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FINANCIAL MARKETS' BEHAVIOR AROUND EPISODES OF LARGE CHANGES IN THE FISCAL STANCE

by Silvia Ardagna

EUROPEAN CENTRAL BANK

WORKING PAPER SERIES

NO. 390 / SEPTEMBER 2004

FINANCIAL MARKETS' BEHAVIOR AROUND EPISODES OF LARGE CHANGES IN THE FISCAL STANCE [1]

by Silvia Ardagna [2]

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Abstract

Using a panel of OECD countries from 1960 to 2002, this paper shows that financial markets value fiscal discipline. Interest rates, particularly those of long-term government bonds, decrease when countries' fiscal position improves and increase around periods of budget deteriorations. Stock market prices surge around times of substantial fiscal tightening and plunge in periods of very loose fiscal policy. In addition, the paper shows that results depend on countries' initial fiscal conditions and on the type of fiscal consolidations. Fiscal adjustments that occur in country-years with high levels of government deficit, that are implemented by cutting government spending, and that generate a permanent and substantial decrease in government debt are associated with larger reductions in interest rates and increases in stock market prices.

Keywords: Fiscal stabilizations, fiscal expansions, interest rates, stock market prices.

JEL classification: E62, E44, H62.

Non-technical summary

This paper investigates empirically the behavior of government and corporate bonds interest rates, of the LIBOR, and of stock market prices in times of large changes in the fiscal stance. In the last forty years, periods of large fiscal expansions alternated with years of sharp fiscal contractions in all OECD countries. These episodes have been associated with a variety of macroeconomic outcomes and have attracted the interest of macroeconomists since the early nineties. Several papers have studied the response of private consumption, private investment, and GDP growth to substantial changes in the government budget. Instead, the reaction of financial markets around episodes of large fiscal contractions and expansions has been overlooked. The purpose of this paper is to shed more light on the effect of fiscal policy on financial variables.

The methodology follows an empirical approach similar to the one used by Chari and Henry (2002) and by Henry (2000) and (2002) to study the effect of financial liberalization and disinflation programs on stock markets. The paper identifies periods of large fiscal contractions and expansions in a panel of OECD countries from 1960 to 2002 and focuses on changes in interest rates and stock market prices from before to after the periods of large changes in fiscal policy.

The paper begins by investigating the relation between interest rates, stock market data and the stance of fiscal policy by regressing the nominal and the real 10-year government bonds interest rate, the nominal and the real 3-month Treasury bills interest rate, the discount rate, the LIBOR, the corporate bonds' interest rate, the log of the MSCI share price index, and the MSCI share price index growth rate on a set of dummy variables capturing the time distance from the episodes of fiscal contractions or fiscal expansions.

Results suggest that the cost of financing the government debt and the borrowing costs for consumers and firms are sensitive to the stance of fiscal policy. Sharp changes in the government primary balance-to-GDP ratio have the largest and most significant impact on long-term interest rates of government bonds. Interest rates of 10-year government bonds decrease, on average, by 124 basis points around episodes of fiscal consolidations and increase by 162 basis points during periods of loose fiscal policy.

Fiscal consolidations and expansions also affect interest rates of 3-months Treasury bills and interest rates, the LIBOR and an average of the corporate bond interest rate. Stock market prices increase when countries' fiscal position improves and decrease during periods of budget deteriorations. In summary, financial markets seem to welcome fiscal contractions and to punish governments that implement lax fiscal policies. Moreover, the effects seem to be anticipated and to persist over time.

The paper, then, extends the analysis to account for countries' initial fiscal conditions, characteristics of fiscal consolidations and expansions, macroeconomic conditions, other economic policies, and future fiscal policy conditions by using a reparametrized version of the general models. There is evidence that the effects of fiscal consolidations depend on countries' initial fiscal position and on the nature of fiscal contractions. Fiscal adjustments that occur in country-years with high levels of government deficit, that are implemented by cutting government spending, and that generate a permanent and substantial decrease in government debt are associated with larger reductions in interest rates and increases in stock market prices. Around periods of fiscal expansions, instead, the interest rates of 10-year government bonds and of corporate bonds increase and stock market prices decrease regardless of countries' initial fiscal conditions. Finally, the conclusions hold to controlling for monetary policy, financial liberalization reforms and the degree of international integration of capital markets.

This paper contributes to the existing literature along several lines. First, it documents the behavior of financial markets around episodes of large changes in the fiscal stance. Second, it provides more evidence on the impact of fiscal policy shocks on interest rates. Finally, it helps explaining why some fiscal consolidations (expansions) have been associated with economic booms (recessions) even in the very short-run, while others have not. Conclusions support two non-mutually exclusive views that have been proposed in the literature. One highlights the role played by the composition of fiscal adjustments and contractions. The other suggests that agents' perception about the impact of current fiscal policy on the future path of government debt is important to explain the effect of large changes in the fiscal stance on the macroeconomy.

1 Introduction

This paper investigates empirically the behavior of government and corporate bonds interest rates, of the LIBOR, and of stock market prices in times of large changes in the fiscal stance. In the last forty years, periods of large fiscal expansions alternated with years of sharp fiscal contractions in all OECD countries. These episodes have been associated with a variety of macroeconomic outcomes and have attracted the interest of macroeconomists since the early nineties. Several papers have studied the response of private consumption, private investment, and GDP growth to substantial changes in the government budget. Instead, the reaction of financial markets around episodes of large fiscal contractions and expansions has been overlooked.[1]

The purpose of this paper is to shed more light on the effect of fiscal policy on financial variables. In particular, the paper asks several questions: (i) do increases/decreases of the budget deficit affect financial markets in opposite way? (ii) do countries' initial levels of government deficit and public debt matter for the reaction of financial markets to fiscal shocks? (iii) do financial markets care about which items of the government budget change? (iv) what role do macroeconomic conditions and other economic policies play? (v) do financial markets react in anticipation of more/less favorable fiscal conditions in the future?

To answer these questions, the paper follows an empirical approach similar to the one used by Chari and Henry (2002) and by Henry (2000) and (2002) to study the effect of financial liberalization and disinflation programs on stock markets. The paper identifies periods of large fiscal contractions and expansions in a panel of OECD countries from 1960 to 2002 and focuses on changes in interest rates and stock market prices from before to after the periods of large changes in fiscal policy. Results suggest that financial markets value fiscal discipline. Sharp changes in the stance of fiscal policy have the largest and most significant impact on long-

[1] See, for example, Alesina and Perotti (1997), Alesina and Ardagna (1998), Ardagna (2004), Giavazzi and Pagano (1990), Giavazzi, Jappelli and Pagano (2000), and McDermot and Wescott (1996) for contributions on large fiscal contractions and expansions and the macroeconomy. See Balduzzi, Corsetti, and Foresi (1997) for a model on the slope of the yield-curve around periods of large fiscal contractions.

term interest rates of government bonds. Interest rates of 10-year government bonds decrease, on average, by 124 basis points around episodes of fiscal consolidations and increase by 162 basis points during periods of loose fiscal policy. Fiscal consolidations and expansions also affect interest rates of 3-months Treasury bills and interest rates measuring borrowing costs for consumers and firms, but results are less robust to specifications' changes. Stock market prices increase when countries' fiscal position improves and decrease during periods of budget deteriorations.

There is also evidence that the effects of fiscal consolidations depend on countries' initial fiscal position and on the nature of fiscal contractions. Fiscal adjustments that occur in country-years with high levels of government deficit, that are implemented by cutting government spending, and that generate a permanent and substantial decrease in government debt are associated with larger reductions in interest rates and increases in stock market prices. Around periods of fiscal expansions, instead, the interest rates of 10-year government bonds and of corporate bonds increase and stock market prices decrease regardless of countries' initial fiscal conditions.

The contribution of this paper to the existing literature goes beyond documenting the behavior of financial markets around episodes of large changes in the fiscal stance. First, the paper provides more evidence on the impact of fiscal policy shocks on interest rates. For many years, the literature has reached inconclusive evidence.[2] Recently, Canzoneri, Cumby and Diba (2002), Engen and Hubbard (2004), and Laubach (2003) find that interest rates of government bonds increase (decrease) in response to expansionary (contractionary) fiscal shocks in the US. Tavares and Valkanov (2003) show that increases in tax receipts lead to a decrease in stock returns as well as government bond and corporate bond returns, while increases in government spending have a positive but not statistically significant impact on all returns. Ardagna, Caselli and Lane (2004) find

[2]See, for example, Barro (1987), Barro and Sala-i-Martin (1990), Blanchard and Summers (1984), Evans (1985) and (1987), Hoelscher (1986), Miller and Russek (1991) and (1996), Orr et al. (1995), Plosser (1987), and Reinhart and Sack (2000). See, also, Bernoth et al. (2003), and Codogno et al. (2003) for contributions on the determinants of yield differentials in EU countries, and Barth et al. (1991) and Gale and Orszag (2002) for a comprehensive review of the literature.

results along the same lines in a panel of OECD countries and provide evidence that the response of long-term interest rates to fiscal shocks is nonlinear. Because financial markets' reaction to large fiscal consolidations and expansions is likely to be particularly sizeable, this paper can more easily disentangle the effect of fiscal shocks on interest rates by concentrating only on episodes of large changes in the stance of fiscal policy.

Second, this paper focus not only on interest rates of governments' bonds, (as most of the contributions in the literature), but also on interest rates charged to consumers and firms and on stock market prices. Finally, this paper helps explaining why some fiscal consolidations (expansions) have been associated with economic booms (recessions) even in the very short-run, while others have not. In fact, there are several channels through which fiscal shocks can be transmitted to the macroeconomy via financial markets. A part from the effect of fiscal policy on interest rates in a standard IS-LM model, agents' perception of the impact of current fiscal policy on the future path of government debt can be important. If, for example, market participants believe that a fiscal stabilization permanently reduces the stock of public debt and, hence, avoids a default on government bonds, they can ask for a lower risk premium and interest rates decline. This can lead to an increase of private demand components sensitive to interest rates and to an economic boom.

The rest of the paper is organized as follows. Section 2 presents the data and describes the methodology used to identify episodes of fiscal contractions and fiscal expansions. Section 3 investigates the relation between large fiscal contractions and expansions, interest rates and stock market prices and discusses the results. Section 4 extends the analysis of the benchmark models to account for countries' initial fiscal conditions, characteristics of fiscal consolidations and expansions, macroeconomic conditions, other economic policies, and future fiscal policy conditions. The last section concludes.

2 Data, methodological issues and descriptive findings

2.1 Data

The paper uses yearly data on OECD countries covering a maximum time span from 1960 to 2002. The countries included in the sample are: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Spain, Sweden, the United Kingdom, and the United States. All fiscal and macroeconomic data are from the OECD Economic Outlook no. 73, June 2003. Data on financial variables are from various sources. Interest rates of 3-month Treasury bills, of 10-year government bonds and of corporate bonds and data on LIBOR are from Global Financial Data. Data on the discount rate are from the International Financial Statistics database, while stock market data are from Morgan Stanley. Finally, data on indicators of international integration of capital markets have been provided by Milesi-Ferretti and data on financial development are from the World Bank database on Financial Development and Structure.[3]

2.2 Methodological issues

This section addresses the following issues: the use of yearly data rather than of high frequency data; the choice of studying the behavior of financial variables around episodes of sharp changes in the fiscal stance rather than at the time of the announcements of the policy changes; the strategy used to identify such episodes.

In a rational world with no information asymmetries and credibility problems, financial markets should react when new information is released. One should observe movements of financial variables when governments announce fiscal stabilizations or fiscal expansions, not when they implement the policy changes if the latter had been expected. Ideally, one would like to have information on the exact announcement date and study the reaction of financial variables using high frequency data as, for example, Afonso and Strauch (2003) and Knot and de Haan (1999) do. But information on announcements of sharp fiscal policy changes

[3] The database is available on line at http://www.worldbank.org/research/projects/finstructure/database.htm.

are not easy to gather for a panel of sixteen countries over a forty-years period. Moreover, reliable data on fiscal variables are available only at a yearly frequency for such a large panel. Hence, a feasible alternative is to study the response of financial variables to the occurrence of fiscal contractions and fiscal expansions using yearly data, but including in the sample observations from a few years before to a few years after the occurrence of the large decrease/increase in the government budget.

The advantage of this approach is that one lets the data detect the time of the shock and allows for the possibility that financial markets anticipate the policy change and/or react to changes in the fiscal stance over time as more information becomes available. The drawback is that the connection between sharp changes in the fiscal stance and financial variables becomes weaker the further away from the episodes, due to the existence of other factors in different time periods. As a compromise, this paper concentrates on a window from two years before to two years after the occurrence of a fiscal contraction or expansion.[4] Section 4.6 shows that results are robust to changing the length of the window.

Finally, what is the method used to identify episodes of fiscal contractions and expansions? First, I select episodes on the basis of large changes of the cyclically adjusted primary deficit-to-GDP ratio. This leaves aside variations of the fiscal variables induced by business cycle fluctuations or by changes in interest rates. Hence, it prevents that the episodes selected result from economic growth or from monetary policy, rather than from discretionary policy choices of fiscal authorities.[5] Second, in the benchmark specifications, I use the same criteria as in Alesina and Perotti (1997), and Ardagna (2004). Specifically, an episode of large fiscal contraction (expansion) is a period in which the cyclically adjusted primary balance improves (worsens) by at least 1.5 per cent of GDP or a period of two consecutive years in which the cyclically adjusted primary balance improves (worsens) by at least 1 per cent of GDP per year, in both years. This definition selects 92 years of

[4] In the case of multi-years periods of fiscal contractions or fiscal expansions, the samples include data from two years before the first year of the episode of a fiscal contraction or expansion to two years after the last year of the episode.

[5] The cyclical adjustment is based on the method proposed by Blanchard (1993) and follows the application in Alesina and Perotti (1995).

fiscal contractions and 69 years of fiscal expansions. Table A1 in the appendix lists all the periods. The majority of the episodes are well known in the literature and, more importantly, several alternative definitions of fiscal episodes select them. The inclusion of other periods in the samples, instead, depends on the rule used to identify periods of fiscal contractions or expansions. Hence, it is important to check that results do not hinge on the use of the particular rule above. This is done in Section 4.6.

2.3 Descriptive findings

Figure 1 reorganizes the information in Table A1 and shows the distribution of fiscal contractions and fiscal expansions across the countries in the sample and over time. All countries experience at least one year of substantial improvement and worsening of the cyclically adjusted primary balance-to-GDP ratio. The highest percentage of fiscal contractions and fiscal expansions happen in Sweden, where fiscal policy has been substantially tight and lax in 10 and 11 years respectively. Italy and the UK are also among the countries that experienced more swings in fiscal policy, while Japan is in the bottom quartile of the distribution of fiscal contractions and fiscal expansions. Overall, nine countries belong to the same quartile of the distribution of fiscal contractions and fiscal expansions, while only one country, Ireland, shows a substantial higher propensity to implement fiscal contractions than fiscal expansions. During the first ten years of the sample we observe relatively little action in terms of sharp changes in the fiscal stance. Episodes of fiscal expansions dominate the seventies. Periods of fiscal contractions are relatively more frequent in the eighties and nineties. In the most recent years, the stance of fiscal policy has turned into expansionary again.[6]

Figure 2 shows the average value of interest rates of 3-month Treasury bills, of 10-year government bonds and of corporate bonds, and the average value of the discount rate and LIBOR across episodes of fiscal contractions and fiscal expansions. Figure 3 focus on the stock market. The x-axis plots time relative to the

[6]Note that the trends in Figure 1 reflect changes in the discretionary part of fiscal policy. In fact, the change in the primary balance-to-GDP ratio has been cyclically adjusted.

occurrence of fiscal contractions and expansions. Time T indicates the time at which changes in the fiscal stance occur. Average values of financial variables are shown from time $T-3$ (three years before the fiscal contraction/expansion period) to $T+3$ (three years after). Summary statistics of financial variables are also shown in Table A2 of the appendix.

The top left part of Figure 2 shows that the pattern of the 10-year government bonds interest rate around the time of fiscal contractions is opposite to the one around periods of fiscal expansions. From $T-3$ to $T-2$, interest rates are increasing in both cases. From $T-2$ till $T+2$, instead, the 10-year government bonds interest rate decreases by 111 basis points in episodes of fiscal contractions and increases by 185 basis points in fiscal expansions. In $T+2$, the interest rate is higher in fiscal expansions than in fiscal contractions (8.89% versus 10.55%) even if in $T-2$ the situation was reversed (10% versus 8.70%).

The 3-month Treasury bills interest rate shows a similar pattern. Even though during episodes of fiscal expansions the increase in the rate is not continuous over time, from $T-2$ to $T+2$ we observe an increase of 188 basis points against a decrease of 86 basis points in fiscal contractions.

Next, figure 2 plots the average value of the discount rate. Interestingly, following a sharp increase from $T-3$ to $T-2$ in fiscal expansions, the discount rate is almost identical in the two types of episodes. Moreover, its level and dynamics show less clear differences across fiscal episodes than the 10-year government bonds and the 3-month Treasury bills interest rates do.

The last two charts of Figure 2 plot the LIBOR and the average interest rate of corporate bonds. The LIBOR and the corporate bonds interest rate decrease from $T-2$ to $T+2$ by 167 and 56 basis points respectively during episodes of fiscal contractions and increase by 153 and 185 basis points in fiscal expansions. A more careful look at the charts also reveals that the interest rate of corporate bonds follows more closely the dynamics of the 10-year government bonds interest rates (even though period by period changes are smaller). The pattern of the LIBOR, instead, reflects more the one of the discount rate, especially in fiscal expansions from $T-1$ to $T+1$.

Let's now turn to the stock market. Figure 3 shows the average of the MSCI share price index (expressed in US $ and in logs) and its growth rate. While share prices sharply increase as a fiscal adjustment approaches, they plunge in the proximity of a fiscal expansion. For example, from $T-2$ to $T+2$ the log of the MSCI share price index increases by 6.02 per cent when fiscal policy is tight and decreases by 6.36 per cent when it is lax. The rate of growth of the index is always positive and higher than the one in $T-2$ (equal to 4.71%) during fiscal contractions, but it is negative (except in $T+1$) and substantially lower than the 13.39% growth rate in $T-2$ during fiscal expansions.

In summary, a first look at the data suggests that the cost of financing the government debt and the borrowing costs for consumers and firms are sensitive to the stance of fiscal policy. Financial markets seem to welcome fiscal contractions and to punish governments that implement lax fiscal policies. Moreover, the effects seem to be anticipated and to persist over time. However, by simply looking at the charts, it is not possible to rule out other interpretations.

One alternative story could be that the sharp differences in the pattern of interest rates around fiscal episodes simply reflect differences in the stance of monetary policy if the latter is systematically lax around periods of fiscal adjustments and tight around episodes of fiscal expansions. Looking at the patterns of the 3-month Treasury bills interest rate and of the LIBOR one might be tempted to believe that this story is plausible. However, the dynamics of the discount rate seems to discourage this interpretation. Moreover, the evidence that the 10-year government bonds interest rate and the corporate bonds interest rate continuously decline/increase over time (and do not reflect swings as the short-term rates do) seems to suggest that large changes in fiscal policy can at least affect long-term interest rates.

3 Econometric evidence

3.1 Basic specifications

I begin by investigating the relation between interest rates, stock market data and the stance of fiscal policy by regressing the nominal and the real 10-year government bonds interest rate ($INT10Y$ and $RINT10Y$, respectively), the nominal and the real 3-month Treasury bills interest rate ($INT3M$ and $RINT3M$, respectively),[7] the discount rate ($DISCR$), the LIBOR ($LIBOR$), the corporate bonds' interest rate ($CORP$), the log of the MSCI share price index ($MSCI$), and the MSCI share price index growth rate ($MSCIGR$) on a set of dummy variables capturing the time distance from the episodes of fiscal contractions or fiscal expansions. Specifically, I estimate:

$$Financial_{ijt} = \alpha_i + \beta_1 TIME_{ijT-1} + \beta_2 TIME_{ijT} + \beta_3 TIME_{ijT+1} + \beta_4 TIME_{ijT+2} + \varepsilon_{ijt} \qquad (1)$$

where $Financial$ is one of the variables above, $TIME_{T-j}$ are four dummy variables equal to 1 when $j = -1, 0, 1, 2$ respectively and zero otherwise, α_i captures country fixed effects, i indicates the countries in the sample, t the annual observation, and j the episode of fiscal contraction or expansion. For each episode, the samples include observations from two years before to two years after the fiscal contraction or expansion; hence $t \in [T-2, T+2]$. In equation (1), the coefficients $\beta_1, \beta_2, \beta_3, \beta_4$ measure the change of the left-

[7] One would like to measure $RINT10Y$ as the difference between the 10-year nominal interest rate and expectations of inflation over the next ten years. Inflation's forecasts over such a long-term time period are not available for the panel of countries used here. I follow Orr et al. (1995) and compute trend inflation using the Hodrick-Prescott filter. I apply the filter to each country's inflation rate using quarterly data and a value of λ equal to 1600. I, then, take the average over each year of the trend inflation generated with quarterly data and calculate the 10-year real interest rate at a yearly frequency by subtracting the average of trend inflation to the nominal interest rate. I also start with quarterly data to compute the real 3-month interest rate as the difference between the nominal interest rate of 3-month Treasury bills and the ex-post inflation rate. I, then, average over the year the quarterly data.

hand side variable relatively to its mean at $T-2$. I estimate (1) by OLS and correct the standard errors for heteroskedasticity.[8]

Column 1 of Table 1 shows estimates of the equation for the nominal interest rate of 10-year government bonds. The coefficients of the dummy variables $TIME_{T-j}$ are all negative in the sample of fiscal contractions and positive in the sample of fiscal expansions. The 10-year government bonds interest rate decreases in each period relatively to its value in $T-2$ around times of tight fiscal policy and it increases when governments' fiscal position worsens. The change of the interest rate gets larger as time goes by and, while β_1 and β_2 are not statistically significant, β_3 and β_4 are statistically significant at the 10% and 5% level respectively. $INT10Y$ falls by 124 basis points in fiscal contractions and raises by 162 basis points in fiscal expansions.

Evidence along the same line is in column 2, where the left-hand side variable is the 3-month Treasury bills nominal interest rate. The latter varies by 103 basis points in fiscal stabilizations and by 158 basis points in fiscal expansions from $T-2$ to $T+2$. However, at no time horizon the fall in $INT3M$ is statistically significant in the sample of fiscal adjustments, while only β_4 is statistically significant at the 10% level during episodes of fiscal expansions. When we look at the real interest rates of the 10-year government bonds and of the 3-month Treasury bills, the picture is very similar. However, the coefficients of the dummy variable $TIME_{ijT+2}$ in columns (3) and (4) are smaller, in absolute value, than in columns (1) and (2). This implies that the cumulative changes from $T-2$ to $T+2$ of $RINT10Y$ and $RINT3M$ are smaller than those of $INT10Y$ and $INT3M$.

Lets' now turn to results in columns 5-7. The coefficients $\beta_1, \beta_2, \beta_3, \beta_4$ are never statistically significant when equation (1) is estimated for the discount rate (column 5). Moreover, data do not show a clear decreasing or increasing pattern as in the case of interest rates on public debt, especially in the sample of fiscal expansions. Table 1, instead, shows that either the $LIBOR$ or the average interest rate of corporate bonds are significantly different (at least at the 10% level) at T, $T+1$ and $T+2$ from their values at $T-2$ either in the sample

[8] As part of the sensitivity analysis, I also estimate the benchmark specifications in Tables 1 and 2 relaxing the assumption that ε_{ijt} is iid and allowing the error term to be correlated within countries or years. Results are robust.

of fiscal contractions or in the one of fiscal expansions. This evidence is interesting because it suggests that fiscal policy shocks influence private agents' decisions via financial markets by affecting not only the cost of public debt but also interest rates charged to firms and consumers.

Finally, the last two columns of Table 1 investigate the behavior of stock markets. The evidence is consistent with the one for interest rates. The MSCI share price index and its growth rate increase around episodes of fiscal contractions and fall around periods of fiscal expansions. For example, in times of fiscal expansions, the average growth rate of the MSCI share price index is 12.6% at $T-2$, and it decreases by about 16%, 18%, 10% and 14% in $T-1$, T, $T+1$ and $T+2$. Note, however, that the coefficients $\beta_1, \beta_2, \beta_3, \beta_4$ are statistically significant in the specification for the MSCI share price index only in the sample of fiscal contractions. In fiscal expansions, $\beta_1, \beta_2, \beta_3, \beta_4$ are significant only for the specification for the growth rate of the share price index.

3.2 A reparametrization of the basic specifications

The absolute values of the coefficients of the dummy variables $TIME_{T-j}$ seem to decrease or increase continuously from $T-2$ to $T+2$ for the regressions of all financial variables for which we observe statistically significant coefficients. To better capture this evidence, Table 2 estimates a reparametrized version of equation (1):

$$Financial_{ijt} = \alpha_i + \gamma\, FISCAL_{ijt} + \varepsilon_{ijt} \tag{2}$$

where $FISCAL$ is equal to 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after. This specification has the advantage of being more compact and more convenient when estimating the regressions in the following sections that include more variables on the right-hand side of equation (2). However, it constraints the change of the left-hand side variable to be of the same magnitude from one period to the next. As expected, the coefficient of $FISCAL$ is negative in fiscal contractions and positive (except for the $DISCR$ regression) in

fiscal expansions when we investigate the reaction of interest rates to changes in the fiscal stance. It is positive in fiscal contractions and negative in fiscal expansions when the share price index or its growth rate are on the left-hand side of (2) (see Table 2).[9]

Overall, Tables 1 and 2 support the evidence in Figures 2 and 3 and indicate that country specific characteristics are not responsible for the negative (positive) correlation between changes in governments' primary balance and interest rates (stock markets data). The next section investigates that this result is robust to including additional variables on the right-hand side of equation (2).

4 Extensions and robustness

Results shown so far are robust to a variety of specification changes. In what follows, I extend the analysis in section 3 to account for countries' initial fiscal conditions, characteristics of fiscal consolidations and expansions, macroeconomic conditions, other economic policies, and future fiscal policy conditions. I, then, summarize the results of additional robustness checks.

4.1 Countries' fiscal position

The response of financial markets to fiscal contractions and expansions can be different in countries with low/high levels of government deficit or public debt. In fact, markets can react only when they perceive that the change in fiscal policy affects the likelihood of a default crisis, which, very likely, is correlated with the level of the deficit or with the stock of public debt. To investigate this possibility, Tables 3 and 4 include among the right-hand side variables of equation (2) the value of the government deficit-to-GDP ratio (DEF) or of the public debt-to-GDP ratio ($DEBT$) at time $T-2$ alone (Part I), or together with an interaction term between DEF or $DEBT$ and the variable $FISCAL$ (Part II).

[9] See section 4.6 for specifications that also control for time effects.

Controlling for countries' initial fiscal position does not alter the size and the statistical significance of the coefficient of $FISCAL$ relatively to the estimates in Table 2 in a relevant way for the conclusions of this paper (see Part I of Tables 3 and 4).[10] Instead, in Part II of Tables 3 and 4, we find an asymmetry between episodes of fiscal contractions and expansions. Specifically, in the sample of fiscal contractions (Table 3, Part II), the coefficient of $FISCAL$ looses significance in almost all regressions, but the coefficients of $FISCAL*DEF$ and $FISCAL*DEBT$ are statistically significant at least in one of the two specifications and for the regressions of all variables except $DISCR$.

Consider a fiscal consolidation that happens in a country with DEF or $DEBT$ equal to the average values in the sample of fiscal contractions at $T-2$ (4.7 and 60 per cent, respectively). $INT10Y$ decreases, on average, in each period, by 32 and 38 basis points. $LIBOR$ falls by 36 and 39 basis points and $CORP$ by 15 and 29 basis points. If, instead, a fiscal stabilization happens in a situation in which the deficit-to-GDP ratio and the debt-to-GDP ratio are higher by one standard deviation, and are equal to 8.42 per cent and 85.96 per cent respectively, $INT10Y$ falls by 55 and 56 basis points, $LIBOR$ by 55 and 63 and $CORP$ by 50 and 48 basis points. Hence, from $T-2$ to $T+2$, the decline in interest rates is quite sizeable, larger than 200 basis points.

Instead, in the sample of fiscal expansions (see Part II of Table 4), the coefficients of the interaction terms $FISCAL*DEF$ and $FISCAL*DEBT$ are not statistically significant at conventional critical values. This suggests that the effect of fiscal expansions on financial variables do not depend on countries' initial fiscal conditions. Hence, the specifications in Table 2 and in Part I of Table 4 well capture the response of financial variables around periods of large budget deteriorations.

In summary, results in Tables 3 and 4 seem to indicate that financial markets value episodes of fiscal adjustments, particularly when they happen in country-years with disrupted fiscal conditions, but punish governments that pursue large fiscal expansions regardless of countries' initial fiscal situations.

[10] Note that the coefficient of $DEBT$ is negative and statistically significant in the regressions for interest rates and positive in those for stock market prices. Ardagna, Caselli and Lane (2004) and Caporale and Williams (2002) find the same result and explain it as consequence of a liquidity effect.

4.2 Composition of fiscal manoeuvre

Alesina and Perotti (1997), Ardagna (2004), Mc Dermott and Wescott (1996), among others, suggest that the credibility of a fiscal consolidation depends also on its composition. Fiscal contractions that are achieved by cutting public spending more than by increasing tax rates are more likely to be long-lasting. Governments that reduce transfers, government wages, public employment are perceived to be committed to solve the fiscal imbalance, because they undertake policy measures with more permanent effects on the budget. Moreover, Alesina et al. (2002) show that profits increase in response to cuts of government spending, but decrease when taxes increase. Following these arguments, we can expect a different reaction of financial markets to fiscal contractions (expansions) that sharply decrease (increase) government spending. Tables 5 and 6 estimate three alternative specifications of equation (2) to investigate whether this is the case.

First, in part I of Tables 5 and 6, I introduce among the regressors of equation (2), the change of the cyclically adjusted primary expenditure-to-GDP ratio ($\Delta PREXP$) or the change of the ratio of cyclically adjusted transfers and government wage payments-to-GDP ($\Delta(TRANSF + CGW)$). Second, I define the following dummy variables: (i) $EXPLOW1$ equal to 1 if the decrease (increase) of the cyclically adjusted primary expenditure-to-GDP ratio is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; (ii) $EXPHIGH1$ equal to $1 - EXPLOW1$; (iii) $EXPLOW2$ equal to 1 if the decrease (increase) of the ratio of cyclically adjusted transfers and government wage payments-to-GDP is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; (iv) $EXPHIGH2$ equal to $1 - EXPLOW2$. I introduce among the regressors of equation (2) $EXPLOW1$ or $EXPLOW2$ in Part II of Table 5 and $EXPHIGH1$ or $EXPHIGH2$ in Part II of Table 6. Third, in Part III of Tables 5 and 6, I estimate equation (2) not only adding among the regressors the dummy variables as in Part II, but also interacting them with the variable $FISCAL$.

Let's begin by discussing the results in Part I and II. First, the qualitative nature of the results shown so far holds. In fact, the coefficient of $FISCAL$ is close to the one in Table 2. Second, when the estimated coefficients are statistically significant, we observe a positive correlation between changes in government spending and interest rates and a negative correlation between $\Delta PREXP$ or $\Delta(TRANSF + CGW)$ and $MSCI$ or $MSCIGR$. Hence, sharper cuts (increases) to primary spending and to transfers and governments' wage bills are associated with lower (higher) interest rates and higher (lower) stock markets prices in periods of fiscal contractions (expansions). Finally, Part II suggests that financial markets are more concerned about changes in transfers and the governments' wage bills than in the overall primary spending.

Let's now turn to the results in Part III. Consider, for example, results in Table 5, column 1 for the specification that includes the dummy variable $EXPLOW2$. The 10-year nominal interest rate of government bonds decreases, on average, in each period, by 55 basis points, for a total decrease, from T-2 to T+2, of about 220 basis points if the dummy variable $EXPLOW2$ is equal to 1. $INT10Y$, instead, falls only by 19 basis points per period, and by a total of 76 basis points, if transfers and the government wage bill change by less than the median value in the sample. More importantly, while the t-statistics of the coefficient of $FISCAL * EXPLOW2$ is equal to -2.54, the one of $FISCAL * EXPHIGH2$ is equal to 1.19. This supports the evidence in previous studies that fiscal adjustments implemented by heavily cutting transfers and the government wage bill are associated with economic expansions. In fact, by decreasing interest rates and stimulating the stock market, private consumption and private investment are more likely to increase and compensate for the decrease in aggregate demand due to the fall in public spending.

Finally, around episodes of fiscal expansions (Table 6), we observe evidence along the same lines when interest rates are on the left-hand side of (2), but results are murkier when we investigate the reaction of stock market prices.

4.3 Macroeconomic conditions

This section investigates the role played by macroeconomic conditions. I introduce on the right-hand side of equation (2) the growth rate of real GDP ($GROWTH$) and the inflation rate ($INFL$) at $T-2$ and their yearly change to control both for the initial macroeconomic conditions and for the changes in the macroeconomic fundamentals that happen from $T-2$ to $T+2$. Results are shown in Table 7. The coefficients of $FISCAL$ are close in size to the values in Table 2. Moreover, in the sample of fiscal contractions, the coefficient of $FISCAL$ becomes statistically significant, at the 5% level in the regression for $INT3M$, and at the 10% level in the regression for $CORP$, while it was insignificant in Table 2. However, in the sample of fiscal expansions, the coefficient of $FISCAL$ becomes insignificant in the regressions for $RINT3M$ and $MSCI$, while it was significant at the 10% level in Table 2.

4.4 The policy mix

An alternative explanation for the decrease (increase) of interest rates and increase (decrease) of stock market prices around episodes of fiscal contractions (expansions) is that governments implement these changes in fiscal policy with other economic measures that move financial variables in the observed directions. The coefficient of $FISCAL$, hence, would not capture the effect of the large changes in the fiscal stance but the effect of omitted variables. To address this concern, I estimate equation (2) by adding among the regressors variables that capture the extent of financial liberalization, international financial integration, exchange rate movements and monetary policy.

First, I include on the right-hand side of (2) the initial values of the growth of the nominal effective exchange rate ($EXCHGR$), a measure of the extent of international integration of capital markets ($INT.INTEGR$), a measure of financial liberalization ($FIN.LIB$), and the yearly change of these three variables. The variable $INT.INTEGR$ is an index constructed with data provided by Milesi-Ferretti and following Lane and Milesi-Ferretti (2003). Specifically, $INT.INTEGR$ is a variable ranging from 0 to 4

and increasing in the degree of restrictions to the international integration of capital markets. It is available for all countries in the sample from 1966 to 1997 and it is equal to the sum of different dummy variables measuring the existence of restrictions on the capital account, on the current account and the existence of multiple exchange rates. The variable $FIN.LIB$ is by Levine et al. (2000). It is equal to the ratio of commercial banks assets divided by commercial bank plus central bank assets. An higher value of this ratio implies a greater degree of financial liberalization.

Second, I estimate equation (2) for $INT10Y$, $RINT10Y$, $LIBOR$, $CORP$, $MSCI$, $MSCIGR$ by including among the regressors the initial values of the discount rate or of the 3-month Treasury bills interest rate and their yearly change to control for monetary policy.

Results in Table 8 suggest that restrictions on the current and capital accounts lead to higher interest rates and that reforms that liberalize financial markets have the opposite effect. The coefficient of the growth of the nominal exchange rate has, instead, opposite sign in the samples of fiscal contractions and fiscal expansions, giving an ambiguous picture on the effect of devaluations/appreciations of the exchange rate.[11] More importantly, the size and the significance of the coefficients of $FISCAL$ are very close to their values in Table 2 in the sample of fiscal contractions. However, results are weaker when we concentrate on the sample of fiscal expansions. Most likely, this is due to the loss of degree of freedom since the number of observations drops almost by half relatively to the one in Table 2.

Finally, when I estimate equation (2) for $INT10Y$, $RINT10Y$, $LIBOR$, $CORP$, $MSCI$, $MSCIGR$ controlling for the initial values of the discount rate or of the 3-month Treasury bills interest rate and for their yearly change, results (not shown and available upon request) are very similar to those in Table 2. This confirms that the evidence shown so far is not due to omitting variables measuring the stance of monetary policy. This result should come at no surprise since the coefficient of $FISCAL$ is never statistically significant in the discount rate equation and it is often insignificant in the $INT3M$ equation.

[11] Note that a minus sign of the coefficient of $EXCHGR$ indicates a nominal devaluation.

4.5 Do financial markets react in anticipation of improved government debt's sustainability?

Consider a credible fiscal contraction, that is one in which agents believe that the government is able to generate a persistent decrease in public debt. As Alesina et al. (1992) show, in a model with two equilibria, a credible fiscal adjustment can move the economy from a "bad" equilibrium to a "good" one. In the bad equilibrium, public debt is increasing and the default risk is rational since investors demand a risk premium. Interest rates on government bonds increase making solvency more difficult. In the good equilibrium, instead, public debt falls, the risk premium decreases, interest rates are low and investors' confidence in governments' ability to honor debt is rational. Hence, a fiscal adjustment that moves the economy from the bad to the good equilibrium can generate a sharp decrease in interest rates. Similarly, a fiscal expansion that is perceived to be long lasting with dramatic effects on the stock of public debt can generate a strong increase in interest rates. Tables 9 and 10 look at the path of public debt few years after the episodes of large changes in the fiscal stance and provide evidence in favor of Alesina et al. (1992).

In Part I of Tables 9 and 10, I introduce among the regressors of equation (2) the change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to two ($\Delta DEBT_{T+2}$) or three ($\Delta DEBT_{T+3}$) years after. In Part II, I separate episodes using the criteria in McDermott and Wescott (1996) or in Alesina and Perotti (1995). Specifically, I define the following dummy variables: (i) $DEBTLOW1$ equal to 1 if, two years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 3 percentage points and zero otherwise; (ii) $DEBTHIGH1$ equal to $1 - DEBTLOW1$; (iii) $DEBTLOW2$ equal to 1 if, three years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 5 percentage points and zero otherwise; (iv) $DEBTHIGH2$ equal to $1 - DEBTLOW2$. I introduce among the regressors of equation (2) $DEBTLOW1$ or $DEBTLOW2$ in Part II of Table 9 and $DEBTHIGH1$ or $DEBTHIGH2$ in Part II of Table 10. In Part III, I estimate equation (2) not only adding the dummy variables as in Part II, but also interacting them with the variable $FISCAL$.

Overall, results support the theoretical prediction by Alesina et al. (1992) in the panel of fiscal contractions (Table 9), but evidence is murkier in the panel of fiscal expansions (Table 10). Financial markets seem to react in anticipation of the future path of government debt-to-GDP ratio: the higher the decline in public debt after fiscal contractions, the lower the interest rates and the higher the stock market price index and its growth rate. For example, a decline of the public debt-to-GDP ratio by one percentage point is associated with an additional decrease of the 10-year government bonds interest rate of about 16 basis points (see Table 9, Part I). Interestingly, when I investigate if the effect of large changes of the government budget on financial variables depends on the decrease of public debt in the future, I find that interest rates decrease and that the stock market reacts positively only when governments are successful in reducing the debt-to-GDP ratio. In fact, in Table 9, Part III, the coefficients of $FISCAL * DEBTLOW1$ and $FISCAL * DEBTLOW2$ are statistically significant, but the coefficients of $FISCAL * DEBTHIGH1$ and $FISCAL * DEBTHIGH2$ are not. However, this evidence is not confirmed in the sample of fiscal expansions.

4.6 Additional robustness checks

This section summarizes the results of additional robustness checks. Results are not shown and are available upon request. First, I estimate equation (2) controlling for the time dimension. Figure 1 shows that the distribution of fiscal contractions and expansions over time is not uniform. Fiscal expansions are more frequent in the seventies and in the most recent years, while fiscal contractions are more common in the eighties and nineties. Following this evidence, I define five dummy variables respectively equal to 1 in 1960-1969, 1970-1979, 1980-1989, 1990-1999, 2000-2002 and zero otherwise. I include them on the right-hand side of (2). Results show that the size and significance of the coefficient of $FISCAL$ are not unduly sensitive to this specification change. In the sample of fiscal contractions, the coefficient of $FISCAL$ in the regression of $RINT10Y$ is not significant and the one of $LIBOR$ is significant only at the 10% level. In the sample of fiscal expansions, instead, results are stronger than the ones in Table 2.

Second, I estimate equation (2) using two alternative criteria to select episodes of fiscal contractions and expansions. Specifically, episodes of large fiscal contractions (expansions) are defined as: (i) periods in which the cyclically adjusted primary balance improves (worsens) by at least 1 per cent of GDP per year; (ii) periods in which the cyclically adjusted primary balance improves (worsens) by at least 1.5 per cent of GDP per year. The first less demanding rule identifies 118 years of fiscal contractions and 97 periods of fiscal expansions, while there are 65 periods of fiscal contractions and 55 episodes of fiscal expansions according to definition (ii). When (i) is used, results are very close to those in Table 2 even though the size of the coefficients is slightly smaller. When the tighter definition is used changes in the stance of fiscal policy have larger effects on financial variables in periods of fiscal contractions. In the sample of fiscal expansions, however, the size of the coefficients is, in general, smaller and the coefficients of $INT10Y$ and $RINT10Y$ are not statistically significant.

Third, results are not sensitive to a particular country in the sample, In fact, dropping one country at a time does not alter the estimates of equation (2).

Fourth, I check if results are sensitive to including in the samples a different number of years before or after the occurrence of fiscal contractions/expansions. The qualitative nature of the results does not change if we extend the window and include three periods before and after the occurrence of a fiscal contraction/expansion, or if we include observations from $T-2$ to $T+1$. Instead, if we include in the samples only observations starting from $T-1$, the coefficient of $FISCAL$ looses significance in many regressions. However, its sign is consistent with results in Table 2. I interpret this as evidence that financial markets anticipate the occurrence of fiscal contractions and expansions. Hence, including in the samples only observations starting from one year before does not allow us to fully capture the effect of the large swings in fiscal policy on financial variables.

Finally, I include among the regressors of equation (2) most of the variables that have been separately added in sections 4.1-4.5. In particular, I estimate equation (2) controlling for: (i) countries' initial fiscal

position by including the value of the government deficit-to-GDP ratio (DEF), (ii) the composition of the fiscal consolidation/expansion by adding the change of the ratio of cyclically adjusted transfers and government wage payments-to-GDP ($\Delta(TRANSF + CGW)$), (iii) the macroeconomic situation by adding all the variables in Table 6, (iv) the policy-mix by including all the variables in Table 7, (v) the change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to three years after ($\Delta DEBT_{T+3}$). Despite the sharp decrease in the number of observations and in the degrees of freedom, the coefficient of $FISCAL$ in the sample of fiscal contractions remains negative (positive) and statistically significant as in Table 2 when I estimate regressions for interest rates ($MSCI$ index and its growth rate). The size of the coefficients is also larger than in the benchmark model. In the sample of fiscal expansions, results are once again less strong.

5 Conclusions

This paper concentrates on episodes of large fiscal consolidations and expansions occurred in OECD countries from 1960 to 2002 and shows that financial markets value fiscal discipline. Interest rates fall and stock market prices increase around episodes of fiscal consolidations; the opposite occurs around periods of fiscal expansions. In addition, the paper suggests that financial markets' response to large changes in the fiscal stance depends on countries' initial fiscal positions and on the nature of fiscal contractions. Fiscal adjustments that occur in country-years with high levels of government deficit, that are implemented by cutting government spending, and that generate a permanent and substantial decrease in government debt are associated with larger reductions in interest rates and increases in stock market prices. In the sample of fiscal contractions, results are robust to controlling for inflation, GDP growth and indicators of monetary and financial liberalization policies. In the sample of fiscal expansions, results are somewhat less robust to specification changes.

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Table 1: Financial markets, fiscal contractions and fiscal expansions

	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Fiscal Contractions				
$TIME_{T-1}$	-0.0029	-0.0049	-0.0022	-0.0040	-0.0002	-0.0118	-0.0035	0.0705	0.0234
	(-0.48)	(-0.66)	(-0.44)	(-0.65)	(-0.04)	(-1.50)	(-0.57)	(0.43)	(0.57)
$TIME_{T}$	-0.0082	-0.0078	-0.0054	-0.0046	-0.0057	-0.0144	-0.0068	0.2751	0.0878
	(-1.61)	(-1.21)	(-1.29)	(-0.85)	(-0.97)	(-2.10)**	(-1.23)	(1.95)*	(2.66)**
$TIME_{T+1}$	-0.0106	-0.0085	-0.0082	-0.0047	-0.0041	-0.0143	-0.0058	0.3571	0.0443
	(-1.74)*	(-1.15)	(-1.64)*	(-0.74)	(-0.59)	(-1.81)*	(-0.89)	(2.23)**	(1.16)
$TIME_{T+2}$	-0.0124	-0.0103	-0.0097	-0.0076	0.0016	-0.0194	-0.0063	0.4172	0.0323
	(-2.05)**	(-1.38)	(-1.94)*	(-1.20)	(0.23)	(-2.43)**	(-0.94)	(2.61)**	(0.79)
Constant	0.1213	0.1145	0.1034	0.0960	0.1197	0.1130	0.1181	4.7753	0.0274
	(17.10)**	(11.03)**	(16.53)**	(10.86)**	(11.32)**	(6.95)**	(13.92)**	(29.83)**	(0.58)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.34	0.36	0.32	0.37	0.44	0.40	0.34	0.44	0.10
					Fiscal Expansions				
$TIME_{T-1}$	0.0057	0.0124	0.0051	0.0106	0.0029	0.0154	0.0086	-0.0251	-0.1576
	(0.86)	(1.54)	(0.95)	(1.58)	(0.34)	(1.56)	(1.33)	(-0.12)	(-3.36)**
$TIME_{T}$	0.0089	0.0088	0.0084	0.0112	-0.0036	0.0056	0.0140	-0.1048	-0.1796
	(1.40)	(1.23)	(1.59)	(1.84)*	(-0.44)	(0.66)	(2.20)**	(-0.54)	(-4.22)**
$TIME_{T+1}$	0.0122	0.0111	0.0102	0.0096	0.0021	0.0105	0.0146	-0.2614	-0.0974
	(1.67)*	(1.30)	(1.68)*	(1.39)	(-0.23)	(0.93)	(1.83)*	(-1.21)	(-1.93)*
$TIME_{T+2}$	0.0162	0.0158	0.0142	0.0143	-0.0017	0.0110	0.0165	-0.3364	-0.1405
	(2.37)**	(1.92)*	(2.47)**	(2.09)**	(-0.21)	(1.15)	(2.12)**	(-1.59)	(-2.93)**
Constant	0.0923	0.0807	0.0755	0.0617	0.0997	0.0944	0.0919	5.0529	0.1258
	(11.79)**	(6.80)**	(9.24)**	(5.09)**	(8.11)**	(5.18)**	(9.57)**	(21.69)**	(2.62)**
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.29	0.30	0.29	0.34	0.31	0.27	0.28	0.40	0.14

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; $TIME_{T-j}$ are four dummy variables equal to 1 when j=-1,0,1,2 respectively and zero otherwise. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 2: Financial markets, fiscal contractions and fiscal expansions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Fiscal Contractions				
FISCAL	-0.0033	-0.0024	-0.0025	-0.0016	-0.0002	-0.0041	-0.0015	0.1119	0.0084
	(-2.40)**	(-1.44)	(-2.27)**	(-1.11)	(-0.12)	(-2.33)**	(-1.03)	(3.15)**	(0.91)
Constant	0.1240	0.1151	0.1059	0.0964	0.1177	0.1131	0.1178	4.6722	0.0481
	(17.36)**	(11.08)**	(16.72)**	(10.80)**	(10.97)**	(6.91)**	(13.95)**	(29.16)**	(0.93)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.34	0.36	0.32	0.37	0.44	0.40	0.33	0.44	0.08
					Fiscal Expansions				
FISCAL	0.0039	0.0030	0.0034	0.0028	-0.0004	0.0017	0.0040	-0.0894	-0.0234
	(2.51)**	(1.64)*	(2.60)**	(1.82)*	(-0.24)	(0.77)	(2.31)**	(-1.89)*	(-2.10)**
Constant	0.0893	0.0810	0.0731	0.0626	0.1004	0.0970	0.0911	5.1824	0.0702
	(11.10)**	(6.38)**	(8.60)**	(4.83)**	(8.06)**	(5.12)**	(9.00)**	(22.43)**	(1.38)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.29	0.29	0.29	0.33	0.31	0.26	0.27	0.40	0.07

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 3: The role of countries' initial fiscal position in periods of fiscal contractions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0031	-0.0018	-0.0024	-0.0011	0.0001	-0.0036	-0.0015	0.1116	0.0117
	(-2.31)**	(-1.15)	(-2.22)**	(-0.81)	(0.08)	(-2.08)**	(-1.04)	(3.11)**	(1.28)
DEF_{T-2}	0.2401	0.3884	0.2796	0.3961	0.1862	0.1989	0.0324	5.2456	1.2250
	(3.36)**	(5.08)**	(5.10)**	(6.63)**	(2.22)**	(2.25)**	(0.33)	(2.52)**	(2.80)**
Constant	0.1111	0.0933	0.0910	0.0745	0.1072	0.1003	0.1162	4.4030	-0.0248
	(13.85)**	(8.44)**	(13.17)**	(7.91)**	(9.31)**	(5.80)**	(11.60)**	(23.25)**	(-0.43)
N. of obs.	301	282	301	282	252	263	245	284	280
R^2	0.36	0.40	0.37	0.42	0.43	0.39	0.34	0.45	0.11
FISCAL	-0.0038	-0.0026	-0.0030	-0.0017	-0.0006	-0.0041	-0.0028	0.1285	0.0151
	(-2.80)**	(-1.58)	(-2.64)**	(-1.18)	(-0.38)	(-2.63)**	(-1.91)*	(4.22)**	(1.57)
$DEBT_{T-2}$	-0.0594	-0.0476	-0.0401	-0.0283	-0.0426	-0.1031	-0.0534	2.9165	0.0373
	(-4.93)**	(-3.06)**	(-4.10)**	(-2.23)**	(-2.79)**	(-8.30)**	(-4.25)**	(13.82)**	(0.46)
Constant	0.1116	0.0823	0.0993	0.0693	0.0724	0.1012	0.0922	4.5082	0.0190
	(16.74)**	(9.58)**	(16.82)**	(9.33)**	(11.08)**	(11.58)**	(12.79)**	(42.67)**	(0.39)
N. of obs.	265	254	265	254	216	239	226	248	244
R^2	0.40	0.38	0.35	0.35	0.47	0.55	0.43	0.68	0.11

PART II	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0002	0.0008	-0.0008	0.0001	0.0025	-0.0012	0.0029	0.0589	-0.0072
	(-0.10)	(0.34)	(-0.48)	(0.07)	(1.14)	(-0.45)	(1.68)*	(0.98)	(-0.50)
FISCAL*DEF_{T-2}	-0.0634	-0.0558	-0.0357	-0.0256	-0.0494	-0.0519	-0.0937	1.2106	0.4339
	(-1.67)*	(-1.41)	(-1.18)	(-0.80)	(-1.34)	(-1.08)	(-2.44)**	(1.22)	(1.69)*
DEF_{T-2}	0.4297	0.5596	0.3864	0.4747	0.3272	0.3569	0.3084	1.5343	-0.1082
	(3.41)**	(4.05)**	(3.97)**	(4.29)**	(2.51)**	(2.14)**	(2.29)**	(0.41)	(-0.12)
Constant	0.1026	0.0853	0.0862	0.0708	0.1005	0.0929	0.1032	4.5653	0.0336
	(11.44)**	(6.96)**	(11.44)**	(6.77)**	(8.21)**	(5.10)**	(10.69)**	(18.90)**	(0.50)
N. of obs.	301	282	301	282	252	263	245	284	280
R^2	0.37	0.40	0.38	0.42	0.44	0.40	0.35	0.46	0.12
FISCAL	0.0005	0.0040	0.0009	0.0047	0.0023	0.0021	0.0017	0.1217	0.0397
	(0.16)	(1.10)	(0.36)	(1.50)	(0.67)	(0.61)	(0.53)	(1.84)*	(1.83)*
FISCAL*$DEBT_{T-2}$	-0.0071	-0.0109	-0.0066	-0.0105	-0.0050	-0.0098	-0.0076	0.0112	-0.0405
	(-1.79)*	(-2.17)**	(-1.85)*	(-2.37)**	(-1.05)	(-2.02)**	(-1.81)*	(0.12)	(-1.25)
$DEBT_{T-2}$	-0.0383	-0.0154	-0.0207	0.0029	-0.0286	-0.0743	-0.0309	2.8826	0.1583
	(-2.26)**	(-0.75)	(-1.40)	(0.17)	(-1.54)	(-4.26)**	(-1.74)*	(8.60)**	(1.36)
Constant	0.0988	0.0627	0.0875	0.0503	0.0647	0.0828	0.0789	4.5286	-0.0545
	(9.81)**	(5.22)**	(9.95)**	(4.81)**	(6.34)**	(7.31)**	(7.38)**	(22.56)**	(-0.75)
N. of obs.	265	254	265	254	216	239	226	248	244
R^2	0.41	0.39	0.36	0.36	0.47	0.55	0.44	0.68	0.11

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; DEF_{T-2} = government deficit-to-GDP ratio at time T-2; $DEBT_{T-2}$ = public debt-to-GDP ratio at time T-2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

In Part II, the magnitude of the change of financial variables around periods of fiscal contractions and expansions depends on the value of DEF_{T-2} or $DEBT_{T-2}$. For exemplification purpose, consider the values in column (1), and assume that a fiscal consolidation happens in a country with DEF_{T-2} equal to its average value in the sample of fiscal contractions at T-2 (i.e.: 4.7 per cent). INT10Y decreases, on average in each period, by 32 basis points (i.e.: -0.0002 + (-0.0634)*(0.047) = -0.0032)

Table 4: The role of countries' initial fiscal position in periods of fiscal expansions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0031	0.0026	0.0029	0.0028	-0.0006	0.0001	0.0035	-0.0876	-0.0232
	(2.23)**	(1.51)	(2.54)**	(1.97)**	(-0.36)	(0.06)	(2.15)**	(-1.85)*	(-2.05)**
DEF_{T-2}	0.5082	0.6611	0.4807	0.5975	0.5954	0.6327	0.4445	3.8505	0.2524
	(6.57)**	(6.54)**	(7.89)**	(7.56)**	(6.09)**	(4.18)**	(4.58)**	(1.93)*	(0.36)
Constant	0.0894	0.0794	0.0724	0.0600	0.0981	0.0998	0.0907	5.1593	0.0686
	(11.40)**	(6.27)**	(8.51)**	(4.57)**	(7.93)**	(5.41)**	(9.07)**	(22.12)**	(1.34)
N. of obs.	211	196	211	196	179	175	172	211	209
R^2	0.45	0.46	0.48	0.51	0.44	0.38	0.35	0.45	0.07
FISCAL	0.0026	0.0021	0.0027	0.0024	-0.0005	-0.0012	0.0028	-0.0301	-0.0207
	(1.67)*	(1.11)	(1.97)**	(1.43)	(-0.26)	(-0.53)	(1.57)	(-0.95)	(-1.80)*
$DEBT_{T-2}$	-0.0597	-0.0536	-0.0283	-0.0221	-0.0121	-0.1210	-0.0454	4.1145	-0.0613
	(-5.80)**	(-3.32)**	(-3.14)**	(-1.57)	(-0.57)	(-6.74)**	(-3.58)**	(10.92)**	(-0.75)
Constant	0.1191	0.1111	0.0987	0.0901	0.1129	0.1454	0.1090	4.1657	0.1319
	(10.73)**	(5.72)**	(10.53)**	(5.30)**	(5.80)**	(7.39)**	(6.91)**	(24.46)**	(2.29)**
N. of obs.	181	177	181	177	151	154	157	183	182
R^2	0.44	0.36	0.37	0.33	0.43	0.47	0.39	0.82	0.09

PART II	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0035	0.0029	0.0031	0.0028	-0.0002	0.0010	0.0039	-0.0973	-0.0252
	(2.50)**	(1.64)*	(2.64)**	(1.88)*	(-0.11)	(0.46)	(2.36)**	(-1.79)*	(-2.33)**
FISCAL*DEF_{T-2}	-0.0316	-0.0221	-0.0169	-0.0029	-0.0294	-0.0536	-0.0260	0.7033	0.1422
	(-0.87)	(-0.47)	(-0.56)	(-0.08)	(-0.70)	(-1.14)	(-0.61)	(0.72)	(0.41)
DEF_{T-2}	0.6024	0.7279	0.5312	0.6064	0.6829	0.7925	0.5217	1.7544	-0.1717
	(5.49)**	(4.90)**	(6.04)**	(5.12)**	(4.51)**	(4.16)**	(4.12)**	(0.47)	(-0.11)
Constant	0.0881	0.0784	0.0716	0.0599	0.0968	0.0971	0.0893	5.1884	0.0745
	(11.07)**	(6.12)**	(8.32)**	(4.51)**	(7.82)**	(5.18)**	(8.83)**	(20.99)**	(1.47)
N. of obs.	211	196	211	196	179	175	172	211	209
R^2	0.46	0.47	0.48	0.51	0.44	0.39	0.36	0.45	0.07
FISCAL	0.0021	0.0012	0.0031	0.0029	0.0015	-0.0051	0.0031	-0.0475	0.0086
	(0.64)	(0.23)	(1.02)	(0.61)	(0.27)	(-0.95)	(0.62)	(-0.45)	(0.33)
FISCAL*$DEBT_{T-2}$	0.0010	0.0017	-0.0008	-0.0010	-0.0039	0.0072	-0.0005	0.0334	-0.0560
	(0.15)	(0.18)	(-0.14)	(-0.12)	(-0.36)	(0.82)	(-0.05)	(0.16)	(-1.01)
$DEBT_{T-2}$	-0.0623	-0.0583	-0.0260	-0.0193	-0.0008	-0.1410	-0.0441	4.0230	0.0928
	(-3.24)**	(-1.95)*	(-1.48)	(-0.70)	(-0.02)	(-4.74)**	(-1.62)	(5.90)**	(0.59)
Constant	0.1205	0.1137	0.0975	0.0885	0.1071	0.1566	0.1083	4.2151	0.0486
	(9.04)**	(4.87)**	(8.40)**	(4.30)**	(4.50)**	(6.62)**	(5.46)**	(12.84)**	(0.61)
N. of obs.	181	177	181	177	151	154	157	183	182
R^2	0.44	0.36	0.37	0.33	0.43	0.47	0.39	0.82	0.10

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; DEF_{T-2} = government deficit-to-GDP ratio at time T-2; $DEBT_{T-2}$ = public debt-to-GDP ratio at time T-2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis. See, also notes to Table 3.

Table 5: The composition of fiscal contractions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0029	-0.0019	-0.0023	-0.0012	0.0005	-0.0036	-0.0015	0.1146	0.0124
	(-2.17)**	(-1.13)	(-2.05)**	(-0.83)	(0.33)	(-2.07)**	(-1.03)	(3.25)**	(1.38)
ΔPREXP	0.1001	0.1281	0.0144	0.0597	0.1822	0.1933	0.1628	-7.9723	-2.7765
	(0.90)	(0.92)	(0.16)	(0.52)	(1.32)	(1.19)	(1.25)	(-2.59)**	(-3.29)**
N. of obs.	304	285	304	285	255	266	245	287	283
R^2	0.33	0.35	0.31	0.36	0.43	0.39	0.34	0.45	0.14
FISCAL	-0.0029	-0.0019	-0.0023	-0.0012	0.0005	-0.0036	-0.0015	0.1158	0.0120
	(-2.17)**	(-1.16)	(-2.05)**	(-0.85)	(0.34)	(-2.14)**	(-1.00)	(3.30)**	(1.32)
Δ(TRANSF+CGW)	0.5535	0.7561	0.3525	0.5669	0.6540	1.0072	0.4231	-16.8982	-2.6029
	(2.94)**	(3.35)**	(2.21)**	(2.88)**	(3.20)**	(4.25)**	(1.96)**	(-3.51)**	(-1.98)**
N. of obs.	304	285	304	285	255	266	245	287	283
R^2	0.35	0.38	0.33	0.37	0.45	0.42	0.35	0.46	0.11
PART II	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0033	-0.0024	-0.0025	-0.0015	-0.0002	-0.0041	-0.0015	0.1128	0.0084
	(-2.40)**	(-1.44)	(-2.27)**	(-1.10)	(-0.12)	(-2.35)**	(-1.05)	(3.21)**	(0.91)
EXPLOW1	0.0033	0.0110	0.0025	0.0093	0.0032	0.0069	0.0049	0.2200	0.0014
	(0.79)	(2.24)**	(0.71)	(2.20)**	(0.67)	(1.22)	(1.21)	(1.86)*	(0.05)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.34	0.37	0.33	0.38	0.44	0.40	0.34	0.45	0.08
FISCAL	-0.0033	-0.0025	-0.0026	-0.0017	-0.0003	-0.0041	-0.0015	0.1120	0.0084
	(-2.56)**	(-1.59)	(-2.41)**	(-1.24)	(-0.18)	(-2.38)**	(-1.00)	(3.19)**	(0.91)
EXPLOW2	-0.0248	-0.0295	-0.0197	-0.0242	-0.0326	-0.0282	-0.0141	0.3472	-0.0026
	(-6.06)**	(-5.43)**	(-6.03)**	(-5.39)**	(-6.56)**	(-4.91)**	(-3.25)**	(2.80)**	(-0.09)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.41	0.43	0.40	0.44	0.53	0.45	0.36	0.46	0.08
PART III	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL*EXPLOW1	-0.0039	-0.0032	-0.0029	-0.0024	-0.0004	-0.0039	-0.0007	0.1138	0.0040
	(-2.07)**	(-1.40)	(-1.81)*	(-1.20)	(-0.19)	(-1.67)*	(-0.31)	(2.26)**	(0.31)
FISCAL*EXPHIGH1	-0.0026	-0.0015	-0.0022	-0.0007	0.0001	-0.0044	-0.0022	0.1117	0.0131
	(-1.36)	(-0.64)	(-1.40)	(-0.36)	(0.03)	(-1.64)*	(-1.12)	(2.28)**	(0.98)
EXPLOW1	0.0070	0.0162	0.0043	0.0143	0.0046	0.0055	0.0002	0.2136	0.0290
	(0.79)	(1.50)	(0.59)	(1.57)	(0.45)	(0.47)	(0.02)	(0.87)	(0.49)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.34	0.38	0.33	0.38	0.44	0.40	0.34	0.45	0.08
FISCAL*EXPLOW2	-0.0055	-0.0041	-0.0048	-0.0033	-0.0006	-0.0052	-0.0036	0.1324	0.0245
	(-2.54)**	(-1.42)	(-2.66)**	(-1.37)	(-0.23)	(-2.18)**	(-1.62)	(2.15)**	(1.76)*
FISCAL*EXPHIGH2	-0.0019	-0.0016	-0.0012	-0.0007	-0.0001	-0.0033	-0.0002	0.0989	-0.0017
	(-1.19)	(-0.85)	(-0.91)	(-0.42)	(-0.04)	(-1.36)	(-0.13)	(2.35)**	(-0.13)
EXPLOW2	-0.0138	-0.0221	-0.0090	-0.0162	-0.0310	-0.0227	-0.0040	0.2463	-0.0810
	(-1.53)	(-1.91)*	(-1.21)	(-1.69)*	(-2.98)**	(-1.96)**	(-0.42)	(0.97)	(-1.29)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.42	0.44	0.40	0.44	0.53	0.45	0.36	0.46	0.08

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; ΔPREXP = change of the cyclically adjusted primary expenditure to GDP; Δ(TRANSF+CGW) = change of the ratio of cyclically adjusted transfers and government wage payments to GDP; EXPLOW1 = 1 if the decrease (increase) of the cyclically adjusted primary expenditure to GDP ratio is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; EXPHIGH1 = 1-EXPLOW1; EXPLOW2 = 1 if the decrease (increase) of the ratio of cyclically adjusted transfers and government wage payments to GDP is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; EXPHIGH2 = 1-EXPLOW2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 6: The composition of fiscal expansions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0047	0.0040	0.0040	0.0034	0.0004	0.0024	0.0042	-0.1117	-0.0209
	(3.04)**	(2.10)**	(3.02)**	(2.09)**	(0.22)	(1.06)	(2.32)**	(-2.30)**	(-2.04)**
ΔPREXP	0.1858	0.1416	0.0775	0.0549	0.0423	0.3973	0.2305	-12.6527	-4.2546
	(1.31)	(0.82)	(0.64)	(0.37)	(0.26)	(1.88)*	(1.46)	(-3.42)**	(-4.72)**
N. of obs.	220	205	220	205	188	182	179	217	215
R^2	0.31	0.29	0.30	0.32	0.30	0.28	0.27	0.44	0.18
FISCAL	0.0047	0.0040	0.0040	0.0034	0.0004	0.0022	0.0042	-0.1119	-0.0193
	(3.06)**	(2.10)**	(3.01)**	(2.10)**	(0.24)	(1.01)	(2.30)**	(-2.34)**	(-1.84)*
Δ(TRANSF+CGW)	0.5448	0.5242	0.2195	0.2167	0.1521	1.2856	0.3844	-35.0060	-4.9416
	(2.15)**	(1.71)*	(1.00)	(0.82)	(0.50)	(3.17)**	(1.35)	(-5.66)**	(-2.79)**
N. of obs.	220	205	220	205	188	182	179	217	215
R^2	0.32	0.30	0.30	0.32	0.30	0.31	0.27	0.47	0.11
PART II	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0039	0.0029	0.0034	0.0028	-0.0008	0.0014	0.0040	-0.0771	-0.0232
	(2.51)**	(1.55)	(2.58)**	(1.77)*	(-0.41)	(0.64)	(2.32)**	(-1.84)*	(-2.05)**
EXPHIGH1	0.0166	0.0167	0.0090	0.0092	0.0259	0.0277	0.0138	-1.0527	-0.0164
	(2.97)**	(2.62)**	(1.92)*	(1.66)*	(3.78)**	(3.63)**	(2.40)**	(-6.89)**	(-0.45)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.32	0.32	0.30	0.34	0.36	0.31	0.29	0.53	0.07
FISCAL	0.0035	0.0026	0.0032	0.0026	-0.0006	0.0001	0.0038	-0.0583	-0.0243
	(2.29)**	(1.38)	(2.46)**	(1.69)*	(-0.31)	(0.06)	(2.20)**	(-1.48)	(-2.17)**
EXPHIGH2	0.0228	0.0206	0.0114	0.0088	0.0110	0.0508	0.0102	-1.4718	0.0387
	(3.58)**	(3.05)**	(2.03)**	(1.49)	(1.26)	(6.99)**	(1.50)	(-10.30)**	(0.92)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.33	0.32	0.31	0.34	0.31	0.38	0.28	0.60	0.07
PART III	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL*EXPLOW1	0.0026	0.0000	0.0016	-0.0014	-0.0011	0.0012	0.0007	-0.0916	-0.0270
	(1.09)	(0.01)	(0.83)	(-0.61)	(-0.36)	(0.36)	(0.30)	(-1.28)	(-1.44)
FISCAL*EXPHIGH1	0.0046	0.0049	0.0044	0.0057	-0.0006	0.0015	0.0060	-0.0685	-0.0209
	(2.31)**	(2.02)**	(2.55)**	(2.76)**	(-0.25)	(0.53)	(2.57)**	(-1.34)	(-1.48)
EXPHIGH1	0.0108	0.0029	0.0009	-0.0107	0.0246	0.0268	-0.0014	-1.1181	-0.0339
	(1.01)	(0.24)	(0.10)	(-1.05)	(1.91)*	(2.00)**	(-0.13)	(-3.60)**	(-0.44)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.32	0.32	0.31	0.36	0.36	0.31	0.30	0.53	0.07
FISCAL*EXPLOW2	0.0022	-0.0016	0.0018	-0.0016	-0.0028	-0.0027	0.0021	-0.0874	-0.0201
	(1.03)	(-0.61)	(1.01)	(-0.78)	(-0.94)	(-0.98)	(0.83)	(-1.71)*	(-1.15)
FISCAL*EXPHIGH2	0.0050	0.0073	0.0048	0.0075	0.0016	0.0043	0.0057	-0.0245	-0.0291
	(2.33)*	(2.83)**	(2.60)**	(3.41)**	(0.69)	(1.36)	(2.46)**	(-0.40)	(-2.15)**
EXPHIGH2	0.0148	-0.0047	0.0030	-0.0172	-0.0014	0.0304	-0.0001	-1.6500	0.0643
	(1.39)	(-0.40)	(0.33)	(-1.72)*	(-0.10)	(2.19)**	(-0.01)	(-6.00)**	(0.85)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.33	0.34	0.31	0.37	0.32	0.39	0.29	0.60	0.07

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; ΔPREXP = change of the cyclically adjusted primary expenditure to GDP; Δ(TRANSF+CGW) = change of the ratio of cyclically adjusted transfers and government wage payments to GDP; EXPLOW1 = 1 if the decrease (increase) of the cyclically adjusted primary expenditure to GDP ratio is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; EXPHIGH1 = 1-EXPLOW1; EXPLOW2 = 1 if the decrease (increase) of the ratio of cyclically adjusted transfers and government wage payments to GDP is larger (smaller) than the median change in the sample of fiscal contractions (fiscal expansions) and zero otherwise; EXPHIGH2 = 1-EXPLOW2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 7: Macroeconomic conditions around periods of fiscal contractions and fiscal expansions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Fiscal Contractions				
FISCAL	-0.0034	-0.0028	-0.0026	-0.0018	-0.0009	-0.0044	-0.0020	0.1080	0.0093
	(-3.27)**	(-2.01)**	(-2.75)**	(-1.42)	(-0.72)	(-3.06)**	(-1.69)*	(3.84)**	(1.02)
$GROWTH_{T-2}$	0.0370	0.2100	-0.0180	0.1562	0.2678	0.2000	0.3009	1.1465	-0.6260
	(0.52)	(2.21)**	(-0.27)	(1.75)*	(3.28)**	(1.79)*	(4.55)**	(0.55)	(-0.99)
$INFL_{T-2}$	0.4283	0.4422	0.2809	0.2869	0.5171	0.4523	0.4081	-10.6396	0.1361
	(11.57)**	(8.71)**	(8.21)**	(6.23)**	(11.53)**	(8.41)**	(10.68)**	(-13.76)**	(0.53)
Δ GROWTH	-0.0461	-0.1563	-0.0417	-0.1712	0.0044	-0.1887	-0.0766	0.6411	1.5639
	(-0.74)	(-1.96)**	(-0.69)	(-2.35)**	(0.06)	(-1.79)*	(-1.09)	(0.47)	(2.42)**
Δ INFL	-0.0466	0.0092	-0.0837	-0.0972	0.0463	0.0454	-0.0895	0.6305	1.0412
	(-0.55)	(0.08)	(-1.05)	(-0.89)	(0.48)	(0.35)	(-1.10)	(0.39)	(1.81)*
Constant	0.0971	0.0819	0.0896	0.0740	0.0771	0.0910	0.0832	5.2854	0.0612
	(14.03)**	(8.99)**	(12.55)**	(8.64)**	(8.55)**	(7.54)**	(12.48)**	(39.62)**	(1.02)
N. of obs.	306	287	306	287	257	268	245	289	285
R^2	0.64	0.61	0.53	0.52	0.69	0.62	0.64	0.67	0.11
					Fiscal Expansions				
FISCAL	0.0023	0.0013	0.0023	0.0015	-0.0007	-0.0018	0.0031	-0.0497	-0.0259
	(2.26)**	(0.93)	(2.38)**	(1.17)	(-0.48)	(-1.12)	(2.33)**	(-1.45)	(-2.32)**
$GROWTH_{T-2}$	-0.2129	-0.1608	-0.2940	-0.2308	-0.4929	0.0878	-0.3859	-7.4976	1.4629
	(-3.06)**	(-1.54)	(-4.28)**	(-2.40)**	(-4.20)**	(0.71)	(-4.17)**	(-3.31)**	(1.63)
$INFL_{T-2}$	0.5606	0.5868	0.3627	0.3807	0.5496	0.8116	0.5294	-18.5358	0.4220
	(12.84)**	(10.42)**	(8.63)**	(7.32)**	(7.58)**	(13.75)**	(9.18)**	(-13.69)**	(0.93)
Δ GROWTH	-0.1054	-0.1838	-0.1047	-0.1896	-0.0947	-0.2484	-0.1526	-0.3873	1.8671
	(-2.00)**	(-2.37)**	(-2.13)**	(-2.79)**	(-1.18)	(-2.50)**	(-2.50)**	(-0.26)	(3.02)**
Δ INFL	0.0232	0.0920	-0.0684	-0.1113	0.1545	0.1465	0.0526	-5.7971	0.2365
	(0.32)	(1.06)	(-1.07)	(-1.47)	(1.53)	(1.13)	(0.59)	(-2.83)**	(0.38)
Constant	0.0480	0.0352	0.0538	0.0391	0.0702	0.0353	0.0593	7.2605	-0.0317
	(4.37)**	(2.22)**	(4.88)**	(2.55)**	(4.13)**	(1.94)*	(4.69)**	(35.58)**	(-0.45)
N. of obs.	226	213	226	213	196	185	184	223	220
R^2	0.69	0.59	0.60	0.53	0.59	0.70	0.59	0.72	0.14

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; $GROWTH_{T-2}$ = real GDP growth rate at T-2; $INFL_{T-2}$ = inflation rate at time T-2; ΔGROWTH = change in real GDP growth rate; ΔINFL = change in inflation rate. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 8: The policy-mix around periods of fiscal contractions and fiscal expansions

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Fiscal Contractions				
FISCAL	-0.0028	-0.0017	-0.0016	-0.0004	-0.0012	-0.0049	-0.0016	0.1059	0.0236
	(-2.47)**	(-1.17)	(-1.61)	(-0.31)	(-0.88)	(-2.98)**	(-1.36)	(3.73)**	(2.08)**
$EXCHGR_{T-2}$	0.0236	0.0804	0.0834	0.1450	0.1661	-0.0321	0.0869	6.2845	0.2422
	(0.46)	(1.11)	(1.82)*	(2.25)**	(2.42)**	(-0.42)	(1.58)	(5.24)**	(0.47)
$INT.INTEGR._{T-2}$	0.0185	0.0156	0.0096	0.0070	0.0208	0.0335	0.0250	-0.6006	0.0013
	(4.60)**	(3.63)**	(2.50)**	(1.75)*	(5.08)**	(5.38)**	(5.25)**	(-11.19)**	(0.04)
$FIN.LIB_{T-2}$	-0.0632	-0.2119	-0.0858	-0.2207	-0.1464	-0.1370	0.0541	-4.3828	-0.6238
	(-1.02)	(-2.51)**	(-1.56)	(-2.76)**	(-2.16)**	(-1.62)	(0.96)	(-4.42)**	(-1.63)
ΔEXCHGR	-0.0070	0.0002	-0.0062	0.0098	-0.0268	0.0114	-0.0238	0.9509	0.8514
	(-0.30)	(0.001)	(-0.31)	(0.38)	(-0.89)	(0.31)	(-1.08)	(1.67)*	(3.74)**
Δ INT.INTEGR	-0.0078	-0.0092	-0.0099	-0.0105	-0.0061	-0.0105	-0.0134	-0.0953	0.0517
	(-0.83)	(-1.49)	(-1.13)	(-2.04)**	(-0.79)	(-1.08)	(-2.30)**	(-1.07)	(0.80)
ΔFIN.LIB	-0.0173	-0.1236	-0.0113	-0.0924	-0.0233	-0.1201	0.1167	-1.6348	0.4639
	(-0.27)	(-1.71)*	(-0.20)	(-1.35)	(-0.33)	(-1.98)**	(1.42)	(-1.50)	(0.67)
Constant	0.1620	0.2957	0.1750	0.2953	0.2389	0.2308	0.0442	9.6361	0.5898
	(2.69)**	(3.64)**	(3.28)**	(3.86)**	(3.63)**	(2.77)**	(0.80)	(9.81)**	(1.58)
N. of obs.	202	197	202	197	196	172	156	194	193
R^2	0.62	0.65	0.55	0.62	0.67	0.64	0.71	0.69	0.21
					Fiscal Expansions				
FISCAL	0.0019	0.0007	0.0028	0.0022	-0.0015	-0.0014	0.0019	0.0058	-0.0258
	(1.46)	(0.38)	(2.22)**	(1.38)	(-0.81)	(-0.63)	(1.15)	(0.16)	(-2.01)**
$EXCHGR_{T-2}$	-0.2052	-0.2239	-0.2055	-0.1869	-0.1606	-0.0989	-0.1548	-3.0600	0.4778
	(-2.68)**	(-2.23)**	(-3.04)**	(-2.07)**	(-1.16)	(-0.56)	(-1.51)	(-1.56)	(0.70)
$INT.INTEGR_{T-2}$	0.0105	0.0002	0.0035	-0.0092	0.0090	0.0194	0.0131	-0.6666	-0.0045
	(2.71)**	(0.04)	(0.89)	(-1.76)*	(1.31)	(2.00)**	(3.00)**	(-9.82)**	(-0.17)
$FIN.LIB_{T-2}$	-0.2158	-0.4823	-0.1756	-0.6242	-0.1788	-0.2054	-0.1888	1.1635	0.2988
	(-7.70)**	(-2.74)**	(-5.67)**	(-3.59)**	(-2.63)**	(-3.97)**	(-4.59)**	(1.66)*	(1.11)
ΔEXCHGR	-0.0166	-0.0270	-0.0154	-0.0235	-0.0608	-0.0325	-0.0250	0.3579	0.8743
	(-0.57)	(-0.67)	(-0.53)	(-0.65)	(-1.30)	(-0.64)	(-0.77)	(0.47)	(3.80)**
Δ INT.INTEGR	-0.0060	-0.0036	-0.0100	-0.0040	-0.0089	-0.0064	-0.0069	-0.2682	0.0296
	(-0.75)	(-0.53)	(-1.31)	(-0.65)	(-1.13)	(-0.53)	(-0.86)	(-2.32)**	(0.50)
ΔFIN.LIB	0.0313	0.0516	0.0432	0.0568	0.0247	-0.0507	0.1289	0.2280	1.2041
	(0.76)	(0.56)	(1.07)	(0.65)	(0.27)	(0.96)	(2.69)**	(0.16)	(1.98)
Constant	0.3169	0.5798	0.2633	0.6983	0.2860	0.3145	0.2866	4.6243	-0.2482
	(9.55)**	(3.37)**	(7.66)**	(4.10)**	(3.88)**	(4.97)**	(5.88)**	(5.91)**	(-0.80)
N. of obs.	147	136	147	136	145	119	125	146	146
R^2	0.69	0.66	0.59	0.64	0.60	0.56	0.61	0.71	0.24

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; $EXCHGR_{T-2}$ = growth rate of the nominal effective exchange rate at T-2 (a minus sign indicates a nominal devaluation); $INT.INTEGR_{T-2}$ = index measuring extent of international integration of capital markets, on the current account and the existence of multiple exchange rates at time T-2; .$FIN.LIB_{T-2}$ = index measuring extent of financial liberalization at time T-2; ΔEXCHGR = change in EXCHGR; Δ INT.INTEGR = change in INT.INTEGR; ΔFIN.LIB = change in FIN.LIB. See section 2.2 for the definition of fiscal contractions and fiscal expansions and section 3.5 for variables definitions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Table 9: Fiscal contractions and debt sustainability

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0040	-0.0023	-0.0032	-0.0014	0.0001	-0.0035	-0.0027	0.0227	0.0158
	(-2.93)**	(-1.44)	(-2.80)**	(-1.05)	(0.05)	(-2.04)**	(-1.76)*	(3.55)**	(1.72)*
ΔDEBT $_{T+2}$	0.1644	0.1588	0.1249	0.1166	0.0936	0.1548	0.0484	-1.0052	-0.4682
	(5.86)**	(4.52)**	(5.43)**	(3.92)**	(2.54)**	(3.98)**	(1.11)	(-5.84)**	(-1.87)*
N. of obs.	270	263	270	263	225	241	227	253	249
R^2	0.38	0.36	0.36	0.34	0.43	0.41	0.31	0.51	0.13
FISCAL	-0.0042	-0.0023	-0.0033	-0.0013	-0.0005	-0.0036	-0.0032	0.0268	0.0250
	(-3.24)**	(-1.41)	(-3.04)**	(-0.93)	(-0.31)	(-2.09)**	(-2.17)**	(4.70)**	(2.69)**
ΔDEBT $_{T+3}$	0.1546	0.1546	0.1166	0.1136	0.1183	0.1729	0.1086	-0.9939	-0.3147
	(8.83)**	(7.16)**	(7.74)**	(5.91)**	(4.94)**	(7.15)**	(3.70)**	(-8.82)**	(-1.69)*
N. of obs.	255	248	255	248	223	226	219	238	234
R^2	0.44	0.41	0.41	0.38	0.47	0.48	0.37	0.63	0.14
PART II	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	-0.0040	-0.0023	-0.0032	-0.0014	0.0002	-0.0036	-0.0026	0.0230	0.0159
	(-2.84)**	(-1.39)	(-2.72)**	(1.03)	(0.15)	(-2.01)**	(-1.74)*	(3.49)**	(1.74)*
DEBTLOW1	-0.0155	-0.0173	-0.0101	-0.0119	-0.0067	-0.0156	0.0009	0.1239	0.0177
	(-2.91)**	(-2.44)**	(-2.27)**	(-1.95)*	(-0.95)	(-1.64)*	(0.16)	(5.13)**	(0.49)
N. of obs.	270	263	270	263	225	241	227	253	249
R^2	0.31	0.32	0.29	0.31	0.41	0.37	0.31	0.48	0.11
FISCAL	-0.0042	-0.0023	-0.0033	-0.0013	-0.0003	-0.0035	-0.0032	0.0268	0.0249
	(-3.16)**	(-1.42)	(-2.98)**	(-0.94)	(-0.21)	(-2.07)**	(-2.15)**	(4.53)**	(2.69)**
DEBTLOW2	-0.0300	-0.0298	-0.0207	-0.0199	-0.0278	-0.0460	-0.0218	0.1842	0.0339
	(-6.01)**	(-4.86)**	(-4.92)**	(-3.72)**	(-3.84)**	(-6.20)**	(-3.54)**	(8.93)**	(0.94)
N. of obs.	255	248	255	248	223	226	219	238	234
R^2	0.39	0.36	0.35	0.34	0.46	0.48	0.36	0.59	0.13
PART III	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL*DEBTLOW1	-0.0062	-0.0020	-0.0054	-0.0019	0.0009	-0.0033	-0.0040	0.0282	-0.0124
	(-2.47)**	(-0.61)	(-2.55)**	(-0.67)	(0.30)	(-1.15)	(-1.26)	(2.64)**	(-0.99)
FISCAL*DEBTHIGH1	-0.0027	-0.0024	-0.0019	-0.0012	-0.0000	-0.0038	-0.0021	0.0199	0.0333
	(-1.62)	(-1.31)	(-1.40)	(-0.77)	(-0.02)	(-1.66)*	(-1.21)	(2.37)**	(2.75)**
DEBTLOW1	-0.0049	-0.0188	0.0004	-0.0097	-0.0093	-0.0170	0.0067	0.0990	0.1549
	(-0.46)	(-1.45)	(0.05)	(-0.88)	(-0.78)	(-1.19)	(0.53)	(2.01)**	(2.62)**
N. of obs.	270	263	270	263	225	241	227	253	249
R^2	0.31	0.32	0.30	0.31	0.41	0.37	0.31	0.48	0.14
FISCAL*DEBTLOW2	-0.0085	-0.0046	-0.0076	-0.0043	-0.0015	-0.0047	-0.0061	0.0342	0.0086
	(-3.38)**	(-1.43)	(-3.56)**	(-1.50)	(-0.50)	(-1.49)	(-2.24)**	(3.54)**	(0.65)
FISCAL*DEBTHIGH2	-0.0020	-0.0011	-0.0012	0.0002	0.0001	-0.0028	-0.0019	0.0227	0.0339
	(-1.34)	(-0.60)	(-0.93)	(0.16)	(0.07)	(-1.45)	(-1.11)	(3.04)**	(2.79)**
DEBTLOW2	-0.0108	-0.0194	-0.0016	-0.0063	-0.0231	-0.0404	-0.0092	0.1495	0.1098
	(-1.12)	(-1.61)	(-0.19)	(-0.60)	(-2.03)**	(-3.40)**	(-0.86)	(3.56)**	(1.78)*
N. of obs.	255	248	255	248	223	226	219	238	234
R^2	0.40	0.37	0.37	0.34	0.46	0.48	0.37	0.59	0.14

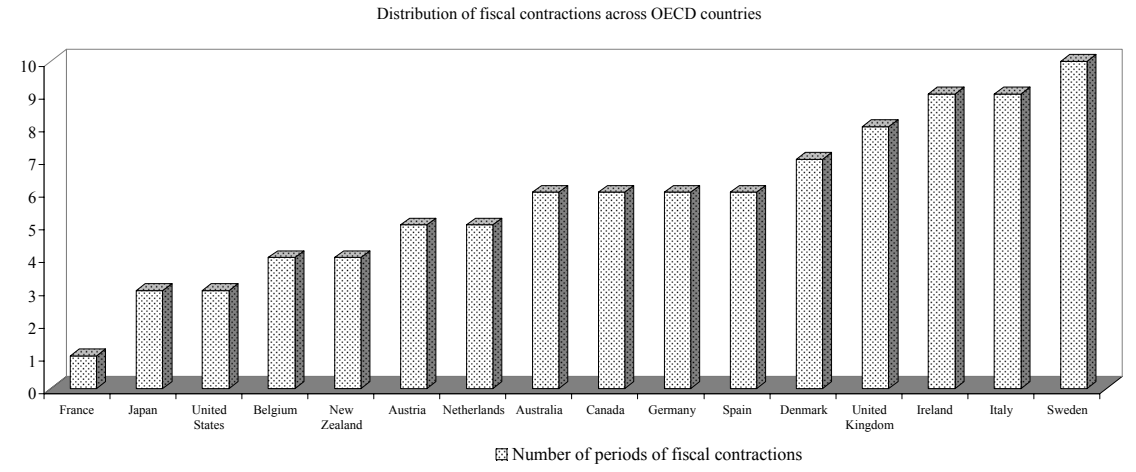
Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; $\Delta DEBT_{T+2}$ = change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to two years after; $\Delta DEBT_{T+3}$ = change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to three years after; DEBTLOW1 = 1 if, two years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 3 percentage points and zero otherwise; DEBTHIGH1 = 1-DEBTLOW1; DEBTLOW2 = 1 if, three years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 5 percentage points and zero otherwise; DEBTHIGH2 = 1-DEBTLOW2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

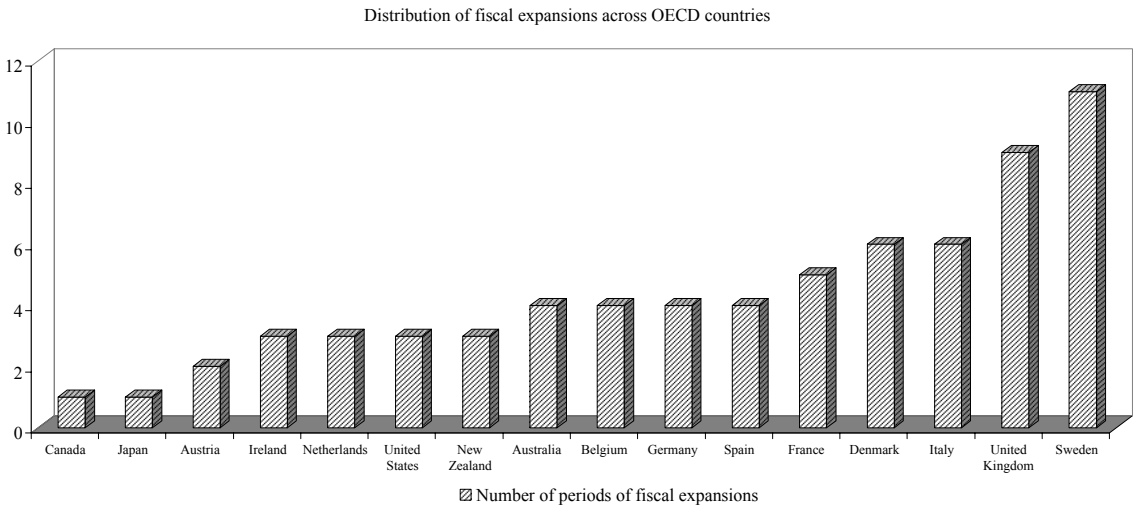
Table 10: Fiscal expansions and debt sustainability

PART I	INT10Y	INT3M	RINT10Y	RINT3M	DISCR	LIBOR	CORP	MSCI	MSCIGR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0013	0.0011	0.0016	0.0014	-0.0006	-0.0033	0.0019	0.0008	-0.0137
	(0.90)	(0.59)	(1.31)	(0.88)	(-0.35)	(-1.52)	(1.07)	(0.10)	(-1.14)
ΔDEBT $_{T+2}$	0.1005	0.1131	0.0919	0.1035	0.1469	0.0955	0.0990	-0.4416	-0.2153
	(3.80)**	(3.50)**	(3.96)**	(3.60)**	(4.51)**	(1.74)*	(3.13)**	(-2.38)**	(-0.73)
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.50	0.43	0.50	0.46	0.41	0.42	0.35	0.60	0.09
FISCAL	0.0013	0.0011	0.0016	0.0014	-0.0006	-0.0033	0.0019	0.0008	-0.0138
	(0.90)	(0.60)	(1.31)	(0.88)	(-0.36)	(-1.52)	(1.07)	(0.10)	(-1.15)
ΔDEBT $_{T+3}$	0.0743	0.0867	0.0703	0.0821	0.1253	0.0762	0.0695	-0.2278	-0.1555
	(3.62)**	(3.45)**	(3.81)**	(3.57)**	(4.78)**	(1.70)*	(2.87)**	(-1.64)*	(-0.76)
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.50	0.43	0.50	0.46	0.42	0.42	0.35	0.59	0.09
PART II	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL	0.0013	0.0011	0.0016	0.0014	-0.0006	-0.0032	0.0019	0.0008	-0.0138
	(0.90)	(0.59)	(1.32)	(0.88)	(-0.35)	(-1.45)	(1.07)	(0.10)	(-1.15)
DEBTHIGH1	0.0196	0.0215	0.0214	0.0235	0.0237	0.0152	0.0200	-0.0160	-0.0301
	(4.34)**	(3.59)**	(5.41)**	(4.25)**	(3.62)**	(1.45)	(3.49)**	(-0.42)	(-0.60)
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.50	0.43	0.52	0.47	0.38	0.41	0.35	0.58	0.09
FISCAL	0.0013	0.0011	0.0016	0.0014	-0.0006	-0.0031	0.0019	0.0008	-0.0137
	(0.89)	(0.60)	(1.30)	(0.89)	(-0.36)	(-1.40)	(1.07)	(0.10)	(-1.15)
DEBTHIGH2	0.0137	0.0222	0.0130	0.0214	0.0309	-0.0011	0.0144	0.0306	-0.0167
	(2.51)**	(3.28)**	(3.03)**	(3.89)**	(4.43)**	(0.11)	(2.41)**	(0.82)	(-0.36)
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.49	0.44	0.49	0.47	0.42	0.40	0.34	0.58	0.09
PART III	**INT10Y**	**INT3M**	**RINT10Y**	**RINT3M**	**DISCR**	**LIBOR**	**CORP**	**MSCI**	**MSCIGR**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FISCAL*DEBTLOW1	0.0034	0.0040	0.0018	0.0017	0.0034	0.0030	0.0064	0.0057	-0.0485
	(1.45)	(1.55)	(0.91)	(0.72)	(1.29)	(0.74)	(1.90)*	(0.34)	(-1.91)*
FISCAL*DEBTHIGH1	0.0005	-0.0002	0.0015	0.0013	-0.0025	-0.0054	0.0004	-0.0014	0.0014
	(0.29)	(-0.09)	(1.02)	(0.62)	(1.04)	(-2.07)**	(0.17)	(-0.17)	(0.11)
DEBTHIGH1	0.0282	0.0343	0.0223	0.0248	0.0413	0.0405	0.0381	0.0052	-0.1820
	(3.25)**	(3.02)**	(2.85)**	(2.29)**	(3.69)**	(2.67)**	(3.17)**	(0.08)	(-1.90)*
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.50	0.43	0.52	0.47	0.39	0.42	0.36	0.58	0.11
FISCAL*DEBTLOW2	0.0035	0.0032	0.0024	0.0018	0.0020	0.0029	0.0055	0.0037	-0.0405
	(1.45)	(1.17)	(1.31)	(0.79)	(0.85)	(0.83)	(1.82)*	(0.24)	(-1.75)*
FISCAL*DEBTHIGH2	0.0002	-0.0002	0.0012	0.0012	-0.0023	-0.0063	0.0001	-0.0008	0.0000
	(0.10)	(-0.07)	(0.74)	(0.55)	(-0.93)	(-2.32)**	(0.05)	(-0.09)	(0.001)
DEBTHIGH2	0.0236	0.0323	0.0165	0.0231	0.0438	0.0269	0.0307	0.0442	-0.1398
	(2.62)**	(2.81)**	(2.27)*	(2.27)*	(3.95)**	(1.86)	(2.74)**	(0.71)	(-1.60)
N. of obs.	167	163	167	163	160	135	151	164	162
R^2	0.49	0.44	0.49	0.47	0.42	0.42	0.35	0.58	0.11

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate; FISCAL = 1 two years before a fiscal contraction or expansion, 2 one year before, 3 at the time of the fiscal contraction or expansion, 4 one year after, and 5 two years after; $\Delta DEBT_{T+2}$ = change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to two years after; $\Delta DEBT_{T+3}$ = change of the public debt-to-GDP ratio from the last year of the fiscal contraction or fiscal expansion to three years after; DEBTLOW1 = 1 if, two years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 3 percentage points and zero otherwise; DEBTHIGH1 = 1-DEBTLOW1; DEBTLOW2 = 1 if, three years after the last year of the fiscal contraction (fiscal expansion), the ratio of public debt-to-GDP has declined (increased) more (less) than 5 percentage points and zero otherwise; DEBTHIGH2 = 1-DEBTLOW2. See section 2.2 for the definition of fiscal contractions and fiscal expansions. Columns 1 – 9 estimated by OLS and standard errors are corrected for heteroskedasticity. T-statistics in parenthesis.

Figure 1: Periods of fiscal contractions and fiscal expansions in OECD countries from 1960 to 2002





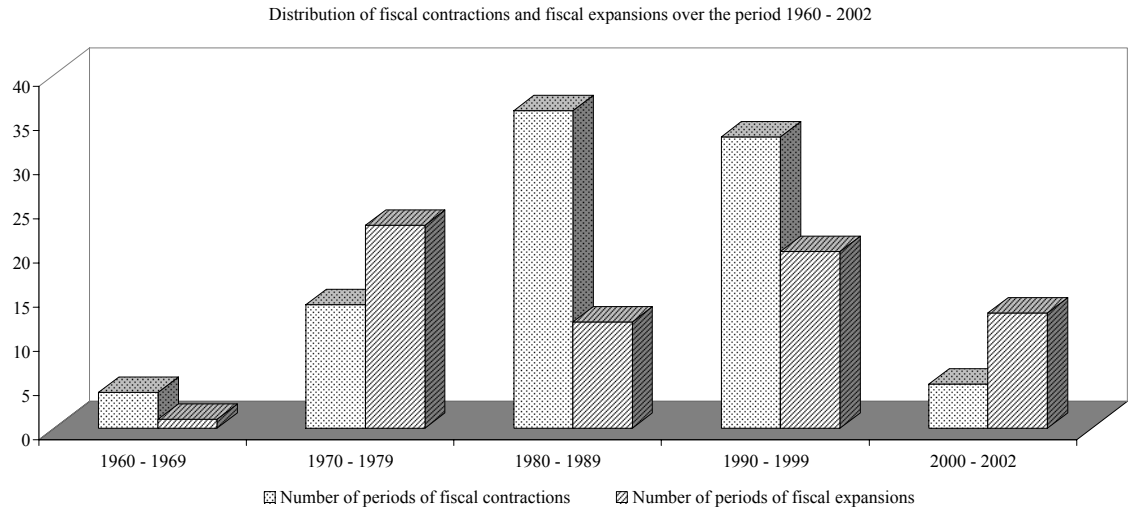
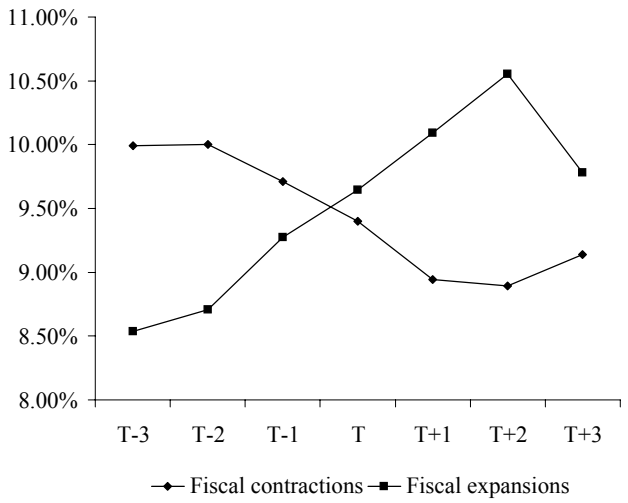
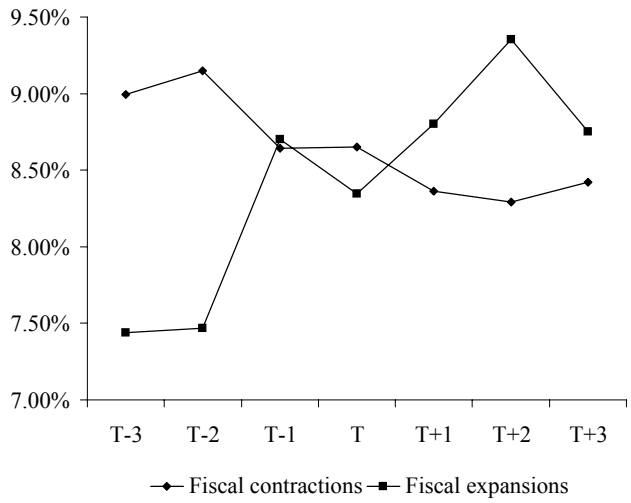


Figure 2: Interest rates

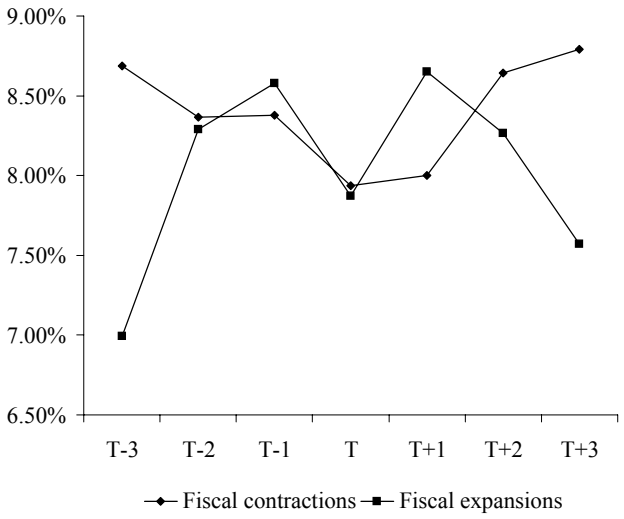
10-year government bonds nominal interest rate



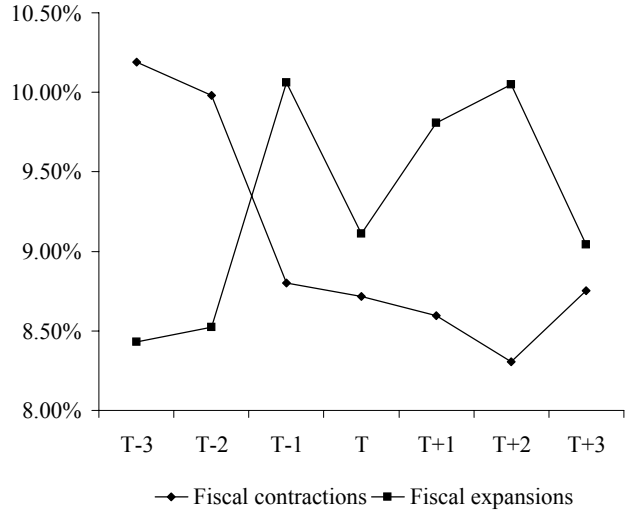
3-month government bonds nominal interest rate



Discount rate



Libor



Corporate bonds interest rate

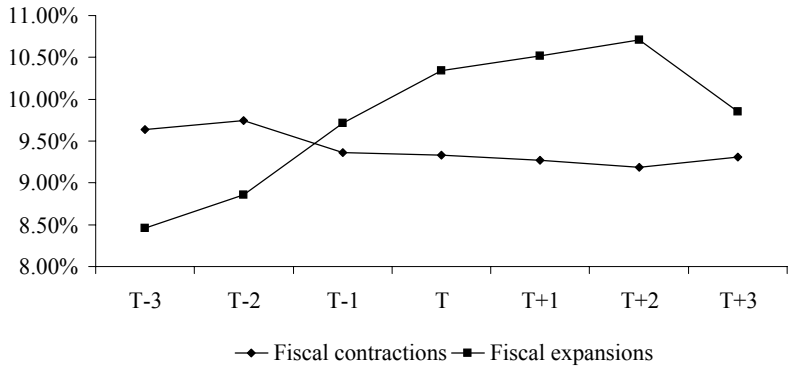
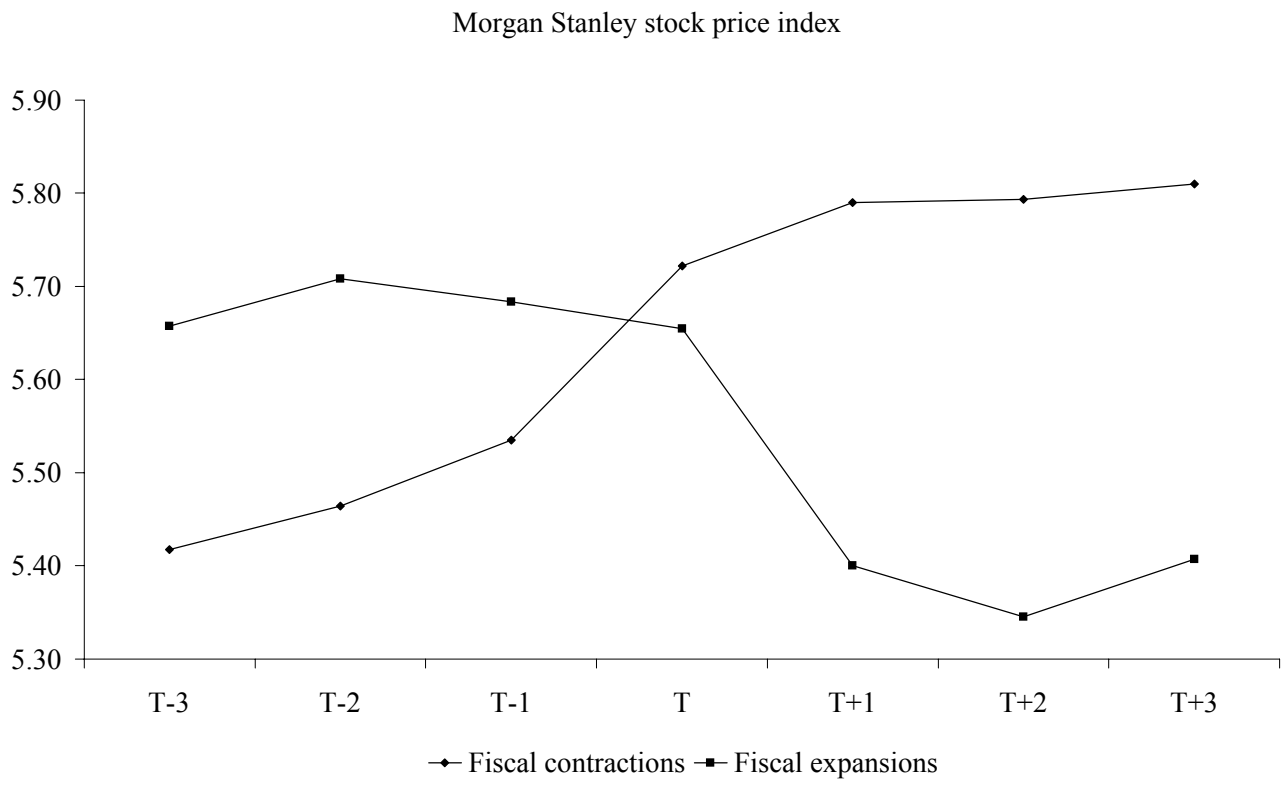
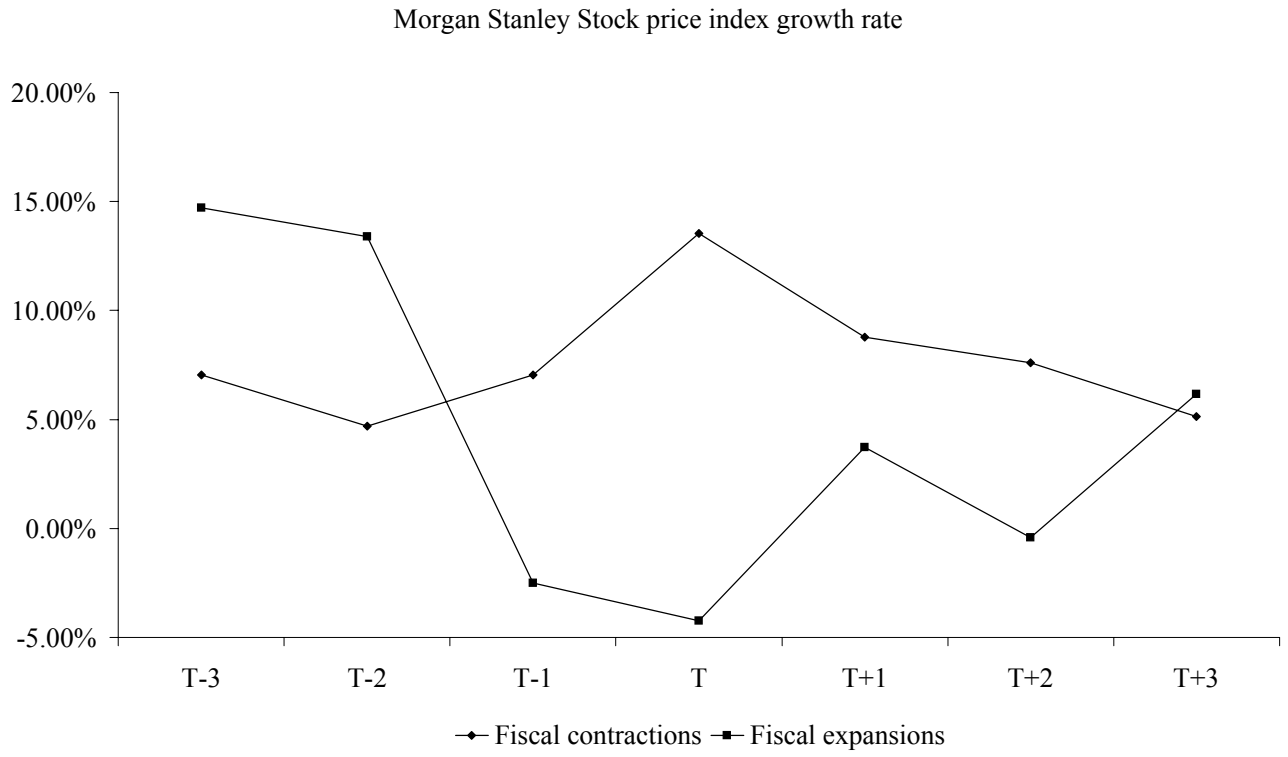


Figure 3: Stock market prices





Appendix

Table A1: Episodes of fiscal contractions and fiscal expansions

Episodes of Fiscal Contractions	
Countries	Years
Australia	1979, 1980, 1986, 1987, 1988, 1994
Austria	1977, 1984, 1986, 1997, 2001
Belgium	1982, 1984, 1985, 1987
Canada	1986, 1987, 1994, 1995, 1996, 1997
Germany	1969, 1973, 1976, 1977, 1989, 2000
Denmark	1976, 1977, 1983, 1984, 1985, 1986, 1999
Spain	1972, 1973, 1986, 1987, 1996, 1997
France	1996
United Kingdom	1977, 1988, 1994, 1995, 1996, 1997, 1998, 2000
Ireland	1982, 1983, 1987, 1988, 1989, 1996, 1997, 1998, 2000
Italy	1967, 1976, 1977, 1980, 1982, 1990, 1991, 1992, 1997
Japan	1983, 1984, 2001
Netherlands	1983, 1985, 1991, 1993, 1996
Sweden	1976, 1983, 1984, 1986, 1987, 1994, 1995, 1996, 1997, 1998
USA	1968, 1969, 1976
New Zealand	1987, 1989, 1993, 1994
Episodes of Fiscal Expansions	
Countries	Years
Australia	1975, 1990, 1991, 1992
Austria	1975, 1993
Belgium	1972, 1975, 1981, 1983
Canada	1982
Germany	1974, 1975, 1990, 2001
Denmark	1974, 1975, 1980, 1981, 1982, 2002
Spain	1971, 1981, 1982, 1993
France	1975, 1981, 1992, 1993, 2002
United Kingdom	1971, 1972, 1973, 1990, 1991, 1992, 1993, 2001, 2002
Ireland	1978, 2001, 2002
Italy	1965, 1971, 1972, 1975, 1981, 2001
Japan	1993
Netherlands	1975, 2001, 2002
Sweden	1974, 1977, 1978, 1979, 1988, 1990, 1991, 1992, 1993, 1999, 2002
USA	1975, 2001, 2002
New Zealand	1988, 1997, 1998

Notes: An episode of large fiscal contraction (expansion) is a period in which the cyclically adjusted primary balance improves (worsens) by at least 1.5 per cent of GDP or a period of two consecutive years in which the cyclically adjusted primary balance improves (worsens) by at least 1 per cent of GDP per year, in both years.

Table A2: Summary statistics

	Episodes of Fiscal Contractions				
	T-2	T-1	T	T+1	T+2
INT10Y	0.10	0.097	0.094	0.089	0.089
	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
INT3M	0.091	0.086	0.087	0.084	0.083
	(0.07)	(0.006)	(0.005)	(0.006)	(0.006)
RINT10Y	0.085	0.083	0.082	0.077	0.077
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
RINT3M	0.077	0.073	0.074	0.0073	0.071
	(0.006)	(0.005)	(0.004)	(0.005)	(0.005)
DISCR	0.084	0.084	0.079	0.080	0.086
	(0.006)	(0.007)	(0.004)	(0.007)	(0.007)
LIBOR	0.10	0.088	0.087	0.086	0.083
	(0.007)	(0.007)	(0.005)	(0.007)	(0.007)
CORP	0.097	0.094	0.093	0.093	0.092
	(0.006)	(0.005)	(0.004)	(0.005)	(0.006)
MSCI	5.46	5.535	5.722	5.79	5.793
	(0.145)	(0.143)	(0.105)	(0.139)	(0.146)
MSCIGR	0.047	0.070	0.135	0.088	0.076
	(0.025)	(0.030)	(0.022)	(0.028)	(0.032)
	Episodes of Fiscal Expansions				
	T-2	T-1	T	T+1	T+2
INT10Y	0.087	0.093	0.096	0.101	0.106
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
INT3M	0.075	0.087	0.083	0.088	0.094
	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)
RINT10Y	0.072	0.077	0.081	0.083	0.088
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
RINT3M	0.058	0.069	0.069	0.070	0.076
	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)
DISCR	0.083	0.086	0.079	0.086	0.083
	(0.008)	(0.007)	(0.006)	(0.008)	(0.006)
LIBOR	0.085	0.101	0.091	0.098	0.100
	(0.007)	(0.008)	(0.006)	(0.010)	(0.008)
CORP	0.089	0.097	0.103	0.105	0.107
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)
MSCI	5.708	5.683	5.655	5.40	5.345
	(0.186)	(0.185)	(0.137)	(0.197)	(0.199)
MSCIGR	0.134	-0.025	-0.042	0.037	-0.004
	(0.035)	(0.032)	(0.023)	(0.038)	(0.031)

Notes: INT10Y = nominal interest rate of 10-year government bonds; INT3M = nominal interest rate on 3-month Treasury bills; RINT10Y = real interest rate of 10-year government bonds; RINT3M = real interest rate on 3-month Treasury bills; DISCR = discount rate; LIBOR = LIBOR interest rate; CORP = average corporate bonds interest rate; MSCI = Morgan Stanley MSCI share price index (expressed in US $ and in logs); MSCIGR = Morgan Stanley MSCI share price index (expressed in US $) growth rate. Standard deviation of the means in parenthesis.

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