EUROPEAN CENTRAL BANK

EUROSYSTEM

WORKING PAPER SERIES

NO 1609 / NOVEMBER 2013

FOREIGN INVESTORS AND RISK SHOCKS

SEEKING A SAFE HAVEN OR RUNNING FOR THE EXIT?

Maurizio Michael Habib and Livio Stracca

In 2013 all ECB publications feature a motif taken from the €5 banknote.

Acknowledgements
We thank participants in an internal ECB seminar and in the VIII Seminar on Risk, Financial Stability and Banking organised by the Banco Central do Brasil, Dimitris Vagias, Frank Warnock and an anonymous referee for useful suggestions and comments. The views expressed in this paper belong to the authors and are not necessarily shared by the European Central Bank.

Maurizio Michael Habib
European Central Bank

Livio Stracca (corresponding author)
European Central Bank; e-mail: livio.stracca@ecb.europa.eu

Address	Kaiserstrasse 29, 60311 Frankfurt am Main, Germany
Postal address	Postfach 16 03 19, 60066 Frankfurt am Main, Germany
Telephone	+49 69 1344 0
Internet	http://www.ecb.europa.eu
Fax	+49 69 1344 6000

ISSN	1725-2806 (online)
EU Catalogue No	QB-AR-13-106-EN-N (online)

Abstract

In this paper we study the impact of shocks to global risk and global risk aversion (such as Lehman) as well as shocks with a more idiosyncratic nature (such as the euro debt crisis) on cross border portfolio flows, taking the perspective of foreign investors. We find robust evidence of systematic portfolio outflows in the wake of both types of shocks. There are no securities which are consistently safe haven assets, namely experiencing portfolio inflows when risk is on the rise or perceived to be high. Nevertheless, especially money market instruments issued by the US, euro area low-yield countries and Japan, as well as securities issued in Switzerland have behaved as safe haven assets in specific episodes or following changes in certain risk measures. We also find that the role of US-based crises and risk shocks is special, with the US not necessarily experiencing portfolio outflows or even attracting inflows for short-term dated securities, as a safe haven country, in those episodes.

Keywords: Safe haven, portfolio flows, information, risk aversion, home bias.
JEL: G11, G15.

0 Non-technical summary

In this paper we study how foreign investors react to innovations in global and idiosyncratic risk and risk aversion in financial markets. The main question we want to address is whether foreign investors are systematically more likely to sell (or buy) certain assets in times of heightened stress and if they show any systematic tendency in their investment behaviour, such as purchasing foreign securities as safe haven assets, depending on the country of issuance and the type of securities and, where possible, controlling for the net issuance of the same securities. The behaviour of foreign investors when faced with global and idiosyncratic shocks is largely an empirical matter, since it is not straightforward to derive unambiguous implications from existing theoretical models; therefore, empirical evidence may be useful to distinguish between competing models.

The original contribution of this paper to the literature on capital flows is threefold. First, we are mainly interested in understanding whether and how certain countries or certain assets are safe haven assets in crisis times, countering the general tendency for cross border portfolio flows to be negative in times of stress. Second, we focus on the external liabilities in balance of payments statistics in order to gauge foreign demand for domestic securities. Indeed, previous literature has shown that the factors driving surges and stops in capital inflows driven by foreigners are different compared to those driving capital outflow of domestic investors and net flows. In particular, we look at the demand by foreign investors conditional on the materialisation of a certain structural shock and not in general, and we look at a longer sample and not just as the most recent crisis. We consider several measures of risk and not only crisis episodes, disentangling the impact of global uncertainty and risk aversion and investigating the reaction of asset demand by foreign investors to a number of idiosyncratic factors. Third and finally, for securities issued in the euro area, we also control for the net issuance of securities using high quality data. Indeed, only after correcting for issuance can external liabilities be regarded as a reallocation from foreign to domestic investors, which is what we are chiefly interested in.

From a methodological standpoint, episodes that may lead to a significant re-allocation of foreign portfolios are identified in two ways: a narrative approach and a formal econometric approach. In the narrative approach, we identify specific periods that were associated with sharp drops in the global stock market and coincided with steep increases in the

VIX index, a popular proxy for global risk and global risk aversion, focusing in particular on the period following the collapse of Lehman (an example of global shock) and the euro debt crisis in the summer and autumn of 2011 (an asymmetric shock to the euro area but with significant external effects). We also consider continuous measures of risk, either using existing measures of global risk and global risk aversion as well as identified through a VAR approach.

The analysis leads to three main results. *First*, both crisis episodes and rises in global risk and global risk aversion are normally accompanied by net portfolio outflows, indicating that foreign investors normally "run for the exit" when risk shocks occur. *Second*, although there are a few safe haven assets conditional on specific events or risk measures, most frequently money market instruments (probably on account of their short term maturity) and Japanese and Swiss securities (on account of the perceived safe haven status of these countries), there is no asset or country that is systematically more in demand by foreign investors conditional on all crisis episodes and risk shocks that we consider. *Third*, we find that following euro area-specific shocks foreign investors appear to leave those economies (in particular euro area high yield) where the shock has its epicenter, but the evidence for this behaviour is weaker in the case of US-based crises. This may partly reflect the global nature of US events, partly the fact that especially short term debt instruments issued by US residents (most prominently the US Treasury) are safe haven assets and in higher demand by foreign investors even after US events such as Lehman or other US-based crises. Also in this domain, therefore, we find that the status of the US is somewhat special, as the country at the centre of the international monetary system.

1 Introduction

Home bias in financial portfolios has long been recognised as a key question in the finance literature (Gehrig 1993, Brennan and Cao 1997, Hau and Rey 2008, Tille and van Wincoop 2010; see Coeurdacier and Rey 2013 for a survey of the literature). Recent contributions have emphasised that incentives for information acquisition may be different between domestic and foreign investors and may also be decisive for their portfolio allocation behaviour (Ahearne et al. 2004, Van Nieuwerburgh and Veldkamp 2009 and 2010, Mondria and Wu 2010, Mondria et al. 2010). A related literature focuses on geography and distance as relevant factors in finance; see Portes and Rey (2005), Grinblatt and Keloharju (2001) and Okawa and van Wincoop (2012).

While this literature has contributed to improving our understanding of the role of distance as a factor in portfolio allocation from a static perspective, still relatively little is known on how foreign investors react to news in a dynamic setting. Do foreign investors behave differently over time, conditional on well identified shocks? Related to this question, the recent global financial crisis provoked a sudden reversal in the process of international financial integration, showing how the home bias may become a powerful factor in an environment of rising uncertainty and risk aversion. Do risk shocks push investors towards domestic assets in a systematic way also more generally? This is indeed suggested by Broner et al. (2013) who document that, as a stylised fact, gross capital flows tend to re-trench in crisis periods (both domestic investors from foreign assets abroad and foreign investors from domestic assets). Moreover, Rey (2013) finds that various types of capital flows appear to be influenced by a global financial cycle, which can be proxied by the VIX index (hence appears to be related to risk and risk aversion at a global level).

In this paper, we study how foreign investors react to innovations in global and idiosyncratic risk and risk aversion in financial markets. The main question we want to address is whether foreign investors are systematically more likely to sell (or buy) certain assets in times of heightened stress and if they show any systematic tendency in their investment behaviour, such as purchasing foreign securities as safe haven assets, depending on the country of issuance and the type of securities and, where possible, controlling for the net issuance of the same securities.

The behaviour of foreign investors when faced with global and idiosyncratic shocks

is largely an empirical matter, since it is not straightforward to derive unambiguous implications from existing theoretical models; therefore, empirical evidence may be useful to distinguish between different competing models.

A key underlying question is whether there is an important difference between domestic and foreign investors, which would lead to a portfolio reallocation between the two groups in the wake of risk shocks. There are at least three reasons why foreign investors may behaved differently, namely (i) differences in their information set, with investors typically better informed (or perceived to be so) regarding domestic securities compared with foreign ones, as in Tille and van Wincoop (2010); (ii) the different legal status and protection of property rights in case of default, which may favour domestic investors over foreign investors[1] and (iii) a different exposure to home and foreign shocks (see DSGE models of country portfolios such as Devereux and Sutherland 2011; see also Courdacier and Rey 2013 for an extensive review of this literature). To the authors' knowledge, an international portfolio allocation model containing all these realistic characteristics, which could serve as a benchmark, is not available yet.

Clearly, the relative importance of these factors should also determine the optimal behaviour of foreign investors when faced with risk shocks. A rise in global risk and global risk aversion has unclear effects on the degree of information asymmetry between domestic and foreign investors (informational rents by domestic investors may go down when risk goes up). If legal protection is asymmetric, higher risk of default stemming from higher global risk (re-pricing of default risk) may make the domestic investors better off in holding domestic securities compared to foreigners and should trigger net sales by foreign investors. With respect to the third factor (different exposure to domestic risk), domestic investors may again be already more exposed to domestic risk, and hence may have more incentive (than foreign investors) to diversify away from the domestic market especially after a domestic risk shock (or to a global risk shock to which the domestic financial market is particularly exposed). Even excluding an asymmetric behaviour between domestic and foreign investors, an increase in global risk aversion should lead to *further* portfolio diversification to reduce the overall level of risk and larger foreign portfolio investment. If that was true, we should observe portfolio inflows by foreign investors as well as portfolio outflows by domestic investors. However, the existing literature suggests exactly the

[1] This should in principle matter for bonds, but not or less so for equity flows; see Broner et al. (2010).

opposite.

A final and important caveat concerns the fact that balance of payments statistics report portfolio flows, which are not sufficient to identify changes in international portfolio allocation since they do not include valuation effects. If, say, a risk shock reduces asset prices in Country A more than elsewhere, investors from Country B may not need to carry out net sales of securities issued in Country A since valuation effects will automatically reduce their exposure to that particular country. It is difficult to measure these effects empirically, and in this paper we follow the existing literature by focusing on net flows, but more empirical research on international portfolio allocation would be important.

The original contribution of this paper to the literature on capital flows is threefold. First, we are mainly interested in understanding whether and how certain countries or certain assets are safe haven assets in crisis times, countering the general tendency for cross border portfolio flows to be negative in times of stress (Broner et al. 2013). We therefore look at individual countries and assets, rather than pooling all countries together as in Broner et al. (2013).[2] Second, we focus on the external liabilities in balance of payments statistics in order to gauge foreign demand for domestic securities. Indeed, Forbes and Warnock (2012) show that the factors driving surges and stops in capital inflows driven by foreigners are different compared to those driving capital outflow of domestic investors and net flows.[3] Similar to Forbes and Warnock (2012) we attempt at identifying "surges" (i.e. sharp increases) and "stops" (i.e. sharp decreases) in capital inflows that are driven by foreigners. Compared with Forbes and Warnock (2012) we look at the demand by foreign investors conditional on the materialisation of a certain structural shock and not in general, and we look at a longer sample and not just as the most recent crisis (as, e.g., in Milesi-Ferretti and Tille 2011). We consider several measures of risk and not only crisis episodes, disentangling the impact of global uncertainty and risk aversion and investigating the reaction of foreign demand to a number of idiosyncratic factors. Third and finally, for securities issued in the euro area, we also control for the net issuance of securities using high quality data. This may be important to really distinguish foreign from domestic investors (not controlling for issuance may imply that net purchases by

[2]Broner et al. (2013) use annual data from 1970 to 2009, while we use quarterly data in this paper. Moreover, Broner et al. only look at two categories of portfolio flows (equity and debt) while we consider a more detailed breakdown of portfolio flows.

[3]See also Rothenberg and Warnock (2011).

both domestic and foreign investors may be driven by the same underlying factor, i.e. changes in net issuance). Only to the extent that the quantities issued are relatively stable or increasing can a fall in external liabilities be assumed to represent a reallocation from foreign to domestic investors.

From a methodological standpoint, episodes that may lead to a significant re-allocation of foreign portfolios are identified in two ways: a narrative approach and a formal econometric approach. In the narrative approach, we identify specific periods that were associated with sharp drops in the global stock market and coincided with steep increases in the VIX index, a popular proxy for global risk and global risk aversion, focusing in particular on the period following the collapse of Lehman (an example of global shock) and the euro debt crisis in the summer and autumn of 2011 (an asymmetric shock to the euro area but with significant external effects). We also consider continuous measures of risk, either using existing measures of global risk and global risk aversion as well as identified through an econometric approach.

The analysis leads to three main results. First, both crisis episodes and rises in global risk and global risk aversion are normally accompanied by net portfolio outflows, indicating that foreign investors normally "run for the exit" when risk shocks occur. Second, although there are a few safe haven assets conditional on specific events or risk measures, most frequently money market instruments (probably on account of their short term maturity) and Japanese and Swiss securities (on account of the perceived safe haven status of these countries), there is no asset or country that is systematically more in demand by foreign investors conditional on all crisis episodes and risk shocks that we consider. Third and finally, we find that following euro area-specific shocks foreign investors appear to leave those economies (in particular euro area high yield) where the shock has its epicenter, but the evidence for that is weaker in the case of US-based crises. This may partly reflect the global nature of US events, partly the fact that especially short term debt instruments issued by US residents (most prominently the US Treasury) are safe haven assets and in higher demand by foreign investors even after US events such as Lehman or other US-based crises. Also in this domain, therefore, we find that the status of the US is somewhat special, as the country at the centre of the international monetary system (Rey 2013).

The paper is organised as follows. In Section 2 we describe the data. Section 3

reports some first illustrative evidence. Section 4 presents the analysis of the effect of crisis episodes on foreign demand for securities, while Section 5 looks at quantified risk measures, such as those based on the VIX. Section 6 concludes.

2 Data

2.1 Portfolio flows

The main objective of this paper is the analysis of the foreign demand for domestic securities during periods of heightened financial market volatility, being caused by either reverberations of global shocks or domestic events. Since we aim at isolating the behaviour of foreign investors, the analysis focuses only on one side of the financial account, the liability side, of the international financial transactions of each country. Hence, rather than showing total portfolio flows, the data show only those flows that are related to securities issued by domestic residents and purchased by foreigners (a positive entry), or sold by foreigners to domestic residents, such as a bond redemption (a negative entry). In particular, we collect quarterly data from 1990 to 2012 for portfolio liabilities of the Balance of Payments Statistics of the International Monetary Fund (IMF), distinguishing between equity, debt securities and their breakdown between bonds and notes (securities with maturity longer than one year) and money market instruments (up to one year). In addition, we distinguish bonds and notes issued by the general government, which are of particularly interest for their potential safe haven features in crisis periods, from those issued by other non-government sectors. In order to control for differences in the size of the countries' financial markets and ensure a comparable measure, financial flows from the balance of payments statistics are divided by the *stock* of external portfolio liabilities at time $t-4$, as reported by the IMF International Financial Statistics.

The sample of countries includes the US, Japan, Switzerland, which are generally considered as typical safe haven economies in periods of heightened uncertainty, and the euro area, as a whole and further divided in two sub-groups: low-yield economies and high-yield economies. The euro area "low-yield" is the aggregate of financial flows of Austria, Belgium (available since 2002), Finland, France, Germany, and the Netherlands[4]; while the sub-group euro area "high-yield" is composed by the sum of flows of Ireland

[4]Luxembourg is not included because it is mainly a financial centre.

(as available), Italy, Portugal and Spain (Greece is excluded because of the lack of sufficiently long time series). It is important to note that data for the euro area net out all transactions between residents in two different countries of the euro area; whereas data for the two sub-aggregates of the euro area are obtained from national sources that include financial transactions between the residents of two different euro area countries. Therefore, it should be kept in mind that the aggregate euro area data are not the result of the aggregation of high-yield and low-yield countries. Data for euro area consolidated external liabilities are available since 2000 (since 2006 for government bonds and notes), and for Switzerland since 1999, implying a significantly shorter sample period for these economies.

2.2 Securities net issuance

In this paper we control for net issuance of securities by domestic residents, which is included in order to check to what extent foreigners are absorbing a larger or smaller supply of domestic securities than domestic investors. We obtained reliable data for the total net issuance of securities only for the euro area, including both domestic and international issuances, from the European Central Bank.

In order to understand the importance of the net issuance as a control variable for the foreign demand of securities, *Figure 1* compares these flows for four asset categories for the euro area: money market instruments, bonds, government bonds and equity. It is worth noting that the correlation between foreign demand and issuance of domestic fixed income securities appears to be particularly strong and, therefore, may be relevant to control for this factor. In the case of equity, instead, the magnitude of net issuance is smaller than foreign demand flows and the correlation between the two series appears to be weaker.

(Figure 1 here)

2.3 Other financial variables

Other financial variables include the long-term (10-year) government bond yields and the main country stock market indices obtained from the OECD, the MSCI World Equity

Index in local currency and the VIX index of the Chicago Board Options Exchange, measuring the implied volatility of S&P 500 index options, which were downloaded from Thomson Reuters/Datastream. Finally, we also use the J.P. Morgan Emerging Markets Bond Index Global (EMBIG) indicator, which tracks total returns for traded external debt instruments in emerging markets.

2.4 Identification of crisis episodes

The first step of the analysis is a narrative account of the behaviour of financial flows, in particular domestic liabilities held by non-residents, during periods of rising global financial volatility with a focus on the two most recent episodes: Lehman and the euro area sovereign debt crisis. In order to identify crises periods in an objective manner, we rank the quarterly changes in the MSCI World Index since 1990, select the ten largest drops in the index and pick those (nine out of ten episodes) that coincided with an increase in the VIX index. These are associated with geopolitical global shocks, such as the 1990 Gulf War or the terrorist attack to the Twin Towers in 2001; shocks originating from the US financial markets, such as the collapse of the dot-com bubble at the end of 2000, the trough of the Dow Jones in 2002, the bail-out brokered by the US Federal Reserve of Bear Stearns at the beginning of 2008, the impact of the Lehman bankruptcy in the last two quarters of 2008; and, finally, the shock originating from the euro area debt crisis in the summer of 2011. In addition, we add some emerging market crises, namely the Mexican Peso crisis in 1995, the Asian crises in 1997 and the Russian default in 1998, which rank lower in terms of declines in the global stock market, but correspond to sharp quarterly increases in the VIX. *Table 1* summarises the main financial indicators during these periods compared to the average over the whole sample, separating Lehman and the euro area debt crises form all the other crises. The Lehman crisis corresponds to the largest global shock when measured by the decline in the global stock market and the increase in global risk aversion. The euro area debt crisis in the third quarter of 2011 is also associated with one of the largest increases in global risk aversion, when measured by the VIX. The table includes the average quarterly returns and spreads vs. Germany of the euro area high-yield economies (Ireland, Italy, Portugal and Spain) to show how the impact of the domestic euro area shock differs from other global shocks for these economies. Notably, during turbulent periods, the spread between the euro high-yield

countries and Germany goes up (with the exception of geopolitical crises) and the stock markets of euro high-yield countries fall more rapidly than in the rest of the world. This suggests that high-yield countries are generally vulnerable to rises in global risk aversion, though the rise during the euro area debt crisis (almost 100 basis points) stands out in terms of magnitude.

(Table 1 here)

2.5 Global and idiosyncratic risk measures

We use several measures of risk and risk aversion at both global and idiosyncratic level to identify episodes or periods that may trigger safe haven capital flows.

2.5.1 Global risk

VIX. As in many other studies, one main indicator of global risk that we use is the VIX, the option-implied expected volatility on the S&P500 index.[5]

Global risk shocks. We build a series of global risk shocks by running a VAR model on the first difference in the VIX, a global equity return (the MSCI World Equity Index) and the US 10-year government bond yield. We identify the risk shocks by sign restrictions, in particular imposing that such a shock (i) increases the VIX, (ii) leads to a decline in the global equity index (a negative return) and (iii) reduces the US Treasury yield (safe asset). The identification restrictions are similar to those used to identify "flights to safety" episodes in Baele et al. (2013) and the global risk aversion shocks in Habib and Stracca (2012).

Quantity vs. price of global risk. We use the methodology proposed by Bekaert et al. (2013) to derive a measure of the quantity and the price of risk. The price of risk (*global risk aversion*) is obtained as the difference between the VIX squared and a forecast for realised equity price volatility, the quantity of risk (*global uncertainty*). The latter is an estimated expected future variance based on past values of the VIX squared and past realised volatility. Note that the two measures are not built to be orthogonal, and in fact they are positively (0.5) correlated in first differences (see *Table 2*).

[5] See for instance Collin-Dufresne et al. (2001) for an analysis of the impact of the VIX on credit spreads.

In *Figure 2*, we report our global risk measures, taking the first difference for the quantity and price of risk, which are clearly positively correlated and display the same peaks, for example after the collapse of Lehman.

(Figure 2 here)

2.5.2 Idiosyncratic risk

We also consider three measures of risk to identify idiosyncratic factors that may trigger *flight-to-safety* behaviour by foreign investors. Clearly, the distinction between global and idiosyncratic risk should not be pushed too far, since in interconnected financial markets a risk shock in one country or asset class of the system will have spillover effects on other countries or asset classes. Keeping this *caveat* in mind, we consider a US-specific measure of uncertainty, proposed by Baker et al. (2013), which is based on three components: the frequency of newspaper references to economic policy uncertainty, the number of US federal tax code provisions set to expire, and the extent of forecasters' disagreement over future inflation and government purchases in the United States. We also consider the spread between government bond yields in high-yield euro area countries (Ireland, Italy, Portugal and Spain) and Germany as a measure of risk which is specific to the euro area (especially after controlling for global measures of risk such as the VIX). Finally, the return on the EMBIG index measures risks that are specific to emerging markets. The latter variable is taken with the opposite sign (a positive value corresponds to a fall in the EMBIG) to facilitate the comparison with the other risk factors. To ensure a proper economic interpretation, we also standardise all measures that do not have a direct economic interpretation, in particular the global risk shock, the global uncertainty, the global risk aversion and the US policy uncertainty index.

In *Table 2*, we report the correlations of our idiosyncratic risk factors with the various global risk measures, all in first differences. Notably, the various *global* risk measures are highly correlated, with coefficients ranging between 0.5 and 0.9. Not surprisingly, the US policy uncertainty is the idiosyncratic factor displaying the highest correlation (0.5-0.6) with global risk factors, once again stressing the problem of identifying US specific events which do not have global repercussions. The fall in the emerging market bond index is also positively correlated (0.3-0.5) with the global risk measures. Finally, the euro area

spread shows the lowest positive correlation with the global or the other idiosyncratic risk factors.

(Table 2 here)

3 First illustrative evidence

As a first step in the analysis, we provide in *Figure 3* an overview of the foreign demand for domestic securities issued by the euro area and other countries, such as the United States, Japan and Switzerland, which are generally identified as safe haven economies. The charts compare financial flows in different crises periods - such as the euro area debt crisis in the third quarter of 2011, the average flow in the last two quarters of 2008 corresponding to the Lehman crisis, and the average of all other crisis periods - to the average flows across the whole sample. As previously mentioned, these are flows for external liabilities according to different asset classes - debt securities, broken down by bonds and notes, of which government liabilities also shown separately, versus money market instruments, and equity - reported as a percentage of the stock of total external portfolio liabilities, in order to compare the size of any potential shock across countries.

(Figure 3 here)

Starting from the comparison between equity and debt securities, it is possible to identify how the intrinsic riskiness of the financial instruments matters during crisis episodes. In several instances, during major crises, the foreign purchases of equity securities (chart 3a) are lower than in normal times (white bars) or turn negative. Switzerland is an exception. This pattern is still visible for debt securities, but less pronounced (chart 3b). The maturity of debt securities is important. In particular, during the most recent crises, the euro area debt crisis and the Lehman episode, foreigners were net sellers or bought smaller than average amounts of long-term dated securities, bonds and notes (chart 3c). However, foreign purchases of short-dated money market instruments are more resilient during crises, in a few instances even larger than in normal times (chart 3d). For instance, the inflow into Japanese money market instruments by foreigners at the peak of the euro area debt crisis in 2011:3 is indeed exceptional, corresponding to almost 6 percent of the total stock of external portfolio liabilities of Japanese residents. Finally, during crises,

foreign investors care about the underlying credit risk of long-term dated debt securities. Generally, foreigners continue to be net buyers of "government" bonds during crises, even though they reduce the amount purchased compared to normal times (Lehman) or become net sellers as in the case of euro area government bonds in 2011 (chart 3e). Notably, the 2011 shock does not seem to have spared the safer euro area low-yield countries which also recorded small capital retrenchment by foreigners compared to other crisis periods and normal times.[6] When turning to "other" bonds and notes, i.e. those issued by the private sector, the pattern of flows becomes similar to that of equity flows: a retrenchment of foreign investors during crises that is particularly pronounced and generalised during the Lehman episode in 2008 (chart 3f).

4 The impact of crisis episodes

4.1 Model

In order to be able to evaluate the statistical significance of the effect of different crises and to introduce potentially relevant control variables, we run a set of simple regressions, based on a first-order autoregressive model of the foreign demand for securities issued by domestic residents in a certain country or currency area, including a number of dummies for the crisis periods. The estimated equation is

$$fd_{ijt} = \alpha + \beta fd_{ij,t-1} + \Sigma_{x=1}^{5} \delta_{ijx} DUM_x + v_{ijt} \quad (1)$$

where fd_{ijt} is the foreign demand for securities issued in country i (as a share of country i's overall external portfolio liabilities), j is the asset class (say, bonds). DUM_x are five different dummy variables identifying the periods of financial turbulence according to our broad classification of the origin of the shock: the euro area debt crisis in 2011:3; the Lehman crisis in 2008:3 and 2008:4; the 9/11 terrorist attack to the Twin Towers in 2001:3; the US-based crises in 2000:4, 2002:3 and 2008:1; and, finally, the emerging market crises in 1995:1, 1997:4 and 1998:3. The regressions are estimated through OLS including White robust standard errors to account for potential residual heteroskedasticity.

[6] This result is consistent with Andritzky (2012), who finds that the global financial crisis led to a fall in the share of non-resident holdings of government bonds. He also finds a negative association between the share of securities held by non-residents and bond yields.

Table 3 reports the effect of crisis events on foreign demand for domestic assets. Foreign demand is defined in terms of quarterly flows as a percentage ratio of total portfolio external liabilities; hence a coefficient of, say, 1 indicates that a crisis episode is associated with a 1% fall in flows, relative to the receiving country's total portfolio external liabilities. The large majority of the signs of the coefficients in *Table 3* are negative, indicating that crisis episodes are normally characterised by net portfolio outflows by non-residents. In several cases, the coefficients are statistically different form zero and the fall in flows is more than one or two standard deviations of the relative series (see summary statistics in *Table 1*). This tendency is particularly pronounced for equity flows, with the notable exception of Switzerland, where net equity inflows are likely to be associated to inflows into the equity of financial intermediaries such as money market fund shares (the available data unfortunately do not allow us to be more precise at sectoral level). To a certain extent, bonds and notes outflows are also relative large in crisis episodes, ranging from two to three percentage points of total external liabilities (see euro area high yield flows, but also outflows from longer term securities issued by US residents during Lehman). The exceptions of this general rule of net portfolio outflows (foreigners running for the exit) are money market instruments, in particular in the US and euro area low yield countries (after Lehman and US-based crises) and Japan (in the euro debt crisis). Government bonds in Japan and Switzerland have also been safe haven assets in some episodes, such as US-based crises and emerging markets for Japan (in the case of emerging market crises also in euro area low yield countries) and euro area debt crisis and Lehman for Switzerland. For completeness, *Table 3a* reports the same results as in *Table 3* including the coefficients for the lagged dependent variable (often significant), the R squared and the number of observations.

It is also interesting to compare crises of a global nature, such as Lehman and 9/11, with more localised crises, such as the euro area debt crisis and crises in emerging markets. Taking the euro area high yield countries as the epicenter of the euro debt crisis, we see that this crisis episode led to significant net portfolio outflows in all asset categories, including money market instruments. Similar net portfolio outflows have been experienced during Lehman, with the exception of money market instruments. For the US, we observe net outflows after Lehman, 9/11 and US-based episodes, with the exception of money market instruments during Lehman and 9/11. Overall, detecting significant differences

in behaviour after global as opposed to regional crises proves elusive, as the same general pattern seems to hold (foreign investors seeking an exit with a few exceptions, mainly money market instruments and some Japanese and Swiss portfolio instruments).

(Tables 3 and 3a here)

5 The impact of risk shifts

5.1 Model

After comparing the euro debt crisis, Lehman and other crisis episodes in a descriptive analysis and a simple regression framework, we then move to undertake a more formal econometric exercise. In this part of the analysis risk factors are linear and continuous phenomena, in contrast with the previous section where we treated crisis episodes as stand-alone episodes (hence implicitly non-linear). There are certainly pros and cons associated to each of these two approaches. On the one hand, the analysis of crisis episodes may lead to sharper results, since the events are by definition rather extreme. On the other hand, there is also useful information to be extracted from the reaction of portfolio flows to "continuous" shocks, which could be particularly relevant to policy makers and asset managers. Therefore, we apply both approaches in order to test the robustness of the results and to gain additional insight.

The models that we estimate are now specified as follows,

$$fd_{ijt} = \alpha_{ij} fd_{ij,t-1} + \beta_{ij}^{g} g_t + \upsilon_{ijt} \tag{2}$$

$$fd_{ijt} = \alpha_{ij} fd_{ij,t-1} + \beta_{ij}^{uc} uc_t + \beta_{ij}^{ra} ra_t + \upsilon_{ijt} \tag{3}$$

$$fd_{ijt} = \alpha_{ij} fd_{ij,t-1} + \beta_{ij}^{us} us\_pol_t + \beta_{ij}^{ea} ea\_sprd_t + \beta_{ij}^{em} embig_t + \upsilon_{ijt} \tag{4}$$

where, g_t is the model-based estimate of the global risk shock, uc_t the change in global uncertainty, ra_t the change in global risk aversion, us_pol_t the change in US policy uncertainty, ea_sprd_t the change in euro area spreads (measured in percentage points), and, finally, $embig_t$ is the return on the EMBIG bond index (with a minus sign), as described in Section 2.5. Importantly, *only positive values of these variables are included*, whereas negative values are replaced by zero, in order to strictly identify episodes of rising global or idiosyncratic risk that may trigger safe haven capital flows.

5.2 Baseline results

Table 4 reports the results for the model in the equation (2), using the estimate of global risk shock. The general message from *Table 4* is consistent with that of *Table 3*; in most cases portfolio flows by foreigners are negative, in particular for equity and bonds other than government bonds. The exceptions (safe haven seeking behaviour) are, again, money market instruments in euro area low-yield countries and in the US. The impact of our continuous variable proxying for global risk shocks is quantitatively smaller than that one measured by the dummies isolating specific crisis episodes in *Table 3*. However, *Figure 2* suggests that the global risk shock variable may rise by approximately two standard deviations, or more, during the major crises. Therefore, multiplying the coefficients by a factor of two produces quantitative results more similar to *Table 3*. The impact of the global risk shock is still inferior to the previous set of regressions and generally smaller than one or two standard deviations of the dependent variable.

(Table 4 here)

Table 5 addresses the question of whether it is more the quantity or the price of risk that drives the results of *Table 4*, using the decomposition proposed by Bekaert et al. (2013) in the equation 3. There is no clear pattern arising from the results (also keeping in mind that the two measures are correlated, i.e. they are not orthogonalised), but in terms of statistical significance there is a slight prevalence of the quantity of risk over the price of risk. This implies that foreign investors reallocate their portfolios when concerned about an increase in global uncertainty, rather than because of a shift in their preferences towards risk. Only in the case of euro area high yield portfolio securities, risk aversion seems to matter more than uncertainty.

(Table 5 here)

After looking at measures of global risk and global risk aversion, *Table 6* focuses on idiosyncratic risk (equation (4)), including the first difference in the measure of US economic policy uncertainty index by Baker et al. (2013), the change in the government bond yield spread in the euro area (euro area high yield countries vs. Germany, measured in percentages) and the opposite of the return on the EMBIG bond index. In this case,

and not surprisingly, we find portfolio flows from the euro area high yield to be larger in association with increases in the euro area spread. An increase in the spread by one percentage point - approximately the size of the change during the peak of euro area crises in 1992, 2010 and 2011 - is associated with sizeable outflows of foreigners from euro area high yield debt securities: about 3.5% of total foreign portfolio liabilities of euro area high yield economies, more than two standard deviations of this series. Safe haven seeking behaviour seems to be more prevalent (in the advanced countries in our sample, in particular euro area, US and Switzerland) in relation to falls in the EMBIG. The order of magnitude is though not large. The standard deviation of the EMBIG returns is around 6% while the index fell by up to 15% in one quarter during major emerging market crises such as the Tequila crisis in 1995 or the Russian default in 1998. A fall in the EMBIG by 10% results in inflows into money market instruments issued by residents of the euro area or the United States, corresponding to around a half percentage point of their total external portfolio liabilities. For the United States, the evidence is not clear-cut, which is also in keeping with the idea that it is difficult to identify a US-specific increase in risk that is also *not* global in nature. Indeed, as previously noted, the first difference in the US policy uncertainty index is highly correlated with the estimated global risk shock and with the first difference in the VIX (see *Table 2*).

(Table 6 here)

Overall, our results suggest that both crisis episodes and rises in global risk and global risk aversion are normally accompanied by net portfolio outflows, indicating that foreign investors normally "head for the exit" when risk shocks occur. Although there are a few exceptions to this pattern, most frequently money market instruments (probably on account of their short term maturity) and Japanese and Swiss assets (on account of the perceived safe haven status of these countries), we note that there is no asset or country that is systematically more in demand by foreign investors conditional on all crisis episodes and risk shocks that we consider. Finally, it is interesting to compare the behaviour of foreign investors between crises originating in the euro area and those starting in the United States. In the first instance, the idiosyncratic nature of the shock seems to matter and foreign investors appear to flee those economies (in particular euro area high yield) where the shock has its epicenter. The reaction of foreign investors to the US-based crises

is instead more difficult to pin down, reflecting the global nature of the shock. Money market instruments issued by US residents are safe haven assets and in higher demand by foreign investors even after US-events such as Lehman or other US-based crises. Following US-based crises, outflows tend to take place also in other major economies, in particular the euro area, while the maturity and credit risk of debt securities matter for foreign investors.

5.3 Controlling for issuance

In *Tables 7-8* we control for net issuance of securities, in order to better distinguish the behaviour of foreign investors from that of domestic investors. Equations (1) and (2) are augmented with the time series for the domestic and international issuance in each asset class (also as a share of country i's overall foreign portfolio liabilities). This robustness check is restricted to the euro area and the euro area countries for which high quality on net issuance (not including valuation effects) are available.[7] The correction for issuance is important because we want to identify the *demand* from foreign investors in specific crisis episodes, controlling to what extent a greater or smaller supply of domestic securities is absorbed by them. Indeed, we find that issuance enters with a positive and significant coefficients for most assets.

Table 7 replicates results in *Table 3* (crisis episodes), while *Table 8* replicates the results in *Table 4* (impact of estimated global risk aversion shocks). Although the statistical significance, and in some cases also the size, of the coefficients associated with crisis dummies or the global risk shock is slightly reduced, qualitatively the main results are the same, pointing to net portfolio outflows after crisis episodes and increases in global risk aversion shocks, with the same exceptions (money market instruments in the US and euro area low-yield countries).

(Tables 7-8 here)

[7] Net issuance data from the US Flow of Funds statistics appear to include valuation effects, which are difficult to match with the portfolio flows from the balance of payments statistics.

5.4 Robustness

As a further robustness check, GDP growth has been included as a determinant of foreign capital flows, this variable however was rarely statistically significant and has been omitted (results are not reported for brevity but are available from the authors). In addition, we controlled whether relaxing the restriction of our risk shocks and risk factors to positive values may influence the results. *Table 9* reports the same results of *Table 4* when also declines in the estimated global risk shock are included, and not only increases. Qualitative differences between the two set of results are minimal. In general, the statistical significance of the positive-only risk shocks is superior than of risk shocks when taking both positive and negative values, suggesting that it may indeed be useful to focus on "rise in risk" episodes to identify *safe haven* or *run for the exit* patterns. *Table 10* replicates *Table 6* allowing all risk factors (US policy uncertainty, changes in the euro area spread, declines in the EMBIG) to go into negative territory. Again, the statistical significance of positively bounded risk factors is greater than in the robustness test. Results are qualitatively similar, the major difference is that US money market instruments and Japanese government bonds are identified as safe haven assets following a change in US policy uncertainty (unbounded), but not when restricting this risk factor to be positive.

(Tables 9-10)

6 Conclusions

In this paper we have analysed the influence of crisis episodes and risk shocks on the behaviour of foreign investors, looking at the last two decades of data. Similar to Broner et al. (2013) we have looked at crisis episodes but we have also used alternative measures of global and idiosyncratic risk, as well as controlled for securities issuance in the euro area. The question that we have addressed is, in short, whether foreign investors tend to reduce their purchases of securities issued in another country when risk or risk aversion is higher. Do foreign investors normally seek to diversity abroad in high risk times, especially to safe haven countries or securities, or do they tend to look inward and sell foreign securities? Our short answer to this question is that, most of the times (for most crisis episodes and risk measures) foreign investors are net sellers or reduce the purchase of securities issued

in another country compared to normal periods, confirming previous results by Broner et al. (2013). We do find that some assets, in particular money market instruments and securities issued by countries with a safe haven reputation (notably Japan and Switzerland) do attract portfolio inflows conditional on specific episodes and risk measures, but this is more the exception than the norm. Finally, we find that US-specific events not only do not necessarily lead to portfolio outflows from the US, but they sometimes also even attract inflows in the form of money market instruments (generally US Treasury bills), which may be due to both the global nature of US shocks as well as the status of the US as the country (and the issuer of the currency) at the centre of the international monetary system. This is in contrast with the reaction of foreign investors to the crises in the euro area, when they usually tend to run for the exit.

In this paper we have looked at advanced countries, but it may be useful to extend the analysis to emerging markets, where the determinants of capital inflows and outflows may be different. Moreover, in the same way as recent literature, our paper is based on portfolio flows from the balance of payments statistics, which may give a somewhat partial picture of international portfolio allocation. Measuring and understanding valuation effects and, more generally, international portfolio allocation (which takes valuation effects into account) in the face of risk shocks is, in our view, an important avenue for future research.

References

[1] Ahearne, A. G., W. L. Griever and F. E. Warnock (2004): "Information costs and home bias: an analysis of US holdings of foreign equities", Journal of International Economics, 62, 2, pp. 313-336.

[2] Andritzky, J. (2012): "Government bonds and their investors: What are the facts and do they matter?", IMF Working Paper No. 12/158.

[3] Baele, L., Bekaert, G., Inghelbrecht, K. and M. Wei (2013): "Flights to Safety", NBER Working Paper No. 19095.

[4] Baker, S. R., Bloom, N. and S. J. Davis (2013): "Measuring economic policy uncertainty", American Economic Review, forthcoming.

[5] Bekaert, G., Hoerova, M. and M. Lo Duca (2013): "Risk, uncertainty and monetary policy ", Journal of Monetary Economics, forthcoming.

[6] Brennan, M. J. and H. Cao (1997): "International portfolio investment flows", Journal of Finance, 52, 5, pp. 1851-80.

[7] Broner, F., Martin, A. and J. Ventura (2010): "Sovereign risk and secondary markets", American Economic Review, 100, pp. 1523-55.

[8] Broner, F., Didier, T., Erce, A. and S. L. Schmukler (2013): "Gross capital flows: Dynamics and crises", Journal of Monetary Economics, 60, pp. 113-133.

[9] Coeurdacier, N. and H. Rey (2013): "Home bias in open economy financial macroeconomics", Journal of Economic Literature, 51(1), pp. 63-115.

[10] Collin-Dufresne, P., Goldstein, R.S. and Martin, J.S. (2001): "The determinants of credit spread changes ", Journal of Finance, 56 (6), pp. 2177–2207.

[11] Devereux, M. and A. Sutherland (2011): "Country portfolios in open economy macro models", Journal of the European Economic Association 9, 2, pp. 337-369.

[12] Forbes, K. J. and F. E. Warnock (2012): "Capital Flow Waves: Surges, Stops, Flight, and Retrenchment", Journal of International Economics, 88, 2, pp. 235-251.

[13] Gehrig, T. (1993): "An Information Based Explanation of the Domestic Bias in International Equity Investment", Scandinavian Journal of Economics, 95, 1, pp. 97-109.

[14] Grinblatt, M., Keloharju, M., (2001) : "How Distance, Language, and Culture Influence Stockholdings and Trades", Journal of Finance, 56, 1053-1073.

[15] Habib, M. M. and L. Stracca (2012): "Getting beyond carry trade: What makes a safe haven currency?", Journal of International Economics, 87, pp. 50-64.

[16] Hau, H. and H. Rey (2008): "Home Bias at the Fund Level," American Economic Review, 98, 2, pp. 333-38.

[17] Milesi-Ferretti, G.M. and Tille, C. (2011), "The great retrenchment: international capital flows during the global financial crisis", Economic Policy, April, pp. 291-346.

[18] Mondria, J. and T. Wu (2010): "The Puzzling Evolution of the Home Bias, Information Processing and Financial Openness", Journal of Economic Dynamics and Control 34, pp.875-896.

[19] Mondria, J., Wu, T. and Zhang, Y. (2010), "The determinants of international investment and attention allocation: Using internet search query data", Journal of International Economics, 82, pp. 85-95.

[20] Okawa, Y. and E. van Wincoop (2012): "Gravity in International Finance", Journal of International Economics, 87, pp. 205-215.

[21] Portes, R. and H. Rey (2005): "The Determinants of Cross-Border Equity Flows", Journal of International Economics, 65, pp. 269-296.

[22] Rey, H. (2013): "Dilemma not trilemma: The global financial cycle and monetary policy independence", paper presented at the 2013 Economic Policy Symposium, Jackson Hole.

[23] Rothenberg, A., and F. Warnock (2011): "Sudden Flight and True Sudden Stops", Review of International Economics, 19, 3, pp. 509-524.

[24] Tille, C. and E. van Wincoop (2010): "International capital flows", Journal of International Economics, 80, 2, pp. 157-175.

[25] Van Nieuwerburgh, S. and L. Veldkamp (2009): "Information immobility and the home bias puzzle", Journal of Finance, 64, 3, pp. 1187-1215.

[26] Van Nieuwerburgh, S. and L. Veldkamp (2010): "Information acquisition and under-diversification", Review of Economic Studies, 77, 2, pp.779-805.

APPENDIX

TABLE 1. Summary statistics

1a. External liabilities. Flows by asset class; as % of the outstanding stock of total external portfolio liabilities in the previous year. 1990:1 -2012:4

	Equity		Money market		Government bonds	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Euro area	0.71	1.05	0.19	0.48	0.55	0.49
Euro area high-yield	0.39	0.78	0.17	0.42	0.70	0.58
Euro area low-yield	1.10	1.19	0.26	0.63	1.97	3.17
United States	0.40	0.49	0.12	0.53	1.36	1.08
Japan	1.23	2.39	0.73	2.06	0.42	1.67
Switzerland	0.21	0.60	0.05	0.64	0.00	0.14

	Debt		Bonds and notes		Other bonds	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Euro area	1.58	1.31	1.30	1.17	0.50	0.94
Euro area high-yield	2.14	1.73	1.90	1.66	0.89	0.72
Euro area low-yield	3.86	4.94	3.38	4.77	0.83	1.55
United States	2.20	1.42	2.12	1.39	0.76	0.84
Japan	1.30	3.16	0.46	1.99	0.04	0.92
Switzerland	0.09	0.67	0.03	0.17	0.03	0.12

1b. Financial variables

	VIX (index)		Stock market return (%)			Δ govt. bond spread (bp)	EM bond return (%)
Crises	Change	Level	MSCI World	US	EA High-Yield	EA high-yield vs. DE	EMBIG
EA sovereign debt	13.0	30.4	-8.8	-7.0	-17.3	91.2	3.4
Lehman	18.8	41.7	-18.4	-18.0	-26.3	24.3	-8.8
Other crises	4.8	25.9	-7.5	-5.0	-9.5	1.5	-5.9
- US-based	8.1	29.0	-11.7	-11.1	-12.9	3.7	-1.4
- Geopolitical	3.0	25.6	-8.6	-5.5	-12.6	-9.7	...
- Emerging markets	3.3	23.0	-2.2	1.5	-2.9	10.6	-11.4
Average	-0.1	20.4	1.0	1.8	0.6	0.0	2.8
St. Dev.	*(5.5)*	*(7.5)*	*(6.4)*	*(6.3)*	*(9.1)*	*(40.5)*	*(6.0)*

Sources: OECD, International Financial Statistics, Thomson Reuters/Datastream.

Notes: "EA sovereign debt" refers to the third quarter of 2011. "Lehman" refers to the average flow in the last two quarters of 2008. "Other crises" is the average for the following quarters: 1990:3, 1990:4, 2001:3 (geopolitical); 1995:1, 1997:4, 1998:3 (emerging markets); and 2000:4, 2002:3, 2008:1 (US-based); see main text for further details. Euro Area (EA) high-yield is the average of Ireland, Italy, Portugal and Spain. The MSCI World equity index is in local currency. The Emerging Market (EM) bond return is the JP Morgan EMBIG total return index.

Table 2. Correlation of risk factors

	Change in VIX	Global risk shock	Change in global uncertainty	Change in risk aversion	Change in US policy uncertainty	Change in EA spread	Fall in EMBIG
Change in VIX	-	0.75	0.92	0.56	0.56	0.12	0.49
Global risk shock	0.75	-	0.64	0.51	0.62	0.20	0.40
Change in global uncertainty	0.92	0.64	-	0.48	0.49	0.07	0.46
Change in risk aversion	0.56	0.51	0.48	-	0.63	0.17	0.31
Change in US policy uncertainty	0.56	0.62	0.49	0.63	-	0.11	0.31
Change in EA spread	0.12	0.20	0.07	0.17	0.11	-	0.26
Fall in EMBIG	0.49	0.40	0.46	0.31	0.31	0.26	-

Notes: see Section 2.5 of the text for the definition of risk factors.

TABLE 3. Effect of crisis dummies in an AR(1) regression of quarterly external liabilities (flows as % of total external portfolio liabilities). Abridged results.

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds	N. of -/+ significant dummies
Euro area	Euro area debt	*-0.94* ***	-1.98 ***	*-0.59* ***	-1.58 ***	*-0.88* ***	-0.61 ***	11/1
	Lehman	*-2.01* ***	-0.71 *	**1.01** ***	*-1.67* ***	-0.14	*-1.53* ***	
	US-based	0.08	-0.32	*0.23*	-0.53	0.09	-1.11 ***	
	Geopolitical (9/11)	na	na	na	na	na	na	
	Emerging markets	na	na	na	na	na	na	
Euro area high yield	Euro area debt	*-1.11* ***	*-4.11* ***	*-0.38* ***	*-3.32* ***	*-2.06* ***	-0.95 ***	18/0
	Lehman	*-1.22*	*-3.59* ***	-0.04	*-3.25* ***	*-1.12* ***	*-1.80* ***	
	US-based	-0.17	*-1.54* ***	*-0.07*	*-1.44* ***	*-0.59* *	*-0.53* ***	
	Geopolitical (9/11)	-0.40	1.00	0.04	1.02	-0.84	1.92	
	Emerging markets	-0.24	-3.76 ***	-0.02	-3.58 ***	*-2.58* ***	*-0.98* ***	
Euro area low yield	Euro area debt	*-0.65* ***	*-2.32* ***	*-0.34* ***	*-2.20* ***	*-1.14* ***	-0.80 ***	16/2
	Lehman	*-0.68* ***	*-1.31* ***	**0.73** ***	*-1.82* ***	*-0.44* ***	*-1.34* ***	
	US-based	-0.14	-0.49 *	0.39	-0.85 **	-0.40 ***	-0.33	
	Geopolitical (9/11)	0.32	0.00	0.01	-0.11	*0.10*	-0.09	
	Emerging markets	*-0.54* *	0.29	0.20	-0.06	**0.77** **	-0.29 ***	
United States	Euro area debt	*-0.66* ***	0.10	-0.20 **	-0.18	0.10	-0.10	13/2
	Lehman	*-0.29* ***	*-1.40* ***	**1.03** ***	*-2.38* ***	*-0.59* **	*-1.64* **	
	US-based	*-0.10*	*-0.44* ***	**0.55** ***	*-0.52* ***	*-0.12*	*-0.50* *	
	9/11	-0.48 ***	*-0.47*	na	*-0.50*	-0.12	*-0.41* *	
	Emerging markets	*-0.57* ***	*-1.39*	na	-1.34	-1.04	*-0.31*	
Japan	Euro area debt	*-4.11* ***	**5.41** ***	**5.50** ***	-0.40	0.03	0.05	10/4
	Lehman	*-3.20* ***	*-3.12*	-2.05 *	-1.06	-0.64	*-0.23* **	
	US-based	*-4.26* ***	*0.37*	-0.72	1.16	1.49	*-0.27* *	
	Geopolitical (9/11)	*-2.15* ***	1.65	-1.75 ***	0.12	**0.36** *	*-0.22* **	
	Emerging markets	*-1.96* ***	2.38	1.24	0.94	**1.81** **	*-0.42*	
Switzerland	Euro area debt	**0.41** ***	*-3.67* ***	*-3.63* ***	-0.05 **	**0.04** **	*-0.11* ***	6/5
	Lehman	**0.77** *	*-0.25*	*-0.15* ***	-0.08	**0.11** ***	*-0.18* *	
	US-based	**1.23** ***	0.09	-0.01	0.12	0.01	*0.11*	
	Geopolitical (9/11)	na	na	na	na	na	na	
	Emerging markets	na	na	na	na	na	na	
Memo: N. of -/+ significant dummies		15/3	12/1	8/5	12/0	9/5	18/0	74/14

Notes: the table reports the coefficients associated with the dummies identifying crisis periods in the following regression:

$$fd_{ijt} = \alpha + \beta fd_{ij,t-1} + \Sigma_{x=1}^{5} \delta_{ijx} DUM_x + v_{ijt}$$

where the subscript t indicates the time-period, where fd_{ij} is the foreign demand for securities issued in country i (as a percentage of country i's overall foreign portfolio liabilities in the previous year), j is the asset class. DUM_x are five different dummy variables identifying the periods of financial turbulence according to our broad classification of the origin of the shock: the euro area debt crisis in 2011:3; the Lehman crisis in 2008:3 and 2008:4; the US-based crises in 2000:4, 2002:3 and 2008:1; the 9/11 terrorist attack to the Twin Towers in 2001:3; and, finally, the emerging market crises in 1995:1, 1997:4 and 1998:3. The regressions are estimated through OLS including White robust standard errors to account for potential residual heteroskedasticity. The sample is 1990:1 to 2012:4. The asterisks ***, ** and * indicate statistical significance at the 1, 5 or 10 percentage level, respectively. Euro Area high-yield includes Ireland, Italy, Portugal and Spain. Euro Area low-yield includes France, Germany, Netherlands, Finland, Austria and Belgium (since 2001).

TABLE 3a. AR(1) model of quarterly external liabilities (flows as % of total external portfolio liabilities). Complete results

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Lag of dep. variable	0.09	0.22	0.13	0.23	-0.01	0.61 ***
	Euro area debt	-0.94 ***	-1.98 ***	-0.59 ***	-1.58 ***	-0.88 ***	-0.61 ***
	Lehman	-2.01 ***	-0.71 *	**1.01 *** **	-1.67 ***	-0.14	-1.53 ***
	US-based	0.08	-0.32	0.23	-0.53	0.09	-1.11 ***
	Geopolitical (9/11)	na	na	na	na	na	na
	Emerging markets	na	na	na	na	na	na
	R-squared	0.27	0.08	0.24	0.14	0.13	0.50
	N. of obs.	51	47	50	50	26	26
Euro area high yield	Lag of dep. variable	0.46 ***	0.47 ***	0.25 **	0.50 ***	0.57 ***	0.41 ***
	Euro area debt	-1.11 ***	-4.11 ***	-0.38 ***	-3.32 ***	-2.06 ***	-0.95 ***
	Lehman	-1.22	-3.59 ***	-0.04	-3.25 ***	-1.12 ***	-1.80 ***
	US-based	-0.17	-1.54 ***	-0.07	-1.44 ***	-0.59 *	-0.53 ***
	Geopolitical (9/11)	-0.40	1.00	0.04	1.02	-0.84	1.92
	Emerging markets	-0.24	-3.76 ***	-0.02	-3.58 ***	-2.58 ***	-0.98 ***
	R-squared	0.33	0.27	0.07	0.30	0.33	0.30
	N. of obs.	90	87	91	90	77	78
Euro area low yield	Lag of dep. variable	-0.12	0.56 ***	0.14	0.57 ***	0.23 *	0.50 ***
	Euro area debt	-0.65 ***	-2.32 ***	-0.34 ***	-2.20 ***	-1.14 ***	-0.80 ***
	Lehman	-0.68 ***	-1.31 ***	**0.73 *** **	-1.82 ***	-0.44 ***	-1.34 ***
	US-based	-0.14	-0.49 *	0.39	-0.85 **	-0.40 ***	-0.33
	Geopolitical (9/11)	0.32	0.00	0.01	-0.11	0.10	-0.09
	Emerging markets	-0.54 *	0.29	0.20	-0.06	**0.77 ** **	-0.29 ***
	R-squared	0.05	0.35	0.13	0.41	0.21	0.38
	N. of obs.	87	84	87	87	66	66
United States	Lag of dep. variable	0.52 ***	0.60 ***	0.26 **	0.55 ***	0.51 ***	0.74 ***
	Euro area debt	-0.66 ***	0.10	-0.20 **	-0.18	0.10	-0.10
	Lehman	-0.29 ***	-1.40 ***	**1.03 *** **	-2.38 ***	-0.59 **	-1.64 **
	US-based	-0.10	-0.44 ***	**0.55 *** **	-0.52 ***	-0.12	-0.50 *
	Geopolitical (9/11)	-0.48 ***	-0.47	na	-0.50	-0.12	-0.41 *
	Emerging markets	-0.57 ***	-1.39	na	-1.34	-1.04	-0.31
	R-squared	0.39	0.42	0.33	0.44	0.29	0.70
	N. of obs.	91	87	39	91	91	91
Japan	Lag of dep. variable	-0.02	-0.15	-0.22 *	0.21 *	-0.01	0.55 ***
	Euro area debt	-4.11 ***	**5.41 *** **	**5.50 *** **	-0.40	0.03	0.05
	Lehman	-3.20 ***	-3.12	-2.05 *	-1.06	-0.64	-0.23 **
	US-based	-4.26 ***	0.37	-0.72	1.16	1.49	-0.27 *
	Geopolitical (9/11)	-2.15 ***	1.65	-1.75 ***	0.12	**0.36 * **	-0.22 **
	Emerging markets	-1.96 ***	2.38	1.24	0.94	**1.81 ** **	-0.42
	R-squared	0.21	0.10	0.18	0.07	**0.07**	0.35
	N. of obs.	90	87	86	86	**86**	86
Switzerland	Lag of dep. variable	0.04	0.43 ***	0.46 ***	0.16	**0.03**	0.08
	Euro area debt	**0.41 *** **	-3.67 ***	-3.63 ***	-0.05 **	**0.04 ** **	-0.11 ***
	Lehman	**0.77 * **	-0.25	-0.15 ***	-0.08	**0.11 *** **	-0.18 *
	US-based	**1.23 *** **	0.09	-0.01	0.12	0.01	0.11
	Geopolitical (9/11)	na	na	na	na	na	na
	Emerging markets	na	na	na	na	na	na
	R-squared	0.29	0.77	0.79	0.06	0.02	0.15
	N. of obs.	54	51	55	55	55	55

Notes: see notes to Table 3.

TABLE 4. Impact of estimated global risk shock on quarterly external liabilities (flows as % of total external portfolio liabilities)

	Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	-0.33 **	-0.25 *	**0.17 ** **	-0.42 ***	-0.07	-0.46 ***
Euro area high yield	-0.17	-1.12 ***	-0.04	-1.02 ***	-0.57 **	-0.36 ***
Euro area low yield	-0.18 **	-0.14	**0.21 *** **	-0.37 ***	-0.10	-0.30 ***
United States	-0.19 ***	-0.44 ***	**0.27 *** **	-0.64 ***	-0.30 **	-0.33 ***
Japan	-1.68 ***	0.35	0.20	0.12	0.30	-0.12 *
Switzerland	**0.27 *** **	-0.15	-0.16	0.01	0.01	0.00

Notes: the table shows the coefficients associated with the inclusion of the model-based estimates of a global risk shock in the baseline regression, replacing the crisis dummies of Table 3. Only positive values of the global risk shock are considered in order to strictly identify episodes of rising global risk and risk aversion, which may trigger safe haven capital flows. The baseline model includes one lag of the dependent variable. See notes to Table 3 for further explanations.

TABLE 5. Impact of global uncertainty (quantity of risk) versus risk aversion (price of risk) on quarterly external liabilities (flows as % of total external portfolio liabilities)

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Rise in uncertainty	-0.27 *	-0.13	**0.19 *** **	-0.33 ***	-0.03	-0.36 ***
	Rise in risk aversion	-0.21	-0.24	-0.12	-0.09	0.02	0.14
Euro area high yield	Rise in uncertainty	-0.15	-0.54	-0.01	-0.43	-0.04	-0.35 ***
	Rise in risk aversion	0.02	-0.89 **	-0.14 **	-0.76 **	-0.64 *	-0.07
Euro area low yield	Rise in uncertainty	-0.12	-0.35 **	**0.10 ** **	-0.44 ***	-0.11 *	-0.33 ***
	Rise in risk aversion	-0.07	0.12	0.04	0.09	0.09	0.07
United States	Rise in uncertainty	-0.02	-0.15	**0.22 *** **	-0.40 **	-0.14 *	-0.22
	Rise in risk aversion	-0.16 **	-0.28	-0.04	-0.18	-0.13	-0.04
Japan	Rise in uncertainty	-0.34	-0.70	-0.40	-0.37	-0.22	-0.07 **
	Rise in risk aversion	-1.07 ***	0.79	0.60	0.25	0.24	-0.03
Switzerland	Rise in uncertainty	**0.21 *** **	-0.04	-0.04	0.00	**0.04 *** **	-0.05 *
	Rise in risk aversion	0.06	-0.23	-0.25	0.03	-0.04 **	**0.06 ** **

Notes: the table shows the coefficients associated with the inclusion of the decomposition of the VIX into two components in the baseline model. The two components are: (i) the expected stock market volatility, as a proxy of global uncertainty (quantity of risk) and (ii) a proxy for risk aversion (price of risk); obtained as in Bekaert et al. (2013). Only positive values of the first difference of the variables are considered in order to strictly identify episodes of rising global risk and risk aversion, which may trigger safe haven capital flows. The baseline model includes one lag of the dependent variable. See notes to Table 3 for further explanations.

TABLE 6. Regression of quarterly external liabilities (flows as % of total external portfolio liabilities) on idiosyncratic factors

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Rise in US policy uncertainty	-0.23	-0.28	0.07	-0.40 **	-0.30 **	-0.34 *
	Rise in the EA spread	-0.91 ***	-0.98	-0.45 *	-0.50	0.10	0.15
	Fall in EMBIG	-8.77 ***	-1.97	**5.71 *** **	-6.18 *	**1.81 ***	-7.51 ***
Euro area high yield	Rise in US policy uncertainty	-0.20	-0.72 *	-0.01	-0.67 *	-0.52 ***	-0.28 **
	Rise in the EA spread	-0.80 ***	-3.66 ***	-0.39 ***	-2.59 **	-0.68 **	-0.12
	Fall in EMBIG	-2.57	-20.32 *	-2.75 **	-18.92	-2.14	-4.51 **
Euro area low yield	Rise in US policy uncertainty	-0.24 *	-0.03	0.17	-0.27	-0.29 ***	-0.07
	Rise in the EA spread	-0.52 **	-1.27 **	-0.39 **	-0.73	-0.11	-0.74 **
	Fall in EMBIG	-0.92	-6.39	1.70	-7.38	5.22	-4.65 *
United States	Rise in US policy uncertainty	-0.11 **	-0.26	0.21	-0.47 *	-0.14	-0.30
	Rise in the EA spread	-0.26 ***	-0.37	-0.29	-0.15	0.19	-0.10
	Fall in EMBIG	-3.28 ***	-6.35	**6.93 *** **	-7.18 *	-6.00 *	-1.23
Japan	Rise in US policy uncertainty	-1.99 ***	**0.89 ***	0.43	0.38	0.41	-0.01
	Rise in the EA spread	-0.90	0.58	**1.75 ****	-1.12	-0.56	-0.51 **
	Fall in EMBIG	4.40	-4.30	-1.71	-3.09	-0.52	-2.46
Switzerland	Rise in US policy uncertainty	0.17	-0.54 *	-0.48 *	-0.03	0.01	-0.04 *
	Rise in the EA spread	0.11	0.15	0.06	-0.08	-0.18	0.09
	Fall in EMBIG	**4.60 ***	5.78	4.01	**1.39 ***	**1.32 ****	-0.02

Notes: the table shows the coefficients associated with the inclusion of three different idiosyncratic risk factors in the baseline regression, replacing the crisis dummies. These idiosyncratic factors identify three possible sources of risk (US policy uncertainty, euro area crisis and emerging market crises). Only positive values of the first differences of the latter variables are considered in order to strictly identify episodes of rising global risk and risk aversion, which may trigger safe haven capital flows. The baseline model includes one lag of the dependent variable. See notes to Table 3 for further explanations.

TABLE 7. Effect of crisis dummies in an AR(1) regression of quarterly external liabilities (flows as % of total external portfolio liabilities), including issuance as control variable.

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Lag of dep. variable	0.33 ***	0.16	0.11	0.18	0.15	0.45 ***
	Issuance	0.62	0.25 ***	0.18 ***	0.29 ***	0.24	0.26 **
	Euro area debt	-0.67 ***	-0.86 **	-0.63 ***	-0.32	-0.66 **	-0.03
	Lehman	-1.57 ***	-0.59	**0.82 *****	-1.32 **	-0.03	-1.56 ***
	US-based	-0.18	0.14	0.15	0.07	0.33	-0.77 ***
	Geopolitical (9/11)	na	na	na	na	na	na
	Emerging markets	na	na	na	na	na	na
	R-squared	0.40	0.28	0.42	0.33	0.23	0.63
	N. of obs.	49	45	48	48	26	26
Euro area high yield	Lag of dep. variable	0.31 ***	0.25	0.29 ***	0.16	-0.03	0.29 *
	Issuance	0.26 ***	0.17 ***	0.02 **	0.22 ***	0.21 ***	0.29 **
	Euro area debt	-1.13 ***	-3.26 ***	-0.35 ***	-2.42 ***	-1.71 ***	-0.67 ***
	Lehman	-1.33 **	-2.92 ***	-0.03	-2.81 ***	-0.98 ***	-1.93 ***
	US-based	0.06	-0.74 *	-0.02	-0.44	0.07	-0.47 **
	Geopolitical (9/11)	-0.42	-3.97 **	-0.25	-2.85 *	-3.36 **	1.40
	Emerging markets	-0.17	-1.99 **	0.01	-1.82 **	-0.14	-0.44
	R-squared	0.41	0.51	0.11	0.54	0.71	0.35
	N. of obs.	90	87	91	90	77	78
Euro area low yield	Lag of dep. variable	-0.11	0.38 ***	0.17	0.35 ***	0.27 **	0.28 ***
	Issuance	0.76 ***	0.14 ***	0.09 ***	0.18 ***	0.30 ***	0.30 ***
	Euro area debt	-0.40 ***	-1.69 ***	-0.37 ***	-1.34 ***	-0.86 ***	-0.24 **
	Lehman	-0.56 **	-1.02 ***	**0.61 *****	-1.35 ***	-0.14	-1.20 ***
	US-based	-0.34 *	-0.02	0.36	-0.23	-0.19 *	0.04
	Geopolitical (9/11)	0.39	**0.25 ***	0.03	**0.24 ***	**0.22 *****	-0.10
	Emerging markets	-0.70 ***	0.29	0.22	0.01	**0.63 ****	-0.24
	R-squared	0.26	0.45	0.22	0.51	0.40	0.64
	N. of obs.	87	84	87	87	66	66

Notes: the table reports the coefficients associated with the dummies identifying crisis periods in the following regression:

$$fd_{ijt} = \alpha + \beta fd_{ij,t-1} + \gamma iss_{ijt} + \Sigma_{x=1}^{5} \delta_x DUM_x + v_{ijt}$$

where the subscript t indicates the time-period, where fd_{ij} is the foreign demand for securities issued in country i (as a share of country i's overall foreign portfolio liabilities in the previous year), j is the asset class, and iss_{ij} is the time series for the domestic and international issuance in that asset class (also as a share of country i's overall foreign portfolio liabilities). Issuance data are not available for Japan and Switzerland. DUM_x are five different dummy variables identifying the periods of financial turbulence according to our broad classification of the origin of the shock: the euro area debt crisis in 2011:3; the Lehman crisis in 2008:3 and 2008:4; the 9/11 terrorist attack to the Twin Towers in 2001:3; the US-based crises in 2000:4, 2002:3 and 2008:1; and, finally, the emerging market crises in 1995:1, 1997:4 and 1998:3. The regressions are estimated through OLS including White robust standard errors to account for potential residual heteroskedasticity. The sample is 1990:1 to 2012:4. The asterisks ***, ** and * indicate statistical significance at the 1, 5 or 10 percentage level, respectively. Euro Area high-yield includes Ireland, Italy, Portugal and Spain. Euro Area low-yield includes France, Germany, Netherlands, Finland, Austria and Belgium (since 2001).

TABLE 8. Impact of estimated global risk shock on quarterly external liabilities (flows as % of total external portfolio liabilities), including issuance as control variable

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Lag of dep. variable	0.41 ***	0.16	0.14	0.18	0.06	0.43 ***
	Issuance	0.63 *	0.26 ***	0.19 ***	0.28 ***	0.25	0.21 **
	Global risk shock	-0.29 **	-0.20	0.08	-0.23	-0.01	-0.41 ***
	R-squared	0.36	0.28	0.29	0.31	0.15	0.60
	N. of obs.	49	45	48	48	26	26
Euro area high yield	Lag of dep. variable	0.31 ***	0.20	0.30 ***	0.14	-0.02	0.28 *
	Issuance	0.10	0.21 ***	0.03	0.24 ***	0.21 ***	0.34 **
	Global risk shock	-0.16	-0.89 ***	-0.04	-0.74 ***	-0.43 **	-0.32 **
	R-squared	0.14	0.52	0.11	0.52	0.64	0.29
	N. of obs.	88	85	89	88	75	76
Euro area low yield	Lag of dep. variable	-0.11	0.37 ***	0.18 *	0.34 ***	0.27 **	0.29 ***
	Issuance	0.73 ***	0.15 ***	0.08 ***	0.19 ***	0.34 ***	0.28 ***
	Global risk shock	-0.16 ***	-0.02	**0.19 *** **	-0.16	-0.01	-0.20 *
	R-squared	0.23	0.43	0.24	0.49	0.32	0.60
	N. of obs.	87	84	87	87	66	66

Notes: the table shows the coefficients associated with the inclusion of the model-based estimates of a global risk shock in the baseline regression replacing the crisis dummies of Table 7 and controlling for issuance. Only positive values of the global risk shock are considered in order to strictly identify episodes of rising global risk and risk aversion, which may trigger safe haven capital flows. See notes to Table 7 for further explanations.

TABLE 9. Impact of estimated global risk shock (not bounded to positive values) on quarterly external liabilities (flows as % of total external portfolio liabilities)

	Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	-0.20 **	-0.16	**0.10 ***	-0.25 *	-0.05	-0.34 ***
Euro area high yield	-0.10	-0.65 **	-0.05	-0.54 *	-0.53 *	-0.17 *
Euro area low yield	-0.07	-0.03	**0.12 ****	-0.17	-0.06	-0.20 ***
United States	-0.16 ***	-0.21 *	**0.22 *****	-0.36 ***	-0.16 *	-0.20 ***
Japan	-1.25 ***	0.63	0.26	0.31	**0.46 ***	-0.13 ***
Switzerland	**0.17 ****	-0.10	-0.09	-0.01	0.00	-0.01

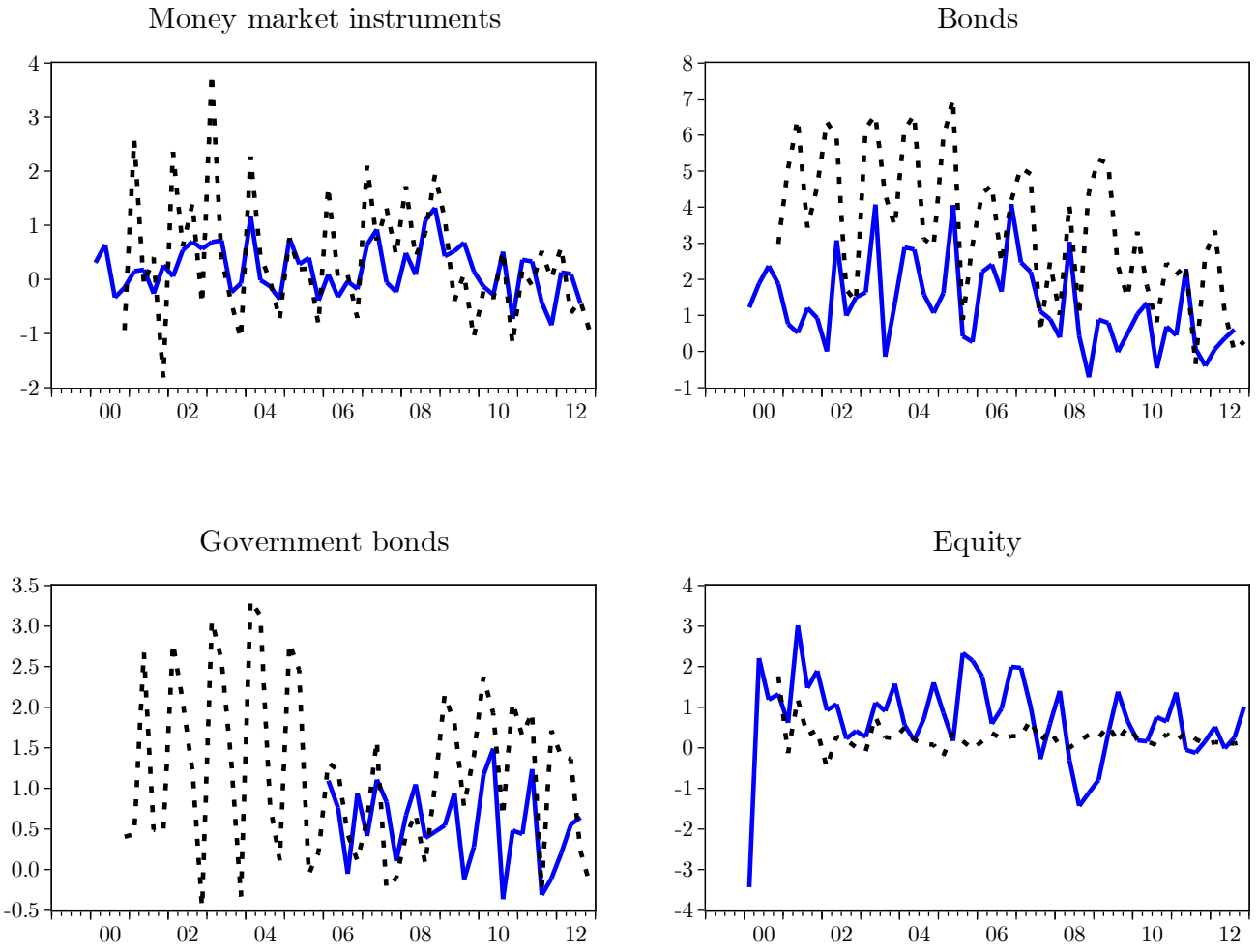
Notes: the table shows the coefficients associated with the inclusion of the model-based estimates of a global risk shock in the baseline regression, replacing the crisis dummies of Table 3. In this regression, differently from Table 4, the global risk shock is not positively bounded. The baseline model includes one lag of the dependent variable. See notes to Table 3 for further explanations.

TABLE 10. Regression of quarterly external liabilities (flows as % of total external portfolio liabilities) on idiosyncratic factors (not bounded to positive values)

		Equity	Debt	Money market	Bonds and notes	Government bonds	Other bonds
Euro area	Change in US policy uncertainty	-0.08	-0.05	0.05	-0.17	-0.14	-0.17
	Change in the EA spread	-0.55 ***	-0.86	-0.34	-0.16	0.03	0.24
	Fall in EMBIG	-2.62	-2.90	1.19	-3.64	2.05	-5.58 **
Euro area high yield	Change in US policy uncertainty	-0.06	-0.25	-0.06	-0.21	-0.13	-0.10
	Change in the EA spread	-0.42 **	-3.25 ***	-0.21 **	-1.95 **	-1.26 **	-0.10
	Fall in EMBIG	-1.85	-9.91 *	-0.59	-10.44 *	-4.28	-3.43 ***
Euro area low yield	Change in US policy uncertainty	-0.11	-0.12	0.09	-0.27 *	-0.19 ***	-0.08
	Change in the EA spread	-0.36 **	-0.29	-0.23 *	0.14	0.03	-0.19
	Fall in EMBIG	0.18	-3.63	0.55	-4.11	2.20	-2.29
United States	Change in US policy uncertainty	-0.03	0.05	**0.16 ** **	-0.11	0.02	-0.12
	Change in the EA spread	-0.07	-0.31	-0.10	-0.11	-0.02	0.00
	Fall in EMBIG	-2.61 ***	-7.00 ***	**2.96 * **	-7.45 ***	-6.15 ***	-1.51 **
Japan	Change in US policy uncertainty	-0.83 **	0.63	0.14	**0.45 ** **	**0.46 ** **	0.00
	Change in the EA spread	-0.78	0.28	1.09	-0.98 *	-0.41	-0.50 ***
	Fall in EMBIG	-0.34	4.37	2.85	1.79	1.99	-0.43
Switzerland	Change in US policy uncertainty	0.05	-0.24	-0.21	0.01	0.03	-0.02
	Change in the EA spread	0.05	-0.03	-0.17	-0.04	-0.11	**0.07 * **
	Fall in EMBIG	2.05	2.39	1.81	0.29	0.40	-0.17

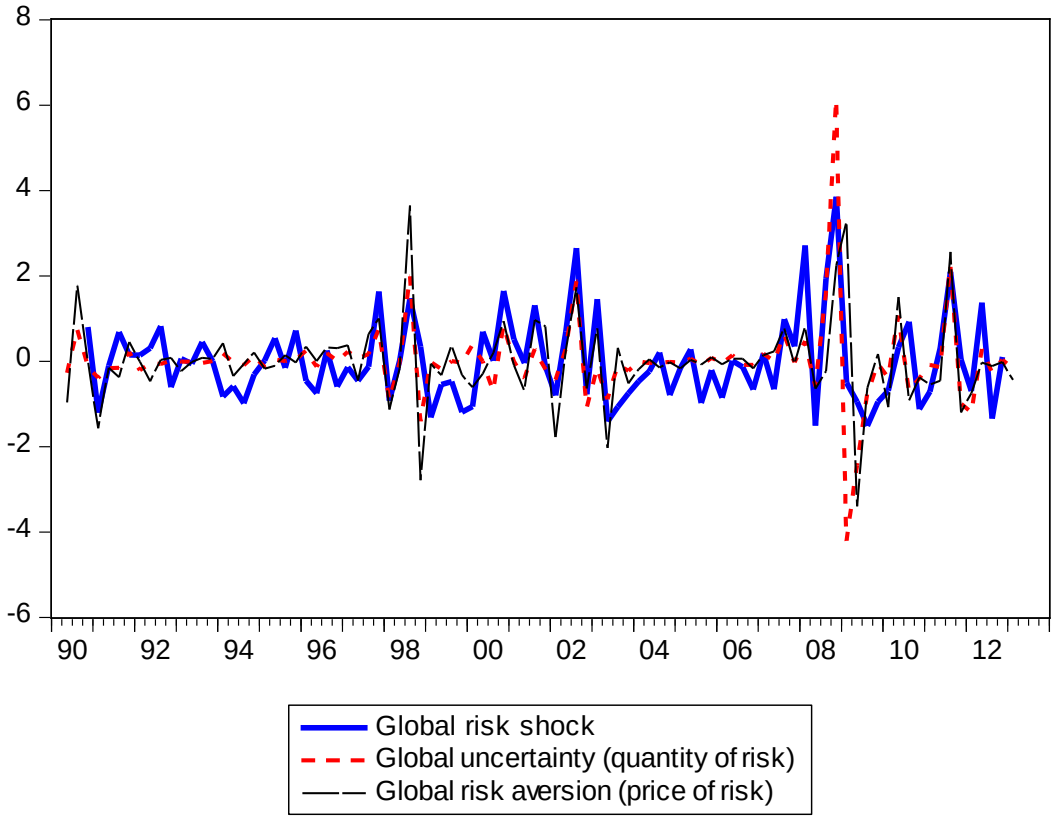
Notes: the table shows the coefficients associated with the inclusion of three different idiosyncratic risk factors in the baseline regression, replacing the crisis dummies. These idiosyncratic factors identify three possible sources of risk (US policy uncertainty, euro area crisis and emerging market crises). In this regression, differently from Table 6, the idiosyncratic risk factors are not positively bounded. The baseline model includes one lag of the dependent variable. See notes to Table 3 for further explanations.

Figure 1. Euro area securities. External liabilities versus issuance. 1999:1 – 2012:4
(flows as % of the outstanding stock of total portfolio liabilities in the previous year)



Sources: IMF Balance of Payments, International Financial Statistics; ECB for securities issuance.
Notes: The blue solid lines indicate the (net) external liabilities from the balance of payments, i.e. foreign demand for domestic securities. The black dashed lines show the net (domestic and international) issuance of securities.

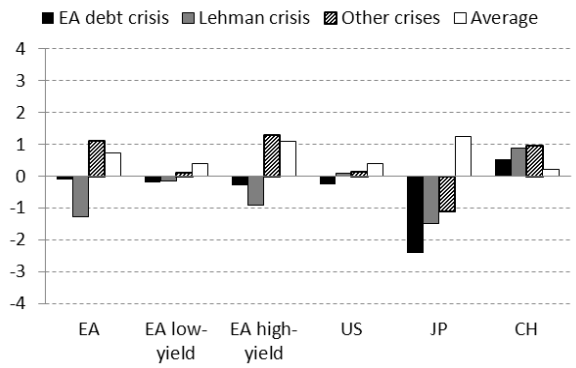
FIGURE 2. Estimated global risk shock and decomposition of VIX in global uncertainty and risk aversion



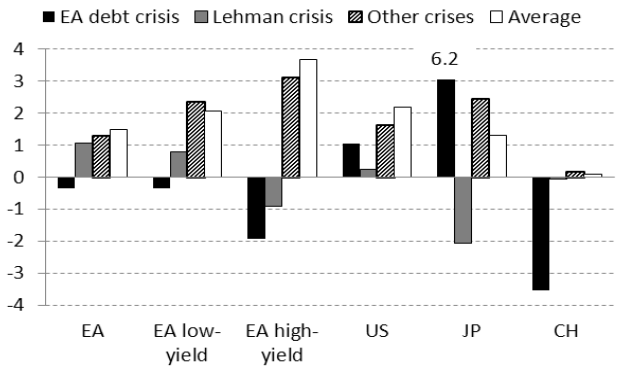
Notes: The figure reports estimated global risk shock; each shock is rescaled so as to have unit standard deviation. The blue solid line reports the shock identified by estimating a VAR model over quarterly data from 1990:1 to 2012:2 including (i) the change in the VIX, (ii) the return on a global un-hedged stock market, and (iii) long-term US interest rates and applying sign restrictions; see Section 2.5 in the text for further details. The other two lines show the decomposition of the VIX into two components, following Bekaert et al. (2013). The red dotted line reports the quarterly change in the expected stock market volatility, as a proxy of global uncertainty (quantity of risk); whereas the black dashed line is the change in a proxy for risk aversion (price of risk).

FIGURE 3. External liabilities. Flows by asset class 1990:1 – 2012:4
(as % of the outstanding stock of total portfolio liabilities in the previous year)

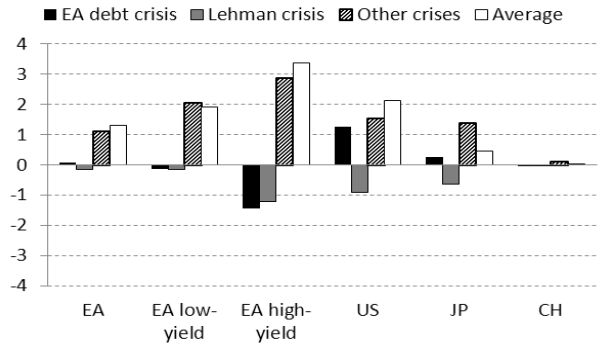
3a. Equity



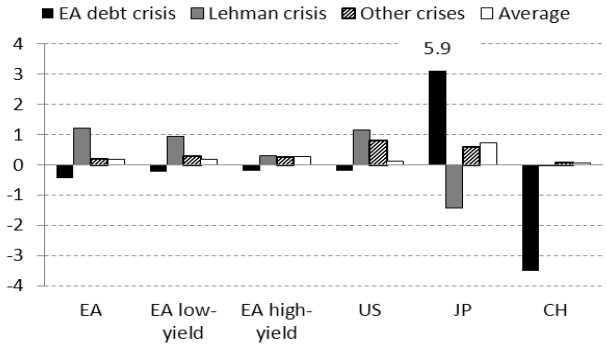
3b. Debt



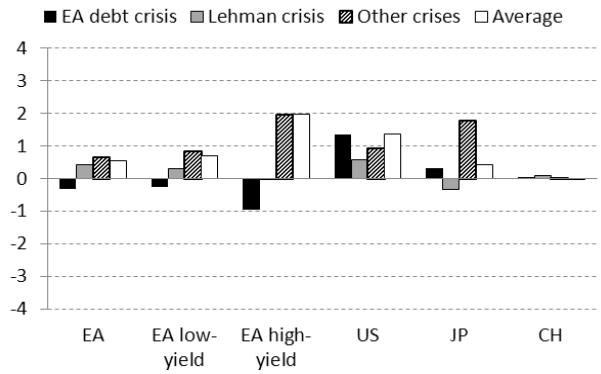
3c. Bonds and notes



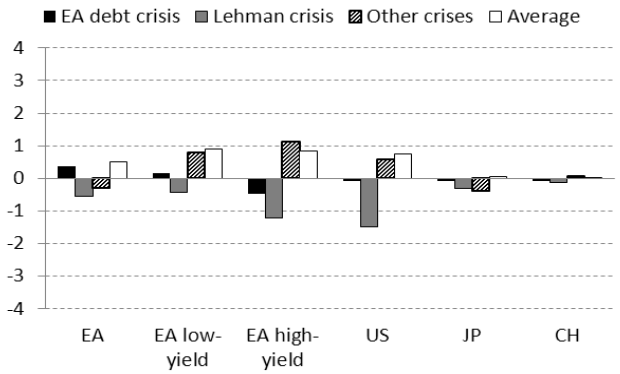
3d. Money market instruments



3e. Government bonds and notes



3f. Other bonds and notes



Sources: IMF Balance of Payments, International Financial Statistics, Swiss National Bank and authors' calculations.
Notes: EA debt crisis refers to the third quarter of 2011. Lehman crisis refers to the average flow in the last two quarters of 2008. Other crises is the average for the following quarters: 1990:3, 1990:4, 1995:1, 1997:4, 1998:3, 2000:4, 2001:3, 2002:3, 2008:1; see main text for further details. Euro Area (EA) high-yield includes Ireland, Italy, Portugal and Spain. Euro Area (EA) low-yield includes France, Germany, Netherlands, Finland, Austria and Belgium (since 2001). Aggregates for EA high-yield and EA low-yield do not net out intra-euro area transactions. Data for the Euro Area (EA) consolidated external liabilities, netting out intra euro-area transactions, are available since 2000 (since 2006 for government bonds and notes). Data for Switzerland are available since 1999.