



Financial stability indicators and public debt developments



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ABSTRACT

This paper investigates the inter-linkages between financial stability and fiscal policy. It analyzes the effect of selected financial stability indicators on the probability of future debt deterioration, controlling for several macroeconomic variables. We find significant evidence that a fragile banking system can put at risk public finances. Weak bank profitability, low asset quality and a weak capital base increase the fragility of the banking system, thus, raising the probability of future fiscal troubles.

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1. Introduction

One of the major consequences of the recent financial crisis is its impact on government finances. Total support packages from governments and monetary authorities during the recent crisis have reached unprecedented levels. These actions coupled with the cyclical deterioration of fiscal positions and discretionary fiscal expansions have led to a substantial pick up in debt to GDP ratios in many OECD countries.

Although the recent crisis and the response to it was unprecedented, it certainly implies that policy makers from now on will put more of their attention on financial market developments and will try to avert analogous dramatic events in future years. Several actions towards this direction have already been agreed at the G20 and EU context (G20, 2009). For example, strengthening financial supervision and regulation, reforming international financial institutions to overcome the recent crisis and prevent future ones, creating the Financial Stability Board (FSB) to improve macro-prudential surveillance at the global level, and taking decisive and coordinated fiscal policy actions in order to restore confidence, growth and jobs, etc.

Moreover, the Ecofin Council agreed on 9 June 2009 that "... an independent macro-prudential body covering all financial sectors, the European Systemic Risk Board (ESRB), should be

established. ...".¹ In this context the European Commission on 12 September 2012 (European Commission, 2012) unveiled its proposals for a single supervisory mechanism for banks in the euro area, giving enhanced powers to the ECB, in an effort to strengthen the functioning of the Economic and Monetary Union (EMU) and break the vicious cycle between the banking sector vulnerabilities and sovereign debt financing problems. On 19 March 2013 the European Parliament and the Council reached an agreement on this major legislative package entrusting the European Central Bank with responsibility for the supervision of banks in the framework of the Single Supervisory Mechanism and adapting the operating rules of the European Banking Authority (EBA) to this new framework.

Given the links between fiscal policy and the financial sector, it is of great importance to better understand the feedback loops between government activity and financial market stability. Financial market instability can have significant implication for public finances, either directly (to the extent that it requires government intervention, involving some sort of bail out) or through its effects on economic activity.² An ailing banking system will mean that financial intermediation breaks down and credit extended to the

¹ Council of the European Union, Press release 2948th Council meeting Economic and Financial Affairs, Council Conclusions on Strengthening EU financial EU financial Supervision, 10737/09 (Presse 168) Luxembourg 9 June 2009.

² According to Peter Praet "...deteriorating fiscal positions stemming from government support measures to the banking sector—as particularly in the case of Ireland—have highlighted the linkage between financial sector stability and public debt and deficit levels...The fragility of a large multinational banking system can have a severe impact on public finances that were previously perceived to be sound..." See BIS (2011).

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private sector is substantially reduced impacting negatively on economic activity. At the same time, as we have observed in the recent crisis, the monetary policy channel could become dysfunctional. Given the banks' effort to reduce their activities and improve their balance sheets and capital base, lowering policy rates to kick-start economic activity is not automatically translated into increased lending to the private sector. Hence, fiscal intervention will be required to restore confidence in the stability of the banking and financial system (given the public good character of financial stability) and to sustain economic activity, as was indeed the case in the recent crisis.³

Given these important inter-linkages between financial stability and fiscal policy, this paper builds on financial soundness indicators (FSIs) of the banking system to investigate whether their evolution can provide an indication of the fiscal cost (in terms of higher debt ratio) that governments might have to incur in the event of financial instability. We are building on two recent strands of the literature. First, [Cihak and Schaeck \(2007, 2010\)](#) who use financial soundness indicators reported in the Global Financial Stability Report (GFSR) of the International Monetary Fund (IMF). These indicators refer to bank profitability (return on assets, return on equity), bank asset quality (non performing loans (NPLs) to total loans, loan loss provisions to non performing loans), and bank capital adequacy (regulatory capital to risk weighted assets, capital to assets). The findings of [Cihak and Schaeck \(2007, 2010\)](#) provide evidence that a certain subset of FSIs may help predict a banking crisis. The second strand of the literature relates to the study of [Furceri and Zdzienicka \(2012a\)](#) who show that banking crises are associated with significant and long lasting increases in government debt. Building on these two pieces of work we relate the evolution in FSIs to the accumulation of debt and claim that FSIs can be a relevant predictor of future debt crisis that are driven by the occurrence of a banking crisis and its related fiscal costs. The channels concerned involve both the direct effects (i.e., the bank recapitalization operations and other government interventions) and indirect effects (i.e., the decline in output due to the financial sector collapse).

Put it differently, the evolution of such indicators can have predictive power for the performance of the banking systems and can warn the relevant authorities on the likely macroeconomic and budgetary implications and risks that an event of financial instability might entail (e.g., in Ireland and in Spain banking sector vulnerabilities led to a sovereign debt problems).⁴ Taking this into account, fiscal authorities, in close cooperation with financial supervisors, should keep track of the developments in the financial system.

Employing different modelling techniques (logit, logit fixed effects and instrumental variable probit analysis), and using data for 20 OECD countries over the period 1997–2010, we find significant econometric evidence that financial stability indicators can be linked with future debt deterioration episodes. Indicatively, a 1 percentage point (p.p.) increase in the returns on assets ratio reduces the probability of future fiscal troubles by about 0.084–0.124. Similarly, a 1 p.p. increase in the ratio of NPLs to total loans raises the probability of subsequent debt deterioration by about 0.015. Finally, a 1 p.p. increase in the regulatory-capital-to-risk-weighted-assets reduces the probability of debt deterioration by about 0.02–0.03. In addition, we find that the effect of higher

regulatory-capital-to-risk-weighted-assets in lowering future fiscal risks increases as we pass from weak to more severe debt crisis episodes. Overall, FSIs can provide valuable information to the fiscal policy maker, both as regards their direct effect on the probability of future debt deterioration episodes, as well as indirectly through their likely impact on output growth and the debt ratio sub-components.

Our findings provide evidence that early signs of instability that can be used to initiate action that could involve creating additional fiscal space (fiscal buffers), in particular in good times, and putting in place appropriate supervisory and regulatory actions to avert a possible destabilization of the banking sector and subsequent fiscal troubles.

The rest of the paper is organized as follows: Section 2 discusses the direct and indirect fiscal costs of financial and banking crisis and overviews previous related studies. In Section 3 we provide data information related to the financial soundness indicators and the dependent variables considered in the empirical analysis. Section 4 presents the methodology, regression analysis, robustness checks and findings. Section 5 summarizes the main findings and concludes. A [Data appendix](#) presents detailed information about the variables used in the analysis.⁵

2. Financial crises and fiscal policy implications: fiscal costs and previous studies

2.1. Direct and indirect fiscal costs

The recent economic and financial market crises have induced governments around the world to take decisive action in terms of sustaining economic activity and preventing the meltdown of the financial sector. These actions had direct and indirect fiscal costs. Direct fiscal costs are those involving permanent increases in government's net worth as a result of the financial system rescue packages (e.g., capital injections, purchases of toxic assets, subsidies, pay out to depositors, payments of called upon guarantees etc.). These interventions lead to higher public debt, which either shows up as an increase in stock flow or debt-deficit adjustments or as higher deficit (see e.g., [Attinasi, Leiner-Killinger, & Slavik, 2010](#); [European Commission, 2009b, 2011a](#); [Eurostat, 2013](#)).⁶ These are called "gross" fiscal costs, because some of these costs are recovered after a period of time when financial asset are resold.

According to European Commission and ECB reports over the period 2003–2007 the stock-flow adjustment was on average 0.3% of GDP or less for euro area countries.⁷ As a result of the financial

⁵ A supplementary material appendix presents additional empirical findings.

⁶ Debt accumulation in each period is determined by: (i) the primary budget balance, (ii) the interest payments on debt, (iii) the nominal growth rate, and (iv) the stock-flow or debt-deficit adjustment (i.e., factors that do not affect the primary balance). The debt-deficit adjustment incorporates: (1) financial derivatives and other liabilities, (2) net acquisition of financial assets, (3) differences in cash and accrual accounting, and (4) other adjustments (e.g., effects of face valuation, appreciation/depreciation of foreign currency debt and other changes in volume). Some of the measures (i.e., capital injections, loans, acquisitions of financial assets) taken during the financial crisis in support of the banking sector are recorded as impacting the stock-flow or debt-deficit adjustment term. For example, if these financial transactions are conducted at market price or yield sufficient return they will affect the debt (if they imply increased government borrowing), but they will not affect the primary balance. Government guarantees provided during the crisis represent contingent liabilities that do not have an immediate impact of government finances. They will impact the primary balance only if they are called upon, leading to a deficit increasing capital transfer. The government support packages do not come for free, governments receive fees, dividends or interest payments (e.g., on preferential shares). These are all recorded as deficit decreasing operations. See [European Commission \(2009a\)](#), [Attinasi et al. \(2010\)](#) and [Eurostat \(2013\)](#).

⁷ See [European Commission \(2009a\)](#) and [Attinasi et al. \(2010\)](#).

³ Alternatively, unsound fiscal policies, by impacting negatively on market confidence and sovereign bonds, could represent a risk to financial and consequently economic stability. The government borrowing operations in financial markets and its tax decisions could also have repercussion for interest rates and asset price behaviour, which could become a risk to financial market stability ([BIS, 2011](#)).

⁴ See [IMF \(2010a\)](#) and [Eurogroup \(2012\)](#).

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