Box 5

GAUGING THE POTENTIAL FOR SOVEREIGN AND BANKING SECTOR SPILLOVERS IN THE EURO AREA

One salient feature of the euro area sovereign debt crisis has been the increase in financial links and interdependencies between banks and sovereigns. In this environment, the incidence of shocks affecting the assessment of creditworthiness both on the sovereign and on the bank side has implied time-varying spillovers – across sovereigns, across banking sectors and between the two. One methodology that captures how such interdependencies can vary over time is the construction of an index that captures the potential impact of shocks to sovereign and bank credit default swap (CDS) spreads.[1] This box links these two sets of data in a vector autoregression framework, augmented by several common regional and global factors as controls, for 11 sovereigns and nine country-specific groups of banks in the euro area.[2] The index is based on an 80-day rolling window of derived generalised impulse responses from the dynamic relationships between the credit risk of banks and sovereigns.

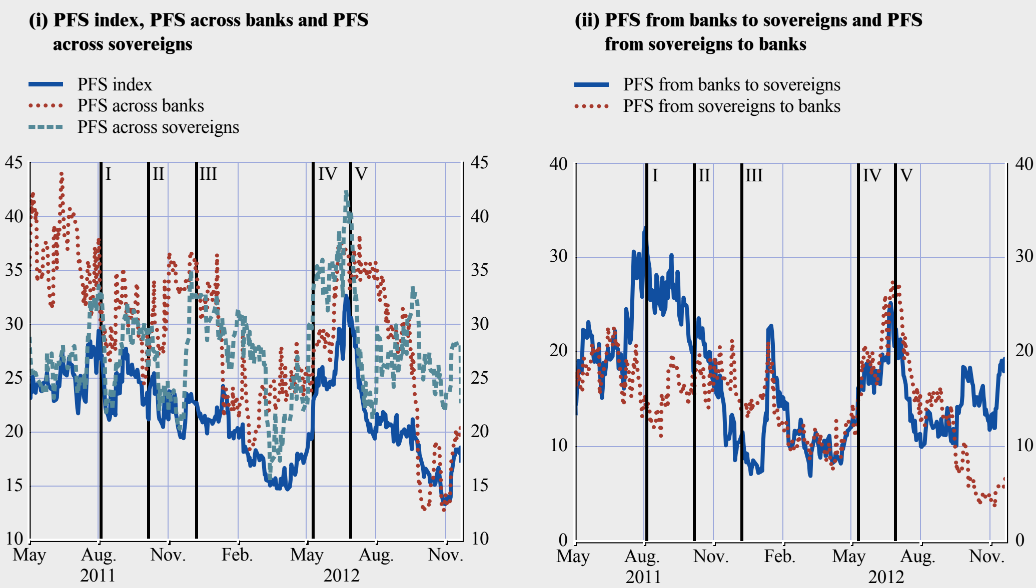
The spillovers are captured in a weighted index of responses to shocks from given entities, referred to as the potential-for-spillover (PFS) index – with four sub-components: (i) across banking sectors; (ii) across sovereigns; (iii) from banks to sovereigns; and (iv) from sovereigns to banks.

In examining the *overall index* of potential spillovers, a peak was reached in June 2012, just prior to G20 and EU summits (see Chart A). Thereafter, it declined steadily. Similar declines were witnessed across the various sub-components of this spillover index – albeit with differences in the impact of the various major policy events identified. Spillovers from *banks to sovereigns*

1 For a selection of other ECB research on the analysis of contagion, see e.g. V. Constâncio, "Contagion and the European debt crisis", *Banque de France Financial Stability Review*, No 16, 2012, and ECB, *Research Bulletin*, No 14, 2011.
2 For a detailed description of the methodology, see A. Alter and A. Beyer, "The dynamics of spillover effects during the European sovereign crisis", *CFS Working Paper,* No 2012/13, Center for Financial Studies, 2012.

Chart A PFS index and its components in the euro area

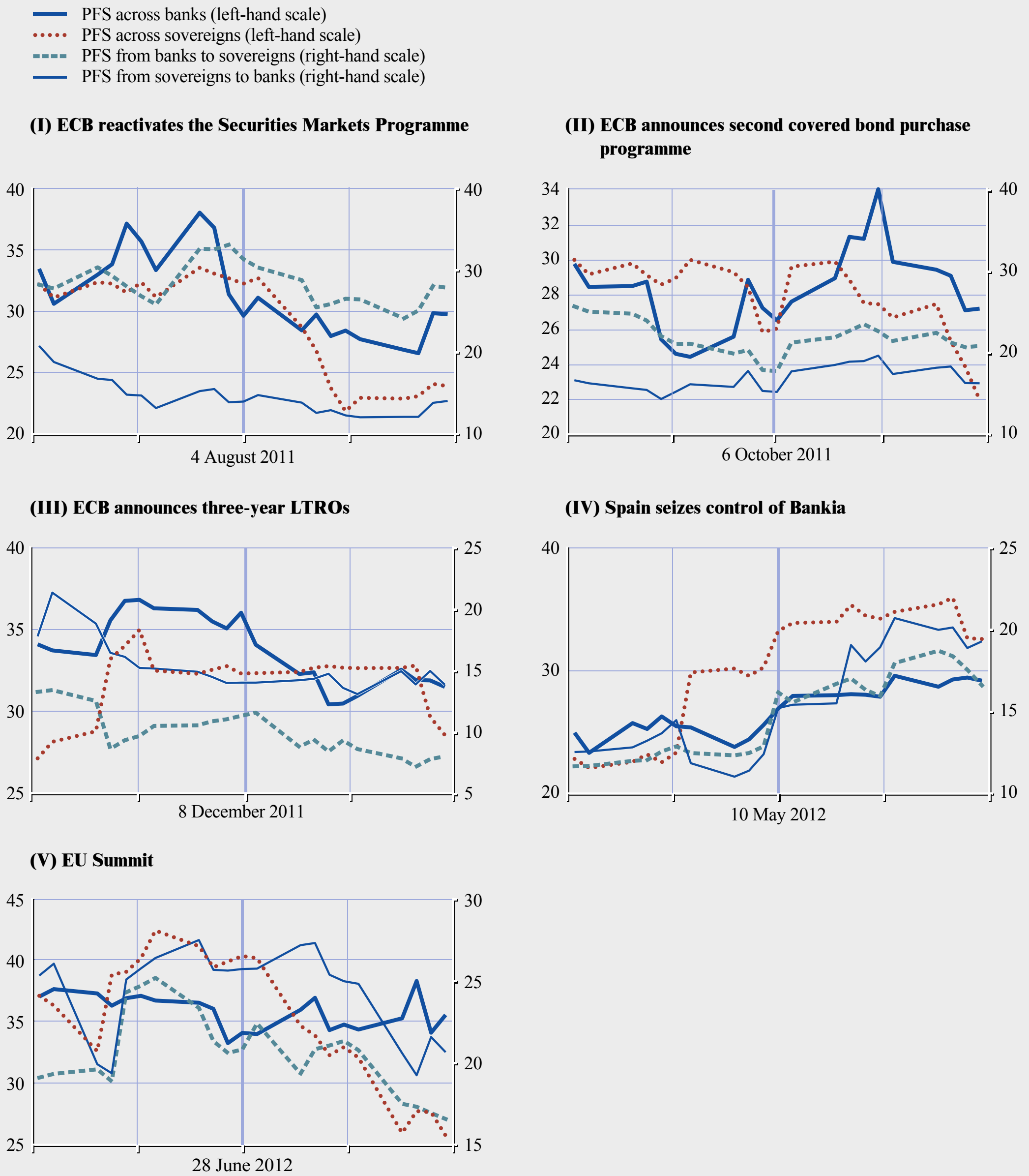
(May 2011 – Nov. 2012)



Sources: CMA, Bloomberg and ECB calculations.
Notes: The black vertical lines denote the following events: I. ECB reactivates purchases under the Securities Markets Programme (SMP); II. ECB announces second covered bond purchase programme (CBPP2); III. ECB announces three-year LTROs; IV. Spain seizes control of Bankia; and V. EU Summit. The PFS takes values between 0 (lowest contagion effect) and 100 (highest contagion effect). The *PFS across banks* and the *PFS across sovereigns* (panel i), as well as the *PFS from banks to sovereigns* and the *PFS from sovereigns to banks* (panel ii) are the sub-components of the *PFS index*.

Chart B The impact of several events on the PFS index and its components

(20-day window around each event)



Sources: CMA, Bloomberg and ECB calculations.

and *across banking sectors* decreased markedly after the ECB reactivated the Securities Markets Programme (SMP) in August 2011, as well as in the period after the EU Summit of mid-2012. Similarly, several other key policy interventions over the period from July 2011 to March 2012 helped to contain spillovers as captured by this index. In the last quarter, spillovers *from banks to sovereigns* increased considerably, while the potential for spillovers *from sovereigns to banks* remained subdued.

Relative and absolute changes in PFS indices around selected policy events

(percentages)

No	Date	Event	Change in PFS indices 10 days after the event compared to 10 days before: PFS across banks – Relative	PFS across banks – Absolute	PFS across sovereigns – Relative	PFS across sovereigns – Absolute	PFS from sovereigns to banks – Relative	PFS from sovereigns to banks – Absolute	PFS from banks to sovereigns – Relative	PFS from banks to sovereigns – Absolute
I	4.08.2011	ECB reactivates SMP purchases	-11	-4	-26	-8	-1	-0.4	-32	-7
II	6.10.2011	ECB announces CBPP2	-11	-4	-14	-3	-22	-7	-56	-8
III	8.12.2011	ECB announces three-year LTROs	-13	-5	4	1	-44	-8	-41	-6
IV	10.05.2012	Spain seizes control of Bankia	17	4	43	10	42	5	54	7
V	28.06.2012	EU Summit	-4	-1	-31	-11	-13	-3	-18	-5

Sources: CMA, Bloomberg and ECB calculations.
Note: "Relative" refers to the change in the components of the PFS index ten days after relative to that ten days before the event. "Absolute" refers to the absolute change in the components of the PFS index, i.e. the difference between the level ten days after and that ten days before the event.

A closer scrutiny of key events is contained in Chart B and the table above – with the latter containing a 20-day window around each event. The components of the PFS index ten days after the event are compared with their levels ten days before the event. Four events are worth highlighting, building on developments in Chart A. First, the announcement of the second covered bond purchase programme (CBPP2) had a positive effect on all four components of the PFS index, resulting in a decrease of potential spillovers across banking sectors and sovereigns. Second, following the announcement of the three-year LTROs, the potential for spillover both across banking sectors and between banks and sovereigns decreased remarkably further. While those policy measures seem to have helped to tame funding pressures for banks, they nevertheless induced slightly higher potential spillover effects across sovereigns. Third, the circumstances surrounding the nationalisation of Bankia (event IV) had an adverse impact on all four sub-components of the PFS index. Finally, the decisions taken at the EU Summit (event V) contributed to a delinking of interdependencies in the euro area, especially among sovereigns.

All in all, these indices for spillovers suggest a key role for policy intervention in addressing adverse developments in the feedback loop between sovereigns and banks that has characterised much of the recent phase of euro area sovereign debt strains. In examining its time-varying nature, it is clear that policies resolutely addressing long-term issues have been most effective in stemming spillovers and contagion.