

Box I

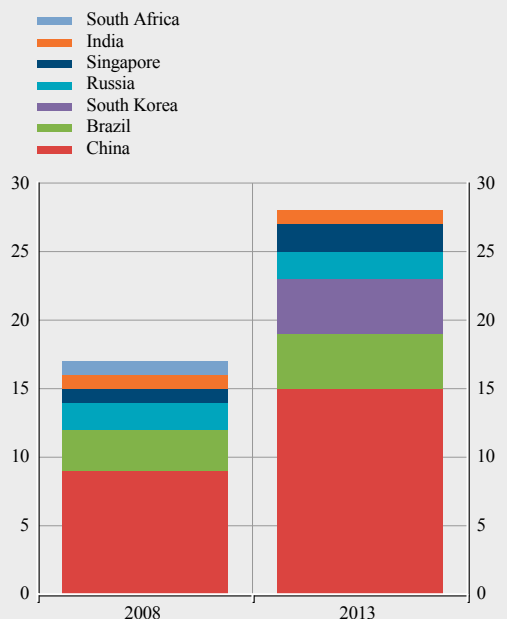
DOES THE GROWING IMPORTANCE OF EMERGING MARKET BANKS POSE A SYSTEMIC RISK?

One side effect of the global financial crisis has been strong growth in the weight of emerging market banks in the global financial system. Indeed, financial deepening in emerging markets has accelerated in recent years as the financial crisis has triggered both increased capital flows to these economies, as well as deleveraging of banks in advanced economies. By the end of 2013, 28 of the 100 largest banks globally were headquartered in emerging markets, compared with 17 only five years earlier (see Chart A). As the resulting geographical structure of the global financial system has evolved, the monitoring of risks clearly also needs to be adapted.

Tracking the main regions exhibiting a rapid expansion of financial sector size, banks from six emerging market economies (EMEs) are represented in the set of the 100 largest banking groups worldwide – i.e. China (15), Brazil (4), South Korea (4), Singapore (2), Russia (2) and India (1). Also, the market capitalisation of emerging market banks has almost quadrupled since the peak of the financial crisis and accounted for 35% of global bank market value just before the onset of the “taper tantrum” in May 2013 (see Chart B). Against this background, the purpose of this box is to provide empirical evidence about whether or not, in line with the share of the emerging market financial sector in world markets, their systemic importance for the global financial system has increased over the recent past.

Chart A Number of emerging market banks in the world's 100 largest banks by total assets

(number of institutions)



Source: relbanks.com

To gauge the systemic importance of emerging market banks, two popular measures of conditional risk (co-risk) can be employed: the conditional value at risk (CoVaR) and the conditional expected shortfall (CoES).¹ These measures capture tail dependence between equity price return distributions of individual institutions and the financial system as a whole. In this application, the two metrics represent, respectively, the value at risk (VaR) and the expected shortfall (ES) of the global banking system conditional on a particular emerging market bank being in distress.²

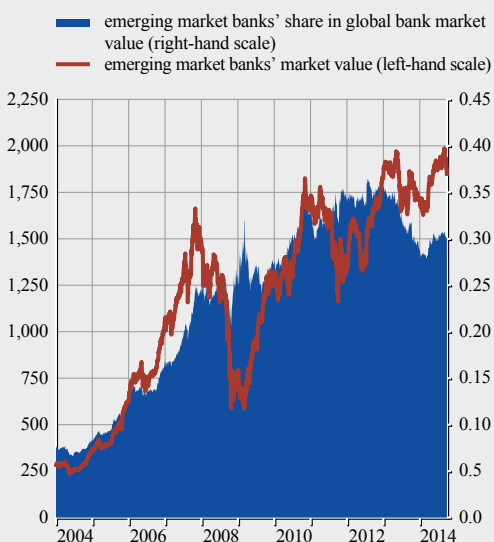
The model estimates suggest that, despite rapid growth in emerging market banks, there has not been a meaningful increase in the systemic importance of emerging market banks for the global banking system.³ In fact, the two co-risk measures indicate that, at times when emerging market banks were at risk, the global banking sector experienced a median

loss in the range of one to two times of the daily standard deviation prevailing in the respective calendar year (see Charts C and D). The evolution of the two co-risk measures over time does not exhibit a downward-sloping trend, i.e. more negative returns for the global banking sector during periods of financial stress among emerging market banks. If anything, the co-risk measures have, in recent years, moderated towards lower conditional losses in global banking sector prices, whereas they peaked in periods of global or euro area market turbulence in 2008, 2009 and 2011.⁴

Overall, the empirical evidence confirms earlier findings in the literature suggesting that tail dependence measures, like standard correlation coefficients, tend to increase globally in periods of global market turbulence. At the same time, the above findings are consistent with recent studies on emerging market banks which find that the global footprint of emerging market banks has remained regionally confined so far.⁵ Notwithstanding this finding, a changing geographical importance of global financial institutions requires close monitoring given the prospect that market prices underlying these empirical measures may adapt in ways that cause past empirical

Chart B Emerging market banks' market capitalisation and share in global bank market value

(Jan. 2004 – Sep. 2014; USD billions; percentages)

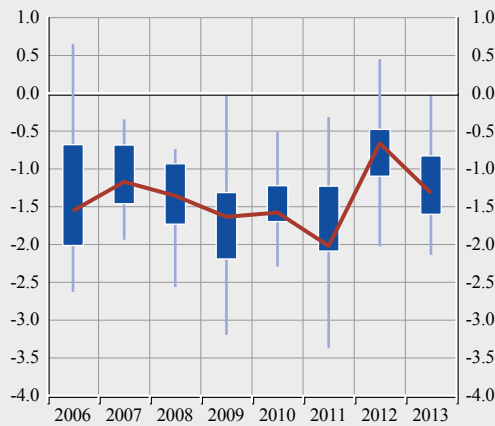


Source: Datastream.

1 See Brunnermeier, M. K. and Adrian, T., “CoVaR”, *Federal Reserve Bank of New York Staff Reports*, No 348, September 2008 (revised in September 2011).
 2 CoVaR/CoES are measures of the excess loss of the euro area banking system at the tail of a bank i's return distribution, implied by the bank's individual VaR/ES at the q^{th} percentile, relative to its median.
 3 The sample of emerging market banks is composed of the three largest, non-foreign-owned, listed banks (in terms of total assets) from six EMEs which have systemically relevant financial sectors according to the IMF as well as three advanced Asian economies that exhibit a high degree of integration with the banking sector in emerging Asia.
 4 A major caveat of this CoVaR/CoES approach is that any interdependence of price movements between emerging market banks and the global financial system may also stem from global factors. At the same time, the presented set-up largely rules out the possibility of reverse causality (i.e. that shocks to the global banking sector determine price movements of emerging market banks).
 5 See Van Horen, N., “Branching Out: The Rise of Emerging Market Banks”, in Reuttner, I. (ed.), *The Financial Development Report 2012*, World Economic Forum, New York, 2012; and BIS, “EME banking systems and regional financial integration”, *CGFS Publications*, No 51, Committee on the Global Financial System, March 2014.

Chart C Daily value at risk of the global financial system conditional on EME banks at risk ($\Delta\text{CoVaR}_{1\%}^{\text{system}|1}$)

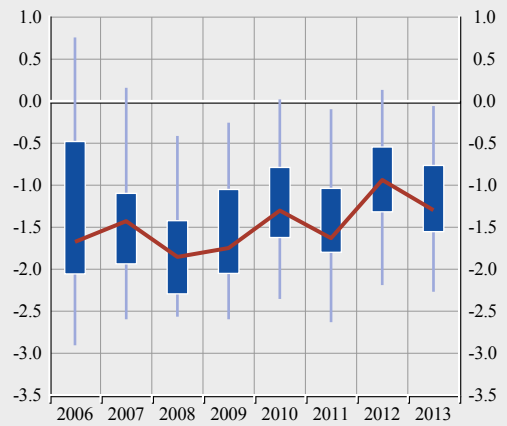
(2006 – 2013; percentage of daily standard deviation)



Sources: Bloomberg and ECB calculations.
Notes: The charts depict the distribution and the median CoVaR/CoES estimates based on eight non-overlapping annual samples of daily observations from 2006 to 2013. The black line represents the median of the 26 EME banks' daily $\Delta\text{CoVaR}_{1\%}^{\text{system}|1}$ / $\Delta\text{CoES}_{1\%}^{\text{system}|1}$ in per cent of the daily standard deviation of the global banking sector's return distribution. A negative (positive) value represents a conditional loss (gain). The blue box represents the 25% to 75% quantile of banks. The blue vertical lines represent the minimum and the maximum estimates.

Chart D Daily expected shortfall of the global financial system conditional on EME banks in distress ($\Delta\text{CoES}_{1\%}^{\text{system}|1}$)

(2006 – 2013; percentage of daily standard deviation)



Sources: Bloomberg and ECB calculations.
Notes: The charts depict the distribution and the median CoVaR/CoES estimates based on eight non-overlapping annual samples of daily observations from 2006 to 2013. The black line represents the median of the 26 EME banks' daily $\Delta\text{CoVaR}_{1\%}^{\text{system}|1}$ / $\Delta\text{CoES}_{1\%}^{\text{system}|1}$ in per cent of the daily standard deviation of the global banking sector's return distribution. A negative (positive) value represents a conditional loss (gain). The blue box represents the 25% to 75% quantile of banks. The blue vertical lines represent the minimum and the maximum estimates.

regularities to break down. Moreover, while a mainly regional footprint may limit the prospect of systemic risk at the global level, regional aspects may nonetheless be relevant for euro area financial stability. Emerging market banks located in EU neighbouring countries have recently intensified their financial linkages with the euro area/EU, for instance by setting up offices in the EU and by participating actively in deposit gathering and loan operations in the region. Given that financial stress among emerging market banks can be transmitted to the euro area via both direct and indirect exposures, significant emerging market banks in general can have financial stability repercussions on the euro area financial sector.