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**Sub-national Finances
and Fiscal Consolidation:
Walking on Thin Ice**

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Claudia Hulbert**

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SUB-NATIONAL FINANCES AND FISCAL CONSOLIDATION: WALKING ON THIN ICE

Camila Vammalle and Claudia Hulbert¹

Recent crises and national consolidation packages affected sub-national finances. In many OECD countries, central governments introduced reductions in transfers to sub-national governments, and established expenditure and/or deficit objectives to be met by local or regional authorities. Such measures have reduced the financial room of sub-national governments for implementing key public services or investments.

In parallel, borrowing conditions deteriorated for many sub-national governments, as banks and financial markets became increasingly reluctant to lend. Since late 2008, financial markets started discriminating between high- and low-quality SNG bonds, and yields reached record-high levels for sub-national governments perceived as less creditworthy.

Facing degraded finances, upward pressure on expenditures and deteriorated borrowing conditions, many sub-national governments have used public investment as an adjustment variable to reduce their budget deficits and preserve their spending on welfare, health or education. However, such policies may hinder long-term growth perspectives.

JEL codes: H70, H74, H81, H12

Keywords: public debt, sub-national governments, bailouts, fiscal stress

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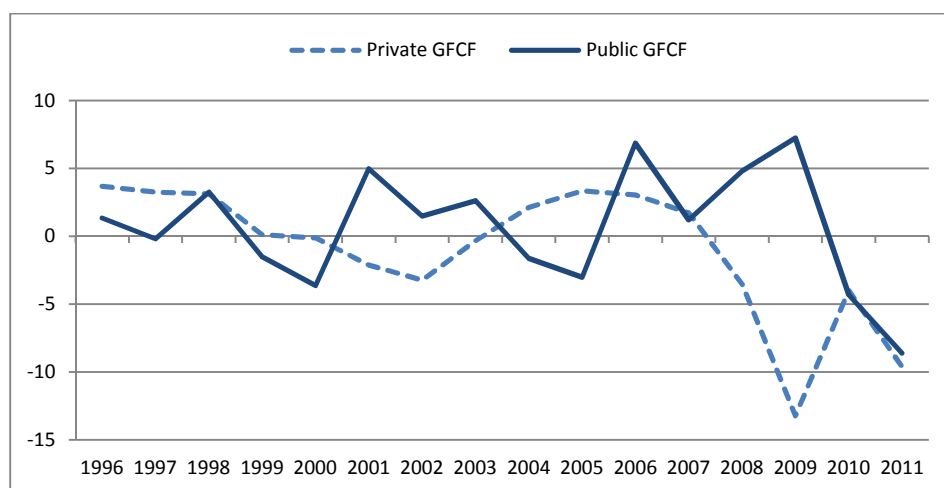
1. Introduction and key points

The recent crisis and the present consolidation drive have reduced the financial room for manoeuvre of sub-national governments (SNGs). After carrying out stimulus programmes and supporting SNGs during the initial stages of the crisis (2008-2009), most central governments (CGs) have now switched to financial consolidation strategies. This reversal has been particularly difficult for SNGs, still reeling from the consequences of the crisis and now watching the special measures taken by central governments to support them peter out. In a number of countries, CGs are also requiring SNGs to participate in the consolidation effort and reduce their deficits and debt.

In addition, borrowing conditions have deteriorated for the financially weaker SNGs. Banks and financial markets have become increasingly reluctant to lend, as the perceived creditworthiness of sovereign and sub-national governments has deteriorated. Since the fall of 2008, financial markets have started discriminating between high- and low-quality SNG bonds. Bond yields of SNGs perceived as less creditworthy have risen strongly compared to bond yields of the most creditworthy SNGs. This trend has been accelerating during 2012.

As a consequence, SNGs are often using public investment as an adjustment variable to reduce their budget deficits and preserve their spending on welfare, health or education. As SNGs represent about two thirds of public investment, and are important providers of key public services, this can generate cascade effects on local labour markets (through, *e.g.* a reduction of their public procurement spending), threaten local growth possibilities and increase inequalities in local public service access and quality. In addition, while public investment has traditionally played a counter-cyclical role by compensating falls in private investment, since 2009, it no longer plays this role, as both public and private investment levels are falling (Figure 1).

Figure 1. Variations in private and public GFCF in OECD countries (in %)



Source: OECD National Accounts

The first section of this paper provides information about the financial situation of SNGs in OECD countries, as well as on the policies that are being carried out by both CGs and SNGs to reach planned consolidation objectives.² The second section analyses long-term trends in public investment, and how it

2. This paper is based on a questionnaire sent to the delegates of the OECD Network on Fiscal Relations across Levels of Government and to those of the OECD Working Party of Senior Budget Officials.

has been used as an adjustment variable by many SNGs. The third section analyses how financial markets perceive these trends, by looking at the evolution of SNG bond ratings and yields since 2007.³ In particular, it explores whether financial markets follow the ratings of rating agencies, whether they consider SNGs as systematically riskier than their CGs, and whether contagion is observed after rating downgrades.

Key points

- In 2010, SNGs accounted for 13% of general government deficits and 14% of public debt (representing on average 8.2% of GDP) across the OECD. These averages conceal wide disparities among countries as well as among SNGs within countries. It is therefore important to look at the dispersion in addition to average values.
- SNG debt generates a number of potential risks, such as externalities, risk of contagion or anticipation of bailouts from CGs. In some countries, the financial situations of SNGs have affected the evaluation of CGs' ability to consolidate, and therefore threatened the credibility of CG consolidation plans.
- As SNGs are usually subject to fiscal rules and CG monitoring, their deficits and debt remain – in most cases – under control. But their room for manoeuvre is limited: their revenue autonomy is low, an important share of their spending is mandatory (mandated by higher levels of government) and very difficult to cut, as it is in politically sensitive and visible areas such as education or health. SNG budgets are often constrained by tight fiscal rules and CG monitoring prevents them from increasing deficits.
- SNGs' borrowing conditions on financial markets have deteriorated significantly since the autumn of 2008 (Lehman collapse), and differentiation between SNG borrowers has increased. This was accompanied by a flight to quality, as can be seen by the rise in the range of variation of yields (maximum minus minimum observed yields), with the highest quality bonds enjoying lower yields in 2012 than in 2007, while the yields of the less creditworthy borrowers have increased.
- In most cases, central government bond yields are lower than SNG bond yields. This may reflect that, like rating agencies, markets have an implicit “sovereign ceiling” rule (*i.e.* SNG bonds are necessarily more risky than central governments'). It may also simply reflect that central government bonds are more liquid than SNGs' (the volume of central government bonds being far larger than that of any single SNG).

Twenty-four countries responded to the questionnaire, in two waves. In September-October 2011: Australia, Belgium, Czech Republic, Finland, Germany (which provided separate answers for the *Länder* and the municipalities), Hungary, Ireland, Italy, Mexico, Poland, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and Turkey. In January-April 2012: Austria, Canada, Denmark, Estonia, France, Greece, Portugal, and United Kingdom (which provided separate answers for the English Local Authorities, Local Authorities in Scotland, Wales and Northern Ireland, and United Kingdom Devolved Administrations). Belgium and Ireland provided updates in October 2012 which are included. Spain sent updates in November 2012. These will be included in the final version of the paper.

3. This section is based on inputs provided by Norbert Gaillard.

- Markets seem to anticipate rating changes rather than react to them. Downgrades have little effect on SNG bond yields, and contagion is small.

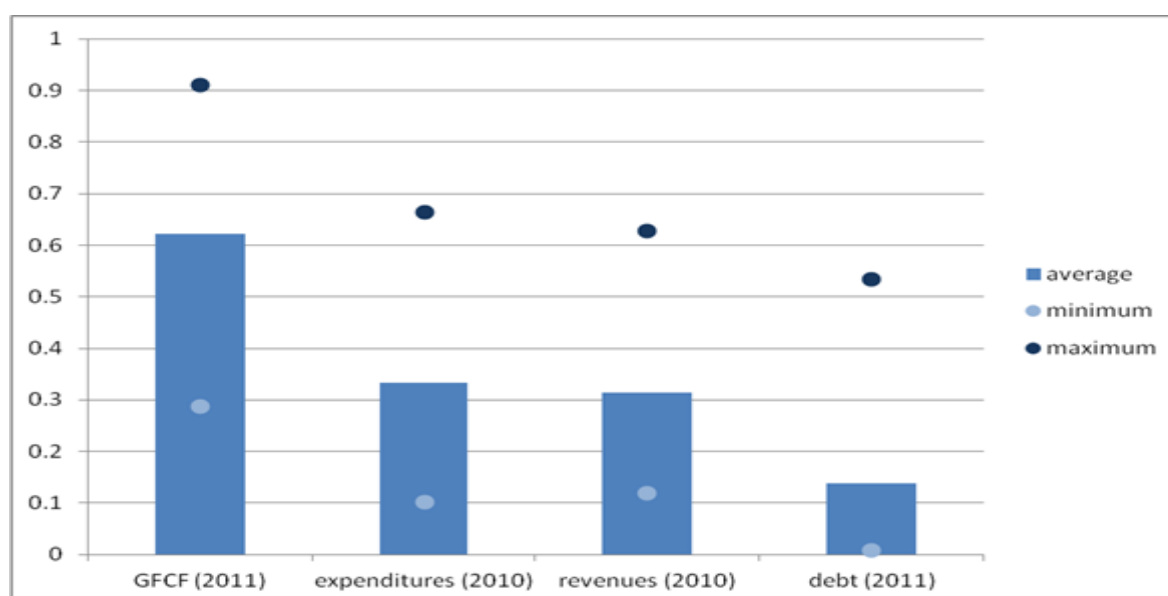
2. How did the crises and national consolidation plans affect SNGs?

2.1. Recent trends in sub-national finances: limited room for manoeuvre

Sub-national governments are important actors in key sectors

On average, sub-national governments (SNGs) are responsible for 62% of public investment (measured as GFCF, see Box 1), 31% of public spending, collect 20% of public revenues and issued 14% of public debt in OECD countries (Figure 2). But these averages hide important variations across countries: in highly decentralised countries such as Canada, Belgium the United States or Switzerland, the share of SNGs in public investment is above 80%, while it is only 20% in Greece. In Canada, and Switzerland, SNGs receive around 50% of public revenues and more than 50% of public spending (Piñero-Campos and Vammalle, 2011).

Figure 2. Share of SNGs in main aggregates (2010)



Source: OECD National Accounts and OECD Fiscal Decentralisation database

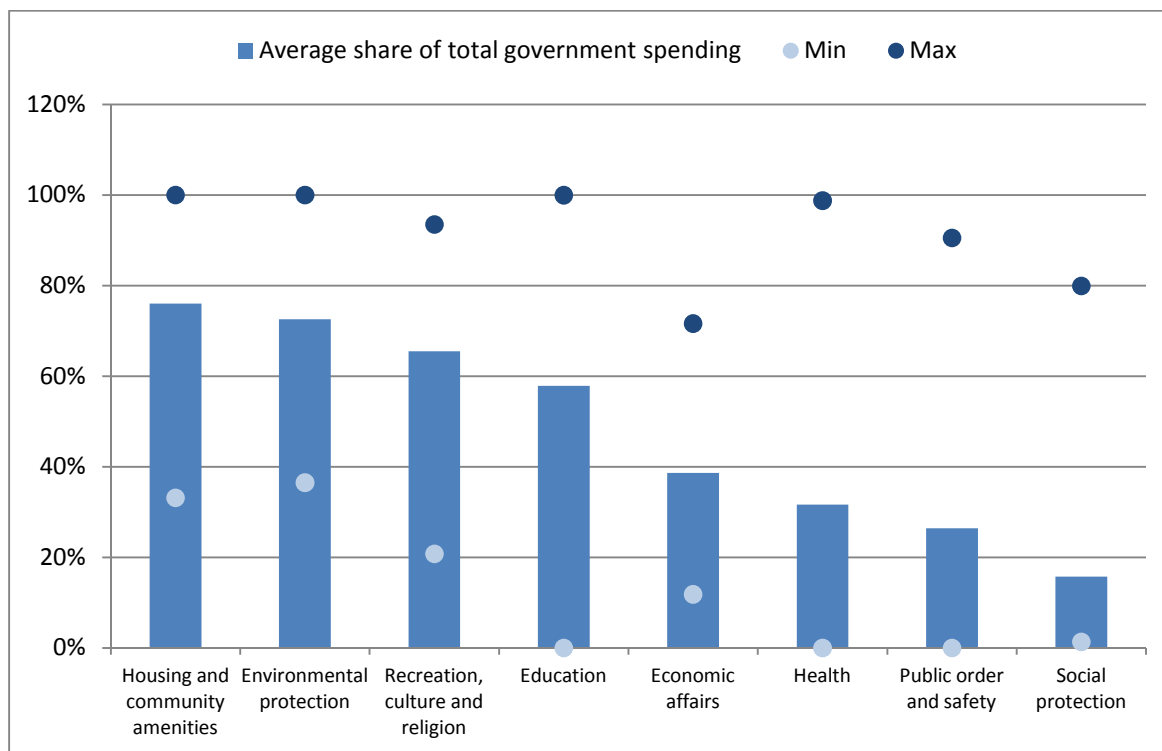
SNGs are important providers of crucial public services such as education, and in some countries, health and social protection (Figure 3). For example, in highly decentralised countries such as Spain, Germany, Canada, the United States or Switzerland, SNGs account for more than 90% of public education spending⁴. At the other end of the spectrum, education is entirely centralised in Greece and New Zealand (Piñero-Campos and Vammalle, 2011).

For public spending on health care, the picture is similarly varied, with SNG's accounting for above 90% in countries such as Italy, Spain, Sweden or Switzerland, but for zero or close to zero in others (such

4. For historical and constitutional reasons, in Belgium, education is entirely decentralised, mainly to the regional layer of government.

as the UK or New Zealand). Finally, the SNGs share of social protection spending varies from 5% to over one third in Canada and Korea (Piñero-Campos and Vammalle, 2011).

Figure 3. Importance of SNGs by government function in OECD countries (2010)



Source: OECD National Accounts and OECD Fiscal Decentralisation database

Box 1. Defining and measuring public investment

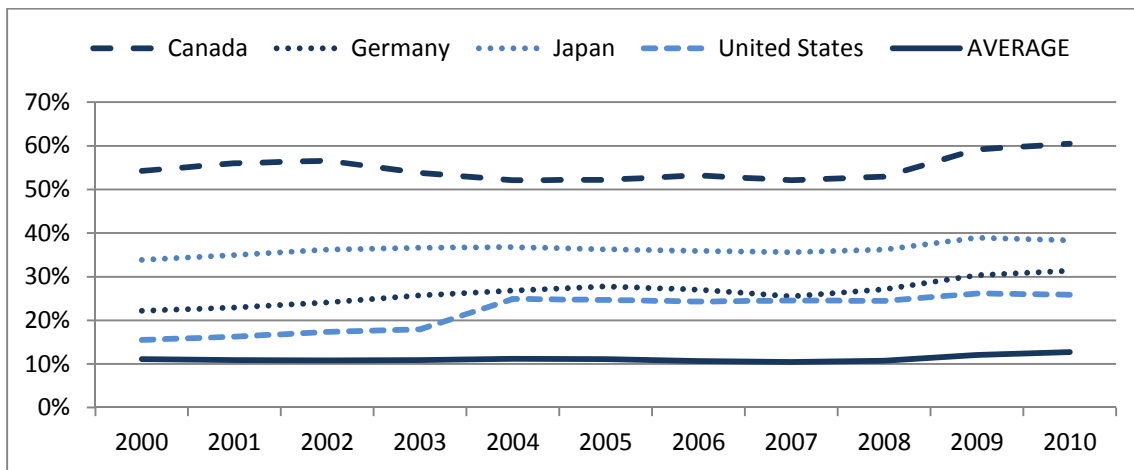
Public investment is generally defined as public capital expenditure on physical infrastructure (such as roads, government buildings etc.) and soft infrastructure (human capital development, innovation, and research and development) intended to be used for more than one year. The way public investment is measured across countries varies. **In this paper, public gross fixed capital formation (GFCF) will be used as a proxy for public investment.**

GFCF is defined in the National Accounts as: “*acquisition less disposals of produced fixed assets, i.e. assets intended for use in the production of other goods and services for a period of more than a year. Acquisition includes both purchases of assets (new or second-hand) and the construction of assets by producers for their own use. The term produced assets signifies that only those assets produced as a result of a production process recognized in the national accounts are included. The national accounts also record transactions in non-produced assets such as land, oil and mineral reserves for example; which are recorded as non-produced assets in the balance sheet accounts and not as GFCF. Acquisition prices of capital goods include transport and installation charges, as well as all specific taxes associated with purchase.*”

Public investment is difficult to measure. Public GFCF is a narrow definition since it does not cover all public spending that could be considered as investment. Indeed, it is sometimes difficult to determine the borderline between GFCF and public consumption. For example, acquisition of software with certain kinds of licenses, training of human capital or spending in research and development that does not entail any economic benefit for its owner will be classified as consumption, although it could have long-term repercussions. Maintenance operations can be classified either as intermediate consumption or GFCF, according to their magnitude. Public-Private partnerships (PPPs) are not necessarily included in public investment figures either.

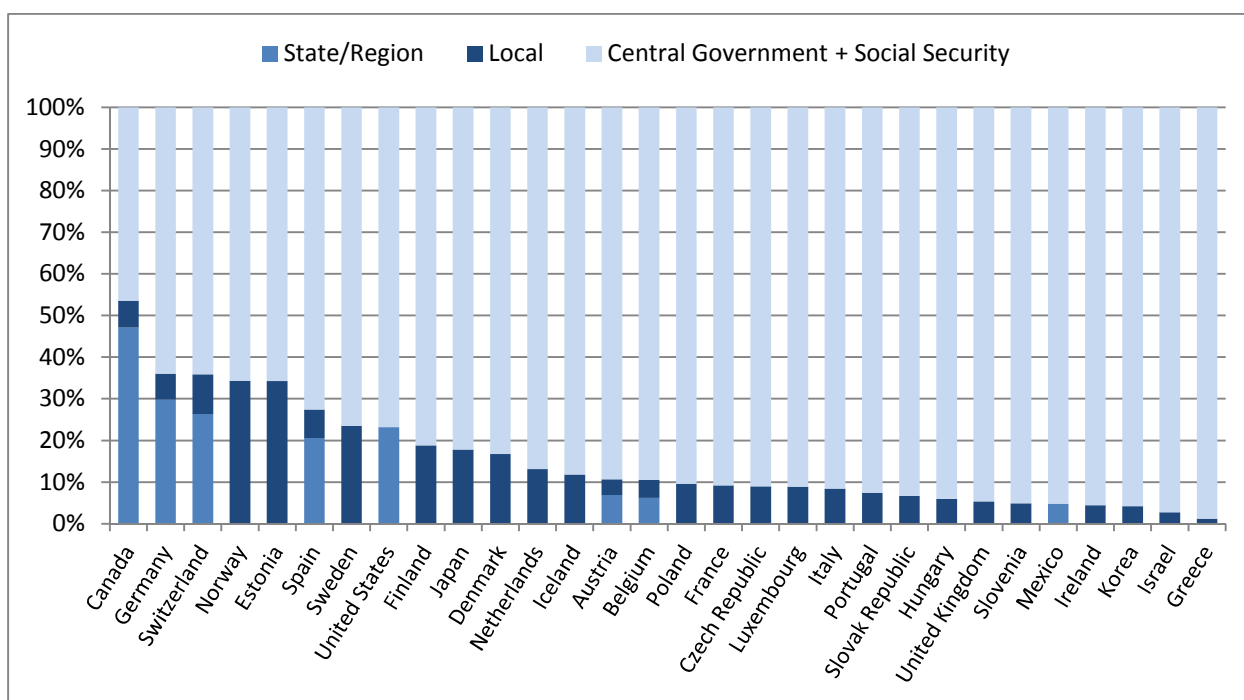
SNG debt increased from an average 10% of GDP in 2007 to 13% in 2010 (Figure 4). SNG debt thereby accounted for an average 16% of total public debt, with the sub-national debt share ranging from about 1% in Greece to 53% in Canada (Figure 5).

Figure 4. Share of SNG debt to GDP



Source: OECD National Accounts and OECD Fiscal Decentralisation Database

Figure 5. Composition of public debt by sector of government (2010)



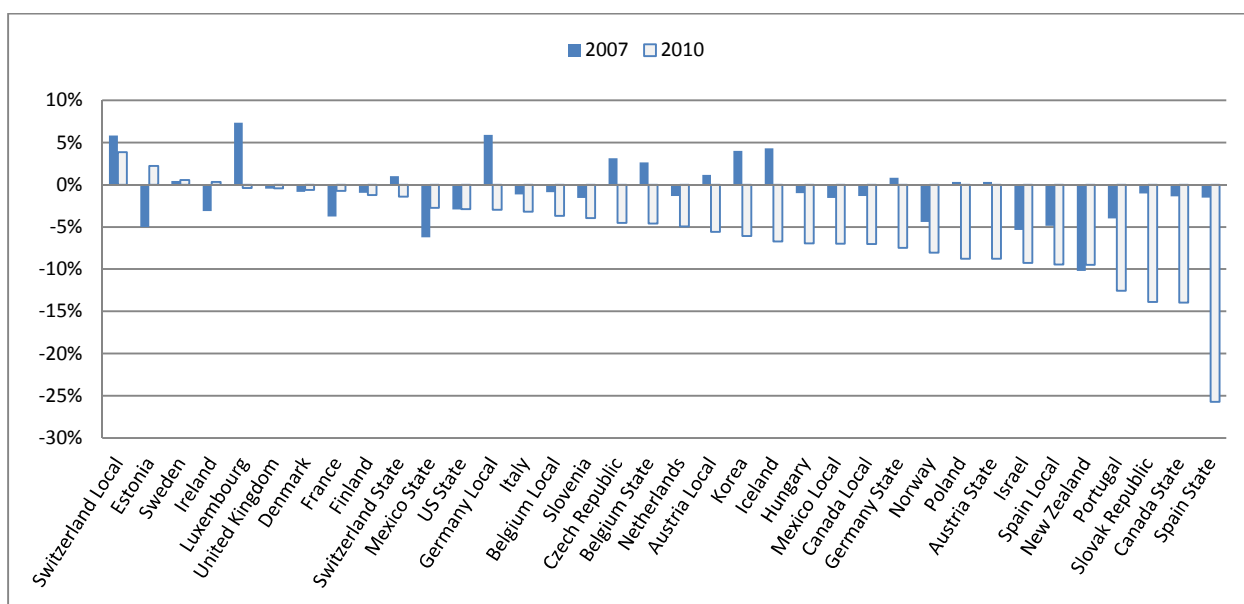
Source: OECD National Accounts

SNG finances have been hit by the 2007-09 global financial crisis and its aftermath

The increase in SNG deficits and debt is due to a scissors effect, i.e. the combined impact of decreased tax revenues and increased demand for social services (Figure 6 and 7). In most cases, these increases remain limited, especially if compared to increases in CGs' deficits and debt, as SNGs are usually subject to tight fiscal rules. In many countries, they can only borrow to finance public investment, and/or face ceilings to their debt or debt service (e.g. maximum levels of annuities as a share of operating revenues). SNG debt increased from an average of 8% of GDP in 2007 to 10% in 2010. SNG debt thereby accounted for an average of 14% of total public debt, with the sub-national debt share ranging from 1% in Greece to 53% in Canada.

From 2010 onwards, national consolidation policies have tended to reinforce this trend. After implementing large stimulus packages and often supporting SNGs during the crisis to prevent them from carrying out pro-cyclical policies (Blöchliger *et. al*, 2010), CGs are now under pressure to reduce their deficits and debt. This reversal has been particularly difficult for SNGs, still reeling from the consequences of the crisis and now confronted with the withdrawal of the special measures that had been taken by CGs to support them.

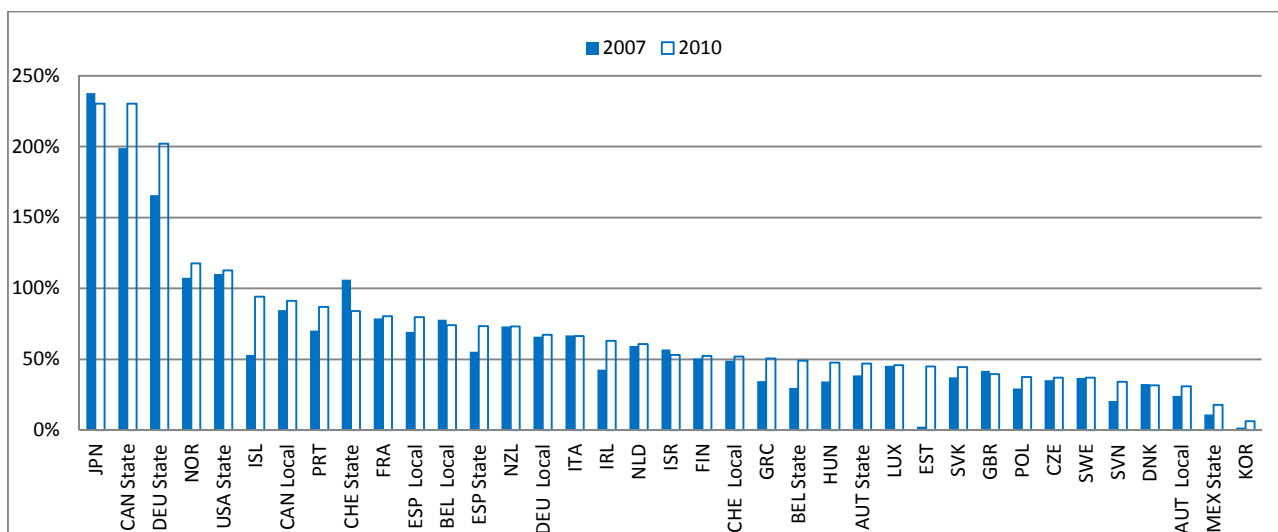
Figure 6. Evolution of SNG deficits as a share of SNG revenues (2007-2010)⁵



Source: OECD National Accounts

5. "State" refers to the level immediately below the central government. For federal countries, this might be "regions", "states", "provinces" or "Länder", depending on the country. The local level refers to municipal authorities. When no detail is provided (*i.e.* for non-federal countries), all the SNGs are aggregated in one measure.

Figure 7. Evolution of SNG debt as a share of SNG revenues (2007-2010)



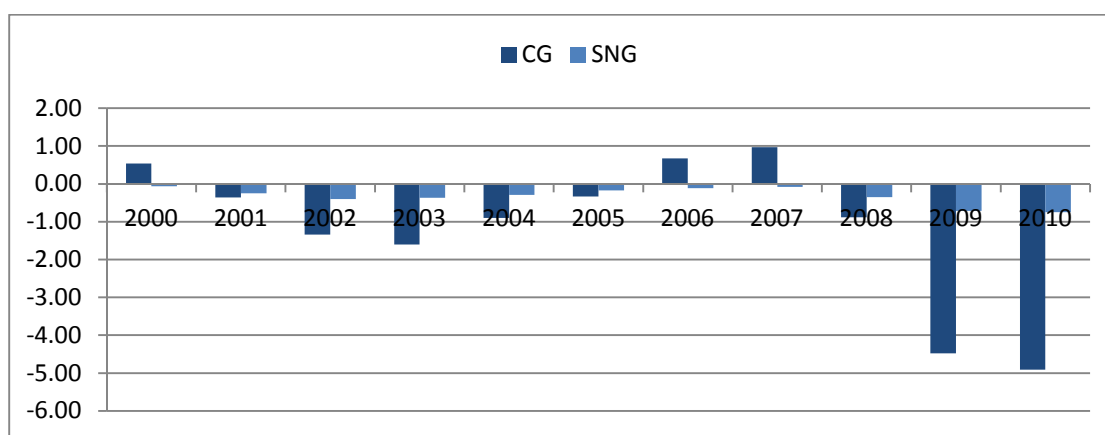
Notes: Data for Australia, Israel and New Zealand are consolidated. Data for Australia, Austria, Czech Republic, Estonia, France, Germany, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, Netherlands, Poland, Slovak Republic, Spain and the United States correspond to 2009 instead of 2010. For Switzerland data correspond to 2008 and for New Zealand to 2007.

Source: OECD National Accounts

SNGs have little room for improving their financial situation

SNGs’ deficits and debt (as a share of GDP) have increased since 2007 but remain smaller than comparable figures of CGs’ (Figure 8). This does not mean that SNGs’ situation is easier, however, as SNGs’ room for manoeuvre is usually smaller than that of CGs’ – in most countries considerably smaller.

Figure 8. CG and SNG deficits as a share of GDP (2000-2010)



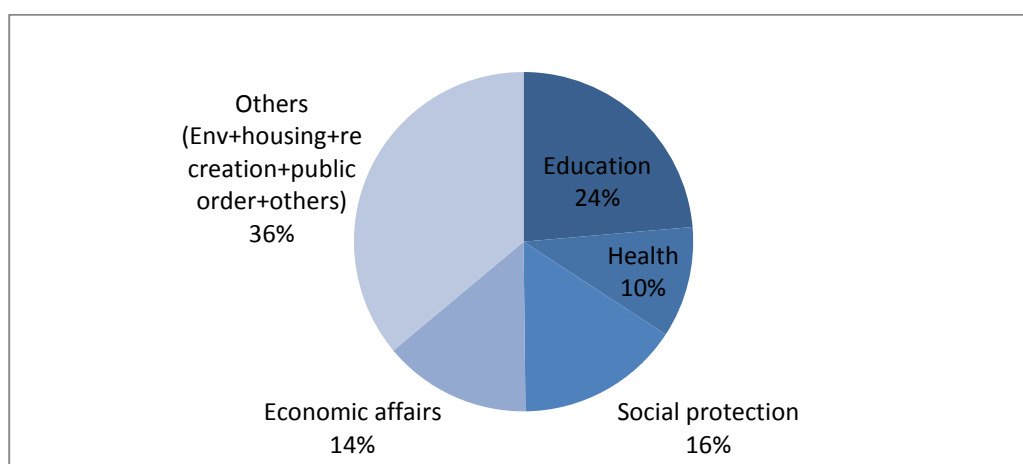
Source: OECD National Accounts and OECD Fiscal Decentralisation Database

First, the revenue base of SNGs is smaller and SNGs' autonomy to increase revenues is usually limited, with little or no power over tax rates or tax bases, high reliance on transfers, etc.⁶ Therefore, for SNGs, it is more relevant to look at deficits and debt as a share of their revenues, rather than as a share of GDP.⁷ On this measure, SNG deficits (as a share of revenues) increased from 0.75% in 2007 to 9.5% in 2010 (Figure 6), while the average SNG debt-to-revenue ratio rose from 58% to 69% during the same period. In 2010, it represented more than one and a half years of revenues in countries such as Japan, Canada (Provinces) or Germany (*Länder*) (Figure 7).

Second, an important share of SNG expenditure is mandatory and/or difficult to cut, because reductions entail high social and political costs:

1. **A particularly large share of SNG spending is in critical sectors.** On average, SNGs spend 50% of their budgets on education, health and social protection (Figure 24), i.e. sectors where cuts are particularly visible, unpopular, or may be costly in the long run.
2. **Some SNG expenditure are expected to rise due to demographic factors.** Population aging implies increases in health and elderly care expenditures in the coming decades, which in some countries represent a large share of SNG spending.
3. **Rules and standards of SNG expenditure are often dictated by higher levels of government.** This gives SNGs very little autonomy in deciding to reduce the levels or standards of services delivered in order to reduce their deficits.

Figure 9. SNG expenditure by function (2010)



Source: OECD National Accounts and OECD Fiscal Decentralisation Database

Finally, fiscal rules often constrain SNGs' room for manoeuvre, as they have less opportunity to use debt to adjust their budgets. Decreases in revenues therefore rapidly lead to expenditure cuts. The most noteworthy example is in the United States, where almost all US states have a balanced budget rule in their

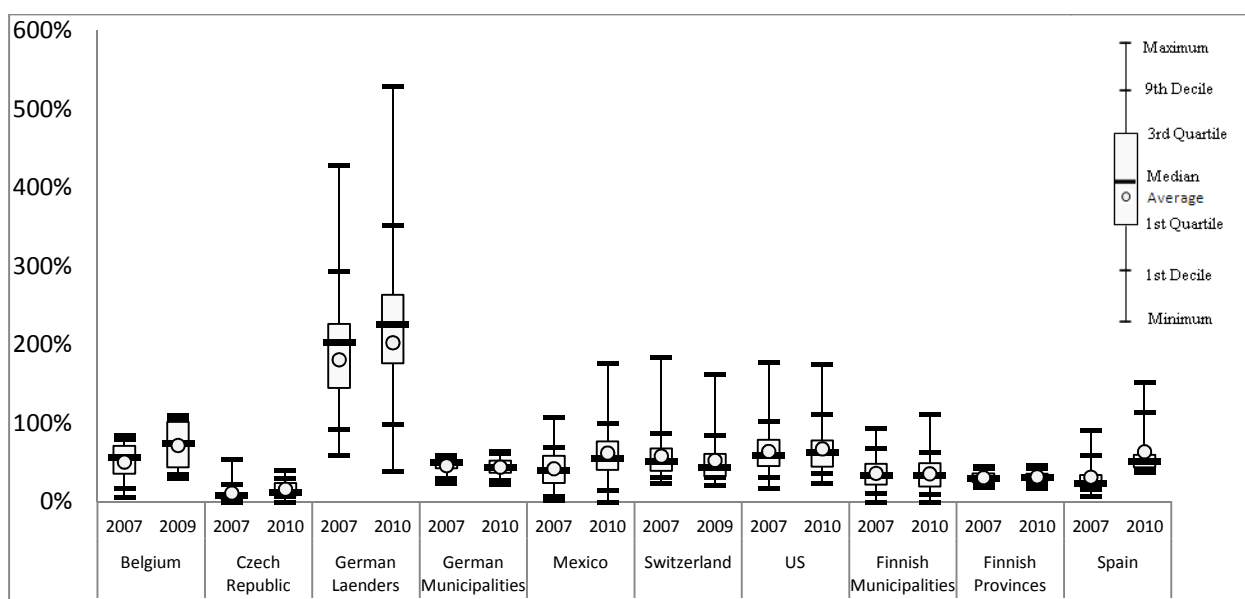
6. For a measure of SNG tax autonomy, see: Fiscal Decentralisation Database (www.oecd.org/document/32/0,3746,en_2649_37427_47467040_1_1_1_37427,00.html) and Blöchliger H., and King D. (2006).

7. For example, a value of 100% of this debt indicator implies that the stock of debt of the SNG is equivalent to one year's revenues.

constitution. This led to wide-ranging expenditure cuts in 2008-2009 during the global financial crisis, which further amplified the effects of the crisis (Blöchliger *et al.*, 2010).

Aggregate numbers hide large disparities within countries. Figure 10 shows the dispersion of debt as a per cent of revenues across SNGs in seven OECD countries, and as a share of their GDP for two other countries (due to lack of data to compute them as a share of their revenues). This graph shows that in most countries, there are some SNGs which are far above the national average, implying that at least for certain SNGs the issue of debt sustainability is more important than suggested by national averages of SNG debt.

Figure 10. Dispersion of SNG debt as a share of their revenues (2007-2010)



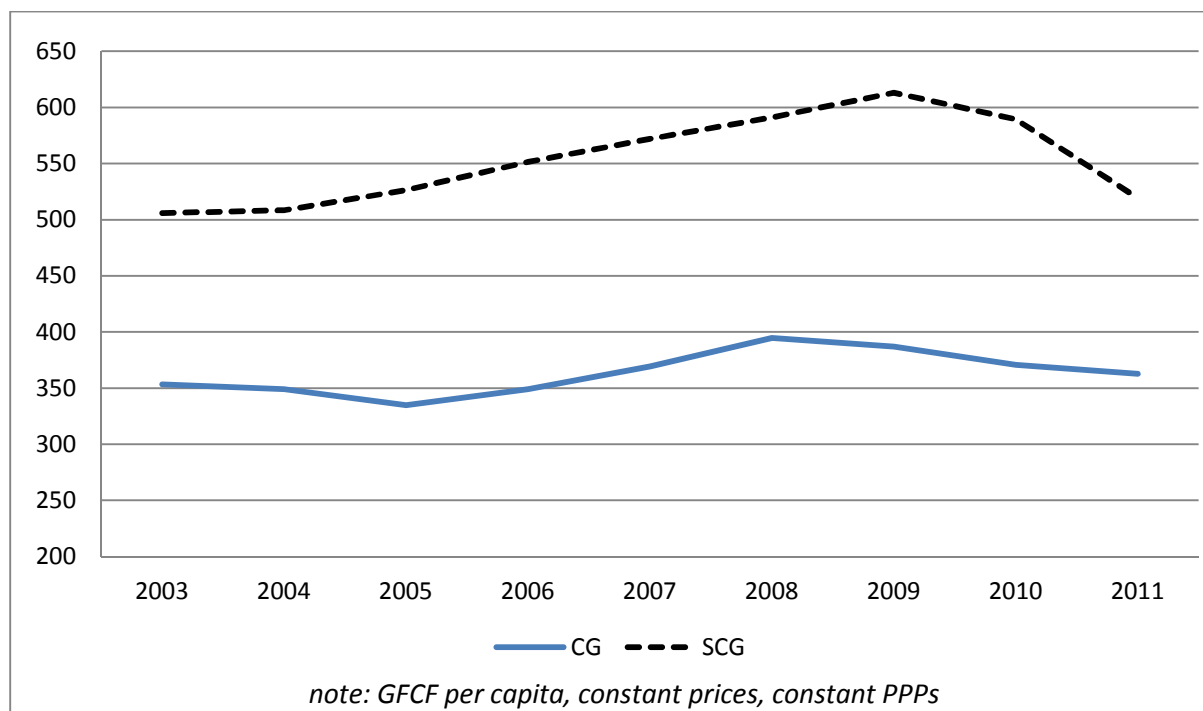
Source: Author calculations based on OECD National Accounts and OECD Fiscal Decentralisation Database

In such a context, small changes may have large consequences

First, given the limited fiscal space that SNGs enjoy, even a small increase in deficits and/or debt can have large impacts on the perception of banks and financial markets about the sustainability of debt, which may quickly increase the cost of borrowing and lead to difficulties in accessing funds.

In addition, in many cases public investment is the only available adjustment variable. Therefore, in order to respect deficit/debt limits SNGs often primarily cut or delay public investment (Figure 11). Public investment is a potentially important factor for regional growth performance, and cutting it may have negative long-term consequences for the region. In addition, given that SNGs represent two-thirds of public investment in OECD countries, large, simultaneous cuts at the sub-national level can easily have negative macroeconomic consequences at the national level.

Figure 11. Average public gross fixed capital formation in OECD countries



Source: OECD National Accounts

Finally, SNGs' fiscal situation may affect the evaluation of CGs' credibility to consolidate. In Spain for example, the failure of the autonomous communities⁸ to comply with their deficit targets in 2011 reduced the country's credibility, and was one of the factors cited by Moody's leading to a downgrade of Spanish government debt by Moody's in February 2012. More generally, the rise in SNG debt is associated with a number of risks that cut across levels of government (Box 2).

8. Autonomous communities are the regional/state level of government in Spain.

Box 2. Potential risks associated with sub-national government debt

- **Debt creates externalities across levels of government.** Sustainability of debt is determined by the joint actions of all government levels. Even modest increases in debt by some part of government increases general government debt, thereby affecting budget balances and potentially interest rates on public debt. The dynamics of this common pool problem are even more pertinent if discontinuities or threshold effects are present, i.e. if there are large increases in interest rates or decreases in growth rates, once a certain general government debt level is exceeded.
- **The risk of contagion can disrupt financial markets.** Financial problems of one, even small, SNG can have large repercussions on the functioning of markets for municipal and regional bonds and lead to a rise in risk premia. Financial difficulties of a single SNG may be contagious. Spreading fear of a general malaise at the sub-national level may become self-fulfilling as problems of SNGs to access private financing at sustainable interest rates may create the financial problems financial markets had become afraid of in the first place. Keeping debt thresholds relatively low for all SNGs reduces risk and uncertainty, making financial markets confident that local and regional governments are not a general cause of concern.
- **SNGs often own public enterprises whose debt is not accounted for in the national accounts and which create contingent liabilities.** In most countries, SNGs are owners or co-owners of infrastructure companies for water, energy, transport and the like. In several countries, states or regions own public banks which also provide credit to public enterprises or municipalities, thus exacerbating risks.¹ SNGs owning public enterprises need to improve transparency, especially on the effective debt levels to which they are exposed.
- **Finally, in most countries the CG is held politically responsible for SNG debt, often taking on the form of implicit or explicit bailout guarantees.**² SNGs expecting a bailout may then engage in unsustainable fiscal policy, thereby increasing general government debt. The long-term implications with regards to the behaviour of SNGs facing a potential bailout have to be taken into account when assessing maximum SNGs debt levels.

Notes:

1. Defaults of state-owned banks have led to protracted financial difficulties for individual sub-central governments in Germany, Switzerland and the United States.

2. For example, Danish municipalities receive specific financial help from central government if they get into financial difficulties, and are put under administrative control (Mau-Pedersen, 2011). In Germany, the constitutional court ruled that the federal government had to help out two *Länder* (states) which were in financial distress.

Source: Blöchliger (forthcoming), "Fiscal Consolidation across Government Levels".

2.2. SNGs are important actors in national consolidation plans

SNGs are affected positively or negatively, and directly or indirectly by national consolidation plans. Most SNGs are taking measures to reduce their deficits and debt levels, whether these are dictated by the CG, decided jointly or self-imposed.

Since 2009, many CGs have cut or frozen their transfers to SNGs, thereby directly affecting the fiscal position of the latter (Table 1). Ireland was one of the first countries reducing transfers to SNGs by 15% in 2009 and by 18% in 2010.⁹ In 2010, France froze the main transfer to SNGs, the *dotation générale de fonctionnement*, until 2013. In Greece, central government transfers to SNGs increased, but at the same time new responsibilities were transferred to them, making it difficult to estimate the net change in transfers. In other countries (Belgium, Spain, Turkey) transfers fell automatically because the formulae are based on CG revenues, which decreased. Finally, in many countries, some temporary transfers set by CGs in the framework of countercyclical spending policies during the global financial crisis came to an end in 2010 (Canada).

9. The most significant reductions were in earmarked grants for infrastructure.

CG often froze transfers to SNGs

Table 1. Examples of discretionary reductions in transfers (% of SNGs revenues)

	2009	2010	2011	2012	2013	2014	2015
Estonia (million EUR)	-5%	0.15%	0.65%				
Finland				-1.52% over 2011-2015			
France			-0.09%	-0.26%	-0.39%	-0.43%	-0.86%
Greece			0.05%	1.48%	-5.02%	2.60%	
Hungary	-3.60%	-1.50%	-3.50%				
Italy			-2.45%	-3.17%			
Ireland		3%	4%				
Portugal	-0.20%	0.46%	-1.33%	-1.62%			
Sweden (billion SEK)		2.02%	-1.04%	-0.35%			
United Kingdom (English Local Authorities)	1.54%	-1.11%	-0.90%	-0.90%	-0.32%		

Source: OECD Fiscal Network questionnaire and OECD National Accounts.

Changes in national tax policy may have indirect effects on SNG revenues

In addition, some of the measures taken by CGs to reduce their budget deficits may indirectly affect SNG finances, positively or negatively. Several countries increased the rate of shared taxes (such as VAT), thus benefiting SNGs (Austria, Canada, Czech Republic, Spain in 2010 and 2012). In other cases, the CG increased tax allowances on shared taxes as a measure to stimulate the economy, thus reducing SNG revenues.¹⁰ Some national reforms, such as labour market, pension or social security reforms may also indirectly affect SNGs.¹¹ In Spain, the CG implemented spending cuts which were applicable to all levels of government, the most remarkable being a general reduction of public wages of 5%. Further measures were announced in April 2012, introducing € 10 billion cuts per year in the healthcare and education sectors; healthcare benefits should be reduced, particularly for pensioners and high income earners, and university fees should increase sharply. In Greece, the “new unified salary framework” for the public sector (reduction in wages, increase in working time, increase in retirement age) also applied to SNGs. Reforms in the pension systems, and in particular in the retirement age, also affected SNGs (Australia, France, Spain and United Kingdom).

Some countries attempt to protect priority sectors from spending cuts

Some CGs tried to protect priority sectors, mainly education, health and social protection, from spending cuts. In Estonia, social welfare grants were protected, and in the Slovak Republic, wages in the education sector were preserved. In Italy, the rules of the Internal Stability Pact exempted a number of sectors such as health or projects co-financed by the European Union. In the United Kingdom, earmarked

10. For example, in 2009 and 2010 the Portuguese CG increased the basic tax allowance on personal income tax and implemented an employee tax credit. Since 93.8% of personal income tax revenues are transferred to local governments, this measure significantly decreased the revenues of local governments.

11. For example, the Czech amendment of the Labour Code which increased employment flexibility benefited SNGs.

grants for health and education were preserved. Nevertheless, in some cases, cuts in sensitive sectors such as education or health are still planned, as they represent the lion's share of SNG expenditure (Spain).

Many countries introduced deficit targets and/or expenditure limits for SNGs

Most countries require SNGs to participate in national fiscal consolidation efforts by strengthening budget deficit targets and/or expenditure limits (Tables 2 and 3). At the end of 2009, the Belgian CG and SNGs agreed on a target for 2009 and 2010 in order to limit deficits at the different level of government. In 2012, the CG announced that SNGs (regions, communities and local governments) should reach a balanced budget by 2015. For 2011 and 2012, budgetary objectives that are consistent with the Stability Programme were estimated, but no formal agreement was reached. However, these objectives were used as a reference by some of the SNGs. After 2012, no specific fiscal target has been assigned to the regions and the communities. Belgium's 2012 Stability Programme stipulates that each level of government should reach a balanced budget in 2015 – an objective in line with the Communities' self-imposed targets. The need for a balanced budget is perceived as a consensus between levels of government in Belgium and has not been decided unitarily by the CG. In Denmark, a target of zero growth in expenditure was set for municipalities in 2011 (unchanged level in real terms compared to 2010). This target applied to the municipalities as a whole (*i.e.* average municipality expenditures). In Spain, the Organic Law 2/2012 stipulates that SNGs will no longer be able to borrow in order to finance current expenditures after 2020; temporary rules are used during the transition period to set deficit objectives. The new law also introduces limits to the debt/GDP ratio (this ratio should be smaller than 13% for autonomous communities, and 3% for local authorities from 2020 onwards).

Table 2. Sub-national government deficit objectives (as % of GDP)

	2010	2011	2012	2013	2014	2015	2016
Austria (state and local)		-0.70%	-0.50%	-0.40%	-0.30%	-0.10%	0%
Belgium	-0.70%	-0.30%	-0.40%	0.0%	0.10%	0.10%	
Czech Republic	-0.30%	-0.50%	-0.30%	-0.20%	0%		
Poland	-1.10%						
Slovenia	-4.80%	-5.20%	-3.70%	-2.80%	-1.90%		
Spain (state level)	-2.40%	-1.30%	-1.50%	-0.70%	-0.10%		
Spain (local level)	-0.60%	-0.80%	0%	0%	0%		
Germany	Länder budgets must be structurally balanced as of 2020						

Source: OECD Fiscal Network questionnaire.

Table 3. Sub-national government expenditure reduction targets (% of SNGs revenues)

	2010	2011	2012	2013	2014	2015
Slovak Republic	-3.45%	-3.56%	-1.69%	-3.15%	-4.92%	
United Kingdom (English Local Authorities)		-1.20%	-0.87%	-0.10%	-0.68%	
Greece			-2.19%	-3.65%	-4.67%	-6.59%

Source: OECD Fiscal Network questionnaire and OECD National Accounts.

In highly decentralised countries, CGs cannot always impose deficit targets on SNGs (Germany, although in the process of modifying this legislation; Switzerland) and, in many cases, CGs have little scope to influence municipalities which tend to be the agents of the regional/provincial tier of government. Nevertheless, CGs can try to influence SNG policies to encourage SNGs to return to fiscal balance in the medium term. This is the case in Canada, where all provinces and territories have announced plans to return to balance, with 12 out of 13 jurisdictions committed to doing so by 2014-15 at the latest. Ontario, which has been severely affected by the recession and is expecting only moderate growth going forward, is projecting a return to balance by 2017-18. Alberta is projecting a return to balance by 2013-14.

Enforcement of fiscal rules has been tightened

In Italy, enforcement of the Internal Stability Pact was strengthened in 2011 by the introduction of a wide range of possible sanctions. For example, regions breaking the fiscal rules may not be allowed in the following year: *i*) to commit current expenditure (net of health) beyond the minimum commitment of the last three years; *ii*) to issue debt for investment purposes; *iii*) to hire new personnel; *iv*) to hire external managers; or *v*) to issue bonds and take out loans. Regions may even experience a reduction or suspension of financial transfers from the CG. Reporting rules have also been tightened, in particular for periods before elections. The audited financial statements of the regions must be published on their websites. If the results are not consistent with the Italian Internal Stability Pact, heavy sanctions may be imposed on politicians, such as automatic disqualification from office and a ten-year interdiction from office. In Spain, where the autonomous communities missed their deficit target by a wide margin in 2011, the Minister of Finance proposed a gradual implementation of sanctions, ranging from retaining CG transfers to imposing penalties, or ultimately imposing a restructuring plan. The organic law 2/2012 on Budgetary Stability and Financial Sustainability introduces additional sanctions; a SNG breaking its debt objective should deliver an economic plan in order to correct the deviation within a maximum period of one year. If this plan is not implemented, a deposit amounting to 0.2% of the SNG nominal GDP must be made. This deposit may become a penalty in case the deviation is not solved after a 6-months period. In Germany, the 2010 constitutional amendment included the establishment of a Stability Council to monitor the budgetary developments of the federal government and the Länder, and introduced a federation-wide early warning system to prevent budgetary distress. The Stability Council replaces the former Financial Planning Council, and is composed of the federal ministers of finance and economic affairs, as well as the Länder ministers of finance. In Austria, according to the new fiscal rule, if a government misses its target it will benefit of a tolerance area for one year; however, if the target is missed for two consecutive years, an internal excessive deficit procedure (EDP) will be launched. Within the framework of this internal EDP, a government is given two months to design appropriate action to restore its public finances. Sanctions are decided by vote in a coordination committee between levels of government. This also holds true for the central government. Financial sanctions should represent 15% of the deviation, to be deducted from shared taxes.

Some SNGs have increased their tax rates and fees

In countries with substantial tax autonomy, SNGs often increased their own taxes (raising the rate or broadening the base) and/or fees to meet fiscal targets (Australia, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Italy, Poland, Spain, and the United Kingdom). In Belgium, SNGs eliminated tax breaks that had been implemented in previous years. In 2010, the Flemish Community, in particular, abolished a tax cut that had been introduced in 2009 for all workers, aiming to increase the employment rate and increase the financial attractiveness of work (“job korting”). In Spain, the autonomous communities and, to a lesser extent, local governments spontaneously increased some taxes, while also taking measures on the spending side. In particular, some autonomous communities increased the rates on taxes on property transactions, personal income tax for high income earners, tax on

retail sales of oil products and the duty on specific means of transport (tax on the registration of new vehicles, boats and planes). Some autonomous communities also established new environmental taxes. The movement towards higher taxes in local governments was less pronounced than for the autonomous communities. In this regard, an important measure will be the approval of new real estate values, which will provide higher receipts for the main local tax (real estate tax). Some countries also reported an increase in fees (Austrian municipalities, Greece, English local authorities). While Greek local governments do not have tax autonomy, they can use fees to finance the services they provide.

When SNGs do not have tax autonomy, CGs often balance stricter deficit requirements by increasing the rates or shares of taxes allocated to SNGs, or by giving SNGs greater autonomy in setting the rates. In the Czech Republic, real estate tax rates (exclusive income of municipalities) were doubled under the consolidation measures approved at the end of 2009. The exemption from property tax for new buildings was cancelled in 2010. In addition, municipalities have been allowed to set local coefficients for real estate tax calculation since 2008 (real estate tax is calculated as a combination of surface, real estate tax rate, statutory coefficient and local coefficient). The revenues of municipalities were further augmented by increasing the rates and by extending the tax base for accommodation fees collected by them.

Fighting tax evasion to increase revenues

Sub-national governments also cracked down on tax evasion to increase revenues. In Ireland, SNGs took initiatives to ensure that all owners of non-principal private residences were paying the appropriate charges. In Spain, autonomous communities developed instruments to reinforce co-operation between the different tax administrations to reduce tax evasion: exchange of information among administrations; sharing fiscal information to improve auditing; and developing software to improve auditing of selected taxpayers. Co-ordination bodies between the central tax administration and sub-national tax administrations also played an important role in fighting tax evasion, specifically in the building industry. In Greece, a 2010 law transferred the monitoring and enforcement of tax and fee collection to the Court of Auditors, who was seen to be better qualified for this task than political leaders at the local level. In Canada, Quebec – which collects all of its revenues – estimates that it will collect an additional CAD 1.2 billion per year by 2012-14 due to measures that combat tax evasion and tax avoidance. The Italian central government attempts to increase tax compliance by giving incentives to local governments to fight tax evasion, such as allowing them to keep up to 100% of the additional sums collected in their territories.

Some SNGs have also cut expenditure

In addition to attempting to raise their revenues, several SNGs have cut expenditure, partly by seeking efficiency gains (Canada, Estonia, United States). The US States started consolidation early during the global financial crisis (2008) due to their constitutional obligation to have balanced budgets. They took measures such as cutting personnel and reducing health and social benefits, but also cut transfers to lower tiers of government, thus creating a cascade effect in local governments, such as counties and cities (Vammalle *et al.*, 2012). In Canada, provincial consolidation measures mostly consisted of wage restraint and a payroll freeze for the public service. According to projections in February 2012, the programme spending in 2011-12 was to increase by 3.1%, well below the annual average growth of 6.3% observed between 2000-01 and 2010-11. Most provinces also projected that their programme spending would grow by less than 3% per year throughout their forecast horizons. In Estonia, the central government recommended that operating costs be frozen while allowing investment expenditure to grow, but could not impose this principle on SNGs. In Italy, the central government pursued efficiency gains by encouraging municipal co-operation: it proposed a financial reward conditional on the setting-up of a “regional unit for purchasing” responsible for tender procedures for the provision of goods and services.

2.3. Fiscal federalism reforms are high on the agenda

The crisis and the present consolidation needs have led most countries to carry out or plan structural reforms of the fiscal relations between levels of government in order to seek efficiency gains and/or reinforce equity without jeopardising programme outcomes. These reforms touch upon different aspects of the fiscal relations across levels of government.

Reforms of the financing system of SNGs:

- **Equalisation reforms.** The global financial crisis and the ensuing fiscal consolidations affected regional economic performance to different degrees. Ensuing changes in the distribution of income across regions could, in turn, influence equalisation flows. In addition, the importance of equity concerns in resource distribution appears to increase in periods of fiscal stress. For example, an equalisation reform took place in Estonia in 2009. Equalisation was also reinforced in France with the creation of the new equalisation fund in 2011, the creation of an inter-communal and communal fund and the reinforcement of the capital region fund in 2012. In Belgium, an institutional agreement on the reform of the fiscal federalism framework was endorsed in December 2011 (the “Sixth Reform of the State”). This agreement provides significant decentralisation of taxing power and responsibility, which will be set in the forthcoming “Special Law of Finance”. This reform is intended to improve the burden sharing of consolidation efforts, in particular to deal with the ageing costs which at the time were mainly borne by the federal government. One of the reform’s objectives was to ensure fiscal sustainability of each level of government. In the Czech Republic, an amendment to the Act on Budgetary Allocation of Taxes was under preparation in 2012 and was expected to come into force at the beginning of 2013. It should improve the financial situation of the municipalities with the lowest income per capita at the expense of the four biggest cities, and introduce a new criterion in the grant-sharing formula (the number of pupils).
- **Grant system reform.** In the Czech Republic, in addition to the tax reform that aimed for greater equalisation, contributions for delegated central government administrations were increased. The aim was to remove an imbalance between the spending on delegated responsibilities and the grants provided by the central government for those purposes. In Finland, the government announced in 2011 its intention to reform the grant system but the details are still undecided. In England (United Kingdom), reductions in spending were matched by a radical reform programme which gave local authorities unprecedented freedoms and flexibilities and more control over budgets. Earmarking was abandoned, except for school grants and protected public health grants. Funding has also been simplified and streamlined by rolling grants into the main general-purpose formula-based grant. The number of grants has been reduced from more than 90 to less than 10.
- **Local tax system reform.** France made a major reform of the financing system of SNGs in 2009. Ireland is committed to put in place a local property tax in 2012 to increase local government responsibility in relation to financial matters. As such introducing such a new tax takes time, the central government decided to introduce a household charge (i.e. a flat rate tax) in 2012 as an interim measure. The Slovak Republic envisages a change in the composition of shared taxes: in 2012, only a share of the personal income tax was transferred to local governments. Given the relatively strong pro-cyclical nature of this tax, past experience has shown high fluctuations in SNGs revenues. In order to increase the predictability of local government revenues, the revenues from four major taxes will be shared (personal income tax, corporate income tax, value-added tax and excise taxes). In

Belgium, a coming reform of the fiscal federalism framework should devolve additional competencies and taxing power to Communities. For now, The Communities have no taxing power.

- **Fiscal federalism reform.** In 2009, Italy started reshaping the framework which governs financial relations between levels of government. The new framework aimed at giving more tax autonomy to SNGs in exchange for increased equalisation.

Reform of fiscal rules:

New fiscal rules. In 2009, Germany introduced a “debt brake” in its constitution (*Grundgesetz*) to ensure that sub-national budgets are financed without any structural deficits from 2020 onwards, with only a small structural deficit allowed for the federal budget (0.35% of GDP). In addition, a new institution, the Stability Council, was established to monitor all public budgets on an annual basis using common benchmarks, to monitor public borrowing and to co-ordinate medium-term financial planning across government levels. In Spain, an amendment to the constitution was adopted in 2011 to underpin the fiscal consolidation targets for all Spanish administrations, following the EU framework. The main feature of the reform was that neither the central government nor the autonomous communities were allowed to have deficits which exceeded the maximum set by the EU, and local governments were required to balance their budgets. The maximum structural deficit should be set according to law as a percentage of GDP (this law must be passed before 30 June 2012). This limit will only be in force from 2020 onward. In Iceland, the Parliament passed a new act on local governments in September 2011, which includes two main fiscal rules on local government finances: The first rule is a balancing rule for current operations of the local governments which oblige them to balance total current revenue and expenditure over a three-year period. The second is a debt rule that limits the total debt and liabilities of the local governments to 150% of total revenue. Local governments with debt and liabilities above 150% are expected to bring the debt ratio under this benchmark over ten years. Local governments with total debt exceeding 250% of revenue are prohibited from raising new debt except for refinancing. Strengthening of fiscal rules is also under discussion in the Slovak Republic. In Spain, the Organic Law 2/2012 stipulates that SNGs will no longer be able to borrow in order to finance current expenditures after 2020. In Austria, a new law passed in spring 2012, stipulating that all levels of government must reach a balanced budget in 2016. From 2017 onwards a structural balance rule will be implemented, relating deficits to the output gap. The new rules also include a debt criterion; all levels of government must reduce their level of debt by 1/20 per year. According to this new criterion, Austria’s debt should pass from 75% of GDP in early 2013 to 60% in 2016.

Organisational reforms:

- **Reallocation of tasks and responsibilities.** In Hungary, work on the development of a new local government act is in progress, aiming to divide tasks and competencies between the central and sub-national governments (central government transfers and borrowing limits for local governments, debt ceilings, borrowing limited to investment for development). Greece carried out a major reform of its fiscal relations across levels of government in 2011, granting local governments new responsibilities.
- **Municipal mergers and territorial organisation reforms** were promoted in several countries (Finland, France, Greece, Ireland and the United Kingdom). In 2010, Greece reduced the number of local governments from 1 038 to 325. The increase in the size of entities was expected to increase administrative capacity and thus reduce costs. In Ireland, a number of mergers of local authorities were announced, taking effect from 2014 onwards. Shared services and shared

administrative area initiatives are being explored as instruments to increase efficiency. France initiated a reform of its territorial organisation in 2010.

Although reforms of the fiscal relations across levels of government are meant to make the relations more efficient, more equitable and more stable, the reforms often face stiff political resistance. Past experience shows that some of the envisaged and necessary fiscal reforms were watered down, postponed, or even abandoned. But the need for reform will not wither: it will become even more pressing in the coming years as sub-national governments will have to face an increasingly heavy burden of fiscal consolidation. However, policy makers may be able to reduce opposition and to secure a majority in favour of reforms by adapting the design: influencing the timing, the scope and the sequencing of the reform process (Blöchliger and Vammalle, 2012).

3. Public investment at central and sub-national levels: an adjustment variable

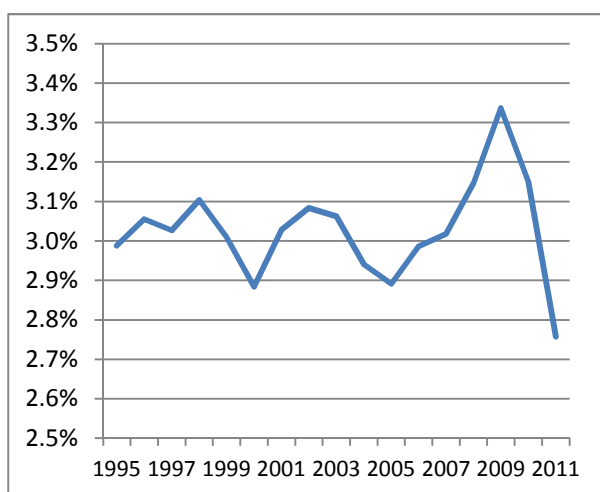
3.1 Long-term trends in public investment

On average, SNGs are responsible for nearly two-thirds of public investment in OECD countries. Although the evolution of public investment as a share of GDP was relatively stable between 1995 and 2007, it was affected by both stimulus and consolidation plans carried out since the beginning of the crisis (Box 3).

Box 3. Long term trends in public investment

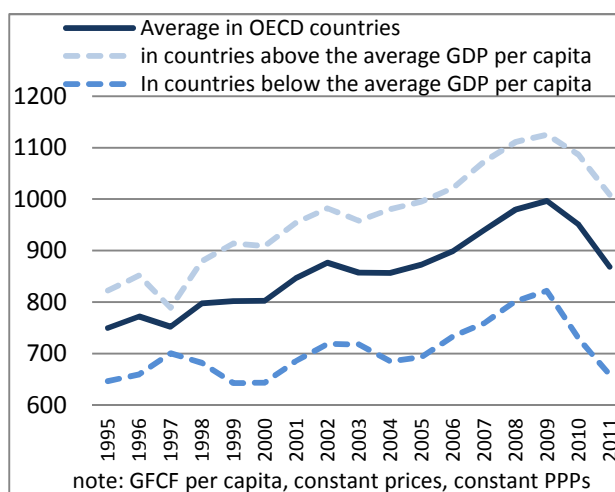
General Government's public investment (measured by GFCF) as a share of GDP remained relatively stable on average since the mid-90s, at around 3% of GDP. However, fiscal stimulus plans implemented in 2008-2009, combined with a fall of GDP in a number of OECD countries provoked a peak in 2009. This peak was followed by a fall in 2011, due to the implementation of consolidation strategies in many OECD countries.

Public investment in OECD countries (as a share of GDP)



Source: OECD National Accounts

Public investment per capita at different levels of income



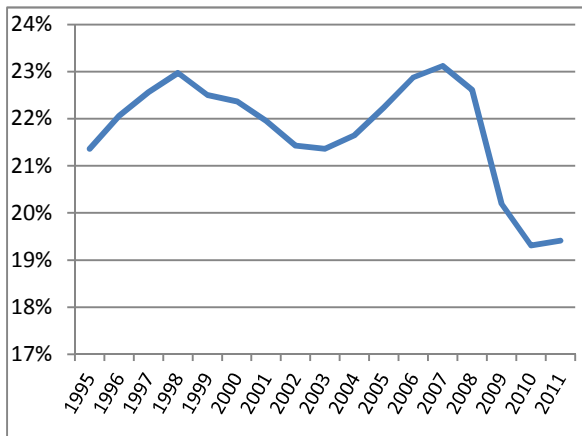
Source: OECD National Accounts

The evolution of public investment per capita is quite different. As population grew slower than GDP, real public investment per capita rose since 1995 in almost all OECD countries. Countries with GDP per capita above (below) the OECD average spent higher (lower) amounts per capita on public investment.

Box 3. Long term trends in public investment (cont.)

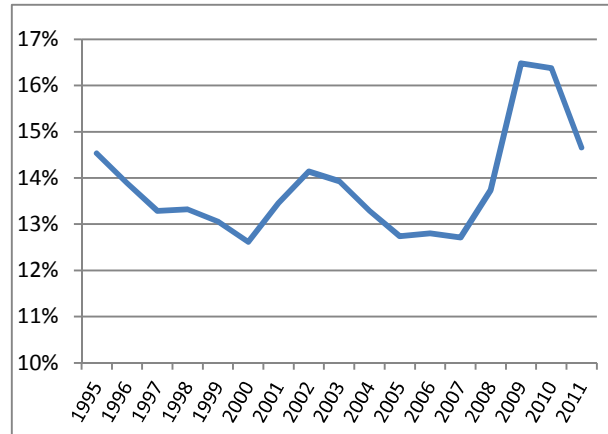
Total investment (i.e. public plus private GFCF) fluctuated around 22% of GDP in OECD countries since the mid-1990s, and decreased by almost 4% of GDP between 2007 and 2011. The share of public investment in total investment was stable over the period, fluctuating between 13% and 14% on average. This share has risen during the crisis, thanks to the implementation of stimulus packages but also, principally, because private investment dropped from 2007 onwards. Since 2009-2010, this share is decreasing again, due to the consolidation programs carried out by many countries, combined with a very slight recovery in private investment.

Average total investment in OECD countries (% of GDP)



Source: OECD National Accounts

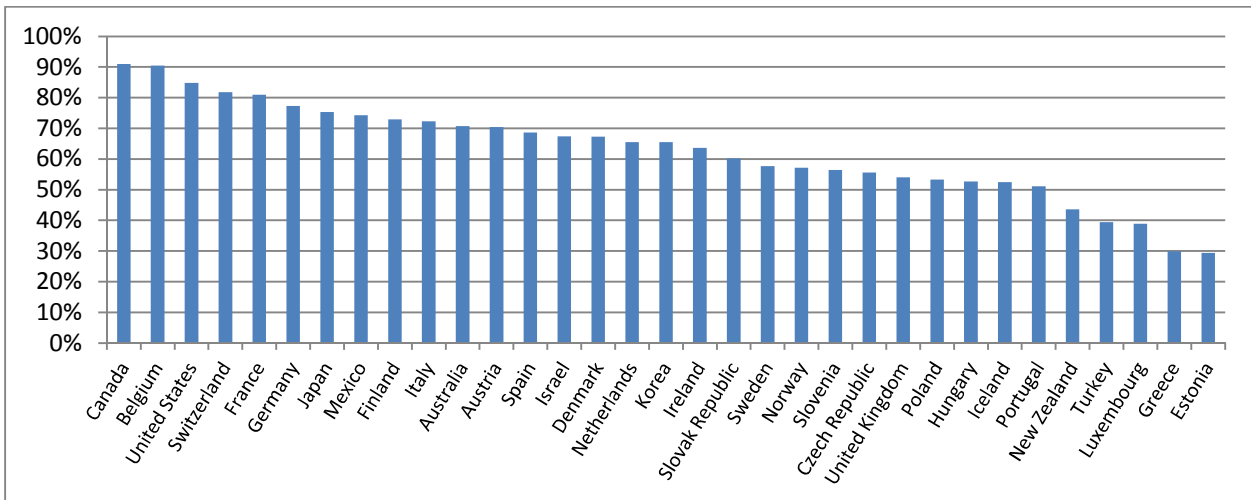
Public investment as a share of total investment



Source: OECD National Accounts

However, these averages hide large disparities between countries: the SNG share is larger in federal countries (over 80% in Canada, Belgium and the United States) than in unitary countries, and it is lower in historically centralised or small countries (below 40% on average in Turkey, Luxembourg, Greece and Estonia) (Figure 12).

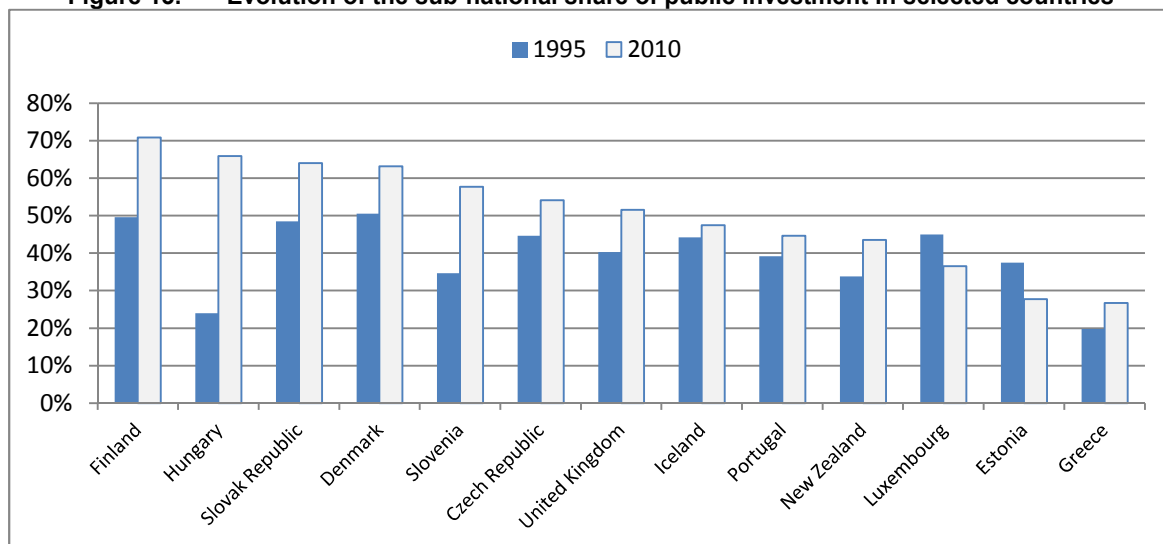
Figure 12. Sub-national share of public investment (2011)



Source: OECD National Accounts

Over the past two decades, many historically centralized countries (mostly in Europe) have given greater spending responsibilities to SNGs, including for public investment. This is particularly true in Eastern and Central European countries, where the decentralization trend was in part driven by the EU accession process (as in the Czech Republic, Hungary, Slovak Republic and Slovenia) (Figure 13). Northern European countries also carried out extensive investment decentralization over the period, for example in Denmark and Finland (Figure 13).

Figure 13. Evolution of the sub-national share of public investment in selected countries



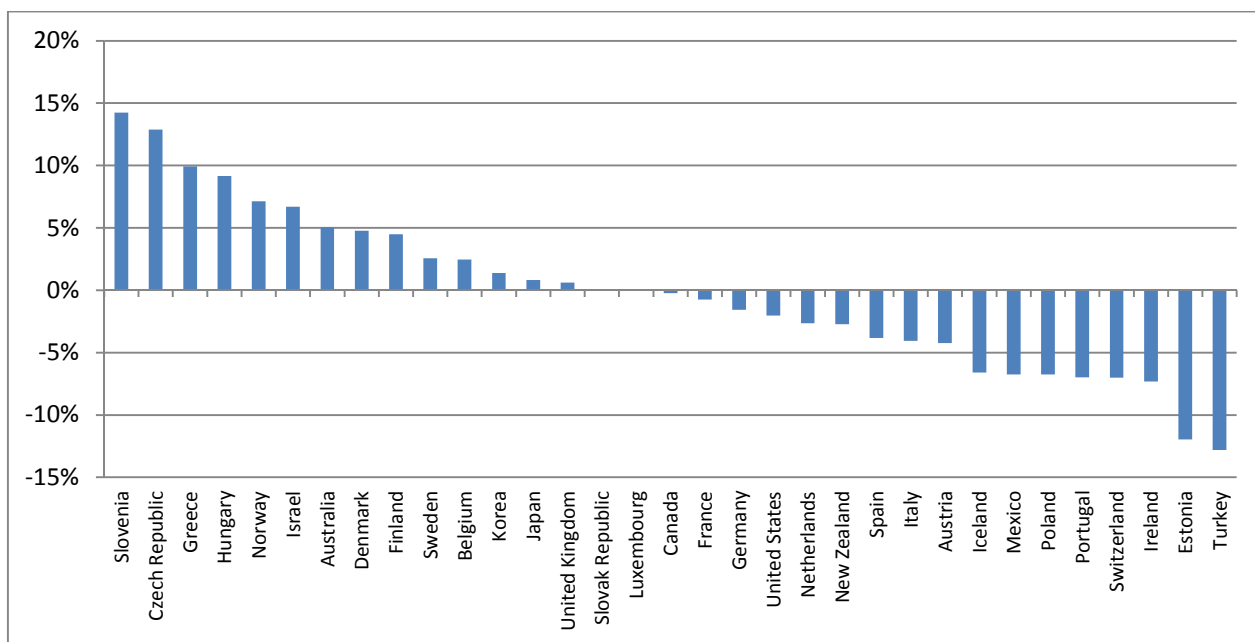
Source: OECD National Accounts

3.2 Trends in SNG public investment

The crisis interrupted the increasing role of SNGs in public investment in a number of countries...

The crisis affected differently the balance between central and sub-national public investment across countries. Approximately half the countries increased the decentralization of investment while implementing their stimulus packages, whereas the other half (re)centralized it (Figure 14).

Figure 14. Changes in the share of SNGs in total public investment between 2007 and 2011 (% points)

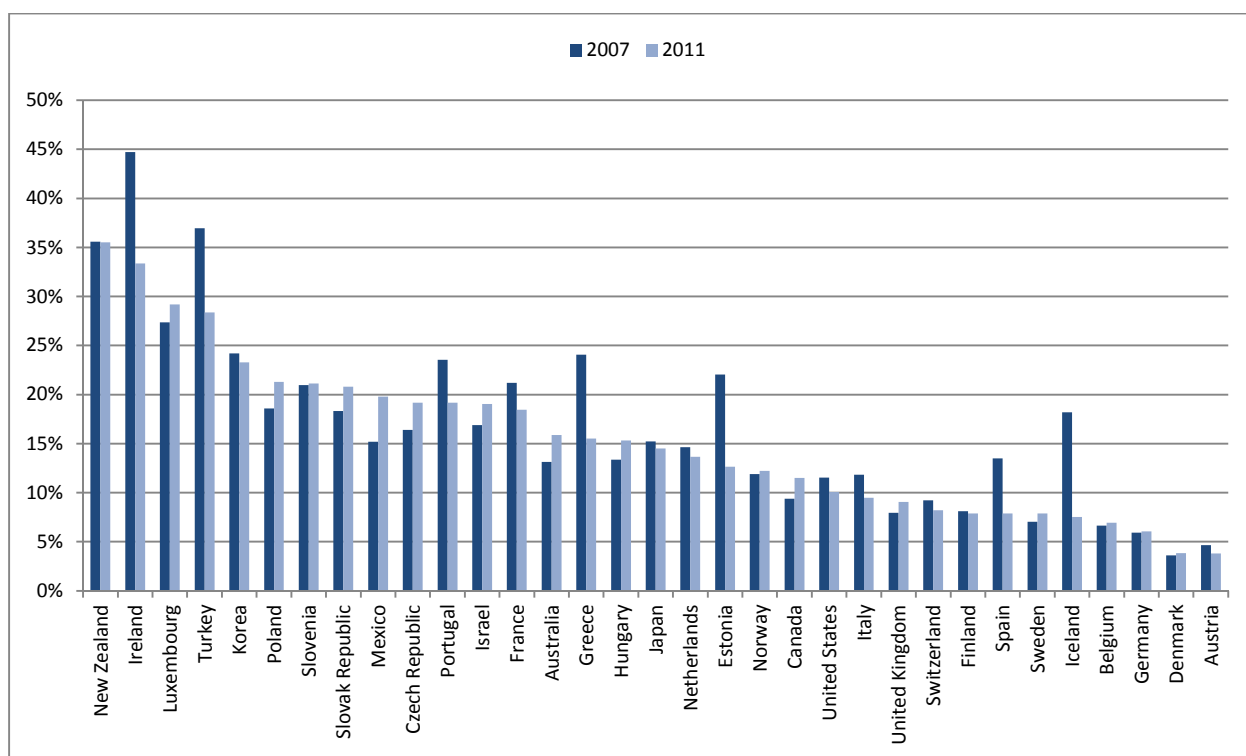


Source: OECD National Accounts

... as well as the share of expenditures SNGs devote to public investment

SNGs are often using public investment as an adjustment variable to reduce their budget deficits. Actually, not only do SNGs in difficulty reduce their level of public investment, they actually reduce the share of public investment in their total expenditure. From 2007 to 2011, the average share of public investment on SNG expenditure dropped from 16.7% to 15.4%. The countries most affected by the long-lasting crises since 2008 are those for which the ratio of public investment to total spending dropped the most (from 18.2% to 7.2% in Iceland, from 13.5% to 7.9% in Spain, from 24% to 15.5% in Greece, and from 44.7% to 33.4% in Ireland) (Figure 15). By contrast, the countries which recovered the fastest from the crisis have increased the ratio of SNG public investment to total spending (Mexico, Poland, Australia for example). This indicator is therefore also a good indicator not only to assess the degree to which capital investment was used as an adjustment variable, but also to assess the severity of the crisis and its potential long-term impact.

Figure 15. SNG public investment as a share of their expenditure



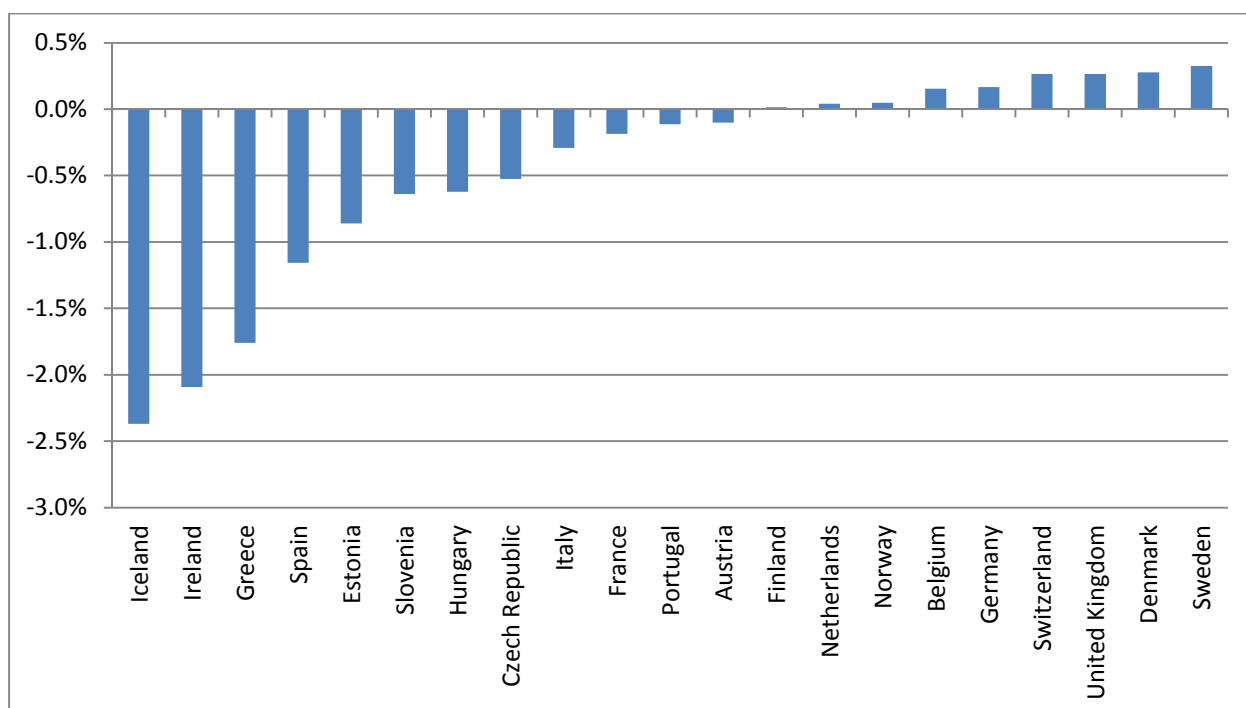
Note: for Canada, Japan, Korea, Mexico and Turkey, data is for 2010 instead of 2011; for Australia and New Zealand, 2009 instead of 2011.

Source: OECD National Accounts

After supporting public investment to stimulate the economy during the crisis, many OECD countries are now cutting it to reduce budget deficits

From 2007 to 2009, the implementation of recovery plans in many OECD countries led to higher levels of public investment both at national and sub-national levels. However, now that these plans have ended and that many countries have adopted fiscal austerity packages, public investment is declining sharply, especially for SNGs. In 2011, public investment was below its 2007 level in many countries (Figure 16).

Figure 16. Changes in total public investment between 2007 and 2011 (% of GDP)



Source: OECD National Accounts

Many consolidation programmes mention explicitly amounts to be saved by reducing public investment (OECD, 2012). This is the case in Austria, Czech Republic, Greece, Iceland, Ireland, Luxembourg, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and the UK. For some of these countries, targeted amounts are very large. For example, Spain plans to reduce investment in infrastructure by €33.54 billion between 2011 and 2013 (representing 3% of the 2011 GDP), and the central government also plans to cut all its other investments by 25%.¹² In Greece, planned public investment cuts amount to €40.16 billion over the 2011-2015 period (representing 18% of 2011 GDP). Luxembourg, Portugal, Slovak Republic, Slovenia¹³ also plan severe cuts in public investment.

In contrast, some countries have combined austerity measures with specific strategies to support public investment. For example, Estonia, France, and Ireland, have introduced investment plans while carrying out their consolidation strategies. In France, an “investments for the future” program was launched in 2010, and Ireland launched a “Jobs Initiative” in May 2011, including measures to boost R&D. In the United Kingdom, the government’s fiscal mandate protects the most productive capital spending (although considerable cuts in capital spending will still be made). Denmark introduced a fiscal stimulus package in 2012 based on increased public investment. Japan, in a very different context, launched a ¥19 trillion (€190 billion, or 3.9% of 2010 Japanese GDP) plan for recovery and reconstruction after the Great East Japan Earthquake.

12. Questionnaires on Fiscal Consolidation across Levels of Government sent to delegates of the OECD Network on Fiscal Relations across Levels of Government in September-October 2011.

13. More details on planned investment cuts by central governments in: OECD (2012), *Restoring Public Finances, 2012 Update*, OECD Publishing, OECD, Paris.

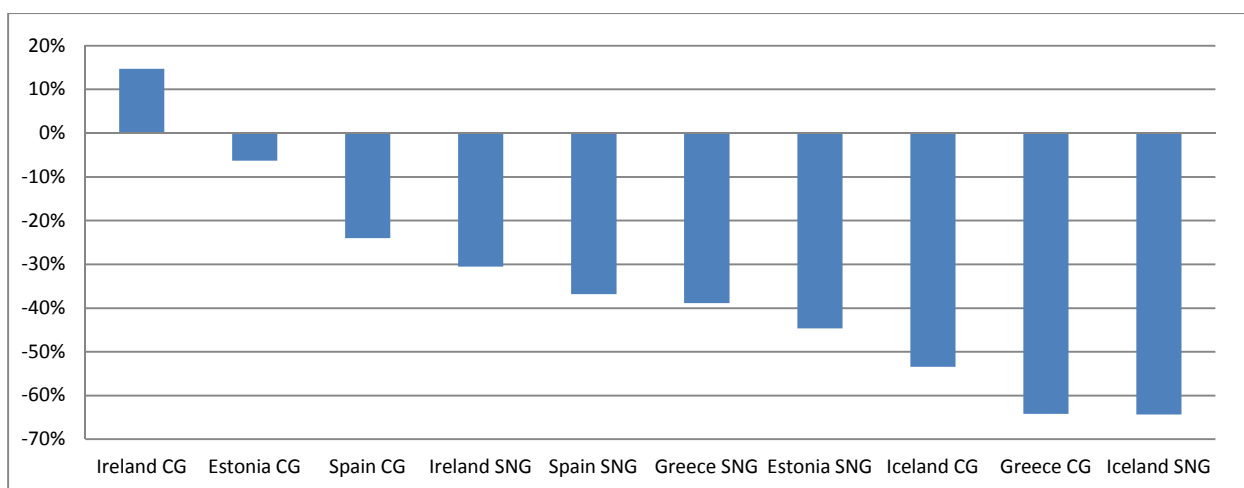
Consolidation plans affect public investment directly, through expenditure cuts by CGs, and indirectly. Indirect effects can arise as a reduction in CGs transfers, or the introduction of deficit targets or expenditure limits (see section II), which often leads SNGs to reduce public investment

3.3 Public investment in a thigh fiscal environment: an adjustment variable

Countries most affected by the crisis have seen the largest fall in public investment, both by central and sub-national governments.

General trends in overall public investment hide large disparities between countries. The more severe the economic difficulties faced by a country between 2007 and 2011, the more its overall public investment contracted. The five countries in which the unemployment rate increased by more than 5 percentage points during this period (Estonia, Greece, Iceland, Ireland, and Spain) saw the greatest decline in public investment. On average, total public investment sank by 44%, CG investment by 30% and SNGs' by 43% during the 2007-2010 period in these countries (Figure 11).

Figure 17. Changes in per capita public investment in selected countries (2007-2010)



Source: OECD National Accounts

4. How do markets perceive the financial situation of SNGs?

4.1. Stylised facts about SNG bond yields and ratings since 2007

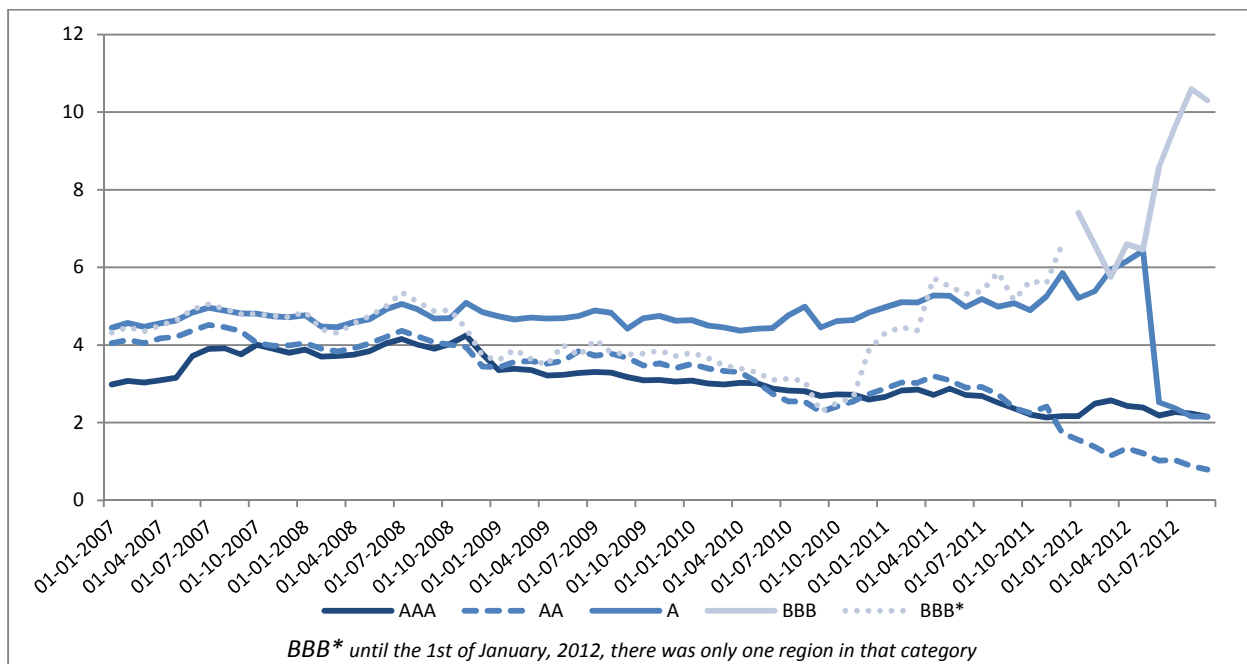
Differentiation between low and high-risk SNGs has increased

During the 2007-08 global financial crisis of (and in particular, in the wake of the fall of Lehman Brothers in October 2008), credit flows to SNGs perceived as riskier borrowers were temporarily disrupted (Box 3). In contrast, top rated SNGs benefited from a flight to quality and continued to tap international bond markets without major difficulties (Vammalle et al., 2011).¹⁴ Since 2011, this trend has been reinforced: yields of high quality (i.e. high-rated) bonds were lower in 2012 than in 2007, while yields of less creditworthy SNGs have reached record heights (Figure 18). The fall in the yield of A-rated bonds in January 2012 is due to the downgrades of Andalusia, Baleares, Catalonia and Madrid from A to the BBB.

14. AA-rated bonds quote below AAA rated one at times, showing that the financial markets do not always follow rating agencies' opinion.

Financial markets had been pricing the yield of these securities above those that remained in the A category since the beginning of 2009.

Figure 18. SNG bond yields by rating (2007-2012)



Source: Own calculations based on Datastream.

Box 4. Rating agencies and sovereign ratings

A credit-rating agency is a private firm that assigns credit ratings to issuers of certain types of debt obligations, as well as the debt instruments themselves. In most cases, the rated issuers are national governments, sub-central governments, private companies or structured products.

A credit rating measures the issuer's credit-worthiness (i.e. its capacity to pay back its debts). Credit ratings affect the interest rate at which the issuer can issue bonds (i.e. borrow on the financial market). The higher the rating, the lower the return that investors will demand to hold the bond, as the probability of default (i.e. the risk of holding the bond) is lower.

There are three main rating agencies: Moody's, Fitch, and Standard and Poor's. They use similar types of ratings: the highest rating is "AAA" (assigned by Fitch and Standard and Poor's to issuers with the lowest credit risk), ahead of the "AA", "A", "BBB", "BB", "B", "CCC", "CC" and "D" categories. Moody's corresponding rating scale is as follows: "Aaa", "Aa", "A", "Baa", "Ba", "B", "Caa", "Ca" and "C".

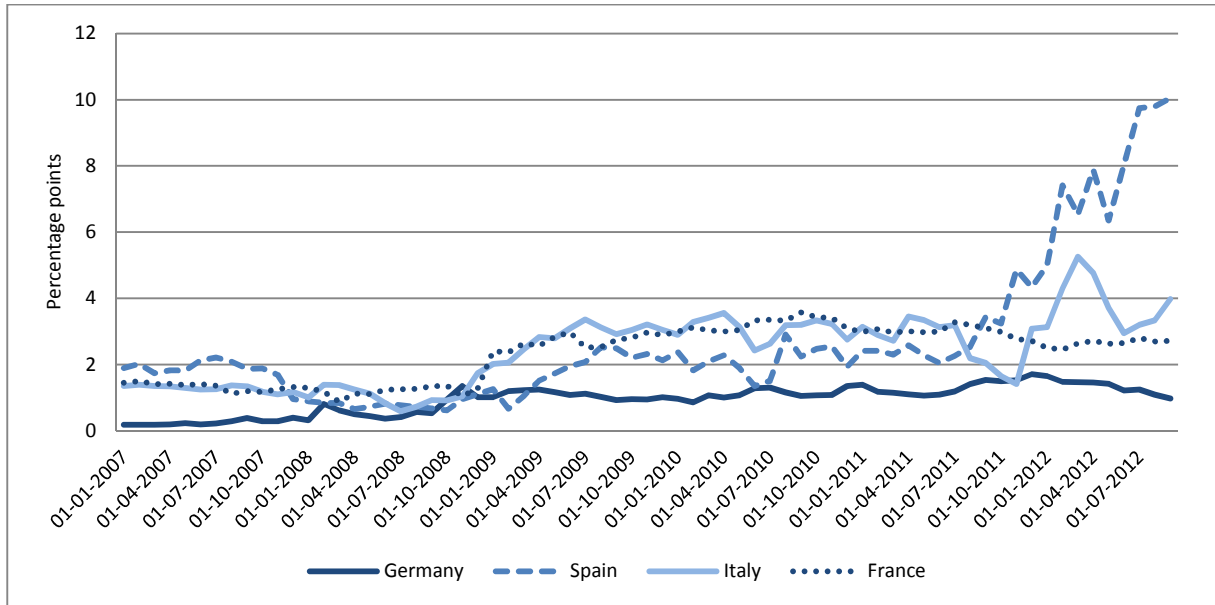
Bonds are classified in different credit-risk categories according to their ratings. Using S&P terminology, bonds rated AAA and AA are considered high credit-quality or "investment grade". Those rated AA and BBB are called medium credit-quality, and are still considered as investment grade. BBB, B, CCC, CC and C rated bonds are low credit-quality (non-investment grade), also called "junk bonds". Bonds in default or non-payment of principal and/or interest are classified as D bonds.

The value of credit ratings was widely questioned as a result of the 2007-09 financial crisis because the rating agencies had failed to correctly assess the risk of the subprime instruments. The importance given to ratings in international financial regulations has also been criticized. Ratings are used to assess the risk of an investment portfolio. Therefore, when a rating falls below a certain threshold (known as "investment grade"), most pension funds and banks feel compelled to sell the security, contributing to the collapse of its price.

Source : Vammalle et. al, 2011

The spreads between maximum and minimum SNG bond yields increased after the Lehman collapse in October 2008. After an initial increase from less than 200 basis points in 2007 to about 300 basis points, spreads remained relatively stable until the end of 2011. At that time, the growing doubts about the capacity of Spanish and Italian SNGs to consolidate and their frequent downgrades by rating agencies (Annex, Figures A2 and A4) resulted in surging spreads. In 2012, spreads reached 1000 basis points in Spain (Figure 19). This rise in spreads reflects that investors increasingly priced in the possibility of defaults by some SNGs.

Figure 19. Range of variation of yields

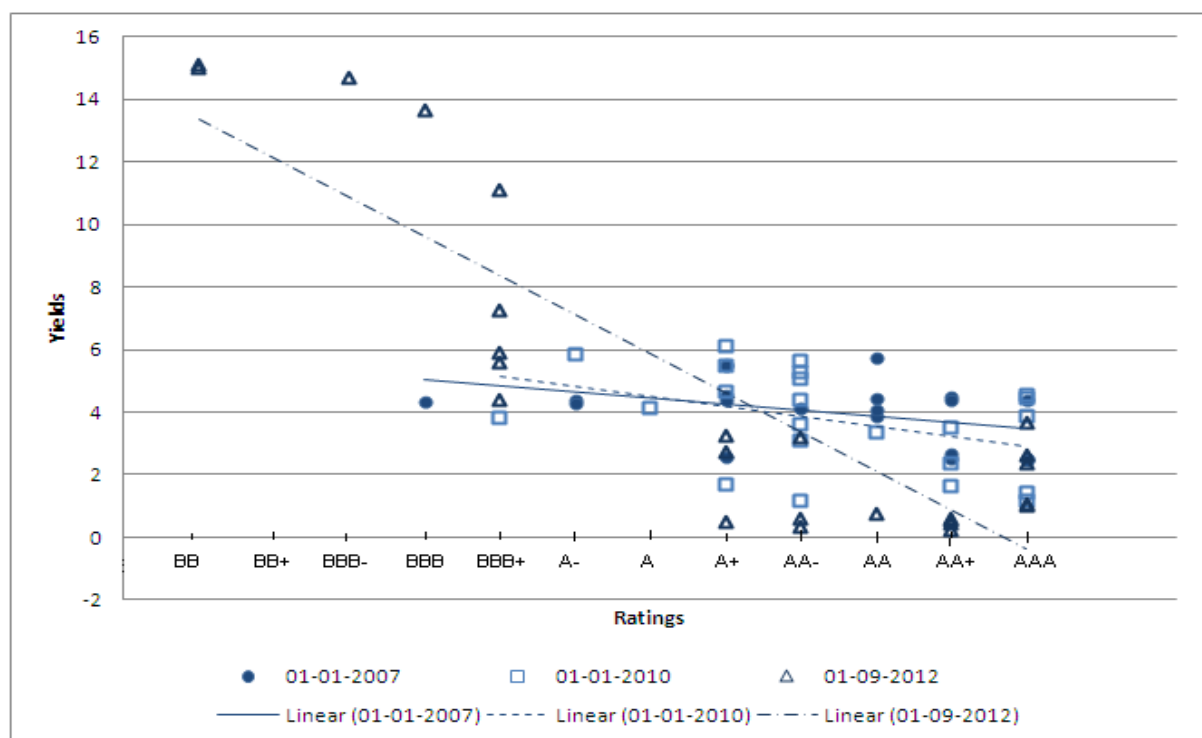


Source: Own calculations based on Datastream

The average rating of SNG bonds deteriorated between 2007 and 2012

Plotting SNG yields against their respective ratings unsurprisingly shows a correlation between the yields and the ratings (better rated securities enjoying lower yields), but this correlation has evolved from 2007 to 2012 (Figure 20). First, the average rating of bonds decreased during the period, with more bonds getting low ratings in 2012 than in 2007. Second, differentiation of borrowers increased: yields of low rated securities increased, while the yields of the top rated ones decreased.

Figure 20. SNG yields and ratings (2007, 2010 and 2012)



Source: Own calculations based on data from Datastream and S&P.

Ratings influence SNG bond yields but are not their main driver

Ratings represent the opinion of the rating agencies on the creditworthiness of specific borrowers, *i.e.* the probability of default. This is one element investors use, when making investment decisions, but not the only one. For instance, liquidity (*i.e.* the ability to sell an asset rapidly, with minimal loss of value) is also an element in the pricing of a bond. Markets do not always follow rating agencies.

In most cases, investors follow an implicit sovereign ceiling rule

Rating agencies usually apply the “sovereign ceiling” rule, meaning that no issuer within a country can get a higher rating than the sovereign (in particular, SNGs cannot have a better rating than their central government). The justification for this rule is mainly that a shock strong enough to force the central government into default is most likely to also affect SNGs, and as SNGs’ room for manoeuvre is smaller than the central government’s, these will most likely be in default too. In most cases, the yields of central government bonds are indeed lower than those of SNGs. Exceptions are usually short-lived, generally reflecting noise in financial markets.¹⁵ The main exception is France, where the Ile-de-France and Paris SNGs enjoyed lower yields than the French government during most of the period from 2007 to 2012 (Annex 2, Figure 29).

15. In Germany, Berlin rated lower than the central government for a very short period during 2010 (Annex 2, Figure 14); Spain has some exceptions, with the yield of the Balearic Islands being lower than the central government’s during 2007, and Madrid (city) and Catalonia exceptionally quoting below the sovereign (Annex 2, Figure 16). Italy also shows a number of exceptions to the rule, with Lazio, Lombardy, Rome (province) and Umbria occasionally having lower yields than the central government (Annex 2, Figure 18).

4.2. The impact of credit rating downgrades on SNG bond yields: are there contagion effects?

One reason for monitoring SNG debt is the risk of contagion that arises when one SNG issuer faces difficulties.

Rating downgrades may have three types of effects on bond yields (Annex 3):

- *Direct effect*: if the downgrade was not anticipated by the market, the yields of the downgraded SNG bond may increase, as the markets will suddenly perceive it as more risky.
- *Horizontal contagion effect*: the yields of SNG bonds which were not downgraded may increase if investors do not properly discriminate between SNG borrowers within one country
- *Vertical contagion effects*: SNG bond yields may increase following a CG downgrade, as investors may perceive all the bonds within the country as more risky.

There is no clear evidence of a direct or horizontal contagion effect of downgrades on SNG bond yields

On average, the yields of Italian and Spanish SNG bonds that were downgraded during the 2011-2012 period increased by 3.5 percentage points, and those of SNG bonds that were not downgraded increased by about 1 percentage point (Annex 3). The reaction of financial markets to downgrades from rating agencies has been comparatively limited. This is probably due to the particularly unfavourable financial context in which these downgrades occurred, with a general upward trend of SNG yields (Spanish SNG bond yields increased by 10 percentage points between January 2011 and September 2012, while the Italian ones increased by 6 percentage points during the same period). It therefore seems that the downgrades only confirmed the loss of confidence in the Spanish and Italian SNGs. Some of them were already also anticipated by investors, and thus already priced in.

Falling from investment grade to speculative grade has not generated above-average effects

Two SNGs were downgraded from investment to speculative grade. While such a small sample does not allow to draw general conclusions, these changes of credit rating category did not generate larger impacts on the yields (direct or contagion) than downgrades within the same category.

Vertical contagion effects have been linked to the application of the sovereign ceiling rule, rather than to contagion

Sovereign downgrades can affect SNG bond yields in two ways: first, they may trigger a downgrade of the best rated SNGs (following the sovereign ceiling rule). Second, they may have a contagion effect through investor's behaviour, as these may be influenced by the sovereign downgrade in their evaluation of the SNG bond risk.

Following the sovereign ceiling rule, rating agencies lowered the ratings of several SNGs, notably in France, Spain and Italy. In the case of Paris, for example, the announcement by S&P made very clear that the downgrade was exclusively due to the prior downgrade of France, but that the intrinsic creditworthiness of Paris' bonds remained unchanged. The communiqué stated that: "Standard & Poor's lowered its unsolicited long-term sovereign credit rating on the Republic of France to 'AA+' from 'AAA' on Jan. 13, 2012. Under our methodology for rating local and regional governments (LRGs) and their related sovereigns, we cap the rating on the City of Paris based on the long-term rating on France. Consequently, we are lowering our long-term issuer credit rating on Paris to 'AA+' from 'AAA'. [...] We continue to

assess Paris' indicative credit level (ICL) at 'aaa'¹⁶ (Standards and Poors, 30 January 2012).¹⁷ In Italy, the downgrades of Rome and Umbria announced on 27 January 2012 were also the direct consequence of the sovereign downgrade by S&P that occurred on 13 January 2012.

The effects of these sovereign downgrades differed. The French SNG downgrades (Paris, Ile-de-France) did not affect the respective yields (Annex 2, Figure 31). In contrast, the downgrades of Rome and Umbria in the wake of the Italian downgrade did push the yields of these SNGs up, even though the downgrades had been expected by investors due to the sovereign ceiling rule. This may be considered as a case of vertical contagion, by re-focusing investor's attention on the difficulties faced by SNGs. Sovereign downgrades had little impact on SNG bond yields when they did not trigger downgrades in application of the sovereign ceiling rule.

Markets seem to anticipate rating agencies' downgrades rather than react to them

As for SNG ratings, rating agencies may again have been behind the curve. It seems that most of the recent SNG downgrades have only confirmed a global loss of confidence. This is particularly visible for the four Spanish SNGs whose bonds were downgraded from A to BBB in January 2012, which had been priced above the more creditworthy A-rated bonds for some time before the downgrade (Figure 18).

Conclusion

SNGs play a crucial role for public service delivery and public investment. Their finances and access to financial markets were affected by the 2007-09 global financial crisis, and after having initially been supported by CGs, they are seeing this support vanish as CGs struggle to reduce their own deficits. National consolidation plans often lead CGs to cut transfers to lower levels of government and to require SNGs to participate in national consolidation plans by tightening borrowing and deficit rules, imposing spending limits, or tightening the enforcement of existing fiscal rules. Given the limited financial room for manoeuvre of SNGs, these consolidation constraints may reduce public investment, create cascade effects on local labour markets (mainly through reduced public procurement) and thus ultimately threaten local growth. They can also increase inequalities in local public service access and lower the quality of services. As a consequence, while successful national consolidation strategies will usually have to involve SNGs, they also need to take into account their financial situation to preserve their capacity to deliver important public services.

16. Small letters are used to distinguish these ICL rating from normal ratings.

17. The "indicative credit level" (ICL) is a "shadow" rating, corresponding to the rating an issuer would get if there was no sovereign ceiling rule.

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**ANNEX A:
METHODOLOGY FOR CALCULATING SNG BOND YIELDS**

This annex analyses the relationship between credit ratings and bond yields for a sample of sovereign and sub-national governments (SNGs) (Table 1). For all these issuers, daily credit ratings, daily bond prices, and monthly bond yields were collected for the period January 1st 2007-September 1st 2012.

The annex uses credit ratings issued by Fitch, Moody's and Standard & Poor's (S&P). Bond prices are collected from *Datastream*. These prices are transformed into bond yields through a bond yield to maturity calculator (www.quantwolf.com/calculators/bondyieldcalc.html).

Table A.1 List of bonds used in the study

Country	Issuer	Bond (issuer ; date of issue; coupon; maturity date)
France	Central government	France 2006 3.25% 25/04/2016
	Ile-de-France	Ile-de-France 2005 2.375% 28/12/2016
	Nord Pas-de-Calais	Nord Pas-de-Calais 2008 4.411% 22/12/2023
	Paris	Paris 2005 2% 24/11/2014
Germany	Central government	Germany 2004 3.75% 04/01/2015
	Baden-Württemberg	Baden-Württemberg 2008 4.25% 04/01/2018
	Berlin	Berlin 2005 3.25% 15/01/2014
	Hesse	Hesse 2005 3.625% 25/01/2017
	North Rhine-Westphalia	North Rhine-Westphalia 2005 3.5% 16/11/2015
	Saxony-Anhalt	Saxony-Anhalt 2005 3.375% 01/06/2015
Italy	Central Government	Italy 2006 3.75% 01/08/2016
	Lazio	Lazio 2000 6.355% 16/02/2015
	Lombardy	Lombardy 2002 5.804% 25/10/2032
	Milan (city)	Milan (city) 2005 4.019% 29/06/2035
	Rome (province)	Rome (province) 2004 4.287% 12/11/2024
	Umbria	Umbria 2002 5.425% 31/12/2017
Spain	Central government	Spain 2005 3.15% 31/01/2016
	Andalusia	Andalusia 2010 4.85% 17/03/2020
	Balearic Islands	Balearic Islands 2005 3.869% 23/11/2020
	Catalonia	Catalonia 1998 6.25% 15/12/2018
	Madrid (city)	Madrid (city) 2006 4.35% 16/06/2021
	Valencia (region)	Valencia (region) 2006 4% 02/11/2016
Other OECD SNGs	British Columbia (Canada)	British Columbia 1992 9.5% 09/06/2022
	Lausanne Stadt (Switzerland)	Lausanne Stadt 2004 2.75% 31/03/2014
	Osaka City (Japan)	Osaka City 2007 1.82% 20/09/2017
	Oslo Kommune (Norway)	Oslo Kommune 2004 4.25% 01/12/2014
	Ostrava (Czech Republic)	Ostrava 2004 4.556% 28/07/2014
	Prague (Czech Republic)	Prague 2003 4.25% 19/03/2013
	Warsaw (Poland)	Warsaw 2009 6.875% 06/05/2014
	Zurich Kanton (Switzerland)	Zurich Kanton 2003 2.75% 14/01/2013

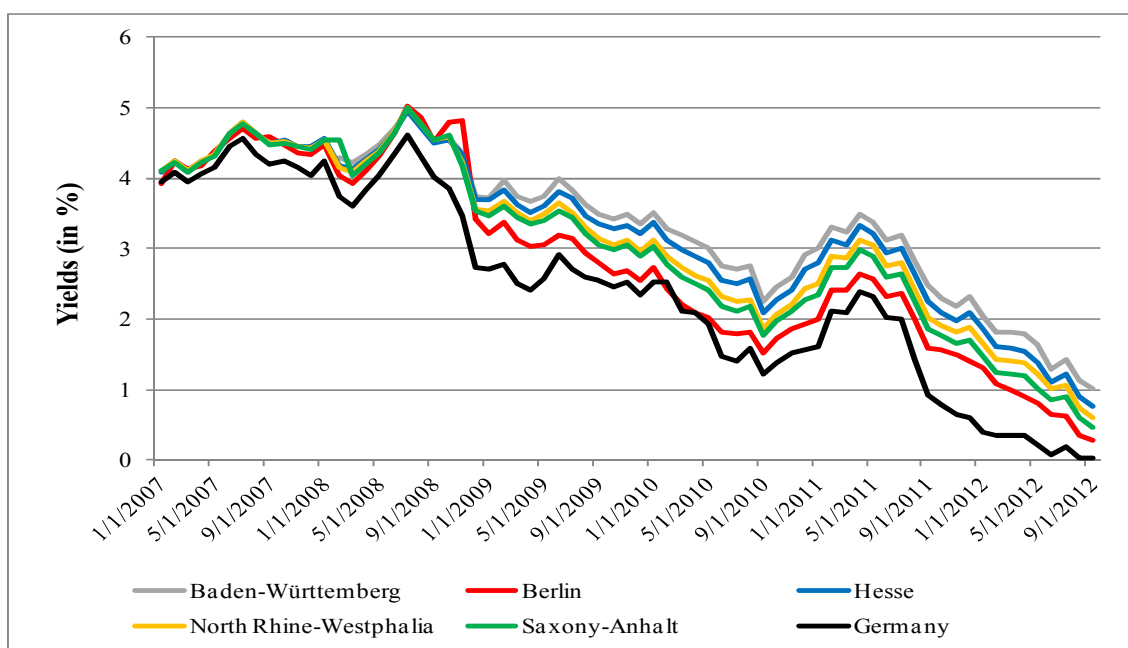
ANNEX B: EVOLUTION OF NATIONAL AND SNG BOND YIELDS IN SPECIFIC COUNTRIES

Germany

German SNG and CG bond yields are very closely correlated, even if the range of variation between the highest-rated and the lowest-rated bonds has increased since the fall of 2008 (Figure 21). The German central government is among the few European sovereign issuers that has preserved its AAA rating by all three major rating agencies during the whole period. The securities issued by Baden-Württemberg, Berlin, Hesse, North Rhine-Westphalia, and Saxony-Anhalt are rated in the AA or AAA categories. Baden-Württemberg and Saxony-Anhalt are among the very few SNGs that were upgraded by S&P between January 2010 to September 2012 (from AA+ to AAA and from AA- to AA+, respectively).

All German bond yields hit a record low in September 2012, reflecting a flight to safety phenomenon. The high credit quality of German issuers and the liquidity of their bonds may explain the very strong correlation between German yields. The German Bund yield turns out to be the lowest for the period under consideration. The spread between the German Bund yield and other SNGs do not exceed 150 bps. No SNG experienced specific stress on financial markets between January 2007 and September 2012.

Figure B.1 German SNG and central government bond yields



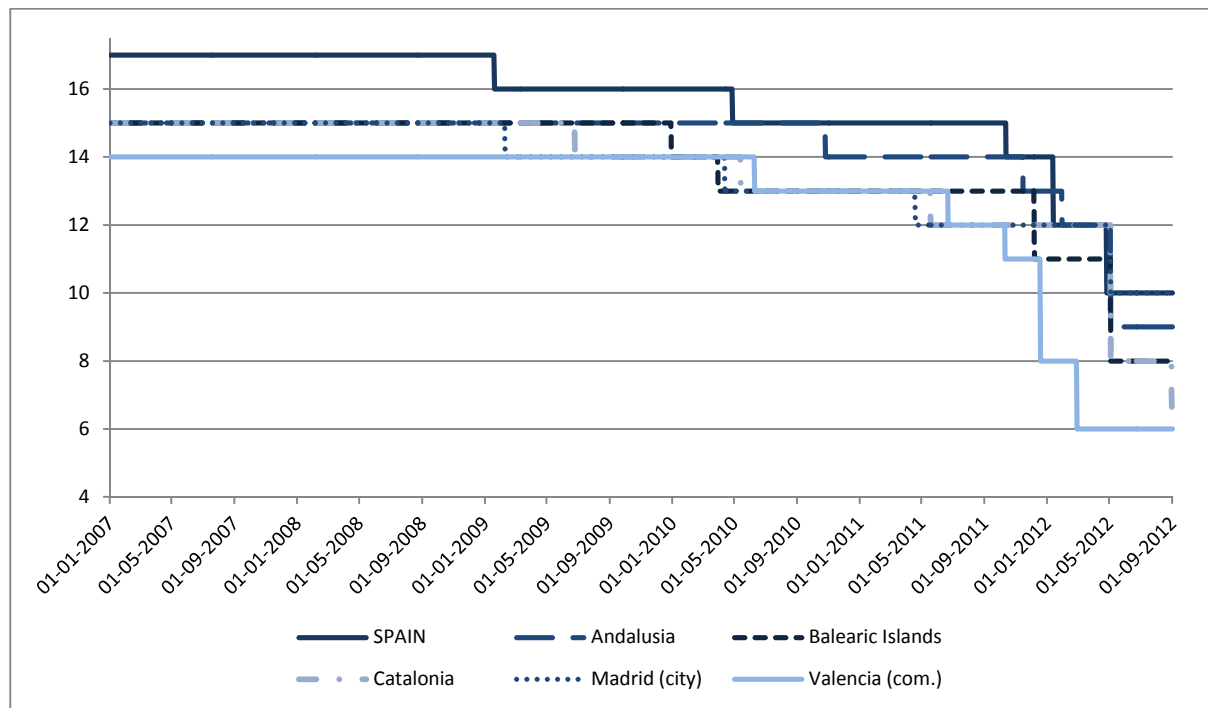
Source: Own calculations based on Datastream.

Spain

All Spanish issuers suffered massive downgrades during the global financial crisis (Figure 22). Between January 2010 and September 2012, the Spanish central government was downgraded from Aaa to Baa3 by Moody's and from AA+ to BBB+ by S&P. The ratings of Andalusia, the Balearic Islands,

Catalonia, Madrid, and Valencia were also lowered by the two agencies. The regions of Catalonia and Valencia slipped into speculative grade after years in the AA category.

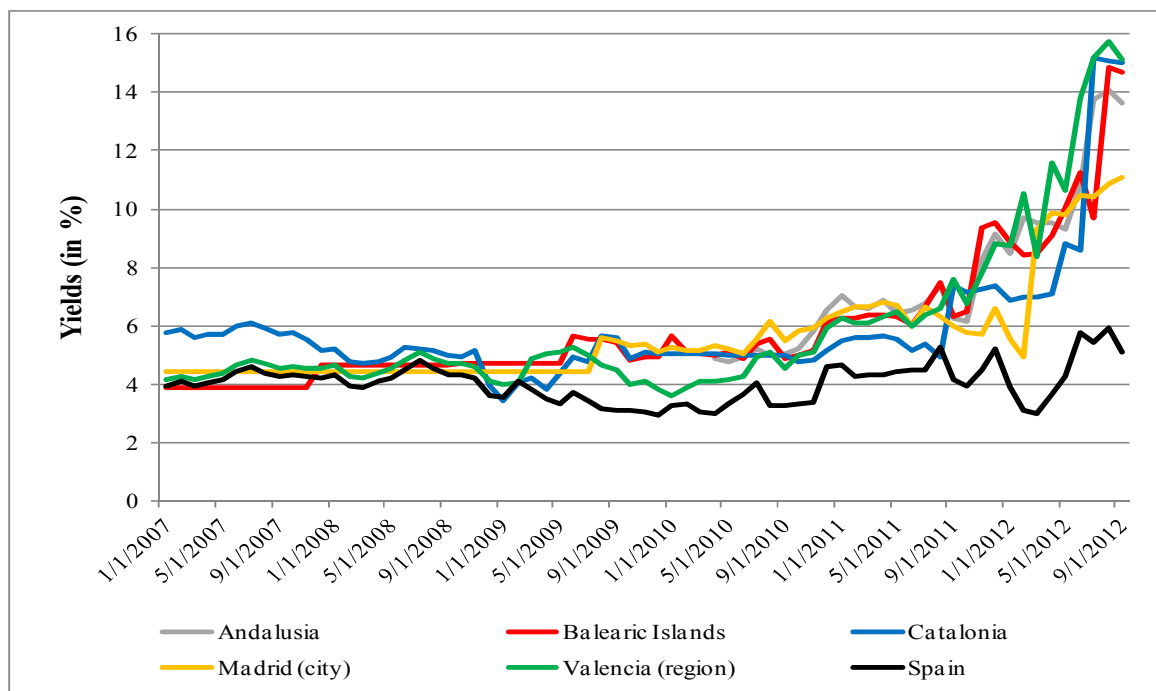
Figure B.2 Spanish issuers ratings by Standards and Poor's (2007-2012)



Source: Standards and Poor

These downgrades, which reflected the poor track record of SNGs in complying with fiscal targets and the rising doubts about the sustainability of SNG debt in the face of several bailouts during the 2010-2012 period led to a massive increase of SNG yields (Figure 23). Even though the yield of the Spanish government bonds was higher and more volatile in 2011-2012 than it was in 2007-2010, it remained much lower than SNG bond yields that soared starting in November 2011. The bond spread between the five Spanish SNGs and the sovereign issuer jumped from less than 200 bps in the first half of 2011 to 880 bps in September 2012. Unsurprisingly, SNGs with the lowest credit ratings have the highest yields (i.e., Valencia, Catalonia, and Balearic Islands).

Figure B.3 Spanish SNG and central government bond yields

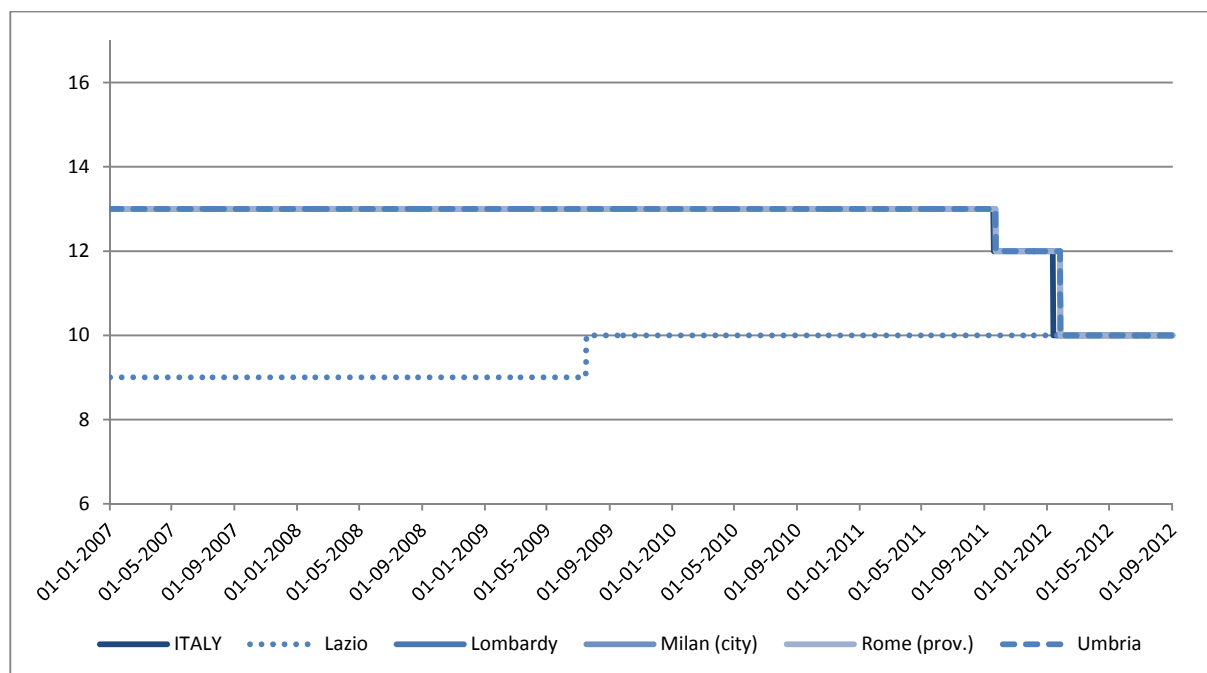


Source: Own calculations based on Datastream

Italy

All Italian issuers suffered downgrades during the global financial crisis (Figure 24). Between January 2010 and September 2012, the Italian central government was downgraded from AA- to A- by Fitch, Aa2 to Baa2 by Moody's and from A+ to BBB+ by S&P. The ratings of Lazio, Lombardy, Milan, Rome and Umbria were also lowered by the three agencies. Nevertheless, they all remained above the speculative-grade category.

Figure B.4 Italian issuers' ratings by Standards and Poor's

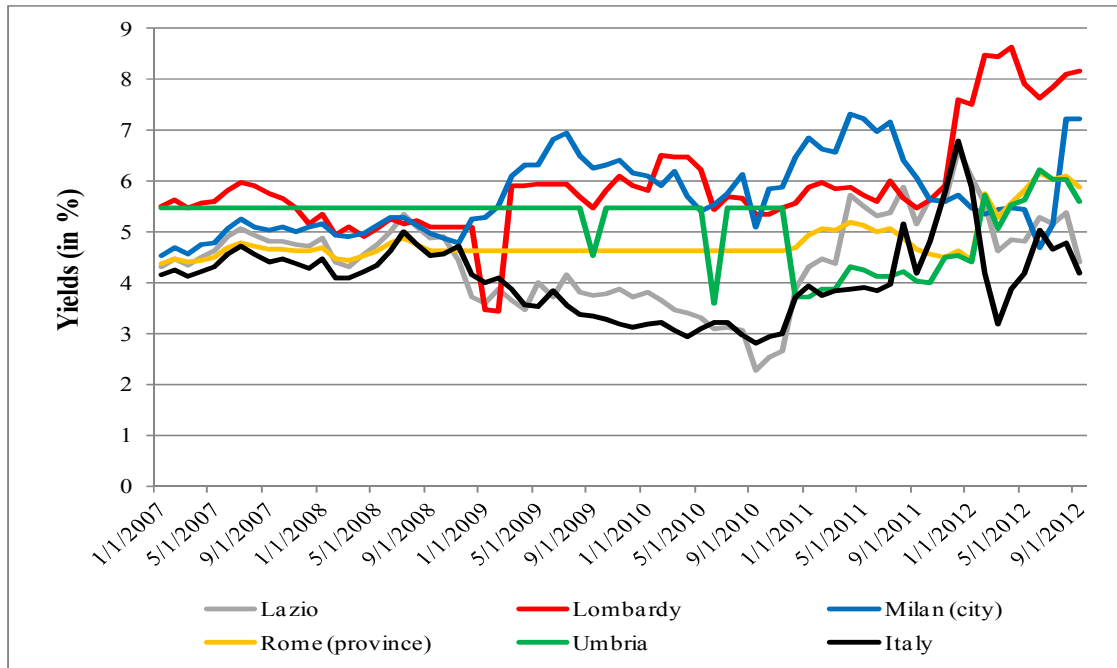


Source: Standards and Poor

The bond yields of Italian SNGs have experienced different trends since 2007 (Figure 25). Despite a peak in November-December 2011 (*i.e.*, around the time the Italian Prime Minister of the time resigned), the yields of the Lazio region and the Italian central government were, in September 2012, at their January 2007 levels. The Lombardy region and the city of Milan recorded the highest bond yields since 2009, in the last quarter of 2012. The increases were related to the fact that these two SNGs suffered the largest downgrades during January 2007-September 2012. These downgrades reflect the application by the three credit rating agencies of the “sovereign ceiling” policy, according to which SNG ratings cannot usually be higher than their sovereign. In contrast, Lazio, which was rated much lower than the Italian sovereign government before 2011, experienced fewer downgrades. For instance, its Fitch and S&P ratings were unchanged between January 2010 and September 2012 (Figure 24). The greater stability of the Lazio credit rating may explain why its bond yields remained quite low relative to Milan and Lombardy.¹⁸

18. The yields of Umbria and Rome cannot be analysed accurately as their bonds turned out to be less liquid than their counterparts.

Figure B.5 Italian SNG and central government bond yields



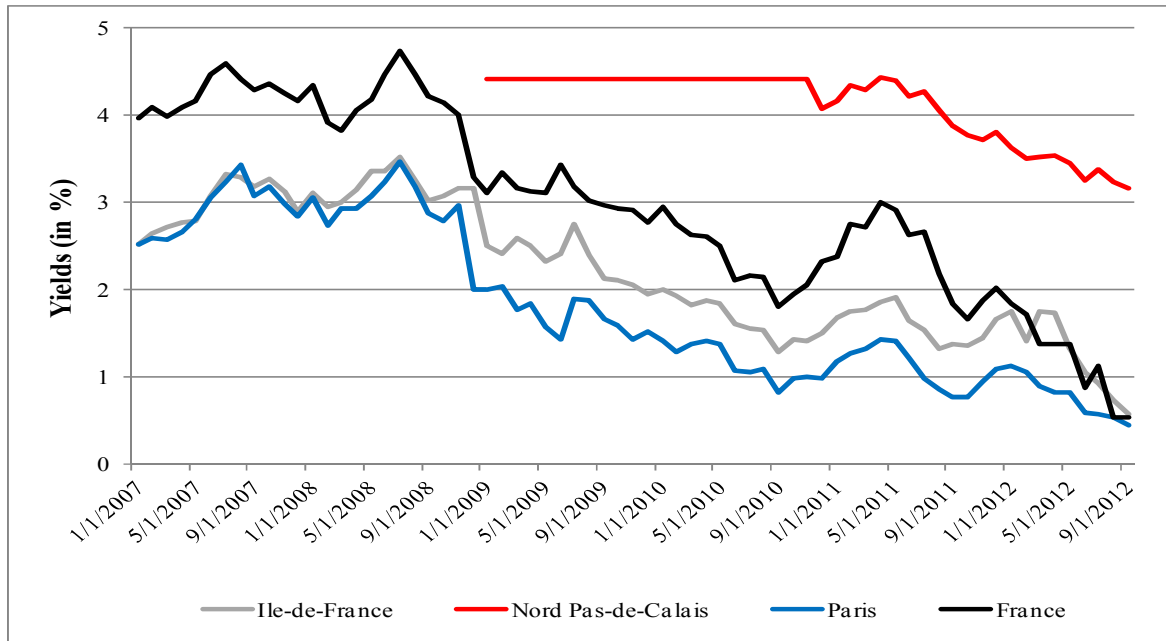
Source: Own calculations based on Datastream

France

The region of Nord Pas-de-Calais has been rated in the AA- category by S&P since 2003. France, Ile-de-France and Paris were rated in the Triple-A category by the three credit rating agencies until early 2012. In January 2012, S&P lowered the credit rating of the French government from AAA to AA+. Following the “sovereign ceiling” rule, the ratings of Ile-de-France and Paris were lowered by the same amount. These downgrades do not seem to have had an impact on bond yields, which hit their record low in September 2012 (Figure 26). This evolution reflects the flight to quality: in September 2012, the bond yields of Ile-de-France, Paris and France were very similar to those of German issuers.

There is a strong correlation between French SNG bond yields. However, the yield of Nord Pas-de-Calais is significantly higher, which reflects the fact that this SNG is rated two notches lower than France, Ile-de-France and Paris.

Figure B.6 French SNG and central government bond yields



Source: Own calculations based on Datastream

ANNEX C: ASSESSING CONTAGION EFFECTS FOLLOWING RATING DOWNGRADES

This annex analyses whether the downgrade of a borrower had an effect on its own bond yields, and whether contagion effects on other borrowers occurred during the 2007-2012 period, looking for three possible effects:

- i. *Direct effect*: how does the yield of a SNG bond react to a downgrade of its own rating?
- ii. *Horizontal contagion effect*: are the yields of sub-national governments which were not downgraded negatively affected by downgrades of other SNGs in the same country?
- iii. *Vertical contagion effects*: what are the effects of a downgrade of the central government on the country's SNG bond yields?

Methodology for assessing contagion

The analysis focuses on four countries (France, Germany, Italy and Spain) and five SNG per country (except for France for which information was only found for three SNGs). The results presented here are a preliminary approach, based on a limited dataset of daily yields.

Direct effect: For each country, the yields of SNGs that were downgraded are calculated for [D-1; D+5], where D is the trading day when the SNG was downgraded. Next, the daily evolutions of yields are computed for [D-1; D+5]. Lastly, the average evolution is calculated for [D-1; D+5], the yield taking the value 100 for the trading day prior to the downgrade [D-1].

Horizontal contagion effect: The same process is applied separately to the SNG bonds that were not downgraded, and the evolution of yields obtained is compared to that of SNG bonds that were downgraded.

Vertical contagion effect: yields of SNG bonds are calculated for [D-1; D+5], where D is the trading day when the central government is downgraded. The average evolution of SNG bond yields is calculated for [D-1; D+5], the yield taking the value 100 for the trading day prior to the downgrade [D-1].

The value 100 is taken for the trading day prior to the downgrade, because there is no information about the time of the day when the downgrade is announced on day D. If the downgrade occurred before the end of the day D, the bond price of the SNG whose credit rating was lowered could be affected by the downgrade during the day D. As a result, it is more reasonable to state 100= [D-1] and look at the evolution of bond yields from D.

The selection of the span [D-1; D+5] is underpinned by several facts. It covers the reactions of bond yields to downgrades during six trading days (from D through D+5). This period is considered sufficient for investors to have time to react to changes in bond yields. However, looking beyond D+5 would be very arguable because more and more financial, economic, and political news are likely to influence bond yields, which inevitably "dilutes" the impact of the downgrade. Concretely, it means that the conclusions which may be drawn from a change in bond yields are less robust when looking at a longer time horizon. Actually, even the change in bond yields on D or D+1 is not exclusively driven by the rating change that has just occurred. Consequently, the analysis below need to be put into perspective, as there is no strong causality relationship from a downgrade to an increase in a bond yield.

Horizontal contagion

There is no clear evidence of horizontal contagion effects

Direct and horizontal contagion effects are analysed for two countries (Spain and Italy), and the results obtained are not very conclusive. Indeed, most of the downgrades occurred in 2011-2012 (Annex 2, Figures 25 and 27),¹⁹ in times of high financial stress. The yields of the five Spanish SNG bonds increased by 123% between January 2011 and September 2012 (Annex 2, Figure 26), while Italian increased by 30% (Annex 2, Figure 28). As a result, it is difficult to conclude that the downgrades led to a significant increase in the yields. Rather, it seems that the downgrades only confirmed a global loss of confidence in the Spanish and Italian SNGs, or that they were anticipated by investors and thus already priced.

The average yield of the downgraded bonds increased during the six-day period following the downgrade (Figures 27 and 28). The horizontal contagion effect is not so clear, especially in Italy (Figure 28).

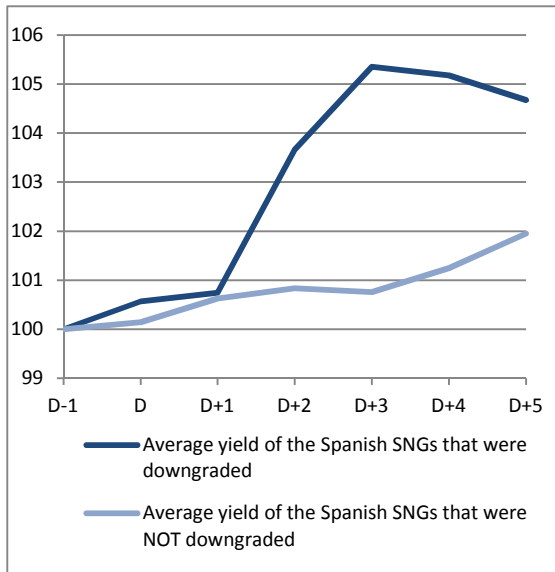
However, all the downgrades did not have the same effect. In Spain, two of the 53 downgrades had a much higher impact on the yields of the downgraded bonds than the others (those announced by Fitch on February 2nd 2012 for Madrid and May 31st 2012 for Catalonia). This high impact is hard to explain: it had no horizontal contagion effect, and did not lead to a major change in rating categories (Catalonia was downgraded one notch from BBB+ to BBB- and Madrid lost two notches from BB- to A). In Italy, the downgrades of Milan, Rome and Umbria announced on January 27th 2012 by S&P also contributed to inflating the average yields of the downgraded bonds: the downgrades of Rome and Umbria were followed by a 35.5% jump in their bond yields within 48 hours. If these outlier observations are dropped from the analysis, the average increase in the downgraded bond yields is much lower, and in the case of Spain, similar to the effect of the non downgraded bonds (Figures 29 and 30).

Falling from investment grade to speculative grade does not generate above average effects

Two SNGs were downgraded from investment grade to speculative grade during the period analysed (Valencia and Catalonia, announced by Moody's on 19 December 2012 and 17 May 2012 respectively, and by S&P on 28 February 2012 and 31 August 2012 respectively). These changes of categories did not generate larger impacts on the yields (direct or contagion) than downgrades within the same category.

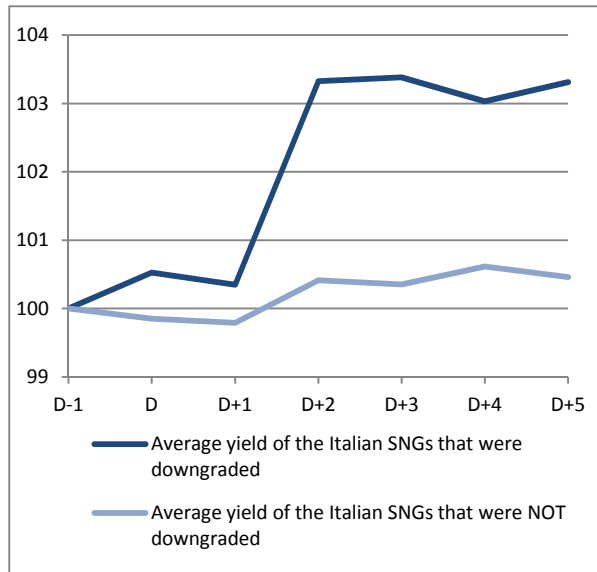
19. The data covers all downgrades by the major three rating agencies (Fitch, Moody's and Standards and Poor) during the period January 1st 2007-September 1st, 2012). This consists of 53 downgrades in Spain, and 26 in Italy.

Figure C.1 Direct and horizontal contagion effects on Spanish SNG bond yields



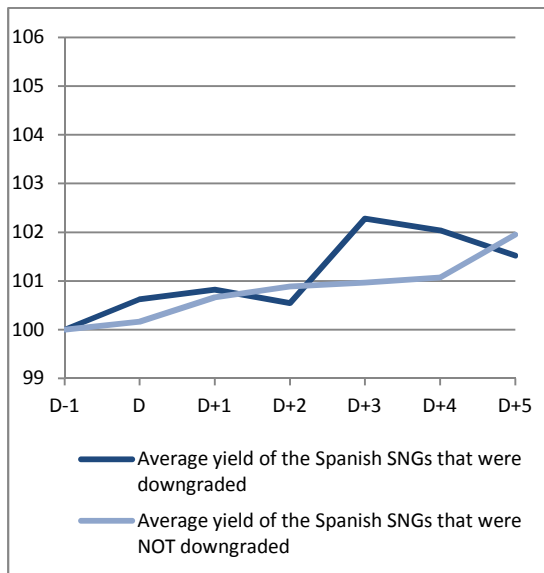
Source: Own calculations based on data from Datastream

Figure C.2 Direct and horizontal contagion effects on Italian SNG bond yields



Source: Own calculations based on data from Datastream

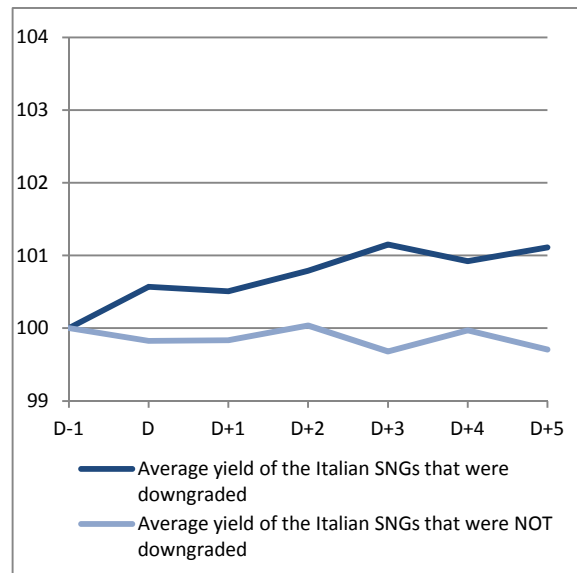
Figure C.3 Direct and horizontal contagion effects on Spanish SNG bond yields (dropping outliers)



Note: Observations dropped: Fitch's downgrades of Madrid and Catalonia announced on Feb. 2nd, 2012 and May 31st, 2-12.

Source: Own calculations based on data from Datastream

Figure C.4 Direct and horizontal contagion effects on Italian SNG bond yields (dropping outliers)



Note: Observations dropped: S&P downgrades of Milan, Rome and Umbria on Jan. 27th, 2012.

Source: Own calculations based on data from Datastream

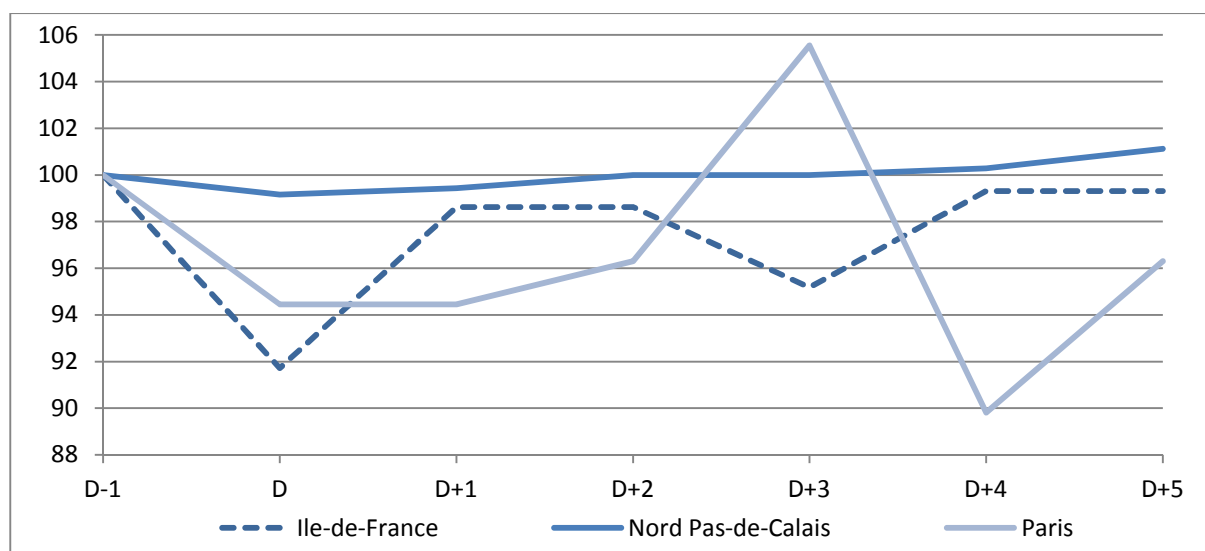
Vertical contagion

Sovereign downgrades can affect SNG yields in two ways. First, they may trigger a downgrade of the best rated SNGs (following the sovereign ceiling rule), second, they may have a contagion effect through the investors' behavior, which may not discriminate between the sovereign and SNGs' creditworthiness.

Vertical contagion effect through the sovereign ceiling rule seems to exist

Following the sovereign ceiling rule, rating agencies lowered the ratings of several SNGs, notably in France, Spain and Italy. While the French SNG downgrades did not affect their yields (Figure 31), the downgrades of Rome and Umbria did push their yields up, even though they were expected by investors (due to the sovereign ceiling rule). This can therefore be considered as a case of vertical contagion. Indeed, prior to these downgrades, investors were probably mainly focusing on the difficulties of the sovereign issuer, which dwarfed the challenges faced by Italian SNGs. The downgrades may have contributed to re-centering investor's attention on SNGs.

Figure C.5 Evolution of French SNG bond yields following the downgrade of France by S&P



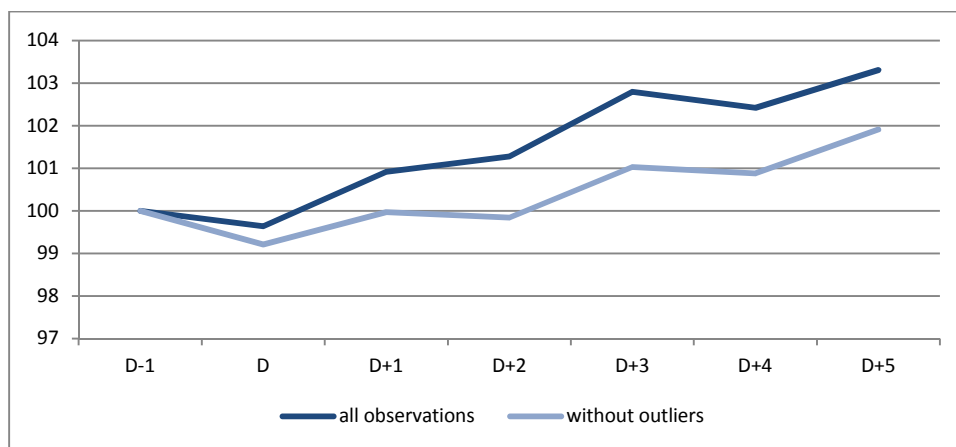
Source: Own calculations based on data from Datastream

Other vertical contagion effects are very limited

Vertical contagion effects were tested for three countries (France, Italy and Spain) following the methodology described above. Twenty-two sovereign rating downgrades occurred during the period by the three major rating agencies (Annex 4, Figures 34, 35 and 36).

As for horizontal contagion, vertical contagion effects are not clear. Downgrades occurred during stressed financial times, and may therefore only reflect the general uncertainty about government debts. For both Spain and Italy, there were specific downgrade episodes which had a stronger than average effect on certain SNG yields (but not on all the SNGs within the country). In Spain, for example, the downgrades announced on 13 October 2011 (S&P and Moody's) and on 18 October 2012 (Moody's) had a larger than average impact on Baleares and Andalucia bond yields (respectively). The average surge in yields of sovereign downgrade was much more limited if these two specific episodes are excluded from the sample (Figure 32).

Figure C.6 Vertical contagion effect in Spain

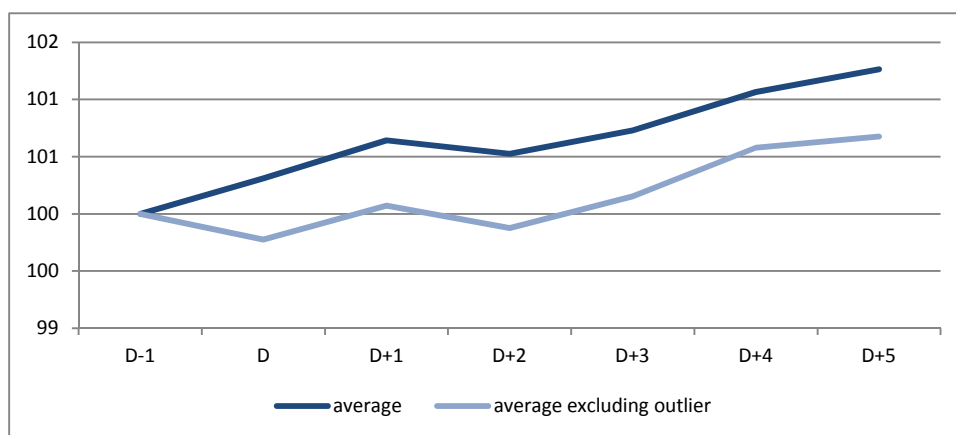


Source: Own calculations based on data from Datastream

The two downgrades announced in October 2011 occurred in a period of high risk aversion. Moody's lowered the Spanish government by two notches (from Aa2 to A1), which reflected a real fear about the ability of the country to cope with the financial and economic crisis. These downgrades were followed by a series of downgrades of Spanish SNGs by Moody's (19 October 2011). The three-notch sovereign rating downgrade announced in June 2012 (from A3 to Baa3) brought the Spanish government debt to the very bottom of the investment grade category (Annex 4, Figure 35). The threat of a downgrade to junk status may have convinced some investors to sell Spanish sovereign and sub-sovereign bonds. Nevertheless, these explanations do not allow understanding why the yields of Catalonia, Madrid and Valencia remained stable after the downgrades of Spain. This reflects the fact that investors' decisions are driven by issues other than sovereign and sub-sovereign rating changes.

Italy sees a similar pattern, where one specific downgrade (by Moody's on 13 July 2012) provoked a strong reaction on the yield of one SNG, Lazio. Excluding this episode from the pool also leads to a much more modest vertical contagion effect in Italy (Figure 33).

Figure C.7 Evolution of Italian SNG bond yields following sovereign downgrade



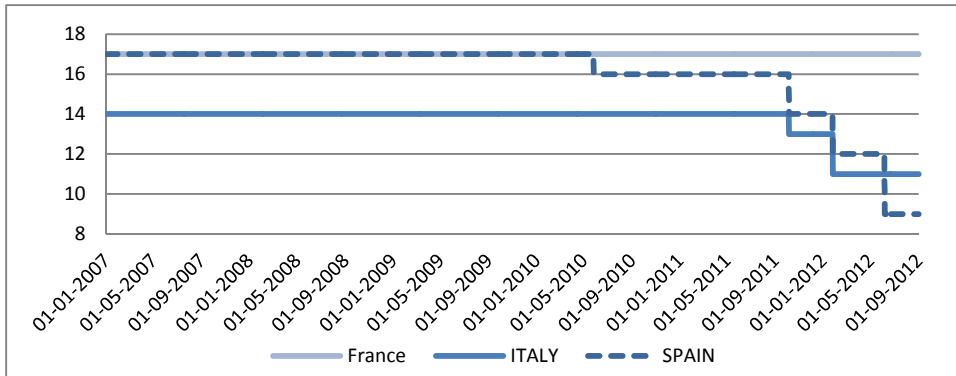
Source: Own calculations based on data from Datastream

Future research agenda

The present annex presented preliminary results based on a limited dataset of daily yields. Future work will use a more systematical (econometric) approach for testing contagion effects, based on daily yields for the whole period. It will look at the effect of the number of notches lost on the yields, threshold effects (such as falling from investment to speculative grade) and whether some types of SNGs (such as capital regions or regions which represent a large share of GDP) have stronger effects than others.

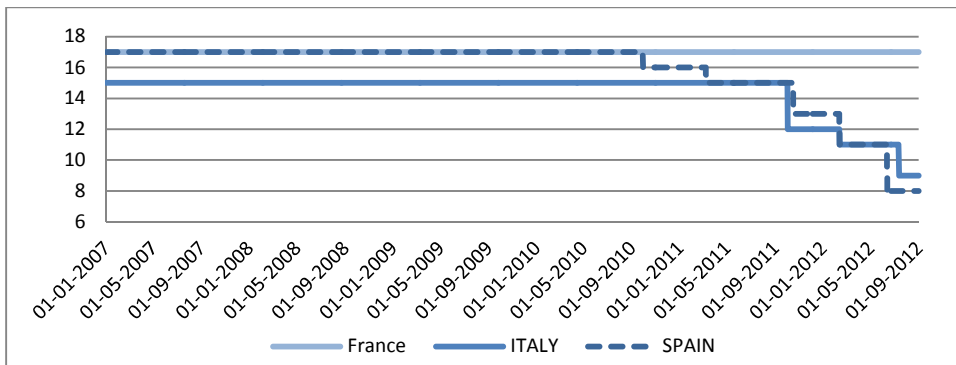
ANNEX D: EVOLUTION OF NATIONAL RATINGS

Figure D.1 Evolution of sovereign ratings by Fitch



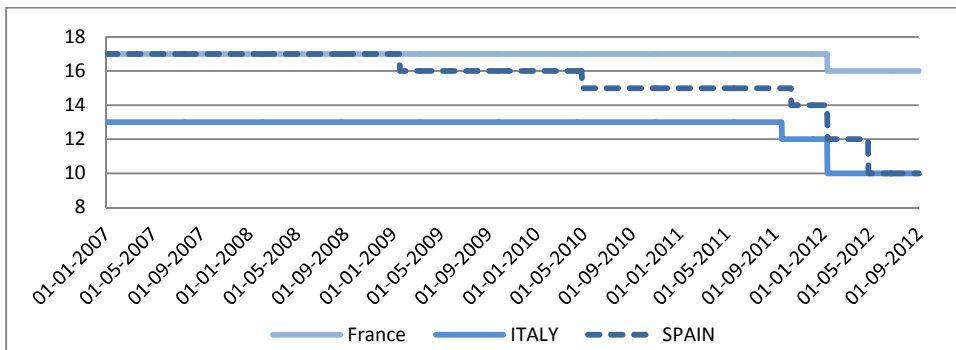
Source: Fitch

Figure D.2 Evolution of sovereign ratings by Moody's



Source: Moody's

Figure D.3 Evolution of sovereign ratings by S&P



Source: S&P