



STRENGTHENING REGIONAL SURVEILLANCE AND FINANCIAL SAFETY NET MECHANISMS IN ASIA

WORKSHOP HIGHLIGHTS

APRIL 2019

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ISBN 978-92-9261-530-7 (print), 978-92-9261-531-4 (electronic)
Publication Stock No. TCS190043-2
DOI: <http://dx.doi.org/10.22617/TCS190043-2>

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Cover design by Mike Cortes.

The group photo on page vi is by Tomas Eric C. Sales. All other photos are by Erickson Mercado.

The workshop was held in Manila, Philippines, on 14 August 2018.

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Conference Program

Strengthening Regional Surveillance and Financial Safety Net Mechanisms in Asia

Auditorium D, ADB Headquarters, Manila, Philippines

14 August 2018

8:30 a.m.–9 a.m.	Registration
9 a.m.– 9:05 a.m.	Welcome Remarks Bambang Susantono, Vice-President for Knowledge Management and Sustainable Development, Asian Development Bank (ADB)
9:05 a.m.– 9:35 a.m.	Keynote Address <i>The Challenge for Regional Surveillance and Financial Safety Nets in Asia</i> Diwa Guinigundo, Deputy Governor, Bangko Sentral ng Pilipinas (BSP)
9:35 a.m.– 10 a.m.	Open discussion
10 a.m.–10:30 a.m.	Group photo and coffee break
10:30 a.m.– 12 noon	Panel Discussion 1: <i>Strengthening Crisis-Response Mechanisms in Asia</i> Moderator: Cathy Yang, Anchor, ABS-CBN News Channel Panelists: <ul style="list-style-type: none">• Chalongphob Sussangkarn, Distinguished Fellow, Thailand Development Research Institute• Hoe Ee Khor, Chief Economist, ASEAN+3 Macroeconomic Research Office (AMRO)• Yasuyuki Sawada, Chief Economist, ADB• Reiner Martin, Deputy Head, European Central Bank• Felipe Medalla, Monetary Board Member, BSP Open discussion
12 noon–1 p.m.	Lunch

1 p.m.–2:30 p.m.	<p>Technical Session 1: <i>Regional Financing Arrangements in Asia and Europe</i></p> <p>Moderator: Hoe Ee Khor, Chief Economist, AMRO</p> <p>Presenters: Paper 1: <i>Experiences and Challenges in Providing Regional Financing Arrangements: ADB Experience</i>, Cyn-Young Park, Director, ADB Paper 2: <i>Regional Financing Arrangements in Europe</i>, Gong Cheng, Senior Economist, European Stability Mechanism</p> <p>Discussants: Paper 1: Josef T. Yap, Professor, University of the Philippines Paper 2: Junkyu Lee, Principal Economist, ADB</p> <p>Open discussion</p>
2:30 p.m.– 2:45 p.m.	Coffee break
2:45 p.m.– 3:45 p.m.	<p>Panel Discussion 2: <i>Framework and Country Experience Dealing with Crisis and/or Vulnerabilities for Small Economies</i></p> <p>Moderator: Cyn-Young Park, Director, ADB</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Lekzang Dorji, Director General, Department of Macroeconomic Affairs, Bhutan • Khou Vouthy, Deputy Director General, National Bank of Cambodia • Munkhbat Yondon, Director, Bank of Mongolia • Li Lian Ong, Adviser, AMRO <p>Open discussion</p>
3:45 p.m.–5:30 p.m.	<p>Technical Session 2: <i>New Instruments for Macro-financial Surveillance in Asia</i></p> <p>Moderator: James Villafuerte, Economist, ADB</p> <p>Presenters: Paper 1: <i>Dynamic Factor Model for Systemic Events</i>, Stefan Trueck, Professor, Macquarie University Paper 2: <i>Recipe for Systemic Events: Application of CART</i>, Manuel Albis, Professor, University of the Philippines Paper 3: <i>The Sector-wide Macro-financial Stress Testing Model in the FSS</i>, Jae Hyun Jo and Kyu-Man Heo, Senior Managers, Financial Supervisory Service</p> <p>Discussants: Paper 1: Arief Ramayandi, Senior Economist, ADB Paper 2: Peter Rosenkranz, Economist, ADB Paper 3: Zeno Abenoja, Senior Director, BSP</p> <p>Open discussion</p>
5:30 p.m.	Closing: Yasuyuki Sawada, Chief Economist, ADB



Workshop participants gathered together after the opening session.

Highlights

Evidence of emerging risks for the Asian economies is growing. Global financial markets have experienced greater volatility that has coincided with escalating global trade tensions and the normalization of monetary policy in the United States. Regionally and globally, financial market interconnectedness has also expanded, raising concerns of a new bout of contagion. The specters of the 1997 Asian Financial Crisis and the global financial crisis of a decade ago have reappeared because of these pockets of vulnerability. Once again, issues of crisis prevention and crisis management are dominating the economic policy agenda.

Crisis prevention measures emanate at domestic and regional levels. Developing economies in Asia learned from previous crises to deal with volatile capital flows by reducing exposure to short-term foreign exchange liabilities. They adopted more flexible exchange rate regimes to reduce pressure on foreign reserves and ease external balance adjustments. They self-insured by accumulating substantial foreign reserves to deal with unforeseen capital flow reversals, and added macroprudential policies aiming to contain buildups of systemic risk and capital management flow measures such as capital controls to their toolkits. Meanwhile, regional financial cooperation has deepened, especially among the Association of Southeast Asian Nations + 3 (ASEAN+3) economies.

Despite advances in regional cooperation, concerns linger that crisis management measures still need to be developed. In particular, progress in making the Chiang Mai Initiative Multilateralization (CMIM) mechanism more effective has been described as inadequate, especially when compared to the more rigorous structure of the European Stability Mechanism. There is also concern that the entire Global Financial Safety Net may be too small because its size has not kept up with the 25-fold increase in global capital flows between 1980 and 2007.

The Asian Development Bank (ADB) has filled some gaps in crisis prevention and management. ADB supported the establishment of the CMIM and its surveillance unit, the ASEAN+3 Macroeconomic Research Office (AMRO), coordinated the Asian Bond Market Initiative, and contributed to the ASEAN Banking Integration Framework. Meanwhile, ADB has established the special policy-based lending facility and the Countercyclical Support Facility to tackle unique crisis situations. Conventional policy-based lendings have also contributed to enhancing economic and financial resilience in the region.

Quantitative modeling adds rigor to surveying of the health of Asian economies in these troubled times. Three options were presented in this workshop: a dynamic factor model for systemic events, a model based on an application of the classification and regression trees (CART); and a stress test, known as STARS, for assessing the resilience and stability of the financial system. The workshop also highlighted the bilateral surveillance conducted regularly by the AMRO.

Several options may be considered to strengthen the capacity of CMIM: (i) operability can be improved and clearly communicated to members; (ii) current callable capital can be complemented by paid-in capital to improve market sentiment over members' commitments to the initiative; (iii) paid-in capital can be further leveraged by issuing bonds to increase CMIM capacity and help it to better respond to financial crises affecting the region's larger economies; (iv) increased capacity can also offer scope for widening the CMIM's mandate—in particular, CMIM resources utilized to recapitalize the region's systemically important banks; and (v) raising the initiative's efficacy by increasing the International Monetary Fund-delinked portion or the proportion of commitments that are not matched by commitments from the International Monetary Fund.

Opening Session



ADB's Bambang Susantono delivered the welcome remarks at the workshop.

Asia continues to lead the recovery in global trade despite continued uncertainty over trade policies.

Welcome Remarks

Bambang Susantono

Vice-President for Knowledge Management and Sustainable Development
Asian Development Bank

I. Introduction

Distinguished speakers and panelists, moderators and guests, ladies and gentlemen:
A very good morning to everyone.

On behalf of the Asian Development Bank (ADB), let me welcome you to ADB headquarters for this conference on “*Strengthening Regional Surveillance and Financial Safety Net Mechanisms in Asia*”.

First, I will speak briefly on the economic outlook for the region and risks pertinent to our discussions.

II. Economic Outlook and Risks

Globally—and for most economies in the region—we continue to see relatively robust economic growth. Major industrialized countries can expect another 2.3% growth this year; while in developing Asia, rising domestic demand and strong exports should drive growth at about 6%.

Asia continues to lead the recovery in global trade despite continued uncertainty over trade policies. Higher tariffs—the result of unresolved trade disputes—could certainly affect the growth forecasts and remains a significant risk.

So far, the first set of tariffs imposed this year have very little net effects on growth, investment, and the external current account balance. Based on recent ADB estimates, trade as a proportion of global gross domestic product (GDP) could fall by 0.1 percentage point. The compounded effects on investment in the next period could also translate to a net fall of global gross fixed capital formation equivalent to 0.01 percentage points of GDP. Meanwhile, the impact on the external current account balance could be overwhelmed by other macroeconomic developments—with the People’s Republic of China’s overall surplus barely changing, while the current account surplus of countries in the Association of Southeast Asian Nations (ASEAN) improving mostly because of the global reallocation of production.

However, ratcheting of protectionism measure remains a concern in the region as the continued disruption to global production chains would lead to investors postponing business plans fearing future tariffs.

Elevated levels of corporate and household debt in the region are also a cause of concern as they could prove to be unsustainable should global interest rates rise sharply. For example, corporate debt in the People's Republic of China rose from 120% of GDP in 2009 to 160% in 2017. And the ratio has also increased significantly in Thailand; the Republic of Korea; Hong Kong, China; and Singapore.

Taken together, rising tariffs and elevated debt levels could soon fuel economic and financial volatilities.

III. Crisis Preparedness and Lessons

As global financial markets and institutions are far more interconnected today, we must also ask ourselves the urgent question: “Are we prepared to handle another global economic or financial crisis?”

The Asian financial crisis of 1997 and the 2008/09 global financial crisis taught us five important lessons on how to safeguard financial stability and boost economic resilience:

- i. Maintain sound macroeconomic fundamentals;
- ii. Maintain sufficient international reserves and exchange rate flexibility—with some temporary measures to manage capital flows if needed;
- iii. Diversify development finance—particularly building long-term and market-based funding alternatives;
- iv. Deepen financial sector and market reforms—along with improved macro-prudential policies and regulations; and
- v. as the conference title suggests—strengthen regional financial cooperation in Asia to ensure that surveillance and financial safety nets are functional and sufficient to deal with volatile capital flows during crises.

IV. Role of Financial Cooperation

Regional financial cooperation is more important than ever. The region's ASEAN+3 Economic Review and Policy Dialogue (ERPD), the Chiang Mai Initiative Multilateralization (CMIM) and its supportive ASEAN+3 Macroeconomic Research Office (AMRO) are all critical components. Strengthening AMRO and the CMIM will help them better conduct surveillance during stable times and provide emergency liquidity in times of need. It is important these initiatives nurture market confidence and contribute to macroeconomic and financial stability.

As we confront growing global and regional uncertainties, what else can we do to strengthen crisis-response mechanisms in the region? This is a question I hope you will answer during today's workshop.

V. Closing

We are grateful to have so many distinguished speakers today to help provide answers. In particular, we welcome Bangko Sentral ng Pilipinas Deputy Governor Diwa Guinigundo—who will give a keynote address on how to navigate this uncharted economic-financial landscape, one characterized by shifting economic headwinds and policy uncertainties.

I wish you all productive discussions.

Thank you.

Strengthening AMRO and the CMIM will help them better conduct surveillance during stable times and provide emergency liquidity in times of need.

Keynote Address

Diwa C. Guinigundo
Deputy Governor
Bangko Sentral ng Pilipinas

This Time is Different: Strengthening Regional Surveillance and Financial Safety Nets In a Time of Uncertainty

Introduction

Mr. Bambang Susantono, Ms. Cyn-Young Park, distinguished speakers from the academe and various institutions, ladies and gentlemen, good morning.

It is with great pleasure that I take part in this workshop on Strengthening Regional Surveillance and Financial Safety Net Mechanisms for Asia. I would like to congratulate ADB for organizing this critical and relevant event.

I say critical because we continue to operate in an environment characterized by general uncertainty. This operating environment has the hallmarks of Ken Rogoff and Carmen Reinhart's "This Time is Different," their popular book of the same title.¹

When national buffers prove unequal to the shocks, economies in the Asian region can rely only on stronger regional surveillance to minimize surprises and enhanced financial safety nets to address any financial tightness and needs.

This time is different

After a prolonged period of sub-par growth, the global economy is finally emerging from the shadows of the global financial crisis. According to IMF, global growth is projected to reach 3.9% in 2018 and 2019, only a few points below the pre-crisis growth average of 4.3% (Table 1).

Table 1: World Economic Outlook Projections (in %, July 2018)

	IMF WEO		
	Estimate Year-on-Year Projections		
	2017	2018	2019
World Output	3.7	3.9	3.9
Advanced Economies	2.4	2.4	2.2
United States	2.3	2.9	2.7
Euro Area	2.4	2.2	1.9
Japan	1.7	1.0	0.9
Emerging and Developing Economies	4.7	4.9	5.1
China, People's Republic of	6.9	6.6	6.4
India	6.7	7.3	7.5
ASEAN-5*	5.3	5.3	5.3

* ASEAN-5 includes Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam.
Source: IMF World Economic Outlook (WEO) July 2018

¹ Reinhart, C. and K. Rogoff. 2009. *This Time is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press.



As a result, many policy makers are of the view that the so-called normalization of monetary policy is slowly underway. We have seen the United States Federal Reserve hiked policy rates for the second time this year, with the median dot-plot suggesting two further rate hikes for the rest of 2018. Elsewhere, the European Central Bank (ECB) has likewise communicated to end its asset purchases in December 2018.²

Despite these global green shoots however, an important question for policy makers remain unanswered—how would this perceived “normalization” look like?

In this regard, a significant cloud of uncertainty still remains. For instance, by normalization do we mean we go back to the pre-crisis conditions of the Great Moderation?

After almost a decade after the global financial crisis, it is safe to assume that the global economy has certainly moved on. Greater globalization and rapid technological innovation have drastically changed the global economic landscape, which in turn rendered economic and financial systems more complex.

It can therefore be expected, that the normalization that we are about to confront is different from what was experienced in the past. Navigating this uncertain environment, what I refer to as the “unknown normal,” could pose significant challenges for policy makers.

It is therefore imperative we improve our ability to make sense of the evolving economic and financial conditions by enhancing our conduct of regional surveillance and firming up the region’s safety nets.

Thus, I wish to discuss today some challenges for financial safety nets and regional surveillance in Asia, as well as to discuss how we could transform issues and obstacles into opportunities. It has been said that “luck is what happens when preparation meets opportunity.”³ I think a good objective for all of us in today’s panel discussions and technical sessions is to make sure that luck favors us as a region.

What we know about the unknown

In light of this, I wish to offer three observations about the current operating environment that could guide us in strengthening our conduct of regional surveillance and safety nets as we navigate this “unknown normal”.

First, global financial markets have been characterized by greater volatility of late. Before 1997, the volatility of advanced economies’ stock markets such as those in France, Germany and the United States hovered at 15% annually, in both historical and implied volatility. Since then, the average value of those volatilities doubled.⁴ From 2004 to early 2007, financial markets were relatively calm. However, in the advent of the 2008 financial crisis, stock volatility spiked and returned to normal levels fairly quickly after the crisis. While volatility has eased recently for Asian economies, it remains a constant concern for policy makers (Figure 1).

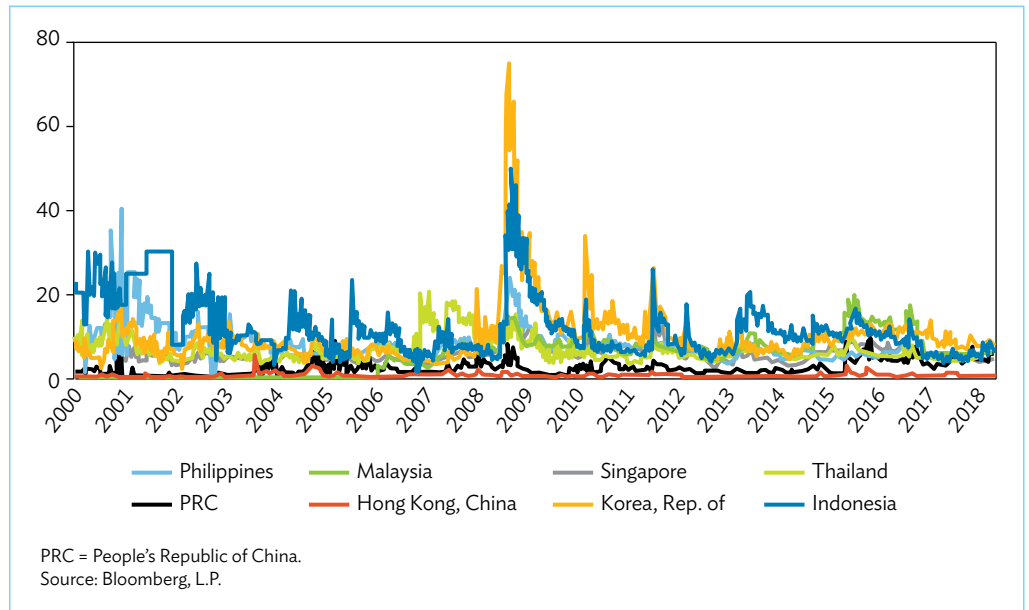
It is imperative we improve our ability to make sense of the evolving economic and financial conditions by enhancing our conduct of regional surveillance and firming up the region’s safety nets.

² European Central Bank. 2018. June Policy Meeting. Press Release. Frankfurt.

³ A quote from Seneca (the 1st Century Roman Philosopher).

⁴ Tumpel-Gugerell, G. 2003. “The Volatility of Financial Markets.” Speech delivered during the Third Encuentro Financiero Internacional, 2 July 2003, Madrid.

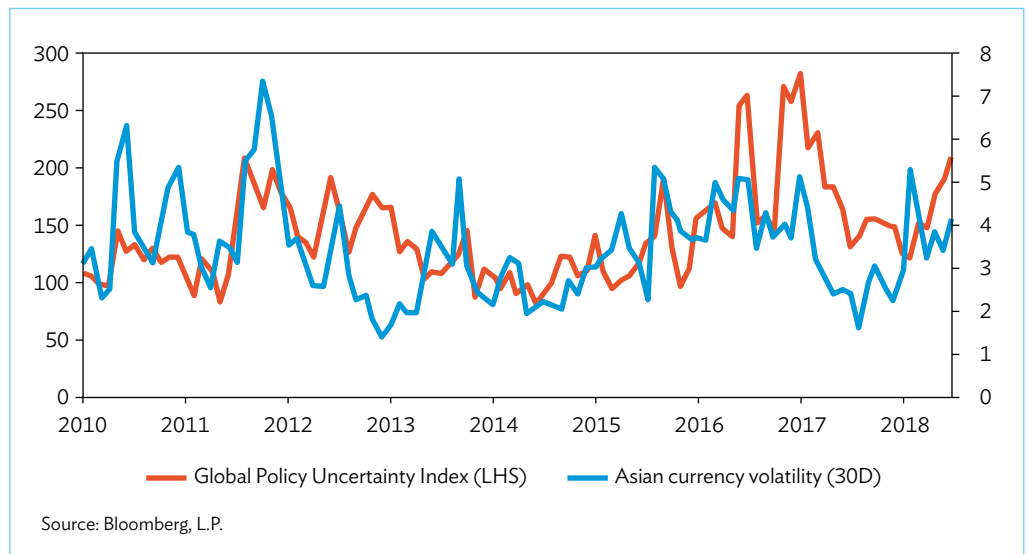
Figure 1: JP Morgan 1-Month Currency Options Volatility Index
(in %, August 2018)



Observed episodes of heightened but short-term volatilities appear to have coincided with a heightened degree of uncertainty in “policy-making,” particularly after 2016.

Second, observed episodes of heightened but short-term volatilities appear to have coincided with a heightened degree of uncertainty in “policy-making,” particularly after 2016 (Figure 2). Unlike earlier periods (like 2011–2015) when volatilities were contemporaneous with other financial market issues such as the expectation of policy rate hikes by the United States Federal Reserve and the stock market sell-off in the PRC, policy uncertainty as measured by the Economic Policy Uncertainty (EPU) index appears to have contributed to recent market volatility, where uncertainty has not necessarily stemmed from the usual range of demand and supply factors in the market.⁵ Volatility may have partly been derived from the unexpected shifts and uncertain direction in policies. If this is true, then policy makers have an additional dimension to consider in policy formulation.

Figure 2: Volatility Index versus Global Policy Uncertainty
(31 July 2018)



⁵ An index based, among others, on newspaper articles regarding policy uncertainty. See Baker S., N. Bloom, and S. Davis. 2015. Measuring Economic Policy Uncertainty. London: Centre for Economic Performance.

Third is the observed prominence of financial market interconnectedness. Measures of interconnectedness, such as the spillover index shown in Figure 3, exhibit spikes that are contemporaneous with economic and financial shocks. In particular, the index has been sensitive to monetary policy actions and interventions in some advanced major economies, such as the Federal Reserve's actions in the United States.

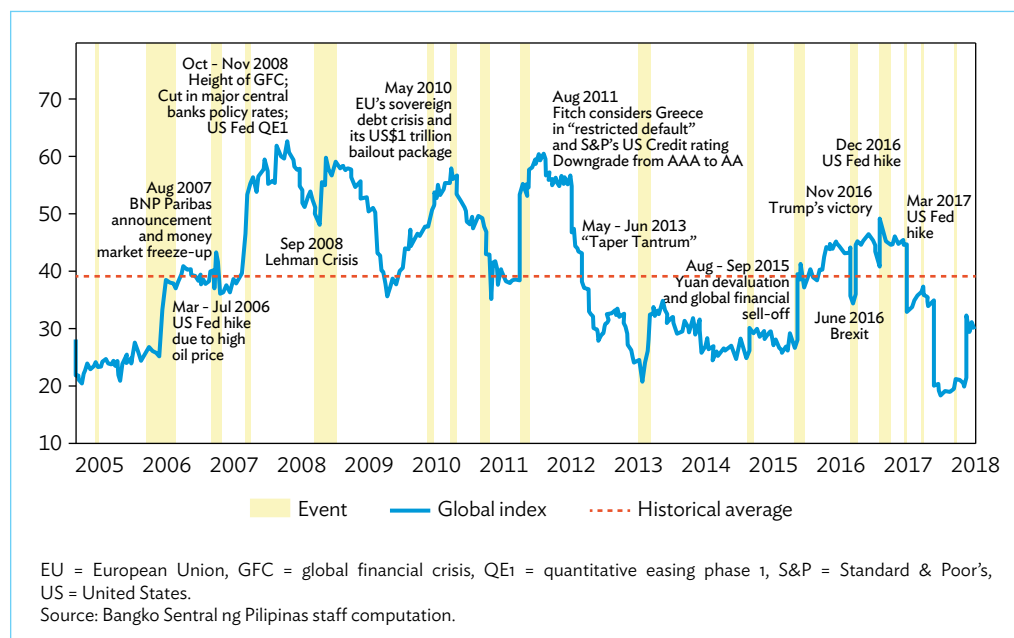
The rapid pace of globalization has not only led to an increase in interconnectedness, it has resulted in an evolving complexity of interdependencies. Consequently, the concept of systemic risks has also evolved, growing in intricacy over time.

To illustrate systemic risks' multidimensional aspect, during the 1997 Asian financial crisis, the talk of the town was "contagion," where interconnectedness made individual countries more exposed to externalities and spillovers from others.

Today, we are witnessing a different kind of contagion—not so much across countries but in the form of greater interlinkages between real economies and the financial markets.⁶ The global financial crisis is a living example that adverse shocks in the financial system could amplify and propagate output fluctuations in the real sector; what Bernanke, Gertler, and Gilchrist (1999) refer to as the "financial accelerator mechanism".⁷

The concept of systemic risk is certainly not new. Nevertheless, rapid financial integration and the consequent evolution of systemic risks bring the need to better understand the nature of these risks.

Figure 3: Global Equities Volatility Connectedness Index
200-Day Rolling Window (%)



Seeing both forests and trees

These three observations have broad implications for the conduct of regional surveillance. Amid greater uncertainty, complexity, and interconnectedness, there is a need to rethink

⁶ Krugman, P. 2008. "A Crisis of Faith." New York Times Magazine. 15 February.

⁷ Bernanke, B., M. Gertler, and S. Gilchrist. 1999. "The Financial Accelerator in a Quantitative Business Cycle Framework." Chapter 21 of the *Handbook of Macroeconomics*, Volume I. Elsevier Sciences.

Today, we are witnessing a different kind of contagion—not so much across countries but in the form of greater interlinkages between real economies and the financial markets.

our surveillance framework to make it more dynamic. Allow me to highlight some essential features of what I refer to as dynamic surveillance.

First is the need for independent surveillance that is not influenced by political considerations. Independent surveillance, assessments, and reporting procedures are critical in detecting early signs of risks, thereby allowing preventive measures to be taken. In this aspect, we have the AMRO as the regional surveillance unit.

Second, there is a need to enhance our framework for macro-financial surveillance that could identify, measure, and manage systemic risk with a view to effectively preventing the potential for crisis. Given that systemic risks are generally complex, it is imperative that we widen our range of tools covering different aspects of systemic risks. We should be able to see both the forests and the trees, so to speak.⁸

This involves employment of a suite of models that address aspects of systemic risks, which include: (i) Early warning systems that generate warning signs of systemic stress; (ii) Stress tests that measure the resilience of the domestic financial system to various shocks; and (iii) Stability indicators that potentially contain more information on domestic macro-financial conditions.

Third, we should also look at how technological advancement could enhance our surveillance tools. This includes exploring the potential of incorporating big data analysis. The availability of both structured and unstructured data has led to the production of lots of information sets, most of which tend to be new forms or types of data for possible incorporation in economic analysis (including those relating to central bank research on the macroeconomy and other sectors). If big data sets are transformed to relate to policy issues at the macro level, then big data can be viewed as potentially effective instruments or platforms to support macroeconomic and financial stability analyses used for evolving surveillance priorities.

In addition, we should also explore using new instruments for macro-financial surveillance, such as general equilibrium models (both stochastic and computable) and small-scale models that could simulate the effects of finance sector shocks on the real sector, and vice versa.

Enhancing financial safety nets

The macroeconomic models used for surveillance will always have a degree of uncertainty that cannot be eliminated. Therefore, it is important to enhance our existing safety nets for when a crisis occurs.

Safety nets in Asia take several forms. As a first line of defense, Asian economies have accumulated sufficient national holdings of foreign exchange reserves. However, sometimes national buffers are insufficient and external validation and resources are needed to help build credibility and restore confidence. In this regard, bilateral swap arrangements and regional safety nets could help guard against liquidity and financial market strains. However, bilateral agreements are vulnerable to political and diplomatic vicissitudes. It is a sad reality that competition sometimes undermines cooperation when existing deals or agreements are not as effective as they should be.

In terms of regional safety nets, we have come a long way with the establishment of the Chiang Mai Initiative Multilateralization Agreement (CMIM) in 2000. The CMIM has seen

⁸ Viñals, J. 2011. "Seeing Both the Forest and the Trees—Supervising Systemic Risk". IMF Financial Counsellor and Director, Monetary and Capital Markets Department, Opening Remarks at the Eleventh Annual International Seminar on Policy Challenges for the Financial Sector Washington DC, 2 June.

some notable developments and is now equipped with more financial resources after being doubled in size to \$240 billion.

Nonetheless, there is still scope for improvement. In particular, the CMIM has not yet been used in a real crisis and its procedural and administrative aspects, in particular those relating to the crisis-prevention function, still need to be developed fully.

CMIM members should ensure that the mechanism is fully operational, including closing the technical and coordination gaps revealed in recent “test runs” undertaken with the IMF. While the IMF will be needed in most significant crisis events for the foreseeable future, the region needs well-functioning arrangements, including as a hedge against IMF resources contracting over the medium term. There is also the need to make it more relevant as a quick disbursing facility, especially in this time of growing uncertainty.

Making sure that this time is really different

Indeed, while the region has made great progress in the conduct of macro-financial surveillance and the establishment of safety net mechanisms, there is still room for improvement.

I am confident that this workshop would serve as an important platform for a fruitful exchange of ideas that will allow us to strengthen our regional surveillance and crisis-response mechanisms. After all, partnerships and collaborations such as these are our most potent tools to ensuring economic stability in the region.

At the end of the day, even if these times are different, we can be assured that Asia can also be different—a region that can transform challenges into opportunities and weather headwinds from any uncertainties.

Thank you very much and I look forward to a very productive session!

Panel Discussion 1

Strengthening Crisis-Response Mechanisms in Asia



ABS-CBN's Cathy Yang moderated the Panel Discussion 1 session.

Moderator: **Cathy Yang**, Anchor, ABS-CBN News Channel

Panelists:

- **Chalongphob Sussangkarn**, Distinguished Fellow, Thailand Development Research Institute
- **Hoe Ee Khor**, Chief Economist, ASEAN+3 Macroeconomic Research Office (AMRO)
- **Yasuyuki Sawada**, Chief Economist, ADB
- **Reiner Martin**, Deputy Head, European Central Bank
- **Felipe M. Medalla**, Monetary Board Member, BSP

Ms. Cathy Yang set the tone for the panel by describing emerging risks that may affect the region: escalating trade tensions, rising interest rates, depreciation of currencies, and reversals of capital flows. Any or all of these factors can trigger a wider financial or economic crisis and a key issue is whether the region can withstand the consequences. Another important issue is the role of regional institutions like ADB, AMRO, IMF, and even the European Central Bank, in both crisis prevention and crisis management.

Mr. Chalongsob Sussangkarn lamented the lack of progress in the Chiang Mai Initiative Multilateralization (CMIM) facility, which is intended to be a crisis-response mechanism. The Chiang Mai Initiative was launched in 2000 in the aftermath of the Asian financial crisis and it was expanded to the CMIM in 2012. The unlinked portion to IMF conditionalities remains small—30% of the facility—and therefore CMIM won't be effective in stemming abrupt capital outflows from a medium-sized economy like Thailand. To gain access to a larger pool of funds, countries in crisis have to bear the stigma of IMF conditionalities. ASEAN+3⁹ countries have to decide on the degree of independence that CMIM will have from the IMF.

Meanwhile, significant progress in crisis prevention has been made. Developing economies have learned to deal with volatile capital flows by reducing their exposure to short-term foreign exchange liabilities; they have adopted a more flexible exchange rate regime to reduce pressure on foreign reserves and facilitate external balance adjustments; they have self-insured by accumulating substantial foreign reserves to deal with unforeseen capital flow reversals; and they have implemented macroprudential policies and more conservative finance sector policies. However, it is still very challenging to deal with large and volatile capital flows. Large inflows can lead to rapid appreciation of the exchange rate, leading to a loss of competitiveness. Exchange rate intervention (buying up the inflows) can ease the appreciation and also increase reserves to insure against capital flow reversal. However, sterilization of exchange rate intervention can have large costs, with fiscal implications. Finally, capital controls—which are now known as capital flow management measures—should be a part of the policy maker's toolkit, but they have to be carefully designed.

At the regional level, the creation of AMRO has strengthened the surveillance architecture of the region. More frank discussions about the state of the region and individual economies have led to more prudent policies in general. However, crises usually occur from different causes than in the past so they are extremely difficult to foresee.

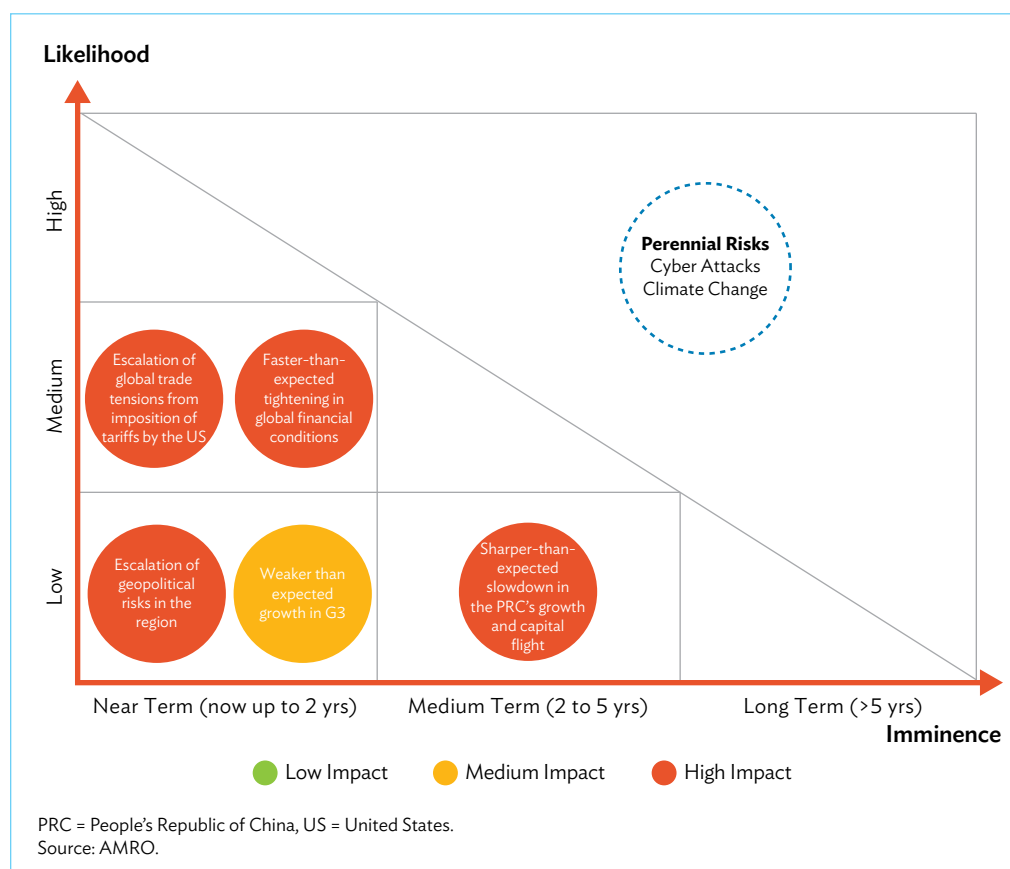
⁹ +3 countries refer to the People's Republic of China, the Republic of Korea, and Japan.

At the regional level, the creation of AMRO has strengthened the surveillance architecture of the region.

To augment their foreign exchange reserves, economies can access other sources, whether from bilateral swap arrangements, regional mechanisms (e.g., CMIM) or global safety nets (IMF). This may be crucial in preventing a situation of temporary shortage of foreign exchange from becoming a full blown calamity that will require crisis resolution measures such as those delivered through an IMF-supervised program. Whether these three levels of safety nets—bilateral, regional and global— should or should not work together, and how they can, is still an open question. More clarity is needed, and the sooner the better, otherwise existing mechanisms will not be able to respond effectively to the next financial or economic crisis.

Mr. Hoe Ee Khor expanded the list of emerging risks provided by Ms. Yang. Based on the AMRO's survey and analysis, ASEAN+3 faces two near-term risks that have a medium-level probability: rising trade protectionism and tightening global financial conditions (Figure 4). Other risks in the same time frame but with lower probability are weaker growth in the +3 countries and those that are geopolitical, such tensions in the Korean peninsula. From a medium-term standpoint, the major risk is a sharp downturn in the PRC economy that may trigger capital flight.

Figure 4: Global Risk Map



Intraregional trade in ASEAN+3 increased after the 2008 global financial crisis. The region has become more self-contained and resilient. This means that negative repercussions from possible disruptions to global trade will be milder. Nevertheless, slightly more than 50% of ASEAN+3 trade is with partners outside the region. Hence, while milder, the potential adverse impact of trade conflicts remains significant.

Meanwhile, compared with the same period in 2017, outflows in equity markets of selected ASEAN+3 economies have been large. The bond market has been more stable, excepting significant sell-offs in Indonesia and Malaysia. These capital flows affect the level of foreign

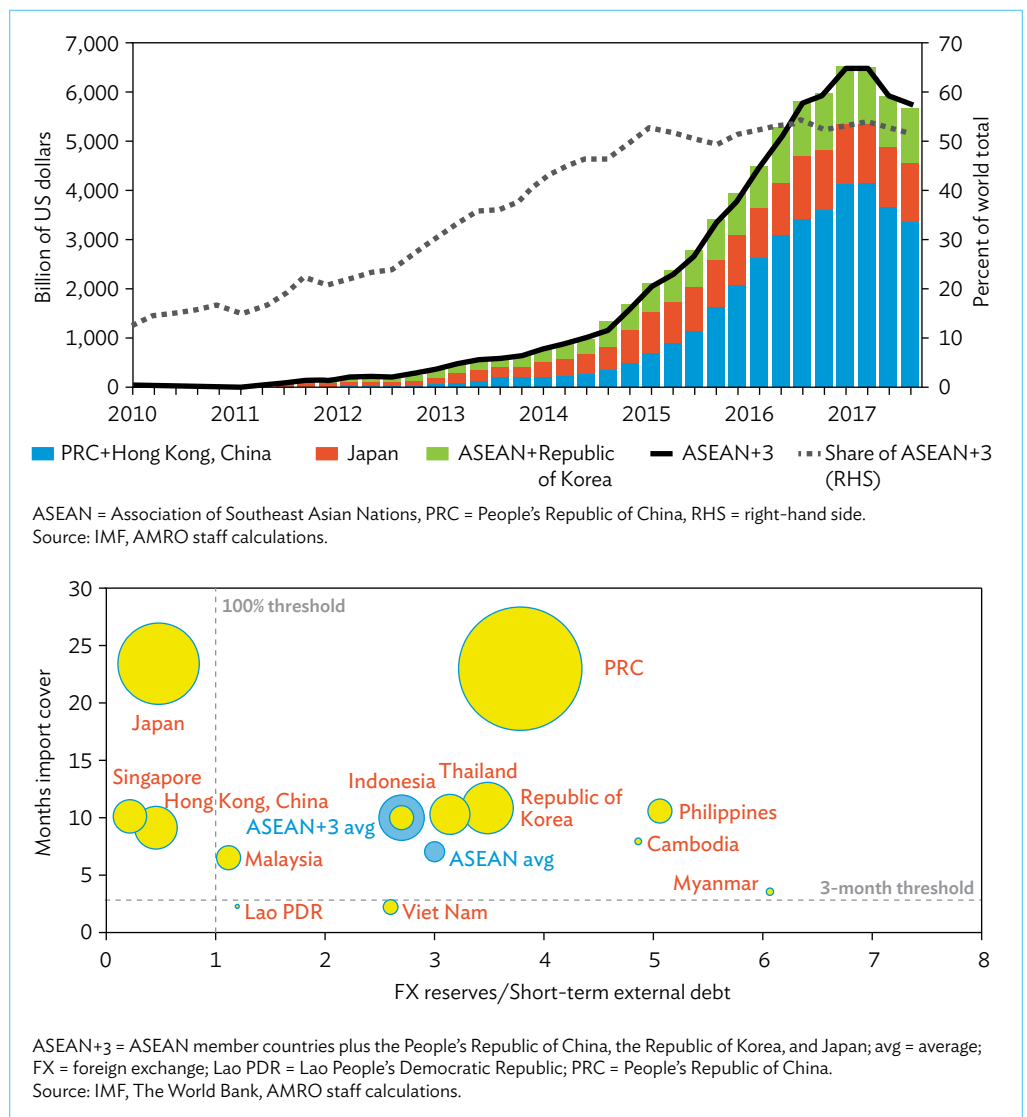
ASEAN+3 faces two near-term risks that have a medium-level probability: rising trade protectionism and tightening global financial conditions.



Thailand Development Research Institute's Chalongsob Sussangkarn discussed the three levels of safety nets—bilateral, regional, and global.

exchange reserves, which, as earlier mentioned, has been the main tool of self-insurance against capital flow reversals. Over the past decade, ASEAN+3 has accumulated close to \$270 billion in forex reserves (Figure 5). Since 2014, foreign reserves have fallen, but the level in most individual economies remains above two critical thresholds: import cover equivalent to three months' worth of imports and an amount equal to outstanding short-term debt (Figure 5 right hand side).

Figure 5: Foreign Exchange Reserves in ASEAN+3



Relatively large forex reserves are a key distinguishing feature of the two decades since the Asian financial crisis.



AMRO's Hoe Ee Khor discussed the risks faced by ASEAN+3 region.

Relatively large forex reserves are a key distinguishing feature of the two decades since the Asian financial crisis. Echoing Mr. Sussangkarn's assessment, Mr. Khor refers to stronger macroeconomic fundamentals and a more rigorous the policy framework immediately before and after the global financial crisis. This is one reason ASEAN+3 weathered the 2008 crisis successfully. However, self-insurance can be costly, particularly since most of the forex reserves are parked in US treasury bonds that carry low interest rates. Regional reserve pooling is an option (and the motive behind the CMIM). However, the facility can still be improved. Apart from the unlinked portion being relatively low, coordination among 14 central banks with regard to the 70% portion that is linked to IMF support may be difficult. Moreover, there has to be consistency between the conditionalities recommended by AMRO and those

of IMF if the benefits of the linked portion are to be realized. Finally, Mr. Khor expressed confidence that substantial progress has already been made and the CMIM will soon be fully operational.

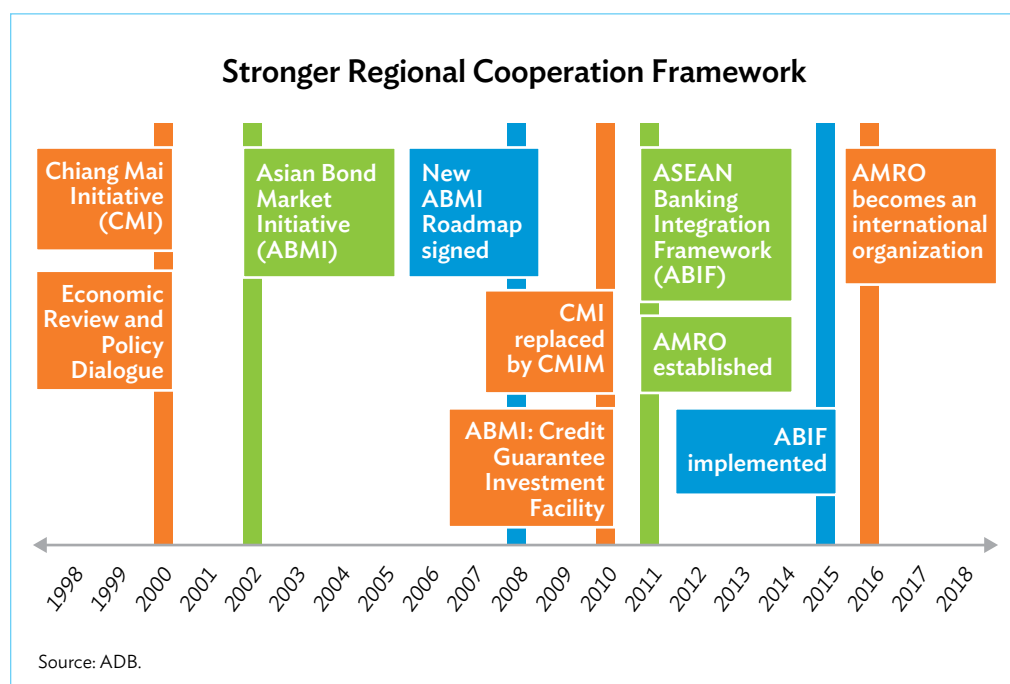
Professor Yasuyuki Sawada reiterated important points raised by Mr. Sussangkarn and Mr. Khor. In particular, crucial economic reforms after the Asian financial crisis have made the region's economies more resilient. Besides the domestic-oriented reforms, Asia has strengthened regional cooperation. The evolution of this process is summarized in Figure 6. Along with the CMIM, the Economic Review and Policy Dialogue (ERPD) was also established in 2000. ERPD is a venue to discuss regional economic and policy issues, among others. In 2002, the ASEAN+3 Asian Bond Markets Initiative (ABMI) was launched to develop liquid, well-functioning local currency and regional bond markets. After its establishment in 2010, CMIM established AMRO in 2011 as an independent regional surveillance mechanism unit. AMRO became a formal international organization in 2016.

Pockets of vulnerability, however, remain. Asian financial systems are still heavily bank dominated. This is the foremost structural weakness of these economies. Lack of long-term and stable domestic finance, therefore, remains a source of currency and maturity mismatch in the region. Another area of vulnerability is increasing corporate and household debt. This has been partly driven by the period of loose global liquidity in the aftermath of the global financial crisis. Rising credit has become a concern because of the slight increase in nonperforming loans, particularly in the PRC, India, Indonesia, and Mongolia.



ADB's Yasuyuki Sawada discussed crises lessons and future reforms toward strengthening Asian finance.

Figure 6: Chronology of Regional Cooperation in Asia



Asia's cross-border assets have risen sharply, from \$9.8 trillion in 2009 to \$16.4 trillion in 2017. Intra-regional flows increased at a faster pace. This pattern applies to all types of capital flows. Asian financial markets have become more integrated. The increase in Asia's cross-border assets has also resulted in enhanced financial interconnectedness with the rest of the global economy. This is empirically verified by investigating the co-movement of equity returns across different markets. In Figure 7, a line indicates existence of a co-movement or financial market link and the thickness denotes these financial links' strengths.

Despite the emerging risks associated with the pockets of vulnerability, a financial stress index calculated by ADB is on a downward trend.

Figure 7: Financial Market Interconnectedness

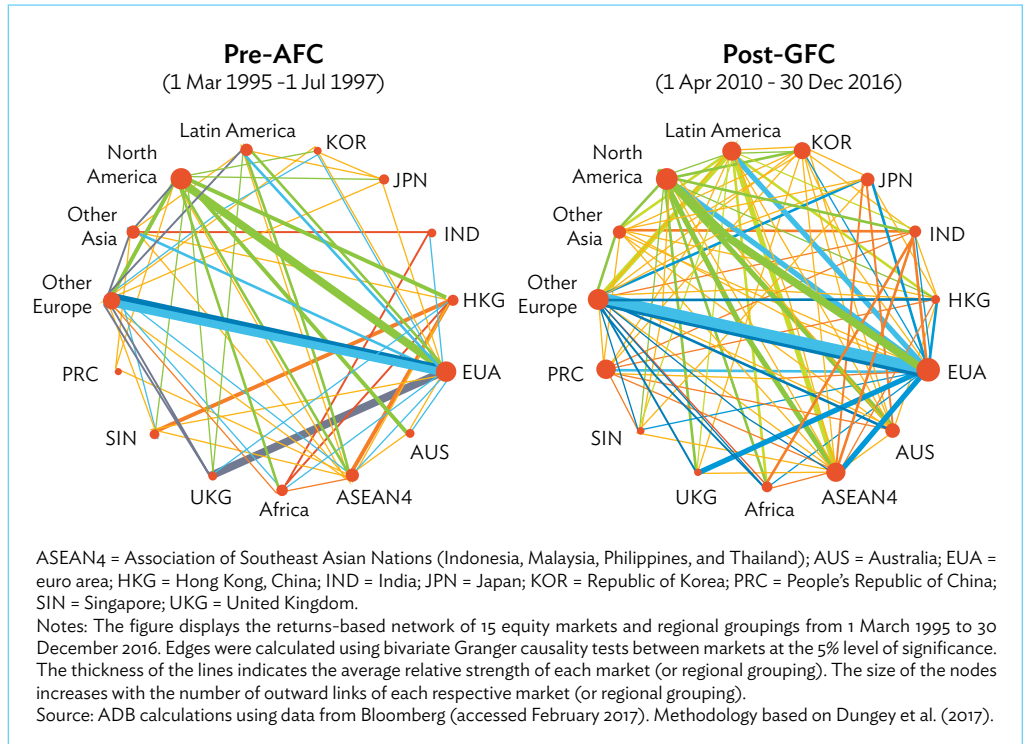


Figure 7 confirms that over the past 20 years, Asian financial markets have become much more interconnected both globally and regionally. This framework can be applied to cross-border bank claims by using this variable as a determinant of capital flows during the global financial crisis. Direct and indirect exposure to the banking sector play a very substantial roles in driving capital outflows. The message is that a heightened degree of financial interconnectedness can amplify the transmission of shocks across borders.

Despite the emerging risks associated with the pockets of vulnerability, a financial stress index calculated by ADB is on a downward trend. The stress index is a composite of the banking sector price index, sovereign yield spreads, stock market volatility, stock price index and exchange market pressure index. Its recent movement reflects a degree of complacency among investors.

However, policy makers still have to consider appropriate responses to emerging risks. Professor Sawada recommended the following:

- Further developing local currency bond markets to enhance financial resilience;
- Expanding macroprudential regulation and supervision in the region to help address the consequences of greater financial interconnectedness;
- Deepening cross-border collateral arrangements to support the region’s multilayer financial safety nets and bolster financial market development; and
- Strengthen AMRO and CMIM, in line with the sentiments of Mr. Sussangkarn and Mr. Khor.

Mr. Reiner Martin discussed the European debt crisis in 2010 and the institutional response, including the role of the European Central Bank (ECB), highlighting that Asia can learn from these experiences. Asia can learn from this experience. The European debt crisis can be traced directly to the global financial crisis. To offset sharp falls in output from the global financial crisis, euro area governments responded with countercyclical fiscal policies that increased

fiscal deficits. The problems in the banking system can be attributed to the elimination of the exchange rate risk—because of the introduction of the euro—that resulted in large capital flows from core countries to the periphery.

The institutional response to the debt crisis consisted of four measures. The first was to enhance the coordination framework for fiscal and structural policies. The second was the establishment of the European Stability Mechanism or ESM. Creation of the Banking Union in the euro area was the third. The last was the Capital Markets Union, which is an ongoing project.

The EU views the Banking Union as having three pillars and a foundation. Two of these pillars are already up and running. The first is the Single Supervisory Mechanism (SSM), which means that the euro area banking sector is now supervised by the ECB. The second is the Single Resolution Board that is an area-wide body to set clear rules for the resolution of failing banks. The third is the European Deposit Insurance Scheme, which is still work in progress. The foundation is a single rule book which is the European Union transposition of the Basel rules together with the Bank Resolution Directive. The Banking Union was a key change because in most of the crisis countries, the banking sector was the main problem source.

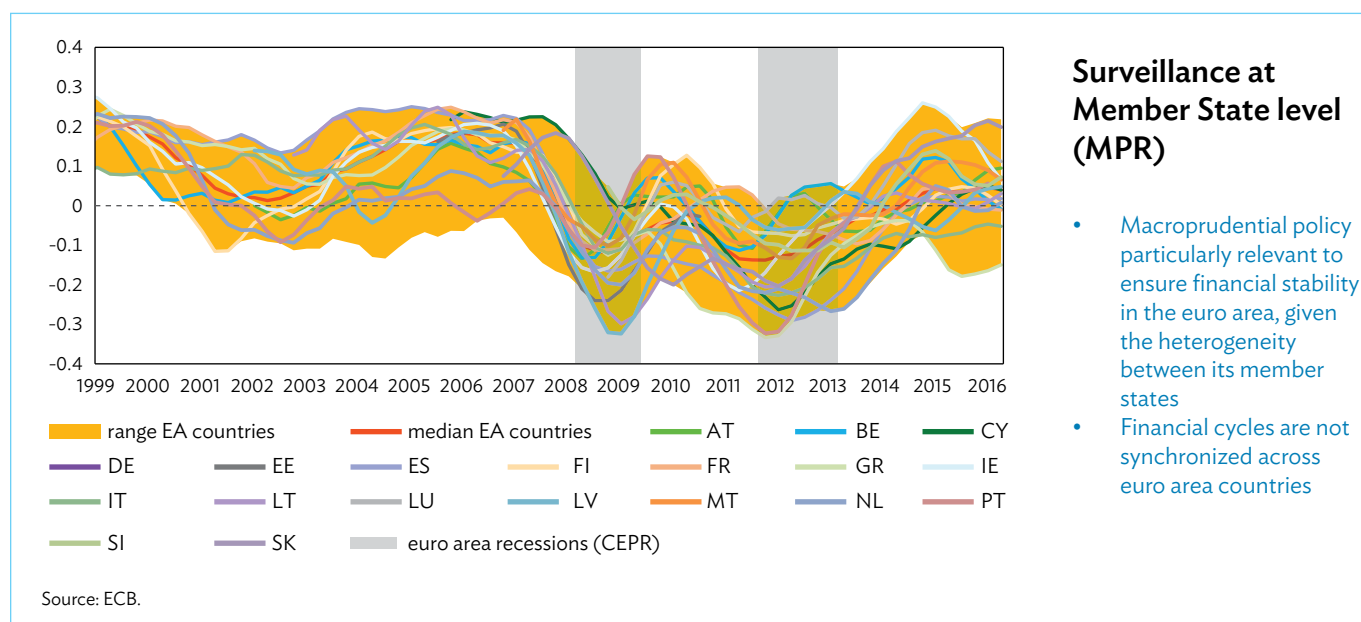
Along with the creation of the Banking Union, the ECB was given a central macroprudential mandate. Macroprudential policy used to be the responsibility only of national designated authorities (NDAs) but now they have to cooperate with the ECB. The ECB has two options: it can comment and object to macroprudential policies being implemented by NDAs or, if deemed necessary, it has the mandate to apply more stringent measures. To fulfil this, the ECB had to ramp up its surveillance capabilities in financial stability and macroprudential policy.

The surveillance framework of the euro area consists of the ECB financial stability report and the macroprudential policy report whereby the latter is only released internally, which is not released to the public. Figure 8 provides a glimpse on the information contained in the report. The chart, which looks at cyclical systemic risks, shows that financial cycles in the euro area are not synchronized. Other major sections of the report are on real estate risks and structural systemic risks in the banking sector. The rest is a country-by-country overview.



European Central Bank’s Reiner Martin discussed the European debt crisis and the corresponding institutional response.

Figure 8: European Central Bank Macroprudential Policy Report



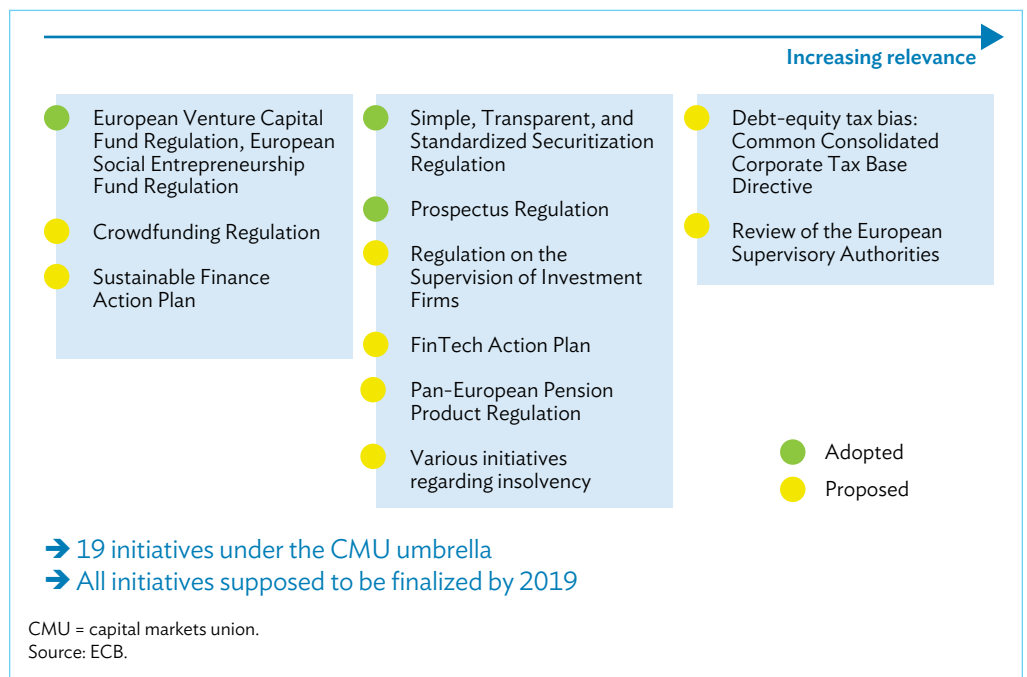
There has to be an effort to deepen and widen surveillance simultaneously: (i) deepening means increasing sophistication, getting more models, getting more indicators; (ii) widening means that new risk factors need to be incorporated.

The ECB has top-down and bottom-up approaches to surveillance. The top-down surveillance is based on a harmonized set of indicators and models—early warning models, systemic risk indicators—that ensure fair comparisons between countries. This provides a snapshot for the cyclical aspect. The bottom-up assessment is essentially the knowledge of individual countries. Country desks are set up to interact with national authorities but with a conscious effort to maintain an independent view. The main task is to determine whether there is a mismatch between the risk structure of the economy and the policies in place.

Similar to Professor Sawada’s description of Asia, the European Union is also a bank-dominated financial system and the Capital Markets Union has a number of initiatives to address this (Figure 9). A more diversified funding structure will reduce risks emanating from problems in the banking sector. Apart from this, there are other lessons applicable to Asia.

- Sufficient fiscal space needs to be created in the countries and a sufficiently agile and responsive regional financial backstop put in place;
- Improve the quality and comparability of supervision. It would be completely unrealistic to expect a common level of banking supervision expertise throughout Asia. However, improving the quality of supervision data can be achieved readily;
- Banking resolution is becoming a standard policy tool and this can be applied in Asia. But sufficient backstops should be in place, along with clear rules on how to implement this;
- Sufficiently detailed macro-financial surveillance is needed at the regional and the country-level; and
- There has to be an effort to deepen and widen surveillance simultaneously: (i) deepening means increasing sophistication, getting more models, getting more indicators; (ii) widening means that new risk factors need to be incorporated.

Figure 9: Capital Markets Union Initiatives of the European Union



Monetary Board Member Felipe M. Medalla indicated that financial interconnectedness magnifies vulnerability through possible contagion.

Mr. Felipe Medalla explained that vulnerability emanates from countries with bad policies. Financial interconnectedness magnifies this through possible contagion. There are also instances that capital flows to the countries despite the bad policies. Risk-taking underlies the dynamism of capitalism but this can lead to swings from extreme optimism to extreme pessimism. Addressing these vulnerabilities requires enhancing the macroeconomic and

financial surveillance capacities and building institutions to strengthen Asia's financial safety nets. These two areas are strongly interlinked.

As emphasized in earlier presentations, self-insurance by building up forex reserves is an expensive undertaking. Alternative measures should be explored. An example is currency swaps with safe haven countries like the United States and Japan. This arrangement has two important features: funds can be disbursed more quickly than a regional facility like CMIM and there is effective risk pooling.

The possibility of contagion reduces the effectiveness of crisis prevention measures. Implementing policy reforms will not mean much if foreign investors perceive the economy in the same manner as an economy that is in trouble. In this context, the burden shifts to crisis management.

The issue is how to make assessments of these countries' vulnerabilities and agreeing on ways of tackling them that are not political or technocratic. IMF has the unenviable role of being the "bad cop," including prescribing bitter but useful medicine. The IMF therefore has to better understand situations. An alternative is for AMRO to perform the "bad cop" role. But it will be difficult to attain the same reputation of the IMF. Moreover, involving another institution may not be efficient because of the scale economies involved.

One important area for monitoring vulnerability is bank regulation. This is related to earlier presentations that show banks at the heart of financial crises. Because of balance sheet effects, a crisis normally leads from banks lending too much to then lending too little. This problem has to be addressed. One way is to reduce dependence on bank financing. Government bond markets are a lot more developed than the corporate bond market. Clearly, it is not macroeconomics that is the cause of underdevelopment of the market. Much of it has to do with a lot of other institutional changes, including to taxation.

After the individual presentations, Ms. Yang invited panelists to comment on the presentations of the others. Mr. Khor responded to Mr. Medalla's suggestion that AMRO perform the role of the IMF. He agreed that the pain-to-cure ratio associated with IMF programs is high. However, he veered into a discussion on how economies have been preparing for another bout of contagion. Indonesia and Malaysia, for example, have been addressing the problem of currency mismatches.

From Mr. Khor's point of view, the next crisis to hit the region will likely be a "bystander shock", less to do with economic fundamentals than with contagion. A facility like CMIM is useful because investors tend to overreact to declines in the forex reserves of individual economies. Asked to elaborate on "bystander shock", Mr. Khor described fundamentals of ASEAN+3 economies as sound as and stronger than during the Asian financial crisis. He believed that the next crisis will likely originate outside the region, and he cited Turkey as a possibility.

Prof. Sawada agreed with Mr. Khor's assessment that the CMIM will be fully operational in the near term. On the origin of the next crisis, he referred to economic theories that predict crises. Prof. Sawada cited Paul Krugman's pathbreaking analysis of a balance of payments crisis. He did not believe that model is relevant for ASEAN+3 because the region has sound macroeconomic fundamentals. Another theory is "self-fulfilling hypotheses", or in more simple terms, panic, which he thought is unlikely. He pointed to a slide in his presentation, which indicated that investors are optimistic about the performance of Asian economies. Moreover, mechanisms are in place to handle a panic-driven financial or currency crisis.

Responding to a query about prospects for the Philippines, particularly in light of the surge in inflation, Mr. Medalla cited two perennial problems: low productivity in agriculture and inadequate physical structure. The banking sector is well-supervised and is in good shape.

The next crisis to hit the region will likely be a "bystander shock", less to do with economic fundamentals than with contagion.



Panel Discussion 1 panelists discussed strengthening crisis-response mechanisms in Asia.

In a solvency shock, policy adjustments are necessary to recover from a crisis. In the case of a liquidity shock, quick disbursement of financial support is necessary to stop its deterioration into a solvency shock.

However, fiscal policy has to deal with increasing pressure on pension funds. Meanwhile, forex reserves meet the standard measures of adequacy, but investors may view the situation differently. This possibility was alluded to earlier, hence the usefulness of CMIM.

Asked to elaborate on his views about CMIM, Mr. Sussangkarn emphasized the importance of surveillance. If crisis prevention is successful, there is no role for CMIM. He cited Turkey as an example of failed surveillance. As early as 2014, the ratio of short-term debt to forex reserves in Turkey exceeded 100% but the IMF did not take appropriate action.

Mr. Sussangkarn then characterized as “messy” the system with three levels of safety net. For example, since the various bilateral arrangements have different structures, this makes crisis resolution difficult. This may be the reason why CMIM has been highlighting its role in crisis prevention. He nevertheless expressed preference for a decentralized system of safety nets.

Mr. Medalla argued that a regional facility may disburse funds more quickly and without conditionality, at least for a significant portion. However, some economies do not deserve this privilege. For them, imposing conditionalities is important. Any substitute for the IMF must be able to impose economic reforms in a depoliticized fashion.

Mr. Khor provided a rejoinder and distinguished between a liquidity shock and solvency shock. In a solvency shock, policy adjustments are necessary to recover from a crisis. In the case of a liquidity shock, quick disbursement of financial support is necessary to stop its deterioration into a solvency shock. AMRO has the tools to distinguish between the two types of shock. In particular, the CMIM should be strengthened to respond effectively to liquidity shocks.

In response to a query about Turkey, Mr. Martin did confirm that news about Turkey’s economic problems had been floating 3–4 years ago. The political situation there has made it more difficult to address vulnerabilities.

Mr. Martin then narrated the EU experience with the IMF because it was similar to Mr. Medalla's suggestion regarding the CMIM. During the design of the Greek and Spanish programs, the IMF was only involved as a technical adviser. The European program turned out to be fundamentally the same as what the IMF would have proposed. However, it was arrived at in a more acceptable fashion.

Mr. Khor clarified that lack of financing is not what prevents AMRO from performing the role described by Mr. Martin. However, it has no standing facility. One way to view this is that the IMF has built-in capital, whereas the CMIM is a multilateralized commitment by central banks. The CMIM works as a standby line of credit. However, it will definitely not be effective if a common shock hit all ASEAN+3 economies.

In the open forum only one participant asked a question. Mr. Gong Cheng inquired which institution would be approached first in the event of a crisis. The question was directed to panelists who represented national authorities. Mr. Sussangkarn replied that the bilateral facility would be preferred. Authorities would definitely avoid the IMF because of their unfortunate experiences during the Asian financial crisis. Meanwhile, the CMIM has less funding than can be provided by a bilateral arrangement. Prof. Sawada said that the three levels of safety nets should be able to work together. One reason is that the shock will also work at different levels. Since there is no regional central bank and the forex reserves of individual countries are limited, then the regional facility should exist to manage investor expectations.

Mr. Gong also inquired about the complementarity of ADB's policy-based lending facility and the CMIM. One issue is the difference in the membership of ADB and AMRO. Prof. Sawada clarified that policy-based lending mainly supports economic growth and poverty reduction in the medium term. Since CMIM is focused on short-term financing needs, there should be complementarity between the two facilities.

Technical Session 1

Regional Financing Arrangements in Asia and Europe



ADB’s Cyn-Young Park presented the ADB experience on regional financing arrangements in Asia.

Moderator: **Hoe Ee Khor**, AMRO

Presenters:
 Paper 1: *Experiences and Challenges in Providing Regional Financing Arrangements: ADB Experience*, **Cyn-Young Park**, ERCI-Director, ADB
 Paper 2: *Regional Financing Arrangements in Europe*, **Gong Cheng**, Senior Economist, European Stability Mechanism

Discussants:
 Paper 1: **Josef T. Yap**, Professor, University of the Philippines
 Paper 2: **Junkyu Lee**, Principal Economist, ADB

Ms. Cyn-Young Park traced the establishment of the Global Financial Safety Nets (GFSN)¹⁰ to the various economic crises that disrupted the global economy since the 1980s. This would include the Asian financial crisis, the global financial crisis, and the European debt crisis. Increasing interconnectedness in Asia has spawned concerns over mounting financial vulnerability and the rapid transmission of risk across a tightly integrated international banking network. The structure of the GFSN is shown in Figure 10.

Figure 10: Structure of the Global Financial Safety Nets

Scope	Element	Conditionality	Availability and key factors determining access
National	Foreign exchange reserves	No	Past reserve accumulation, exchange rate regime
Bilateral	Central bank swap lines	Yes	Economic and political links with the reserve currency-issuing country
Regional	RFA financing	Yes for most RFAs	RFA forward commitment capacity; sometimes limited to a multiple of paid-in capital
	ADB’s Crisis-Response and Lending Facilities	Yes	OCR-eligible and graduated DMCs, capped at \$500 million per exogenous shock or crisis episode
Global	IMF financing	Yes for most instruments	IMF forward commitment capacity, IMF quota, political factors

ADB = Asian Development Bank, DMC = developing member country, GFSN = global financial safety net, IMF = International Monetary Fund, OCR = ordinary capital resources, RFA = regional financing arrangement.
 Source: ADB.

¹⁰ The Global Financial Safety Net comprises the set of institutions and mechanisms that provide financial support to countries hit by a crisis and moreover encompasses multilateral institutions, bilateral creditors and individual countries’ own defenses that countries can draw on to cope with financing shortfalls, volatility and contagion from crises.

The GFSN aims to achieve three main objectives: (i) provide crisis prevention mechanisms for members; (ii) supply financing when crises hit; and (iii) incentivize sound macro-economic policies.

The focus of Ms. Park's presentation was on the regional level, which encompasses regional financing arrangements (RFAs) and regional multilateral development banks like ADB. RFAs comprise a vital layer of the GFSN, combining familiarity with regional specificities with relative flexibility in supplementing the volume of available funds. Table 2 describes three of the more important RFAs: the CMIM, the ESM, and the Latin American Reserve Fund (FLAR).

Examination of the features of the CMIM, ESM, and FLAR reveals salient differences in design. CMIM is only based on callable capital, while ESM and FLAR are both a fund with paid-in capital. Consequently, while ESM and FLAR funds are readily available in a crisis, CMIM disbursements depend on members keeping up to their commitments. The RFAs also differ in available instruments. For example, while the CMIM allows for two facilities to act as loans to members, the ESM toolkit also allows for intervention in capital markets through primary and secondary market purchases and bank recapitalization in times of crisis.

Meanwhile, both the CMIM (through the AMRO) and FLAR have a surveillance and monitoring function of all member economies. As for the case of the ESM, country surveillance is only done for countries with financial assistance. Generally, the European Commission is mandated with the surveillance of European economies. The financial structures of RFAs have implications for lending capacities and have different strengths and weaknesses:

- Regional financing arrangements vary in the composition of their funding sources—whether they rely more heavily on financial markets for their funding (e.g., selling bonds) or whether they are financed more by member contributions. The ESM relies more heavily on markets, allowing the RFA to leverage financing to a level above the normal and exceptional access limit of the IMF. The CMIM, on the other hand, relies more heavily on member contribution commitments, which take the form of a commitment letter rather than a direct transfer of funds. The FLAR falls in the middle of this spectrum, having recourse to both member state contributions and to a lesser extent, to market-based instruments (e.g., bond issuance or deposits). The different funding structures comprising the different RFAs, in turn, have implications for their lending capacity: an RFA's ability to extend financial assistance depends on its ability to borrow from financial markets or on the equity that member states have committed.
- Reliance on member state contributions: produces greater certainty about RFA's maximum lending capacity and greater sustainability of resources; but it is subject to political economic factors (e.g., the influence of larger shareholders) and failure to capitalize on capital market resources.
- Reliance on market financing: ability to raise funds despite limited paid-in capital; more vulnerable to financial cycles and volatilities.

Looking at the availability of regional financing (measured by IMF quota and available RFA financing) relative to outstanding short-term external debt, FLAR member countries exceed that of the euro area or the ASEAN+3 region (Figure 11). The availability of RFA is four times as high in the euro area as the available IMF quota, and it is twice as high in ASEAN+3, while IMF quota exceeds the availability of RFA in FLAR economies (by 2.6). The FLAR underscores the continued prominent role of IMF funding in Latin America.

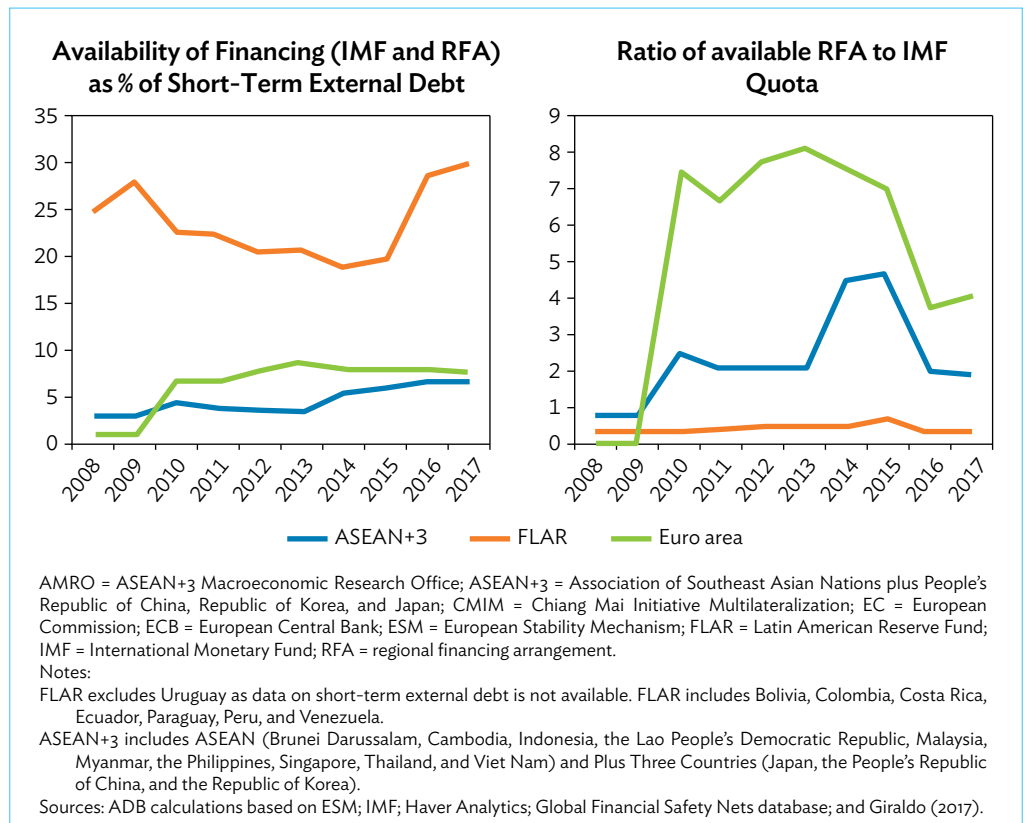
RFAs comprise a vital layer of the GFSN, combining familiarity with regional specificities with relative flexibility in supplementing the volume of available funds.

Table 2: Features of the Major Regional Financing Arrangements

	CMIM	ESM	FLAR
Members	All 13 ASEAN+3 economies	All 19 euro area member states	8 Latin American economies
Type	Multilateral currency swap arrangement	Fund	Fund
Capital Stock	\$240 billion callable capital	€700 billion (€80 billion paid-in, €620 billion callable capital)	\$3.9 billion subscribed capital (of which \$2.9 billion is paid-in)
Lending Capacity	\$240 billion (€194 billion)	€500 billion (\$618 billion)	\$4.8 billion (Only countries with financial assistance (€4 billion))
Lending Instruments	(i) Crisis prevention facility (ii) Crisis resolution facility	(i) Loans within macroeconomic adjustment program (ii) Primary and secondary market purchases (iii) Precautionary credit line (iv) Loans for indirect and direct recapitalization of financial institutions	(i) BoP credit (ii) Liquidity credit (iii) External debt restructuring of central banks (iv) Contingency credit (v) Treasury operations
Conditionalities	<ul style="list-style-type: none"> IMF de-linked portion: 30% of maximum drawable amount Portion linked to IMF conditionalities: 70% 	Financial assistance is linked to policy conditions specified in an MoU between beneficiary member state and the EC, ECB, and the IMF	Central bank of requesting member state must provide a report on monetary, credit, exchange, fiscal and trade policies to be implemented, subject to approval of FLAR’s Board
Surveillance	Yes, through AMRO	Only countries with financial assistance	Yes

AMRO = ASEAN+3 Macroeconomic Research Office; ASEAN+3 = Association of Southeast Asian Nations plus People’s Republic of China, Republic of Korea, and Japan; BoP = balance of payments; CMIM = Chiang Mai Initiative Multilateralization; EC = European Commission; ECB = European Central Bank; ESM = European Stability Mechanism; FLAR = Latin American Reserve Fund; IMF = International Monetary Fund; MoU = memorandum of understanding.
Source: Conceptual framework by ADB.

Figure 11: Comparing Regional and IMF Financing



The GFSN is too small because it has not grown in pace with the 25-fold increase in global capital flows from 1980 to 2007, or the \$25 trillion increase in public debt among economies of the Organisation for Economic Co-operation and Development since 2007. As of 2016, Asia's financial safety net consists of the IMF, CMIM, the BRICS currency reserve pool¹¹, bilateral currency swap lines, domestic foreign exchange reserves, and potentially the World Bank and ADB—which provided liquidity support during the 1997 Asian financial crisis. It is also not nimble enough as fragmentation has reduced the safety net's speed, flexibility, coverage, and consistency in responding to crises.

IMF reforms tackled some of the fundamental issues behind weaknesses of the GFSN, which have been subject to criticism, such as rigidity of its terms, limited representation of emerging market economies on the IMF board, and the limited amount available of IMF funding.

There are some downsides for bilateral swaps and RFAs. Bilateral swaps, while more flexible than institutional arrangements, are highly selective in terms of which countries receive them, and they raise moral hazard problems and are less effective when crises affect multiple countries in the region.

On the other hand, regional arrangements like the CMIM make imposing conditionality on neighboring countries politically difficult. Their resource bases are far narrower than global institutions, the cost of raising capital is greater, moral hazard is more perverse, and their surveillance is less effective.

That said, regional and bilateral arrangements should not be discounted. They play an important and complementary role to the IMF and are not going away anytime soon. The IMF needs to look at how it can better cooperate with these arrangements by setting up guidelines to help steer how cooperation would take place when a crisis erupts. This is critical to the safety net's ability to respond quickly, flexibly, and consistently to crises. It is key to promoting market confidence in the safety net.

Several options may be considered to strengthen the capacity of the CMIM: (i) the initiative's operability could be enhanced and clearly communicated to members; (ii) current callable capital can be complemented by paid-in capital to improve market sentiment over members' CMIM commitments; (iii) paid-in capital could be further leveraged by issuing bonds, thereby increasing CMIM capacity and enabling it to respond to financial crises affecting the region's larger economies; (iv) increased capacity could also offer scope for widening the CMIM's mandate—in particular, CMIM resources could be utilized to recapitalize systemically important banks in the region; and (v) improving CMIM efficacy by increasing the IMF-delinked portion can be considered.

Other ways to strengthen the region's multilayered financial safety nets and bolster financial resilience include continued improvement of Asia's local capital markets and financial market infrastructure; for example, by continuing to develop and deepen local currency bond markets, facilitating cross-border issuance and transactions, and fostering regional-based institutional investors.

ADB introduced policy-based lending in the aftermath of the global oil crisis in the 1970s. It has been fine-tuning its lending toolkit since then, building on lessons learned from major crises. Conventional policy-based lending (PBL) with structural reform conditionality is increasingly recognized as best-suited to support reforms under normal circumstances, but not necessarily in times of crisis. Therefore, instruments have been established to tackle unique crisis situations. These include special policy-based lending, which was introduced

¹¹ BRICS refers to the combined economies of Brazil, Russian Federation, India, the PRC, and South Africa. In 2015, the central banks of BRICS countries agreed on operating a currency reserve pool to protect BRICS economies from currency volatility shocks.

Other ways to strengthen the region's multilayered financial safety nets and bolster financial resilience include continued improvement of Asia's local capital markets and financial market infrastructure.

The Countercyclical Support Facility was introduced in 2009 to assist developing member countries in borrowing from ordinary capital resources to mitigate the impact of the global financial crisis and support specific countercyclical development expenditure.

after the Asian financial crisis in 1997, and the Countercyclical Support Facility (CSF), which was established as a time-bound instrument during the global financial crisis in 2008–2009 and mainstreamed in 2011.

Broadly, policy-based lending can be categorized into two types: conventional, and instruments tailored to a crisis response. The latter is available only for ADB developing member countries eligible to receive funds from the bank's ordinary capital resources. Countercyclical support is reserved for addressing severe crises; in most cases, conventional policy-based lending should be considered a default form of ADB budgetary support linked to ex-ante and/or ex-post conditionalities.

Close coordination with the IMF is essential for the processing and implementation of policy-based lending. An assessment letter from the IMF is required for all such lending operations. The role and design of policy-based lending at ADB and other international financial institutions has evolved to reflect the changing context and understanding of international development. Since its inception as balance of payments support during the global oil crisis in 1978, ADB's policy for program lending has been adjusted a number of times.

Special policy-based lending was established in 1999 to provide big financing to emerging market economies. However, it has yet to be utilized. Its introduction formalized ADB's participation in the collaboration arrangement led by the IMF to address balance of payments crises. Although ADB provided financial support to the Republic of Korea as part of an IMF-led international rescue package in the wake of the Asian financial crisis, this arrangement was not part of the special policy-based lending initiative.

The Countercyclical Support Facility was introduced in 2009 to assist developing member countries in borrowing from ordinary capital resources to mitigate the impact of the global financial crisis and support specific countercyclical development expenditure. The facility was designed to provide incremental support on top of regular development financing and avoid crowding out any planned support. Unlike crisis instruments of other financial institutions, the facility requires fiscal stimulus, rather than wide-ranging austerity measures, without strictly imposing conditions for structural reform at the micro level. The instrument is reserved for dealing with severe crises or external shocks (such as a severe drop in commodity prices).

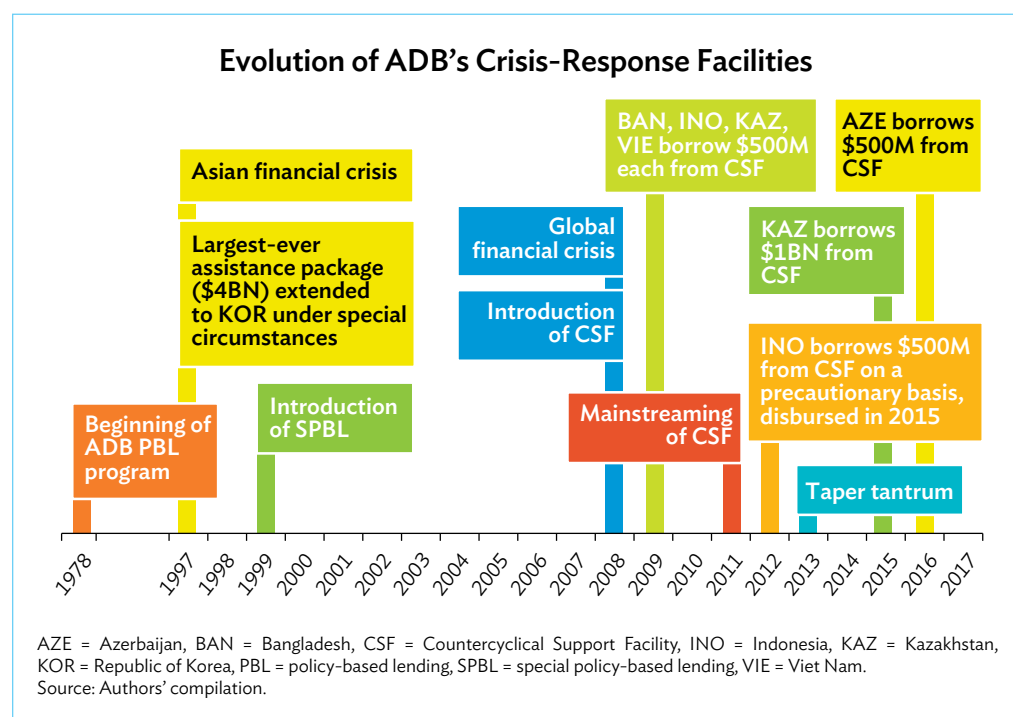
The evolution of ADB's crisis-response facilities is summarized in Figure 12. ADB plays a pivotal role in enhancing financial resilience and securing stability in Asia and the Pacific. The bank extends assistance to developing member countries as loans, technical assistance, grants, and equity investments to promote social and economic development. ADB provides low-cost loans to governments and businesses and offers knowledge and technical assistance to make funding more effective. The bank also sets up policy dialogues, provides advisory services, and helps mobilize financial resources to strengthen resilience and economic stability in the region.

ADB support for enhancing financial resilience and economic stability is two-pronged. In the aftermath of a crisis, assistance supports social sector programs that can provide safety nets for those most vulnerable to and affected by economic and financial instability. At the same time, ADB efforts to prevent the onset of crises and improve financial stability take the form of support for the provision of resources critical to sustaining long-term growth through the development of the finance sector and capital markets.

ADB can fill the gap in finance by providing supplementary assistance to countries in need and help to mitigate some of the negative effects of IMF conditionalities. Empirical analysis of the effectiveness of IMF programs (and their associated conditionalities) has yielded mixed results. Studies assessing the impact of IMF funding on economic growth find no significant impact—and in some cases, a negative impact—of IMF intervention on subsequent economic

performance.¹² And while IMF (2017)¹³ and Clements et al. (2013)¹⁴ find that IMF programs have promoted social protection systems and improved public social spending, Stubbs and Kentikelenis (2016)¹⁵ find that IMF conditionalities decrease health expenditure—more generally, that IMF fiscal adjustment policies come at the expense of social spending.

Figure 12: ADB’s Crisis-Response Facilities



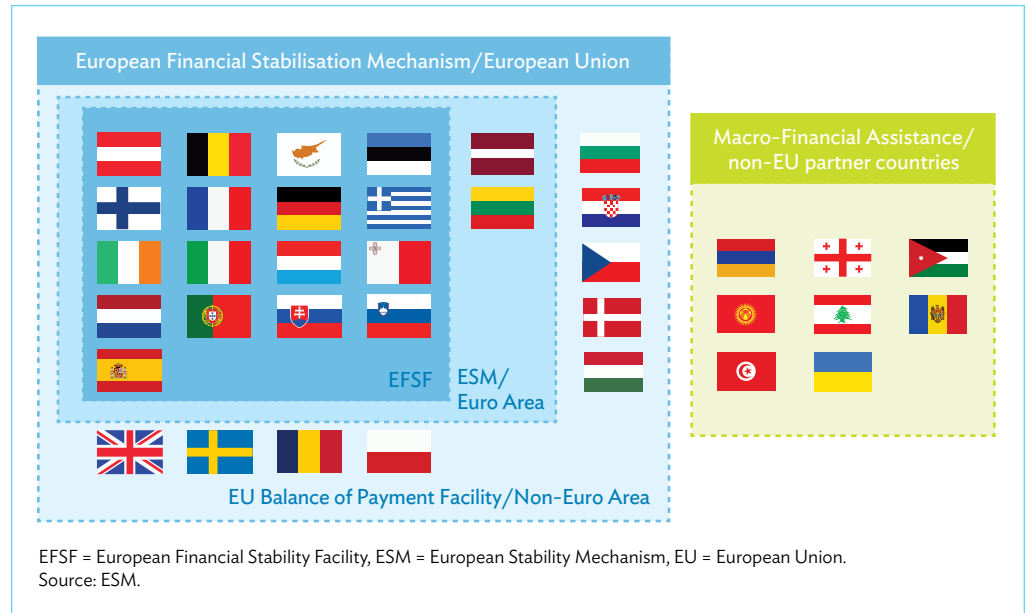
Until the onset of the global financial crisis, the EU balance of payments facility was the EU’s only instrument to deal with medium-term financing constraints in member states.

Mr. Gong Cheng discussed the different European RFAs. Various RFAs are shown in Figure 13. Until the onset of the global financial crisis, the EU balance of payments facility was the EU’s only instrument to deal with medium-term financing constraints in member states. There was no proper crisis resolution mechanism. The balance of payments facility has several stringent qualification criteria. First, only member states that have not adopted the euro as their currency are eligible. This is because the single currency—supported by strong fundamentals of the EMU—is supposed to work as a first-line shock absorber. Moreover, the Maastricht Treaty explicitly excluded financial transfers among euro area member states. Second, regarding the scope of this instrument, it can only finance a member state in the midst of a balance-of-payments crisis.

The European Commission manages a second RFA, the Macro-Financial Assistance (MFA). This is designed for countries geographically, economically and politically close to the EU and experiencing balance-of-payments crises. There are conditions attached to loan facilities and borrowers need to meet eligibility criteria. Political considerations factor into decisions. An IMF program is a necessary condition for an economy to qualify for MFA.

¹² Rittberger, Volker, Bernhard Zangl, and Andreas Kruck. 2012. *International Organization*. New York: Palgrave Macmillan.
¹³ International Monetary Fund. 2017. *Social Safeguards and Program Design in PRGT and PSI Supported Programs. IMF Policy Paper*. Washington, D.C.: April
¹⁴ Clements, Benedict, Sanjeev Gupta, and Masahiro Nozaki. 2013. What Happens to Social Spending in IMF-Supported Programmes? *Applied Economics* 45 (28): 4022–33.
¹⁵ Stubbs, Thomas, Alexander Kentikelenis, David Stuckler, Martin McKee, and Lawrence King. 2016. The impact of IMF conditionality on government health expenditure: A cross-national analysis of 16 West African nations. *Social Science and Medicine*. 174 (2017). pp. 220–227.

Figure 13: The Different Regional Financing Arrangements in Europe



Setting up a crisis resolution fund would undoubtedly have needed a certain degree of fiscal transfer, which politically was taboo until 2010.

Several factors could explain the initial lack of proper crisis resolution mechanisms in Europe before the global financial crisis. First, the common belief in the single currency was that the adoption of the euro should enhance market risk-sharing, while monetary union would ensure its members got sustained access to financial markets. Second, all EU member states are required to respect the Stability and Growth Pact (SGP) that constitutes the first line of defense, theoretically ruling out fiscal indiscipline that would contribute to instability in the first place. However, the corrective arm of the SGP was not functioning as designed. Third, the configuration of the EMU was radically different back in the early 2000s. Only 12 countries had adopted the euro at that stage and the non-euro-area countries were economies with strong fundamentals (Denmark, Sweden, and the United Kingdom) whose business cycles were more synchronized than they are today. Fourth, the IMF has long-standing experience in dealing with balance of payments crises. As IMF members themselves, EU member states could always ask the Fund for official assistance. Additional resources from Europe therefore did not seem necessary. Fifth, from a legal perspective, the Maastricht Treaty introduced the “no-bailout principle.” Setting up a crisis resolution fund would undoubtedly have needed a certain degree of fiscal transfer, which politically was taboo until 2010.

As a result, the response to the consequences of the global financial crisis and the 2010 European debt crisis was mainly bilateral in nature. The Greek Loan Facility quickly showed some weaknesses. In particular, without institutional reinforcement, the implementation of bilateral arrangements was subject to economic circumstances in creditor countries. The very same rationale for the lack of a crisis resolution mechanism was challenged by the global financial crisis and the financial tremors in Europe. This led to the establishment of other RFAs. The process is summarized as follows:

- From bilateral assistance to multilateral assistance
 - o Greek Loan Facility (80 billion euros) in 2010 (in response to the global financial crisis)
 - o A prompt response to the crisis, but limited in size and sensitive to contagion
 - o Set up of multilateral arrangements
 - European Financial Stabilization Mechanism (EFSM) of 60 billion euros in May 2010
 - European Financial Stability Facility (EFSF) of 440 billion euros in June 2010

- From temporary to permanent financial walls
 - Legal changes required
 - New paragraph in Art.136 of the Treaty on the Functioning of the European Union: “The Member States whose currency is the euro may establish a stability mechanism to be activated if indispensable to safeguard the stability of the euro area as a whole. The granting of any required financial assistance under the mechanism will be made subject to strict conditionality.”
 - Establishment of the European Stability Mechanism in 2012

European leaders worked on establishing temporary crisis resolution funds, moving from the ad hoc bilateral arrangement to a more institutionalized and multilateral setting. In this context, the EFSM was set up in May 2010 and one month later, the EFSF was created on 7 June 2010. EFSM is purely based on the EU budget as a backup. EFSF uses the guarantees provided by member states to tap financial markets and raise funds to finance countries in need. This explains the larger lending capacity of the EFSF.

The EFSF, however, was only meant to be temporary. The framework agreement stipulated its liquidation “on the earliest date after 30 June 2013 on which there are no longer Financial Assistance outstanding to a euro-area Member State and all Funding Instruments issued by EFSF and any reimbursement amounts due to guarantors have been repaid in full.” However, the escalating debt crisis demonstrated that temporary measures were insufficient to restore market confidence and to help countries hit by crises to sustain market access in the longer term. As a result, the European Council quickly reached a consensus on 28 and 29 October 2010 about the need to establish a permanent crisis mechanism to safeguard financial stability in the euro area. Thus, the European Stability Mechanism (ESM) was created.

Legal challenges associated with the ESM have been significant. For example, it was necessary to revise the Treaty on the Functioning of the European Union by inserting a third paragraph into Article 136. (The details are shown above.)

Several advantages are associated with institutionalization of the ESM. First, the ESM has a stronger capital structure, composed of 80.55 billion euros of paid-in capital and 624.25 billion euros committed callable capital. Financial market participants recognize this feature, especially credit rating agencies, which have deemed the ESM of higher creditworthiness than the EFSF. Second, the ESM enjoys preferred creditor status, only junior to IMF loans. In contrast, *pari passu* principles apply to EFSF loans. Therefore, to some extent, the ESM provides stronger credit protection to countries in the euro area. Finally, ESM loans are recorded in the same way as a loan from the IMF to a member state and therefore do not increase its government debt. In comparison, an EFSF loan increases the contingent government debt of EFSF guarantors. As a permanent crisis resolution mechanism, the ESM has also become the largest RFA and is part of the debate about how to strengthen global financial safety nets using national, regional, and global financial resources.

The governance structure of the ESM is shown in Figure 14. The ESM has a very dynamic funding strategy, making it an active issuer in financial markets. This actually brings ESM closer to having the financial structure of a multilateral development bank. Meanwhile, the ESM’s available instruments—including the two most frequently used—are shown in



ESM’s Gong Cheng presented the regional financing arrangements in Europe.

The escalating debt crisis demonstrated that temporary measures were insufficient to restore market confidence and to help countries hit by crises to sustain market access in the longer term.

Figure 15. One of the most frequently used lending facilities is the Macro Adjustment Program. Spain has used bank recapitalization through loans to government.

ESM assistance has three key characteristics. First, it is relatively large, as EFSF and ESM provided most of all funding to maintain stability in the euro area. Second, ESM assistance provides longer maturity. Lastly, taking into account all fees for providing loans, the ESM’s margin is very thin.

The main findings of an evaluation report are shown in Figure 16. This led to a set of recommendations summarized in Figure 17.

Figure 14: European Stability Mechanism Governance Structure

	EU	EA	ESM
Political decision	European Council <ul style="list-style-type: none"> EU institution Heads of state or government of the EU member states + the President of the European Commission At least 2x every six months President: Donald Tusk 	Euro area summit <ul style="list-style-type: none"> Heads of state or government of euro area members At least 2x per year President: Donald Tusk 	
	Economic and Financial Affairs Council (ECOFIN) <ul style="list-style-type: none"> Economics and Finance Ministers of the 27 EU member states + Budget Ministers for budgetary issues 1x a month Rotating presidency every 6 months 	Eurogroup <ul style="list-style-type: none"> Meeting of Finance Ministers of euro area members President: Mário Centeno (Portuguese Finance Minister) 	Board of Governors <ul style="list-style-type: none"> ESM members – Finance Ministers Chairman: Eurogroup President or another Board of Governors member
Political preparation	Economic and Financial Committee (EFC) <ul style="list-style-type: none"> President: Hans Vijlbrief 	Eurogroup Working group (EWG) <ul style="list-style-type: none"> Chairman: Hans Vijlbrief 	Board of Directors <ul style="list-style-type: none"> Appointed by Governors, people of high competence in economic and financial matters Chairman: ESM Managing Director
Technical preparation	EFC Committees	Task Force on Coordinated Actions Chairman: Judith Arnal Martínez	Technical Subcommittees and working groups

EA = euro area, ESM = European Stability Mechanism, EU = European Union.
 Source: ESM.

Figure 15: European Stability Mechanism Instruments

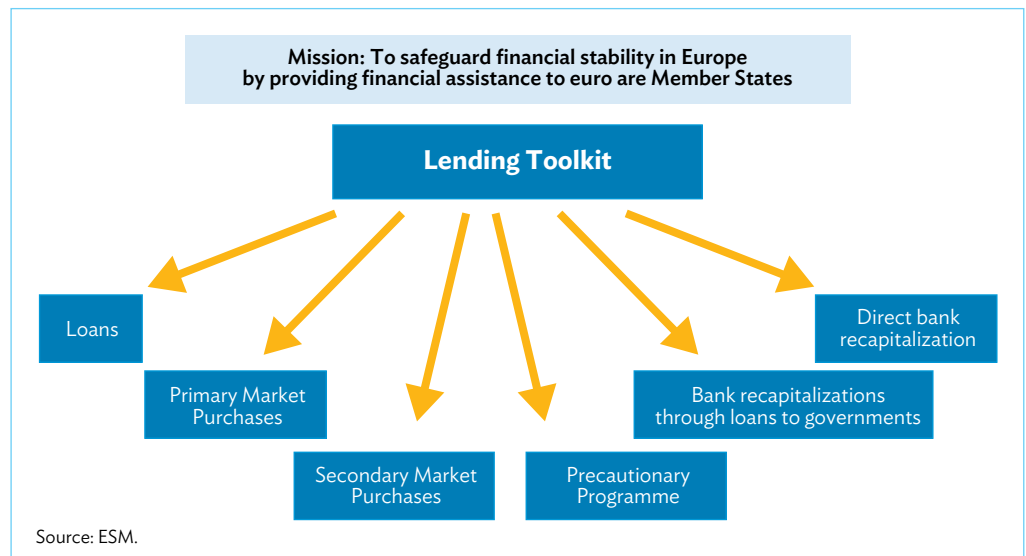


Figure 16: Findings from European Stability Mechanism Evaluation

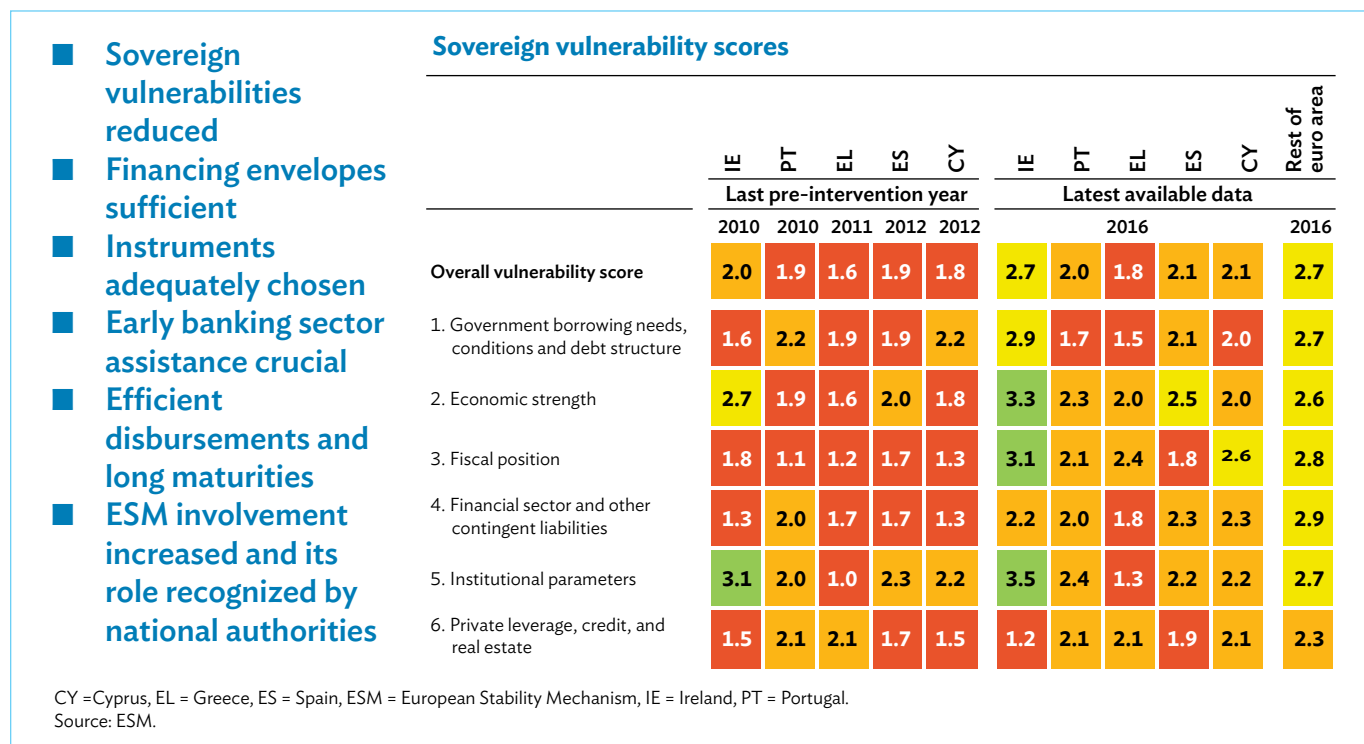
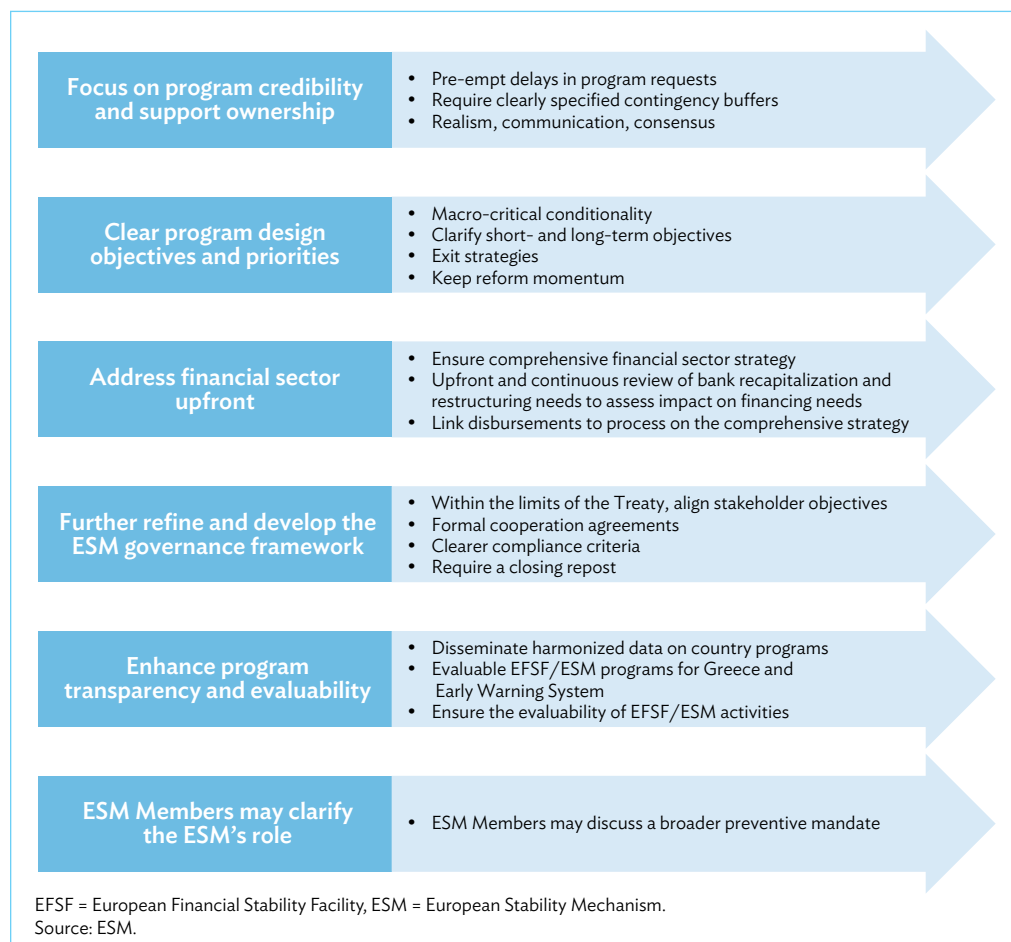


Figure 17: Recommendations from Findings





University of the Philippines' Josef T. Yap reacted to ADB's presentation.

Mr. Josef T. Yap began his reaction to Ms. Park's presentation by recalling that the GFSN has two roles: crisis prevention and crisis management. The role of RFAs and multilateral development banks should be well defined and the guiding principles summed up in two words: complementarity and efficiency. Close coordination between different elements of the GFSN should take place and the actors should not deviate from their core competencies.

In the aftermath of the Asian financial crisis, however, ADB defined its role based on the gap in crisis prevention and management at the regional level. ADB played a vital part in the evolution of regional cooperation in Asia, as depicted in Figure 12. One of its contributions was support for the AMRO and CMIM. However, because of shortcomings of these two institutions, ADB has expanded its role through the SPBL and CSF. In this context, Mr. Yap said ADB may be guilty of "mission creep."

Crisis prevention and crisis management are not in ADB's core mandate. However, even if mission creep is justified, it may not be significant. In fairness to ADB, the special policy-based lending and countercyclical support are logical extensions of its important role in the aftermath of the Asian financial crisis. The amounts involved in these two facilities are significant for the economies that benefit from them. Meanwhile, ADB plays the de facto role of an RFA for developing member countries not represented in the AMRO. However, in the medium-to-long term, the AMRO and the CMIM, in conjunction with the IMF, can absorb the crisis

financing role of ADB, allowing the bank to focus on its core mandate. ADB can also take the lead in establishing AMRO-CMIM-type institutions for other developing member countries not covered by the AMRO facility. These RFAs can eventually operate independently and effectively just like AMRO which includes coordination with IMF.

Mr. Junkyu Lee began his reaction to Mr. Gong's presentation by summarizing key takeaways from the ESM:

- Characterized as a permanent rescue fund and functions as 'lender of last resort for governments and not banks'
- Strong capital structure on loans and regular issuance of bonds
 - Backed by strong capital structure: paid in capital of €80.55 billion and committed callable capital €624.25 billion (the total subscribed capital amounting to €704.8 billion)
 - Strong equity base is leveraged through bond issuances to raise funds for ESM loans.
 - ESM loans have longer maturity and are cheaper than IMF loans: 30 years versus 8 years (and 0.93% versus 3.07%) for Greece in Dec 2012.
- Cooperation Modalities with the European Commission, the ECB, and the IMF
 - Surveillance and assessment; loans are only disbursed if the recipient country implements reforms it commits to under its ESM programs.
- Multiple Instruments: not a single, but six instruments in the lending toolkit:
 - (i) Loans; (ii) primary market purchases; (iii) secondary market purchases; (iv) precautionary program; (v) bank recapitalizations through loans to requesting governments; and (vi) direct bank recapitalization
- A streamlined procedure for granting stability support

Data on the evolution of the GFSN show that since 2007 growth in funds associated with RFAs and bilateral swaps has been significant. Greater demand for short-term bilateral liquidity support is particularly evident. The literature shows that bilateral swaps can stabilize the exchange rate market. Preliminary empirical results indicate that credit spreads are affected in the same way.

The size of CMIM relative to the GDP of ASEAN+3 economies is 1.1%. The size of the ESM relative to the GDP of its member is 6.3%. In practical terms, the Republic of Korea will receive \$38.4 billion if it goes to CMIM for assistance. For Indonesia, this amount is \$22.76 billion. These are much smaller than the amounts the two countries received during the Asian financial crisis. These problems can be addressed by increasing the size of CMIM or by raising the threshold for countries that need financing while lowering the threshold for countries that do not. Increasing the size can be achieved through issuing bonds or by requiring paid-in capital.

With regard to the backstop role of ESM, there seems to be some overlap with ECB. It is not clear which institution has the function of recapitalizing banks. Since ESM outsources surveillance to the European Commission, the ECB, and the IMF, this may delay the provision of financial assistance. Meanwhile, the concept of “efficient disbursement and long maturity issue” should be explained more clearly. A specific example will be useful. The comprehensive financial strategy should not only include crisis prevention and crisis management but a program for finance sector development.

Mr. Khor initiated the open discussion by clarifying that in order to draw from CMIM, the economy in crisis has to get in touch with the co-chairs. When the facility was last reviewed, the process was streamlined.

Mr. Sussangkarn pointed out that there is a significant difference between ESM and CMIM. The ESM deals with a local currency problem while the CMIM has to address currency mismatches. Meanwhile, monetary policy is readily available to CMIM, whereas fiscal policy is more prevalent in Europe.

Ms. Park expressed agreement with Mr. Sussangkarn. While the ECB does not have the ability to issue an unlimited amount of euros, a crisis in Asia carries the additional burden of exchange rate shocks and dollar illiquidity. Ms. Park then elaborated on the complementary role that ADB plays, based on its focus on specific sectors. For example, while IMF packages are effective in engendering macroeconomic stability, they overlook specific vulnerable groups. ADB’s social spending can fill this gap.

Mr. Gong responded to Mr. Lee’s query about the European Monetary Fund, clarifying that discussions on transforming the ESM to the EMF are ongoing. He then raised other four points in response to Mr. Lee’s discussion. First, surveillance cannot be described as “outsourced” because the task is enshrined in the community law. In the framework for of the 28 member states, standard surveillance is conducted under the rubric of the European Semester, a framework for economic policy coordination.

Regarding collaboration with the IMF, Mr. Gong said that conditionalities are arrived at by consensus. He also explained that issuance of secondary market purchases and primary market purchases do not overlap with the ECB’s mandates. The latter makes independent decisions. Meanwhile, the surveillance process cannot be characterized as streamlined. Unanimity among 19 ministers is required to implement a program. Some members have to obtain approval of their respective parliaments. Finally, in response to delays in disbursing funds, existing instruments are being strengthened to make them more accessible and attractive to member countries.

The ESM deals with a local currency problem while the CMIM has to address currency mismatches.



ADB's Junkyu Lee reacted to ESM's presentation.

Mr. Martin responded to some of Mr. Lee's observations. Responsibility for bank bailouts depends on the nature of the crisis. If it is a liquidity problem, national central banks will take the lead and the ECB will have oversight. In case of a solvency problem, the affected member states will be responsible. However, when a solvency problem is systemic, either the IMF or ESM will take the lead.

Mr. Martin further confirmed that the ECB cannot issue unlimited euros as this is prohibited by the European Treaty. Only member states can help finance other member states experiencing a crisis. He then explained that two sets of conditionalities are necessary because two sources of funding are involved, and this implies two different decision-making bodies.

Mr. James Villafuerte defended ADB's role from being defined as "mission creep." Policies after a crisis fall into three general categories. Absorptive policies enable an economy to overcome a crisis. Adaptive policies help the country regain the level of development it had before the crisis. Transformative policies are designed for medium- to long-term horizons. ADB's focus is on absorptive and transformative policies, while IMF deals with adaptive policies.

Panel Discussion 2

Framework and Country Experience Dealing with Crisis and/or Vulnerabilities for Small Economies

Moderator: **Cyn-Young Park**, Director, ADB

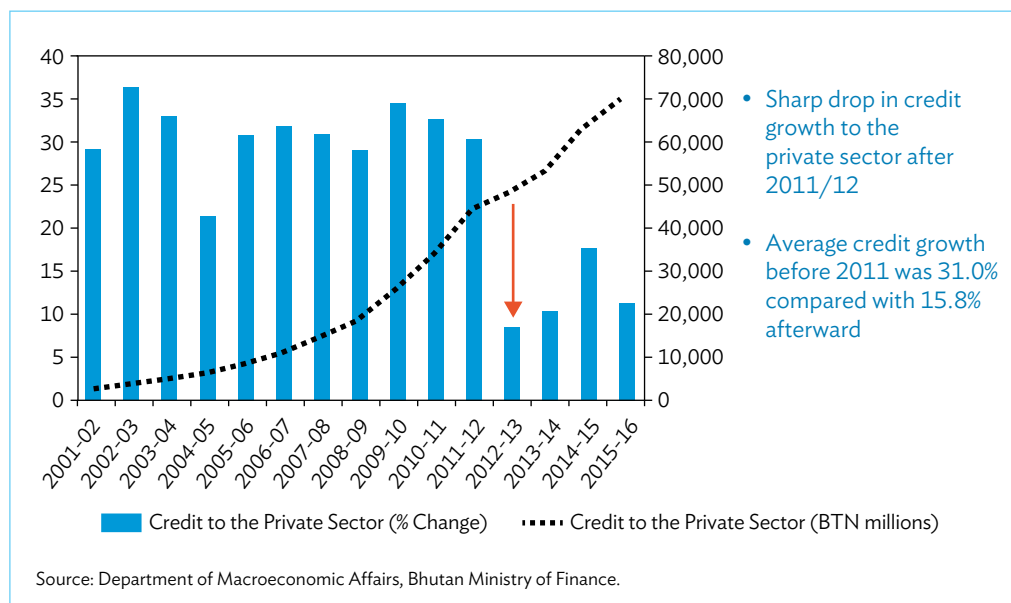
Panelists:

- **Lekzang Dorji**, Director General, Department of Macroeconomic Affairs, Bhutan
- **Khou Vouthy**, Deputy Director General, National Bank of Cambodia
- **Munkhbat Yondon**, Director, Bank of Mongolia
- **Li Lian Ong**, Adviser, AMRO

Mr. Lekzang Dorji described the economic situation in Bhutan, a country with a population of only 681,720. The main source of vulnerability is its heavy dependence on hydropower. A reflection of Bhutan's vulnerability is that electricity comprises 34% of its exports and 70-80% of its trade is with one country, India.

Bhutan's low investment rate prompted the government to rely on foreign loans to finance hydropower projects. The turning point was in 2006–2007 with the Tala Hydropower project. The increase in capital flows led to a surge in domestic credit and imports. Growth in credit, however, slackened after 2012 (Figure 18). Domestic borrowing was used to support housing investment and purchase of motor vehicles. Bhutan has one of the highest per capita ownership of cars.

Figure 18: Credit Growth in Bhutan (%)



ADB's Cyn-Young Park moderated Panel Discussion 2 session.

When imports surged, the current account deficit widened from 6% of GDP in 2001 to 22% of GDP in 2008. Forex reserves, especially of Indian rupees, declined sharply. Indian rupees were rapidly drained because the ngultrum is pegged to the rupee. The episode could be



Bhutan Ministry of Finance’s Lekzang Dorji presented Bhutan’s perspective and experience on crisis and vulnerabilities.

The global financial crisis exposed Cambodia’s other vulnerabilities: its heavy reliance on garment exports and a heavy concentration of trade with Europe and the United States.

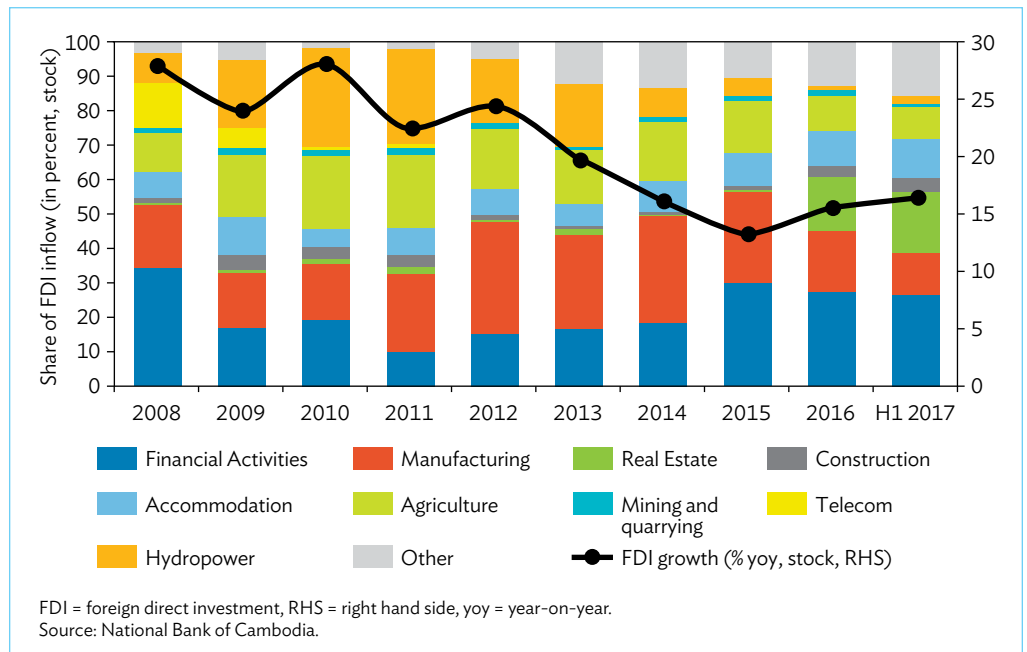
more aptly described as a rupee crisis. Since then, the following policy measures have been enacted to cope with the crisis:

- Active reserve management by Royal Monetary Authority of Bhutan (RMA)
- Using swap facilities and short-term borrowing from the Reserve Bank of India
- Restrictions on deposit account holdings by non-residents and non-Bhutanese
- A freeze on lending for housing investment and car purchases
- Embargoes on selected import goods (e.g., cars, furniture, and alcoholic drinks)
- Increased taxation on cars in 2014
- An Economic Early Warning System built with ADB support and deployed in 2017
- Establishment of the Department of Macroeconomic Affairs

Mr. Khou Vouthy described Cambodia’s economy as very open. Total trade is 120% of GDP and FDI is 95% of GDP. The downside is that external shocks are quickly transmitted through the Cambodian economy. An example is the 2008 global financial crisis. The GDP growth rate fell to nearly zero with exports, construction, and tourism affected. But the economy quickly bounced back in 2010, led by agriculture, the fourth pillar of the Cambodian economy.

The global financial crisis exposed Cambodia’s other vulnerabilities: its heavy reliance on garment exports and a heavy concentration of trade with Europe and the United States. Efforts to reduce vulnerability in these areas have been made since the crisis. While the economy has been diversified, another area of concern has emerged. The share of the banking sector and real estate in foreign direct investment inflows has increased (Figure 19). The National Bank of Cambodia (NBC) has been proactive in tackling this. Since 2000, the central bank has raised the minimum capital requirements of commercial banks on three occasions. Meanwhile, it has monitored the real estate sector through a property price index which forms the basis for a loan-to-value indicator.

Figure 19: Foreign Direct Investment Inflows in Cambodia



The inflation rate and exchange rate have been fairly stable. Any spikes in inflation have been due to movement in the international prices of fuel and food. One reason for the stability is the high degree of dollarization of the Cambodian economy. The NBC’s policy, however, is to de-dollarize the economy in the long term.



Panel Discussion 2 panelists discussed crisis and vulnerabilities experienced by small economies.

Many economic indicators show that the Cambodian government's success in containing the crisis. Some of the policies implemented during the crisis that supported this outcome focused on:

- An agriculture fund to boost productivity: Farmers were offered low-cost loans (starting at \$25,000) and encouraged to exchange information to enhance market knowledge.
- Bank reserve requirements: Doubled from 8% to 16%.
- Real estate lending cap: loan to the sector limited to 15% of bank's loan portfolio.
- Textile and clothing: An advanced profit tax (1% of turnover) further suspended for 2 years (and applied after 2011); and export promotion measures to help diversify the market.

With regard to policies in the aftermath of the crisis, Cambodia:

- Established financial stability committee and a financial stability division.
- Introduced a risk-based and forward-looking framework.¹⁶
- Strengthened NBC's lender of last resort function by introducing emergency liquidity assistance for banks and financial institutions.
- Established a working group consisting of NBC, the Ministry of Economy and Finance, and securities market regulators to formulate a crisis management mechanism for the finance sector.
- Increased the regulatory capital minimum for financial institutions.

¹⁶ National Bank of Cambodia. Office of the Governor. 2011. *Prakas No. B-7-011-82 Prokor: Prakas on The Implementation of Risk-Based and Forward Looking Supervision*. Phnom Penh.

Article 1: In order to perform comprehensive risk-profile assessments, at banking institution's level and, where applicable, at consolidated level, the National Bank of Cambodia shall implement risk-based and forward-looking supervisory monitoring aimed at anticipating potential adverse developments and at addressing them in a timely manner by issuing adequate injunctions to implement corrective actions required, in a responsive and effective manner.

Article 2: Risk-Based and Forward-Looking Supervision is defined as the permanent supervisory monitoring processes based on risk-profile assessments, examinations' findings extrapolations and stress-testing aimed at identifying a supervised entity's or group's vulnerability factors and weaknesses and anticipating arising supervisory issues and concerns as soon as possible in order to address them swiftly, to prevent from further deterioration of overall financial condition and to strengthen its ability to withstand adverse market conditions through appropriate supervisory actions.



NBC's Khou Vouthy discussed Cambodia's experience in dealing with crisis.

- Implemented a liquidity coverage ratio.
- Promoted export diversification.
- Improved the fiscal space and buffer through the implementation of a revenue mobilization strategy.

Plans include the following:

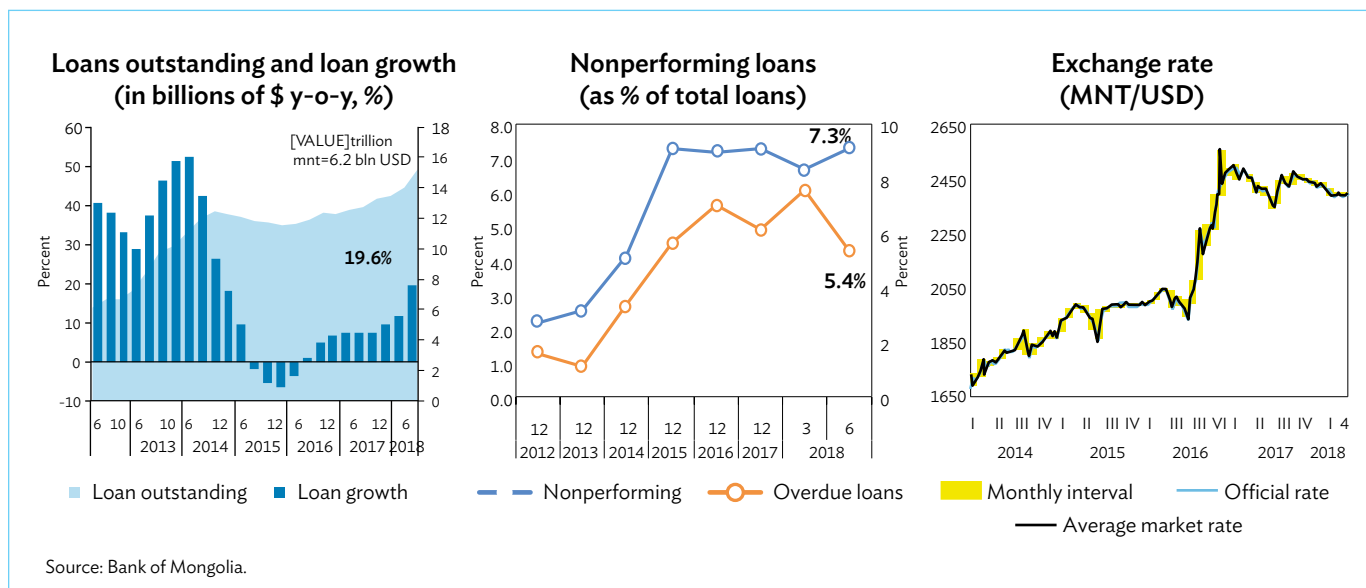
- Financial stability: NBC continues to strengthen the capacity and capabilities of its financial stability monitoring.
- Crisis preparedness: Agencies will adopt a formal crisis cooperation framework and procedures to formulate internal cooperation and coordinate crisis management.
- NBC is studying the possibility of implementing a depositor protection scheme to increase public confidence in the banking system, especially for small depositors.
- Bank supervision: Compliance with the Basel Core Principles on Effective Banking Supervision and prevailing global standards are key elements for enhancing the effectiveness of banking supervision.
- Financial inclusion and literacy: NBC have cooperated with the education ministry to incorporate financial education into the curriculum. NBC will continue to promote the financial inclusion.
- Establish national policies to promote the local currency usage.
- Implemented industrial development plan by promoting the development of special economic zones and small and medium-sized enterprises.

Mr. Munkhbat Yondon attributed the vulnerability of the Mongolian economy to its reliance on mining and one trading partner, the PRC. The commodity price boom led to a GDP growth rate of 17.3% in 2011. However, momentum quickly dissipated because of:

- The decline in commodities prices
- Economic slowdown in the PRC
- An unstable political environment
- Dispute between the government and shareholders in mega-mining projects
- Undisciplined public expenditure based on speculation about commodity prices

Policy measures were also at fault. A new development bank law allowed spending to increase beyond what was stipulated in the budget. Meanwhile, the policy rate was cut substantially. Along with the new quasi-fiscal lending programs, this injected about 25 % of GDP into the

Figure 20: Selected Data for the Mongolian Economy



economy. The resulting credit boom fueled imports leading a sharp depreciation of the tögrög and a depletion of forex reserves. The data in Figure 20 show the difficulties faced by the Mongolian economy during this period.

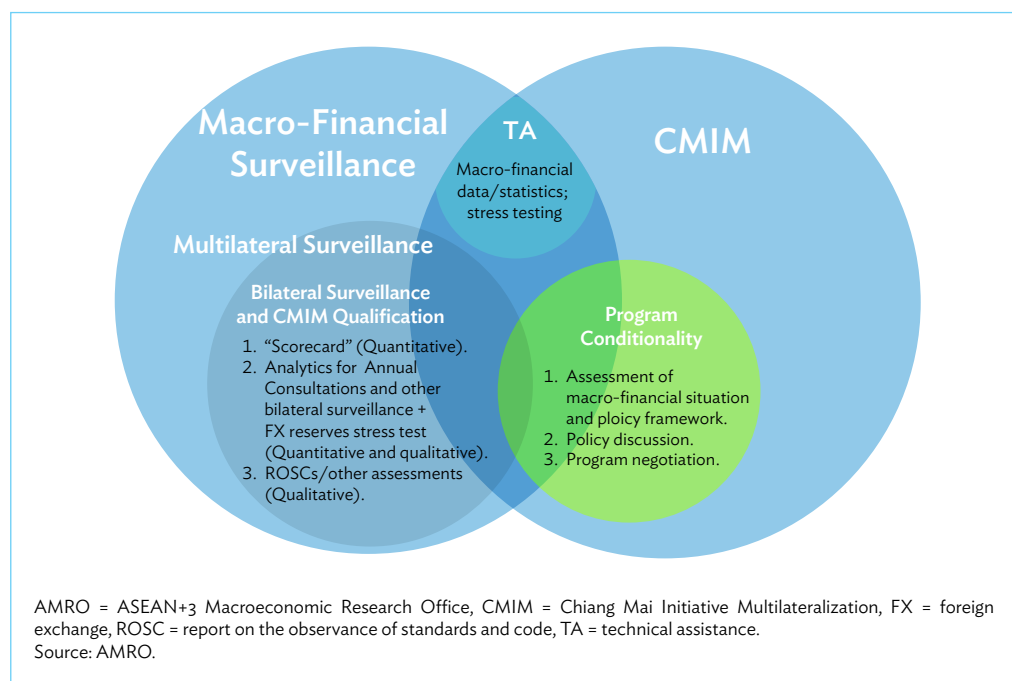
Mongolia embarked on large-scale policy adjustments and structural reforms as part of the \$5.5 billion IMF-led bailout package to stabilize the economy, reduce debt pressures, and rebuild foreign exchange reserves. In May 2017, the IMF approved a three-year Extended Fund Facility arrangement amounting to \$425 million, accompanied by strict and ambitious requirements. Its key objectives were to:

- Strengthen budget discipline
- Rebuild foreign exchange reserves
- Keep monetary policy tight
- Recapitalize and restructure the banking system
- Improve governance, regulation and supervision of banks by amending the Banking Law and Law on Central Bank

The Bank of Mongolia has also been conducting an Asset Quality Review, which included an estimation of banks' capital shortfalls and mandating them to increase capital. Meanwhile, the Bank of Mongolia has spearheaded legal reforms. In addition to amendments to Banking Law and Law on Central Bank, the Bank Recapitalization Law has been enacted and provisions of Basel II and III have been adopted. Efforts have also been made to reduce nonperforming loans.

AMRO adviser Ms. Li Lian Ong explained the framework for identifying and addressing country macro-financial vulnerabilities. The overall approach is summarized in Figure 21. Ms. Ong focused on the gray area: Bilateral Surveillance and CMIM Qualification.

Figure 21: AMRO's Framework of Surveillance



The framework and methodology attempt to account for differences among economies. Macro-financial surveillance and the CMIM are closely intertwined. Macro-financial indicators fall under the quantitative aspect of bilateral surveillance, which also has a



Bank of Mongolia's Munkhbat Yondon discussed Mongolian economic crises—their causes, consequences and policy response.



AMRO's Li Lian Ong presented a framework for identifying and addressing country macro-financial vulnerabilities.

Often economies are considered vulnerable, but no crisis emerges. Perhaps there is a trigger that turns vulnerability into a crisis.

qualitative aspect. Analyses from regular surveillance in annual consultations (the equivalent of the IMF Article IV consultations) complement the indicators.

Ms. Ong narrowed the focus to the quantitative aspect of bilateral surveillance and explained how AMRO identifies early warning signs of vulnerability. AMRO applies a scorecard with four areas: the external position, the fiscal position, monetary policy, and finance sector soundness. So that economies are fairly evaluated, they are grouped according to various filters: peer characteristics, market access, and economic and financial soundness. Benchmarking is then conducted by identifying a state when macro-financial indicators are considered healthy. Z-scores—i.e. the level minus standard deviation—are then calculated for all economies for all macro-financial indicators. An economy would be considered vulnerable if the number of z-scores beyond a critical threshold becomes too high. Ms. Ong presented Turkey and Brazil as examples, one for the aggregate scorecard and the other as a check for robustness of the methodology.

The main issues for consideration are:

- It is important to have a framework for analyzing macro-financial risks to help determine what policies and measures are appropriate.
- Appropriate application of indicators and methodologies should show trend deterioration. This works as an early warning signal.

- One method for assessing the performance of a particular type of country is to compare against indicators of similar countries.
- Quantitative indicators are useful but the qualitative overlay is crucial. This allows interpretation of the statistics to be more robust.
- Last but not least, data adequacy is critical for macro-financial surveillance. This ensures comprehensiveness and credibility of analyses.

Only one question was asked in the open discussion. Mr. Villafuerte argued that often economies are considered vulnerable, but no crisis emerges. Perhaps there is a trigger that turns vulnerability into a crisis. He inquired if Ms. Ong could identify such a trigger. Ms. Ong said that this is not possible. The best that could be done is to identify pressure points.

Technical Session 2

New Instruments for Macro-financial Surveillance in Asia

Moderator: **James Villafuerte**, Economist, ADB

Presenters:

Paper 1: *Dynamic Factor Model for Systemic Events*, **Stefan Trueck**, Macquarie University

Paper 2: *Recipe for Systemic Events: Application of CART*, **Manuel Albis**, University of the Philippines

Paper 3: *The Sector-wide Macro-financial Stress Testing Model in the FSS*, **Jae Hyun Jo** and **Kyu-Man Heo**, Financial Supervisory Service

Discussants:

Paper 1: **Arief Ramayandi**, Senior Economist, ADB

Paper 2: **Peter Rosenkranz**, Economist, ADB

Paper 3: **Zeno Abenoja**, Senior Director, BSP

The presentation of Mr. Stefan Trueck is based on a paper co-authored with Chi Truong, Jeffrey Sheen, and James Villafuerte. They developed an early warning system for Indonesia, the Republic of Korea, Malaysia, the Philippines, Singapore, and Thailand. The added feature is development of macro-financial dynamic factor models that allow useful information to be extracted from a rich but unbalanced and mixed frequency dataset that includes a range of global and domestic economic and financial indicators. Logit regression models using the extracted factors and other leading indicators are shown to have power in predicting systemic events.

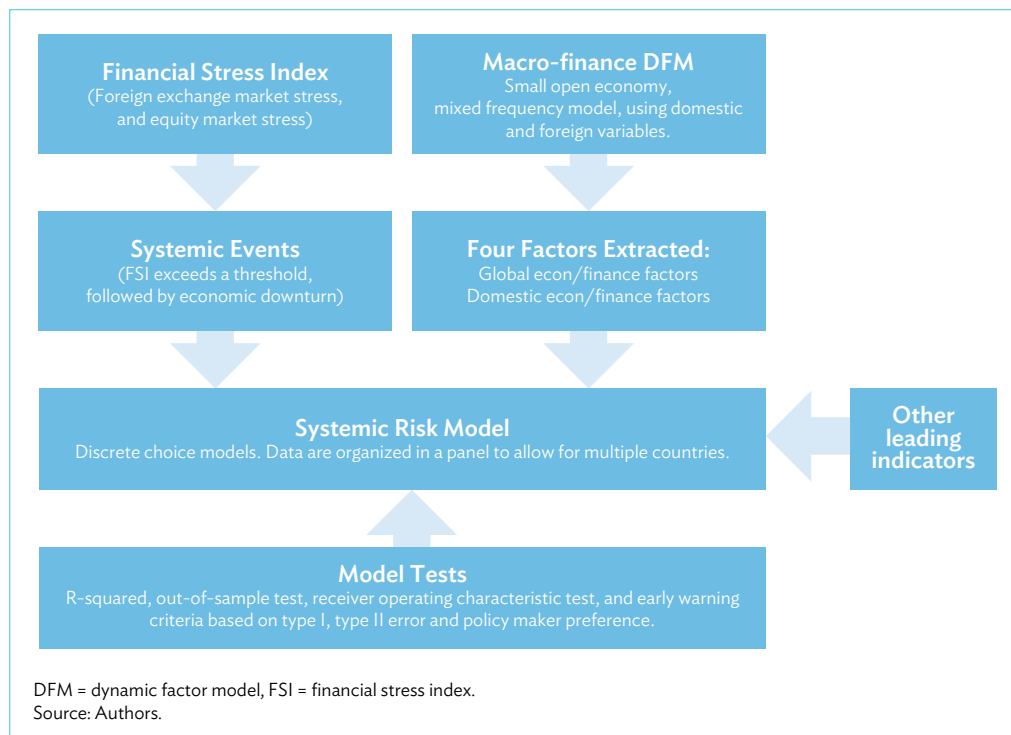
The framework is shown in Figure 22. The first building block is a financial stress index that provides information whether there has been on the crisis or not. Based on the literature five measures are combined: (i) Foreign exchange market pressure index by Eichengreen et al (1996)¹⁷; (ii) Debt market stress index: yield differentials between 3-month local government bonds and US government bonds of the same maturity; (iii) A banking sector stress index: realized volatility of the banking sector stock index; (iv) Equity market stress index: realized volatility of main equity index (standard deviation of daily stock return in a given month); and (v) Negative stock returns: the negative of monthly return normalized by monthly realized volatility. These variables are standardized and combined into an index. A crisis is then defined based on a threshold such as the 97.5 percentile.



ADB's James Villafuerte moderated Technical Session 2.

¹⁷ Eichengreen, Barry, Andrew K. Rose, and Charles Wyplosz, C. 1996. *Contagious Currency Crises*. NBER Technical Report.

Figure 22: Framework for Early Warning System



Macquarie University’s Stefan Trueck presented a dynamic factor model for systemic events.

The second building block would be the factor model. A small economy macro-finance dynamic factor model is developed. It includes factors covering foreign macroeconomics, foreign credit, domestic macroeconomics, and domestic credit. These factors are evaluated based on their ability to predict a crisis; the goal is to develop a model that can provide early warning signals for financial crises in the six Asian countries for which early warning systems are adopted.

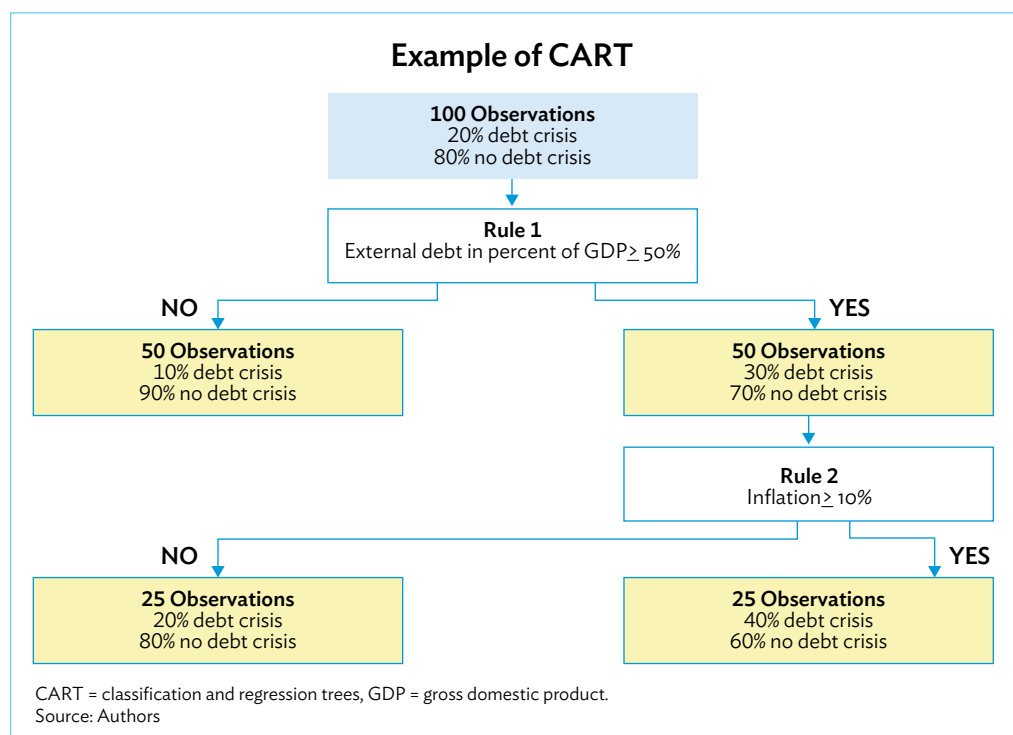
The model combines frequently available financial data such as credit-default spreads, distant-to-default indicators, and mixed frequency data with traditional leading (macroeconomic) indicators. The model accounts for the impact of foreign macroeconomic and credit variables on the local economy. In-sample results indicate that the derived indicators provide additional explanatory power. Out-of-sample testing suggests that the model yields a relatively high proportion of correct predictions, at the same time having a low noise-to-signal ratio.

Mr. Manuel Leonard Albis presented a paper he co-authored with James Villafuerte and Xylee Javier. Their paper explores the application of the classification and regression trees (CART) model to predict periods of financial stress by harnessing nonlinearities among leading economic indicators for better prediction. The paper makes use of the financial stress index (FSI), financial crisis definition, leading economic indicators, and dynamic factors developed by Truong et al. (2018)¹⁸—the paper presented by Mr. Trueck—for Thailand, Indonesia, Malaysia, the Philippines, the Republic of Korea, and Singapore. The CART is a non-parametric prediction model that uses a series of binary splits in order to classify an observation. An example is shown in Figure 23.

The CART algorithm can continue until all observations are classified, which gives a 100% accuracy and yields a complex tree-like structure. However, this type of tree is difficult to

¹⁸ Truong, Chi, Jeffrey Sheen, Stefan Trueck, and James Villafuerte. Forthcoming. Early warning system using dynamic factor models - An application to Asian economies. *ADB Economics Working Paper*. Manila: Asian Development Bank.

Figure 23: Example of CART Application



interpret and may not perform well in practice. A large decision tree suffers from model overfitting, which is a main concern in developing prediction models. Several options are available to deal with overfitting.

The full dataset is divided into (i) training, (ii) validation, and (iii) test datasets. In the model-building phase, the training dataset is used and the results evaluated using observations in the validation dataset. The best model is the one that yields the optimum value of a selected criterion out of the validation dataset. After the model-building phase, the final model is evaluated using the test dataset, and the result is tagged as the overall performance of the model. The process outlined above aims to give an unbiased estimate of the model’s performance when applied to the prediction of crisis scenarios. For small datasets, the validation and the test datasets are the same.

Four models were considered: Model 1 is built from leading economic indicators; Model 2 is created only from the dynamic factors; Model 3 is generated from both the leading economic indicators and dynamic factors; and Model 4 is a two-stage CART model, where the first stage classifies precrisis periods and the second stage detects potential false alarms. Results of the validation process with 2006 as the cut-off year are shown in Table 3. The usefulness index is calculated with a subjective preference parameter of $\theta=0.5$.

Table 3: Validation Data (2006 to 2016)

Statistics	Model 1	Model 2	Model 3	Model 4
Signal (% Predicted)	0.64	0.64	0.69	0.54
Noise (False Alarm)	0.29	0.39	0.19	0.19
Usefulness	-0.13	-0.39	0.19	0.04
NtS	0.45	0.61	0.27	0.35

NtS = noise-to-signal ratio.
Source: Authors.





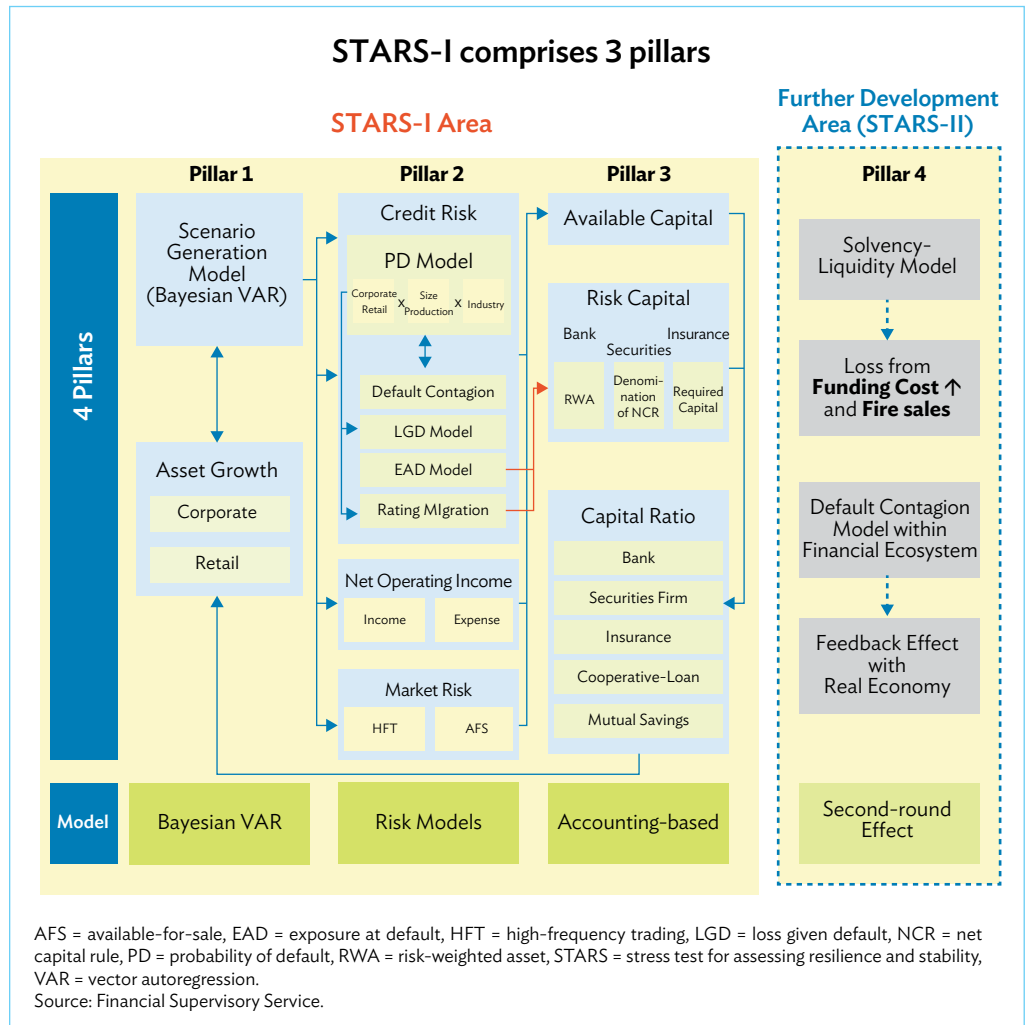
Financial Supervisory Service’s Kyu-Man Heo presented the stress test model for assessing resilience and stability of financial system.

The performance of CART models that are trained without the global financial crisis is better than models trained with the global financial crisis. This could be due to the large size of the global financial crisis, where it caused extreme financial market stress. The model trained to identify this extreme stress may become less sensitive to smaller financial stresses, such as the European debt crisis. Another explanation could be that the European debt crisis did not sizably affect market fundamentals in the six Asian countries in the sample, and affected the foreign exchange market only in the short term.

The advantage of the CART model is illustrated by its capacity to capture nonlinearities present among predictor variables used to improve the predictive ability of the model. This is an advantage over the logit model. The use of dynamic factors developed by Truong et al. (2018) increased the parsimony and reduced the complexity of the model. The results of the tree splits have sound economic justification, providing a mix of economic variables (or a recipe) that will more likely lead to a crisis. However, a different model must be used for more complex structural analysis.

Mr. Kyu-Man Heo presented the Stress Test for Assessing Resilience and Stability of financial system, version 1 or STARS-I. The framework is shown in Figure 24. Due to limited time, Mr. Heo focused on the estimating methodology of probability of default (PD).

Figure 24: Framework of STARS-I



The most typical methodology would be collecting historical data for every finance sector and applying regression analysis with various macro-financial variables. This has drawbacks in terms of availability of adequate time-series data and the required number of equations to cover the different sectors. STARS-I has two unique features compared with other financial authorities' models when it comes to estimating PD. First, it is applicable to the exposure in nonbanking finance sectors or companies which have relatively short historical PD time series; second, it is possible to measure the default contagion risk of obligors with loans from financial companies in multiple sectors.

STARS-I developed a PD model based on Miu and Ozdemir (2007)¹⁹ and the Merton model. According to their findings, it is possible for a PD cycle to be separated into systematic risk and idiosyncratic risk. The movement of every PD is governed by three factors: systematic risk, long-run PD (LRPD) and an asset correlation in the portfolio. Accordingly, by applying their findings to the PD model, LRPD and asset correlation can be regarded as idiosyncratic risks.

STARS-II will incorporate the following:

- A solvency-liquidity model
- A contagion risk model with ecosystem
- Feedback effects with the real economy
- Stress testing for non-financial conglomerates

In his reaction to Mr. Trueck's presentation, Mr. Arief Ramayandi described the model as a work in progress. He made the following observations:

- The model was not able to detect financial stress in Indonesia in 2013 and instead flagged Thailand. The model may have to consider other predictive variables.
- Other variables are available but were not incorporated in the methodology. The reason(s) for this must be made clear.
- The procedure for testing predictive power is also not clear.

Mr. Peter Rosenkranz summarized the presentation of Mr. Albis. He then defined several areas for comment. The first set was on comparison and complementarities with existing EWS models:

- There could have been a slightly more elaborate comparison of the performance of the CART with other EWS models (such as logit/probit or signal models).
- By doing so, one could clearly identify and discuss (e.g., in a table) pros and cons of each approach, and highlight their complementarities;
- For instance, if one identifies that one dynamic factor in the CART is critical for predicting crises, one could consider the signal approach to identify possible worrisome developments in the variables represented by that factor.

The second set was on country-specific aspects of the tree:

- Does the CART use information on all six economies to build the regression tree? In other words, is this tree valid in equal terms for all economies?
- Would it also be possible to prepare a country-specific CART?
- How can one account for country-specific characteristics (e.g., external debt concentration on a specific economy and/or currency)?



ADB's Arief Ramayandi reacted to Macquarie University's presentation.

¹⁹ Miu, Peter, and Bogie Ozdemir. 2007. *Estimating and Validating Long-Run Probability of Default with respect to Basel II Requirements*.



Technical Session 2 panelists discussed new instruments for macro-financial surveillance in Asia.

The third set of comments related to the subjective preference parameter of policy makers θ . In the analysis, the subjective preference parameter θ was set to 0.5; i.e., giving equal weight in the loss function to missing a financial crisis and identifying a false alarm. Mr. Rosenkranz inquired whether robustness checks were made. He argued that this parameter may be crucial for policy makers, and they may place different weight on its importance.

Mr. Zeno Abenoja put the STAR model in the context of earlier macroeconomic stress test models which were criticized for their inability to provide early warning signals. The main reason is that the models were not able to incorporate nonlinearities in their framework. However, the models were able to provide guidance to policy makers by presenting a disciplined structure for assessing how the financial and real sectors of the economy interact.

Mr. Abenoja suggested that the use of some parameters normally distributed in the PD model has to be clarified. The distribution might change very rapidly in periods of distress. Econometric techniques that were employed to develop some aspects of the PD model capture this average relationship in the past. A way might be found to describe how this relationship can change during extreme cases. The present version of STARS is a partial equilibrium exercise, but with the incorporation of the fourth pillar, more feedback will be provided, therefore enriching the structure of the model and its results. Finally, it is assumed that long-run PDs and assets correlations are constant over time. The implications of relaxing this assumption have to be understood.



ADB's Peter Rosenkranz reacted to University of the Philippines' presentation.



BSP's Zeno Abenoja reacted to Financial Supervisory Services' presentation.

Mr. Trueck agreed with Mr. Ramayandi's assessment. He focused on the policy implications of the ability to isolate the main source of vulnerability. Mr. Albis clarified that one CART model was estimated for all the economies in the study. The model's purpose is purely predictive; hence no structural analysis involved in interpreting economic relationships. Mr. Albis agreed that the subjective preference parameter of policy makers should be subject to checks for robustness. Meanwhile, Mr. Heo reiterated the plan to incorporate nonlinearities in STAR-II. The assumption of a constant long-term PDs is valid because over that timescale factors can average out and cancel each other. However, the assumption of constant asset correlations should be reviewed.

Closing Remarks



Yasuyuki Sawada

Chief Economist, ADB

Thank you very much. Allow me to speak one or two minutes. It has been a long day and we have covered much ground.

Given the economic uncertainty repeatedly discussed in today's event, challenges of strengthening our surveillance mechanism, bolstering financial safety nets have gained much urgency. We spoke about growing concern about threat, tensions. Also, it has been mentioned import tightening might help policies on debt exposures. In light of these issues, we discussed how to strengthen our crisis prevention and response mechanisms and also how to deepen regional financing arrangements. We discussed vulnerabilities specific to smaller economies and we outlined several new tools to make macro-

financial surveillance more reliable and accurate; particular importance of national regulation, regulators, as well as, importantly, AMRO.

In order to address growing financial interconnectedness and what it means for spillovers and contagions, besides self-insurance, we discussed three levels of financial safety nets. Whether bilateral through swaps, regional, like the CMIM, or global such as the IMF's operations, these safety nets underscore the critical importance of deepening regional financial cooperation. Today, we moved forward on all these points. We have come a long way over the past two decades in building structures, methods to shore up financial resilience and monetary vulnerabilities, and to act when needed. Of course, much more can be done. But from today's discussion, I certainly feel we are moving in the right direction.

In closing, I'd like to thank everyone involved in making this workshop a great success—all participants, whether speakers, panelists or discussants, and of course the organizers. I look forward to seeing the next steps as we continue to strengthen financial resilience throughout the region. With that, thank you very much again and have a pleasant evening. Thank you very much.

Strengthening Regional Surveillance and Financial Safety Net Mechanisms in Asia

Workshop Highlights

This report shares highlights from a workshop on regional economic surveillance and financial safety nets in Asia, which was held in Manila on 14 August 2018. The workshop gathered policymakers, representatives from international organizations, and academics to discuss crisis prevention and management, new instruments of economic surveillance, and regional financial safety nets.

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