



## Fiscal policy and financial market movements

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### ABSTRACT

This paper estimates fiscal policy reaction function in order to investigate the links between financial market movements and fiscal policy outcomes. An increase in asset prices affects in a positive and significant manner primary balances, with the response reflecting both an increase in government revenues and a fall in government spending. The most important impact on fiscal balances is due to changes in residential property prices. Changes in equity and commercial property prices are also important determinants of fiscal balances. Our findings suggest that the steepening of the slope of the yield curve contributes to expenditure based fiscal discipline.

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### 1. Introduction

In the midst of recent macroeconomic and financial market crisis fiscal policy making has been at the forefront. Several governments around the globe have decided to undertake a significant fiscal impulse to boost economic activity. These actions involved both discretionary demand boosting measures, as well as measures to restore financial stability in the banking sector, i.e., equity injections, subsidies, asset purchases, loan guarantees, etc.

The recent economic and financial market developments go hand in hand with a significant fall in asset prices, which in several asset classes and countries resemble the case of an asset price bust, following several years of asset price boom (e.g., house price developments in Ireland, the UK, Spain and the US). These developments had significant implications on fiscal balances, both through automatic and discretionary fiscal policy responses.

As economic conditions improve the policy focus will shift to the sustainability of fiscal positions implying that governments will start withdrawing the sizeable fiscal policy stimulus packages and the financial sector support schemes. In view of the forthcoming gradual economic recovery asset prices have started to improve (see IMF, 2010), which provides a boost to public finances, through the revenue channel. However, given that uncertainty remains

high and that the recovery might be more gradual than expected this could have significant effects, in terms of volatility, on asset markets and asset prices, which have a negative feedback effect on fiscal balances and the fiscal consolidation effort.

The on-going crisis is a very rare episode in terms of its severe and world wide implications and because of the strong and coordinated policy responses that followed it. However, it could certainly imply that fiscal policy makers might put more of their attention on financial and real estate market developments and might try to avert analogous events in future years.<sup>1</sup> Therefore, it is of real interest to better understand fiscal responses to financial market developments, as well as to economic shocks, and how the two interrelate and constrain government reaction.

While there has been an extensive literature on the appropriate monetary policy making in response to financial market (and in particular asset price) movements (see Borio and Lowe, 2002; Borio and Jeanne, 2002), the literature on the appropriate fiscal policy response is far less developed. In addition, there is only limited empirical evidence on the linkages between government finances and asset prices and on whether fiscal policy has been affected by asset prices changes.

<sup>1</sup> Early alleviation of tax distortion in housing markets could have contributed to reducing the impact of factors that have facilitated excessive leveraging and led to high debt levels, paving, thus, the way for the recent financial crisis (see IMF, 2009). As is pointed out by Wolswijk (2010) fiscal instruments may be useful either for preventing or for correcting housing market disequilibrium.

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A series of recent contributions investigate the effects that financial market movements and in particular asset price changes have on fiscal balances (see Eschenbanch and Schuknecht, 2002; Jaeger and Schuknecht, 2004; Tujula and Wolswijk, 2007; Morris and Schuknecht, 2007).<sup>2</sup> These were motivated by the asset price boom of the late 1990s and the windfall revenues it generated, which were then deemed as being of a structural nature leading to permanent improvement in fiscal positions. However, the subsequent burst of the asset price bubble led to a significant deterioration of fiscal balances, hindering the sustainability of fiscal positions and limiting the budgetary room for maneuver during the downturn of the early 2000s. Therefore, most contributions focus on whether fiscal revenues should be adjusted both for the economic and the asset price cycle. Another class of studies, e.g., Honohan and Klingebiel (2003), Schuknecht and Eschenbanch (2004), Reinhart and Rogoff (2009) and European Commission (2009), discuss in detail the fiscal implications of past financial and banking crises.<sup>3</sup>

The present paper builds on these earlier contributions and investigates the links between financial market movements and fiscal policy developments. It goes beyond the aforementioned studies (i.e., on whether government revenues should be adjusted both for the economic and the asset price cycle) in that it investigates, by means of fiscal policy reaction functions (see Gali and Perotti, 2003; Golinelli and Momigliano, 2009) whether there is any evidence that fiscal balances (primary balances, current expenditure and current revenue) have been affected by or responded to financial and real estate market movements (i.e., changes in residential, commercial property and equity prices and changes in the slope of the yield curve).

These issues are particularly relevant and should be taken on board by policy makers because financial market developments (like a steeper yield curve) might reflect market concerns regarding the sustainability of a country's fiscal position. Furthermore, asset price movements are relevant for the following reasons: (1) they should be controlled for in order for the policy maker to have a better grasp of the actual cyclically adjusted fiscal stance<sup>4</sup>; (2) they could carry information on cyclical economic conditions, on top of the information provided by economic activity variables. This would imply that fiscal policy makers should build up fiscal buffer (e.g., by using windfall revenues) for rainy days to come when economic conditions are good and when asset prices are booming.

Our findings suggest that financial market variables have a quite significant impact on fiscal positions. An increase in asset prices affects in a positive and significant manner primary balances, with the response reflecting both an increase in government revenues and a cut in government spending. The most important impact on fiscal balances is due to changes in residential property prices. Equity price changes and commercial property price changes are also significant determinants of fiscal balances. The importance of residential property and equity prices as determinants of primary balances has increased over the course of the years. The effect of residential property prices, in recent years, reflects an automatic rather than a discretionary response of cycli-

cally adjusted fiscal balances. In the case of equity prices, there is both an automatic and a discretionary response. The steepening of the slope of the yield curve contributes to fiscal discipline, in particular in recent years, by inducing expenditure cuts.

Section 2 discusses potential channels of interaction between financial and real estate market movements and budgetary outcomes. Section 3 discusses methodological issues and presents the data and the empirical model. Section 4 presents the main findings. Robustness analysis is conducted in Section 5. The last section summarizes the main findings and concludes.

## 2. Potential channels of interaction between financial and real estate market movements and budgetary outcomes

As has been discussed by relevant literature, e.g., Eschenbanch and Schuknecht (2002), Honohan and Klingebiel (2003), Schuknecht and Eschenbanch (2004), Reinhart and Rogoff (2009) and European Commission (2009), financial markets and in particular asset prices can affect the budget via a series of channels. Directly via certain revenue categories, e.g., capital gains–losses related taxes. These affect direct taxes on households and corporations. Moreover, the government raises revenues via transactions in assets, the so-called turnover taxes. Indirectly, they affect revenue via a feedback loop from higher asset prices to the real economy activity. Higher asset prices raise consumer confidence and consumption, via the wealth effect, and increase the collection of indirect taxes. Furthermore, in case of asset price busts and ailing financial institutions the state might be asked to intervene bearing some of the costs. The government's intervention to bailout financial institutions affects public finances via several channels. In case they take the form of budgetary subsidies or expenditures they directly affect the budget deficit. However, if they take the form of financial transactions, e.g., purchase of assets or equity injections they will affect only the debt ratio. In case of guarantees extended to the private sector, the government will be burdened only at the time that the guarantees on loans are called up.

There is an additional indirect channel, i.e., if the asset price bust leads to financial instability and induces a negative feedback loop on economic activity the government might have to undertake expansionary fiscal measures to avert the danger of a full blown economic recession, leading to the deterioration of its budgetary position (see European Commission, 2009).<sup>5</sup>

Turning now to the yield curve, we know that (usually) it has a positive slope (the difference between the long and short term nominal interest rates), which implies that yields rise as maturity lengthens (see Cairns, 2004). A positive slope reflects that economic prospects will improve and that inflation will further rise in the future, which means that there are expectations of tighter monetary policy in the future to dampen inflationary pressures.<sup>6</sup> This means that investors will require higher risk premium associated with future inflation uncertainty. This will be reflected in higher long term interest rates. In addition, the fact that an economy faces more uncertainty about future events, which are likely to impact on investments, can lead to higher long term rates. Moreover, if financial markets perceive that there will be greater risks in the future in terms of the long term sustainability of public finances then this will be translated into higher spread between long term and short

<sup>2</sup> Several recent studies have been motivated by asset price movements and their implications for economic and financial stability (see Barrell et al., 2010; Koetter and Poghosyan, 2010; Gimeno and Martínez-Carrascal, 2010; Beltratti and Morana, 2010; Oikarinen, 2009).

<sup>3</sup> Laeven and Valencia (2008) construct a new dataset of systemic banking crises. According to this dataset, excluding the on-going crisis which is not covered by our sample, past banking and financial crisis that affected OECD countries (covered by our sample) and required public intervention occurred in Australia in 1989–1992, in Finland in 1991–1994, in France in 1994–1995, in Japan in 1992–2005, in Sweden in 1991–1994, in the US in 1981–1991, 1998, and in Norway in 1987.

<sup>4</sup> For example, the measures of fiscal policy stance (cyclically adjusted primary balances or structural balance) used for policy analysis and fiscal surveillance by international institutions (see IMF, 2010; OECD, 2008; European Commission, 2009) are only corrected for the economic cycle (output gap movements).

<sup>5</sup> The performance of financial and real estate market movements can affect public pension reserve funds, which support social security systems, to the extent they have invested in these asset classes. This could affect the viability of social security systems in case asset prices deteriorate sharply (see OECD, 2010).

<sup>6</sup> According to the arbitrage pricing theory if investors expect a future rise in the risk free rate, then it is better to postpone their investment in order to receive a better rate in the future. Those investors willing to invest now will have to be compensated for the future rate rise.

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