

Fortune or fortitude? Determinants of successful adjustment with IMF programs

by

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Full adjustment programs in the wake of crisis episodes exact a major toll on a country's economy, yet not all are blessed with success. We identify adjustment needs by a country's decision to approach the IMF for official assistance. We then investigate the factors conducive to successful exit from official assistance during more than 170 adjustment episodes by means of a panel regression framework. In contrast to the existing literature, we do not use absolute benchmarks. We define success as a resumption of real GDP growth and a reduction of government debt compared to the pre-program period. Our econometric results suggest stringent policy action do play a role for the probability of success. At the same time, we also find that successful exit also very much depends on supportive external conditions and, linked to that, the degree of openness of an economy.

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1. Introduction

Defining the right adjustment strategy for getting back to a sustainable path after a crisis episode has become a topic of a heated debate. The global economic downturn that started in the summer of 2007 has been the most economically costly since the Great Depression. From its original epicenter in the U.S. financial sector, it quickly spread around the world, leaving plummeting growth and soaring unemployment in its wake. A large number of emerging market economies requested financial assistance from the IMF and regional financing sources as market-based financing at affordable terms disappeared.

A second wave of the crisis erupted in 2010 as concerns about debt sustainability in the euro area came to the forefront, exacerbated by fears of contagion in a monetary union and the associated detrimental knock-on effects on financial stability. By the end of 2013 four of the then seventeen euro-area countries were in full economic adjustment programs,¹ an unprecedented situation among advanced economies.

IMF support programs, including those combined with assistance from regional lenders such as the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM), typically come with a series of policy conditions which in many cases require incisive adjustment measures. While political determination and faithful implementation play a crucial role, the final outcome of an adjustment program depends on an array of factors including those that are not necessarily under the control of policy makers.

In this paper we take a fresh look at what determines successful exit from IMF assistance programs. We do this by examining a large sample of IMF supported programs incepted during the years 1993-2010. We introduce a measure of performance, based on real GDP growth and government debt, which differs from the ones generally used in the literature, in that it relies on a relative not absolute threshold. It takes into account the performance of the country prior to the program. We believe that a performance-based criterion is superior, as it does not tar all countries with the same brush. A successful exit is likely to look different for catching up countries as opposed to more mature economies. Moreover, many existing definitions of success focus on the extent to which program conditionality is met. But then, compliance with program conditions may not be sufficient to ensure success if external factors are not propitious or, if propitious, do not spill over to the domestic economy.

The results derived from our empirical analysis largely confirm the findings in the literature with some interesting and important nuances. Among the variables that can be affected by policy choices, faster fiscal adjustment and a lower initial deficit contribute significantly and positively to a successful adjustment episode. Decisive financial sector repair is also conducive to successful adjustment as lack of credit to the private sector significantly lowers the chances of success, while a systemic banking crisis per se need not be detrimental. The role of exchange rate flexibility is less clear cut, possibly due to different off-setting effects. The probability of successful adjustment is considerably higher if the global growth situation is favorable and the economy is open enough to benefit from the

external conditions. Finally, while our primary aim is not to discuss the optimal design of IMF programs, our results suggest that more official financing (which conversely is typically coupled with a more gradual fiscal adjustment) does not significantly contribute to success, while more stringent conditionality and especially in the structural area does appear to exert a significantly positive effect. Our findings turn out to be robust across a wide range of specifications and for controlled variations in the sample.

The rest of this paper is organized as follows. Section 2 provides additional background and motivation to our work. Section 3 presents stylized macroeconomic facts for the countries in our sample, and discusses how to construct an indicator of successful adjustment. Section 4 presents results from regression analysis of factors that increase the probability of successful adjustments, including alternative definitions thereof. It also discusses implications for the recently completed programs in Europe. Section 5 concludes.

2. Motivation and literature

Formulating an adjustment strategy in the wake of a crisis episode requires a thorough understanding of a country's particular characteristics and the particular environment in which it operates: idiosyncrasies matter. Euro area countries, for instance, exhibit features that are very specific; most notably they are part of a monetary union where monetary policy is delegated to the ECB; the official financing made available through the recent EU-IMF supported programs for euro area countries was much larger than the historical average; and some of the EU-IMF-supported programs involved countries with very high government debt-to-GDP ratios. Nevertheless, learning some stylized facts from past crisis episodes and trying to build on past experiences is a valid strategy to improve policies going forward and to possibly assess the odds of success of on-going or recently completed adjustment programs.

To be useful, any analysis of factors conducive to successful adjustment after a crisis episode requires a systematic benchmark against which that success is evaluated. A first difficulty arises with how to identify a need for adjustment. Banking crises often, but not always, carry such economic costs that adjustment is needed. The same holds for both the speed and magnitude of fiscal adjustment, which might be very gradual if market or official financing continues to flow and debt levels are manageable.

This paper makes the assumption that a country requesting an IMF program is indicative of a significant adjustment need, as well as a certain urgency to advance the process to a considerable degree within a given time period. We consider the political costs of asking for official assistance to be sufficiently high that countries would not request it if adjustment needs were manageable otherwise. We acknowledge that the adjustment needs for countries under IMF programs vary substantially, including the actual need for financing, and will aim to control for this in our estimations.

This choice of sample could potentially bias the results, as countries availing themselves of official assistance might share certain characteristics likely to influence the results and ideally warranting the use of a control group not receiving financial assistance (Przeworski and Vreeland, 2000; Ghosh et al., 2002; Hardoy, 2003; Hutchison, 2004; Atoyan and Conway, 2005; Barro and Lee, 2005; Bas and Stone, 2011). The economic situation might be worse, which would reduce the likelihood of a successful adjustment, but the reform commitment might also increase with the external policy scrutiny. However, we still believe that this is the most appropriate sufficiently large sample available. Even within our potentially biased sample there are successful and unsuccessful adjustment episodes and

exploring the factors that discriminate between success and failure conditional on a country asking for official assistance is still useful.

A second issue regards how to formulate a benchmark against which the success of an adjustment episode is assessed. Some earlier literature finds that benchmark by looking for instance at process-related or accounting elements such as whether a program was completed without interruption or the share of conditions met during a program (Ivanova et al., 2001). Other studies focus on the stated aims of IMF financial assistance programs, such as providing short-run macroeconomic stabilization including stemming capital outflows. They typically assess the impact of IMF programs on economic growth (Dreher, 2006) or the current account (Ghosh et al., 2002).

Our first contribution is to construct an indicator of successful adjustment that improves on existing ones. Instead of using absolute thresholds for all countries regardless of their economic characteristics as IMF (2012) our definition is formulated relative to countries' pre-crisis levels of growth and debt, as they were sufficiently favorable for the country to finance itself on the capital markets. We believe that this approach is warranted given the highly varying country characteristics in our sample.

In a second step, we try to identify factors that predict successful adjustment according to the indicator by means of regression analysis with a larger sample and a more thorough delineation of factors that could be affected by certain policies – the 'hard work' – vis-à-vis those outside the countries' control such as global growth or risk appetite – 'help from abroad'. Our set of possible factors conducive to successful economic adjustment draws on previous literature, regardless of whether the adjustment took place under the aegis of an IMF-supported program or not. Barrios and Langedijk (2010) find that large current account deficits can significantly impair the ability of countries to achieve successful fiscal consolidations, but that absence of nominal exchange rate adjustment need not be a major impediment. The negative effects on growth and fiscal sustainability from banking crises, especially if they are preceded by a credit boom and followed by a credit crunch, were already studied by Calvo et al. (2006) and Cerra and Saxena (2008) but naturally came to the forefront during the last crisis given its origins in the U.S. financial sector (IMF, 2009; Laeven and Valencia, 2012; and Abiad et al., 2011).

Our empirical strategy of regressing economic and policy variables on a binomial indicator of successful macroeconomic adjustment relies on an approach that is well-established in the economic literature. In particular, there is a link with the relatively rich literature on successful fiscal consolidation which developed since the mid-1990s (see for instance Alesina and Perotti, 1995; Alesina and Ardagna, 1998; von Hagen et al., 1998; von Hagen et al., 2001; von Hagen and Strauch, 2001; Guichard et al., 2007; Larch and Turrini, 2011).

Most euro-area financial assistance programs have been completed fairly recently. Drawing firm conclusions about their success would therefore entail relying excessively on projections, which might be subject to bias. They are therefore not included in our sample, but we discuss their future challenges by assessing their probability of success using the estimated coefficients from our regression.

3. Features of adjustment spells and measures of success

Macroeconomic situation in countries receiving financial assistance.

In this section we conduct a descriptive analysis of the sample and provide an overview of trends in key macroeconomic variables prior to, during and following economic

adjustment programs. The sample covers 176 completed or expired IMF General Resource Account (GRA) supported programs extended to a total of 59 countries from 1993 and onwards.²

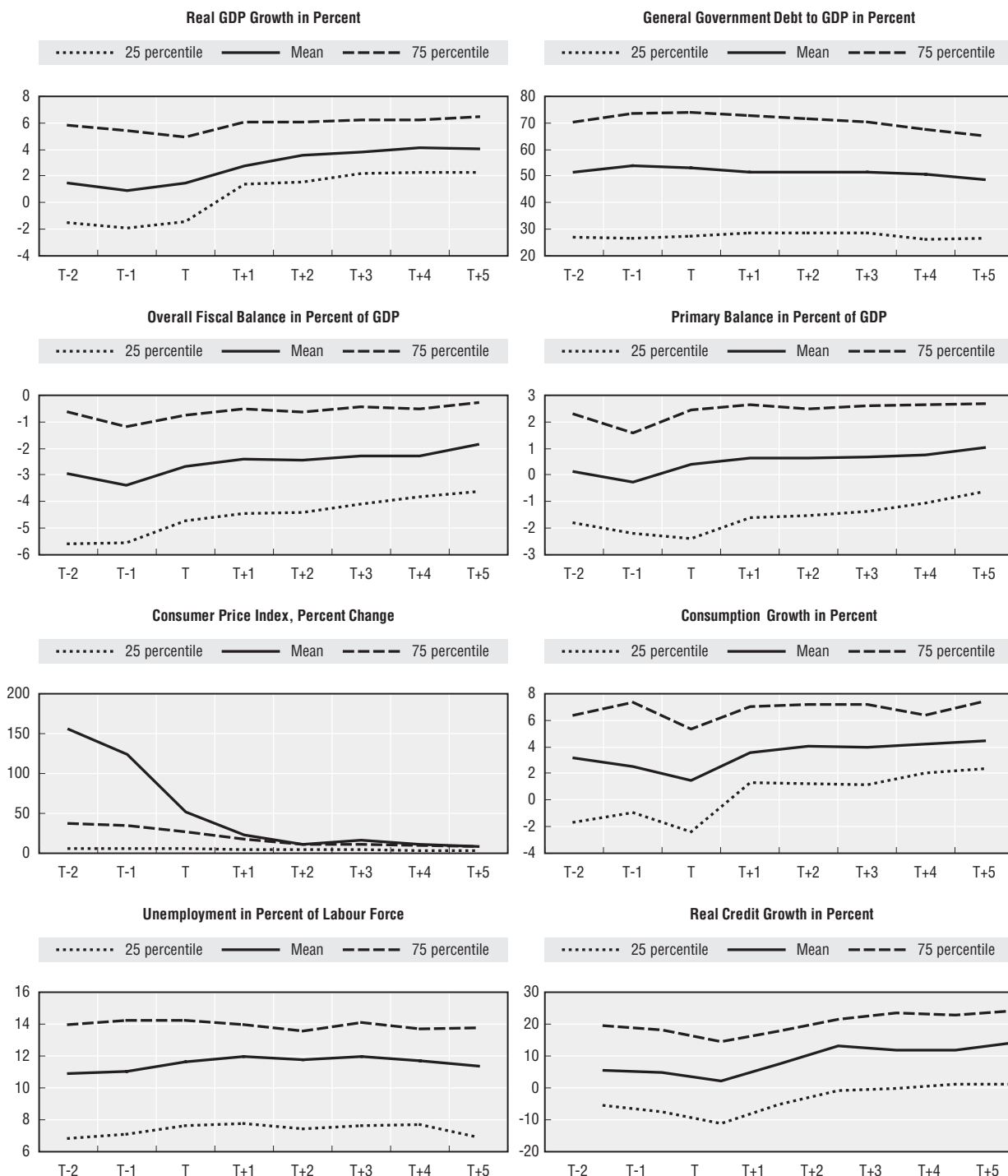
Among the 176 programs in the sample 83 percent were Stand-by-Agreements (SBA) and the remaining ones Extended Funding Facilities (EFF). On average a country had three programs with the IMF, however there are countries which completed up to seven GRA-supported programs. The average duration of an SBA amounted to 1.7 years with a maximum duration of three years, while EFFs were longer on average with a mean of 2.9 years and a maximum of four years. The average size of a GRA-supported program reached 234 percent of the country's quota with a standard deviation of 443 percent. Countries which were considered to meet the IMF's Exceptional Access Criteria³ in some cases reached above 3000 percent of the country quota. Nearly 30 percent of programs did not disburse any of the official available financing as countries could meet their financing needs through other sources. Countries drew on average 48 percent of the funds approved under the program, with the figure rising to 68 percent when non-disbursing programs are excluded.

A key decision for our analysis is to identify the horizon over which adjustment is assessed. In order to assess trends in key macroeconomic variables over the relevant horizon we define pre-program, program, and post-program periods annually.⁴ The year of program start is denoted with T, the pre-program period includes years T-2 and T-1, the program period comprises the interval [T, T+2] and the post-program period refers to [T+3, T+5]. The appropriateness of the definition of the pre-program and the program period could be questioned as programs can start at any time in the year. We will later try to control for this in our econometric analysis by varying the starting point depending on the date of program inception. Moreover, policy measures tend to impact key macroeconomic aggregates with different lags. Decisively implemented measures aimed at improving the overall fiscal balance translate rather rapidly into fiscal headline figures, while structural reforms might impact real GDP growth with a delay of several years. Improvements in unemployment figures typically come only late in the recovery phase. Furthermore, using unemployment figures as an indicator for a revival of the labor market comes with disadvantages as a shrinking labor force (e.g. due to workers dropping out of the formal labor market) and falling employment might have offsetting effects on unemployment. However, unemployment remains the only labor market indicator available for a sufficiently large sample.

Another difficulty results from the fact that programs tend to have different durations, depending e.g. on the perceived time required for the needed adjustment. Average program duration within the sample is approximately 1.9 years with a standard deviation of 0.9 years. Therefore, from this perspective the definition of the program period as the time elapsed between T and T+2 seems appropriate, while bearing in mind that plenty of programs were shorter than two years. Some programs were immediately followed by a successor agreement as further adjustment was needed, and the improvement achieved in the post-program period might not be directly attributable to the original program. A further issue arises when defining the end of an adjustment program as programs can also end at any time in the year.

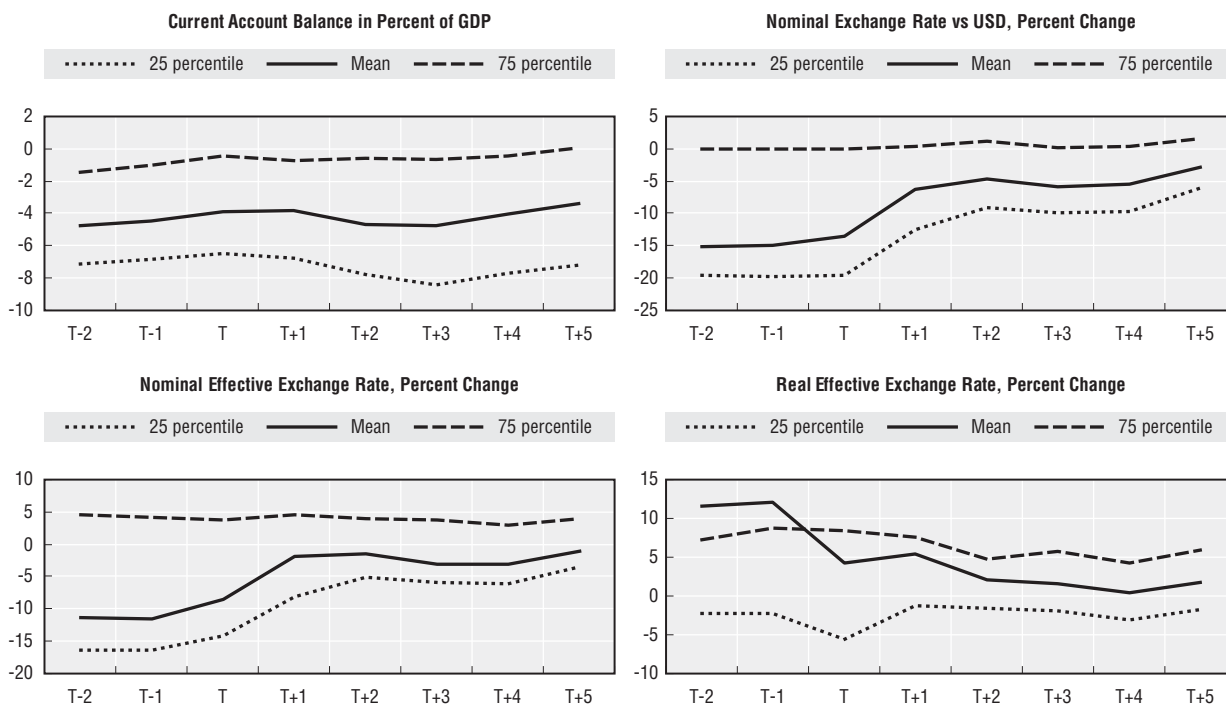
Bearing in mind the above caveats, the main objective of the descriptive analysis is not to draw firm conclusions about program episodes. Rather we try to get a preliminary feel for the data ahead of the more rigorous regression analysis. On average key macroeconomic indicators improve during an IMF supported economic adjustment program (Figure 1).

Figure 1. Key macroeconomic variables in countries under an IMF economic adjustment program



Countries seeking financial assistance recorded a slowdown of real GDP growth in the pre-program period, though average growth was still positive. A significant part of the countries suffered a recession as shown by the 25 percentile trend line. Fiscal indicators exhibit a similar pattern: both the overall fiscal balance and primary balance deteriorated

Figure 1. **Key macroeconomic variables in countries under an IMF economic adjustment program** (cont.)



Note: T denotes the year of program start.

Source: IMF World Economic Outlook Database, IMF reports, IMF International Financial Statistics, Darvas (2012), World Bank and other sources. For a detailed description of the data sources see Appendix; authors' calculations. Real credit growth, real effective exchange rate and nominal exchange rate vs. the USD are year-on-year percentage changes. The real effective exchange rate, the nominal exchange rate vs the USD and the nominal effective exchange rate are measured as the foreign currency price of one unit of domestic currency (indirect quotation). The mean of the change in the consumer price index is influenced by countries suffering from hyperinflation of above 1 000 percent per year.

pre-program and general government debt increased. The current account recorded substantial deficits during the run-up to the program but already improved just prior to the program which could be attributable to the fact that capital often flows out from countries suffering from macroeconomic disturbances. The interpretation of current account developments is, however, not straightforward. In many countries, a high current account deficit prior to the adjustment episode might be one of the vulnerabilities – particularly if it is financed by a large share of short-term portfolio flows – prompting it to seek financial assistance when financing dries up, and a reduction of it then suggests a more sustainable position going forward. However, in a fast-growing and capital-poor country standard economic theory recommends running a current account deficit to finance investment needs, and a widening current account deficit might then mean that external funds to finance such projects is again forthcoming post-crisis. Inflation was typically high before program start, but also influenced by outliers. Therefore, when assessing trends in inflation, it is more appropriate to take the 25 and 75 percentile lines as reference values. Real consumption growth was on a deteriorating path in the pre-program period. Unemployment was constantly growing prior to program start and real domestic credit growth – measured as the percentage growth in real credit advanced to the private sector – was rather sluggish and on a declining path. The currency typically underwent a marked depreciation against the US dollar during the first year of a program. Competitiveness – measured as a depreciation of the real exchange rate – typically worsened before a program and held steady thereafter.

In the year of the program start, real GDP growth slightly improved with economic growth returning gradually in the years afterwards. Countries that suffered from a deep recession in the pre-program period experienced an even stronger rebound as suggested by the 25 percentile line. Overall fiscal and primary balances also improved significantly in the start year and the adjustment continued under the program, while general government debt entered a declining path. When the general government debt-to-GDP ratio ranged above 50 percent at program start the average decline was more significant.⁵ The trend in the current account shows a rather mixed picture, while inflation returned to modest levels and was clearly on a declining path. Unemployment kept growing until T+1, in line with expectations of labor markets reacting with a lag to a rebound of the economy, but did not decline significantly later on and hence stabilized at a slightly higher level compared to pre-program levels. Inflation moderated after the program was put in place, furthermore real consumption growth accelerated and returned to a higher path compared with pre-program. Real credit growth rebounded during the program period and remained at a significantly higher level than prior to program start. Both the real effective exchange rate and the nominal exchange rate versus the US dollar and currencies of the given countries' trading partners stabilized gradually under the program.

Overall, on average key macroeconomic indicators appear to improve measurably during the program period and continue to evolve favorably after its end. Real GDP growth accelerated, the general government debt-to-GDP ratio declined, both the overall fiscal and primary balance improved, real consumption growth rebounded and the currency stabilized.

How to measure successful adjustment

This section sets the basis for our econometric analysis aimed at identifying factors which influence the outcome of an adjustment program. Prior to a more formal regression analysis we need a benchmark against which to evaluate success in order to identify factors enhancing the probability of successful exit from a macroeconomic adjustment program.

There are at least three conceivable ways of defining success: i) an "accounting" definition according to which a program is considered a success if compliance with the policy conditions agreed under the program is high; ii) a "market-based" definition that looks at whether market access is regained during or at the end of the program; and iii) a more "macroeconomic" definition which is centered on the economic performance of the country during the years following the completion of the program. The accounting definition, or variants of it, is the most common in the literature. Ivanova et al. (2001) are an early example; they use the share of policy conditions met by a program country or whether a program was interrupted or not. More recently, in the European context Pisani-Ferry et al. (2013) also assess program implementation on the basis of whether and how many key program conditions were met.

Ideally, the three definitions listed above should be complementary in the sense that success should manifest itself via a consistent compliance with policy conditions, combined with a return to market financing and a favorable macroeconomic performance after the end of the program. In practice, however, things are likely to be more complex. Specifically, not all policy conditions may be equally relevant and market confidence has shown to be volatile and not always forward-looking. Moreover, while compliance with policy conditions may provide an indication of the determination of policy makers, it is no guarantee of success in a broader sense if external economic conditions are not conducive. For these reasons, we concentrate on the sustainability dimension and gauge the success of an economic

adjustment program as a resumption of economic activity and improvements in the general government debt position.

In particular, we compare average real GDP growth in the five years after program start with average growth in the five years prior to program start to judge whether real GDP growth returned to the country's own benchmark level following the start of the adjustment program. In addition, we investigate whether general government debt entered a declining path within five years following program start. This differs from IMF (2012) and Barrios and Langedijk (2010) which both use absolute thresholds regardless of a country's own growth performance and ability to finance a certain debt level from market sources prior to the crisis. We believe this approach is warranted because a favorable growth and debt performance differ markedly within our sample due to the large variation in country characteristics, as well as differing market perceptions over time. Hence, those programs are deemed to be successful which recorded both favorable economic growth and declining public debt according to the following criteria:

1. Post-adjustment real GDP growth rate to reach 3/4 of pre-crisis one.
 - If average real GDP growth in $[T-5, T-1]$ was ≤ 3 percent then growth has to be above 2.25 percent to succeed.
 - If average growth in $[T-5, T-1]$ was between 3 percent and 6 percent then the average growth in $[T+1, T+5]$ has to reach at least 3/4 of the growth in $[T-5, T-1]$.
 - If average growth in $[T-5, T-1]$ was higher than 6 percent, then above 4.5 percent average growth in $[T+1, T+5]$ is necessary to succeed.
2. General Government Debt to GDP ratio to decline by 5 percent.
 - If average general government debt to GDP in $[T+1, T+5]$ was below 25 percent, then the trends in public debt are considered to be irrelevant from outcome perspective.
 - If average general government debt to GDP in $[T+1, T+5]$ was above 25 percent, then if general government debt peaked between T and T+5 and declined by at least 5 percent compared to the peak value, then the program is deemed to be successful as regards the evolution of general government debt.
 - The country does not default on its debt in $[T+1, T+3]$.

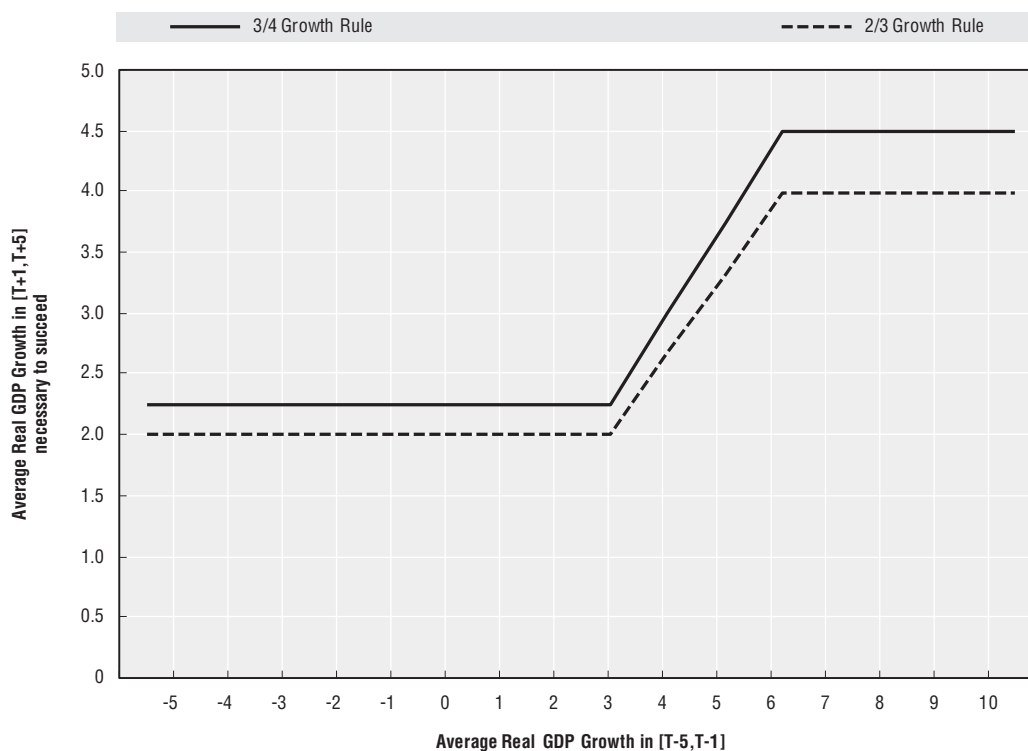
Growth criterion

Our rationale for choosing simple five-year averages for real GDP growth as opposed to e.g. measures of potential output is mainly to increase robustness. Lack of sufficient data for many countries precludes the use of e.g. a production function methodology for estimating potential growth. A more readily available approach such as the Hodrick-Prescott (HP) filter on the other hand suffers from the well-known end point problem (Mise et al., 2005).⁶ Another valid criticism is that for measuring the performance of an economy over the long-term, five years might be short at first sight. Here again we are trying to strike a balance between the availability of GDP data on the one hand, and, on the other hand, that policy measures implemented in the post-program period or afterwards could affect economic growth.

Our decision to use a three-pronged definition of success is motivated by both technical and economic concerns. Several countries in our sample were suffering from negative average real GDP growth prior to the program; and even for countries suffering from low, but still positive average growth, maintaining it cannot be considered meeting the key objective of putting the economy on a dynamic and sustainable growth path. Consequently, for the

low-growth cases (below 3 percent average growth before program start) at least an average growth of 2.25 percent in [T+1,T+5] (3/4 of 3 percent) is required to succeed. A similar sustainability argument can be made for choosing an absolute cut-off point for countries recording high growth before program start, i.e. above 6 percent. The pre-crisis growth rates for these countries might simply have been symptoms of overheating, and as such it should not be considered a failure if they are not reached after the program. Therefore, for the high-growth cases the adjustment episode is deemed to be successful, if average real GDP growth reaches above 4.5 percent in [T+1,T+5], which is again 3/4 of 6 percent.⁷ A graphic illustration of the growth criterion is provided in Figure 2.

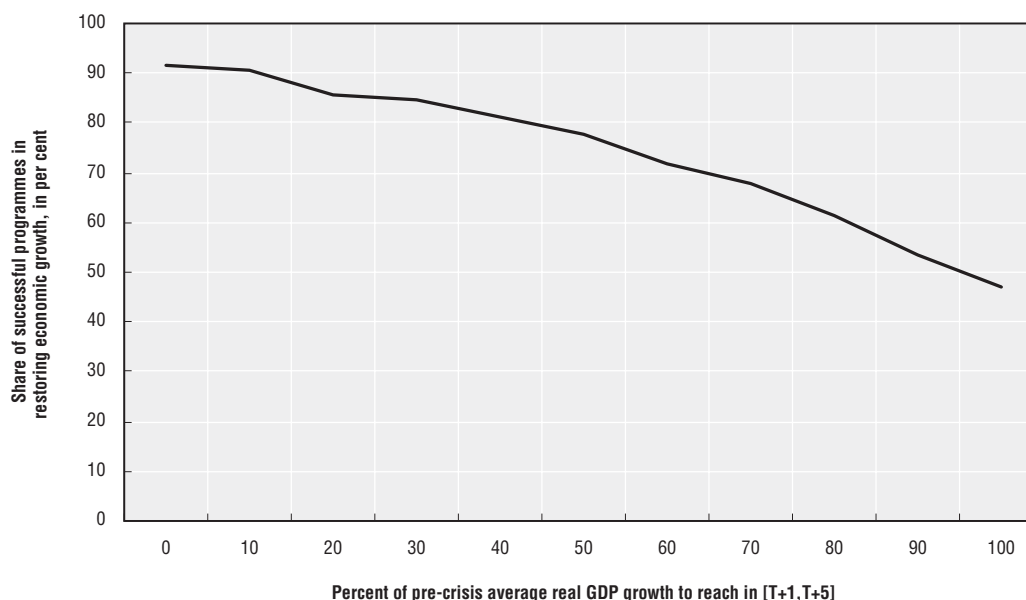
Figure 2. **Growth criterion for success**



Note: T denotes the year of program start.
 Source: Authors' calculations.

On the basis of our criterion for real GDP growth nearly 65 percent of adjustment episodes in our sample can be classified as successes. When we lower the bar so that only 2/3 of the average growth prior to the program is required to be reached after program start, the success rate increases only marginally to 68 percent. We therefore consider our definition to be fairly robust with respect to the cut-off points. To address outstanding concerns regarding the effect of borderline cases, we will later rerun the regressions using the modified criterion for growth to see whether results from the regression still hold. We also calculated the number of programs successful in restoring growth when modifying the required percentage of average real GDP growth in [T-5,T-1] necessary to be reached in [T+1,T+5] from 0 to 100 percent in 10 percent steps (Figure 3). From the figure it is evident that the lower bound for the indicator would be achieving about 50 percent of the pre-crisis average growth otherwise a far too high share of the adjustment episodes is judged as success. In addition, there is no sudden change in the slope of the line shown in the figure.

Figure 3. **Share of successful programs in restoring growth as a function of the percent of average pre-crisis real GDP growth to be reached in [T+1,T+5]**



Note: T denotes the year of program start.

Source: Authors' calculations.

Debt criterion

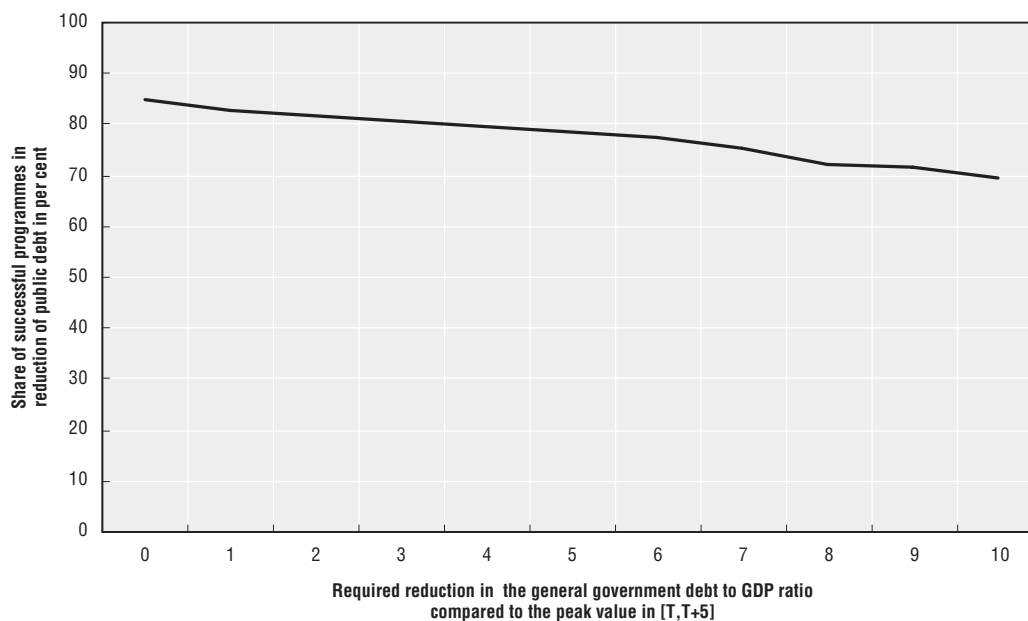
The aim of the debt criterion is to ensure a return to sustainable public finances, thus enabling continued market financing. We take a peaking of the general government debt-to-GDP ratio and a reversal in the trend to be the key signal of sustainability. The literature and policy prescriptions for how much debt needs to be reduced to be considered sustainable are inconclusive (Reinhart and Rogoff, 2010, Herndon et al., 2013, as well as e.g. the Maastricht criterion for EU countries). We take an agnostic view and consider an attempt at restoring fiscal sustainability as successful if it lowers the general government debt-to-GDP ratio by at least five percent in [T+1,T+5] compared with the peak value it reaches in [T,T+5]. Requiring a reduction of the debt-to-GDP ratio by an absolute five percentage points independently from the level of the debt-to-GDP ratio would privilege countries with high debt-to-GDP ratios “consolidating” through growing nominal GDP (denominator effect). A reduction in the level of general government debt instead affects the debt-to-GDP ratio in the same way independently from the level of the debt-to-GDP ratio.

A reduction in the level of general government debt can, however, also be achieved by a restructuring of the public debt, disorderly or planned. To make sure that only the latter are considered successes, a criterion with respect to disorderly default on outstanding debt had to be included in our definition. Accordingly, a default in [T+1,T+3] on debt would be considered a failure. The period [T+1,T+3] was chosen particularly with the aim to exclude those cases where a restructuring or debt release was part of the IMF-supported adjustment program, which was also cross-checked with program documents.⁸

This definition of the fiscal sustainability leads to a success rate of over 78 percent, i.e. substantially above the success rate found for the 3/4 economic growth criterion. Again, we checked for robustness of the debt criterion by shortening the time available for a reduction of the debt-to-GDP ratio to four years instead of five years and prolonged the period in which

no default or debt restructuring may occur by one year. This modified criterion lowered the success rate by about three percentage points, and as such the criterion can be argued robust from this perspective. The debt criterion was also tested for robustness with respect to the percent value by which the debt-to-GDP ratio is required to decline compared to the peak value. The figure below suggests that the debt criterion is fairly robust regarding the variation in the percent threshold as there is again no sudden change in the slope of the curve.

Figure 4. **Share of successful programs in debt reduction as a function of the required reduction of the debt-to-GDP ratio compared with its peak value in [T,T+5]**



Note: T denotes the year of program start.
 Source: Authors' calculations.

Results

Finally, taking the two criteria together, we find that 103 programs are deemed to be successful which results in an overall success rate of 58.5 percent. This shows that countries which succeeded according to the growth criterion typically succeeded in achieving debt reduction as well. Table 1 provides an overview on the number of successes when using modified criteria. The table shows again that modifications of our definition lead to very modest changes in the success ratio.

Table 1. **Success rate of IMF-supported economic adjustment programs**

	General Government Debt to decline by 5% until T+5 and no default in [T+1,T+3]	General Government Debt to decline by 5% until T+4 and no default in [T+1,T+4]
Post-adjustment real GDP growth rate to reach 3/4 of pre-crisis one	58.5%	58.0%
Post-adjustment real GDP growth rate to reach 2/3 of pre-crisis one	60.8%	60.2%

Note: T denotes the year of program start.

We also assessed the joint distribution with respect to both criteria, i.e. the variation in the percent of the pre-crisis average real GDP growth to be reached in $[T+1, T+5]$ and the variation in the percent value by which the debt-to-GDP ratio is required to decline compared with its peak value in $[T, T+5]$.

Clearly, the debt criterion in our definition of success is not orthogonal to the growth criterion. A reduction of the debt-to-GDP ratio may result from consolidation efforts but also from an increase in the denominator, that is, economic growth. At the same time, the two criteria are not perfectly correlated and add information to the definition. We later control for the correlation across the two criteria by running regressions with a definition of success that relies on economic growth only.

A number of programs in our sample – 26 in total – are back-to-back, that is, the formal completion of one arrangement is followed by a new one. In 10 cases the predecessor programs are unsuccessful, based on our definition, 16 are successful. While such cases make the interpretation of success or failure a bit thornier (the recovery phase of the predecessor program overlaps with the implementation phase of the successor arrangement), we did not exclude them from our sample as they may still include useful information; this is certainly true for unsuccessful back-to-back programs. Hence, successor arrangements are not grouped to form one program; rather they are treated as separate programs. To assess the impact of back-to-back cases on our regression analysis we control for them when doing robustness checks.

4. Regression results

In this section we investigate factors associated with successful adjustment episodes as defined in the previous section. We first translate the success indicator using the growth and debt criterion into a binary variable, which is then used as the dependent variable in a probit regression. We assess the importance of a range of explanatory variables found to matter in the literature on fiscal and macroeconomic adjustment referenced in Section 2. Broadly

Table 2. **Explanatory variables used in the regression analysis**

Fiscal Balance in T	Fiscal balance in the year of program start measured as general government net lending in percent of GDP
Fiscal Balance adjustment	The change in general government net lending in percent of GDP under the program, percentage points
Real GDP Growth in T	Year-on-year percentage change
Primary Balance in T	General government net lending in percent of GDP excluding interest expenditures
Primary Balance adjustment	Change in primary balance in percent of GDP during the program, percentage points
Public Debt in T	General government debt to GDP at program start
World GDP growth	Average year-on-year percentage change between T+1 and T+5
Banking Crises	Dummy variable taking the value 1 if a banking crisis was ongoing in the year of program start using the definition in Laeven and Valencia (2012)
Credit Crunch	Dummy variable taking value 1 if real credit advanced to private sector recorded negative growth in at least two years between T and T+2
Exchange Rate Regime in T	IMF classification taking values from 1 to 15; a higher value indicates a more flexible exchange rate regime.
Openness Indicator	Measured as exports plus imports divided by GDP
VIX in T	Chicago Board of Exchange S&P 500 Implied Volatility Index capturing the risk appetite of the market and taking high values in times of turbulence and crisis
Nominal Effective Exchange Rate; change	Adjustment in nominal effective exchange rate under the program. An increase in the NEER is equivalent to an appreciation
Current Account Balance	In percent of GDP
Change in Current Account Balance	Percentage point change in the current account balance under the program

Note: T denotes the year of program start.

speaking, these can be divided into those that can be influenced directly or indirectly by policy action during the period of adjustment – the ‘hard work’ part – and those outside the control of the country in question – the external conditions. The following list provides an overview of the explanatory variables, where T denotes the year of program start. More details about the variables used and the respective data sources are provided in the Appendix.

For the estimation we use a panel probit with a population-averaged (PA) generalized estimating equation (GEE) approach with exchangeable correlation matrix based on Liang and Zeger (1986). Notice that our panel is not a ‘real’ panel in the sense that each program constitutes one observation and years in which no program was put in place were excluded from the sample. Nevertheless, since many countries had more than one program our model goes beyond a pure cross-section analysis. A summary of the estimations is provided in Table 3.1.

Table 3.1. **Factors conducive to successful adjustment; results from probit regressions**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Primary Balance in T	0.077* (0.039)	0.092** (0.040)	0.093** (0.038)	0.091*** (0.033)	0.099*** (0.031)	0.090*** (0.029)	0.082** (0.033)	0.114*** (0.038)	0.118*** (0.039)
Primary Balance Adjustment	0.087** (0.039)	0.073** (0.037)	0.075* (0.039)	0.068* (0.038)	0.077** (0.039)	0.085** (0.040)	0.090** (0.036)	0.128*** (0.040)	0.121*** (0.043)
Public Debt in T	-0.004 (0.003)	-0.006 (0.004)	-0.007* (0.004)	-0.007* (0.004)	-0.006 (0.004)	-0.008* (0.004)	-0.008** (0.004)	-0.007** (0.003)	-0.008** (0.003)
Real GDP Growth in T	0.056*** (0.019)	0.059*** (0.022)	0.073** (0.030)	0.064** (0.032)	0.081*** (0.029)	0.096*** (0.026)	0.093*** (0.027)	0.094*** (0.031)	0.092*** (0.030)
World GDP Growth [T+1,T+5]		1.388*** (0.256)	1.489*** (0.285)	1.573*** (0.309)	1.673*** (0.309)	1.907*** (0.286)	2.115*** (0.287)	2.171*** (0.311)	2.272*** (0.349)
Banking Crisis Dummy			0.783** (0.318)	0.868*** (0.333)	0.816** (0.342)	0.898*** (0.305)	1.042*** (0.285)	1.240*** (0.384)	1.254*** (0.383)
Credit Crunch Dummy				-0.497** (0.233)	-0.531** (0.231)	-0.536** (0.231)	-0.497** (0.244)	-0.530** (0.263)	-0.548** (0.270)
Exchange Rate Regime					0.067** (0.031)	0.085*** (0.031)	0.064* (0.033)	0.092*** (0.032)	0.088*** (0.033)
Openness Indicator						0.008** (0.003)	0.009*** (0.003)	0.008** (0.004)	0.007* (0.004)
CBOE S&P 500 Volatility Index							-0.057*** (0.020)	-0.044** (0.020)	-0.049** (0.021)
NEER Adjustment								0.022** (0.010)	0.023** (0.010)
Current Account Balance in % of GDP in T									-0.004 (0.015)
Adjustment in Current Account Balance									0.022 (0.021)
No. of Observations	176	176	176	176	176	176	176	176	176

Note: Standard errors in parentheses: p < 0.01, ** p < 0.05, * p < 0.1. For variable definitions see Table 2. T denotes the year of program start.

The first and most parsimonious specifications includes only basic macro-fiscal variables (column (1) and (2) in Table 3.1). Our hypothesis is that the degree of initial fiscal vulnerabilities matter for the success of the adjustment. In particular, we include the primary budget balance and government debt at program start in percent of GDP as well as the improvement of the primary budget balance ratio over the program horizon. We estimated the model using the primary instead of the headline balance and the adjustment thereof because the measure excluding interest expenditure provides a better measure of the de facto fiscal adjustment.⁹ In addition, countries agreeing to a GRA-supported program typically cover some of their financial needs by drawing on the credit provided by the program. This is usually extended at somewhat concessional terms and

has a bearing on the interest bill which needs to be kept in mind when extrapolating the results to discuss adjustment episodes in general. We find both the primary balance at program start and its adjustment to contribute to successful adjustment in a positive and highly significant manner, which is in line with what theory would suggest as well as with the results in the earlier literature on successful fiscal consolidation referred to above: the lower the initial fiscal imbalance and the larger the fiscal adjustment the higher the odds for success (e.g. Larch and Turrini, 2011).

It is important to note that our results do not indicate whether the speed of adjustment was in any way optimal, in the sense of striking the right balance between its impact on economic activity and progress towards sustainable public finances. We refer here to the debate about the size of fiscal multipliers triggered by Blanchard and Leigh (2013) according to which fiscal consolidation could be self-defeating in view of larger than expected fiscal multipliers. Based on their findings, Blanchard and Leigh have argued in favor of a less-now-and-more-later type of fiscal adjustment. Evidently, this does not clash with our finding about the role of fiscal consolidation for successful macroeconomic adjustment: Blanchard and Leigh focus on the short term, while our analysis looks at the medium-term horizon when possible negative effects of fiscal consolidation are likely to be outweighed by positive effects. There is a growing body of empirical literature showing that fiscal consolidation triggers a medium-term adjustment process, typically via the labor market, which has a positive impact on a country's competitiveness and, ultimately, its aggregate level of economic activity; see Alesina and Perotti (1995) for an early contribution to this field, as well as were Hernandez de Cos and Moral-Benito (2014) and Lamo et al. (2014) for recent and specific evidence of this labor market or competitiveness channel.

There is also a vivid discussion on the level at which, if at all, public debt impacts negatively on growth (Reinhart and Rogoff, 2010; Herndon et al., 2013). In our framework, we both require a positive association with growth and material reduction of debt to consider the adjustment process a success, and can, therefore, only include the initial level of debt among our explanatory variables to avoid spurious correlations. We find only a small and not significant negative effect of the debt-to-GDP ratio at program start in our parsimonious specification.

Real GDP growth at program start was positively associated with successful adjustment episodes, which simply and intuitively suggests that adjustment episodes where growth had already returned at program inception had a higher probability of success.

The recent crisis shed light on the role of the financial system during adjustment episodes, with emerging conclusions that banking crises are typically associated with slower and more protracted recoveries. Therefore, we would expect that a banking crisis affects the outcome of an adjustment episode in a negative way. However, and in contrast to existing research, in our regressions the corresponding dummy variable is estimated to exert a positive effect (column (3)). A closer look at the banking crises identified by Laeven and Valencia (2012) however show that while the effects on GDP growth and public debt are typically negative, they vary widely. One possible explanation is that the gravity of initial conditions amplifies political awareness: the worse the starting position, the easier it is for policy makers to table and agree on necessary measures. Such a link between initial conditions and political determination is corroborated by studies on fiscal adjustment (Barrios et al., 2010; Larch and Turrini, 2011). Moreover, banking crisis may weigh on the adjustment only in instances when they lead to a protracted lack of credit that the recovery is hurt (Abiad et al., 2011; Calvo et al., 2006).

We therefore included a credit crunch dummy taking on the value one if real credit growth is flat or negative for two years during the period $[T;T+2]$. The results in column (4) show that a credit crunch has a significantly negative influence on the outcome which is in line with a priori expectations. This again suggests that hard work, i.e. sufficient repair of the financial sector after banking crisis, pays off in terms of a higher likelihood of a successful adjustment. While we do not measure financial sector repair directly, empirical evidence shows that an impaired banking sector significantly weighs on a country's macroeconomic performance (e.g. Nkusu, 2011). Therefore, more active and effective policies aimed at restoring credit growth are conducive to a successful adjustment.

Turning to external variables, we find that external demand (average real world GDP growth for the period $[T+1;T+5]$) had a strong positive association with success (column (2)). This is in line with expectations as increasing demand for export goods is certainly supportive for economic growth and may also help cushion negative effects of a decline in domestic demand on the back of fiscal retrenchment. To underpin this hypothesis from an econometric perspective, openness was added to the model as well with results reflected in column (6). The positive coefficient suggests that the chance of a successful exit from an IMF adjustment program increases with the degree of openness, again as expected.

A more flexible exchange rate regime is typically found to be helpful for economic adjustment through its favorable price effects on export goods, which is also confirmed by our model in column (5). However, currency flexibility, or more specifically depreciation, may also have unfavorable effects. A high degree of pass-through to import prices may partly offset the gain resulting from relatively cheaper export goods relative to the rest of the world.¹⁰ If debt is denominated in foreign currency, a depreciation of the home currency leads to higher debt servicing costs.¹¹ We included the percentage change of the nominal effective exchange rate (NEER) to investigate the relative importance of these channels, and the results in column (8) show us that its effect is significantly positive, suggesting that an appreciation of the home currency is positively associated with successful adjustment. This could suggest that the negative effect of a currency depreciation on the debt servicing costs in the short-run outweighs the possible benefits which would arise from a gain in competitive advantage, but could also be a spurious correlation in the sense that both the resumption of growth and the appreciation of the currency stem from enhanced confidence in the sovereign more generally.

International investors' risk appetite is also likely to matter for successful adjustment, as it could result in different perceptions of countries' creditworthiness over time regardless of their economic fundamentals. We proxy risk appetite with the VIX index as in the existing literature. According to the results reported in column (7) a higher implied volatility – or conversely, lower risk tolerance – is significantly negatively associated with successful adjustment.

A large current account deficit is often seen as an important vulnerability that could be incompatible with successful adjustment, although the expected effects are not clear-cut as discussed earlier.¹² We included the initial position and the adjustment carried out in the current account under the program in the regression, but did not obtain significant results.

Most of our explanatory variables are measured at the onset of the financial assistance program (period T) and should not be affected by subsequent events. At the same time, some of our explanatory variables could potentially be endogenous to an adjustment program. In particular, a forceful implementation of a program could generate confidence effects which

then may spill over to the primary budget balance. To address this possibility we instrument the observed change of the primary budget balance over the change in public debt, the deficit and the current account balance in the years leading up to the crisis.¹³ The current account balance is included because in many cases, even if first incurred by the private sector, in the event of a crisis foreign debt is ‘unloaded’ on the government sector. We implement the instrumental variables using a probit model with clustered errors, where the cross-sectional identifier is specified as the country to allow for intragroup correlation. The results are reported in Table 3.2.

Table 3.2. **Factors conducive to successful adjustment; results from instrumental variables probit regressions**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Primary Balance in T	0.155 (0.110)	0.193*** (0.064)	0.181*** (0.065)	0.240*** (0.050)	0.256*** (0.036)	0.258*** (0.040)	0.246*** (0.036)	0.254*** (0.039)	0.269*** (0.057)
Primary Balance Adjustment	0.280 (0.240)	0.296*** (0.113)	0.227* (0.134)	0.323*** (0.094)	0.310*** (0.103)	0.369*** (0.080)	0.355*** (0.093)	0.363*** (0.091)	0.417*** (0.059)
Public Debt in T	-0.005 (0.008)	-0.006 (0.005)	-0.006 (0.005)	-0.008* (0.004)	-0.006 (0.005)	-0.009** (0.004)	-0.010** (0.004)	-0.010** (0.004)	-0.013*** (0.004)
Real GDP Growth in T	0.079 (0.055)	0.084* (0.044)	0.133*** (0.045)	0.090** (0.042)	0.123*** (0.044)	0.106** (0.050)	0.099** (0.046)	0.098** (0.046)	0.069 (0.055)
World GDP Growth [T+1,T+5]		1.354** (0.563)	1.898*** (0.531)	2.071*** (0.677)	2.400*** (0.695)	2.288** (0.890)	2.485*** (0.913)	2.513*** (0.891)	1.796 (1.300)
Banking Crisis Dummy			1.045*** (0.380)	1.281*** (0.485)	1.280** (0.500)	1.200** (0.500)	1.267** (0.501)	1.358*** (0.499)	1.170** (0.569)
Credit Crunch Dummy				-0.964** (0.390)	-1.061*** (0.368)	-0.902** (0.376)	-0.955** (0.400)	-0.930** (0.383)	-0.656 (0.434)
Exchange Rate Regime					0.086** (0.039)	0.094** (0.042)	0.097** (0.041)	0.108*** (0.042)	0.078 (0.050)
Openness Indicator						0.006** (0.003)	0.008** (0.003)	0.007** (0.003)	0.004 (0.004)
CBOE S&P 500 Volatility Index							-0.025 (0.030)	-0.021 (0.031)	-0.005 (0.035)
NEER Adjustment								0.014 (0.012)	0.018 (0.011)
Current Account Balance in % of GDP in T									-0.011 (0.023)
Adjustment in Current Account Balance									-0.003 (0.052)
No. of Observations	136	136	136	136	136	136	136	136	136

Note: Standard errors in parentheses: p < 0.01, ** p < 0.05, * p < 0.1. For variable definitions see Table 2. T denotes the year of program start.

Reassuringly, there are only two variables, which, while preserving the expected algebraic sign, loose statistical significance in the instrumental variable approach: the indicator gauging global risk appetite and the nominal effective exchange rate. For the rest, the results largely confirm the findings obtained from the simple probit regressions, especially as regards the role played by the starting conditions – both macro and fiscal –, the size of the fiscal adjustment, the external environment and the degree of openness.

The estimated coefficients in Table 3.1 are useful to assess the sign and the statistical significance of the explanatory variables in our model. They do not gauge the marginal impact on the probability of success. Because of the nonlinearity of the underlying probit model, the marginal effect also depends on the values of all explanatory variables. Table 4 shows the average partial effect (APE) and the partial effect at the average (PEA) of each explanatory variable. The impact of average world GDP growth after program start is the

highest while the marginal effect of openness and public debt are the lowest. However, this picture is distorted as the standard deviation differs substantially across explanatory variables. In order to improve comparability, the marginal impact was recalculated by adding one standard deviation to the particular explanatory variable and keeping all other variables at their sample average. The last column in Table 4 shows the respective results. The relative impact of average world GDP growth is still the strongest on the probability of success, nevertheless the differences in the magnitude of the effects are much smaller across variables.¹⁴ These findings underpin the conclusion that the success of an adjustment program is significantly influenced by ‘external help’, that is, the external economic environment prevailing during the program. Yet policy measures that impact on public finances and the financial sector are also important.

Table 4. **Partial effects on the probability of success**

Variable	Mean	Std. Dev.	Min	Max	Average partial effect	Partial effect at the average	Average impact of $dx = \sigma_x$	Impact of $dx = \sigma_x$ at the average
Public Debt in T	53.273	37.407	5.123	270.183	-0.002	-0.003	-0.065	-0.103
Real GDP Growth	1.517	5.429	-16.228	15.600	0.023	0.034	0.117	0.161
Primary Balance in T	0.386	4.724	-19.543	17.423	0.027	0.042	0.123	0.168
Primary Balance Adjustment	0.195	3.639	-17.379	17.573	0.030	0.047	0.107	0.149
World GDP Growth	3.702	0.444	2.909	4.789	0.518	0.791	0.207	0.253
Banking Crisis	0.216	0.413	0.000	1.000	0.265	0.356	0.117	0.161
Credit Crunch	0.386	0.488	0.000	1.000	-0.129	-0.196	-0.062	-0.099
Exchange Rate Regime	7.830	4.439	1.000	15.000	0.022	0.034	0.095	0.134
Openness Indicator	81.952	39.025	14.679	260.632	0.002	0.003	0.069	0.100
VIX - S&P 500 Volatility Index	20.429	6.599	12.372	32.583	-0.010	-0.016	-0.070	-0.111
NEER Change	-1.759	30.580	-87.977	329.152	0.005	0.008	0.150	0.199

Note: For variable definitions see Table 2. T denotes the year of program start. The average partial effect and the partial effect at the average for the binary variables, banking crisis and credit crunch, was obtained by calculating the difference in the predicted probability when altering the value of the particular variable from zero to one. ‘ σ_x ’ is defined as the standard deviation of variable ‘x’. The probability of success across all programmes in our sample based on average values of the explanatory variables in our baseline specification is 66.4 percent.

Extensions

One factor of interest is whether the degree of imbalances experienced by a country affects the results. We proxy the degree of imbalances with whether the IMF program was disbursing or not, with the hypothesis that smaller adjustment needs meant that the country could continue to finance itself on the market and did not need to draw on official financing. We therefore added a dummy variable reflecting whether disbursements occurred under the program.¹⁵ Results suggest that this does not play a role as the coefficient is slightly negative and does not substantially differ from zero (results see Table A.2.1 in the Appendix). The share of the funds drawn under the program relative to the amount available and the size of the program relative to the country’s economy were also found to be insignificant. The results did not change significantly when the instrumental variables approach was applied (see Table A.2.2 in the Appendix).

We also investigated which types of economic reforms are most conducive to successful adjustment. To ensure a common definition, we identify these reforms by way of the conditionality agreed under the program. Broadly speaking there exist two different subgroups of conditions, quantitative performance criteria (QPC) and structural conditions.¹⁶ QPCs are quantifiable and measurable criteria while structural conditions are often non-quantifiable criteria and consist of policy measures aimed at implementing structural

reforms (e.g. to the labor or product markets) and in general correcting disruptions to the supply side of the economy. First, we assess whether the total amount of criteria per se matter for the chance of success. Results show that the probability of a successful exit is increasing with the overall number of criteria and conditions (see Table A.3.1 in the Appendix). We also included separately the total number of the QPCs and the total number of structural conditions into the model. We found that the impact of both the QPCs and the structural conditions is positive but only the coefficient of the structural conditions is significant. Five years might appear to be a rather short period of time for the assessment of the impact of structural reforms, but we tried to strike a balance between allowing a sufficient time frame for the full effects to be felt while not letting so much time pass that we in fact mainly picked up the effects of other factors. Finally, there are three different types of structural conditions, so called prior actions (formerly: conditions for completion of the review), structural performance criteria and structural benchmarks. We estimated the regression including the QPCs and three different types of structural conditions separately. Results show that only prior actions and structural performance criteria have a statistically significant positive impact on the outcome. The importance of structural reforms is confirmed by the two-stage instrumental variables approach which addresses the possible endogeneity of the fiscal adjustment (see Table A.3.2 in the Appendix). In fact, only structural performance criteria, which typically refer to growth-enhancing policy measures for the medium to long run, preserve their statistical significance.

In addition, to assess the possible impact of the prevailing political situation in a country implementing an IMF-supported adjustment program we tested a number of variables from the World Bank Political Institutions data base. We focused attention on indicators capturing or gauging the political clout of government such as the Herfindahl index, the vote share of the government parties, and the margin of majority. Our prior was that a stronger government ensures a higher degree of political ownership, a stronger implementation and finally a higher probability of success. This prior was not confirmed by our estimates: either the political indicators were not significant and/or had the wrong sign.

Finally, we also tested the possible role played by the degree of economic flexibility. Our prior was that more flexible economies should find it easier to meet our definition of success when going through a crisis. We used the well-known Fraser index of economic freedom as a general proxy for economic flexibility with rather mixed results.¹⁷ The estimated coefficient turns out to be statistically significant only occasionally but is not robust.

Robustness checks

We performed a number of sensitivity checks and found that our results hold up.¹⁸ First, we reran the baseline regression with the modified criteria for success outlined in Section 3. Using the modified criterion for public debt, i.e. changing the relevant horizon for the reduction to occur, and maintaining the original criterion for economic growth did not substantially change the coefficients. When applying both the modified criterion for economic growth, i.e. lowering the bar to 2/3 of average growth, and public debt reduction, we again obtain similar results. Lastly, when using the modified criterion for economic growth and the original criterion for public debt reduction we obtain the same results and all variables are significant.

We also tested the baseline regression using only the 3/4 growth criterion as the dependent variable. The results mainly hold up with the exception that the impact of the adjustment in the nominal effective exchange rate variable is less than one third if compared

with the baseline regression and also turns insignificant which again appears to support the hypothesis on the link between exchange rate flexibility and debt reduction posited earlier.

We re-classified the 15-notch variable of exchange rate flexibility into a binary one (fixed vs. non-fixed exchange rate regime) and found that a fixed exchange rate regime has a negative impact on success which is in line with findings from the baseline model. Throughout our regression analysis we assumed that the public debt-to-GDP ratio enters the regression equation as a linear variable. In order to capture possible non-linear effects linked to a high debt-to-GDP ratio we used squared values and found that the results remain unchanged. We also included a dummy variable for highly indebted countries at program start instead of the debt-to-GDP ratio. The coefficient turned out to be negative, yet it failed to be significant even when varying the cut-off point in the definition of a “highly-indebted country”.

We applied gradual cut-offs in terms of income levels to our sample and found that our results held up, although some variables became insignificant when the sample size shrunk by more than a third. Our results also held up to the exclusion of countries in early stages of post-communism transition and to the exclusion of a specific region as well (e.g. Asia, Latin-America and the Caribbean, non-EU Europe, Europe).

A number of financial programs which only lasted for a rather short period and were succeeded by the next agreement in the following year are included in the sample, which makes it difficult to determine the length of the adjustment episode. We excluded back-to-back programs where the predecessor program was unsuccessful. However, this did not have a significant impact on the regression results in our baseline specification.

We also changed the reference year as a significant part of the adjustment in the primary balance was carried out in the year of the program start. We estimated the baseline model using T-1 (the year before program start) as the reference year for the initial condition with respect to the primary balance and the adjustment carried out, and found no significant difference in the coefficients compared with the baseline model, which again indicates that exiting the program with sound public finances positively contributes to program success. We also redefined the reference year for the program end contingent on in which month in the year the program ended and found that results remain similar.

Comparison with market perceptions of success

A common view of a successful adjustment following a financial assistance program is that the country can again fully finance itself from the markets, without the aegis of an IMF-supported program. To compare this notion of success with our indicator requiring improvement in the growth and debt situation, we define market-based success as a country not requesting another IMF program within a certain time frame.¹⁹ Another advantage of this definition is that market participants should take spill-overs between different government securities into account when making their investment decisions, and therefore this measure of success ought to internalize the cross-country effects of adjustments in different countries to a greater extent than our growth-debt indicator. By contrast, a clear downside of this definition pertains to the question of how sustainable market rates are in the medium to long term. Concretely, market access may be regained at the price of higher yields.

We find that 36 percent (32 percent) of countries did not request a follow-on program within a two (three) year horizon. This means that the success rate for a market-based

indicator is about half of the one using the growth and debt situation, which could be taken as evidence that contagion concerns are prevalent for market participants when assessing the creditworthiness of a sovereign exiting an adjustment episode. When this success rate is used as the dependent variable instead, most of the estimated coefficients still have the expected signs but their magnitude and significance change somewhat compared to the growth-debt criterion. The market-based indicator gives relatively higher weight to the countries' own economic characteristics, i.e. growth at program start, fiscal adjustment and openness. Of the external variables, only the VIX remains significant while trading partner demand (which was found to be a key explanatory variable for the previous indicator) becomes insignificant.

What do our results imply for recently completed programs in Europe?

In this section we use the estimated coefficients to investigate implications for the adjustment programs in Europe which alongside contributions from European lenders also involved IMF assistance. Specifically, we calculate the probability of success for the programs for Ireland launched in 2010, Portugal in 2011, Cyprus in 2013, Romania in 2011 and 2013 and the second adjustment program for Greece of 2012. We do not cover the current Greek program of 2015 because it does not involve a financial contribution of the IMF. We use available values at end-October 2013, including in particular the European Commission autumn forecast.

Naturally, the results need to be treated with substantial caution as the findings of our panel regressions are very likely to miss specific factors conducive to the success or failure of a particular program. For instance, compared to the “average” country in the sample, the European programs (with the exception of Romania) faced a more challenging fiscal and debt situation and lack of exchange rate flexibility. On the other hand, they were outliers in terms of institutional quality, GDP per capita and financial depth, all of which *ex ante* could be expected to facilitate adjustment. Moreover, as mentioned above, the adjustment strategy in the euro area programs aimed to address other issues such as a need to prevent contagion and preserve financial stability, and our indicator cannot assess whether these objectives were met or not.

Our exercise relies to a large extent on projections, which for some variables especially exchange rate developments are surrounded by a high degree of uncertainty. At the same time, estimating the probability of success with past forecast data offers the possibility to compare the predictions of our model with outturns. For programs that started after 2012 we assume no change in the NEER throughout the program and beyond. This assumption seems justified as the NEER does not impact the probability of a success substantially.

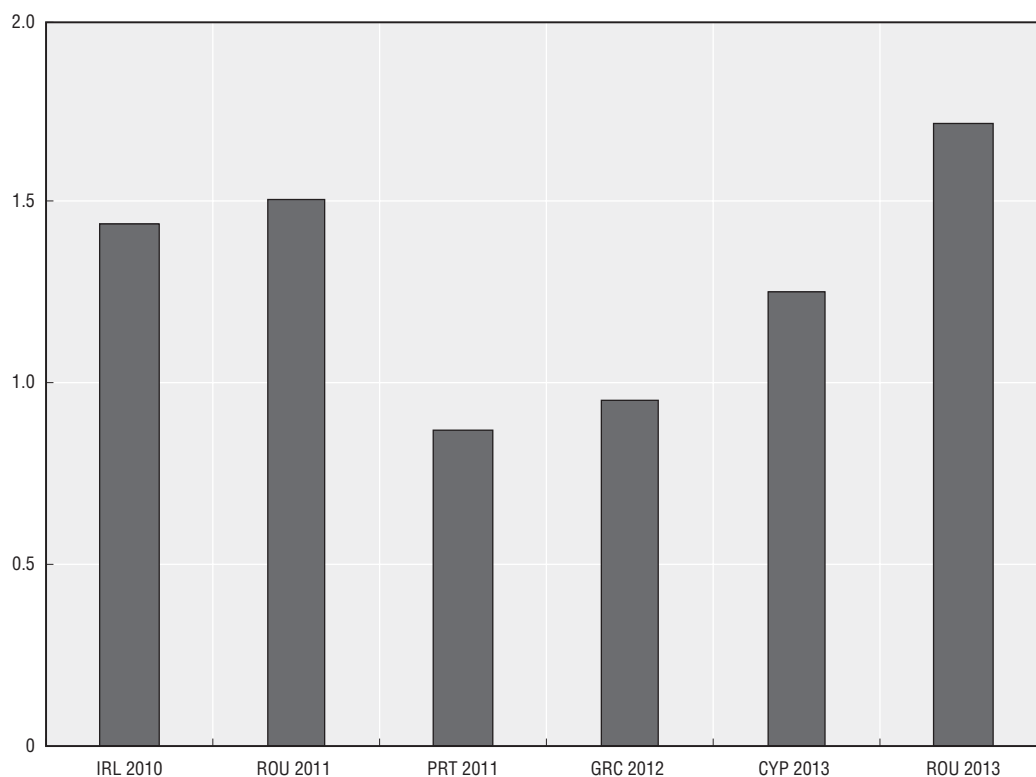
Before turning to the results of our ‘out-of-sample’ assessment, it may be worth stressing that our success indicator may be particularly stringent for countries such as Portugal and Greece which had accumulated a whole array of structural problems, as opposed to Ireland, where problems were instead concentrated in the financial sector. A recovery of growth and a reduction of debt is arguably more difficult to achieve for the former.

From the chart below, we can see that based on information available in autumn 2013 the European programs in all cases reached the average probability of success in the sample and exceeded it substantially for the majority of countries. Ireland benefitted to a large extent from its openness, Romania from its relatively comfortable fiscal situation at the onset of the program, and Cyprus both from its relatively open economy but also from

entering its program at a time of much more robust global growth and lower risk aversion compared the other euro area programs. The second program in Greece had a success probability almost exactly in line with the average in the sample, which must be considered a major achievement given its very challenging fiscal situation at the onset of the crisis and relatively low degree of economic openness. The fact that Greece eventually applied for a third program financed by the ESM, does not invalidate this relatively sanguine assessment. The renewed recourse to financial assistance was to a large extent determined by political factors. Portugal’s success probability was marginally lower, because the country’s growth performance was expected to turn out, and effectively did turn out, to be underwhelming: The country did not benefit from the improving external environment owing to its comparatively low degree of openness of its economy.

Taken together, these findings again underline the importance of taking both domestic policy achievements and the external environment into account when judging a country’s adjustment process. Notably, if the latter is taken into consideration, then the progress under the European programs was on average substantially higher than sometimes argued.

Figure 5. Probability of successful economic adjustment, based on data available at end-October 2013



Note: Conditional probability over unconditional probability. Results obtained using the estimated coefficients in the baseline regression, including structural reforms. IRL – Ireland, ROU – Romania, PRT – Portugal, GRC – Greece, CYP – Cyprus. Source: Authors’ calculations.

5. Concluding remarks

We reviewed more than 170 adjustment episodes, identified by the need to approach the IMF for official assistance, with the aim of pinning down factors that help countries resume positive growth and reduce government debt levels. We found that decisive policy action,

especially faster fiscal adjustment, progress on financial sector repair and structural reforms, contribute significantly and positively to a successful adjustment episode. Regarding the importance of a functioning financial system, we note that a banking crisis per se need not be detrimental for successful adjustment i) as long as it allows for the continued extension of credit to the private sector and ii) because it strengthens political determination to take decisive actions.

We find that initial vulnerabilities in the form of high fiscal imbalances lower the chances of successful adjustment. The effect of exchange rate flexibility is not clear-cut. While flexible exchange rates are found to increase the likelihood of success we also find some evidence indicating that appreciation episodes are conducive to a successful adjustment, which contrasts with the often-made claim that exchange rate depreciation and an export-led recovery are prerequisites for success. Turning to external factors, more trade openness helps, and the probability of successful adjustment is considerably higher if global growth is favorable. Our results suggest that more official financing (which conversely is typically coupled with less fiscal adjustment) does not significantly contribute to success, while more stringent conditionality especially in the structural area appears to exert a significantly positive effect.

Our results have important implications for adjustment processes in the euro area. End 2013, global conditions were forecast to (and actually did) improve compared to the conditions present during the early days of the crisis, that is, when the programs for Greece, Portugal, Ireland and Cyprus were put in place. The very adverse conditions under which these countries undertook their initial adjustment therefore needs to be strongly acknowledged when assessing their progress in restoring growth and debt sustainability. It also means that while more support from external demand materialised for the programs starting later such as Cyprus, it is still imperative to continue fiscal consolidation, and financial sector and structural reforms. Finally, program countries will benefit more from improving external conditions if they are sufficiently open or manage to open up their economy.

Notes

1. The 2012-13 financial sector assistance programme for Spain had a narrower objective and is not considered as an official crisis program for the remainder of this paper. Financing arrangements which give access to official financing but are not monitored by means of *ex-post* conditionality, such as the IMF's Flexible Credit Line, are not included in the analysis as eligibility criteria for such instruments require lack of outright macroeconomic adjustment needs.
2. A complete list of programs included in the sample is provided in the Appendix. There were more than 200 GRA-supported programs put in place since 1993; our data sample shrank somewhat due to unavailability of data for some variables of interest for certain countries. The selection of GRA-supported programs means that low-income-economies with no access to international financial markets were excluded from the sample. Programs that started in 2011 or afterwards are excluded as we would have to partly rely on projected variables which could bias the results. Programs not completed until end-August 2013 were excluded on corresponding grounds.
3. [www.imf.org/external/pubs/ft/sd/index.asp?decision=14064-\(08/18\)](http://www.imf.org/external/pubs/ft/sd/index.asp?decision=14064-(08/18)).
4. We follow the same approach as in IMF (2012).
5. In approximately 40 per cent of the sample the General Government Debt to GDP ratio ranged above 50 per cent at program start and declined on average from above 85 per cent to below 75 per cent between T and T+5.
6. In addition, several successor states of the former Soviet Union or of the former Socialist Federal Republic of Yugoslavia did not even exist before the program was agreed and for some countries the real GDP series is far too volatile.

7. Moreover, a continuous measure would have clashed with the relatively large share of countries transitioning from planned to market economies during the 1990s, as they quite frequently experienced years of extremely high or low growth. Another minor problem, partly addressed already above, arises from the fact that for 13 programmes real GDP growth is available only for a slightly shorter period than five years before programme start. However, since all these countries suffered from negative average real GDP growth rates during the year, it seems plausible to allocate them to the lowest growth criterion bar. The sole exception is Bosnia and Herzegovina which recorded immense economic growth after the end of the civil war; therefore we will assume that average prior to the program was above 6 per cent, leading to a growth criterion of 4.5 per cent on average after program start.
8. In our sample there are 19 programs where a default or a debt restructuring occurred during the period $[T, T+3]$. In seven of those cases debt restructurings were part of program design. It is also worth noting that for all but a few of the remaining cases, the country also did not meet the growth criterion, and as a result only a handful of programs were considered failures on the base of a default alone.
9. The improvement of the primary balance actually serves as a proxy of fiscal adjustment as neither comparable estimates of the structural budget balance nor narrative estimates of discretionary fiscal policy are available for the large set of countries used. While potential output can easily be calculated with for instance an HP-filter, budgetary sensitivities are not readily available beyond OECD members. Assuming that government revenues have an overall elasticity equal to one, a possible guesstimate of the budgetary sensitivity is the government expenditure-to-GDP ratio which is available for most countries. However, this approach involves serious simplifications which may not be warranted, especially in cases where countries lose access to market funding.
10. The extent of the gain in competitiveness as a result of currency devaluation depends largely on the share of import goods necessary for the production of export goods and the added value in the export sector.
11. A possible criticism is that foreign currency denominated debt was mostly issued in USD and the nominal effective exchange rate is the exchange rate vis-à-vis a basket in which the weight of the USD might be small. Yet, under no arbitrage assumptions a depreciation of the home currency vis-à-vis other currencies would result in a depreciation versus the USD as well if keeping the relative price of the currencies of the trading partners constant versus the USD. Therefore on average the NEER should also reflect exchange rate movements versus the USD.
12. An improving current account balance also signals capital outflows, while an economic recovery in emerging markets usually goes along with capital inflows. Exchange rate effects on the interest bill might further obscure clear results.
13. Specifically, we use the change in public debt in the five years leading up to the crisis, while the deficit and the current account balance are measured as the values observed two years prior to the crisis episode.
14. The effect of binary variables needs to be interpreted with caution when assessing the variation by one standard deviation.
15. The number of non-disbursing adjustment programs is 50.
16. The IMF streamlined the number of quantitative performance criteria in 2002 leading to an overall reduction in the number of quantitative performance criteria. Therefore, the QPC series suffers from a structural break which may also result in lack of significance.
17. www.freetheworld.com/release.html.
18. Estimation results are available from the authors upon request.
19. An alternative (but more resource-consuming) option would have been to look at the conditions, especially currency, yields, coupons and maturity, at which a country could issue government bonds.
20. This does not turn out to be an issue as all programs started in 2011 or afterwards are excluded from the sample.
21. The nominal values were calculated from the credit advanced to private sector expressed as percentage share nominal GDP by multiplying with the nominal GDP.

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Appendix

Data sources and definitions

1. **IMF GRA-supported adjustment programs start date and end date:** Source: IMF Monitoring of Fund Arrangements, IMF Annual Reports.
2. **Real GDP growth:** Annual percentage change. Source: IMF World Economic Outlook Database; for a handful observations the data set was complemented from IMF country reports.
3. **Public Debt:** Gross debt of general government or of the public sector broadest coverage available, in percent of GDP. Source: IMF World Economic Outlook Database, IMF Historical Public Debt Database Fall 2012 Vintage, IMF Monitoring of Fund Arrangements, IMF country reports, OECD Economic Outlook, World Bank, Eurostat, Republic of Croatia Ministry of Finance, Ministry of Finance Romania.
4. **Fiscal Balance:** of general government or the public sector broadest coverage available, in percent of GDP. The basic source is the IMF World Economic Outlook Database and missing data was complemented from other sources (see below). Source: IMF World Economic Outlook Database, IMF country reports, IMF (2003), OECD Economic Outlook, World Bank (2002), Peru Reserve Bank, Republic of Turkey Prime Ministry Undersecretariat of Treasury, AMECO, Eurostat.
5. **Primary Balance:** of general government or of the public sector broadest coverage available, in percent of GDP. The basic source is the IMF World Economic Outlook Database and missing data was complemented from other sources (see below). Source: IMF World Economic Outlook Database, IMF country reports, IMF (2003), OECD Economic Outlook, World Bank (2002), Peru Reserve Bank, Republic of Turkey Prime Ministry Undersecretariat of Treasury, AMECO, Eurostat, Bosnia and Herzegovina National Bank Annual Reports, Inter-American Development Bank, Central Bank of Indonesia.
6. **Cyclically Adjusted Balance:** Fiscal balance of general government or of the public sector broadest coverage available, adjusted for cyclical components, in percent of GDP. The output gap was estimated with the Hodrick-Prescott filter using $\lambda = 100$.
7. **Cyclically Adjusted Primary Balance:** Primary balance of general government or of the public sector broadest coverage available, adjusted for cyclical components, in percent of GDP. The cyclically adjusted primary balance was obtained by subtracting interest expenditure to the cyclically adjusted balance.
8. **Adjustment in Net Lending, Primary Balance, Cyclically Adjusted Balance, Cyclically Adjusted Primary Balance:** Difference in the value of the variable, respectively, between the value in the year of the program end and in the year of the program start. In case the program ended between the first and eighth month of the relevant year, the value from the year before the year of the program end is taken as the value for the year of the program end. For cases in which the adjustment program lasted only one year, that is the difference between the start year and end year of the program is one, no such adjustment is undertaken.

9. **Real world GDP growth:** Annual percentage change of the real world GDP growth, five year arithmetic average between T+1 and T+5. Source: IMF World Economic Outlook Database.
10. **Banking Crisis:** Dummy variable takes value 1 if a banking crisis was on-going in the year of the programme start, otherwise 0. For banking crises started in 2008 or afterwards no end date is provided in the source data base and these crises are marked as still on-going. Therefore, we assumed that a banking crisis has not ended yet if it started in 2008 or afterwards.²⁰ Source: Laeven and Valencia (2012).
11. **Credit Crunch:** Dummy variable takes value 1 if real credit advanced to private sector recorded negative growth in at least two years between T and T+2, otherwise 0. The annual percentage change in nominal credit advanced to private sector was corrected for inflationary effects by dividing through the relative change in the GDP deflator.²¹ Source: World Bank, IMF country reports, National Bank of Romania (credit advanced to private sector); IMF World Economic Outlook Database, IMF country reports (nominal GDP and GDP deflator).
12. **Exchange Rate Regimes:** Exchange Rate Regime Reinhart and Rogoff Classification, annual fine classification. Source: Carmen M. Reinhart Author Website, www.carmenreinhardt.com.
13. **Openness indicator:** Exports plus imports divided by GDP at current prices. Source: Penn World Table 7.1.
14. **VIX:** Chicago Board of Exchange S&P 500 Implied Volatility Index; annual, calculated as the average of the daily “last price” of the index. Source: Bloomberg.
15. **Nominal Effective Exchange Rate (NEER) change:** Percentage change in the nominal effective exchange rate: values in the year of program end and program start were compared. In case the program ended between the first and eighth month of the relevant year, the value from the year before the year of the program end is taken as the value for the year of the program end. For cases in which the adjustment program lasted only one year, that is the difference between the start year and end year of the program is one, no such adjustment is undertaken. Source: Darvas (2012).
16. **Current Account Balance:** in percent of GDP in USD. Source: IMF World Economic Outlook Database; for a handful observations the data set was complemented from IMF country reports.
17. **Program Conditionality:** Source: IMF Monitoring of Fund Arrangements.
18. **Program Size, Country Quota and Disbursement:** Source: IMF Monitoring of Fund Arrangements, IMF Annual Reports, IMF Financial Data Query Tool, IMF Lending Arrangements.
19. **Consumer Price Index:** Source: IMF World Economic Outlook.
20. **Real Effective Exchange Rate:** Source: Darvas (2012).
21. **Nominal Exchange Rate:** Source: IMF International Financial Statistics; complemented from IMF World Economic Outlook by calculating the ratio of GDP measured in USD and home currency.

Table A.1.1. **Sample of IMF assistance programmes**

Country name	ISO	Year
Algeria	DZA	1994, 1995
Angola	AGO	2009
Argentina	ARG	1992, 1996, 1998, 2000, 2003
Armenia	ARM	1995, 2009
Azerbaijan	AZE	1995, 1996
Belarus	BLR	1995, 2009
Bolivia	BOL	2003
Bosnia and Herzegovina	BIH	1998, 2002, 2009
Brazil	BRA	1998, 2001, 2002
Bulgaria	BGR	1994, 1996, 1997, 1998, 2002, 2004
Colombia	COL	1999, 2003, 2005
Costa Rica	CRI	1993, 1995, 2009
Croatia	HRV	1994, 1997, 2001, 2003, 2004
Czech Republic	CZE	1993
Dominica	DMA	2002
Dominican Republic	DOM	1993, 2003, 2005, 2009
Ecuador	ECU	1994, 2000, 2003
El Salvador	SLV	1993, 1995, 1997, 1998, 2009, 2010
Estonia	EST	1993, 1995, 1996, 1997, 2000
FYR Macedonia	MKD	1995, 2000, 2003, 2005
Gabon	GAB	1994, 1995, 2000, 2004, 2007
Georgia	GEO	1995, 2008
Greece	GRC	2010
Guatemala	GTM	2002, 2003, 2009
Honduras	HND	2008, 2010
Hungary	HUN	1993, 1996, 2008
Iceland	ISL	2008
Indonesia	IDN	1997, 1998, 2000
Jamaica	JAM	1992, 2010
Jordan	JOR	1994, 1996, 1999, 2002
Kazakhstan	KAZ	1994, 1995, 1996, 1999
Korea	KOR	1997
Latvia	LVA	1993, 1995, 1996, 1997, 1999, 2001, 2008
Lesotho	LSO	1994, 1995, 1996
Lithuania	LTU	1993, 1994, 2000, 2001
Maldives	MDV	2009
Mexico	MEX	1995, 1999
Moldova	MDA	1993, 1995, 1996, 2010
Mongolia	MNG	2009
Pakistan	PAK	1993, 1994, 1995, 1997, 2000, 2008
Panama	PAN	1995, 1997, 2000
Papua New Guinea	PNG	1995, 2000
Paraguay	PRY	2003, 2006
Peru	PER	1993, 1996, 1999, 2001, 2002, 2004, 2007
Philippines	PHL	1994, 1998
Poland	POL	1993, 1994
Republic of Congo	COG	1994
Romania	ROU	1994, 1997, 1999, 2001, 2004, 2009
Russia	RUS	1995, 1996, 1999
Serbia	SRB	2001, 2002, 2009
Seychelles	SYC	2008
Slovak Republic	SVK	1994
Sri Lanka	LKA	2001, 2009
Thailand	THA	1997

Table A.1.1. **Sample of IMF assistance programmes (cont.)**

Country name	ISO	Year
Turkey	TUR	1994, 1999, 2002, 2005
Ukraine	UKR	1995, 1996, 1997, 1998, 2004, 2008, 2010
Uruguay	URY	1996, 1997, 1999, 2000, 2002, 2005
Venezuela	VEN	1996
Vietnam	VNM	1993

Source: IMF Monitoring of Fund Arrangements, IMF Annual Reports.

 Table A.2.1. **Extensions of baseline model; disbursement, program size and draw down under program**

	(1)	(2)	(3)	(4)
Primary Balance in T	0.112*** (0.036)	0.118*** (0.036)	0.119*** (0.037)	0.117*** (0.036)
Primary Balance Adjustment	0.126*** (0.042)	0.129*** (0.043)	0.130*** (0.043)	0.131*** (0.043)
Public Debt in T	-0.007* (0.004)	-0.007** (0.003)	-0.007** (0.004)	-0.009** (0.004)
Real GDP Growth in T	0.092*** (0.027)	0.096*** (0.027)	0.098*** (0.027)	0.099*** (0.027)
World GDP Growth [T+1,T+5]	2.165*** (0.422)	2.210*** (0.428)	2.229*** (0.429)	2.174*** (0.422)
Banking Crisis Dummy	1.245*** (0.358)	1.204*** (0.370)	1.195*** (0.367)	1.246*** (0.364)
Credit Crunch Dummy	-0.526** (0.259)	-0.552** (0.261)	-0.560** (0.263)	-0.536** (0.261)
Exchange Rate Regime	0.096*** (0.036)	0.097*** (0.035)	0.098*** (0.035)	0.087** (0.035)
Openness Indicator	0.008** (0.004)	0.008** (0.004)	0.008** (0.004)	0.008** (0.004)
CBOE S&P 500 Volatility Index	-0.043** (0.020)	-0.048** (0.021)	-0.050** (0.021)	-0.048** (0.020)
NEER adjustment	0.022*** (0.008)	0.023*** (0.008)	0.024*** (0.008)	0.021*** (0.008)
Disbursement	-0.123 (0.318)			
Programme Size to IMF Quota		0.019 (0.035)		
Amount Drawn to IMF Quota			0.042 (0.045)	
Amount Drawn to Programme Size				0.387 (0.355)
No. of Observations	176	176	176	176

Note: Standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. For variable definitions see Table 2. T denotes the year of program start. Dependent variable: program success indicator (binary) using baseline definition from Section 2.

Table A.2.2. **Extensions of baseline model; instrumental variables approach; disbursement, program size and draw down under program**

	(1)	(2)	(3)	(4)
Primary Balance in T	0.268*** (0.041)	0.257*** (0.041)	0.255*** (0.040)	0.255*** (0.037)
Primary Balance adjustment	0.375*** (0.091)	0.364*** (0.090)	0.361*** (0.091)	0.365*** (0.091)
Public Debt in T	-0.008 (0.005)	-0.010** (0.004)	-0.010** (0.004)	-0.010** (0.005)
Real GDP Growth in T	0.092* (0.051)	0.098** (0.046)	0.099** (0.045)	0.097** (0.046)
World GDP Growth [T+1,T+5]	2.534*** (0.980)	2.513*** (0.887)	2.520*** (0.878)	2.514*** (0.892)
Banking Crisis Dummy	1.408*** (0.540)	1.331*** (0.503)	1.347*** (0.496)	1.363*** (0.500)
Credit Crunch Dummy	-0.946** (0.393)	-0.929** (0.383)	-0.925** (0.381)	-0.936** (0.390)
Exchange Rate Regime	0.118** (0.051)	0.110*** (0.042)	0.110*** (0.041)	0.109** (0.043)
Openness Indicator	0.006* (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)
CBOE S&P 500 Volatility Index	-0.014 (0.029)	-0.023 (0.032)	-0.023 (0.033)	-0.020 (0.031)
NEER adjustment	0.013 (0.012)	0.016 (0.010)	0.016 (0.010)	0.013 (0.012)
Disbursement	-0.439 (0.340)			
Programme Size to IMF Quota		0.017 (0.027)		
Amount Drawn to IMF Quota			0.024 (0.035)	
Amount Drawn to Programme Size				-0.055 (0.380)
No. of Observations	136	136	136	136

Note: Standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. For variable definitions see Table 2. T denotes the year of program start. Dependent variable: program success indicator (binary) using baseline definition from Section 2.

Table A.3.1. **Extensions to baseline model; program conditionality**

	(1)	(2)	(3)
Primary Balance in T	0.109*** (0.037)	0.109*** (0.037)	0.108*** (0.038)
Primary Balance Adjustment	0.122*** (0.042)	0.121*** (0.043)	0.130*** (0.042)
Public Debt in T	-0.007** (0.004)	-0.007** (0.004)	-0.007** (0.004)
Real GDP Growth in T	0.095*** (0.027)	0.095*** (0.027)	0.094*** (0.027)
World GDP Growth [T+1,T+5]	2.220*** (0.436)	2.217*** (0.437)	2.301*** (0.467)
Banking Crisis Dummy	1.208*** (0.367)	1.206*** (0.366)	1.208*** (0.380)
Credit Crunch Dummy	-0.577** (0.265)	-0.571** (0.266)	-0.553** (0.270)
Exchange Rate Regime	0.094** (0.037)	0.095** (0.037)	0.109*** (0.038)
Openness Indicator	0.009** (0.004)	0.009** (0.004)	0.009** (0.004)
CBOE S&P 500 Volatility Index	-0.057*** (0.021)	-0.059** (0.023)	-0.062** (0.024)
NEER Adjustment	0.025*** (0.008)	0.024*** (0.008)	0.026*** (0.009)
All Conditions	0.014** (0.006)		
Structural Conditions		0.015** (0.006)	
Quantitative Performance Criteria		0.009 (0.031)	-0.009 (0.034)
Prior Action/Necessary for Compliance			0.023* (0.013)
Structural Performance Criteria			0.074* (0.041)
Structural Benchmarks			0.001 (0.011)
No. of Observations	176	176	176

Note: Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. For variable definitions see Table 2. T denotes the year of program start. Dependent variable: program success indicator (binary) using baseline definition from Section 2.

Table A.3.2. **Extensions to baseline model; instrumental variables approach; program conditionality**

	(1)	(2)	(3)
Primary Balance in T	0.242*** (0.040)	0.235*** (0.041)	0.237*** (0.053)
Primary Balance adjustment	0.377*** (0.075)	0.362*** (0.085)	0.351** (0.139)
Public Debt in T	-0.011*** (0.004)	-0.011** (0.004)	-0.010** (0.005)
Real GDP Growth in T	0.092* (0.050)	0.094* (0.048)	0.095* (0.051)
World GDP Growth [T+1,T+5]	2.370** (0.966)	2.433** (0.950)	2.846*** (0.911)
Banking Crisis Dummy	1.259*** (0.452)	1.273*** (0.446)	1.359*** (0.457)
Credit Crunch Dummy	-0.823** (0.361)	-0.817** (0.367)	-0.975** (0.395)
Exchange Rate Regime	0.117** (0.046)	0.123*** (0.046)	0.142*** (0.046)
Openness Indicator	0.009** (0.004)	0.009** (0.004)	0.009* (0.005)
CBOE S&P 500 Volatility Index	-0.032 (0.035)	-0.042 (0.039)	-0.045 (0.044)
NEER adjustment	0.018* (0.011)	0.017 (0.011)	0.016 (0.011)
All Conditions	0.011 (0.008)		
Structural Conditions		0.015 (0.010)	
Quantitative Performance Criteria		-0.012 (0.026)	-0.039 (0.036)
Prior Action/Necessary for Compliance			0.025 (0.018)
Structural Performance Criteria			0.077** (0.037)
Structural Benchmarks			-0.004 (0.017)
Observations	136	136	136

Note: Standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. For variable definitions see Table 2. T denotes the year of program start. Dependent variable: program success indicator (binary) using baseline definition from Section 2.



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