between the SCP updates submitted by EU Member States in 2007, 2008, and 2009, in terms of declared MTOs, dates of achievement, and gaps between structural budget balances and MTOs (Table 2).

In the 2007 updates of SCP, submitted before the crisis unfolded, the expectation was that achieving MTOs would not be a too difficult task. In fact, all countries but UK declared MTOs and were committed to achieving them no later than 2012. There were 12 countries whose initial structural budget balance as of 2007 was already above the declared MTO value. Consolidation efforts were expected from the 14 countries with a 2007 budgetary position below MTO, but the required efforts were fairly small as the gap to be bridged by gradually improving structural budget balances over the programme period was less than 2.5 percentage points of GDP for 11 out of 14 cases. Overall, as early as 2010, three years after the update submission, as many as 17 countries would have achieved their committed MTOs.

The picture radically changed as EU Member States started to factor in the fiscal effects of the crisis and policy interventions. By the time of submitting the 2008 updates of SCP, the uncertainty of the environment and the difficulties to envisage future macroeconomic and policy scenarios induced EU countries to relax commitments on MTOs. Eventually they declared MTOs but postponed the date of achievement or refrained from committing themselves to any date. Only 5 out of 27 EU Member States indicated that their MTOs would be achieved throughout the programme period.

At present, the 2009 updates of SCP recently submitted are meant to incorporate at length the impact of the crisis on public finances and to discuss consolidation policies to be implemented to restore fiscal soundness, especially those EU Member States going through the excessive deficit procedure. The expectation now is that achieving MTOs in the aftermath of the crisis would be rather difficult and sizable consolidation efforts should be undertaken. On the one hand, as many as 13 EU countries have either refrained from declaring MTOs or failed to submit the SCP 2009 updates altogether. Reluctance to declare MTOs and achievement dates suggests that countries are seeking flexibility to modulate their exit strategies, whose short-run effects are certainly contractive, to the pace of the economic recovery, which is expected to be slow. On the other hand, there are 15 countries that declared MTOs but posted an initial structural budget balance in 2009 far below the MTO values, with the sole exception of Sweden. The political feasibility of the consolidation efforts needed to achieve the committed MTOs remains to be seen. Only a small handful of countries would reach their MTOs in 2012, three years after the update submission.[6]

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[6] Several EU Member States countries have not declared MTOs so the gap to be bridged cannot be properly assessed. But if we consider the less demanding requirement on the budgetary targets, namely the MTOMBs whose representative value is around – 1.5 per cent of GDP, it turns out that the initial budgetary positions of EU countries incurring in structural deficits are, on average, 3.5 percentage points below the representative MTOMB.

Table 2

Declared MTOs, Dates of Achievement and Gaps Between Structural Budget Balances and MTOs in SCP 2007, 2008 and 2009
(percent of GDP)

Country		SCP 2007							SCP 2008		SCP 2009						
		MTO Declared by Country[1]	Date to Achieve MTO[2]	Structural Balance 2007	Distance to MTO[3]	Structural Balance 2010	Distance to MTO[3]	Achievement of MTO by 2010?	MTO Declared by Country[1]	Date to Achieve MTO[2]	MTO Declared by Country[1]	Date to Achieve MTO[2]	Structural Balance 2009	Distance to MTO[4]	Structural Balance 2012	Distance to MTO[4]	Achievement of MTO by 2012?
Belgium	BE	0.5	2009	–0.3	–0.8	1.0	0.5	yes	0.5	n.d.	no comm.	n.d.	–3.7		–2.0		
Bulgaria	BG	1.5	2010	2.9	1.4	3.1	1.6	yes	1.5	t.p.p.	0.5	n.d.	–1.0	–1.5	1.0	0.5	yes
Czech Republic	CZ	–1.0	2012	–4.1	–3.1	–2.5	–1.5	no	–1.0	2012	no comm.	n.d.	–5.5		–2.6		
Denmark	DK	0.75 to 1.75	t.p.p.	3.5	2.3	2.5	1.3	yes	0.75 to 1.75	t.p.p.	no comm.	n.d.	–0.6		–0.8		
Germany	DE	0.0	2007	–0.3	–0.3	0.0	0.0	yes	0.0 to 0.5	n.d.	–0.5	n.d.	–1.5	–1.0	–3.0	–2.5	no
Estonia	EE	0.0	t.p.p.	1.2	1.2	1.3	1.3	yes	0.0	2011	0.0 or higher	n.d.	–0.8	–0.8	0.5	0.5	yes
Ireland	IE	0.0	2007	0.5	0.5	–0.7	–0.7	no	0.0 to 0.5	n.d.	–0.5 to 0.0	n.d.	–9.3	–9.0	–6.8	–6.6	no
Greece	EL	0.0	2012	–2.8	–2.8	–0.5	–0.5	no	0.0	n.d.	no comm.	n.d.	–7.8		–2.1		
Spain	ES	0.0	2007	2.2	2.2	1.9	1.9	yes	0.0	n.d.	no comm.	n.d.	–10.0		–4.6		
France	FR	0.0	2012	–2.0	–2.0	–1.0	–1.0	no	0.0	2012	0.0	n.d.	–5.8	–5.8	–2.8	–2.8	no
Italy	IT	0.0	2011	–2.2	–2.2	–0.5	–0.5	no	0.0	n.d.	0.0	n.d.	–3.6	–3.6	–2.0	–2.0	no
Cyprus	CY	0.0	2007	0.3	0.3	0.8	0.8	yes	0.0	n.d.	n.a.	n.d.	–3.4		na		
Latvia	LV	–1.0	t.p.p.	–0.5	0.5	1.7	2.7	yes	–1.0	n.d.	–1.0	n.d.	–8.1	–7.1	–0.5	0.5	yes
Lithuania	LT	–1.0	2009	–1.2	–0.2	1.1	2.1	yes	–1.0	2010	no comm.	n.d.	–7.5		–1.7		
Luxembourg	LU	–0.8	2007	0.7	1.5	1.6	2.4	yes	–0.8	n.d.	0.5	n.d.	0.4	–0.1	–4.0	–4.5	no
Hungary	HU	–0.5	n.d.	–4.8	–4.3	–2.5	–2.0	no	0.5	n.d.	–1.5	n.d.	–2.5	–1.0	–1.5	0.0	yes
Malta	MT	0.0	2010	–2.1	–2.1	0.1	0.1	yes	0.0	2011	0.0	n.d.	–3.3	–3.3	–3.3	–3.3	no
Netherlands	NL	–1.0 to –0.5	t.p.p.	–0.3	0.5	0.8	1.6	yes	–0.5 to –1.0	t.p.p.	–0.5 to 0.5	n.d.	–3.5	–3.5	–3.6	–3.6	no
Austria	AT	0.0	2010	–0.7	–0.7	0.1	0.1	yes	0.0	n.d.	0.0	n.d.	–2.6	–2.6	–2.4	–2.4	no
Poland	PL	–1.0	2011	–2.4	–1.4	–1.1	–0.1	no	–1.0	2012	–1.0	n.d.	–7.1	–6.1	–2.9	–1.9	no
Portugal	PT	–0.5	2010	–2.1	–1.6	–0.3	0.2	yes	–0.5	n.d.	n.a.	n.d.	–6.6		na		
Romania	RO	–0.9	n.d.	–3.4	–2.5	–2.7	–1.8	no	–0.9	2012	n.a.	n.d.	–7.1		na		
Slovenia	SI	–1.0	t.p.p.	–0.8	0.2	–0.1	0.9	yes	–1.0	n.d.	no comm.	n.d.	–4.8		–2.1		
Slovakia	SK	–1.0 or higher	2010	–3.0	–2.0	–1.2	–0.2	no	–1.0	2010	no comm.	n.d.	–5.2		–2.6		
Finland	FI	2.0	t.p.p.	4.2	2.2	2.8	0.8	yes	2.0	t.p.p.	0.5	n.d.	0.3	–0.2	–1.0	–1.5	no
Sweden	SE	1.0	t.p.p.	2.4	1.4	3.4	2.4	yes	1.0	t.p.p.	1.0	n.d.	1.4	0.4	0.6	–0.4	no
United Kingdom	UK	no comm.	n.d.	–3.0		–1.9			no comm.	n.d.	no comm.	n.d.	–9.0		–4.7		

[1] Declared MTO: "no comm." indicates that no commitment is explicitly made by the country in the SCP; "n.a." indicates SCP is not available. – [2] Date to achieve MTO: "n.d." indicates that the date of achievement is not declared in the SCP; "t.p.p." indicates the MTO is achieved throughout the programme period; "n.a." indicates the SCP is not available. – [3] For Denmark and Netherlands, distance to the central point of MTO range; for Slovakia, distance to the minimum value of MTO range. – [4] For Ireland and Netherlands, distance to the central point of MTO range; for Estonia, distance to the minimum value of MTO range.

Sources: SCP 2007's declared MTO and structural balances are from European Commission's *Public Finances in EMU 2008*, p. 37 and country annexes respectively.
SCP 2008's declared MTO are from 2008 Updates of Stability and Convergence Program.
SCP 2009's declared MTO and structural balances are from 2009 Updates of Stability and Convergence Program, submitted by countries in January 2010.

Figure 3

MTOs Declared in 2009 SCP vs MTOMT*
for Debt 2008/No-crisis and Debt 2012/Lost Decade
(percent of GDP)

× MTO SCP 2009   ■ MTOMT* for Debt 2008 and No-crisis scenario
▲ MTOMT* for Debt 2012 and Lost decade scenario
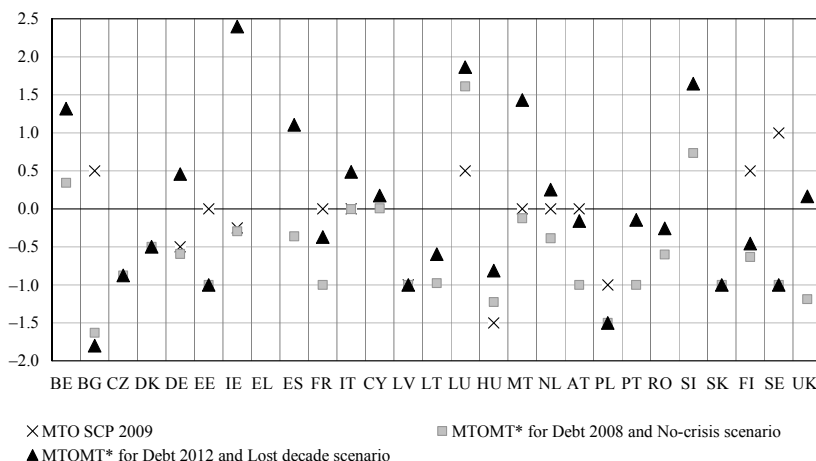
In any case, it must be recognized that the credibility of MTOs as constraints on medium-term fiscal policies has been undermined since the beginning of the crisis, either because countries are not committed to achieve any target or because they are committed to achieve too ambitious targets.

The current MTOs declared in the 2009 updates of SCP have been set using: (i) the debt stocks at the end of 2008, which for practical purposes should be deemed pre-crisis levels, and (ii) the AWG projections of potential growth and age-related expenditure covering 2008-60 elaborated before the crisis (denoted "no-crisis scenario"), which are involved in computing both the debt-stabilising budget balance and the partial frontloading of cost of ageing. But in the next few years, naturally, the crisis will have changed these elements and MTOs will have to be adjusted accordingly (Table 3). To gauge the MTO values that could be established in the next revision scheduled by 2012, we construct an alternative scenario based: (i) debt projections for 2012 reported by EU countries in their SCP 2009 updates, and (ii) the AWG projections under the "lost decade scenario".[7]

Figure 3 reports the current MTOs – if declared – along with our estimates MTOMT* for the prospective alternative scenario. Our estimates give an order of magnitude of the overall impact on MTOs of the crisis, mediated through the explosion of debt and the rise in implicit liabilities due to lower potential growth and higher cost of ageing, if the lost decade scenario were to materialize. There are 19 countries with MTOMT*s for the alternative scenario that exceed the MTOMT* underlying the current MTOs. Belgium, Germany, Ireland, Spain, Malta, Portugal, Slovenia, and UK are those with the largest increases of MTOMT* in the alternative scenario *vis-à-vis* the current situation. The cases of Ireland and Spain are particularly worrisome because both explicit and implicit liabilities rise significantly.

MTOs cannot be below the true MTOMT that we try to estimate through MTOMT* and we note that future MTOMT* are much higher than current MTOMT*. Therefore, our analysis suggests that, conditional upon the materialization of the underlying projections on debt and potential growth, a tightening on MTOs is a likely outcome of the next round of revisions around 2012. The debate on exit strategies for EU Member States should then take on board that MTOs based on the new methodology will become more demanding in the future following the deterioration of public finance conditions already taking place.

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[7]   AWG has recently made available an alternative set of projections of growth and age-related expenditure that do take the crisis on board and explore different paths of recovery; among them, the so-called "lost decade scenario" envisages lower growth rates of potential GDP for all EU countries until 2020 *vis-à-vis* the "no-crisis scenario". Because of institutional features of pension and health systems, a sufficiently long period of lower output levels could give rise to a tilted, upward shift in the path of age-related expenditures as proportion of GDP, eventually increasing the cost of ageing (European Commission, 2009b; European Commission and Economic Policy Committee, 2009).

Table 3

MTOMT* Under Debt as of 2008 and 2012 and No-crisis and Lost Decade Scenarios
(percent of GDP unless otherwise specified)

Country		Growth Rate of Potential GDP at Current Prices (average 2010-60, percent)		Budget Balance Stabilising Debt-to-GDP Ratio at 60 per cent in scenario …		Debt		Supplementary Debt-reduction effort (Calibrated) for Debt as of …		S2E		MTOSM* for No-crisis Scenario and Debt as of …		MTOSM* for Lost Decade Scenario and Debt as of …		MTOMB	MTOEA	MTOMT* = Maximum (MTOMB, MTOEA, MTOSM*) for No-crisis Scenario and Debt as of …		MTOMT* = Maximum (MTOMB, MTOEA, MTOSM*) for Lost Decade Scenario and Debt as of …	
		NCS	LDS	NCS	LDS	2008	2012	2008	2012	NCS	LDS	2008	2012	2008	2012			2008	2012	2008	2012
Belgium	BE	3.8	3.7	−2.2	−2.1	89.8	100.6	1.0	1.3	4.8	6.4	0.3	0.7	1.0	1.3	−1.3	−1.0	0.3	0.7	1.0	1.3
Bulgaria	BG	3.7	3.6	−2.1	−2.1	14.1	14.4	0.0	0.0	1.5	0.8	−1.6	−1.6	−1.8	−1.8	−1.8		−1.6	−1.6	−1.8	−1.8
Czech Republic	CZ	3.6	3.6	−2.1	−2.1	30.0	42.0	0.0	0.0	3.7	3.7	−0.9	−0.9	−0.9	−0.9	−1.6		−0.9	−0.9	−0.9	−0.9
Denmark	DK	3.8	3.7	−2.2	−2.1	33.4	48.3	0.0	0.0	1.4	1.2	−1.7	−1.7	−1.7	−1.7	−0.5	−1.0	−0.5	−0.5	−0.5	−0.5
Germany	DE	3.2	3.1	−1.9	−1.8	65.9	81.0	0.2	0.7	3.3	4.8	−0.6	−0.1	0.0	0.5	−1.6	−1.0	−0.6	−0.1	0.0	0.5
Estonia	EE	3.8	3.5	−2.2	−2.1	4.6	14.2	0.0	0.0	−0.1	−0.5	−2.2	−2.2	−2.2	−2.2	−1.9	−1.0	−1.0	−1.0	−1.0	−1.0
Ireland	IE	4.4	4.1	−2.5	−2.4	43.2	83.9	0.0	0.8	6.7	12.1	−0.3	0.5	1.6	2.4	−1.5	−1.0	−0.3	0.5	1.6	2.4
Greece	EL	3.7	3.6	−2.1	−2.1	99.2	117.7	1.3	1.9	11.5	10.7	3.0	3.6	2.7	3.3	−1.4	−1.0	3.0	3.6	2.7	3.3
Spain	ES	3.9	3.8	−2.2	−2.2	39.7	74.1	0.0	0.5	5.7	8.6	−0.4	0.1	0.6	1.1	−1.2	−1.0	−0.4	0.1	0.6	1.1
France	FR	3.9	3.7	−2.2	−2.2	67.4	87.1	0.2	0.9	1.8	2.7	−1.4	−0.7	−1.0	−0.4	−1.6	−1.0	−1.0	−0.7	−1.0	−0.4
Italy	IT	3.5	3.3	−2.0	−1.9	105.8	114.6	1.5	1.8	1.5	1.9	0.0	0.3	0.2	0.5	−1.4	−1.0	0.0	0.3	0.2	0.5
Cyprus	CY	4.8	4.6	−2.7	−2.6	48.4	63.4	0.0	0.1	8.3	8.2	0.0	0.1	0.1	0.2	−1.8	−1.0	0.0	0.1	0.1	0.2
Latvia	LV	3.4	3.2	−2.0	−1.8	19.5	56.8	0.0	0.0	1.0	1.5	−1.7	−1.7	−1.3	−1.3	−2.0	−1.0	−1.0	−1.0	−1.0	−1.0
Lithuania	LT	3.5	3.2	−2.0	−1.8	15.6	41.0	0.0	0.0	3.2	3.8	−1.0	−1.0	−0.6	−0.6	−1.9	−1.0	−1.0	−1.0	−0.6	−0.6
Luxembourg	LU	4.6	4.5	−2.6	−2.6	13.5	29.3	0.0	0.0	12.9	13.5	1.6	1.6	1.9	1.9	−1.0	−1.0	1.6	1.6	1.9	1.9
Hungary	HU	3.7	3.4	−2.1	−2.0	72.9	73.6	0.4	0.4	1.5	2.2	−1.2	−1.2	−0.8	−0.8	−1.6		−1.2	−1.2	−0.8	−0.8
Malta	MT	3.7	3.5	−2.1	−2.0	63.6	67.3	0.1	0.2	5.7	9.7	−0.1	0.0	1.3	1.4	−1.7	−1.0	−0.1	0.0	1.3	1.4
Netherlands	NL	3.5	3.4	−2.0	−2.0	58.2	73.0	0.0	0.4	5.0	5.5	−0.4	0.0	−0.2	0.3	−1.1	−1.0	−0.4	0.0	−0.2	0.3
Austria	AT	3.7	3.6	−2.1	−2.1	62.6	73.8	0.1	0.5	3.1	4.5	−1.0	−0.6	−0.5	−0.2	−1.6	−1.0	−1.0	−0.6	−0.5	−0.2
Poland	PL	3.5	3.3	−2.0	−2.0	47.2	55.8	0.0	0.0	−1.2	−1.4	−2.4	−2.4	−2.4	−2.4	−1.5		−1.5	−1.5	−1.5	−1.5
Portugal	PT	3.9	3.8	−2.2	−2.2	66.3	91.1	0.2	1.0	1.9	3.1	−1.4	−0.6	−1.0	−0.1	−1.5	−1.0	−1.0	−0.6	−1.0	−0.1
Romania	RO	3.8	3.6	−2.2	−2.1	13.6	31.3	0.0	0.0	4.9	5.6	−0.6	−0.6	−0.3	−0.3	−1.8		−0.6	−0.6	−0.3	−0.3
Slovenia	SI	3.4	3.5	−2.0	−2.0	22.5	42.7	0.0	0.0	8.3	11.1	0.7	0.7	1.6	1.6	−1.6	−1.0	0.7	0.7	1.6	1.6
Slovakia	SK	3.7	3.8	−2.2	−2.2	27.7	42.2	0.0	0.0	2.9	2.9	−1.2	−1.2	−1.2	−1.2	−2.0	−1.0	−1.0	−1.0	−1.0	−1.0
Finland	FI	3.7	3.6	−2.1	−2.1	34.2	54.4	0.0	0.0	4.5	4.9	−0.6	−0.5	−0.5	−0.5	−1.2	−1.0	−0.6	−0.6	−0.5	−0.5
Sweden	SE	3.9	3.8	−2.3	−2.2	38.0	45.2	0.0	0.0	1.6	3.1	−1.7	−1.7	−1.2	−1.2	−1.0		−1.0	−1.0	−1.0	−1.0
United Kingdom	UK	4.1	4.0	−2.4	−2.3	55.5	90.9	0.0	1.0	3.6	4.4	−1.2	−0.2	−0.9	0.2	−1.4		−1.2	−0.2	−0.9	0.2

NCS = No-crisis scenario, LDS = Lost Decade scenario.

Sources: Debt levels are from 2009 Updates of Stability and Convergence Program, submitted by countries in January 2010.
　　　Debt for Cyprus, Portugal and Romania in 2012 is from European Comission (2009), *Autumn Forecast*, and refers to 2011.
　　　For both no-crisis and lost decade scenarios, the average nominal potential GDP growth rates over 2010-60 and S2E indicators are from European Commission's Ageing Report 2009 and Sustainability Report 2009.

5   An alternative method for the supplementary debt-reduction effort based on an exposure index

On theoretical grounds, an important feature of the new MTO methodology is that it establishes a link among three issues involved in the conduct of fiscal policy and the setting of credible budgetary targets: the amount of outstanding debt, the existence of implicit liabilities, and the determination of possible leeway to undertake discretionary measures and public investment. On practical grounds, nevertheless, the advantages of the MTO methodology have been severely undermined by the current crisis and the discretionary policies deployed to cope with it inasmuch as debt ratios have skyrocketed and eventually overshadowed any other variable in the determination of MTOs. In this particular crisis, the increase in explicit liabilities during 2008-09 has not been a consequence of profligate governments but of governments coping either with the collapse of an unsustainable debt-led growth process at home (UK, Ireland) or with the contraction of output due to the collapse in international trade (Germany, Italy). In such a context, focusing narrowly on the level of public debt may not be sufficient to address the stance of fiscal policy in order to set MTOs. Characteristics of the public debt, the performance of financial and banking system, and sectoral and external imbalances may all be important and worth considering in assessing the fiscal stance in the short- and medium-term.

In this section, we elaborate an alternative formulation for MTOs in which the supplementary debt-reduction effort is replaced by a synthetic exposure index that measures funding pressures and risks facing all sectors in a given country at a certain point in time. The exposure index not only includes the public debt-to-GDP ratio but also several variables related to the short-term sustainability of public debt, the risk of distress in the financial and banking system – and thus the implicit liabilities for the public sector associated to possible bail-outs, and the build-up of sectoral and external imbalances. A similar analysis has been recently carried out by the European Commission (2010).

For the public sector, we consider the composition of debt in terms of residual maturity and the share held by non-resident investors. Maturity composition is gauged by the stock of government liabilities coming due in the next three years, which simultaneously measures short-term refinancing needs and is a proxy for rollover risk facing the government. The share of foreign holdings of public debt assesses the reliance of the government on foreign savings to place debt in the market, as well as its exposure to a situation where investors increase home bias.

The banking sector's risk exposure on assets is assessed focusing on debtors' characteristics to emphasize counterparty risk. We first separate credit extended to domestic agents and to foreigners. Within domestic debtors, we consider the share of loans given to households and to corporates, whereas within foreign debtors, we consider the share of loans given to residents of emerging markets and to residents of developed countries. Funding pressures facing the banking sector, on the other hand, is gauged by the banks' total debt, the share of debt maturing in the next three years, and the ratio between total domestic loans and domestic deposits. The latter is a sort of funding gap measuring the reliance of the banking system on the wholesale funding markets, as well as its exposure to a situation where these markets dry up.

As far as sectoral imbalances are concerned, we consider the net borrowing position of four sectors – households, non-financial corporate, financial corporate, and the general government – as an indicator of their financing needs originated in income-expenditure imbalances. External imbalances are assessed using the net borrowing position of the economy as a whole – *i.e.*, the current account – and the debt composition by maturity aggregated across the aforementioned four sectors. The two indicators measure the funding pressures facing the country – arising from income-expenditure imbalances and short-term refinancing needs – and reflect the country's exposure to a liquidity crisis or sudden stops.

5.1   Data and results

For the variables described above, we collected data corresponding to the main 10 Euro Area countries in 2005 – well before the start of the crisis – and 2009, the last year in terms of data availability.[8] All variables are expressed in terms of GDP. We then selected six sub-indices addressing the exposure of public sector, the composition of foreign assets, domestic assets, and liabilities of the banking sector, and the sectoral net borrowing and debt composition of the four sectors mentioned above. For each sub-index we ranked the performance of all countries from the best grading 1 to the worst performer grading 10. We averaged (without weighting) the single sub-component scores along all the dimensions under study and ranked the countries accordingly.

The resulting ranking constitutes the exposure index, giving 1 to the best performer and 10 to the worst. The higher the value assigned by the indicator to a country, the more exposed the country is from a financial and fiscal point of view. Thus, the exposure index intends to provide an easy read of each country's fiscal and financial position relative to its peers within the Euro Area. In addition, as the exposure indicator summarizes variables associated with the funding pressures of the four sectors, it can be seen as measuring the outstanding amount of public as well as private liabilities in the economy. The exposure index and the underlying sub-indicators are reported in Table 4.

As far as the public debt sub-index is concerned, Italy and Greece rank poorly. Italy presents the highest debt in 2009 but performs relatively well in terms of the share of debt held by foreigners. By contrast, Greece presents a slightly lower public debt in 2009 with a similar maturity composition as the Italian one, but features a larger foreign exposition. From 2005 to 2009, the relative position of Portugal deteriorates due to the increase in the level of public debt, whereas the positions of Belgium and the Netherlands worsen on the account of higher debt held abroad. In spite of the increase in the debt-to-GDP ratio in 2009, the relative average positions of Germany, Ireland, and France stay constant, whereas the overall condition for Austria improves.

The bank loan exposure to foreign countries (second sub-index) is a useful indicator of the degree of financial internationalization. However, in times of crisis, it becomes a good proxy of the risk of financial contagion. In 2009, Ireland scores high in terms of banking sector exposure to advanced economies whereas Austria is largely exposed towards emerging markets. Looking at the domestic bank exposure (third sub-index), Ireland and Spain lead the ranking with respect to peer countries. The sub-index on the banking sector funding measure stress felt by banks in case of a liquidity crisis or a depositors run. Ireland is again the most exposed country in 2009, followed by Spain and the Netherlands.

The analysis of sectoral balances (fifth sub-index) shows that Greece is again the worst performer in 2009, with imbalances in both households and the government leading to a large current account deficit. Portugal and Ireland also perform poorly with sizable government borrowing and external imbalances. Sectoral short-term refinancing needs indicator (last sub-index) rank Ireland and Portugal as the most exposed economies in 2009, given their high stocks of

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[8]   Data for GDP and public debt are from AMECO. The figures on the "share of public debt maturing in the following 3 year" and the "Foreign holding of public debt" are either from national Central Banks' or National Debt Management Bodies or National Treasury sources. Data on the "Banking Sector, loan exposure to foreign debtors" are from BIS (Consolidated foreign claims of reporting banks - ultimate risk basis). As they are expressed in million of dollar the ratio with respect to GDP has been obtained using IMF GDP in PPS (WEO database). Data on "Banking Sector, loan, exposure to domestic debtors" are from, ECB, Money, banking and financial markets, MFI balance sheets. Data on Banking sector funding are from ECB, Money, banking and financial markets, MFI balance sheets as far as the ratio between loan and deposit is concerned. Debt securities outstanding as well as Debt securities maturing in the following 3 year are from national Central Banks and National Treasury databases. Data on sectoral net borrowing are from AMECO. Data on sectoral short-term refinancing needs are from national central banks or treasuries as far as the series of "Financial Corporates Bonds", "Non-financial Corporates – Bonds" and "General Government short-term share of public debt" are concerned. Data on Non-financial corporate (loans) and on short-term household loans are from Eurostat, financial Accounts Database.

short-term debt held by financial corporates, non-financial corporate, and households. Italy follows due to the high amount of outstanding short-term public debt.

The exposure index at the bottom of Table 4 shows that from 2005 to 2009 Ireland has worsened significantly as a consequence of imbalances borne by the household and financial corporate sectors. By contrast, the relative positions of Italy and Greece have deteriorated mainly on the account of the increasing public debt. But since the exposure indicator for Italy does not signal any particular stress in the financial corporate's and households' indebtedness, the country exhibits middle risk.

5.2   *Applying the exposure index to the new MTO calculation*

The fiscal and financial exposure index can be used to rank all countries on a 0-1 interval, as presented in Table 5. In order to compute minimum budgetary targets MTOMT*s taking on board a wider range of liabilities as well as sectoral and external imbalances, we use the exposure index in substitution of the (calibrated) supplementary debt-reduction effort (Table 5). On average, MTOMT*s with exposure index are more or less demanding depending on the assessment of imbalances in the banking, financial corporate, and household sectors. High-debt countries with low underlying sectoral imbalances converge to a minimum budgetary target less stringent than what estimated using the supplementary debt-reduction effort.

Under the no-crisis scenario, Germany, the country with the less worrying sectoral imbalances, has an MTOMT* with exposure index less demanding that the MTOMT* with supplementary debt-reduction effort (–0.8 per cent of GDP rather than –0.6 per cent). Compared to the MTO declared in the 2009 update of SCP, this result would assure to German authorities some additional leeway for expansionary fiscal policy in case of need. For Italy, an economy with high-debt but limited sectoral imbalances, our alternative methodology implies a less demanding MTOMT* (–1 per cent of GDP instead of a balanced positions). The difference is substantial as it would allow to Italy to save, ceteris paribus, two years of the 0.5 percentage points consolidation required by the SGP. By contrast, the introduction of the exposure index would require a much tighter MTOMT* for Ireland (0.7 per cent of GDP against –0.3 per cent). Being an economy characterized by low public debt but with large external imbalances and refinancing needs, fiscal policy should consolidate to improve public finances but also to reduce persistent external imbalances.

6   Conclusions

The objective of this paper has been threefold. Firstly, by relying on the information contained in the last batch of the SCPs, it analyzed the new MTO methodology recently adopted by EU Member States on the basis of a calibrated algorithm that closely follows the still undisclosed formulation on which Member States agreed upon. In this framework, the most critical aspects regarding the modalities to take on board government liabilities have then been extensively discussed. Secondly, it presented an assessment of the impact of the current crisis on the modalities for determining MTOs. Current and future lower bounds for MTOs have been calculated measuring the incidence on the budgetary targets of changes in public debt, potential growth, and the projected cost of ageing. Thirdly, relying on the presumption that the new MTO methodology focus only on a handful of fiscal and growth variables and neglects other important determinants affecting the short-term sustainability of public finances, the paper has outlined a simple alternative modality to introduce into the MTO determination other elements connected with the building-up of external and domestic imbalances. The proposed modality to take into account of such explicit

Table 4

Ranking of Countries and the Composition of the Exposure Index

	Year	BE	DE	IE	EL	ES	FR	IT	NL	AT	PT
Public Sector						**Public Debt**					
	2009	8	5	3	9	1	6	10	2	4	7
	2005	8	7	1	9	2	6	10	3	5	4
						Share of Debt Maturing in the Following 3 Years					
	2009	9	4	2	8	3	7	10	5	1	6
	2005	9	4	3	2	5	7	7	6	1	8
						Foreign Holdings of Public Debt					
	2009	5	4	8	7	3	6	2	9	1	10
	2005	4	2	9	7	3	5	1	6	8	10
						Relative Position Average					
	2009	7.3	4.3	4.3	8.0	2.3	6.3	7.3	5.3	2.0	7.7
	2005	7.0	4.3	4.3	6.0	3.3	7.0	6.0	5.0	4.7	7.3
Banking Sector – Loan Exposure to Foreign Debtors						Developed Countries					
	2009	8	6	10	1	5	7	2	9	4	3
	2005	9	8	1	2	5	7	3	10	6	4
						Emerging Markets					
	2009	9	2	5	6	8	4	1	7	10	3
	2005	7	4	1	3	8	5	2	9	10	6
						Relative Position Average					
	2009	8.5	4	7.5	3.5	6.5	5.5	1.5	8	7	3
	2005	8	6	1	2.5	6.5	6	2.5	9.5	8	5
Banking Sector – Loan Exposure to Domestic Debtors						Households					
	2009	2	6	10	3	9	5	1	7	4	8
	2005	3	7	9	2	6	4	1	10	5	8
						Corporates					
	2009	1	2	10	3	9	4	5	7	6	8
	2005	1	4	10	3	8	2	5	6	7	9
						Relative Position Average					
	2009	1.5	4.0	10.0	3.0	9.0	4.5	3.0	7.0	5.0	8.0
	2005	2.0	5.5	9.5	2.5	7.0	3.0	3.0	8.0	6.0	8.5
Banking Sector Funding						Loan/Deposit Ratio					
	2009	1	3	10	2	5	7	9	6	4	8
	2005	1	3	9	2	6	5	10	8	4	7
						Debt Securities Outstanding					
	2009	2	5	9	1	6	3	4	10	7	8
	2005	3	5	9	1	7	2	4	10	6	8
						Debt Securities Maturing in the Following 3 Years					
	2009	1	3	9	4	6	2	5	10	7	8
	2005	3	6	9	1	8	2	4	10	5	7
						Relative Position Average					
	2009	1.3	3.7	9.3	2.3	5.7	4.0	6.0	8.7	6.0	8.0
	2005	2.3	4.7	9.0	1.3	7.0	3.0	6.0	9.3	5.0	7.3
Sectoral Net Borrowing						Non-financial Corporations					
	2009	5	4	2	3	7	6	9	1	8	10
	2005	3	5	4	2	10	8	7	1	6	9
						Households and NPISH					
	2009	7	3	6	10	1	4	5	9	2	8
	2005	6	1	9	10	8	4	3	7	2	5
						General Goverment					
	2009	5	1	9	10	8	7	4	3	2	6
	2005	5	7	1	9	2	6	8	3	4	10
						ROW - Current Account					
	2009	4	1	7	10	8	6	5	2	3	9
	2005	3	2	7	10	8	6	5	1	4	9
						Relative Position Average					
	2009	5.3	2.3	6.0	8.3	6.0	5.8	5.8	3.8	3.8	8.3
	2005	4.3	3.8	5.3	7.8	7.0	6.0	5.8	3.0	4.0	8.3
Sectoral Short-term Refinancing Needs						Financial Corporates - Bonds					
	2009	1	3	9	4	6	2	5	10	7	8
	2005	3	6	9	1	8	2	4	10	5	7
						Non-financial Corporates - Bonds					
	2009	4	9	6	3	2	10	5	7	1	8
	2005	3	9	2	7	4	10	6	8	1	5
						Non-financial Corporates - Loans					
	2009	8	1	10	2	5	6	9	3	4	7
	2005	9	1	10	3	5	4	8	6	2	7
						Households					
	2009	1	3	10	9	5	2	4	6	7	8
	2005	1	5	10	9	3	2	4	6	8	7
						General Government					
	2009	9	4	2	8	3	7	10	5	1	6
	2005	9	4	3	2	5	10	7	6	1	8
						Relative Position Average					
	2009	4.6	4	7.4	5.2	4.2	5.4	6.6	6.2	4	7.4
	2005	5	5	6.8	4.4	5	5.6	5.8	7.2	3.4	6.8

	Year	BE	DE	IE	EL	ES	FR	IT	NL	AT	PT
Exposure Index	2009	4.8	3.7	7.4	5.0	5.6	5.2	5.0	6.5	4.6	7.1
	2005	4.8	4.9	6.0	4.1	6.0	5.1	4.8	7.0	5.2	7.2
Relative Position	2009	3	1	10	5	7	6	4	8	2	9
	2005	2	4	8	1	7	5	3	9	6	10

Table 5

MTOMT* Using Exposure Index
(percent of GDP unless otherwise specified)

Country		Growth rate of Potential GDP at Current Prices, Average 2010-60 *(percent)*		Budget Balance Stabilising Debt-to-GDP Ratio at 60 Per Cent		Exposure Index	S2E		MTOSM* Using Exposure Index		MTOMB	MTOEA	MTOMT* = Maximum (MTOMB, MTOEA, MTOSM*) Using Exposure Index		MTOMT* = Maximum (MTOMB, MTOEA, MTOSM*) Using Supplementary Debt-reduction Effort		MTO Declared by Country in SCP 2009[1]
		No-crisis scen.	Lost decade scen.	No-crisis scen.	Lost decade scen.		No-crisis scen.	Lost decade scen.	No-crisis scen.	Lost decade scen.			No-crisis scen.	Lost decade scen.	No-crisis scen.	Lost decade scen.	
Belgium	BE	3.8	3.7	–2.2	–2.1	0.3	4.8	6.4	–0.3	0.3	–1.3	–1.0	–0.3	0.3	0.3	1.0	no comm.
Germany	DE	3.2	3.1	–1.9	–1.8	0.0	3.3	4.8	–0.8	–0.2	–1.6	–1.0	–0.8	–0.2	–0.6	0.0	–0.5
Ireland	IE	4.4	4.1	–2.5	–2.4	1.0	6.7	12.1	0.7	2.6	–1.5	–1.0	0.7	2.6	–0.3	1.6	–0.5 to 0.0
Greece	EL	3.7	3.6	–2.1	–2.1	0.4	11.5	10.7	2.1	1.8	–1.4	–1.0	2.1	1.8	3.0	2.7	no comm.
Spain	ES	3.9	3.8	–2.2	–2.2	0.5	5.7	8.6	0.2	1.2	–1.2	–1.0	0.2	1.2	–0.4	0.6	no comm.
France	FR	3.9	3.7	–2.2	–2.2	0.4	1.8	2.7	–1.2	–0.8	–1.6	–1.0	–1.0	–0.8	–1.0	–1.0	0.0
Italy	IT	3.5	3.3	–2.0	–1.9	0.4	1.5	1.9	–1.2	–1.0	–1.4	–1.0	–1.0	–1.0	0.0	0.2	0.0
Netherlands	NL	3.5	3.4	–2.0	–2.0	0.7	5.0	5.5	0.4	0.6	–1.1	–1.0	0.4	0.6	–0.4	–0.2	–0.5 to 0.5
Austria	AT	3.7	3.6	–2.1	–2.1	0.2	3.1	4.5	–0.9	–0.4	–1.6	–1.0	–0.9	–0.4	–1.0	–0.5	0.0
Portugal	PT	3.9	3.8	–2.2	–2.2	0.9	1.9	3.1	–0.7	–0.2	–1.5	–1.0	–0.7	–0.2	–1.0	–1.0	n.a.

[1] Declared MTO: "no comm." indicates that no commitment is explicitly made by the country in the SCP; "n.a." indicates SCP is not available.
Sources: For both no-crisis and lost decade scenarios, the average nominal potential GDP growth rates over 2010-60 and *S2E* indicators are from European Commission's *Ageing Report 2009* and *Sustainability Report 2009*.

current liabilities is based on the construction of an exposure indicator that adopts a simple metric – based on a number of variables such as the composition of public debt by maturity, the structure of the private sector indebtedness, and financial market judgements – and allows for easily ranking countries along different fiscal and financial dimensions.

Our results show that the new MTO values heavily depend on the current debt ratios. Given the relevance of this channel, the credibility of the medium-term fiscal targets is chiefly influenced by the consolidation of current budget balances. Such a consolidation, on the other hand, may eventually be procyclical in coincidence with the large slumps of the economy in the present. By contrast, the new MTO formulation gives less incentive to undertake structural reforms which may contain the projected increase in age-related expenditure and reduce non-contractual future spending commitments without necessarily adjusting current budget balances.

Furthermore, by analysing what reported in 2009 SCPs, the paper showed that, due to the impact of the crisis, EU Member States reacted either delaying the date of achievement of MTOs or even not declaring them. In this respect, the new MTOs methodology appears as being quite sensitive to the impact of current crisis, determining tighter targets which would require additional budgetary efforts on top of the ones already planned by governments. This could reduce governments' incentives in committing towards too ambitious objectives over the medium term horizon, leading to a reduced political ownership of this rule and eventually undermining fiscal discipline. On the basis of debt and GDP growth projections, the paper also proved that the new MTO methodology would result in more restrictive targets at the moment of their revision scheduled for 2012.

Finally, the introduction of the fiscal and financial exposure indicator in the algorithm for computing MTOs shows that in times of crisis, countries with large domestic and/or external imbalances may be called for to set fiscal targets much more ambitious than those determined on the sole basis of the current debt-to-GDP ratio. Notwithstanding the relevance of these results, our findings should be interpreted with caution because they are still subject to large uncertainty as the exposure indicator is heavily influenced by the variables chosen to perform the ranking of countries, and because the relative position of a country could vary according to the modalities chosen to group the sub-indicators. Given these limitations, the exposure index metric should be considered as a preliminary attempt aimed at introducing in the current policy debate two important issues: the impact of current explicit liabilities on the determinants of fiscal targets; and the role of domestic and external imbalances for the conduct of efficient and credible fiscal policies.

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