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# **Dynamics of Bond Market Integration in ASEAN-5**

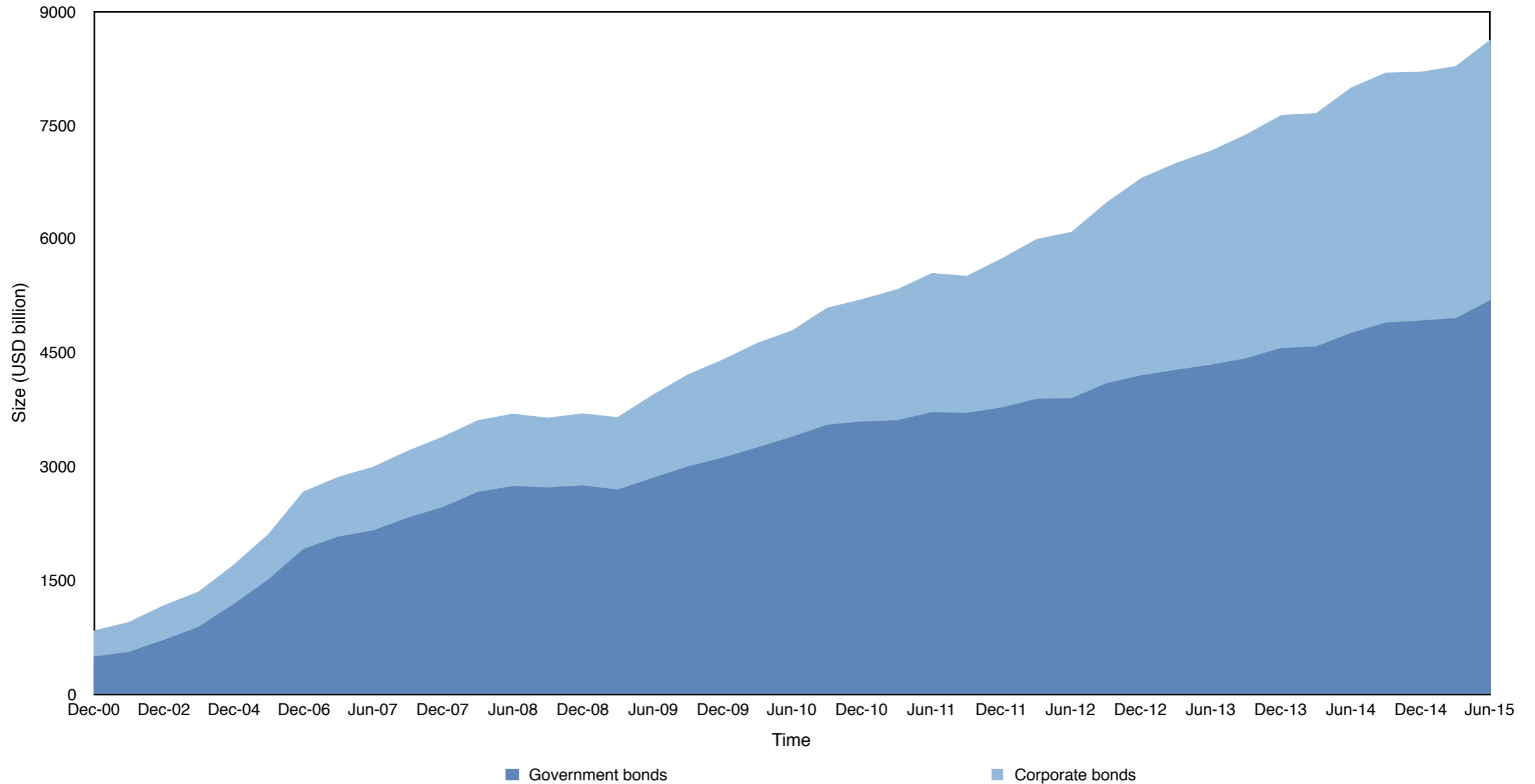
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# Local Currency Bond Markets have grown significantly over the past two decades

Growth of Asian Local Currency Bond Markets (ex Japan)



Source: ADB Bonds Online

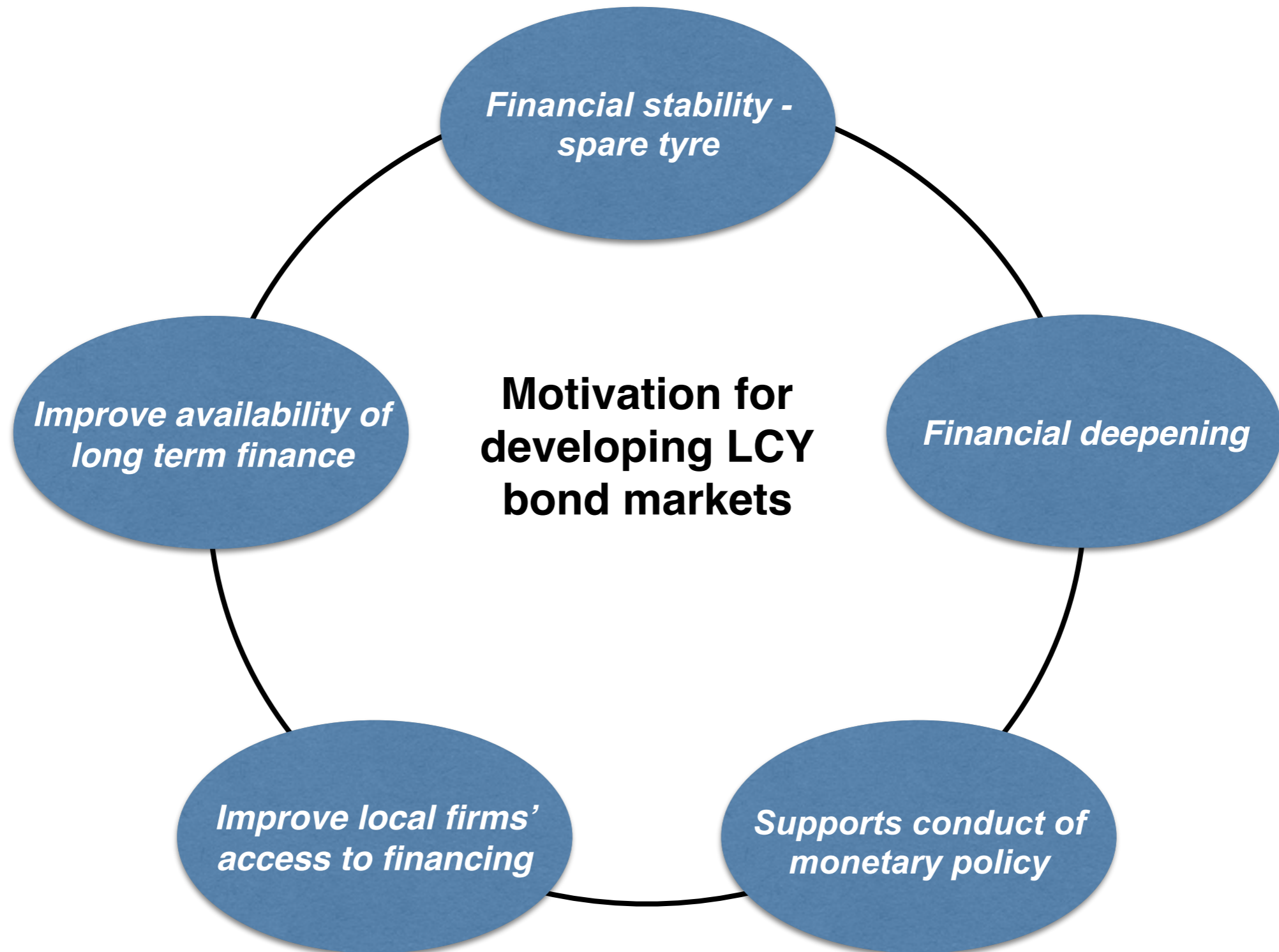
# Growth spurred by regional cooperation and collaboration among policymakers

*Snapshot of key regional initiatives*

	ASEAN Working Committee on Capital Market Development (WC-CMD)	ASEAN+3 Asian Bond Market Initiative (ABMI)	Executives' Meeting of East Asia Pacific Central Banks (EMEAP)
Key Focus Areas/ Strategies	<ul style="list-style-type: none"> <li>• Enhancing capital market linkages</li> <li>• Enhancing market access and liquidity</li> <li>• Strengthening ASEAN's profile as an asset class</li> </ul>	<ul style="list-style-type: none"> <li>• To develop local currency denominated market</li> <li>• To develop more accessible and well functioning regional bond markets both for issuers and investors</li> </ul>	<ul style="list-style-type: none"> <li>• Deepen and broaden the bond markets to promote the efficiency of financial intermediation in the region, catalyse market and regulatory reforms at both regional and domestic levels</li> </ul>
Key initiatives	<ul style="list-style-type: none"> <li>• Bond Market Development Scorecard</li> </ul>	<ul style="list-style-type: none"> <li>• Credit Guarantee Inv. Facility</li> <li>• Asian Bonds Online</li> <li>• Asia Bond Monitor</li> <li>• Asian Bond Market Forum</li> <li>• Regional Settlement Intermediary</li> </ul>	<ul style="list-style-type: none"> <li>• Asian Bond Fund 2               <ul style="list-style-type: none"> <li>◆ Pan Asian Bond Index Fund</li> <li>◆ Single market funds</li> </ul> </li> </ul>

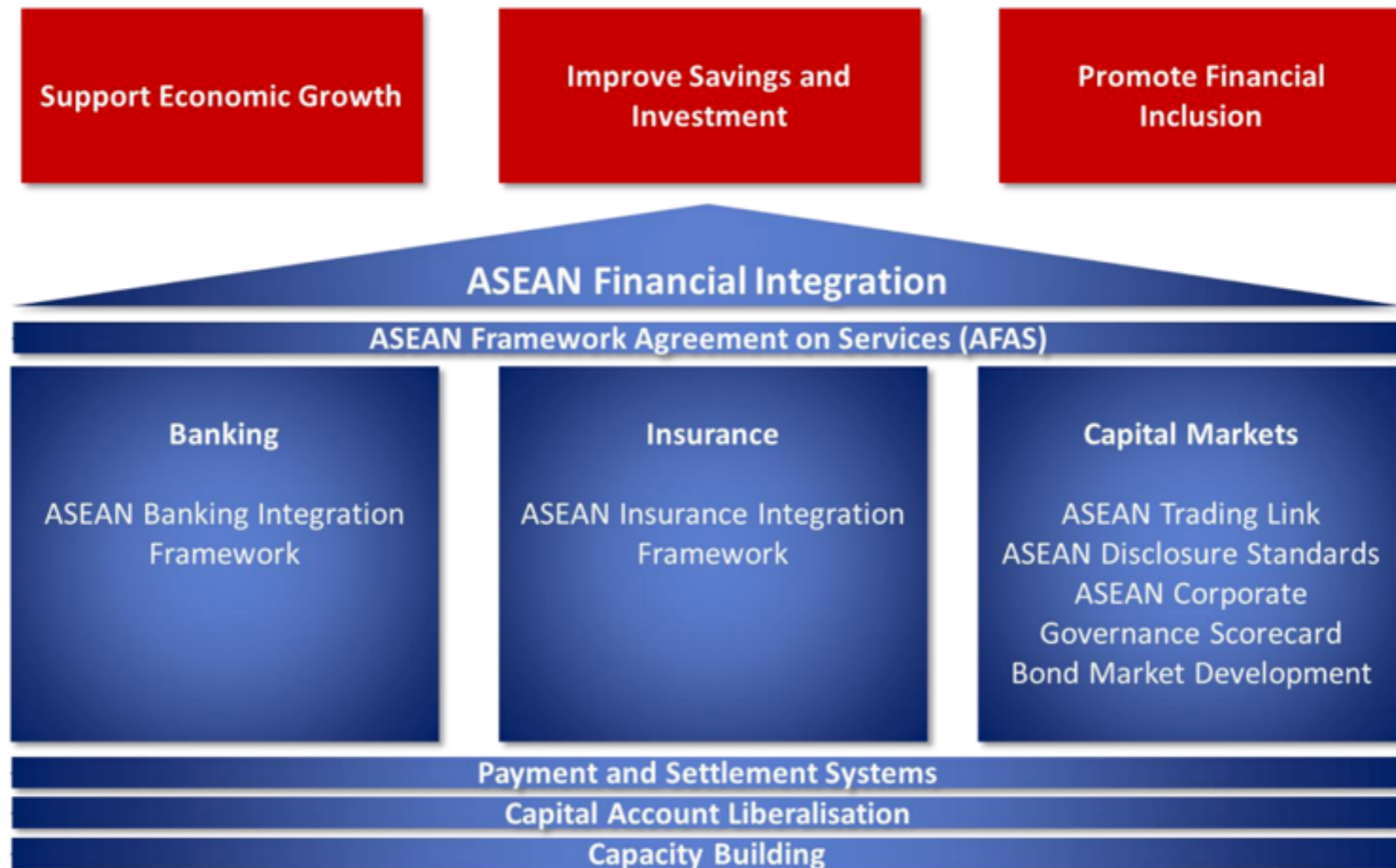
Source: ASEAN, ABMI, EMEAP

# Why develop local currency bond markets?



Source: Laeven, 2014

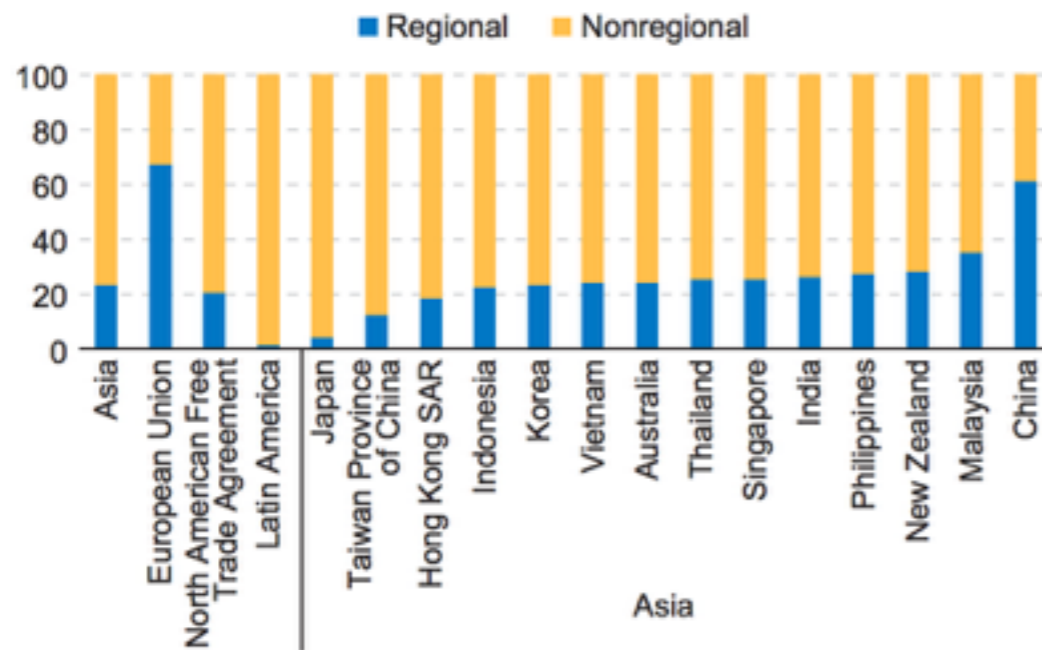
# In ASEAN, bond market development is a means to an end: *financial integration to support the realisation of an ASEAN Economic Community*



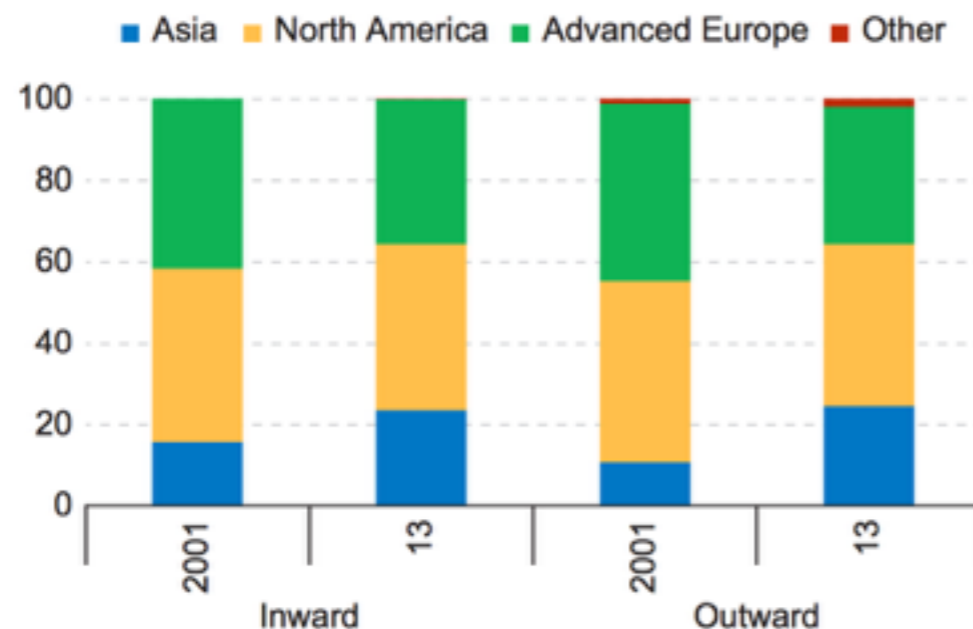
Source: BNM press release

# Mixed views on the state of financial integration in Asia

Sources of portfolio investment



% of total portfolio investment to and from Asia



- Less integrated than Europe but more integrated than Latin America (IMF, 2015; Poenisch, 2014)
- Asia more integrated with countries outside the region. Integration limited although integration has increased over the years, including in the bond markets. More integrated in the real sector (Spiegel, 2009; IMF, 2011; Kim, Lee & Shin, 2006).
- Integration of equity markets more integrated than bond markets (Fung, Tam, & Yu, 2010)
- Efforts by policymakers to develop bond markets have been productive (Chan, Chui, Packer & Remolona, 2012)

# So what is the state of play of bond market integration in ASEAN-5?

## Key questions

- What is the level of integration among the ASEAN-5 bond markets?
- Can we observe any differences pre and post Global Financial Crisis?

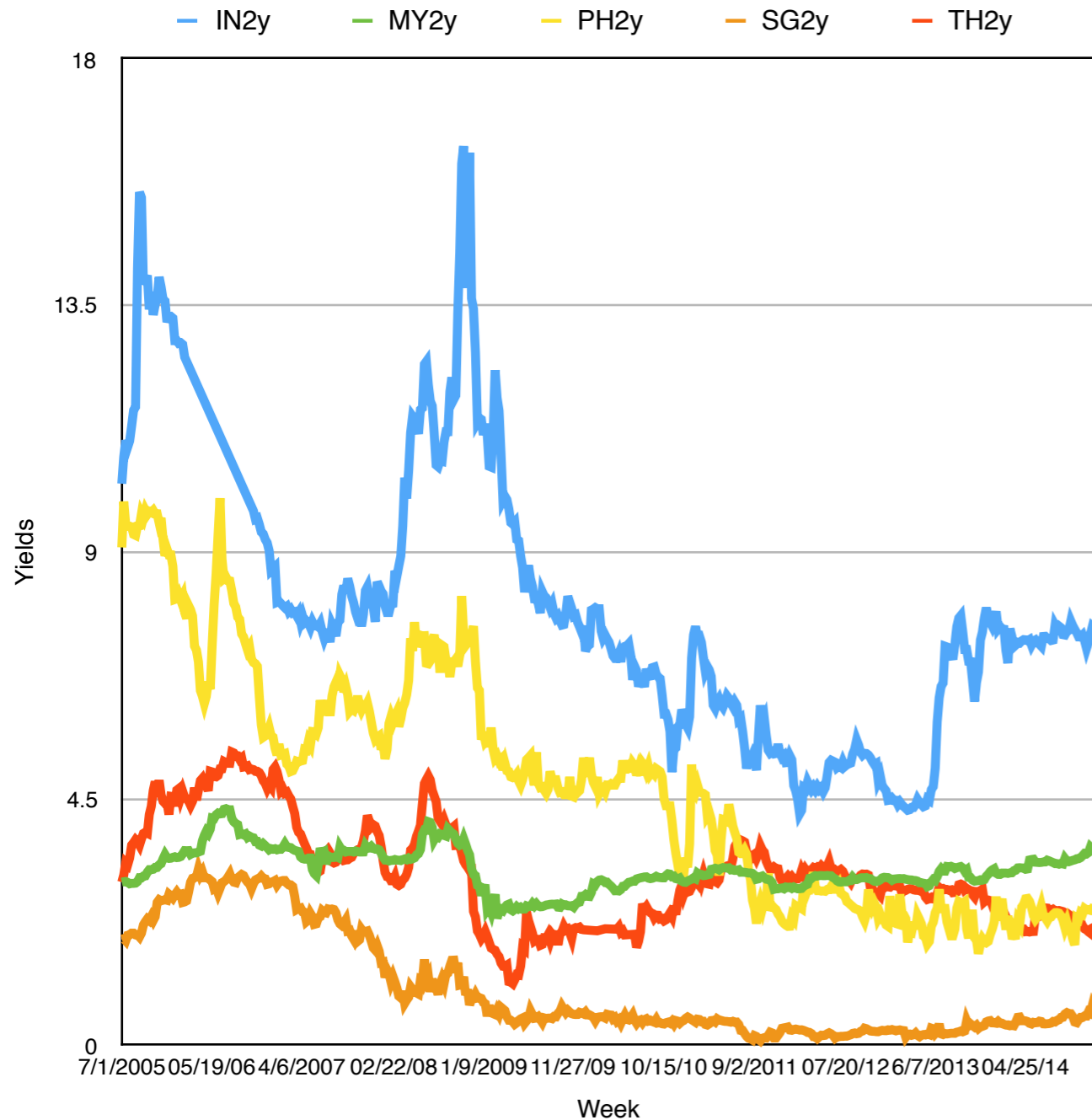
## Method

- Cointegration tests
- Causality tests

## Data

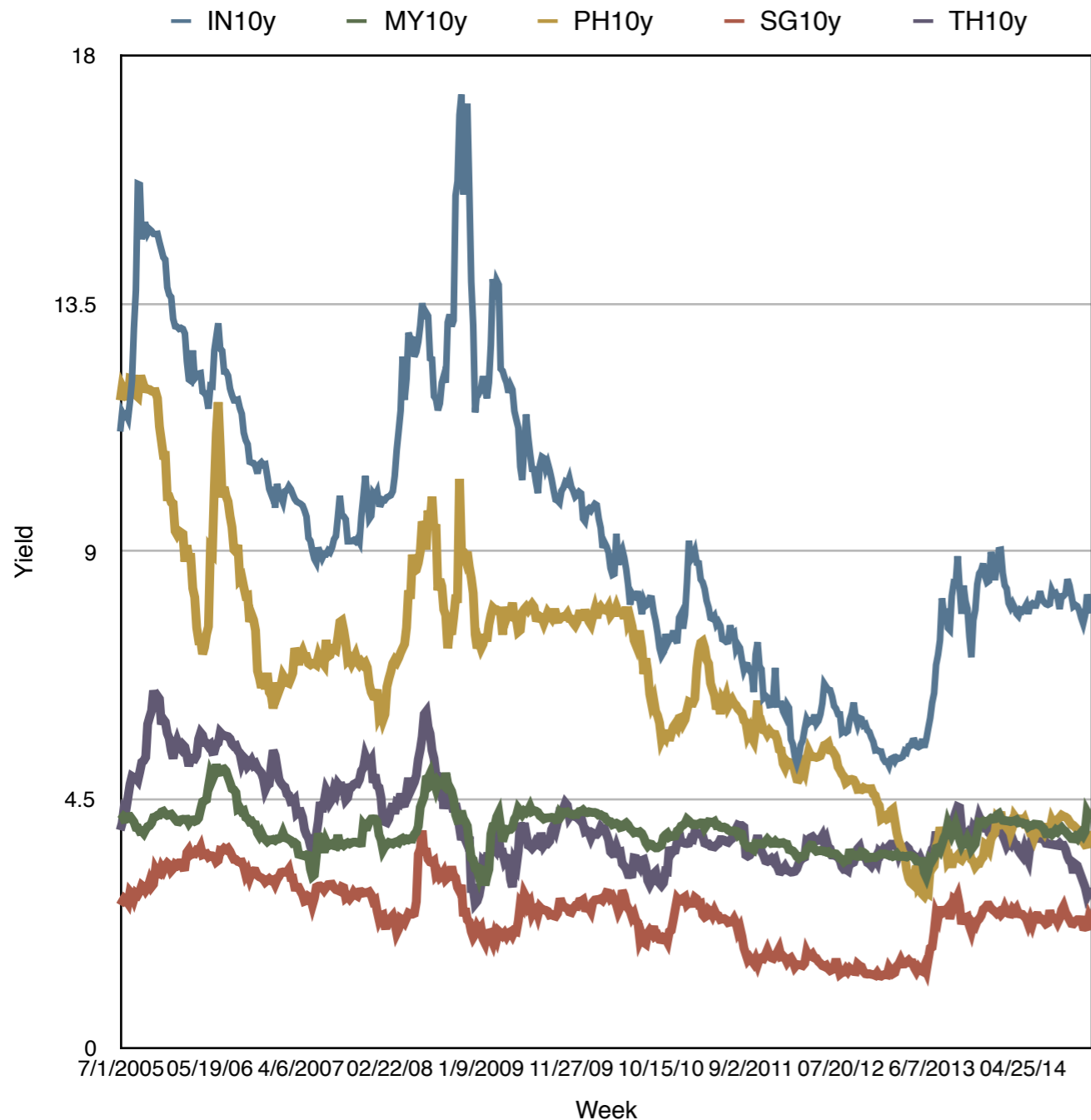
- The dataset includes weekly yields for ASEAN-5 local currency government benchmark for 2 year and 10 year bonds obtained from Bloomberg
- Sample is for 496 weeks that begins in the week ending 1 July 2005 until 26 December 2014
- Dickey Fuller (ADF) test was applied to test for non-stationarity of the data and unit root can be observed for all 10 benchmark bond series

# At the outset, ASEAN-5 bonds seem to be significantly correlated with each other - 2 year



2 year	Indonesia	Malaysia	Philippines	Singapore	Thailand
Indonesia	1	0.39*	0.84*	0.62*	0.41*
Malaysia		1	0.41*	0.65*	0.78*
Philippines			1	0.76*	0.55*
Singapore				1	0.78*

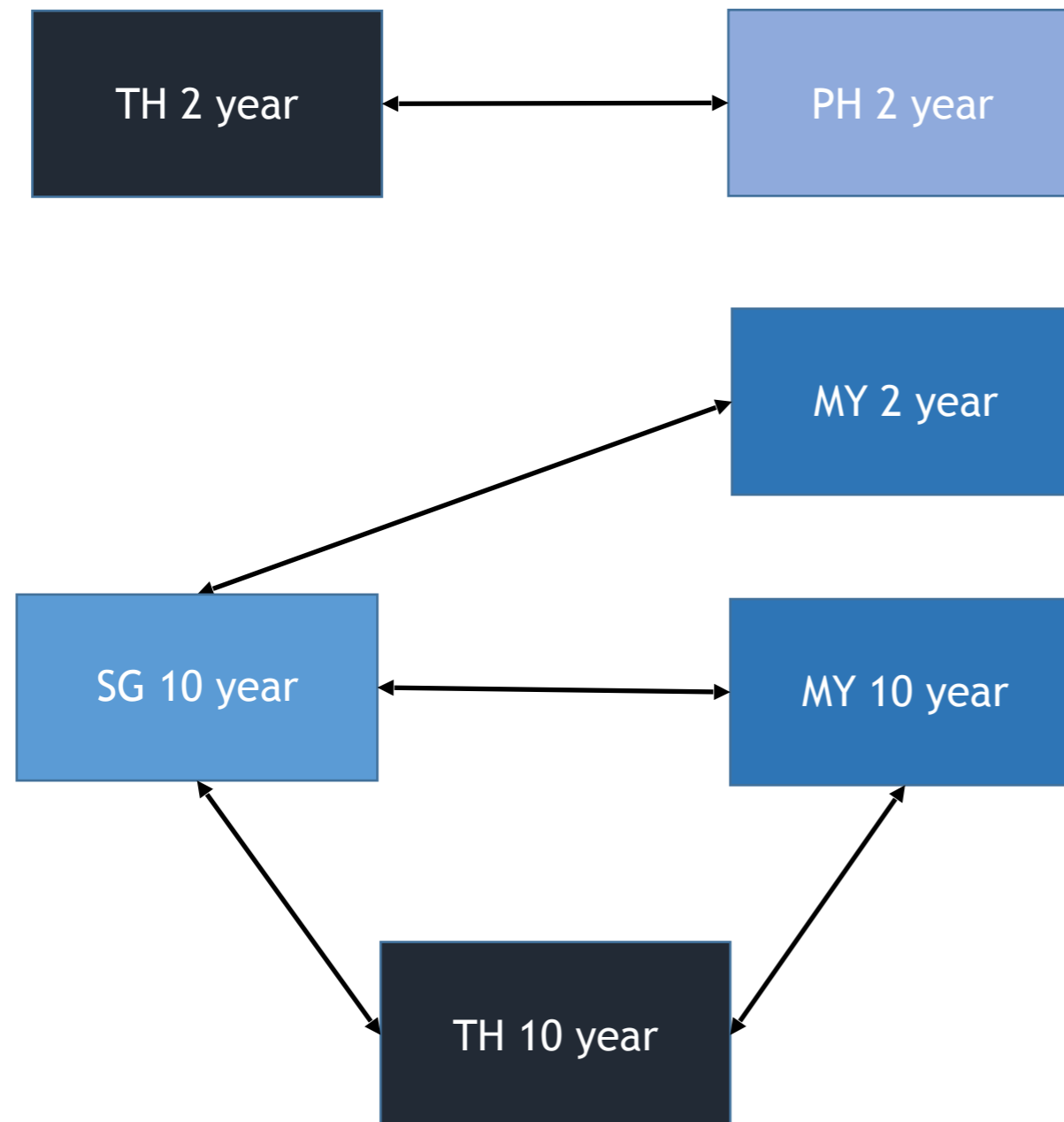
# At the outset, ASEAN-5 bonds seem to be significantly correlated with each other - 10 year



10 year	Indonesia	Malaysia	Philippines	Singapore	Thailand
Indonesia	1	0.56*	0.81*	0.73*	0.65*
Malaysia		1	0.52*	0.70*	0.55*
Philippines			1	0.61*	0.62*
Singapore				1	0.78*

## 1. Big picture analysis

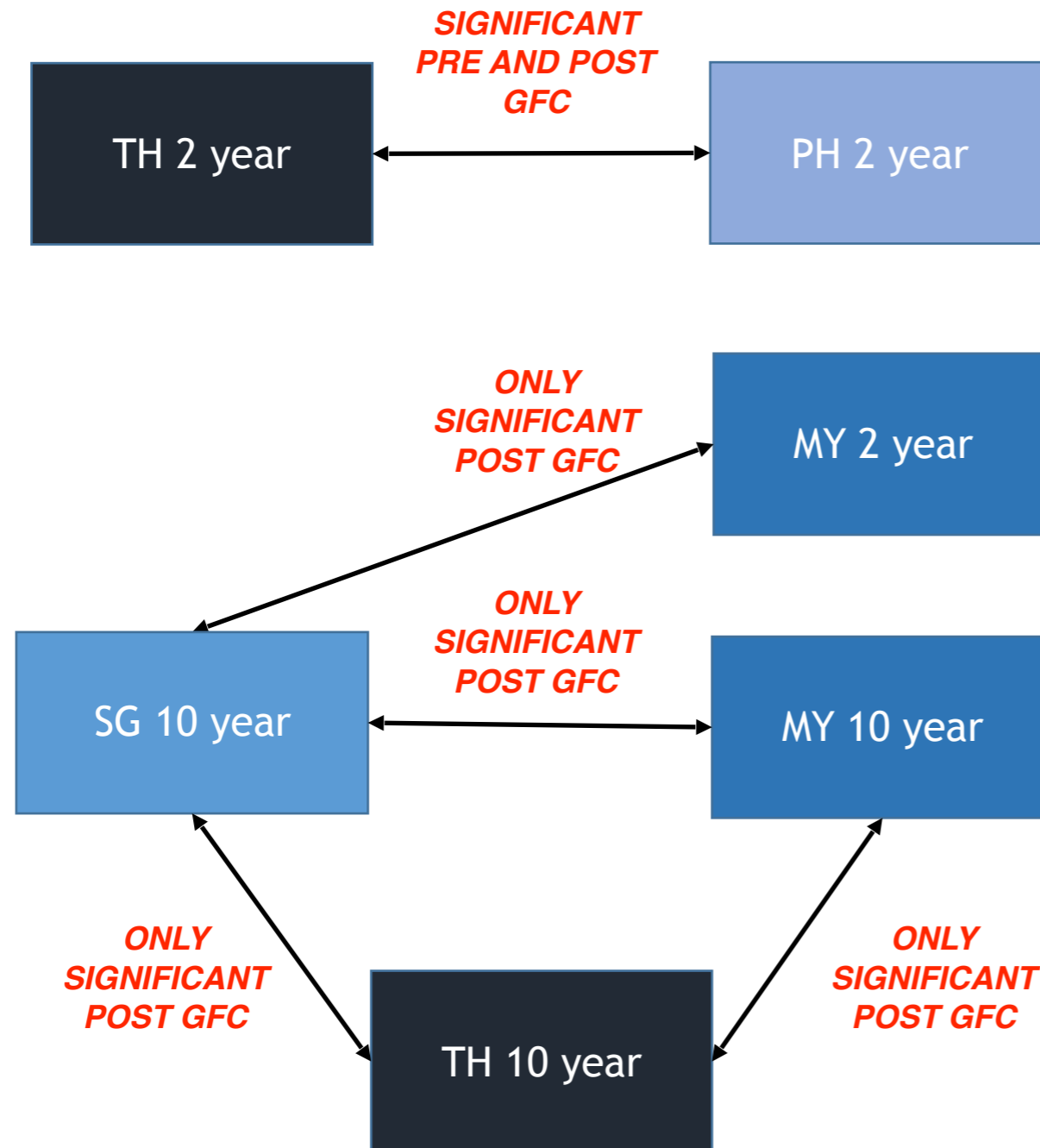
# However, simple correlation may overstate the extent and degree of integration



- Using Johansen (1991) trace method to find cointegration vectors
- Cointegration between TH and PH for 2 year bond
- Cointegration between MY and TH to SG for the 10 year bond
- Indicates MY and SG closely linked (2 and 10 year significant)

## 2. Pre vs post global financial crisis

# Most of these relationships seem to have taken significance only post-GFC

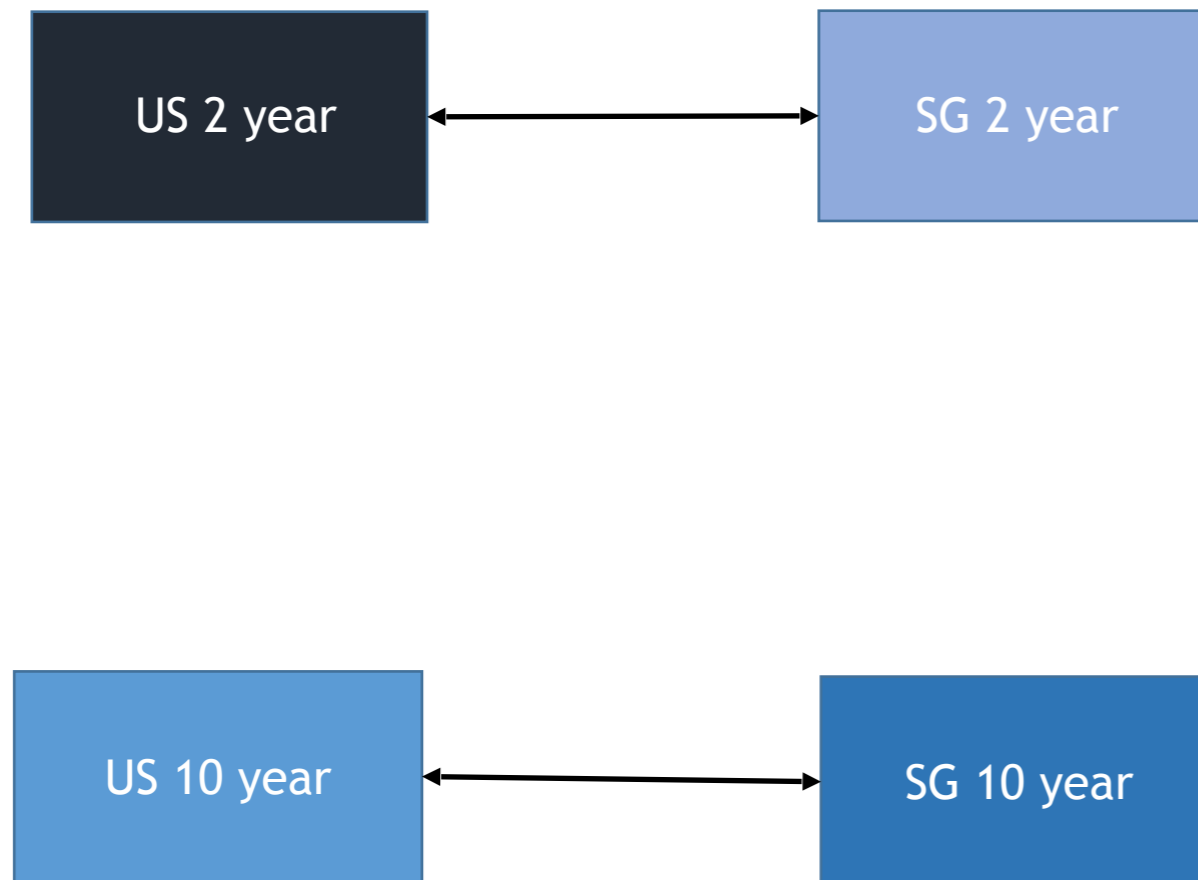


- Using Johansen (1991) trace method to find cointegration vectors
- Divide sample into pre and post GFC
- Trace statistics show significant increase in cointegration vectors post-GFC especially for 10 year
- Taking previous results, except for TH and PH, cointegration seem to be significant only post-GFC

*Future work: Examine other pairs to determine if there are any changes*

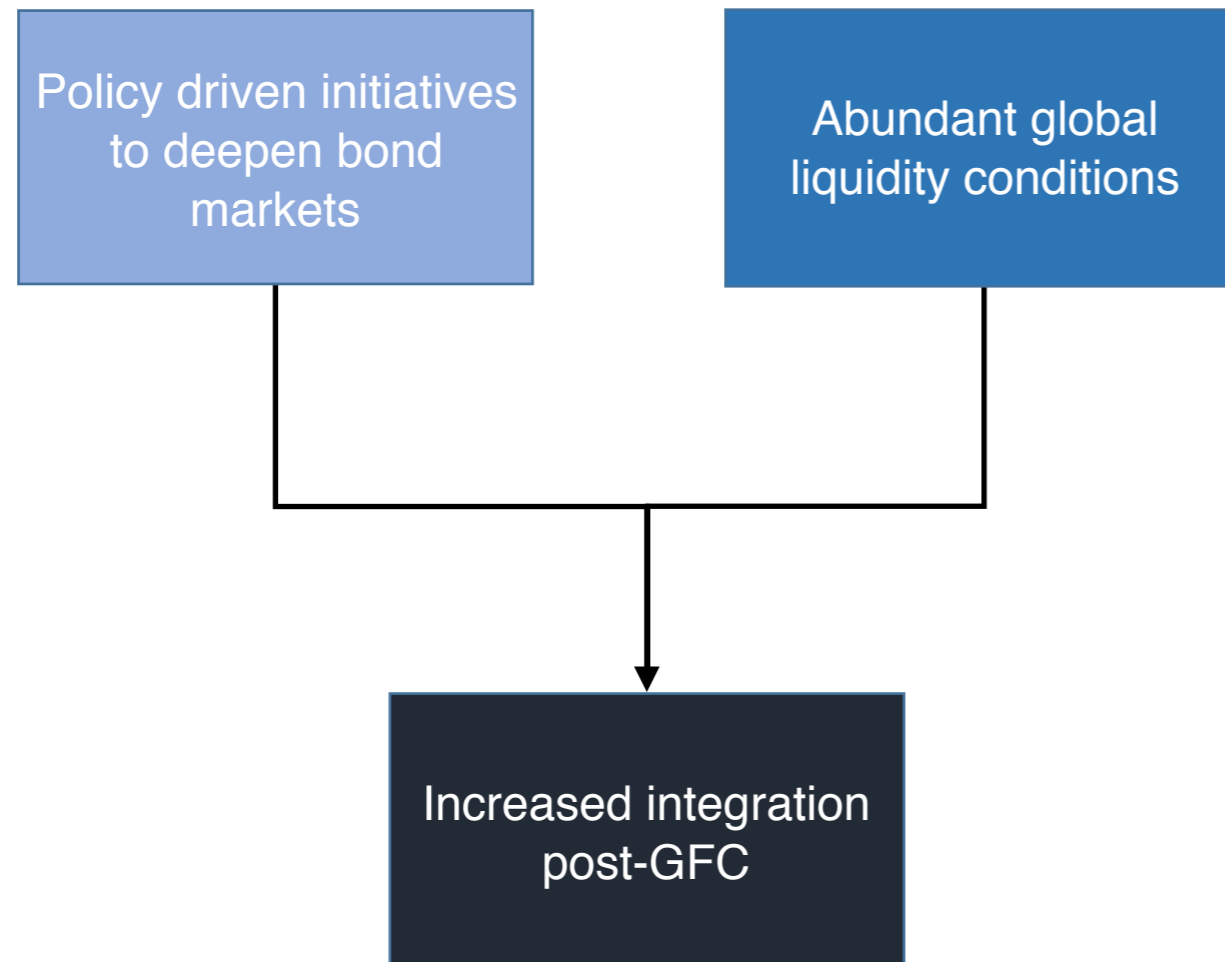
### 3. ASEAN-5 and United States

## Lack of relationship between ASEAN-5 and US bond markets



- US securities play a critical role, with significant spillovers to Asia and one of the main drivers of spreads (Bayoumi, T & Bui, T, 2012; Vivek, 2006)
- Overall, lack of evidence of cointegration between ASEAN-5 and US bonds
- Cointegration only significant between US and SG at both 2 and 10 year tenure

# Discussion: Some preliminary thoughts on the key findings



- Increased integration post-GFC can be potentially explained by two factors
- On lack of integration with US government bond markets
  - ◆ Findings by Csonto & Ivaschenko (2013) suggest that US Fed Funds Rate and VIX is a better measure to proxy the movement of yields in the US
- On Singapore's close linkage within ASEAN-5
  - ◆ Consistent with rising of role of Singapore as financial centre in intermediating flows in the region

# Way forward and policy implications for ASEAN-5 bond markets

- **Financial integration can be further enhanced.** Evidence of increased integration with further deepening possible and desirable
- Imperative for ASEAN-5 to actively continue to build capacity and the infrastructure to further develop its bond markets
- An efficient and integrated capital market remains a crucial bedrock for the development of an ASEAN Economic Community, financial stability and inclusive growth in ASEAN-5
- There are challenges ahead, most notably the new landscape of financial services arising from global regulatory reforms. Such structural changes may present challenges for liquidity in bond markets and other unintended consequences (IMF, 2015)
- A concerted, prudent and flexible approach is needed to further deepen financial integration



Thank you!