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Correlations across Asia-Pacific bond markets and the impact of capital flow management measures

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ABSTRACT

Using a novel database on capital flow management measures in Asia over 2004–2013, we investigate the impact of bond inflow management measures on the cross-market correlations of weekly bond fund flows and of daily bond returns in 12 Asia-Pacific economies, after controlling for global, regional and local factors. We find that a bond inflow management measure taken by a country tends to increase the correlation of bond flows into the country with those into other countries in the region. In particular, a country's policy actions to loosen (ie increase) bond inflows significantly increase bond flow correlations, but policy actions to tighten (ie decrease) bond inflows have no significant impact. We also find that bond inflow management measures increase bond return correlations in the long run. These results can be explained by the signalling hypothesis, under which global investors expect that when a country takes a bond inflow management measure other countries to take similar actions, so that they increase or decrease their investment in the region at the same time.

1. Introduction

Asia-Pacific local currency bond markets have developed in recent years against the backdrop of increased foreign interest and cross-border investments. After sharp capital outflows during the financial crisis in 2007–2008, the Asia-Pacific region once again received strong capital flows into local currency bond markets, in which global asset managers and institutional investors played an important role. However, in mid-2013, some emerging Asian economies temporarily faced large capital outflows from their bond markets.

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In response to such rapid changes in the direction and amount of bond flows, many jurisdictions in the region have actively introduced various types of capital flow management measure (CFM). In particular, China, India, Indonesia, Korea, Malaysia, the Philippines and Thailand introduced bond inflow management measures either aiming to tighten or loosen bond inflows in their own markets. Many researchers have investigated whether these measures were effective in controlling bond flows (eg Ahmed and Zlate (2013) and Zhang and Zoli (2014)).

More recently, both policymakers and academic researchers have discussed the possibility of CFMs taken unilaterally by one economy affecting other economies. They have also asked whether there is a need and scope for cross-border coordination of CFMs. In particular, a relatively small number of papers have focused on such cross-country implications of CFMs (eg Jeanne (2012); Beirne and Friedrich (2014)).

Generally speaking, a unilateral bond inflow measure can affect the cross-country correlation of bond flows under two different hypotheses. The correlation can decline under the substitution hypothesis: when an economy introduces a measure to tighten bond inflows, foreign investors can move their funds from the economy to the bond market of another economy in the region.[1] Also, when a mutual fund manager has a regional investment mandate, if the total amount of funds managed by the fund manager does not change after a unilateral measure is taken by an economy to reduce bond inflows, the fund manager may switch funds invested in the economy to other markets in the region.

By contrast, the correlation can increase when foreign investors in mutual funds simultaneous enter or exit bond markets in the region. This can occur under the signalling hypothesis: after one country takes a CFM, foreign investors may expect (ie take it as a signal) that similar measures will be taken by other countries in the region (Forbes et al (2012)).[2] For instance, when a country imposes restrictions in response to a shock that is common to other countries, foreign investors may be led to expect other countries to follow. A common shock can be a surge in global liquidity or an increase in the risk appetite of global investors reflected in the VIX. By contrast, a restriction introduced in response to a country-specific external shock, such as changes in the price of commodities exported by a country, would not be expected to get transmitted to countries that don't export them.

To the extent that bond inflows to a country influence foreign investors' return on investing in domestic bonds issued by the country, a CFM affecting bond flow correlations will also affect bond return correlations.

This paper aims to assess the impact of CFMs on bond flow and return correlations and see which hypothesis is supported by empirical evidence. In particular, we try to answer the following two questions. First, what fundamental factors explain the correlations of bond flows and returns in the Asia-Pacific region over 2004–2013? Second, after controlling for these factors, what is the impact of bond inflow management measures on the correlations of bond flows and returns across Asia-Pacific economies? As far as we are aware, this paper is the first to systematically consider the impact of CFMs on the correlations of bond flows and returns in Asia and the Pacific.

To perform the empirical analysis, we construct a new comprehensive dataset on the usage of CFMs on different types of capital flow for 12 Asia-Pacific economies from 2004 to 2013: bond inflows, equity inflows, banking inflows, direct investment inflows, other inflows (eg trade flows and remittances) and all types of outflow. We also differentiate between policy measures tightening (ie reducing) flows and those loosening (ie increasing) flows. For data on bond flows and returns, we use weekly EPFR bond fund flows into 12 Asia-Pacific economies and also daily JPMorgan Government Bond Index returns in US dollar terms. To calculate the time-varying correlation of bond flows and returns, we employ a Dynamic Conditional Correlation (DCC) Generalised Autoregressive Conditional Heteroscedasticity (GARCH) model by Engle (2002) and Engle and Sheppard (2001). This model is one of multivariate GARCH models, and has the advantage of parsimonious modelling of correlations using univariate GARCH models. Finally, in order to check the robustness of empirical results, we conduct two different empirical analyses, panel regression and event study.

[1] It is also possible that a unilateral CFM taken by a country has no impact on bond flows to other countries, ie results in zero correlation. Since the average value of the pairwise correlation of bond flows among the 12 Asia-Pacific economies ranges between 0.35 and 0.98 as shown in Tables 3 and 4, the policy impact of zero correlation is likely to decrease the correlation of bond flows, and thus generate a similar outcome under the substitution hypothesis.

[2] Among 30 separate events of bond inflow management measures documented in Table 2, four pairs of loosening measures were taken by two different countries within three weeks from each other for each pair. Also, two pairs of tightening measures and six pairs of loosening measures were taken by two different countries within one month to four months from each other for each pair. In total, 25 out of 30 separate actions were taken adjacent to at least one measure by another country in the same direction, which confirms that a CFM taken by a country tends to precede a CFM by another country within a few months.