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## Received wisdom and beyond: Lessons from fiscal consolidation in the EU

Martin Larch and Alessandro Turrini

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# **Received wisdom and beyond: Lessons from fiscal consolidations in the EU**

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## **Abstract**

The paper examines consolidation episodes in the EU since 1970 with a view to shedding light on the factors that determine the success or failure of fiscal adjustment. Compared to the existing literature on successful fiscal consolidations we add a number of new dimensions. Three deserve particular attention. Firstly, we explore a broader set of potential ingredients of the recipe for success. In addition to the composition of adjustment, which has extensively been examined in the literature, we consider further elements such as the quality and strength of fiscal governance and the implementation of structural reforms. Secondly, our analysis seeks to differentiate between at least two different types of consolidation episodes, one in which a relatively big fiscal correction is implemented in a short period of time, dubbed 'cold shower' consolidation, as compared to more gradual episodes of adjustment. Thirdly, we check whether the 'recipe for success' changed over time. Our analysis broadly confirms the results established in the literature for what concerns (i) the conditions triggering a consolidation episode and (ii) the composition of adjustment, with minor but important qualifications related to the role played by government wages. In addition it provides evidence that well-designed fiscal governance as well as structural reforms improve the odds of both starting a consolidation episode and achieving a lasting fiscal correction. Our analysis also shows that the composition of successful and unsuccessful consolidation has become more similar over time and that other discriminating factors such as fiscal governance and structural reforms turn out to make an increasing difference for success.

JEL Classification: E63, H30, H63

Keywords: Fiscal consolidations, fiscal rules, budgetary procedures, structural reforms

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## 1. Introduction

In the run-up to the Economic and Monetary Union (EMU) some Member States have implemented impressive fiscal retrenchments and today public finances in the EU are, overall, in a better shape as compared to the early 1990s. However, the scope for fiscal consolidation has not vanished. In recent years, a large number of EU countries, both 'old' and recently acceded Member States, faced the challenge to restore or achieve budgetary discipline. Governments responded with different cures that were implemented under diverse economic and institutional circumstances and gave rise to a varying degree of success.

This paper examines fiscal consolidations in the EU since 1970 with a view to shedding light on the factors that determine the success or failure of consolidation. Following common practice in the literature the notion of success used in our analysis refers to a more lasting as opposed to a merely short-lived correction of the budgetary position.

Compared to the existing literature on successful fiscal consolidation we add a number of new dimensions. First of all, we explore a broader set of ingredients that may determine the recipe for success. In addition to the composition of adjustment, which has extensively been examined in the literature, we consider further elements such as the quality and strength of fiscal governance and the implementation of structural reforms. Secondly, our analysis seeks to differentiate between at least two different types of consolidation episodes, one in which a relatively big fiscal correction is implemented in a short period of time, dubbed 'cold shower' consolidation, as compared to more gradual episodes of adjustment. Such a differentiation is motivated by the conjecture that the recipe for success may be conditional on the type of adjustment chosen.

The paper is organized as follows. Section 2 prepares the ground for the empirical analysis of fiscal consolidations in the EU. It starts with the definitions of both fiscal consolidation and success used in our analysis. Section 2 also summarizes the existing stock of knowledge about the factors explaining successful consolidation and presents some basic information about fiscal consolidations in the EU. Section 3 explores the elements and conditions that lead to and trigger episodes of fiscal adjustment. It also takes a closer look at the circumstances that discriminate between a 'gradual' as opposed to a 'cold shower' consolidation. Section 4 goes a step further and examines the odds for success. It focuses on the features and elements of fiscal consolidation that on average are likely to give rise to a lasting correction. Section 5 identifies the revenue and expenditure categories that rebound after the end of unsuccessful episodes. Section 6 summarizes and concludes.

## 2. Preliminaries: definitions, received wisdom and basic features of successful fiscal consolidations

This section sets the scene for our empirical work. As a first step, it establishes operational definitions of what is actually meant by fiscal consolidation and when a consolidation episode is thought to be successful. After that, it briefly reviews the main findings of the empirical literature on the determinants of successful fiscal consolidation. This review serves as background and benchmark for our own analysis. Finally, the section also provides some basic features of the fiscal consolidation episodes identified in our data sample.

### Defining episodes of fiscal consolidation

A definition of successful consolidation involves at least three different elements: (i) a measure of fiscal consolidation; (ii) a reference period over which a given size of consolidation is implemented; and (iii) a criteria discriminating between success and failure.

As regards the measure of fiscal consolidation, we use improvements of the cyclically-adjusted primary budget balance (CAPB), derived as the difference between the nominal primary balance and the cyclical component of the budget. <sup>(2)</sup> Interest expenditure is excluded because it is generally not considered discretionary, unless exceptional measures to reduce debt are taken.

The most commonly used measure in the literature is an indicator proposed by Blanchard (1990). It attempts to isolate discretionary components by calculating the primary budget balance that would have prevailed if the rate of unemployment had remained unchanged with respect to the previous year. In the 1990s measures of this type were clearly preferred over more complex indicators involving potential output estimates such as the CAPB. <sup>(3)</sup> In the meantime, the CAPB has become the main reference for purging the budget of its temporary cyclical components. It is used by all major international economic organisations including the IMF and the OECD. The cyclically-adjusted budget balance is also the official indicator in the EU fiscal surveillance framework to capture the budgetary effects of discretionary fiscal policy. <sup>(4)</sup>

Possible caveats of both the Blanchard-type of indicator and changes in the CAPB as a measure are well known. On top of discretionary fiscal policy measures they can also reflect other elements such as one-off and accounting distortions, autonomous revenue fluctuations and

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<sup>(2)</sup>  $capb_t = pb_t - \varepsilon \cdot OG_t$ , where  $pb_t$  is the nominal primary budget balance,  $\varepsilon$  the sensitivity of the budget with respect to the cycle as measured by the output gap  $OG_t$ . For a detailed discussion of the cyclical-adjustment method used in the EU fiscal framework see European Commission (2004).

<sup>(3)</sup> See Alesina and Perotti (1995), Alesina and Perotti (1996) and Alesina and Ardagna (1998).

<sup>(4)</sup> Initially used as an analytical instrument, the CAB was established as a key instrument of budgetary surveillance under the SGP in March 2003, when the ECOFIN Council adopted conclusions consistent with the recommendations contained in the November 2002 Commission Communication ‘Strengthening the co-ordination of budgetary policies’ advocating the use of underlying budget balances. The role of the CAB was further strengthened with the reformed Pact in which both the medium-term budgetary objectives and the adjustment towards them are expressed in cyclically-adjusted terms. The commonly agreed methodology for estimating potential output and the output gap, which is one of the main inputs to the CAB used for EU fiscal surveillance, is explained in detail in Part VI of this report.

growth surprises. <sup>(5)</sup> In our analysis we try to address these measurement issues (i) by choosing sufficiently large changes in the CAPB and (ii) by using specific variables that may control for at least some of these other factors, notably data on one-off measures and apparent tax elasticities. <sup>(6)</sup>

As regards the size and timing of consolidation, we allow for two different types of consolidation episodes. The first is characterised by a sharp fiscal adjustment effort concentrated in one single year. The second type is one in which the fiscal correction is implemented over a longer period.

**Definition 1 – Consolidation:** A consolidation is an improvement of the CAPB of at least 1.5% of GDP which is either achieved (i) in one single year or (ii) over a period of three years where in each single year the improvement of the CAPB is less than 1.5% of GDP and the CAPB does not deteriorate by more than 0.5% of GDP compared to the year before. <sup>(7)</sup>

The relatively high threshold of a 1.5% of GDP improvement of the CAPB was chosen for two reasons. First and foremost, because of what was just said above about the 'noise' included in observed changes in the CAPB. Large adjustments are unlikely to result from other factors than discretionary fiscal policy. Second, it is easier to discern differences in the composition of adjustment fiscal adjustment if the overall correction is larger.

Episodes satisfying at least one of the two conditions in *Definition 1* are consolidation episodes for the purpose of our analysis. Episodes of the first type will be referred to as 'cold shower' consolidations, to highlight the relatively strong tightening over a period of one calendar year. Episodes of the second type will be called 'gradual consolidations'. It is important to note that the two definitions are mutually exclusive but a 'cold shower' adjustment could be adjacent to a 'gradual' episode. Moreover, the definition of a 'gradual' adjustment formally excludes consolidations of more than 4.5 % of GDP over three years. Consolidations of this type are treated as successive 'cold shower' episodes.

The reason for discriminating between those two types of consolidation episodes is straightforward. They can be taken to represent polar cases. In a 'cold, shower' adjustment the fiscal correction is concentrated in a short period of time and may potentially reflect a completely different economic environment as well as different institutional arrangements than a gradual consolidation episode.

**Definition 2 - Success:** A consolidation in line with *Definition 1* is deemed successful if the following condition applies: in the three years after the end of the consolidation episode the CAPB does not deteriorate by more than 0.75% of GDP in cumulative terms compared to the

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<sup>(5)</sup> Koen and Van den Noord (2005) examine the distortions arising from one-off measures and accounting issues. Girouard and Price (2004) highlight role of autonomous fluctuation in revenues that are not netted-off when adjusting the budget for the effect of the cycle. Larch and Salto (2005) point to the impact of economic growth surprises.

<sup>(6)</sup> The impact of autonomous fluctuations on the assessment of fiscal adjustment is described in Section II.2.1 of this report.

<sup>(7)</sup> Most existing studies of fiscal consolidation rely on combined definitions, which like *Definition 1* include different combinations of size and in particular time of fiscal adjustment. This is the case in Alesina and Perotti (1996), Alesina and Ardagna (1998) and von Hagen and al. (2002). The obvious advantage of combined definitions is to increase the number of consolidation episodes for the purpose of the econometric analysis.



level recorded in the last year of the consolidation period. In other words, at least half of the overall minimum fiscal correction required to qualify as consolidation has to be safeguarded three years after. A consolidation is deemed unsuccessful if this condition is not met.

This definition departs in one important respect compared to previous work. It is not linked to the evolution of the government debt ratio. This was a deliberate choice so as to avoid the clear head start of high debt countries to reduce the debt ratio for a given rate of nominal GDP growth, which is generally positive except for severe recessions. <sup>(8)</sup>

Like for any alternative, there is a certain degree of arbitrariness in our definitions of consolidation and success. However, abstracting from a number of specificities concerning the length and size of fiscal adjustment our definition of consolidation shares one important feature with those used in the literature. The focus is on episodes of tight fiscal policy reflecting a marked change in the fiscal policy stance. As mentioned before, this ensures that the improvements in the CAPB is genuinely discretionary and not due do to other factors.

### **Findings from the existing literature**

A fairly rich literature has emerged on the determinants and the economic effects of successful fiscal consolidation. In some cases success and economic effects are covered at the same time. In this section we review the results concerning the factors that determine the success of fiscal consolidation. A synthetic overview is provided in Table 1.

The first comprehensive empirical analysis of fiscal adjustments is by Alesina and Perotti (1995). It focuses on OECD countries and sets the foundations for the by now familiar notion that the composition of adjustment is crucial for success. In particular, Alesina and Perotti (1995) find that successful adjustments are mainly expenditure based, with a focus on primary current expenditure. This result has been replicated and confirmed by a series of later studies (for instance Alesina and Perotti, 1997, Alesina and Ardagna, 1998, von Hagen et. al, 2002, Briotti, 2004, Lambertini and Tavares, 2005) and is by now accepted as received wisdom.

Part of this received wisdom is also the role played by the labour market channel in making expenditure-based consolidations successful. Alesina and Perotti (1997) were among the first to point out that the 'right' composition of fiscal adjustment can produce beneficial effects on labour cost developments which in turn spur economic activity producing a positive feedback on the consolidation effort.

A further important element of the received wisdom is the impact of initial conditions. Successful consolidations are typically triggered by a strained fiscal situation during economic bad times. The gravity of fiscal and economic conditions make it easier for fiscal policy makers to launch a decisive adjustment programme, as the electorate can be expected to see the need for action.

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<sup>(8)</sup> In our sample of 634 observations there are only 66 years with negative nominal GDP growth. The mostly refer to recently acceded Member States where the debt level is generally low.

**Table 1: Main determinants of successful fiscal consolidations: A synthetic overview of the evidence from previous empirical studies**

<b>Determinants</b>	<b>Main findings</b>	<b>References</b>
<b>Composition of fiscal adjustment</b>	Cuts in expenditure are more effective than tax increases in making consolidation successful. Reductions in public sector employment and wages, and in transfers are found to be particularly conducive. Thus far, this result represents 'conventional wisdom'. More recent studies, focusing on country cases, provide evidence that both expenditure and revenue-based consolidation can be successful.	Alesina and Perotti (1995), Zaghini (1999), v. Hagen et al. (2002), Briotti (2004), Lambertini and Tavares (2005), Ahrend et al. (2006) Alesina and Perotti (1997), Alesina and Ardagna (1998) Bertelsmann Foundation (2006).
<b>Size of fiscal adjustment</b>	The size of fiscal adjustment is found to be relevant as it may make a consolidation harder to reverse. The result is not robust across alternative studies and seems to depend on the definition of success.	Ardagna (2004), v. Hagen et al. (2002), Briotti (2004), Lambertini and Tavares (2005) Alesina and Ardagna (1998) Zaghini (1999).
<b>Initial conditions macroeconomic and fiscal conditions</b>	The gravity of initial macroeconomic and fiscal conditions plays a role, especially in triggering an episode of consolidation. It is also found to influence the success rate of consolidation.	Ardagna (2004), Zaghini (1999), von Hagen et al. (2002), Briotti (2004), Lambertini and Tavares (2005), Ahrend et al. (2006) Alesina and Ardagna (1998).
<b>Monetary stance</b>	A number of studies conclude that the monetary policy stance is relevant for success as it may accommodate consolidation. This conclusion is not corroborated in general.	Ahrend et al. (2006), Bertelsmann Foundation (2006) v. Hagen et al. (2002) Ardagna (2004), Lambertini and Tavares (2005).
<b>Exchange rate</b>	Like for the monetary stance, the exchange rate is found to matter as it may accommodate consolidation. In particular, depreciations increase the chances of success.	Alesina and Perotti (1997), Alesina and Ardagna (1998), Lambertini and Tavares (2005).
<b>Rate of GDP growth</b>	The findings concerning economic growth are not clear cut. There is evidence that accelerating growth benefits the rate of success.	Alesina and Perotti (1995), Bertelsmann Foundation (2006) and Ardagna (2004).
<b>Political factors</b>	Single-party governments are generally more effective than coalitions, while the political alignment hardly matters.	Alesina and Perotti (1995), Bertelsmann Foundation (2006).

Apart from fiscal issues, over the years increasing attention has been paid to political factors. An early overview of these is presented in Alesina et al. (1998). Single party governments are generally found to be more effective for achieving fiscal consolidation than coalitions, while the political alignment of governments hardly matters. Potentially painful consolidation measures are found to be best implemented during the period soon after an election, when popular support for

the government is still running at high levels. The role of political leadership (of the Prime Minister and Finance Minister in particular) in promoting fiscal consolidation and the way consolidation is communicated to the public is often discerned as relevant too.

As to monetary conditions and exchange rates, they have also been identified as factors that determine the likelihood of success of fiscal consolidations, for instance by Alesina and Ardagna (1998) and Lambertini and Tavares (2005). However, the findings are less robust than those concerning the composition of adjustment.

### Fiscal consolidations in the EU: basic facts

Our sample covers all 27 Member States of the EU. The time period depends on the availability of the data and is not the same for all countries. For the EU-15 countries the period is generally 1970-2006.<sup>(9)</sup> Shorter periods, mostly starting in the mid-1990s, are covered for the recently acceded Member States. The exact sample length by country is indicated in Table 2 below.

**Table 2: Overview of episodes of fiscal consolidation in the EU**

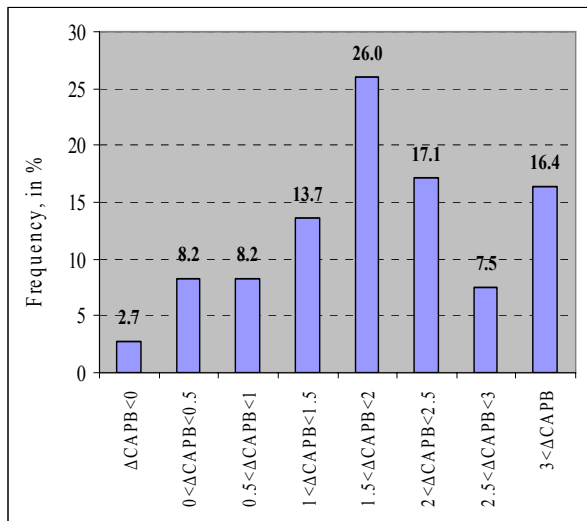
	Type of consolidation		No. of years	Total No. of years	Sample period	
	Cold-shower	No. of years				Gradual
BE	1977, 1982, 1984, 1993, 2006	5	1985, 1986, 1987, 1996, 1997, 1998	6	11	1971-2006
BG		-		-	0	2003-2006
CZ	2004	1		-	1	1998-2006
DK	1983, 1984, 1986	3	2003, 2004, 2005	3	6	1971-2006
DE	1982, 1989, 2000	3	1983, 1984, 1985, 1992, 1993, 1994	6	9	1971-2006
EE	2000, 2003	2		-	2	1996-2006
IE	1976, 1983, 1988, 2004	4	1991, 1992, 1993, 1994	4	8	1971-2006
EL	1974, 1982, 1986, 1987, 1991, 1994, 1996, 2005, 2006	9		-	9	1971-2006
ES	1986, 1992, 1996	3		-	3	1971-2006
FR	1996	1	2004, 2005, 2006	3	4	1971-2006
IT	1976, 1982, 1983, 1991, 1992, 1993, 1997	7		-	7	1971-2006
CY	2000, 2004, 2005	3		-	3	1999-2006
LV	1996, 2000	2	2003, 2004, 2005	3	5	1996-2006
LT	1998, 1999	2		-	2	1996-2006
LU	1983, 1985, 1993, 1997	4	1994, 1995, 1996	3	7	1983-1987, 1991-2006
HU	1999, 2003	2		-	2	1998-2006
MT	1999, 2004, 2005	3	2000, 2001, 2002	3	6	1999-2006
NL	1985, 1991, 1993, 1996, 2005	5	1971, 1972, 1973, 1981, 1982, 1983, 1984	7	12	1971-2006
AT	1984, 1996, 1997, 2001	4		-	4	1971-2006
PL	2005	1		-	1	1996-2006
PT	1977, 1982, 1983, 1984, 1986, 1992, 2002, 2006	8		-	8	1971-2006
RO	1997, 1998, 1999	3		-	3	1996-2006
SI	2002	1		-	1	2001-2006
SK	1998, 2001, 2003	3		-	3	1997-2006
FI	1976, 1981, 1984, 1988, 1996, 1998, 2000	7		-	7	1971-2006
SE	1971, 1976, 1983, 1987, 1995, 1996	6	1980, 1981, 1982, 1984, 1985, 1986, 2003, 2004, 2005	9	15	1971-2006
UK	1974, 1980, 1982, 1996, 1997, 1998, 2000	7		-	7	1971-2006
Total		99		47	146	

<sup>(9)</sup> The EU-15 includes Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden and the United Kingdom.

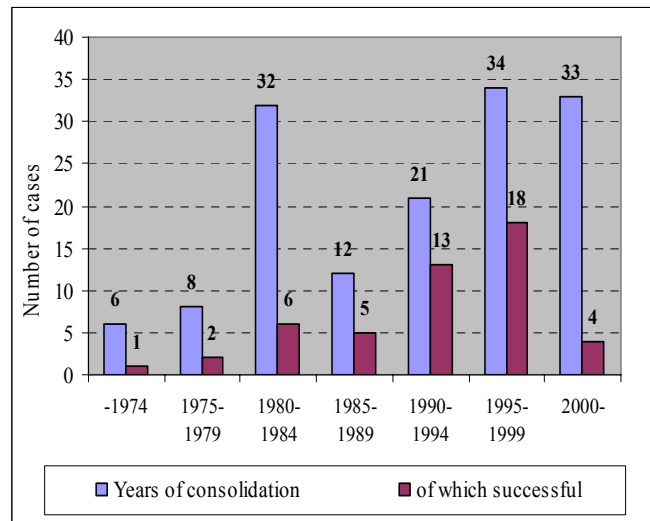
Overall, our dataset contains 634 observations of which 146, close to one fourth, qualify as years of consolidation in line with *Definition 1*. One third of the 146 years of consolidation were crowned with success in line with *Definition 2*.

Table 2 summarises some basic information by country and, more interestingly, by type of consolidation. It shows a clear prevalence of the 'cold shower'-type of adjustment, which accounts for around two thirds of the total number of years in which fiscal consolidations have taken place. 'Gradual' adjustments are significantly less frequent. The clear prevalence of abrupt and sizeable fiscal corrections is evidenced by the frequency distribution of the change in the CAPB during years of consolidation displayed in Figure 1. In close to 70% of the years referring to a consolidation episode in line with *Definition 1* the CAPB improved by 1.5% of GDP or more. The high frequency of annual corrections of 3% or more largely reflects the experience of the new or recently acceded Member States. With a view to EU accession these countries implemented at times impressive fiscal adjustments. Almost 30% of the consolidation years recorded for the new Member States gave rise to an annual improvement of the CAPB of 3% of GDP or more.

**Figure 1: Frequency distribution of the annual improvement of the cyclically-adjusted primary budget balance (CAPB) during consolidation years**



**Figure 2: Distribution of consolidation episodes over time**



The first half of the 1980s, the period after the second oil price shock, hosts more than one fourth of the overall number of years of consolidation identified in our sample (see Figure 2). After this first major wave, the number of consolidations dropped significantly in the second half of the decade in spite of the fact that only a small share of the corrections implemented in the first half had turned out to be successful on the basis of our definition.

Against this backdrop, and also in view of the convergence process towards the common currency, which required Member States to bring the deficit and the debt ratio in line with the

provisions of the Treaty, fiscal consolidation episodes boomed again in the second half of the 1990s, this time with greater success. More than half of the years of consolidation gave rise to improvements that were at least in part safeguarded in the three years after the end of the period. The occurrence of fiscal consolidations remained invariably high in the first six years of the 2000s, but the success rate dropped significantly. This drop reflects two factors: one formal the other more of substance. First, on the basis of our definition success can only be established three years after the end of the consolidation period. Hence, the verdict is still out on episodes that started in 2004 or later. Second, the first half of the 2000s was characterised by an economic slowdown that turned out to be much longer and deeper than expected. In that period, consolidation efforts were successively eroded by repeated negative growth surprises.

### 3. The determinants of fiscal consolidations

The aim of this section is twofold: to shed light on the factors that have an impact on the probability to start an episode of fiscal consolidation and to identify the factors that determine the type of fiscal adjustment, i.e. 'gradual' versus 'cold shower'. On top of the traditional factors such as the macroeconomic and fiscal conditions prevailing ahead of the consolidation episode, we also explore the role played by fiscal governance and structural reforms. The conjecture linked to both, fiscal governance and structural reforms, is that their occurrence and quality should have a positive impact on the probability of triggering a fiscal consolidation.

The analysis of a broader set of determinants of fiscal consolidation compared to the existing literature relies on datasets of which some were made available only recently. This is especially the case for indicators of fiscal governance and expenditure reforms. A detailed description of the data sets, including coverage of countries and time period is provided in Table A1 in the Annex.

#### What triggers fiscal consolidations?

Table 3 below displays the results of *probit* regressions. In addition to a baseline specification, which includes the initial headline deficit and the output gap, the *probit* regressions were ran sequentially by adding one by one individual explanatory variables. In the table, the output of the estimations is reported by thematic groups of explanatory variables: political factors, fiscal governance and structural reforms. <sup>(10)</sup>

In line with the findings of previous studies, years of consolidation are preceded by fiscal hardship. The estimated coefficient of the headline deficit has the expected positive sign and is statistically significant. This means that a fiscal correction becomes more likely as the state of public finances deteriorates. The political economy behind this result is intuitive and can be taken to reflect the mechanics of a war of attrition. Changes to the prevailing course of fiscal policy are

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<sup>(10)</sup> The approach of running *probit* regressions sequentially for a baseline specification plus individual explanatory variables is dictated by the need to have a well-behaved maximum likelihood solution.

procrastinated until there is the necessary awareness, that further delays may be more costly than taking correcting measures.

The results related to initial economic conditions do not match with expectations. A priori and based on the findings of previous work, the chances to engage in a fiscal correction should actually increase as economic conditions, measured by the output gap, turn soar. Our results would seem to support the opposite conclusion; the estimated coefficient of the output gap is positive and significant. There are at least two possible explanations for this result. First, the fiscal variable included in our baseline specification is expressed in nominal terms. It reflects the combination of two factors: the underlying budgetary position and the budgetary impact of the cycle. Hence, it may capture both fiscal and economic conditions at the same time. Second, the output gap estimates used in the *probit* regressions are not those available in real time, i.e. those available to fiscal authorities at the moment decisions are taken. They represent ex-post estimates based on the information on hand in 2007. As shown by Forni and Momigliano (2004) the behaviour of fiscal policy making, as measured by the annual changes in the cyclically-adjusted budget balance, is better explained by the output gap estimates available in real time.

The conclusions about the role played by the economic environment shift back in line with expectations if the economic conditions are proxied by the rate of unemployment. The probability to start a fiscal correction increases with the number of employees searching for a job. This finding – not reported in Table 3 – is confirmed by a simple mean comparison, which shows that years preceding a fiscal consolidation are characterised by a higher rate of unemployment than ‘normal’ years. The role of political factors in shaping the occurrence of fiscal corrections is captured by three variables: parliamentary elections, the strength of the ruling coalition in parliament and the Herfindahl index. <sup>(11)</sup> Our choice of policy variables does not reflect any specific apriori. It is dictated by the availability of data for the time and cross section dimension of our sample. In theory, the likelihood of fiscal consolidations should increase immediately after parliamentary elections, i.e. at the beginning of a new political term, as well as with the strength of the political backing of the government in Parliament or the concentration of political power. The estimated impact of the election dummy, after controlling for fiscal and cyclical conditions, has the expected sign but is not statistical significance at conventional levels. The same holds for the size of the ruling collation in Parliament. Somewhat surprising is the result for the variable capturing the degree of concentration or fragmentation of political parties. On the face of it, the estimate suggests that after controlling for the state of public finances and the economy, the likelihood of fiscal correction to occur increases with the number of parties in the political arena. We take this result as purely spurious requiring further examination, for instance by taking into account interactions with other policy variables.

An additional set of elements, that may potentially shape fiscal consolidations and that has not been studied so far, is fiscal governance. In this paper we focus on two categories: fiscal rules and

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<sup>(11)</sup> The Herfindahl index measures the degree of concentration in Parliament with respect to the number of political parties. It takes a large value when the number of parties is low and lower values if the number of parties is high.

budgetary procedures. In line with Kopits and Symansky (1998), a fiscal rule is defined as a permanent constraint in fiscal policy, expressed in terms of a summary indicator of fiscal performance, such as the government budget deficit, borrowing, debt or a major component thereof. By budgetary procedures we mean all arrangements related to the planning, implementation and monitoring of the annual government budget. A comprehensive database covering features of fiscal governance has been built by the Directorate-General for Economic Financial Affairs of the European Commission over the past few years. It covers the EU-25 Member States over the period 1990-2005. The most developed section of the database is on fiscal rules. It formed the basis of the analysis presented in European Commission (2006) and in Debrun et al. (2008). <sup>(12)</sup>

**Table 3: Probability of starting a fiscal consolidation**

Probability of starting a fiscal consolidation		Estimated coefficient	z statistic	p-value	No. of obs.
	<i>Initial conditions</i>				
<b>Baseline</b>	Headline deficit (t-1) % of GDP	0.02	3.84	0.00	466
	Output gap (t-1) % of GDP	0.01	2.32	0.02	466
	<i>Political factors</i>				
	Elections (t-1), dummy	0.07	1.47	0.14	425
	Size of majority in Parliament	0.12	0.45	0.65	427
	Party concentration in Parliament (Herfindahl index)	-0.39	-2.31	0.02	427
	<i>Fiscal governance</i>				
	Fiscal rules (average), index	0.03	1.58	0.11	230
	Expenditure rules (average), index	0.02	1.07	0.28	230
	Budgetary procedures, index	0.03	2.09	0.04	213
	<i>Structural reforms</i>				
	Pensions (RDBF), dummy	-0.01	-0.25	0.80	216
	Employment protection legislation (RDBF), dummy	0.01	0.30	0.76	216
	Unemployment benefits (RDBF), dummy	0.09	2.96	0.03	216
	Labour market (IMF, 2004), dummy	0.03	0.80	0.42	297
	Product market (IMF, 2004), dummy	0.06	1.26	0.20	263

*Notes* : See Table A1 in the Annex for detailed description of the indicators. Estimation method: probit regression on panel data, standard errors adjusted for intra-panel error correlation. On top of the baseline specification, regressions were run sequentially by adding each individual additional variable. Estimated coefficients represent the marginal contribution of the explanatory variable (measured at sample mean) to the probability of starting a fiscal consolidation.

The assumption that well-designed fiscal rules and procedures help trigger and carry through consolidations in case the fiscal performance deteriorates is supported by the results of probit regressions. The likelihood of starting a fiscal consolidation increases with the coverage and the strength of numerical fiscal rules and with the quality of budgetary procedures. In the case of fiscal rules, the statistical significance is relatively weak, but very close to the 10% level. The role played by expenditure rules, a specific category of fiscal rules, turns out to be rather unimportant. This evidence is consistent with recent findings pointing to less significant budgetary impact of expenditure rules compared with budget balance rules (Debrun et al., 2008).

<sup>(12)</sup> The indicators of fiscal rules are relatively complex. They are constructed in such a way as to capture not only the existence of rules, but also its strength and the fraction of general government finances covered by the rule. Similarly, the indicators of budgetary procedures encompass a number of dimensions such as transparency, level of centralisation and prudence. A brief description of the database and its content is in Table A1 in the Annex.

Episodes of fiscal consolidation may or may not be coupled to other economic policy measures notably structural reforms. A priori there could be trade-offs as well as complementarities. The trade-off would reflect the fact that some reforms have a direct budgetary cost. By the same token, reforms and consolidation could also be considered to be complementary on the grounds that some reforms release weight from the expenditure side of the budget, such as a reform of social transfers. A comprehensive discussion of the issue is provided in Deroose and Turrini (2005) and European Commission (2005). The analysis is based on indicators for labour and product market reforms used in IMF (2004) and pension reform indicators reporting the year of adoption and the main characteristics of the reform. At the time, some evidence is found that consolidations do not preclude structural reforms. More specifically, structural reforms do not happen less frequently in years of fiscal consolidation.

Less obvious is the role played by structural reforms. As mentioned before, reforms may both conflict with and foster fiscal consolidation depending on whether they imply direct budgetary costs or savings. Our regression analysis provides some evidence that specific structural reforms can indeed increase the probability to begin fiscal adjustment. In particular, the approval by Parliament of reforms that reduce the level of unemployment benefits turns out to be an important and statistically significant factor for prompting fiscal consolidation. A similar result is obtained for the more general indicator of labour market reforms of the IMF (2004). The causality implied by these result is not clear cut. It could simply signal that consolidations tend to go along with changes in some expenditure categories, in particular unemployment benefits. It could also mean that reforms in general are a good predictor of the general willingness of fiscal policy makers to bring in order public finances. The evidence for the second conjecture is mixed. The approval of reforms that loosen employment protection legislation as measured by the indicators of the *Fondazione Rodolfo de Benedetti* (FRDB) have a small positive effect on the kick-off probability yet the link is not significant at conventional levels. The same holds for the summary indicators of product market reforms constructed by the IMF (2004).

The estimated impact of pension reforms, as measured by the indicators provided by FRDB, is also not statistically significant. The negative sign would tend to suggest, that after controlling for the initial level of the headline deficit and for initial cyclical conditions the approval of pension reforms tends to diminish the likelihood of fiscal consolidation being started. However, this result cannot be attributed to a potentially negative short-term budgetary impact of pension reforms. The pension reform indicator used in our regression refers to the approval and not the implementation of the reform. Hence, to the extent that the full implementation of reforms takes time there should be no conflict between costs of systemic pension reforms and fiscal adjustment effort. In addition, most of the pension reforms included in the dataset used for our regressions are rather incremental in nature, i.e. they impact on a part of an existing system instead of overhauling it completely. The estimated negative impact of pension reforms on the chances to start a fiscal consolidation is more likely to reflect political economy elements. In particular, it is preferable to stagger major fiscal policy measures rather than to overburden the electorate that must support the reforms.



## What explains the difference between 'cold shower' and 'gradual' consolidations?

In Section 4 below, when discussing the determinants of success, it will be shown that, based on our empirical analysis, the type of consolidation, i.e. 'cold shower' versus 'gradual', does not significantly affect the probability of success. Nevertheless, separate *probit* regressions on the determinants of gradual adjustments reveal a number of insightful patterns which will be briefly discussed in the following paragraphs. The results are reported in Table 4.

**Table 4: Probability of a gradual fiscal consolidation**

Explanatory variables		Estimated coefficient	z statistic	p-value	No. of obs.
<i>Initial conditions</i>					
<b>Baseline</b>	Headline deficit (t-1) % of GDP	-0.03	-1.51	0.13	127
	Output gap (t-1) % of GDP	-0.03	-1.13	0.25	127
	Consolidation in three preceding years (dummy)	0.43	4.37	0.00	127
<i>Composition of adjustment (change, % of GDP)</i>					
	Cyclically adjusted primary expenditure	0.15	3.69	0.00	127
<i>Expenditure composition of adjustment</i>					
	Government wage bill	-0.36	-2.45	0.01	127
	Government investment expenditure	0.29	2.27	0.02	127
	Government final consumption expenditure	-0.06	-0.82	0.41	107
	Subsidies	-0.3	-2.80	0.05	124
	Transfers other than in kind	-0.21	-1.40	0.16	104
	Transfers in kind	-0.25	-1.78	0.07	98
<i>Political factors</i>					
	Elections, dummy	0.04	0.40	0.68	117
	Size of majority in Parliament	-0.58	-1.38	0.16	116
	Party concentration in Parliament (Herfindahl index)	-0.22	-0.30	0.76	116
<i>Fiscal governance</i>					
	Fiscal rules (time average), index	-0.06	-1.35	0.17	63
	Expenditure rules (time average), index	0.003	0.06	0.94	63
	Budgetary procedures, index	-0.005	-0.25	0.80	53
<i>Expenditure reforms</i>					
	Expenditure reforms, dummy	0.067	0.76	0.44	105

*Notes* : See Table A1 in the Annex for detailed description of the indicators. Estimation method: probit regression on panel data, standard errors adjusted for intra-panel error correlation. On top of the baseline specification, regressions were run sequentially by adding individually each one of the additional variables. Coefficients represent marginal contribution of the explanatory variable (measured at sample mean) to the probability of enacting a gradual rather than a 'cold shower' adjustment.

While the likelihood of engaging in a 'gradual' rather than a 'cold shower' type of adjustment is negatively, but not strongly, associated with the size of the initial deficit, it significantly increases if the adjustment comes closely after an earlier episode of consolidation, specifically within a period of three years. This result is quite intuitive suggesting that in terms of political feasibility there is the tendency not to overburden the electorate and the economy with a close sequence of large and short-lived episodes of fiscal corrections.

The probability of a 'gradual' adjustment is also positively, but only weakly, linked to the gravity of the initial cyclical conditions, as measured by the output gap in the year preceding the correction. The interpretation is that fiscal policy makers are more likely to favour a fiscal therapy that spreads out the impact on economic activity so as to make it more palatable to the electorate.

A third interesting result refers to the composition of the expenditure restraints. Fiscal consolidations that rely strongly on a reduction of politically sensitive items such as government wages are more likely to be of the gradual type. Fiscal policy makers will generally face the resistance of public servants, a relatively homogeneous and generally well organised interest group, to abrupt and large reductions in their salary or to a reduction of staff. A similar reasoning applies to cuts in subsidies or transfers: large savings in this type of expenditures are more likely to be achieved in the context of a 'gradual' fiscal adjustment. <sup>(13)</sup>

By contrast, larger cuts in expenditure items that do not relate to well defined constituencies, typically investment expenditure, are more likely to be implemented during 'cold shower' episodes. The estimated coefficient relating to government investment expenditure in the respective *probit* regression reported in Table 4 has the correct (positive) sign and is highly significant. Hence, after controlling for initial conditions and the overall contribution of primary expenditure, cutbacks of investment expenditure are more characteristic for short and sharp consolidation episodes.

Among the political factors examined our regression analysis, the size of the majority in parliament seems to matter. In line with expectations, a larger majority decreases the likelihood of a gradual adjustment as a strong political backing *ceteris paribus* provides the basis for more decisive actions.

The role of fiscal governance and structural reforms seems to be limited to the start and success of fiscal consolidation. The estimated coefficients of expenditure rules and expenditure reforms have a positive sign, suggesting a stronger reading of these elements give rise to a more measured pace of fiscal consolidation. By contrast, strong fiscal rules and budgetary procedures tend to favour sharper and shorter corrections. However, the results for fiscal governance and structural reforms are not statistically significant.

#### 4. Determinants of success

In our sample, roughly one out of three consolidation episodes turns out to be successful on the basis of Definition 2. As in the previous sections we run *probit* regressions to single out a number of success factors. The baseline specification of the *probit* regressions includes variables gauging the initial economic and fiscal conditions as well as the size and the expenditure content of the fiscal adjustment. Additional variables are added individually and are arranged in four different groups: the composition of the fiscal adjustment, other fiscal factors, political factors, fiscal governance and structural reforms. A summary of the estimation results is provided in Table 5.

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<sup>(13)</sup> The political economy dimensions underlying these results are well known and have been extensively explored in the literature under the heading of vested interests (see for instance Drazen, 2000). Strong policy measures, in our specific case expenditure cuts, that affect well defined or powerful constituencies will encounter fiercer opposition as opposed to measures that concern a broader and heterogeneous group.

## Initial conditions, size and composition of adjustment

To start with, the gravity of the initial fiscal conditions measured by the level of the headline deficit ratio is a statistically significant determinant of success: the worse the public finance situation, the higher the probability of implementing a lasting fiscal correction. The gravity of initial conditions seems to heighten the awareness that significant policy measures are required to change the *status quo*.

**Table 5: Probability of successful fiscal consolidation**

	Explanatory variables	Estimated coefficient	z statistic	p-value	No. of obs.
	<i>Initial conditions</i>				
<b>Baseline</b>	Headline deficit (t-1) % of GDP	0.07	4.03	0.00	113
	Output gap (t-1) % of GDP	0.05	1.51	0.13	113
	<i>Size and composition of adjustment (change, % of GDP)</i>				
	Cyclically adjusted primary balance	-0.08	-1.12	0.26	113
	Cyclically adjusted primary expenditure	-0.12	-2.77	0.01	113
	<i>Expenditure composition of adjustment</i>				
	Government wage bill	0.15	0.94	0.34	113
	Government investment expenditure	0.38	2.01	0.04	113
	Government final consumption	-0.08	-0.84	0.40	113
	Subsidies	-0.02	-0.12	0.90	113
	Transfers other than in kind	-0.15	-1.05	0.29	94
	Transfers in kind	0.09	0.56	0.57	88
	<i>Other fiscal factors</i>				
	Gradual consolidation, dummy	-0.14	-0.63	0.53	113
	Tax elasticities	0.01	0.54	0.58	87
	<i>Political factors</i>				
	Elections (t-1), dummy	0.13	1.27	0.20	108
	Size of majority in Parliament	0.31	0.49	0.62	107
	Party concentration in Parliament (Herfindahl index)	-1.13	-1.21	0.22	107
	<i>Fiscal governance</i>				
	Fiscal rules (average), index	0.95	4.45	0.00	52
	Expenditure rules (average), index	0.06	0.66	0.50	52
	Budgetary procedures, index	0.27	2.55	0.01	44
	<i>Structural reforms</i>				
	Pensions (RDBF), dummy	0.25	1.36	0.17	54
	Employment protection legislation (RDBF), dummy	0.18	1.10	0.20	54
	Unemployment benefits (RDBF), dummy	0.38	2.41	0.02	54
	Labour market (IMF, 2004), dummy	0.57	4.00	0.00	81
	Product market (IMF, 2004), dummy	0.54	3.02	0.00	74
	Expenditure reforms, dummy	0.21	1.33	0.18	96

*Notes:* See Table A1 in the annex for a detailed description of the indicators. Estimation method: probit regression on panel data, standard errors adjusted for intra-panel error correlation. Starting from the baseline specification additional variables were added individually in turn. Coefficients represent marginal contribution of the explanatory variable (measured at sample mean) to the probability of consolidation being successful.

However, the channel through which the degree of awareness increases the odds for success is not necessarily the size of the needed fiscal adjustment. The estimated coefficient of the change of the CAPB is not statistically significant and does not have the expected sign. The findings in the literature concerning the link between the size of adjustment and the likelihood of success are not clear cut. The results would also seem to depend on the specific definition of success used in the empirical analysis. <sup>(14)</sup>

<sup>(14)</sup> The definition used in our analysis is based on a fixed deterioration of the CAPB compared to the last year of the adjustment. As long as this criterion is met there is no difference between very large adjustments and smaller ones. Our definition may even penalise very large adjustments which while not meeting the condition of *Definition 2* give rise to a larger net improvement of the CAPB. In a number of other

What appears to make a clear difference for success is the composition of the fiscal adjustment, as measured by the size of the change in cyclically-adjusted primary expenditure. In particular, the likelihood of success significantly increases with savings in primary expenditure net of cyclical factors.

### **The composition of expenditure adjustment**

We augmented the baseline specification in Table 5 with explanatory variables adding information on the composition of the expenditure adjustment during consolidation periods.

A common finding in the literature is that successful consolidations are those that focus on social security and, in particular, government wages. Our analysis weakens the conclusion on government wages. In our sample, there is no individual item of current primary expenditure that stands out as particularly instrumental for the likelihood of success. The typical pattern seems to be one of across-the-board savings in current primary expenditures. All components seem to be moving into the same direction during episodes of fiscal consolidations with total current transfers showing the largest average annual decline followed by non-wage consumption expenditure (see Table 5). Hence, the government wage bill does not play a particularly prominent role in our EU sample of successful consolidations.

One likely reason for this result is the selection of countries. Previous studies largely focus attention on OECD economies, i.e. including a number of non-EU countries, notably USA, Canada and Australia where cuts in government wages during episodes of fiscal consolidation may have been particularly important. This is partly confirmed by Alesina and Ardagna (1998) who provide country-specific information on a number of consolidation episodes in the OECD. Other possible explanations for the weak link between cuts in wages and success in our EU sample are: (i) wage cuts are likely to be implemented in a gradual way and hence do not produce their full effect in three years after the end of the consolidation period; (ii) wage cuts are politically costly and are coupled with compensatory measures like tax cuts in the short run.

The weak link between cuts in the government wage bill and the likelihood of success does not necessarily mean that fiscal consolidations in the EU did not fully exploit the potentially beneficial effects of wage moderation, including the expansionary effects that wage moderation may have on economic growth. There are at least two different channels through which fiscal consolidation may foster wage moderation. The first channel consists in constraining the increase in government wages directly. To the extent that the government sector acted as the leader in the national wage bargaining process, the control of government wages would spill over to the economy as a whole and in turn sustain economic activity. In practice, however, there seem to be no clear examples of EU countries where the government sector can be taken to set the agenda in national wage bargaining.

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studies, on top of a deficit criterion the stabilisation of the debt ratio is used as complementary condition for success. In that case success is correlated with the initial debt level; i.e. the larger the fiscal correction the higher the likelihood to stabilise the debt.

The indirect and probably equally important channel through which fiscal consolidation impacts on wage developments, which in turn contributes to the success of a fiscal correction via stronger economic growth, is the one suggested by Alesina and Perotti (1997). In the framework of a country's wage setting mechanism wage claims will generally be more moderate if fiscal consolidation does not affect after-tax wages in the economy as a whole. This will typically be the case for expenditure- as compared to revenue-based fiscal corrections. Hence, the right composition of adjustment can induce wage moderation in the economy as a whole, including the government sector. Moreover, wage moderation is conducive to sustained economic growth which will feed back to the government sector via revenues. <sup>(15)</sup>

A second relevant result emerging from our analysis is that strong reliance on cuts in government investment expenditure during consolidation periods reduce significantly the chances of carrying out a successful adjustment. The most likely explanation is that, while government investment is easily cut, it is also easily raised, so that investment expenditure cuts carried out during consolidation periods are more likely to be reversed over time compared with other expenditure items.

### **Political factors**

Of the three political indicators considered in our work, two turn out to have a positive, yet statistically not significant, effect on the likelihood for success: the beginning of a political term and the size of the majority of the ruling coalition in parliament. While these two factors seem to matter less for a consolidation to occur, they tend to augment the odds to achieve a more lasting fiscal correction once the decision for a fiscal consolidation is taken. This result comes not as a surprise as governments with a strong majority in parliament can be assumed to stand a greater chance to implement more effective fiscal corrections. Similarly, 'serious' or politically more costly measures can also be expected to be taken shortly after elections rather than towards the end of a political terms ahead of elections.

### **Fiscal governance and other fiscal factors**

The more interesting and certainly novel finding of our analysis refers to the link between success and fiscal governance. Our regression results clearly show that, after controlling for initial conditions as well as for the size and the composition of the fiscal adjustment, the presence, coverage and strength of numerical fiscal rules and budgetary procedures are conducive to the success of consolidation. Somewhat surprisingly the link between success and fiscal governance is weak when considering expenditure rules only. The estimated coefficient is not statistically significant and has the wrong sign. One possible reading of this result could be that expenditure rules may impose an excessive focus on expenditure thereby affecting investment expenditure which by experience is likely to rebound. By contrast, deficit and debt rules provide leeway to

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<sup>(15)</sup> For a discussion of the link between wages, employment and economic activity see for instance Blanchard and Wolfers (1999) and Mourres (2004).

combine expenditure cuts with some revenue increases. On the other hand, the weaker role of expenditure rules in explaining the success of consolidation could simply reflect the fact that in practice they are generally limited to central government whereas deficit and debt rules have a larger coverage of general government public finances.

The link between fiscal governance and the success of fiscal adjustment is likely to work via at least two different channels. First, comprehensive and strong fiscal rules favour discipline-oriented budgets. They provide incentives to design adjustment measures that stand a higher chance to be effective and lasting, not least in view of the possible costs associated with the risk of running afoul of the rules. Second, well designed budgetary procedures favour good planning, a balanced composition and an effective implementation of consolidation measures as opposed to a situation in which measures are drawn up over a short period of time, in an un-coordinated way and potentially based on not very prudent assumptions.

In addition to the size and the composition of the fiscal adjustment, we have examined two other fiscal factors: the type of adjustment and the behaviour of tax elasticities. Whereas there is no clear *a priori* concerning the type of adjustment, the expectations linked to tax elasticities is the following. Empirically, the tax elasticity with respect to GDP, i.e. the relative change of total current taxes with respect to the relative change of nominal GDP, can be subject to significant autonomous fluctuations. Such fluctuations are due to changes in the composition of aggregate demand or changes in the primary distribution of income towards more or less tax rich components. For instance, private consumption expenditure is markedly more tax rich than exports or investment expenditure, and compensations of employees are generally more tax rich than gross operating surplus. In case a fiscal consolidation relied on a temporary increase in tax elasticities the chances for success should be lower, as revenues would at some point move back to 'normal' levels. This conjuncture is only partially confirmed by our regression analysis. The estimated coefficient of the variable controlling for autonomous fluctuations in the tax elasticity has the expected negative sign, yet is not statistically significant.

## Structural reforms

The last group of potential determinants of success examined in our regression analysis are structural reforms. *Ex ante* it could be argued that reforms improve the chances of success as they should typically result in durable changes in the way public money is spent. For instance, labour market reform or pension reforms translating into a reduction of benefit levels should *ceteris paribus* produce direct and lasting effects on expenditure. In addition, some structural reforms can also be expected to have a positive impact on economic growth and hence support the success of consolidation via the denominator of the deficit ratio.

A positive link between the probability of success and certain types of structural reform is confirmed for our sample. A first interesting and clear point emerging from the analysis is that the likelihood of success is significantly increased when the fiscal consolidation is linked to or

falls in years in which labour and/or product market reforms - as measured by the indicators used in IMF (2004) - are enacted.

The RDBF database of structural reforms allows for a further differentiation between two kinds of labour market reforms: modifications of the employment protection legislation and of unemployment benefits. Both reforms turn out to have a positive impact on the likelihood to produce a lasting correction of the underlying fiscal position, yet only the reform of unemployment benefits seems to produce a statistically significant effect. The statistically weaker effect of changes to the employment protection legislation can be reconciled with labour market theory according to which lower protection produces ambiguous effects on unemployment (see for instance Jackman, 1990) with no clear repercussions on the budget.

The positive effect of labour market reforms in our regression results confirm the findings in the existing literature about the importance of the labour market channel emphasised by Alesina and Perotti (1996) and confirmed by Alesina and Ardagna (1998). Notably, elements that impact on the wage formation in the economy as a whole are conducive to successful fiscal consolidation. This finding relates to the more general insight according to which wage moderation is beneficial for employment creation, overall economic activity and finally fiscal performance: a given level of government expenditure is easier to sustain if economic activity increases.

The final type of reforms explored in our regression analysis are expenditure reforms as defined by Hauptmeier et al. (2006) who examine expenditure reforms enacted in 21 OECD countries over the period 1960-2007. Depending on the degree of effort, expenditure reforms are divided into two categories: 'ambitious' and 'timid' expenditure reforms. Ambitious reforms are identified as episodes in which the primary spending ratio is reduced by at least 5% of GDP over a period of seven years. Timid reforms are episodes in which the reduction is less than 5% of GDP, again over a seven- year period. <sup>(16)</sup> Although the estimated coefficient for expenditure reforms has the expected positive sign statistics fall short of conventional significance levels.

### **Is the recipe for successful consolidation changing over time?**

The issue arises to what extent the 'recipe' for successful fiscal consolidations emerging from the previous analysis depends on the specific sample considered or is valid irrespective of the specific time period chosen. To provide an answer to this question, the same analysis shown in Table 5 is repeated for a sample starting after 1989.

Separate *probit* regressions for this sub-period shows that savings in primary expenditure still have a positive impact on the probability of success but the evidence is much weaker (Table 6). The estimated coefficient is not statistically significant as compared to the regression for the period as a whole.

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<sup>(16)</sup> Clearly, such definitions are potentially overlapping with our definition of consolidation with one big exception; they refer to expenditures only and, hence, depending on what happens on the revenue side may more or less intersect with fiscal consolidation as measured by the improvement of the primary budget balance.

This result is quite important as it points to a possible shift in the recipe for success over time. The conventional wisdom about the importance of expenditure-based consolidations seems to have lost some of its bearing. One potential explanation could be that there has been a convergence in the composition of adjustment. If successful and unsuccessful consolidations increasingly relied on a similar mix of expenditure and revenue cuts, composition would no longer be a discriminatory element.

**Table 6: Probability of successful fiscal consolidation (from 1990 onward)**

	<b>Explanatory variables</b>	<b>Estimated coefficient</b>	<b>z statistic</b>	<b>p-value</b>	<b>No. of obs.</b>	
<b>Baseline</b>	<i>Initial conditions</i>					
		Headline deficit (t-1) % of GDP	0.08	3.14	0.02	58
		Output gap (t-1) % of GDP	0.01	0.52	0.60	58
	<i>Size and composition of adjustment (change, % of GDP)</i>					
		Cyclically adjusted primary balance	-0.08	-0.93	0.35	58
		Cyclically adjusted primary expenditure	-0.06	-1.20	0.22	58
	<i>Expenditure composition of adjustment</i>					
		Government wage bill	-0.11	-0.55	0.57	58
		Government investment expenditure	0.23	1.07	0.28	58
		Government final consumption	-0.2	-1.93	0.05	57
	Subsidies	-0.25	-0.94	0.34	58	
	Transfers other than in kind	-0.11	-0.77	0.44	57	
	Transfers in kind	-0.15	-0.51	0.60	53	
<i>Other fiscal factors</i>						
	Gradual consolidation, dummy	-0.01	-0.05	0.96	58	
	Tax elasticities	0.04	1.61	0.11	52	
<i>Political factors</i>						
	Elections (t-1), dummy	0.16	1.14	0.25	58	
	Size of majority in Parliament	0.012	0.01	0.99	58	
	Party concentration in Parliament (Herfindahl index)	-0.96	-0.91	0.36	58	
<i>Fiscal governance</i>						
	Fiscal rules (average), index	0.95	4.45	0.00	52	
	Expenditure rules (average), index	0.06	0.66	0.50	52	
	Budgetary procedures, index	0.27	2.55	0.01	44	
<i>Structural reforms</i>						
	Pensions (RDBF), dummy	0.07	0.42	0.67	38	
	Employment protection legislation (RDBF), dummy	0.01	0.06	0.95	38	
	Unemployment benefits (RDBF), dummy	0.14	0.92	0.35	38	
	Labour market (IMF, 2004), dummy	0.47	2.21	0.03	31	
	Product market (IMF, 2004), dummy	0.53	1.55	0.12	31	
	Expenditure reforms, dummy	0.17	0.64	0.52	41	

*Notes:* See Table A1 in the annex for a detailed description of the indicators. Estimation method: probit regression on panel data, standard errors adjusted for intra-panel error correlation. Starting from the baseline specification additional variables were added individually in turn. Coefficients represent marginal contribution of the explanatory variable (measured at sample mean) to the probability of consolidation being successful.

This conjecture is partially confirmed by the data. As regards cuts in primary expenditure net of cyclical factors the difference between successful and unsuccessful consolidations narrowed somewhat in the 1990s and beyond. In the latter period, the average annual reduction of expenditure net of cyclical factors achieved during years of unsuccessful consolidation almost doubled as compared to the entire period, while the overall size of the correction in terms of the primary budget balance remained broadly unchanged.

The shift towards stronger expenditure cuts during unsuccessful episodes was not attained by reducing investment expenditure, i.e. the category that is generally thought to be easier to restraint in the short term with the risk of bouncing back afterwards. The average annual decline



in investment expenditure during consolidation episodes was actually slightly lower in the 1990s and beyond. Overall, while narrowing the difference in the composition between successful and unsuccessful consolidations remained significant. Consequently, there must have been other factors at play affecting the likelihood for success.

One important element in this context is certainly the experience ahead of the inception of the Economic and Monetary Union (EMU), when a number of EU Member States made relatively large efforts to qualify for the euro. In several cases those efforts involved both a significant increase in government revenues and significant savings on the expenditure side. What made the difference between success and failure was the ability to safeguard the corrections over time, independently of the composition of the adjustment. Structural reforms and numerical fiscal rules seem to play an important role in this respect.

The exceptional circumstances linked to the run-up to the euro also seem to have had an impact on the effectiveness of recipes which based on conventional wisdom are generally not crowned by success. For instance, consolidation episodes in Italy and Spain in the 1990s are telling examples of fiscal corrections that yielded lasting results while following at first glance non-standard strategies. In the case of Italy, the heavy reliance on higher revenues was accompanied by measures aimed at capping existing expenditure trends. Such measures did not translate into measurable expenditure savings in percent of GDP but calmed expenditure dynamics. In the case of Spain, the sustainability of revenue based consolidations was probably helped by the fact that the overall tax burden was comparatively low. A common feature of both cases is that fiscal consolidations were accompanied by the strengthening of fiscal governance and the implementation of structural reforms.

## **5. Why do consolidations fail?**

This section takes a brief look at the consolidation episodes which did not end with success. The focus will be on the different budgetary items that rebounded in the three years following the end of the consolidation episode leading or contributing to an overall deterioration of the CAPB of more than 0.75% of GDP. In case of successive 'cold shower' or 'gradual' consolidations we considered the three years following the last episode. The results are summarised in Table 7.

The messages emerging from this exercise are relatively clear. Unsuccessful episodes of fiscal consolidation fail because of two reasons: (i) they do not manage to preserve the sizeable increases in government revenues on which the fiscal adjustment was built; and (ii) they do not manage to control government expenditure in the first place.

**Table 7: Backtracking of unsuccessful consolidation episodes**

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**Cumulative change of revenue and expenditure items in the three years after the end of an unsuccessful fiscal consolidation**

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<b>Economic classification</b>	<b>Cumulative change in % of GDP</b>	<b>Number of observations</b>
Total revenue	-0.46	34
Total expenditure	1.71	34
Revenue cyclically adjusted	-0.59	33
Primary expenditure cyclically adjusted	1.92	33
Final consumption	0.35	29
Wages	0.19	34
Subsidies	0.00	34
Transfers other than in kind	0.69	29
Transfers in kind	0.35	28
Investment expenditure	0.17	34
<b>Classification of function of government</b>		
General public service	-0.60	10
Defence	-0.18	10
Public order and safety	-0.11	10
Economic affairs	-0.14	10
Housing	-0.13	10
Health	0.38	10
Education	-0.04	10
Social protection	0.18	10

*Source*: Commission Services

In the three years following an unsuccessful consolidation episode, revenues net of cyclical factors decline on average by 0.6 % of GDP in cumulative terms, eroding almost half of the increase attained during the consolidation phase. However, what weighs more are expenditure dynamics. Adjusted for the cycle, primary expenditures increase on average by close to 2% of GDP in the three years following the end of the adjustment. This drift is not due to one specific expenditure item; it rather reflects a general problem in controlling expenditures as a whole. In relative terms the strongest slippages concern social transfers other than in kind (i.e. mostly pensions) and non-wage government consumption.

Overall, this is a rather clear indication that consolidation measures did not attempt to tackle existing expenditure trends, which continue irrespective of the sizable increase in revenues. As time goes on the revenue hikes tend to be reversed or turn out to be short-lived unveiling again the underlying need to restrain expenditure.

Additional insight into the 'anatomy of failure' can be gained by analysing the expenditure dynamics in terms of the Classification by Function of Government (COFOG classification). This shortens considerably the sample to 1995-2006 but still provides some useful information. As indicated in the lower part of Table 7, there are essentially two expenditure categories that rebound in the aftermath of unsuccessful fiscal adjustments, namely health and social protection.

Incidentally, these two COFOG headings include the expenditure items which will principally bear or do already bear the budgetary impact of ageing population. A better control of them will be increasingly important in the future. Alternatively, a better control or restraint of expenditure of other functions of government is required to compensate for the increasing weight of social protection and health.

## 6. Summary and conclusions

Our empirical analysis of successful fiscal consolidations in the EU highlights a number of important lessons. Some match up with the findings in the existing literature; others are new or somewhat different from 'conventional wisdom'.

The lessons consistent with previous findings refer to the initial conditions under which successful consolidations are generally started as well as to the overall composition of the fiscal correction as such. In particular, the likelihood of success increases if initial fiscal conditions are difficult.

As regards the composition of successful fiscal consolidation, the EU experience confirms that cuts in current primary expenditure are more likely to produce a lasting effect than higher revenues or large cuts in government investment. However, the validity of this by now familiar notion is somewhat weakened for consolidations enacted since the beginning of the 1990s. The composition of adjustment *per se* seems to have lost some of its weight in securing the success.

A number of factors may explain this finding. Firstly, starting from a relatively large size of government in the 1980s, many EU Member States have embarked on a path that has measurably reduced the weight of the public sector in the economy. Along this path the leeway for further expenditure cuts is gradually reduced unless they are embedded in a structural overhaul of specific functions of government.

Secondly, and possibly linked to the first point, in the 1990s and beyond there was a general increase in the expenditure content of fiscal consolidation also among unsuccessful episodes. While successful episodes continued to rely significantly more on expenditure restraints the difference compared with unsuccessful corrections narrowed to some extent and hence lost some of its discriminatory power.

Thirdly, the motivation to participate in the common currency induced Member States to implement sizeable consolidation packages that did not necessarily follow the conventional recipe for success. Cuts in primary expenditure still played a role but were complemented by additional elements that improved the sustainability of fiscal corrections. Improvements in fiscal governance and structural reforms are prominent examples of such additional factors.

On the basis of our empirical analysis, the quality of fiscal governance turns out to be conducive to the success of fiscal consolidation. After controlling for initial conditions and the composition of adjustment, the probability to produce a lasting correction is increased when public finances

are covered by numerical fiscal rules and/or effective budgetary procedures. The link between the quality of fiscal governance and the odds for success of fiscal consolidation is likely to be complex and needs to be examined in more detail. The main point is certainly that effective fiscal governance fosters discipline-oriented budgets and an effective implementation of budgetary plans including fiscal corrections.

The chances of achieving a lasting fiscal correction also increase significantly if consolidation efforts are coupled with structural reforms. This result points to potential complementarities between the Stability and Growth Pact and the Strategy for Growth and Jobs. Apart from pension reforms, for which the statistical evidence is weak, reforms that aim at improving the functioning of labour and product markets turn out to be conducive to success. The channels through which structural reforms help fiscal consolidation are twofold: directly by capping or flattening existing expenditure trends and indirectly by spurring economic activity.

A second notable qualification of received wisdom emerging from our analysis relates to the more detailed composition of expenditure cuts. According to the prevailing view significant cuts in the government wage bill are taken to be an important ingredient to the recipe of success, also because they are thought to contribute to wage moderation, which in turn is expected to trigger non-Keynesian effects by promoting investment and economic activity. Our analysis indicates that in the EU direct cuts in government wages or employment play a comparatively minor role in explaining the success of fiscal consolidation. The main contributors to savings in primary expenditure of successful consolidations are transfers and non-wage government consumption.

This conclusion does not diminish the importance of wage moderation as such. While further work is needed to explore in detail the precise link between the determinants of successful fiscal consolidation and wage developments our analysis supports the conclusion that wage moderation in the economy as a whole is conducive to success.

On the whole, the established recipe for success characterised by significant cuts in primary government expenditure is not outdated. It was effective in the 1970s and 1980s and was still used in the 1990s. On top of it, the menu of options has widened. Especially in the 1990s, the composition of adjustment in terms of primary expenditure cuts lost some of their discriminatory power between success and failure. Successful consolidation still remained more expenditure and less revenue-based than unsuccessful episodes. However, the differences narrowed. As a result, other factors have become more decisive such as fiscal governance and structural reforms. They turn out to be instrumental in safeguarding the fiscal correction over time.

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## Annex

**Table A1: Indicators for the determinates of fiscal consolidation**

		Source	Description of data from which indicators have been constructed	Country coverage	Year coverage	Indicator
<b>Fiscal governance</b>	Fiscal rule coverage and strength	Commission services	Time-varying index, constructed by combining the information contained in the 'fiscal rule coverage index' and the information contained in 'the fiscal rule strength index'. For details see European Commission (2006).	EU-25	1990-2005	The size of the index is larger than the median.
	Fiscal rule coverage	Commission services	Index summarising, for each Member State, the information on what part of general government finances is covered by numerical rules (measured as the share of government expenditure of the general government sub-sector to which the rule applies in total general government expenditure). All numerical rules are aggregated, in case of overlap different weights are applied. The index hence may exceed 1.	EU-25	1990-2005	The size of the index is larger than the median.
	Fiscal rule strength	Commission services	Index, calculated taking into account five criteria: the statutory base of the rule; whether there is an independent monitoring of the rule; the nature of the institution responsible for the enforcement of the rule; the existence of pre-defined enforcement mechanisms; and the media visibility of the rule. The methodology followed was inspired by the previous work by Deroose, Moulin and Wierds (2005).	EU-25	1990-2005	The size of the index is larger than the median.
	Expenditure rule coverage/strength	Commission services	Index, constructed following exactly the same methodology (but restricting the sample to numerical expenditure rules), measuring the share of government finances covered by <i>expenditure</i> rules.	EU-25	1990-2005	The size of the index is larger than the median.
	Budgetary procedures	Commission services	Index capturing features national budget procedures. It covers 6 dimensions: transparency, multi-annual planning horizon, centralisation of the budget process, top-down budgeting, prudent economic assumptions and performance budgeting. The technical details are explained in section II.3 of this publication. Data source: OECD/World Bank Budget Practices and Procedures Database (2003)	18 EU Member States	2003	The size of the index is larger than the median.
<b>Structural reforms</b>	Expenditure reform	Hauptmeier et al. (2006)	The index consists in the average annual reduction in primary expenditure over a period of 7 years, starting in the peak year with the highest primary expenditure-to-GDP ratio. Original Data Source: Commission services	25 Industr. countries	1981-2004	If the index is larger than 5%, the expenditure reform is ambitious, if it is between 0 and 5%, it is timid.

**Table A1 (continued): Indicators for the determinates of fiscal consolidation**

	Source	Description of data from which indicators have been constructed	Country coverage	Year coverage	Indicator
Labour market reform	IMF	Labour market index consisting of the unweighted average of indicators of employment restriction, unemployment benefit replacement rate and benefit duration. The index is normalized in such a way to be between 0 and 1 and to increase as labour market restrictions are reduced. Original data source: Nickell and Nunziata (2001), Labour Market Institutions Database and data used in OECD (2003), World Economic Outlook, April, Ch. IV.	EU-14 except Greece	1970-1998*	The yearly change in the labour market index is positive and larger than the median positive change.
Product market reform	IMF (2004)	Index measuring entry barriers, public ownership, market structure, vertical integration and price controls in public utilities and transport services. The index is normalized in such a way to be between 0 and 1 and to increase as product market restrictions are reduced. Original data source: Nicoletti and Scarpetta (2003).	EU-14 except Greece	1975-1998	The yearly change in the product market index is positive and larger than the median positive change.
Pension reforms	Rodolfo de Benedetti Foundation (RDBF)	Data indicating the years in which reforms in pension systems were implemented and the major characteristics of reforms.	EU-14	1985-2001	A pension reform making the system less generous took place in the year. The size of the index is larger than the median.