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# Revenue Windfalls and Expenditure Slippages: Disappointing Implementation of the Reformed Stability and Growth Pact

*With the 2005 reform of the Stability and Growth Pact, a commitment was made to actively consolidate public finances in good times and to use unexpected extra revenues for deficit and debt reduction and not for additional expenditure. Against this background this study provides evidence of a lax implementation of expenditure plans in recent years when revenues were buoyant. Moreover, the influence of revenue windfalls on expenditure overruns is found to be more pronounced in countries that also have not met their medium-term objectives. Thus, first experiences in implementing the provisions of the preventive arm of the Stability and Growth Pact after its reform are not encouraging.*

During the Ecofin Council spring orientation debate on budgetary policies in April 2007, it was stated that, "Ministers recall the 22 to 23 March 2005 European Council Conclusions on improving the implementation of the Stability and Growth Pact (SGP), confirming notably the commitment to actively consolidate public finances in good times and to use unexpected extra revenues for deficit and debt reduction." The modifications of the SGP in 2005 were agreed on *inter alia* with a view to strengthening the preventive arm. In this respect medium-term objectives (MTO) were introduced aiming at structural budgetary positions roughly close to balance. This position generally allows for the free and full operation of automatic fiscal stabilisers, thus avoiding pro-cyclical fiscal policies during downturns and violation of the 3%-deficit limit. In this vein, a rapid adjustment towards MTO between 2005 and 2007 would have better prepared the countries for bad times. Indeed, between 2005 and 2007, tax receipts rose strongly and unexpectedly in many EU countries contributing to a considerable recovery of budget balances. These recent years could be considered favourable circumstances, predestined to improve structural budgetary positions in many countries in order to reach a sound fiscal position. But as fiscal analysis reveals, structural budgets did not improve sufficiently or, in some cases, actually deteriorated. This is even more worrying as reported structural positions may be too optimistic in numerous cases, especially in the sense that revenue wind-

falls are only partly considered a cyclical phenomenon although they are to a greater extent temporary, and a reversal of revenue developments may be expected. Nevertheless, these revenue windfalls may have prompted expenditure increases, probably permanently weakening budget positions.

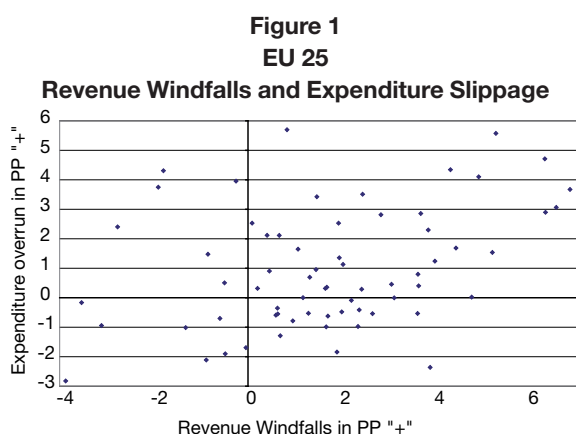
This article investigates the influence of unexpected revenue gains on politically induced expenditure slippages, i.e. deviations from plan, between 2005 and 2007 after the reform of the SGP. The hypothesis of our analysis is that governments have tended to spend the revenue windfalls recorded in many countries over the past few years in the same year in which they occurred – instead of using them to establish a sound fiscal position, i.e. achieving their MTOs in line with the requirements of the SGP. The issue is approached by identifying EU member states with expenditure growth above budgetary plans between 2005 and 2007. If these developments coincide with more favourable than planned revenue developments in the respective countries, this could be regarded – other things being equal – as an indication of revenue windfalls facilitating expenditure slippages.

## Database

For the analysis, we combine data from the national stability and convergence programmes and the Commission's Ameco database.<sup>1</sup> The information gleaned from the programmes relates to growth

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<sup>1</sup> We thank Peter Wierst from The Nederlandse Bank for providing the data basis which he used in his analysis. Cf. L. Moulin, P. Wierst: How credible are multiannual budgetary plans in the EU?, in: Banca d'Italia (ed.): Fiscal Indicators, Public Finance Workshop, Perugia 2006, pp. 983-1005. In their analysis, they conclude that planned reductions in the general government deficit were primarily missed because expenditure plans were not adhered to.



rates for revenue, expenditure and real and nominal GDP as planned or forecasted by the governments for the year directly following the programme update. These data reflect the governments' budgetary plans as budget laws have usually been passed by the time of the programme update. The reference point for assessing deviations from plan is the Commission's Ameco database for actual developments. For the relevant period of 2005 to 2007, in which there were pronounced revenue windfalls, we focus on three sets of stability programme updates: those conducted at the end of the years 2004, 2005 and 2006. This gives us a data set with 75 observations for the EU 25<sup>2</sup> and 45 observations for the euro area. When considering only countries not in a sound position, i.e. those that have not achieved their MTO (according to EU Commission calculations for structural balances), 48 and 27 observations are available respectively.

A revenue windfall in the year under consideration is defined as the amount (percentage point, PP) by which revenue growth is actually higher than envisaged in the budgetary plans.<sup>3</sup> An expenditure slippage is defined as the amount by which expenditure growth is actually higher than planned. As not all deviations from expenditure plans may result from government

decisions, we could also control for unexpected macroeconomic developments. Expenditure developments might be affected by automatic stabilisers: if actual real GDP growth is below (above) expectations and unemployment is therefore higher (lower), the initially assumed expenditures increase (decrease) automatically. We therefore adjust the calculation of expenditure slippages by the estimated influence of unexpected real GDP developments.<sup>4</sup> Moreover, actual price developments differing from forecasts could have led to unintended changes in government expenditure growth. If the actual increase in the GDP deflator exceeds (undershoots) the expected development, expenditures might increase (decrease) automatically.<sup>5</sup> In a further step, we correct for this influence. However, adjustments accounting for inflation might not always be justified since nominal expenditure growth does not necessarily react instantaneously to higher inflation, e.g. in case of binding nominal expenditure ceilings. The analysis focuses on the possible relationship between expenditure and revenue developments in the same year, because we assume that the unexpected growth of revenues will often become apparent not only *ex post* but should generally already be noticed during the year and thus may trigger additional expenditure in the respective year.

### Descriptive Analysis

We turn first to the case of revenue and unadjusted expenditure developments in all 25 EU member states (cf. Figure 1)<sup>6</sup>. It can be observed that adherence to planned expenditure growth was fairly rare. Regarding expenditure slippages, it is found that, on average, budgeted expenditure growth was exceeded by 1.5 PP. In many cases, revenues grew above plan, on average by 2.5 PP. The positive correlation between expenditure and revenue deviation from plan is very strong (coefficient of correlation of 0.63 is highly significant at the 1% level). Indeed, in most cases, expenditure growth exceeded plans while, at the same time, revenue grew above plan (top right quadrant).

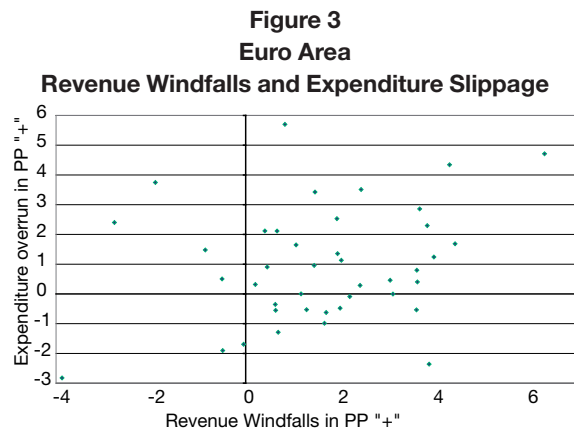
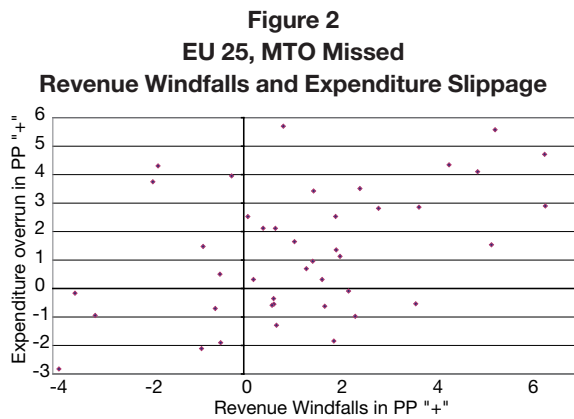
<sup>2</sup> Romania and Bulgaria are not included as they delivered their first convergence programmes at the end of 2007.

<sup>3</sup> Note that different definitions of windfalls are possible. The focus here is on unexpected increases in revenues. Unexplained changes in revenue growth are the difference between actual revenues and the level that would have been predicted on the basis of available estimates of the impact of discretionary fiscal policy measures and developments in the macroeconomic assessment bases underlying both taxes and social security contributions and standard elasticities. One purpose of that approach is to clarify the extent to which this unexplained development drove the improvement in structural balances. However, when investigating whether extra revenues spurred expenditure overruns, it is not necessary to look at unexplained revenue growth. Since the analysis does not deal with structural developments, focusing on unexpected revenues is appropriate.

<sup>4</sup> The expenditure slippages are adjusted by relating the semi-elasticity assumed by the EU Commission for the expenditure side to the real GDP projection error.

<sup>5</sup> Alternatively, the HICP could serve as an indicator. Indeed, the projection errors for the HICP and the GDP deflator differ in some countries and years. Nevertheless, the GDP deflator is used here due to the fact that HICP expectations are not reported in all programmes.

<sup>6</sup> For convenience, the graphs presented exclude some outlying observations. The largest divergences, with expenditure and revenue growth above plan by more than 10 PP, occurred in Latvia in 2006 and Lithuania in 2007. In Estonia in 2006 and in Cyprus in 2007, revenue windfalls of above 10 PP were found. In Hungary, expenditure growth was above plan by more than 10 PP in 2006. For Lithuania and Latvia, some of the slippage is accounted for by inflation.



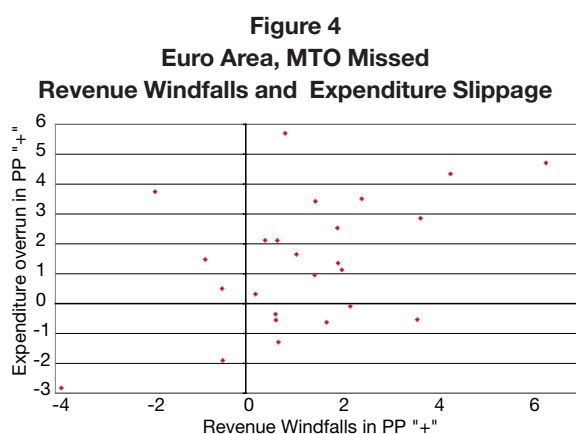
The worst case – in terms of possible necessary consolidation – with expenditure slippages in conjunction with revenue shortfalls (top left) was relatively infrequent. This was also the case for expenditure restraint in conjunction with revenue shortfalls (bottom left). There were also some cases of extra revenues being saved and expenditure plans even underscored (bottom right).

Saving extra revenues instead of spending them is most important for countries without a sound fiscal position. Therefore, we turn to EU countries that have missed their MTO (Figure 2). As can be observed, these countries were less likely to experience revenue windfalls. This observation may lead to the conclusion that, in countries that miss their MTO, revenue forecasts in the programmes are relatively optimistic, thus windfalls – as defined here – are less likely. At 2.0 PP, revenue windfalls were also lower on average than for the EU 25; however, the corresponding average for expenditure slippages (1.9 PP) was higher than for the EU 25 sample. Taken together, this indicates less prudent budget planning. Not surprisingly, the positive correlation between expenditure and revenue deviations from plan is stronger for these countries compared to all member states (coefficient of correlation of 0.76 significant at the 1% level). The comparison also reveals that the worst case, i.e. expenditure growth above plan but revenues growing slower than expected (top left), occurred predominantly in countries that failed to achieve their MTO. Furthermore, the agreement to save extra revenues (bottom right) was pursued only in about half of the cases in countries that had not achieved their MTO. This indicates that some of the countries in need of consolidation actually managed to save extra revenues. However, even

for this sample the fact that the extra revenues were (partly) spent, holds. Overall – according to the SGP – for countries missing their MTO more consolidation should have been expected.

Interesting results can also be derived when comparing the EU 25 with the euro-area member states (Figure 3). The first impression is similar – again slippages appeared mainly in conjunction with revenue windfalls. The notable difference is that, on average, both expenditure overrun (0.7 PP) and revenue windfalls (1.9 PP) were smaller in euro-area member states. The weak correlation between expenditure and revenue deviations from plan (coefficient of 0.26 only significant at the 10% level) indicates that the tendency to spend extra revenues was less pronounced than is the case for all EU member states. When focussing on those euro-area countries with consolidation needs, i.e. euro-area member states that have missed their MTO (Figure 4), it is noteworthy that, on average, expenditure slippages (0.9 PP) were somewhat higher compared to all euro-area member states, though clearly below average slippages of the EU samples, while the average for revenue windfalls (1.1 PP) was the lowest of all samples. The positive correlation between revenue and expenditure deviations from plan is stronger (coefficient of correlation of 0.44 significant at the 5% level) than in the euro-area sample but less pronounced than in the EU samples.

Consequently, in both cases – EU 25 and, to a lesser extent, euro-area member states – the tendency to spend rather than save is more pronounced in countries that had not achieved their MTO compared to the samples including all countries. In euro-area countries that had missed their MTO, expenditure slippages



even exceeded revenue windfalls<sup>7</sup> in half of the cases. The pictures hardly change after correcting for errors in expenditure forecasts for real GDP growth and inflation in the way described above. Exceptions were Luxembourg, Estonia, Lithuania and Latvia, where expenditure slippages are less severe when errors in the inflation forecast are taken into consideration. Apart from these cases, the influence of automatic stabilisers and inflation on expenditure does not seem to be significant.

The results presented here would be somewhat different if the medium-term plans included in the programmes were also taken into account. In particular, expenditure slippages appear more often when plans for the years  $t+2$  and  $t+3$  of the programmes adopted at the end of period  $t$  are also considered (even when accounting for unexpected inflation and GDP developments). This indicates that medium-term plans are not binding enough. Instead, actual budgetary plans were apparently adjusted to higher expenditure growth rates than earlier medium-term plans.

#### Econometric Analysis

Based on these preliminary results, a panel econometric analysis verifies the hypothesis that revenue windfalls had a positive and concomitant impact on expenditure slippages in EU member states. To conduct this analysis, deviations of the actual expenditure growth rates from plans (in short "expenditure slippages": ES) are regressed on the deviations of actual revenue growth rates from plans (in short "revenue windfalls": RW) of both the same and the previous year, for each country  $i$  and period  $t$ . Formally, the basic equation is:

$$ES_{i,t} = \alpha + \beta_1 RW_{i,t} + \beta_2 RW_{i,t-1} + \beta_3 Rgdp_{i,t} + \beta_4 Defl_{i,t} + u_i + e_{it}$$

with all variables expressed in terms of percentage point deviations between observed (actual) and planned values. We also take into account the fact that expenditure slippages might be the result of deviations from forecasted real GDP growth (Rgdp) and GDP deflators (Defl). Starting from the basic scenario for EU25, dummy variables are additionally included to identify statistically different levels of expenditure slippages of member states which either belong to the euro area at present, went through economic transformation processes in the past (EU\_trans)<sup>8</sup> or have missed their MTO (MTO\_missed). Finally, we distinguish between general and group-specific influences of revenue windfalls by interacting these dummies sequentially with revenue windfalls of the corresponding period.

In order to take unobserved unit-specific effects into account, the model is estimated with random effects which control for omitted variables that are constant over time but vary between units, as well as for those which may be fixed between units but vary over time.<sup>9</sup> The results of the panel analysis are reported in Table 1 below. The base regressions are represented in columns 1 and 2, while alternative specifications using dummy variables and interaction terms are included in columns 3 to 6.<sup>10</sup>

The estimates for the base, as well as for the alternative specifications, strongly support the main hypothesis. Accordingly, revenue windfalls generally had a highly significant positive effect on expenditure slippages in the EU25 as a whole in the same period, whereas windfalls reported in the previous year made a negative contribution (although in the case of controlling for different sub-samples by dummy variables this effect is statistically insignificant). A plausible explanation for this partly conflicting outcome could be

<sup>8</sup> These are the eight middle and eastern European countries that joined the EU in 2004.

<sup>9</sup> In GLS estimation with random effects individual specific constant terms are thus assumed to be randomly distributed across cross-sectional units (ui) and collected in the error term (error components model). In the present setting, with a very short time dimension, this seems to be more appropriate than considering fixed unit effects, which are collected in unit-specific intercepts and use only the time variation within each cross-section. Hausman specification tests indeed reject specifications using fixed country effects, indicating instead that random effects estimates are more efficient (see last line of Table 1).

<sup>10</sup> Checks for collinearity and influential observations have been carried out without detecting any serious multicollinearity problems or extreme outliers (except for some large observations in certain new member states). Since tests report heteroskedasticity, the standard errors are corrected for both heteroskedasticity and serial correlation using the White robust variance matrix estimator, which accounts for the clustering of observations.

<sup>7</sup> Looking at the graphs, these are the cases above the hypothetical bisecting line in the top right quadrant.

## STABILITY AND GROWTH PACT

**Table 1**  
**Random Effects (RE) Estimates for Expenditure Slippages, EU25, 2005-2007**

Dep.var.: ES (in pp)	(1)	(2)	(3)	(3')	(4)	(5)	(6)	(6')
RW	0.621*** (0.151)	0.589*** (0.185)	0.596*** (0.167)	0.550*** (0.162)	0.833*** (0.209)	0.330** (0.148)	0.245* (0.138)	0.597*** (0.188)
RW (t-1)		-0.289** (0.146)	-0.220 (0.174)	-0.317** (0.157)	-0.188 (0.154)	-0.160 (0.137)	-0.186 (0.147)	-0.303** (0.151)
Rgdp		0.049 (0.399)	-0.127 (0.352)	-0.223 (0.383)	-0.189 (0.334)	-0.260 (0.385)	-0.247 (0.320)	-0.254 (0.384)
Defl		0.630* (0.322)	0.359 (0.273)	0.438 (0.316)	0.159 (0.300)	0.071 (0.337)	0.339 (0.258)	0.385 (0.267)
Euro			-0.232 (0.537)	-0.020 (0.700)		0.303 (0.754)	0.073 (0.406)	0.019 (0.675)
EU_trans			1.527 (1.112)	2.389* (1.310)	0.633 (0.995)		1.336 (0.871)	2.495** (1.222)
MTO_missed			1.341** (0.550)		1.149* (0.595)	0.968* (0.559)		
MTO_missed (t-1)				-0.149 (0.566)				
RW * Euro					-0.460** (0.224)			
RW * EU_trans						0.645** (0.290)		
RW * MTO_missed							0.590*** (0.155)	
RW * MTO_missed (t-1)								-0.081 (0.162)
Obs. (no. countries)	75 (25)	65 (25)	65 (25)	65 (25)	65 (25)	65 (25)	65 (25)	65 (25)
Adj. R <sup>2</sup> (OLS)	0.391	0.448	0.498	0.473	0.548	0.569	0.590	0.475
Within R <sup>2</sup> (RE)	0.329	0.275	0.289	0.295	0.358	0.389	0.414	0.296
Between R <sup>2</sup> (RE)	0.517	0.724	0.800	0.752	0.824	0.826	0.841	0.752
Overall R <sup>2</sup> (RE)	0.399	0.483	0.553	0.531	0.598	0.616	0.635	0.533

\*, \*\*, and \*\*\* indicate significance at the 10%, 5% and 1% level. Heteroskedasticity and autocorrelation consistent standard errors are in brackets.

Sources: AMECO database and national stability programmes.

that expenditure plans for the following year may be more generous after having experienced windfalls, thus c.p. reducing the likelihood of actual expenditure growth overshooting plans. The inclusion of the windfalls reported in the previous year considerably increases the goodness of fit of the regression (according to the adjusted R<sup>2</sup> of corresponding OLS regressions). In contrast, observed deviations from forecasted real GDP growth and price developments mostly had no explanatory power and no significant effect on expenditure slippages, yet an unexpected increase in the deflator actually tends to have the expected positive sign. Regressions excluding these two control variables and using instead expenditure slippages adjusted for unexpected GDP and price developments yielded similar results (not shown here).

Considering different groups of member states, the estimates clearly show that, in particular, countries missing their MTO have significantly higher expenditure slippages on average (columns 3 to 5). More specifically, according to the coefficients of the interaction terms, revenue windfalls are associated with larger expenditure slippages in those countries (column 6) and in the new EU member states which underwent transformation processes (column 5), whereas, in euro-area countries, the opposite effect prevails (column 4), possibly indicating relatively more rigorous expenditure policies. In other words, these results imply that countries also missing their MTO used revenue windfalls to a larger, and euro-area countries to a lesser extent, to raise expenditure above plan compared to countries fulfilling their MTO and non-euro-area coun-



tries, respectively.<sup>11</sup> According to the rules of the SGP, countries that did not achieve their MTO in the previous year should implement a more vigorous consolidation policy, i.e. save extra revenues in order to make adjustments towards their MTO. However, this is not supported by alternative regressions which consider the fulfilment of MTO in  $t-1$  (columns 3' and 6'). In this case, the respective coefficients are negative though insignificant, indicating no different development in those countries that had missed their MTO compared to the member states that had fulfilled their MTO.<sup>12</sup>

These results are also mostly supported by alternative pooled OLS regressions with robust standard errors. However, a potential endogeneity problem has to be considered. Missing the deficit target actually depends to some extent on expenditure slippages, meaning that a circular relationship could possibly exist. But a deficit is influenced by expenditure and revenue developments. An expenditure slippage *per se* will not lead to a failure in achieving MTO if there was a very sound budget position and/or revenue windfalls exceeded expenditure slippage.<sup>13</sup> To sum up, the empirical evidence is consistent with the assumed positive relationship between contemporaneous revenue windfalls and expenditure slippages after 2005, particularly with respect to countries also not fulfilling their MTO.

#### Remaining Caveats

A remaining caveat is that due to the cross-sectional-dominant structure of the sample and the very short time period, more appropriate dynamic panel or VAR approaches which rely on the time-series dimension cannot be conducted here. Therefore, it should

<sup>11</sup> Note that in the case of the euro area, the negative coefficient does not necessarily imply that expenditure plans were actually underscored. When restricting the sample only to the present euro-area countries, the corresponding estimates still indicate a positive effect of revenue windfalls on expenditure slippages, though statistically somewhat less significant.

<sup>12</sup> Since the observed contemporaneous relationship between expenditure slippage and revenue windfall could also simply be "spurious" (i.e. driven by a common stochastic trend), all regressions were also run including, alternatively, the lagged endogenous variable, i.e. expenditure slippage. The results are mostly confirmed, except for the sign of previous revenue windfalls which is reversed, reporting a positive effect, too.

<sup>13</sup> Indeed, accounting for potential endogeneity by alternative instrumental variable (IV-GMM) estimations with robust standard errors yields less significant positive coefficients for countries missing their MTO, particularly in connection with the inclusion of revenue windfalls of the previous year. However, the IV estimation approach is connected with other methodological limitations in this analysis, since the time period is rather short and the instruments used – particularly the lagged MTO-missed dummy variable – may not be suitable, i.e. the necessary assumption of no correlation with the standard error or unobserved factors may not be fulfilled in this specific setting either. Overall in our view, this approach seems less appropriate than the chosen random effects approach, even though this involves accepting a certain potential endogeneity bias.

be stressed that the empirical analysis provides no direct test for strict causality based on past developments (e.g. of Granger type) and is not primarily aimed at contributing to the literature on the "tax-spend debate" which centres on the intertemporal relationship between revenues and expenditure in the generation of budget deficits.<sup>14</sup> Also due to the short time period, the influence of certain country-specific structures, such as political institutions or electoral cycles, could not be taken into account in a specific manner. Moreover, the possibility that expenditure slippages had a positive impact on GDP growth and thus increased revenues cannot be ruled out. It should also be noted that we based our analysis on observations for a period with windfalls in many countries. The influence of revenue deviations from plan on expenditure deviations may not be found in downturns, when revenue undershoots plans. Indeed, other studies found that the strong correlation between expenditure and revenue overruns appears to break down in downturns.<sup>15</sup> Moreover, expenditure growth above plan does not cover the full range of possible reactions to revenue windfalls. Many countries have announced and/or introduced tax cuts (not accounted for in this analysis).

#### Conclusions and Outlook

Between 2005 and 2007, expenditure growth above plan is found to be remarkable in both the amount and the frequency with which it occurred. The analysis reveals the influence of revenue windfalls on expenditure slippages, altogether providing evidence for a lax implementation of expenditure plans in the course of the year when revenues were buoyant.<sup>16</sup> Not resisting forces which call for extra spending is particularly worrying as these policies are found to be even more pronounced in member states that also have not met their MTO. Moreover, countries that had already missed their MTO the year before cannot be found to be more ambitious in actively consolidating public finances in order to reach a sound position by saving revenue windfalls.

To some extent, the unfavourable developments could be seen in the light of basic difficulties regarding

<sup>14</sup> A survey of this literature is provided, e.g. by J. E. Payne: A survey of the international empirical evidence on the tax-spend debate, in: *Public Finance Review*, Vol. 31, No. 3, 2003, pp. 302-324. Time series studies yield a large range of results depending on the methodological approaches and the samples considered, inducing the author to conclude that research should focus on case studies and the role of specific budget institutions instead.

<sup>15</sup> See European Commission: *Public Finances in EMU – 2008*, Brussels 2008, p. 40 ff.

<sup>16</sup> Higher spending when revenues are piling up is also identified for other upswing periods by I. Joumard, C. André: Revenue buoyancy and its fiscal policy implications, in: *OECD Economics Department Working Paper No. 598*, 2008.

the assessment of the “right” level of potential output in real time and other methodological difficulties when adjusting for cyclical influences. Due to these technical hitches, exceptional revenue gains in recent years may have, in part, been falsely interpreted as structural improvements, allowing for more expenditure growth. This indicates the need for a more prudent fiscal policy approach when uncertainty is high – especially given the experience of former comparable episodes. Myopic political decisions and deficit biases may, however, also play an important role in expenditure slippages. In this regard, credible national budgetary rules in line with the requirements of the European fiscal framework might help to overcome these shortcomings and support a stronger focus on the long-term challenges of fiscal policies.

Overall this study demonstrates that first experiences in implementing the provisions of the preventive arm of the SGP after its 2005 reform are not encouraging. Consequently, the actual fiscal situation of some member states now provides little room for even automatic stabilisation without breaching the reference value of 3% of GDP during the economic

slowdown. Nevertheless at the current juncture fiscal policy measures are widely discussed as a means of counter-steering the economic slowdown. However, a fiscal loosening does not seem to be advisable in all countries and is particularly inappropriate if there is little confidence in the sustainability of public finances. Recent jumps in credit default swap spreads for some countries indicate how quickly confidence can disappear if public finances are unsound. And there is a risk of negative spillovers to other countries – especially if confidence in the proper functioning of the SGP disappears. The failure to achieve sound fiscal positions in recent “good” years causes a critical situation for the SGP in the current severe economic downturn. Since the integrity of the Pact is a precondition for the successful functioning of the EMU, a meaningful application of the fiscal framework is warranted to substantiate the no-bail-out commitment. This would include the careful use of the provided flexibility of the corrective arm of the pact i.e. the excessive deficit procedure. In this respect, countries in an excessive deficit procedure should avoid a deterioration of the structural balance.