

ECONOMIC ANALYSIS

Global prominence of China's financial markets

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Summary

- In the summer of 2015, financial turmoil in China – including a stock-market crash and a sharp RMB depreciation – shocked financial markets across the world. Similarly, in early 2016, a second episode of global financial distress was linked to financial uncertainties about China. The growing importance of **China's economy** on the rest of the world has been amply analysed (and unanimously verified), but these two recent episodes beg the question of any significant impact of **China's financial markets** on the global financial system.
- Looking at financial trends over the last decade, China's stock markets have moved in tandem with both developed and emerging markets. However, China's bond market has been less synchronised to its peers (no correlation with bonds in emerging markets and only some co-movement with bonds in developed economies). On the other side of the spectrum, the RMB has trended independently from exchange rates in both emerging and developed economies (as would be expected from China's controlled exchange rate regime).
- By analysing higher frequencies, we again observe that equity markets in China are growingly synchronised with those in developed and emerging economies, while the RMB shows some synchronisation with other exchange rates, and bonds in China show no co-movement with other bonds.
- Even for those markets in China that are correlated with markets abroad, correlation does not mean causation. Analysing data over the last decade, most of the observed correlation between China's equity markets and other stock markets springs not from causation but from common factors, including
 - worsening expectations of China's **economic outlook** (which in turn hurts the economic outlook of most other countries, particularly commodity exporters, and, as a result, impacts not only China's stock markets but also other equity markets)
 - and the risk of currency (mis)management (which has the potential to trigger currency wars and beggar-thy-neighbour global dynamics).

Moreover, we find no evidence of financial contagion per se (due, for example, to any disruptive portfolio reallocation between China and other parts of the world).

- Concluding that there are no significant financial linkages runs with a caveat: in a rapidly changing world, linkages are permanently evolving, and as China continues to advance its financial liberalisation, the global impact of its financial markets is set to rise.

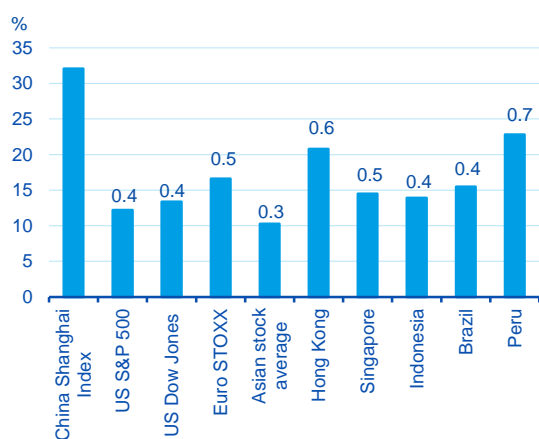
China's financial market is increasingly synchronised with global markets

During the summer of 2015 financial market turmoil in China shocked global markets after two key events: the June-July stock market crash and the sharp depreciation of the RMB on August 11. The Chinese stock market crash, which led to a 33% cumulative drop in the Shanghai stock index, triggered a 13% decline in US stocks, 17% in Europe stocks and 10% in Asian stock (Figure 1). Later that summer, the sharp devaluation of the RMB – due to the authorities' announcing a more flexible exchange rate regime – led to large-scale competitive depreciations across emerging-market currencies in Asia and Latin America. (Figure 2).

After starting to stabilise over the second half of 2015, global financial markets were hit again in early 2016. China's stock markets fell by 27.3% in January 2016, leading to another round of global financial turmoil: 12.4% decline in US stocks, 19.1% in European stocks and 14.3% in Asian stocks.

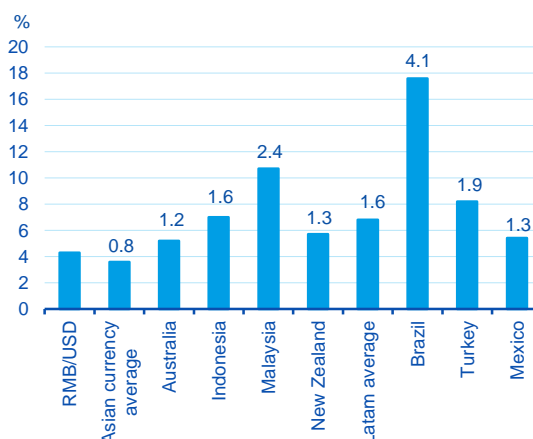
But such "synchronisation" is not an entirely a new phenomenon. Looking back over the last decade, there were other important events that hit financial markets in both China and the rest of the world. Table 1 summarises the most relevant events for China's financial markets (triggered by either foreign or domestic shocks), with the corresponding impact on global markets.

Figure 1
China's stock market crash in June 2015 has strong spillover effects to the global stock markets



% fall between 10% to 23% (Black figures indicate elasticity)
Source: CEIC and BBVA Research

Figure 2
RMB sharp devaluation in August 11 of 2015 triggered competitive depreciation of emerging market currencies



% devaluation between 3.8% to 17% (Black figures indicate elasticity)
Source: CEIC and BBVA Research

The first column classifies events in four categories: **domestic macro shocks** (such as the snowstorm disaster in January 2008), **domestic policy shocks** (such as the interest rate or RRR cuts in 2008 during the global financial crisis), **domestic finance shocks** (such as the "animal spirits" turmoil in April 2007) and **foreign shocks** (such as Lehman Brothers' bankruptcy in September 2008). The second column describes the event, the third column shows the percentage change in China's stock price (calculated from its local peak to the local trough), and the fourth to eleventh columns indicate the level of "synchronicity" between China's stock indices and that of other countries (measured as the percentage gain/losses in other stock indices relative to the percentage gain/loss in China's stock prices).

Table 1

The influence of China's equity-market shocks on global stock markets

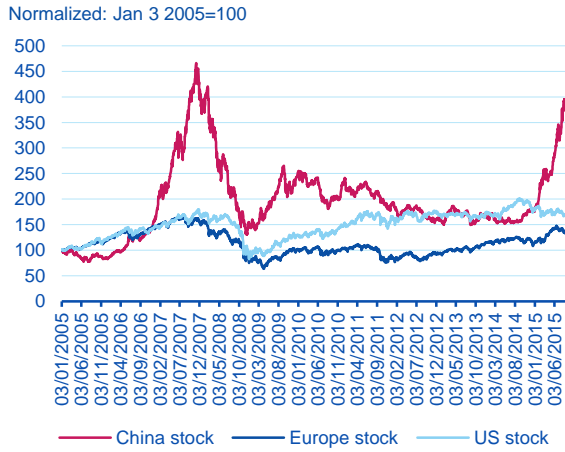
Categories	Events	China (%)	US	Europe	Brazil	Chile	Colombia	Mexico	Peru	Turkey
Domestic policy	May 2006: cancelled the policy "placing new shares based on the market value"	7.30	0.23	0.18	*	*	0.51	*	0.12	0.03
Domestic policy	End-2006, beginning-2007: expansion of QFII, new accounting law	50.00	0.03	0.04	0.13	0.22	0.08	0.17	0.35	0.05
Foreign shock	April 2007: bull stock market expectation	18.50	0.37	0.54	0.31	0.35	*	*	0.83	0.17
Domestic finance	Aug 2007: open-end mutual fund becomes popular	21.30	*	*	0.03	*	*	0.05	*	0.03
Domestic macro and policy	End-Jan, 2008: snowstorm disaster; RRR increasing	-6.30	0.56	0.59	*	0.92	0.46	*	0.44	0.30
Foreign shock	End-March and beginning-Apr 2008: Bear Stearn crash	-28.60	0.24	0.06	*	*	*	*	0.13	*
Domestic macro shock	Jun-2008: the largest earthquake in China's record	-10.50	0.30	*	0.96	*	0.56	0.66	0.30	0.46
Foreign shock	Aug-2008: US financial crisis expanded	-8.00	1.69	0.31	0.53	0.38	*	0.04	1.33	*
Foreign shock	Sep-2008: collapse of Lehman Brother	-15.50	0.92	0.46	0.23	0.10	0.21	0.31	0.85	0.37
Domestic policy	Oct-2008: 4 trillion stimulus policy and 5 interest rate cuts	20.90	*	0.06	0.11	0.19	0.04	*	*	0.11
Domestic finance	Jun-2013: liquidity problem of interbank market	-6.30	0.38	0.33	1.68	1.08	0.60	0.25	0.37	0.17
Domestic finance	June 2015: China's stock market dipped significantly	33.00	0.40	0.50	0.40	0.70	0.23	0.12	0.48	0.37
Domestic policy	11 August 11 2015: RMB fixing price reform	26.70	0.41	0.60	0.48	0.25	0.49	0.27	0.63	0.39
Domestic finance	Jan 2016: China's stock market turmoil again	27.30	0.50	0.70	0.53	0.23	0.25	0.38	0.36	0.63

Notes: 1. Synchronicity of other countries with China is measured as an "elasticity": the percentage change in each country's stock prices over the percentage change in China's stock prices; 2. The GREEN colour indicates elasticity between 0.5 to 1.0; 3. The pink colour indicates elasticity > 1. 4. * means there is no significant spill-over effect
Source: BBVA Research

Table 1 backs two assertions: (1) synchronicity of China's stock market has been steadily growing over the last decade; (2) fluctuations in China's stock markets have spread to other regions mostly when triggered by domestic policy & macro shocks, but not necessarily when triggered by purely domestic financial shocks.

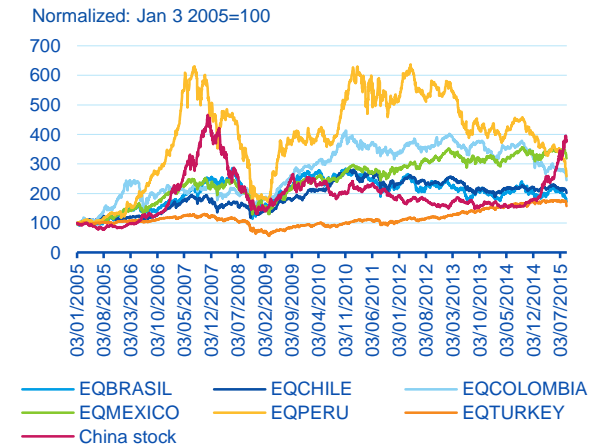
China's business-cycle is growingly synchronised to global business cycles through its significant trade and economic linkages (Chapter 5 of [China Economic Outlook published in August 2015](#)). Nevertheless, China's financial liberalisation has lagged behind commercial openness, and it remains empirically uncertain the extent of China's "purely financial" spillovers on the rest of the world. That said, the trends shown in Figure 3-8 show that some of China's financial markets are increasingly integrated:

Figure 3
China's stock market has strong spillover effects to the DM stock markets



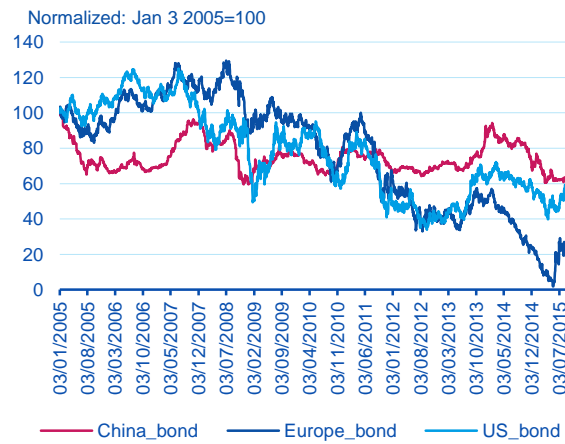
Stock indices (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

Figure 4
...also strong co-movement exists for most of the EM stock markets



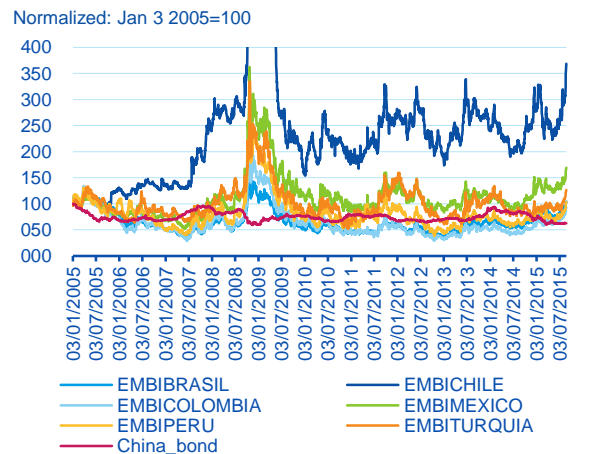
Stock indices (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

Figure 5
China's bond decoupled with DM bond market for a period of time after global financial crisis



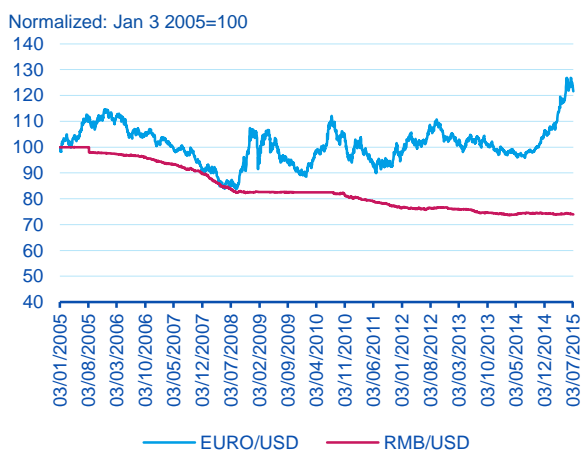
Bond yields (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

Figure 6
China's bond market has much less volatility than EM bond market due to its closed capital account



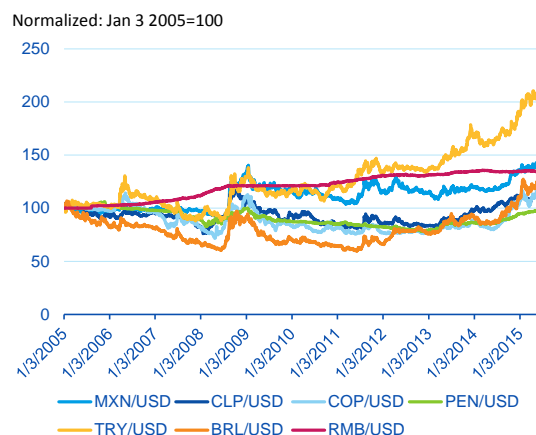
Bond yields (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

Figure 7
RMB is not synchronised with DM currencies



Currencies against the USD (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

Figure 8
...nor is it with EM currencies in low frequency



Currencies against the USD (normalised: Jan 3 2005 = 100)
Source: CEIC and BBVA Research

- China's stock market indices are growingly synchronised with those in developed and emerging markets.
- Long-term bond markets in China do not exhibit any significant co-movement with bond markets in other emerging markets, but they look increasingly aligned with bond markets in developed economies (except for a few years after Lehman Brothers' bankruptcy).
- For the FX market, there is no significant co-movement between the trend of the RMB and that of other currencies; however, as China starts to gradually liberalise its currency, one should expect to identify some high-frequency co-movement between the RMB and other EM currencies.

Markets may diverge as trends are determined by fundamentals that vary from country to country. But integration/spillovers may still exist and be only palpable at higher frequencies (or once disruption materialises). We analyse daily data under various econometric tools (from controlled OLS regressions to structural-VARs identified by sign restrictions on daily data from 2004 up to 2015) to assess the impact of China's financial market on the rest of the world. Some key empirical findings are as follows and summarised in Table 2:

Table 2
The impulse responses of global financial markets to a one-standard-deviation rise in both China's stock and currency shocks

	Response of other countries' financial markets on one s.d. shock from China						
	US stock	European stock	Turkish stock	Brazilian stock	Mexican stock	Peruvian stock	Chilean stock
One s.d. shock on China's stock (shock size: 0.22%)	0.20%	0.60%	0.41%	0.50%	0.42%	0.48%	0.30%
	n.a.	Euro/USD	TRY/USD	BRL/USD	MXN/USD	PEN/USD	CLP/USD
One s.d. shock on RMB/USD (shock size: 0.012%)		0.18%	0.21%	0.25%	0.19%	0.07%	0.18%

Source: BBVA Research

1. Synchronicity of stock markets in China with those in other countries is significantly large (followed in size by the synchronicity between China's RMB and other currencies). However, China's bond markets show little relation with other fixed-income markets. We also find (under sign restriction assumptions) **significant causality** of China's equity markets on global equity markets: a one standard deviation (0.23%) unexpected rise in Chinese stock indices leads to a 0.2% rise in US stock prices and a 0.6% rise in European stock prices. In addition, one s.d. appreciatory shock of the RMB (0.012% appreciation vs. the USD) results in a 0.18% appreciation of the EURO vs. the USD. However, we did not find evidence that a shock to bond yields in China has any impact on other countries' bond markets (an observation easily justified by China's closed capital account). These results are not being controlled by any commercial channel running parallel to the financial channels, therefore the fact that synchronicity is found only in stocks and FX may be signalling the growing relevance of China's commercial channels rather than a rise in purely financial linkages. Furthermore, despite their statistical significance under the SVAR framework, transmission in both stock and currency markets only lasts 1-2 days (enough time to disrupt global markets in any case).
2. Under the same assumptions, the impact of China's stock and currency markets on Latam markets is similar (in terms of variance decomposition) to the impact of the US markets. This indicates that although the US's financial markets remain the main external driver of LATAM markets, the impact of China's financial markets keeps growing (supported by China's tight trade and investment linkages with the region). For instance, in the case of Brazil, China's stock and currency shocks can explain around 36.1% of its volatility in stocks, while US stock and bond shocks can explain around 40.5%. Shocks to China's stock and currency can explain 31.2% of the volatility in the Mexican peso, while US financial markets could explain around 40.6%.
3. Responses to shocks in China's financial markets are quite diversified across LATAM markets, indicating different levels of business-cycle synchronisation and financial market liberalisation in these countries. For instance, for one s.d. shock in China's stock, the largest impacts are in Brazil (a 0.5% rise in its stock price) and Peru (0.48%); the smallest impact is in Chile (0.3%), while the impacts in Mexico and Turkey are somewhere in between.
4. Similarly in FX markets, the largest response of one s.d. shock in the RMB/USD is in Brazil's exchange rate (0.25% response) while the lowest impact is in Peru's (only 0.07% response due to its fixed exchange rate regime).

Further controls and alternative channels to financial spill-over effects

As mentioned before, there are several channels that may result in the linkages described above:

1. Commercial channel: trade linkages favour business-cycle synchronisation, which through expectations leads to synchronisation in confidence/investor sentiment – a key driver of stock indices. The U.S. used to be the largest trade partner to China (Europe surpassed the US in recent years). Moreover, China's significant trade relations with other emerging markets, such as with Latam and Turkey, may explain large part of the co-movement in stock indices.
2. Policy channel: emerging economies favour dirty floating exchange-rate regimes (linked to “currency baskets” that reflect the importance of each country's trade partners). As the RMB internationalises (and diverges from the USD), it is being explicitly and directly included in many of these countries' currency baskets (as well as in the IMF Special Drawing Rights). Such actions lead to a “controlled” co-movement between the RMB and other EM currencies that shall be more apparent as the RMB is left to float with respect to the USD. Taken to the extreme, such policies may disrupt the global economy if China leads a

wave of competitive devaluations that trigger beggar-thy-neighbour dynamics (an admittedly unlikely event, yet financial markets might be disrupted by the mere expectation of such realisation).

3. Financial channel: investors act on arbitrage opportunities (such as carry trade strategies) that lead to traditional relationships between assets not necessarily linked to fundamentals. Moreover, massive and sudden asset reallocations by international investors may disrupt balance sheets across the globe. Such “portfolio rebalancing” has played a key role in several global financial crises over the last couple of decades.

As a robustness check, we have also identified the global impact of China’s financial market on the rest of the world (by regressing exchange rates, stock indices and bond yields of various countries on China’s financial variables). Using the same data as in the S-VAR exercise above and under various assumptions, we consistently find that China significantly impacts key financial variables in both developed and other emerging economies. But such significance is greatly reduced when controlling by external factors common to both China’s and other countries’ financial markets. In particular, it falls dramatically when controlling by economic (non-financial) shocks in China – a result that backs the view that most (if not all) of the observed transmission is through commercial rather than financial channels. Such assessment is further supported by the fact that the significance of China’s financial variables is wiped out when also controlling by commodity prices (and especially true for commodity exporters such as Chile, Colombia and Peru).

Conclusion

The global impact of China’s recent financial turmoil finds precedent on the increasing synchronicity of China’s financial variables with the rest of the world. But such spillover effects are realised through commercial rather than purely financial channels: financial turmoil in China is “signalling” risks to China’s economic outlook (especially through its stock markets) rather than “causing” global financial imbalances. Such signal alters the outlook for the global economy, subsequently dragging global financial markets down. We therefore re-validate the ever-growing importance of China’s economy in today’s world, but find no robust evidence to say the same of China’s financial markets. Nevertheless, financial linkages with the rest of world are set to grow as Chinese authorities gradually develop and liberalise China’s financial markets.

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