

Buckley, Ross P.; Avgouleas, Emilios; Arner, Douglas W.

**Working Paper**

## Three decades of international financial crises: What have we learned and what still needs to be done?

ADB Economics Working Paper Series, No. 615

**Provided in Cooperation with:**

Asian Development Bank (ADB), Manila

*Suggested Citation:* Buckley, Ross P.; Avgouleas, Emilios; Arner, Douglas W. (2020) : Three decades of international financial crises: What have we learned and what still needs to be done?, ADB Economics Working Paper Series, No. 615, Asian Development Bank (ADB), Manila, <https://doi.org/10.22617/WPS200171-2>

This Version is available at:

<https://hdl.handle.net/10419/230368>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/3.0/igo/>

# THREE DECADES OF INTERNATIONAL FINANCIAL CRISES

WHAT HAVE WE LEARNED AND WHAT STILL NEEDS  
TO BE DONE?

*Ross P. Buckley, Emiliós Avgouleas, and Douglas W. Arner*

NO. 615

June 2020

ADB ECONOMICS  
WORKING PAPER SERIES

## Three Decades of International Financial Crises: What Have We Learned and What Still Needs to be Done?

Ross P. Buckley, Emiliós Avgouleas, and  
Douglas W. Arner

No. 615 | June 2020

Ross Buckley ([ross.buckley@unsw.edu.au](mailto:ross.buckley@unsw.edu.au)) is Scientia professor and KPMG Law and King & Wood Mallesons professor of Disruptive Innovation and Law at the University of New South Wales, Sydney. Emiliós Avgouleas ([Emiliós.Avgouleas@ed.ac.uk](mailto:Emiliós.Avgouleas@ed.ac.uk)) is professor in International Banking Law and Finance, University of Edinburgh and a Member of the Stakeholder Group of the European Banking Authority. Douglas W. Arner ([dwarner@hku.hk](mailto:dwarner@hku.hk)) is Kerry Holdings professor in Law and Director of the Asian Institute of International Financial Law at the University of Hong Kong.

This study was carried out under TA 9210 (REG): Enhancing Research Alliance and South–South Development Policy Cooperation between Asia and the Pacific and Latin America. The paper was prepared as background material for the *Asian Economic Integration Report 2017* theme chapter entitled “The Era of Financial Interconnectedness: How Can Asia Strengthen Financial Resilience?” The authors are grateful for very helpful comments and suggestions by Junkyu Lee and Peter Rosenkranz, and also thank the participants of the ADB–ADBI Conference under the theme “20 Years after the Asian Financial Crisis: Lessons, Challenges, and the Way Forward” in Tokyo on 13–14 April 2017 for valuable remarks and discussion. The authors also greatly acknowledge the invaluable research assistance of Evan Gibson, Jessica Chapman, and Sarah Webster.



Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO)

© 2020 Asian Development Bank  
6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines  
Tel +63 2 8632 4444; Fax +63 2 8636 2444  
[www.adb.org](http://www.adb.org)

Some rights reserved. Published in 2020.

ISSN 2313-6537 (print), 2313-6545 (electronic)  
Publication Stock No. WPS200171-2  
DOI: <http://dx.doi.org/10.22617/WPS200171-2>

The views expressed in this publication are those of the authors and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.

ADB does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use. The mention of specific companies or products of manufacturers does not imply that they are endorsed or recommended by ADB in preference to others of a similar nature that are not mentioned.

By making any designation of or reference to a particular territory or geographic area, or by using the term “country” in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <https://creativecommons.org/licenses/by/3.0/igo/>. By using the content of this publication, you agree to be bound by the terms of this license. For attribution, translations, adaptations, and permissions, please read the provisions and terms of use at <https://www.adb.org/terms-use#openaccess>.

This CC license does not apply to non-ADB copyright materials in this publication. If the material is attributed to another source, please contact the copyright owner or publisher of that source for permission to reproduce it. ADB cannot be held liable for any claims that arise as a result of your use of the material.

Please contact [pubsmarketing@adb.org](mailto:pubsmarketing@adb.org) if you have questions or comments with respect to content, or if you wish to obtain copyright permission for your intended use that does not fall within these terms, or for permission to use the ADB logo.

Corrigenda to ADB publications may be found at <http://www.adb.org/publications/corrigenda>.

#### Notes:

In this publication, “\$” refers to United States dollars.  
ADB recognizes “Hong Kong” as Hong Kong, China; “China” as the People’s Republic of China; and “Korea” as the Republic of Korea.

The ADB Economics Working Paper Series presents data, information, and/or findings from ongoing research and studies to encourage exchange of ideas and to elicit comment and feedback about development issues in Asia and the Pacific. Since papers in this series are intended for quick and easy dissemination, the content may or may not be fully edited and may later be modified for final publication.

## CONTENTS

ABSTRACT	iv
I. INTRODUCTION	1
II. THE ASIAN FINANCIAL CRISIS	1
A. Overview of the Asian Financial Crisis	2
B. Causes of the Asian Financial Crisis	2
C. Accumulation of Nonperforming Loans and Policy Responses	5
D. Lessons of the Asian Financial Crisis	7
III. THE GLOBAL FINANCIAL CRISIS	10
A. Causes of the Global Financial Crisis	10
B. An Analysis of Policy Responses	15
C. Lessons from the Global Financial Crisis	16
IV. THE EUROZONE CRISIS	19
A. Conceptualizing the Crisis	20
B. Causes of the Eurozone Crisis	20
C. Regulatory Responses to the Eurozone Crisis	22
D. Lessons of the Eurozone Crisis	24
V. BRIEF ANATOMY OF THE RESPONSES TO THE CRISES AND CRITICAL COMPARISONS	25
VI. LOOKING FORWARD	27
REFERENCES	33

## ABSTRACT

Fragility that periodically erupts into a full-blown financial crisis appears to be an integral feature of market-based financial systems in spite of the emergence of sophisticated risk management tools and regulatory systems. If anything, the increased frequency of modern crises underscores how difficult it is to diversify away systemic risk and that perceptions of perfectly stable financial systems are normally flawed, even if the source of the next crisis remains well concealed to the expert eye.

Although it is impossible to forecast a financial crisis with a high degree of accuracy and certainty, earlier crises always leave lessons useful in preparation for future crises, from whatever source. It is thus clear that the best way to deal with preventing and addressing major financial crises is to build the defenses of the financial system, including effective institutions, while at the same time trying to identify potential sources of crisis. We should take every opportunity to learn and work to build stronger and more effective financial systems. This paper compares and contrasts the three major crises of the past 3 decades, both to distill the lessons to be learned from them and to identify what more can be done to strengthen our financial systems. As the world addresses the financial impact of the COVID-19 pandemic, the centrality of these lessons is clear.

*Keywords:* Asian financial crisis, COVID-19 crisis, eurozone debt crisis, financial stability, global financial crisis, systemic risk

*JEL codes:* F31, F34, G01, G32

## I. INTRODUCTION

This paper was initially written to commemorate the 20th anniversary of the Asian financial crisis, which started in 1997, because those who do not learn from crises risk repeating history. For example, most experts agree that the global financial crisis of 2008 would have affected East Asia far more severely had the region not learned many of the lessons of this region's earlier troubles. Indeed, more than a decade after 2008 the region has internalized and acted on even more of the lessons of 1997.

While it is easy to be wise in hindsight, few experts predicted the Asian crisis—or the 2008 global financial crisis for that matter or the 2020 coronavirus disease (COVID-19) crisis—and we certainly do not pretend to be sufficiently equipped to predict the next one. Yet history teaches there will be another one and probably sooner rather than later. In the decade since the start of the global financial crisis there has been an ongoing eurozone crisis, now subsumed into the COVID-19 crisis.

Fragility that periodically erupts into a full-blown financial crisis appears to be an integral feature of market-based financial systems in spite of the emergence of sophisticated risk management tools and regulatory systems. If anything, the increased frequency of modern crises underscores how difficult it is to diversify away systemic risk and that perceptions of perfectly stable financial systems are normally flawed, even if the source of the next crisis remains well concealed to the expert eye.

We thus write to compare and contrast these three crises of the past 3 decades (the Asian financial crisis in section II, the global financial crisis in section III, and the eurozone crisis in section IV), examine their respective causes and policy responses, both to distill the lessons to be learned from them, and to identify what more can be done to strengthen our financial systems. Section V provides a critical assessment of crisis responses mostly comprising ex post remedial steps and legislative and regulatory reforms, while section VI offers important recommendations for Asia. Admission of the inevitability of the next financial crisis in no way suggests that analysis of earlier crises is futile. Although impossible to forecast a financial crisis with a high degree of accuracy and certainty, still earlier crises always leave lessons useful in preparation for the next one. We should take every opportunity to learn and work to build stronger, more effective financial systems, with the COVID-19 crisis highlighting just how significant this can be.

## II. THE ASIAN FINANCIAL CRISIS

In 1997–1998, Asia experienced its worst financial crisis of the 20th century. A period of exceptional economic growth and substantial capital inflow in the mid-1990s was punctuated by a crisis which engulfed economies including Indonesia, the Republic of Korea, and Thailand. The problems began in Thailand in June 1997. Foreign money flooded into the country and fueled speculative markets in real estate and stocks and heavy domestic consumption that contributed to a massive current account deficit (Feldstein 1999).<sup>1</sup> Thailand tried to defend the value of its currency but was forced to allow it to float in July and its value plummeted (Arensman 1997). In the following weeks, the contagion spread to Malaysia and the Philippines, to Indonesia and the Republic of Korea over the next months, and eventually around the world to Brazil and the Russian Federation, and to the United States (US) through the near collapse of Long-Term Capital Management, then the world's largest hedge fund (Blustein 1997).

---

<sup>1</sup> See Feldstein (1999) and Passell (1997).

This section reviews the crisis and considers (i) its causes, (ii) the effectiveness of policy responses to nonperforming loans, and (iii) its lessons.

## **A. Overview of the Asian Financial Crisis**

The Asian financial crisis was not a conventional debt crisis. It differed from the 1982 developing country debt crisis and the Mexican peso crisis of 1994–1995, in that the troublesome indebtedness was that of the private sector, not the public or quasi-public, and that it occurred within “a benign international environment with low interest rates and solid growth in output and exports” (World Bank 1998). Furthermore, debt levels in East Asia, especially relative to the export earnings that allow the servicing of foreign currency denominated loans, were not ruinously high by any means. Initially this was a banking crisis that evolved into a currency crisis, which developed into a more generalized economic crisis, at least for Indonesia, the Republic of Korea, and Thailand, the three most severely affected countries.

## **B. Causes of the Asian Financial Crisis**

The four principal causes of the crisis were (i) the type and extent of indebtedness, (ii) financial sector weaknesses, (iii) fixed local exchange rates, and (iv) a regionwide loss of confidence, which eventually spread to emerging market economies worldwide. Each will be considered briefly.

### **(I) Type and Extent of Indebtedness**

#### **(a) Type of Indebtedness**

Short-term debt contributed significantly to East Asia’s economic problems, particularly foreign currency denominated debt, mainly in US dollars and particularly that held by international investors. Such debt was often used to fund not only domestic assets (local currency denominated) but also on-lending in local currencies, particularly in the property sector (often known as “a double mismatch,” between both foreign and local currency and between short-term lending and longer term borrowing). Short-term indebtedness increased significantly in 1995 and 1996 across the region, with the increase concentrated in Indonesia and Thailand (World Bank 1997). The ratio of short-term to total debt in the countries of the region in mid-1997 ranged from 67% in the Republic of Korea and 46% in Thailand, to 19% in the Philippines (World Bank 1997).

The primary problem with foreign investment in the short-term debt of emerging markets is the fluidity of the investment (Soulard 1994). Adverse economic news is likely to halt the rolling over of outstanding debt upon maturity, resulting in net capital outflows. This risk is analogous to capital flight. The secondary problem is that these outflows may foment a collapse in investor confidence.

When foreign-held short-term debt is denominated in foreign currency or if the portfolio is valued in foreign currency terms, even if denominated in local currency, volatility is heightened because a substantial devaluation will decimate the portfolio. Accordingly, the first signs of a pending devaluation will prompt a severe sell-off. The reliance on local currency short-term bonds intensified the crisis once it commenced (World Bank 1998).



## **(b) Extent of Indebtedness**

The extent of indebtedness in East Asia was the product in part of excess liquidity in the developed world. Similarly, each of the lending booms in Latin America were predicated upon excess liquidity in the northern hemisphere (Dawson 1990, 237–44; Marichal 1989, 95; Stallings 1987, 294–95). The story was precisely the same in Asia. Western capital poured into East Asian economies in record quantities in the 2 years to June 1997. East Asian stocks and bonds were being acquired by US and European investors scornful of the low interest rates on offer in their home countries and fearful that the US stock market had reached unsustainable heights (Blustein 1997). Liquidity was at a peak in the US and flowed into emerging market economies (Pettis 1998a, 1998b).

## **(2) Financial Sector Weaknesses**

### **(a) Failure to Intermediate Capital Flows Effectively**

One of the few traits shared among the five principal nations at the center of the Asian financial crisis was an underdeveloped and inadequately regulated domestic financial sector (Arner 2007). The local financial system proved unable to serve as an effective intermediary and allocate funds to productive uses. Capital inflows often ended up in property and stock market investments, driving up the price of those assets in speculative bubbles (Sugisaki 1998). Such speculative investments often cannot generate the foreign currency reserves needed to repay foreign currency debt. Indeed, a useful indicator of whether capital flows to an emerging market economy are excessive may be the destination of the funds. When the majority of incoming foreign capital is funding a boom in the local stock and/or real estate markets, it is time for local regulators to adopt measures to make their nation a less attractive destination for short-term foreign capital, what would be termed “macroprudential measures” in the aftermath of the global financial crisis, including measures to reduce leverage as well as capital flows.

Faced with a steep yield curve, local banks succumbed to the dangerous temptation to borrow short and lend long and largely did so without hedging their foreign exchange exposures, relying on the perceived permanence of fixed exchange rate systems. But regulatory standards were inadequate across the region (World Bank 1998) and doubts about the resilience of individual financial systems were exacerbated by a marked and habitual lack of transparency. Insufficient disclosure and a lack of adequate prudential regulation were compounded by the moral hazard engendered by the crony capitalism prevalent in the region. Local banks were often controlled by people with strong connections to the ruling political party which influenced their lending decisions (“crony lending”). In addition, the choice of highly risky, lucrative funding strategies by the banks in the region was strongly influenced by the prospect of a local bailout, given also their management’s strong political connections.

This meant that indiscriminate international borrowing and domestic lending had been common throughout the region, and when the bubble burst, domestic banks were in crisis in many countries, particularly Indonesia, the Republic of Korea, and Thailand (Dornbusch 1997, 26; Garran 1997). The productive capacity of the region and ensuing credit boom had far outstripped the sophistication and regulation of its financial sectors.

### (b) Premature Liberalization of Domestic Financial Markets

In Thailand's case, foreign money had flooded into the economy: (i) directly as institutional investors invested in stocks and bonds, particularly short-term local market bonds; and (ii) indirectly as Thai banks borrowed heavily from their foreign counterparts through the Bangkok International Banking Facility established in 1993 (Chow 1997). With the benefit of hindsight, the Bangkok International Banking Facility was established too early, before effective micro or macroprudential controls and supervision were in place and functioning well. As the International Monetary Fund (IMF) identified: "a robust financial system underpinned by effective regulation and supervision of financial institutions" (IMF 1998) is the overriding precondition to an economy liberalizing its financial system and capital controls. Indonesia, the Republic of Korea, and Thailand opened their financial systems to international capital flows without reinforcing the stability of the domestic financial sector in a sequenced manner (IMF 1998, 6).

The dangers of premature liberalization of local financial markets are apparent when considering the minimal effect the crisis had had on Taipei,China (Well-Strand, Chen, and Ball 2011), which was also one of the Asian tiger economies at the time. Taipei,China's financial sector was closed to foreign banks and its financial markets largely closed to foreign speculators.<sup>2</sup> Its heavily controlled financial markets and huge foreign exchange reserves served it exceedingly well. Taipei,China's experience underlines that appropriate regulation and supervision must precede financial market liberalization. It also highlighted another important lesson: the importance of self-insurance against volatility through accumulation of large foreign exchange reserves. Malaysia's experience with imposition of capital controls—while highly controversial at the time—is now seen as an effective choice in an evolutionary process of financial market liberalization and integration into global financial markets.

### (3) Fixed Exchange Rates

Fixed exchange rates appeal to developing countries because they stabilize costs of credit (Viscio 1998; Bustelo, Garcia, and Olivie 1999) and inflation, providing discipline against government fiscal and monetary policies (Feldstein 1999, Eichengreen and Hausmann 1999). They are helpful in breaking the wage-price-currency spirals (that have led to ruinous inflation cycles in nations such as Argentina), promoting exports (through slightly undervalued exchange rates), and achieving a stable external environment in times of export-led growth (Viscio 1998).

However, fixed exchange rates pose their own political and economic problems, particularly in the context of emerging markets in the process of integrating into the global financial system, as highlighted through the idea of the "impossible trinity." When an economy with a fixed exchange rate is performing less strongly than that of the economy it uses to peg its currency, either the peg will require adjustment, or the fixed currency will become overvalued inhibiting competitiveness. Choosing to devalue the currency is difficult for politicians, as it risks inflation and may be viewed domestically as a failure in economic leadership. Accordingly, it is easy, with a fixed rate regime, for a currency to become overvalued, as occurred in Mexico in 1993–1994, in Indonesia and Thailand in 1996–1997, in the Russian Federation in 1997–1998, and in Argentina in 2000–2001 (Blinder 1999).

---

<sup>2</sup> Taipei,China's total external debt only increased from \$17 billion in 1989 to \$34 billion in 1997, while the Republic of Korea's increased from \$42 billion to \$143 billion. Taipei,China's inward investment to international reserve ratio was 15% in 1997, whereas the Republic of Korea's was 372% (See Hsiao and Hsiao [2001]).

The other problem with fixed exchange rates is that they have the potential to both encourage excessive borrowing in foreign currency as well as heighten risks of speculative attacks. The combination of the two can trigger destabilizing debt issues, as highlighted in the 1997 Asian crisis. Borrowers choose to take the lower interest rates that are usually on offer abroad and trust the fixed exchange rate to deal with the currency risk. As the Asian financial crisis demonstrated conclusively, this behavior is highly risky and masks the real cost of borrowing in a foreign currency: the currency risk does not disappear merely because one's domestic currency is pegged to a foreign currency.

A pure floating exchange rate is not strictly necessary; a managed flexible rate, provided it is managed in a sensible and market-responsive manner, is usually sufficient. However, in the contemporary world of massive capital flows, a fixed rate is an invitation to trouble. The overwhelming policy lesson of the Asian financial crisis is that flexible exchange rates provide a real measure of protection against currency crises and accompanying economic problems (Meyer 1999).

#### **(4) Regionwide Loss of Confidence Triggers Contagion**

The severity of the Asian crisis exceeded the combined effect of its various causes (World Bank 1998) and can only be explained by a regionwide loss of confidence that led to contagion to emerging markets, both across and beyond the region. This was the common factor that turned the distinct economic troubles of five countries into a regional crisis (World Bank 1998). The tendency to view emerging markets as one asset class or entity was well manifested in the tequila effect of 1995 in which Mexico's peso crisis resulted in a sell-off across the entire emerging markets sector—in nations as diverse as Argentina, Hungary, the Philippines, and Thailand (Buckley 1999). Accordingly, from the perspective of each investor, loss of confidence in the entire region, and thus contagious exodus from lending and investment in Southeast Asian countries, was rational. It led to an outflow of capital—both domestic capital flight and a halt in external refinancing, which triggered currency depreciation, and to massive, unhedged, foreign exchange exposures and severely damaged balance sheets of local corporations (World Bank 1998).

### **C. Accumulation of Nonperforming Loans and Policy Responses**

#### **(1) Overview**

The Asian financial crisis teaches some specific lessons about the economic and structural imbalances which propagate a fertile environment for the multiplication of nonperforming loans (NPLs) and how NPLs should be managed. Essentially, precrisis weaknesses in loan underwriting and bank governance caused a surge in NPLs which, combined with inadequate capital ratios, triggered insolvencies necessitating banking sector restructurings (Buckley and Arner 2011). Effectively, Asia was affected by a twin crisis that combined excesses in borrowing and lending with unsustainable fixed exchange rates, which could not be maintained in the face of large and volatile capital flows. It was thus a combination of a private sector banking solvency crisis and a currency crisis. At its initial stages, however, it was not a sovereign debt crisis, an improper diagnosis by the IMF and others, which has been subsequently accepted and reflected in resolution approaches.

The two countries most deeply affected by the crisis—Indonesia (Takayasu and Yokoe 2000) and Thailand (Laplumwanit 1999, Julian 2000)—had NPL ratios averaging over 13% leading into the crisis. In the People's Republic of China (PRC), the NPL ratio was particularly high, at over 20%, but its economy was detached from regional vulnerabilities because of its closed financial system and capital

account (Wang 1999). In addition, the cause of the high NPL accumulation was largely historical, relating to the process of transition. The high NPL ratios (with the exception of the PRC) was indicative of the inadequate prudential regulation the banking sector was subject to and poor credit standards banks in the region applied to their lending. Evidence of poor credit standards was present prior to the crisis on the basis of several indicators, especially in Indonesia and Thailand, and an early warning system focusing on NPLs would have easily caught them even before the eruption of a full-blown crisis.

A common theme across all countries was the concentration of collateral in one asset class, notably the property sector through direct and indirect lending (Richardson 2017).<sup>3</sup> Loans collateralized by property are particularly vulnerable to falling values during the downward phase of the credit cycle. This can cause a sudden and sharp spike in banking sector NPLs, destabilizing balance sheets, and therefore capital adequacy ratios, that in extreme cases can lead to bank insolvency.

Similarly, the capital adequacy ratios of the countries most affected by the crisis (while consistent with the Basel capital standards at the time) were insufficient at 8%–10% to absorb the high level of NPLs (Kawai 2003).

Following these prudential weaknesses when the crisis reached a stage at which banks required balance sheet and business model restructuring to address solvency, a common problem facing all relevant countries was the underdevelopment or nonexistence of NPL and bank resolution regimes. The Republic of Korea and Malaysia (Furuoka et al. 2012) fared better than Indonesia and Thailand through proactively implementing comprehensive and structured resolution plans, laws, and regulations focusing on recapitalizing banks and managing NPLs through asset management companies.<sup>4</sup> In contrast, Thailand was slow to respond to the unfolding crisis (Laplamanit 1999, Jungtaturapit 1999) and Indonesia was particularly slow in implementing reforms (Sherlock 1988).<sup>5</sup>

## (2) Analysis of Policy Responses

The Asian financial crisis demonstrated that restructuring the banking sector by focusing on closures rather than managing NPLs is not constructive in many cases, particularly in the context of a systemic crisis. At the point that confidence evaporated at both the international and domestic levels, intensifying the crisis due to the procyclical effect it caused, the most affected jurisdictions were simultaneously experiencing a high level of bank closures. Arguably, bank restructurings can tackle pressing problems of financial institution solvency. Yet such consolidation at the wrong moment can also lead to a dearth of liquidity. Paradoxically, mass bank closures, which intensified instead of stemming panic, were a condition of the IMF's support program, notwithstanding that these were nonviable financial institutions (See IMF 2000, Fischer 1988). Indonesia<sup>6</sup> and Thailand<sup>7</sup> had the highest levels of closures and deepest and longest disruptions of financial stability, as well as excessive use of public funds to bail out their banking sectors. NPL ratios and bank closures peaked

<sup>3</sup> Also see Senhadji and Collyns (2002).

<sup>4</sup> The Korea Asset Management Corporation created an NPL resolution fund to facilitate purchases of NPLs (See Kihwan [2006]. <https://www.imf.org/external/np/seminars/eng/2006/cpem/pdf/kihwan.pdf>).

<sup>5</sup> For the Indonesian government's lack of commitment and actual strategy to implement reforms, see Ranta (2017).

<sup>6</sup> As part of the IMF support program, the Indonesian government closed 16 banks in 1997 alone.

<sup>7</sup> As part of the IMF support program, the Thai government closed 56 bankrupt finance companies in 1997 (See Kawai [2003] and Wong et al. [2011]).

simultaneously in those jurisdictions.<sup>8</sup> However, a concentration of bank closures in Thailand did not correlate with a drop in NPL ratios in the short term.<sup>9</sup>

To manage the large volumes of NPLs, asset management companies were created in Indonesia, Malaysia, and Thailand.<sup>10</sup> The use of these proved instrumental in cleansing bank balance sheets of NPLs, strengthening capital ratios in the longer term, stabilizing banking sectors, and aiding the recovery of the region's economies. Each jurisdiction required enacting or amending legislation to establish asset management companies, except for the Republic of Korea, where the existing state-owned asset management company, Korea Asset Management Corporation, was reorganized (Kihwan 2006).

## D. Lessons of the Asian Financial Crisis

There are at least six enduring lessons from the Asian financial crisis:

- (i) Contagion: Loss of confidence can spread easily, acting as a channel for the cross-border propagation of financial stability risks, exacerbating the vulnerabilities of domestic financial systems.
- (ii) Fixed exchange rates are a high-risk strategy and some form of floating rate is generally much to be preferred.
- (iii) The denomination of most of an economy's foreign debt in foreign currency is risky, particularly in the absence of markets for hedging.
- (iv) Much of the debt needs of emerging markets should be funded with long-term local currency denominated instruments.
- (v) The infrastructure and regulation of local capital markets need to be developed extensively.
- (vi) Capital tends to flow recklessly to emerging markets in times of surplus liquidity in the developed world.

Each lesson will be considered in turn.

### (1) Cross-Border Contagion

Whether due to artificial groupings by investment houses (e.g., “emerging markets”), or due to genuine economic and financial links (Terada-Hagiwara and Pasadilla 2004), or due to the simple fact that much of modern finance presents strong links of interconnectedness (Seth, Sarkar, and Mohanty 2001), cross-border contagion is a real risk factor for domestic financial systems. The best protective measure, apart from restrictions on short-term capital flows, is to build a well-regulated financial system with adequately capitalized financial institutions, combined with adequate levels of foreign currency reserves. The latter would act as a form of self-insurance against volatility. Augmenting cooperation structures for cross-border crisis management should be seen as a priority for Asian countries and of equal importance to regional arrangements to mutualize self-insurance through

<sup>8</sup> At the end of 1997, Thailand's NPL/total loans ratio was 22.6% and Indonesia's was 7.2% (See Kawai [2003] and Gochoco-Bautista, Oh, and Rhee [2000]).

<sup>9</sup> While the bank closures took place in 1997, nonperforming loan levels continued to rise sharply. Thailand's NPL ratio reached 50.1% in January 1999 (Takayasu and Yokoe 2000).

<sup>10</sup> The Financial Restructuring Authority in Thailand, the Indonesian Bank Restructuring Agency, and Danaharta in Malaysia (See Noerlina and Dewi [2003]).

pooling and/or access to foreign exchange reserves to manage possible liquidity crises (Liu, Lejot, and Arner 2013), of which the region has become a leading example through the Chiang Mai Initiative (Eichengreen 2003), its multilateralization (CMIM),<sup>11</sup> and the associated ASEAN+3 Macroeconomic Research Office (AMRO).<sup>12</sup>

## **(2) The Benefits of Floating Exchange Rates**

The attractiveness of fixed exchange rate regimes is understandable. However, their disadvantages outweigh their advantages. Currencies attached to fixed exchange rates may become overvalued either due to expansive fiscal policies that may prove inconsistent with a fixed exchange rate regime or due to loss of competitiveness that gives rise to balance of payments imbalances. But currencies attached to a fixed exchange rate are often politically difficult to devalue when they become overvalued, as they naturally tend to do over time. Overvalued currencies lead to a worsening of current account deficits, capital flight, and currency crises.<sup>13</sup> Floating exchange rates provide—while still subject to volatility—generally better results. Given the volumes of global currency flows (over \$5 trillion per day according to the Bank for International Settlements) (BIS 2016), floating exchange rates nonetheless benefit from strong financial systems and availability of foreign exchange reserves and liquidity arrangements, allowing the better weathering of periodic international volatility and crises.

## **(3) The (High) Risks of Foreign Currency Borrowing**

Borrowing in foreign currency imposes a tremendous currency risk on the borrower's economy. At the time of the Asian financial crisis, large-scale hedging was extremely expensive and rarely done, whatever the need to do so.<sup>14</sup> Denominating loans and bonds in foreign currency increases indebtedness as it encourages lenders to discount the currency risk. The Asian financial crisis demonstrated that if the currency risk is with the borrower due to the denomination of the debt, in times of trouble it is transferred to the lender by the incapacity of the borrower to service the debt. The need is therefore clear to develop local currency denominated financing channels, including both equity and debt, as well as markets for hedging foreign currency exposures.

## **(4) The Need for Long-Term Local Currency Capital**

The next lesson touches on the pressing need for emerging market economies to raise long-term capital in their own currencies. Prior to 1997, foreign currency borrowing from banks as well as short-term bond issuance was a major source of local currency capital, as local lenders borrowed in international markets to on-lend in domestic currencies along with major local borrowers likewise directly accessing primarily US dollar markets.<sup>15</sup> However, the short tenor of these instruments brings tremendous instability. Long-term local currency capital markets allow emerging market debtors to

<sup>11</sup> In March 2014, the Chiang Mai Initiative developed into the CMIM Agreement, a multilateral currency swap agreement among Association of Southeast Asian Nations plus 3 (ASEAN+3) countries (AMRO 2007).

<sup>12</sup> In May 2011, AMRO was founded as the regional surveillance unit of ASEAN+3, directly responsible for regional economic surveillance and overseeing the CMIM (See Rana, Chia, and Jinjark [2012]).

<sup>13</sup> For a discussion of the difficulty in devaluing fixed exchange rates due to competing government objectives, see Obstfeld and Rogoff (1995). For an analysis of government credibility and devaluation through the Latin America example, see Welch and McLeod (1993).

<sup>14</sup> For an analysis of an unprecedented increase in short-term foreign liabilities at the onset of the Asian financial crisis, see Chang and Velasco (1998) and Schwartz (2002).

<sup>15</sup> For a breakdown of debt structure in the ASEAN+3 countries in facing the Asian financial crisis, see Weiping Liu (2007) and Stevens (2007).

raise capital with the currency risk shifted on the investors. Returns to investors will be greater when times are good, as debtors will have to pay more to borrow in their currency, and less when times are bad, through the operation of the exchange rate. This repayment profile is well adapted to avert crises.

Many regional economies have learned this lesson, with the PRC, Indonesia, and the Republic of Korea, in particular, devoting considerable effort to the development of local currency sovereign bond markets. These efforts have received very important support at the regional level through the ASEAN+3 Bond Market Initiative.<sup>16</sup>

### **(5) The Need to Develop Local Capital Markets**

Bond and equity markets transfer risks directly to investors, not through banks. This is desirable because concentrating risk in an industry as unstable as banking is perilous. In addition, in emerging market economies, banks are often subject to pressure to make finance available to certain debtors for noncommercial reasons (Harwood, Pomerleano, and Litan 1999). This form of crony capitalism has generally been seen as a major contributing factor to the scale of the Asian financial crisis (Lee 1999, Singh and Zammit 2006, Rajan and Zingales 1998). Once again, this has been a major area of focus in the region, both in individual economies and regionally, in ASEAN (See Reserve Bank of Australia 2003, BIS 2011, Park 2016). In the latter, in addition to the ASEAN+3 Bond Market Initiative and its debt market focus, the ASEAN Capital Markets Forum (Goswami and Sharma 2011)<sup>17</sup> and its Implementation Plan has provided important support,<sup>18</sup> as have related initiatives in the context of the Asia-Pacific Economic Cooperation targeting funds and listing. In each case, these build on international work, in particular, through the International Organization of Securities Commissions (IOSCO) and are influenced by European Union (EU) experiences, both positive (particularly before the global financial crisis) and negative (particularly since the global financial crisis) (See Poli 2014; Liu, Lejot, and Arner 2013; Kaeochotchuangkul, Benjapongsapun, and Ammarapala).

### **(6) International Capital Flows and Trade Imbalances**

Emerging market financial crises are often preceded by a period of high liquidity in developed markets which in turn chase yields in other markets, often resulting in overlending translating into excessive debt levels that eventually resolves through currency, banking, or sovereign debt problems.<sup>19</sup> The primary task of local and international bank regulators—to maintain the safety and soundness of their domestic financial systems—requires vigilance and control over the amount international banks and institutional investors are lending to and investing in emerging market economies. Given the manner in which global trade has developed since 1998 (particularly since the PRC's accession to the World Trade Organization in 2001), trade imbalances generating financial flows from the developing world are now a concern for developed economies too and a major element underlying the global financial crisis (See Caballero and Krishnamurthy 2009).

---

<sup>16</sup> Launched by ASEAN+3 in 2003, the Asian Bond Markets Initiative created a regional bond guarantee system and established regional settlement and clearance infrastructure (See Goswami and Sharma [2011]).

<sup>17</sup> The Asian Bond Market Forum was launched in 2010 as a common platform to support harmonization of regulation concerning cross-border bond transactions and the standardization of market practices (See Goswami and Sharma [2011]).

<sup>18</sup> Launched in 2015, the “Implementation Plan to Promote the Development of an Integrated Capital Market to Achieve the Objectives of the AEC Blueprint 2015” focused on adopting international standards, progressive liberalization, and sequencing regional initiatives (See Phuvanatanarubala [2009]).

<sup>19</sup> See Reinhart and Rogoff (2011), Kindleberger (1978), Minsky (1992).

### III. THE GLOBAL FINANCIAL CRISIS

The Asian financial crisis highlighted how global financial imbalances foster instability. As lessons were not learnt, financial imbalances also fueled the global financial crisis. Both crises were, in part, associated with improperly designed regulatory systems supporting overinvestment in real estate (Arner 2009) and it was such overinvestment that provided the initial trigger in both cases. The global financial crisis began as a domestic mortgage crisis in the US, which rapidly spread throughout the world after the failure of Lehman Brothers and American International Group (AIG). Financial institutions lost confidence in dealing with one another and funding markets froze. This prompted regulators around the world to not only focus on recapitalizing financial institutions—including those not normally subject to bailouts—but also becoming the liquidity provider of last resort for markets.

This section reviews the crisis and considers (i) the causes, (ii) the policy responses, and (iii) lessons of the global financial crisis.

#### A. Causes of the Global Financial Crisis

The five principal causes of the global financial crisis were (i) excessive leverage fuelled by lax monetary policies, (ii) poorly functioning credit markets that underpriced risk, (iii) a disconnect between regulatory structures and the financial system, (iv) misaligned incentives, and (v) interconnectedness that facilitated the global transmission of systemic risk.<sup>20</sup> Each of these in turn was underpinned by an excessive reliance on quantitative risk management mechanisms (Arner 2009). Each is considered briefly.

##### (1) Excessive Leverage

During 2000–2007, borrowers, lenders, arrangers of transactions, credit support providers such as insurance companies, investors, and credit rating agencies all combined in an environment of low interest rates, very easily available capital and regulatory distraction to push lending and borrowing to new levels of excess, notably in the US, the United Kingdom (UK), and key eurozone countries such as Italy and Spain (Avgouleas 2015). Leverage had, first, been identified as a destabilizing factor for financial systems by Hyman Minsky, who showed its deleterious consequences for defaults and debt overhang.<sup>21</sup> This was an argument further refined by US economists, who have shown the importance of the leverage cycle on the price of collateral and, in turn, the volatility of the latter in causing financial instability (Geanakoplos 2010). As if high leverage levels were not enough, global credit markets in the wake of the global financial crisis presented a number of other structural weaknesses that would play a key role in bringing about a crisis of unusually large magnitude.

##### (a) United States Subprime Mortgage Market

Excessive borrowing and lending were particularly concentrated in real estate markets. In the US, consumer borrowers of lesser credit quality (including the now infamous subprime lending, of which the most extreme example was “NINJA” borrowers—no income, and no job or assets) became popular targets of bank credit products, mostly subprime mortgages (Arner 2009). Securitization and the perception that credit risk could be perfectly hedged on a portfolio basis—especially with the

<sup>20</sup> See Avgouleas (2012a), chapter 2, in which flawed financial innovations coupled with flawed science are further added as a cause of the global financial crisis.

<sup>21</sup> For a restatement and a summary of the “financial instability hypothesis,” see Minsky (1992).



support of credit default swaps—allowed banks to accelerate consumer lending to all members of society regardless of risk (Arner 2009), a false security augmented by false assumptions about the actual risk sharing impact of securitization (Rajan 2005, Keys et al. 2010).

Underpinning these lending practices were guarantees, purchases, and securitization of so-called “conforming loans” by the US government-sponsored enterprises: Fannie Mae and Freddie Mac (Arner 2009). These institutions posed systemic risk because of their central role in US mortgage markets and being the largest issuers of US government agency debt securities (Arner 2009). When subprime mortgagors began defaulting in large numbers, Fannie Mae and Freddie Mac were unable to honor their guarantees and faced bankruptcy. The renationalization of these institutions averted their default and a systemic crisis, yet eroded confidence in markets and prompted the eventual failures of Lehman Brothers and AIG (Arner 2009).

### **(b) Other Asset Classes**

Excessive lending and leverage were not limited to real estate. Investors pursued yield with little consideration of risk. Arrangers and advisors, such as credit rating agencies, were more than willing participants in their quest to earn fees (Arner 2009), and investors followed their advice either due to heuristics or rational herding (Avgouleas 2009). Debt securities manufactured by the securitization process were repackaged and resold to financial institutions and institutional investors (including insurance companies and pension funds) in the US and around the world (Arner 2009). When the market for these securities collapsed, the systemic repercussions reached all corners of the globe.

## **(2) Malfunctioning Credit Markets**

One of the key causes of the global financial crisis was a run on short-term funding markets, which banks had used exceedingly by 2008 or the so-called the run on the repo (Gorton and Metrick 2009). A liquidity crunch meant that large volumes of short-term funding could not be renewed or rolled over,<sup>22</sup> which sent shockwaves around the system, with the prospect of default looming for both key Wall Street and High Street banks (see subsection 4.c below). Another manifestation of malfunctioning credit markets was the market for asset-backed securities where risk was substantially underpriced and underwriting standards very loose. Securitization was the foundation of universal banks’ “originate-and-distribute” model, whereby assets (e.g., mortgages) could be repackaged and sold to investors, with the proceeds funding the origination of further assets to repeat the distribution cycle (Arner 2009, Schwarcz 2009a).

Misaligned incentives led to excessive risk taking and socially damaging outcomes (Avgouleas 2012a, Schwarcz 2009b). Furthermore, securitization instruments, markets, and methodologies were very complex and lacked transparency, obscuring the underlying risks (Schwarcz 2008). Poor loan origination practices and unregulated nonbanks and shadow banks were at the heart of the subprime mortgage crisis (Segoviano et al. 2013).

---

<sup>22</sup> On the importance of this parameter, see Brunnermeier (2009) and Brunnermeier and Pedersen (2009).

### **(a) Derivatives**

Securitization played a substantial role in amplifying systemic risk by facilitating excessive leverage and risk concentration across the financial system (Segoviano et al. 2013). Derivatives were critical in supporting the securitization structure because these instruments were designed as a hedge or insurance to reduce the risk of the underlying asset (e.g., subprime mortgages). The preglobal financial crisis growth in securitization coincided with the ballooning of the derivatives markets (Masciantonio and Tiseno 2012). The Basel II framework provided real opportunities to game regulatory requirements. Thus, it incentivized the increased use of credit derivatives to mitigate risks, which resulted in heightened counterparty risk among financial institutions (e.g., banks) and major dealers (e.g., Lehman Brothers, Bear Stearns, Merrill Lynch, Union Bank of Switzerland, Royal Bank of Scotland [RBS], Citigroup, and AIG) (Arner 2009).

Prior to the global financial crisis, over-the-counter derivatives markets were generally regulated by the private sector through a model premised on the paradigmatic example of private ordering promoted by the International Swaps and Derivatives Association, with limited public supervision, which was mainly undertaken through monitoring major bank participants (Arner 2011). Derivatives markets lacked transparency. This defect was made evident when regulators failed to identify Bear Stearns' or AIG's massive unhedged bets against a collapse in the subprime mortgage market (Mishkin 2010). When AIG—the largest issuer of credit default swaps—was unable to honor its commitments, securitization structures unwound rapidly, reconcentrating credit risk into the financial system at a time when it was extremely vulnerable, exposing the lethal web of global credit market interconnectedness (Avgouleas 2012b).

### **(b) Credit Rating Agencies**

Credit ratings agencies played a critical role in supporting the securitization structures by rating the securities (which were sold to investors largely on the basis of rating-based judgments with levels of due diligence expected in debt markets differing dramatically from acceptable levels in the equity markets) based on a tranche of mortgages' cash flows and risk profile. However, credit ratings agencies had a number of conflicts of interest, including that the client paying the fee for the security's rating was the issuer. It was later revealed that some securitized products were awarded higher ratings than fundamentals suggested, and that "ratings shopping" may have resulted in upwardly biased ratings.<sup>23</sup> This masked the risk of the underlying subprime mortgages. Prior to the global financial crisis, credit ratings agencies were unregulated, being subject only to the IOSCO Code of Conduct which advocated mitigating potential conflicts of interest in general terms only (Arner 2009). Thus, these conflicts of interest were not subject to any meaningful regulatory deterrent.

## **(3) A Disconnect between Regulatory Structures and the Financial System**

Regulatory gaps and arbitrage played a central role in the global financial crisis (Arner 2011). Financial regulatory structures did not reflect the structure of the financial system. This was most evident in macroprudential supervisory failure, blurred financial demarcations of regulatory boundaries, and the procyclical nature of certain regulations (Weber et al. 2014).

---

<sup>23</sup> See Figure 6 in Masciantonio and Tiseno (2012).

### (a) Macroprudential Supervisory Failure

Before the global financial crisis, regulators essentially sought to ensure the safety and soundness of a financial system by ensuring the safety and soundness of each significant financial institution in the system. This is known as microprudential regulation. It is an approach that neglected potential interactions between those institutions, especially of the type highlighted by the global financial crisis (so-called endogenous risk) (Brunnermeier and Goodhart 2009), as well as the interaction between the financial system and the macroeconomic cycle and between credit supply and asset bubbles. Monitoring these aspects of the financial system and guarding against risks arising in this context came to be known as macroprudential regulation (Hanson, Kashyap, and Stein 2011; Freixas, Laeven, and Peydró 2015). The adoption of a macroprudential approach is conceived to offer the authorities, in principle, a means of better protecting the economy against the consequences of financial instability. If asset bubbles and other forms of macroeconomic volatility can be identified at an early enough stage, then it may be possible for corrective measures to be taken (Cranston et al. 2018).<sup>24</sup>

Before the global financial crisis, regulatory structures neglected macroprudential or systemic risk across the financial system, including that generated by regulated banks; shadow banks; financial instruments (e.g., derivatives); and systemically important financial institutions. In the period before the global financial crisis, the regulatory focus was on microprudential regulation—the safety and soundness of individual institutions—and monetary stability, not the risks across the financial system (i.e., the cross-sectoral dimension) or how risks aggregate over time (i.e., the time dimension) (Arner 2011). This was exemplified by regulators’ decision to allow Lehman Brothers to fail in the belief that the investment bank did not pose a systemic risk. A flawed belief since it was Lehman Brothers’ failure, and that of AIG, that triggered the systemic phase of the crisis.

### (b) Blurred Financial Demarcations

In the US, commercial banks and investment banks had been legislatively separated since the Great Depression of the 1930s. Deregulation in the late 1990s fueled the rise of universal banking (e.g., Citigroup), combining the previously segregated business models and the growth of international financial behemoths.<sup>25</sup> When the global financial crisis unfolded, universal banks had large exposures to a range of toxic assets, notably through securitization. Coupled with dysfunctional interbank markets, a liquidity crunch, and insufficient capital buffers, consequential deleveraging severely strained balance sheets, which led to many institutions requiring government recapitalizations (e.g., Citigroup, Union Bank of Switzerland, RBS) (Masciantonio and Tiseno 2012) reinforcing the too-big-to-fail (TBTF) impact (Avgouleas 2010). Securitization created linkages with nonbank financial institutions, namely investment banks (e.g., Lehman Brothers, Merrill Lynch, Bear Stearns) and insurance companies (e.g., AIG). Similar to the banking system, the regulatory structure was not designed for these risks. When securitization structures unwound, this resulted in the widespread failure of bank and nonbank financial institutions.

### (c) Procyclical Regulation

Weaknesses in capital and liquidity, combined with excess leverage, were central causes of the global financial crisis (Arner 2011). Basel II had a number of procyclical design faults: greater recognition of

<sup>24</sup> See chapter 2 in Cranston et al. (2018).

<sup>25</sup> See chapter 14 in Avgouleas (2016c).

quantitative risk modeling, reliance on credit ratings, and regulatory recognition of credit risk mitigation techniques, especially credit derivatives. The adoption of quantitative risk modeling for risk management (i.e., capital held against market risk) proved inadequate when subjected to circumstances of extreme market stress (so-called “black swan” events). Reliance on credit ratings in determining required levels of bank capital enhanced the procyclicality of capital regulation, because when credit ratings were downgraded aggressively, this led to higher capital requirements (Arner 2009). Insufficient Basel II capital buffers amplified these structural weaknesses.

Accounting standards during the global financial crisis were market based (i.e., market-to-market). These standards had a procyclical effect, as financial institutions had to continually revalue assets downward as more institutions deleveraged, creating ever greater and more solvency-threatening losses (Arner 2011). These in turn required greater capital buffers, with Basel II once again amplifying the downward spiral in market confidence.

#### **(4) Global Transmission of Systemic Risk**

##### **(a) Too Big to Fail**

As mentioned previously, the decision to allow Lehman Brothers to fail was based on the presumption it would not pose a systemic risk and would support market discipline. In the event, this belief proved disastrously misplaced. Unwinding the firm’s positions in equity, debt, and derivatives markets around the world dramatically increased uncertainty (i.e., if Lehman Brothers could fail, any institution could fail), which shattered already weak confidence among financial market participants. Around the same time, Bank of America agreed to acquire Merrill Lynch, the third-largest US investment bank (Arner 2009).

Derivatives were instrumental in the near collapse of AIG, which triggered the systemic phase of the crisis (Arner 2011). These derivative exposures created connections between the shadow and regulated banking systems, which facilitated the transmission of systemic risk (Gibson 2014). If AIG had been allowed to default on its derivatives, the resultant systemic risk would probably have caused the insolvency of many of the world’s largest financial institutions (Arner 2009). Nonetheless, these events, in collaboration with the uncertainty, loss of confidence, adverse selection, and losses resulting from the demise of Lehman Brothers, did cause precipitous market price falls and a nearly complete freeze in markets’ ability to refinance exposures. These developments threatened, in the absence of government intervention, a complete breakdown of the global financial system (Arner 2009).

##### **(b) A Domestic Regulatory Approach in a Global Financial System**

The nature of the crisis required not merely domestic responses, but also international coordination. In particular, information gaps in relation to cross-border institutions and their supervision were exposed; the soft-law bodies setting the standards for the global financial systems lacked any supervisory capacity and other cross-border crisis management systems were nonexistent (Avgouleas 2012b).<sup>26</sup> The systemic phase of the crisis was triggered by the failure of large complex global financial conglomerates (e.g., Lehman Brothers, AIG), which was intensified by international and domestic legal and regulatory structures that lacked appropriate arrangements to manage their failure (Arner 2009).

---

<sup>26</sup> See chapter 4 in Avgouleas (2012b).

### (c) Financial Funding Market Failures

Reliance on short-term interbank, money market, and capital market funding caused severe financial system liquidity strains when these markets became dysfunctional. This was evident before the collapse of Lehman Brothers. Northern Rock in the UK and Bear Stearns in the US had been unable to fund their business models, eventually requiring resolution through government intervention. Following the collapse of Lehman Brothers, financial funding market illiquidity became central to the systemic phase of the crisis (Arner 2009). The traditional regulatory approach of focusing on bank insolvency obscured initial responses as financial market illiquidity affected all financial institutions. Financial institutions became increasingly wary of dealing with one another, especially in short-term interbank borrowing and lending. At the same time, markets began to scrutinize institutions viewed as heavily exposed, such as monoline insurers and insurance companies dealing extensively in credit default swaps, investment banks, mortgage lenders, quasi-public mortgage market institutions (e.g., Fannie Mae and Freddie Mac), and banking groups (Arner 2009).

### B. An Analysis of Policy Responses

Globally systemically important banks became fragile from an over-exposure to subprime mortgages and related financial instruments (e.g., derivatives), or plain reckless lending, mostly to the real estate sector, complicating bank rescues. Despite central bank actions to bolster short-term liquidity markets to avoid a collapse of the financial system, initial regulatory approaches were calibrated far too narrowly and were not very effective (Arner 2009), since they pursued two *prima facie* conflicting objectives: to stabilize the system, on the one hand and, on the other, to punish reckless (or worse) bankers. Delays in calibrating the appropriate liquidity mechanisms were partially responsible for the credit crisis becoming a systemic one (Arner 2009). The approach of the authorities to rescue systemically important financial institutions was very different to the approach adopted by the IMF in the Asian crisis (Arner, Avgouleas, and Gibson 2017), where governments were required to take drastic steps to close financial institutions and address nonperforming assets.

Approaches differed from jurisdiction to jurisdiction, but the underlying premise was to strengthen balance sheets and stabilize financial systems, which eventually enabled banks to resume lending. The use of asset management companies and/or guarantees was preferred. No bailout approach proved superior, as the choice depended on market factors, the financial position of the government involved, and the ability to retain or reinforce confidence in the failing financial institution. For example, hesitation in the UK was analogous to that in Indonesia and Thailand and in each case, this hesitation eroded confidence and diminished the success of the delayed bailout of RBS (Arner, Avgouleas, and Gibson 2017).

From 2008 onward, the Group of 20 (G-20) assumed the leading role in coordinating postglobal financial crisis responses and financial regulatory reforms, substituting for the G-7, which had taken on this role after the Asian financial crisis. Similar to the emerging markets-focused approach adopted after the Asian financial crisis, these postglobal financial crisis reforms have resulted mainly from domestic implementation of internationally agreed approaches, albeit with a focus on developed economies and global financial markets (Arner 2011, Buckley and Arner 2011). International cooperation and coordination, setting financial standards, and monitoring implementation was assigned to the Financial Stability Board (FSB), a renamed and strengthened evolution of the Financial Stability Forum that had been established in the wake of the Asian financial crisis (Arner 2011).

Following a number of summits, the G-20 and FSB established the core elements of the new regulatory framework:

- (i) building high quality capital and liquidity standards and mitigating procyclicality;
- (ii) addressing systemically important financial institutions through, among other things, structural reform and new resolution regimes;
- (iii) improving over-the-counter derivatives markets through centralization of trading and clearing and a new regulatory framework dealing with risk management;
- (iv) strengthening accounting standards, especially relative to the calculation of capital and risk and forward-looking provisions for new lending by means of the adoption of IFRS 9;<sup>27</sup>
- (v) strengthening adherence to international supervisory and regulatory standards through regular peer reviews;
- (vi) reforming management compensation practices to redress perverse incentives and support financial stability;
- (vii) developing macroprudential frameworks and tools; and
- (viii) expanding and refining the regulatory perimeter.

Frameworks for specific global financial crisis issues were outsourced in the immediate aftermath of the crisis to international organizations, including the Basel Committee on Banking Supervision, IOSCO, and the International Association of Insurance Supervisors. For example, the Basel Committee on Banking Supervision released Basel III in 2010 and IOSCO released a much revised set of *Objectives and Principles of Securities Regulation* in 2012. Implementation of these reforms is ongoing, and their effectiveness cannot yet be fully gauged. However, more recently, we see an increasing divergence in national regulatory practices and a reluctance to abide especially with the Basel capital adequacy framework, which some jurisdictions, including at least to some extent the US, are beginning to question.

### C. Lessons from the Global Financial Crisis

Setting aside highly significant systemic and microprudential concerns relating to bankers' incentives and financial sector culture, which are outside the scope of this paper, five main lessons can be drawn from the global financial crisis:

- (i) Securitization cannot mitigate market risks in the absence of regulation correcting incentives.
- (ii) Comprehensive regulation of the financial system is needed to augment its resilience, though that may come at the expense of clarity as financial stability regulation has become overly complex.
- (iii) Regulations should guard against moral hazard, especially TBTF institutions and should not be procyclical, a charge that was launched against Basel II capital standards (and credit ratings).

---

<sup>27</sup> International Financial Reporting Standards (IFRS) are accounting standards issued by the IFRS Foundation and the International Accounting Standards Board. IFRS 9 addresses the accounting for financial instruments and covers classification and measurement of financial instruments, impairment of financial assets, and hedge accounting.

- (iv) Systemic risks need to be detected and mitigated but, as this may be exceedingly difficult, a prophylactic approach that leads to ex ante building of adequate capital and liquidity buffers is probably the best regulatory strategy.
- (v) A flexible, speedy, and comprehensive framework is needed to resolve financial institutions, with special attention given to systemically important financial institutions.

Each lesson is considered in turn.

### **(1) Securitization Regulation Should Mitigate Market Risks**

Prior to the global financial crisis, securitization was often abused, and its inherent risks obscured. The lesson from this experience is that securitization should lead to simple and transparent structures that promote disclosure; and credit ratings agencies should be regulated to avoid or at least mitigate conflicts of interest when assigning ratings to securitization-related financial instruments (Arner 2009). Securitization has an important potential role in the financial system—especially in access to finance and support for economic growth—but regulation to ensure transparency and align incentives is necessary.

### **(2) Comprehensive Regulation of the Financial System is Needed**

The second lesson from the global financial crisis is that regulatory gaps, overlaps, and divisions in a number of jurisdictions, especially the US, presented opportunities for regulatory avoidance and arbitrage. Regulatory structures were flawed in scope and coverage (Arner 2011). All financial institutions, including all service providers (e.g., credit ratings agencies), and financial instruments (e.g., derivatives) should be regulated to discourage regulatory arbitrage. This may involve developing new and enhancing existing financial market infrastructures. Regulatory structures must be designed to address unregulated areas that pose substantial risks, such as shadow banking and off-balance sheet treatments. The scope of financial regulation must be broadened to dispel traditional preconceptions of particular institutions undertaking specific financial activities. Regulation and supervision must be suitably flexible to recognize and address any financial activity emanating from any institution. This is a particular challenge going forward given the impact of technology on finance (i.e., FinTech) in avoiding regulatory arbitrage, ensuring a level playing field, and protecting against risks arising from new directions and participants (Zetsche et al. 2017).

### **(3) Designing Regulations which are not Procyclical in Crisis Conditions**

Certain Basel II regulations and “mark-to-market” accounting standards proved to be procyclical under crisis conditions. Procyclicality was further enhanced when assets and credit ratings were devalued and downgraded. To strengthen balance sheets in crisis conditions, the robustness of capital, liquidity and leverage requirements should be tested ex ante and risk management must be improved to insulate institutions against asset devaluations in the event of economic downturns or when an asset bubble bursts. Adopting forward-looking accounting standards on top of these prudential requirements will further mitigate procyclicality (Novoa, Scarlata, and Sole 2009). Countercyclical requirements and capital requirements calibrated for systemically important financial institutions should be built over a period to buttress balance sheets with an additional buffer against credit rating downgrades or outright asset value write-offs. Basel III has addressed some of these issues in the banking system. Reporting and related stress testing of systems provide important opportunities for

increased use of technology in both compliance and regulatory monitoring through regulatory technology (RegTech) approaches (Arner, Barberis, and Buckley 2017).

#### **(4) Effective Detection and Mitigation of Systemic Risk**

##### **(a) Regulation of Market Infrastructure**

Preventing and addressing systemic risk is a fundamental aspect of financial regulatory design, which was exposed as a critical design flaw of the preglobal financial crisis regulatory structure. The lessons are that supervisors must have the capacity to identify and regulate systemically important financial institutions to mitigate transmission of systemic risk, and be equipped with the tools and mechanisms to ensure that funding markets remain liquid in all market conditions. Furthermore, financial instruments which have the propensity to become systemic risk conduits, such as derivatives, require regulation that facilitates transparency and disclosure, and financial market infrastructure that can interrupt the transmission of systemic risk (e.g., central counterparty clearinghouses). Market infrastructure is a particular focus of many new FinTech developments, posing new challenges for regulators but also offering new opportunities to design better systems, including through the use of RegTech (Arner, Barberis, and Buckley 2016).

##### **(b) Macroprudential Supervision**

Effective macroprudential supervision is critical. Under this framework, regulators have a responsibility to look at the resilience of the financial system as a whole and the way it interacts with the wider economy, including the possible formation of asset bubbles. Supervisors need to be equipped with the tools and mechanisms to assess and manage risks across the financial system and which aggregate over time.<sup>28</sup> In this context, a number of new measures, such as leverage ratios, countercyclical capital requirements, and lending controls, (like loan-to-value and loan-to-income ratios) have both a microprudential (institutional stability) and macroprudential (systemic stability) effect (Avgouleas 2012b).<sup>29</sup> Related reporting requirements for financial institutions and the resulting new datasets available to regulators offer very important opportunities for new RegTech analytical approaches, including big data and artificial intelligence.

#### **(5) A Framework to Resolve Systemically Important Financial Institutions**

##### **(a) Domestic Arrangements and Powers**

The absence of an effective systemically important financial institution resolution mechanism was key to the systemic phase of the global financial crisis (e.g., Lehman Brothers and AIG). The G-20 recognized that one of the greatest failures of international and domestic regulation was the lack of appropriate arrangements to deal with the failure of large complex financial conglomerates (Arner 2011). This involves assessing the risks posed from interactions and interconnections. The primary lesson of the global financial crisis is to have arrangements in place to either prevent or manage a failure. To prevent or manage a failure requires a supervisor (including a designated resolution supervisor) being equipped with a range of resolution powers including to replace management; terminate, continue, or assign contracts; purchase or sell assets; write down debt and restructure bank operations; ensure continuity of essential services; override shareholder rights; establish a bridge

<sup>28</sup> For a detailed discussion, see Taylor, Arner, and Gibson (2019).

<sup>29</sup> See chapter 2 in Avgouleas et al. (2018).



institution or asset management vehicle; carry out a bail-in within a resolution; suspend payments to unsecured creditors and customers; and impose an effective and orderly liquidation (FSB 2011). This is broadly the approach now adopted by the FSB. While the FSB approach focuses primarily on globally systemically important financial institutions, both the global financial crisis and the Asian financial crisis highlight the necessity of individual jurisdictions putting in place appropriate contingency plans and resolution systems particularly for domestic systemically important financial institutions (See Weber et al. 2014). In addition, discussions are also necessary at the regional level in addressing cross-border concerns (particularly for regionally systemically important financial institutions—, a major issue in the eurozone crisis discussed in the following section and also an important area of focus of ASEAN in the context of the ASEAN Banking Integration Framework.

### **(b) Reinforcing International Cooperation**

Reinforcing international cooperation is particularly pertinent in financial crisis management involving the resolution of systemically important financial institutions which operate across borders. Resolution arrangements should focus on the underlying objective of preventing serious financial instability, which would have an adverse effect on a country's real economy (Arner 2011). Problematically, financial crisis management is biased toward domestic concerns. Therefore, the best approach is to formulate a predetermined contingency plan which accounts for cross-border risks and is constantly being revised to keep up-to-date with ongoing market developments, often referred to as “living wills” (Avgouleas, Goodhart, and Schoenmaker 2013). But it should be under constant supervisory monitoring and supported by regular meetings between domestic supervisors (home and abroad), the sharing of information, and ensuring that supervisors have the powers and tools to restructure and resolve all financial instructions (Arner 2011). This approach has been endorsed by the G-20, the IMF, the FSB, and most other transnational regulatory networks. Similar approaches have also been developed in the EU, particularly as a result of the eurozone crisis, and need to be a major focus as Asia increasingly seeks to liberalize cross-border financial institution operations in the context of the ASEAN Banking Integration Framework, as well as bilateral (e.g., ASEAN-PRC; Hong Kong, China—ASEAN) and wider efforts (e.g., ASEAN+3, Asia-Pacific Economic Cooperation).

## **IV. THE EUROZONE CRISIS**

The 2008 global financial crisis spread to most developed economies, including those of the EU. Unfortunately, despite decades of effort to build a single financial market, almost all EU jurisdictions lacked proper crisis resolution mechanisms, especially in cross-border dimensions of a crisis. This led to a threat of widespread bank failures in certain EU member states and near collapse of their financial systems. The banking crisis eventually morphed into a sovereign debt crisis due to the “doom loop” in countries such as Cyprus, Ireland, and Spain, where the banks had overextended themselves with reckless lending. At the same time, the markets declined to roll over Greek debt, necessitating placing the country under an IMF and EU rescue program. While the latter failed to achieve its macroeconomic objectives, it was, nevertheless, adequate to eventually stem the fear of a string of sovereign bankruptcies within the eurozone. Today, in the wake of the eurozone financial crisis, the 2016 Brexit vote, and the COVID-19 crisis, the EU is at a crossroads. It has to decide whether the road to recovery runs through closer integration of financial policies to follow recent centralization of bank supervision and resolution in the European Banking Union, or whether to take a path of fragmentation with a gradual return to controlled forms of protectionism in the pursuit of narrow national interest, although the latter is bound to endanger the single market (Avgouleas and Arner 2017). Therefore, the

policy dilemmas facing the EU and contemporary institution building within the eurozone provide a key window into the future of both global and regional financial integration. This section will examine (i) how the crisis should be conceptualized, (ii) its primary causes, and (iii) the lessons it teaches about the need for centralized supervision in financially integrated markets.

## **A. Conceptualizing the Crisis**

The eurozone crisis should be seen as a sequence of four interlocking crises resulting from imbalanced integration. First, the use of the single currency exacerbated intra-EU competitiveness gaps, leading to a competitiveness crisis which also led to widening fiscal deficits resulting in debt accumulations (particularly in Greece, Italy, Portugal, and Spain) that were financed by the surpluses of the northern countries. As recycled surpluses were invested in the bonds of deficit countries (e.g., Greece, Italy) and the banking systems of the eurozone periphery (e.g., Ireland, Spain) where they financed massive real estate bubbles, they led to accumulation of unsustainable levels of public and private debt (Avgouleas 2012a).

The eurozone crisis signaled a fundamental shift in the political dynamics underpinning the EU. While remedies for the crisis— austerity, more integration, mutualization of eurozone members' debt, and other measures— remain the topic of heated discussion, one remedy was uncontroversial. All agree that the eurozone crisis would have been less severe if eurozone members could have found a way to break the link between bank debt and sovereign indebtedness. The fact that many EU banks had invested in EU member state bonds and were also hurt by the continuous recession ravaging the periphery of the eurozone only made things worse. Since its establishment, the European Economic and Monetary Union (EMU) lacked these crucial supporting institutions that could have helped it to restore financial stability during times of acute uncertainty and market volatility (Bergsten and Kirkegaard 2012). More specifically, the EMU lacked suitable institutions that could absorb liquidity shocks, due to a collapse of confidence in the prospects of a member state's economy, and cross-border supervisory and resolution structures that could effectively deal with the cross-border spillover effects of a bank collapse.

## **B. Causes of the Eurozone Crisis**

### **(1) Inadequacy of Regulatory Architecture**

The EU constitutes the most advanced global laboratory for regional economic, legal, and political integration (Wouters and Ramopoulos 2012). The establishment of a single currency area (the eurozone) and the pan-European presence of a number of large banks with large cross-border operations lent urgency to questions about long-term protection of EU-wide financial stability in the absence of appropriate institutional arrangements. The so-called financial stability trilemma holds (Schoenmaker 2011, Thygesen 2003) that the three objectives of financial stability, single (financial) market integration, and national regulation cannot be pursued successfully simultaneously; one of these objectives has to give way to safeguard the other two.<sup>30</sup> In spite of assertions to the contrary (See Padoa-Schioppa 2000), the eurozone crisis has proven that a common currency area is not viable without building, at the same time, transnational supervisory structures in the fields of fiscal monitoring and responsibility and bank supervision and resolution. This lesson has been well understood in Asia, with discussions of any potential for a single regional currency having ceased since the onset of the eurozone crisis.

---

<sup>30</sup> Lastra and Louis (2013) describe the same trade off as an “inconsistent quartet” of policy objectives.

Thus, while the establishment of pan-European banks has been a potent integrative factor for the EU, it was inevitable that the concurrent presence of pan-European banks and decentralized and incoherent regulatory structures would not be able to prevent financial instability across the single market, especially across the single currency area, in the event of serious market turbulence. In Asia, while discussions of any form of Asian monetary union have largely ceased, discussions regarding financial market integration—particularly in ASEAN—continue, highlighting the very direct significance of EU experiences in this respect, both positive as well as negative.

While the nature of the regulatory architecture itself may or may not be an important cause of a financial crisis, institutional design is certainly very important for the prevention and resolution of a major financial crisis. Prevention is dealt with through a framework of systemic risk control and robust prudential regulations. Crisis management and resolution, on the other hand, require established supervisory and resolution structures, which in an integrated market, must have a cross-border remit in order to override the principle of home country control (Garicano and Lastra 2010). A careful look at the developmental phase of European institution building reveals this has been a process of experimentation rather than design. This experience provides important lessons for Asia—particularly ASEAN—in building regional markets.

In spite of the vast amount of effort expended in developing both the EU single financial market and EMU, important design features necessary to support financial stability had not been put in place or were not sufficiently robust, particularly in relation to the resolution of cross-border financial institutions, deposit guarantee arrangements, regulation and supervision, and fiscal arrangements and affairs. Clearly, due to the political economy of Asia, institutional centralization of the sort now pursued in the EU is not feasible. Nonetheless, as a result of the eurozone crisis, the key issues that have to be considered during the design phase of an integrated regional financial market are now much clearer.

## **(2) Home-Country Control and Minimum Harmonization**

The premise of home-country control and the principle of minimum harmonization were bound to undermine at some point the stability of the EU banking system. Minimum harmonization left the EU with an incomplete regulatory framework, since, in many cases, it merely augmented rather than replaced preexisting national laws (Avgouleas 2000).

The eurozone crisis brought home with devastating force the potential risks of financial market integration, reflecting the main findings of the financial stability trilemma. Moreover, financial integration leads financial institutions operating in the single market to develop very tight links of interconnectedness, allowing shocks appearing in one part of the market to be transmitted widely and quickly across all other parts. Examples of such rapid transmission of shocks included the failure of Icelandic banks, the botched rescue of Fortis bank, the threat of collapse of the financial systems of Ireland and Spain, and the possibility of a sovereign default (e.g., Greece), or of a chain of sovereign defaults. Each of those crises brought serious tremors to European markets and exposed their fragility and the dearth of policy options available to eurozone decision-makers.

In the EU, the diversity of member state economies and issues arising out of inherent contradictions between national policy priorities meant a relatively low degree of responsiveness to the crisis at the initial stages and lots of confusion. This became evident as soon as some EMU states, which experienced a more severe crisis than other members, had to adopt policies based on their own national needs and interests—which may not necessarily have been in conformity with single market

policies. For example, lack of common deposit insurance in a well-integrated banking market at a time of cross-border crisis led to several conflicting policy choices and responses in an effort by the states to protect their own citizens, with the Icelandic banking crisis and the fracture of Fortis as leading examples (Avgouleas, Arner, and Asharaff 2014).

From the standpoint of Asia, with its even greater disparity in economic size, development, political arrangements, and social and cultural contexts, such risks must be considered at the outset of any regional financial process, not only to minimize the chances of crisis and maximize economic benefits, but also to manage potentially severe political consequences.

### **C. Regulatory Responses to the Eurozone Crisis**

It was not until the 2008 global financial crisis, and not in earnest until the outbreak of the eurozone crisis in 2010, that the vexed issue of preservation of financial stability in an integrated market came to the forefront of EU policy-makers' attention. Both crises have emphasized the need to revisit existing models of financial market integration with a view to enriching them with institutions and structures that underpin financial stability and economic growth.

When the global financial crisis broke out with force, European financial stability was hampered by a number of preexisting problems which had simply been ignored for far too long. These included colossal precrisis public and private debt loads, a flawed macroeconomic framework, and absence of institutions capable of effectively handling a cross-border banking crisis. The eurozone's framework assumed that any macroeconomic or banking system stability shocks could be dealt with at the national level without requiring transfers from the strongest to the weaker members of the eurozone, due to the no bailout clause in the EMU Treaty. Consequently, the outbreak of the sovereign debt crisis in the eurozone in 2010 meant that the EU had to enter into the most transformative phase of its history.

The EU has had to devise mechanisms, in the midst of the crisis, firstly, to prevent an immediate meltdown of its banking sector and the chain of sovereign bankruptcies that would have ensued, and, secondly, to reform its flawed institutions, to prevent the eurozone architecture from collapsing. Eurozone members, in other words, had to build both a crisis-fighting capacity and bailout funding mechanisms. This led to the establishment of the European Financial Stability Facility, now superseded by the European Stability Mechanism. At the same time, serious steps have been taken to build a European Banking Union based on structures safeguarding centralization of bank supervision and uniform deposit insurance arrangements, and centralization of crisis resolution.

Since 2011, the EU as a whole has embarked on a number of initiatives to build an integrated surveillance framework in the implementation of fiscal policies under the Stability and Growth Pact to strengthen economic governance and ensure budgetary discipline, and the implementation of structural reforms. In addition, the European Parliament and the European Council adopted a "six-pack" set of legislative acts aimed at strengthening the eurozone's economic governance by the reduction of deficits through tighter control of national finances.<sup>31</sup> The reforms represented the most comprehensive reinforcement of economic governance in the EU and the eurozone since the launch

---

<sup>31</sup> The legislative six-pack set of European economic governance architecture reforms comprised five regulations and one directive, proposed by the European Commission that came into force on 13 December 2011.

of the EMU almost 20 years before. This legislative package aims at concrete and decisive steps toward ensuring fiscal discipline to stabilize the EU economy and to avert new crises in the future.

Important measures have been adopted, chief of which is the implementation of a European Banking Union among the eurozone members. European Central Bank (ECB) activism through its quantitative easing program and the ultimately unused “Outright Monetary Transactions” eventually stabilized sovereign debt markets. Further, the implementation of mandatory bail-ins through the EU bank recovery and resolution directive aims to contain the impact of the banking crisis on sovereigns by making bailouts nearly impossible.<sup>32</sup>

Breaking the vicious circle of bank debt becoming sovereign debt is a matter of utmost importance for the survival of the eurozone. EU members need to complete the adjustment of internal and external imbalances, to repair financial sectors, and to achieve sustainable public finances (EU 2012). Piling up debt in their effort to bail out Europe’s ailing banks only makes things worse. In addition, it raises the cost of borrowing for eurozone members to unsustainable levels, necessitating continuous bailouts by the wealthier members of the eurozone in an effort to keep the EMU from breaking up. However, such sovereign bailouts are both very expensive and highly unpopular with the citizens of lender countries (EU 2012). A comprehensive EU mandate on the structural reform of the EU banking sector may take some time as the EU faces so many existential problems on numerous fronts. The COVID-19 crisis is making resolutions more difficult.

From the Asian standpoint, perhaps the central feature for consideration is how to avoid entanglement of domestic fiscal and financial arrangements in future crises, whether regional or in individual economies. Such planning at the same time needs to consider how resources can be pooled to reduce the risk and severity of volatility and crisis as well as support economic integration and balanced development.

From the many EU regulatory reforms, three initiatives stand out. First, the most important gaps in the eurozone institutional edifice were remedied through the establishment of the first (and most significant) pillar of the European Banking Union, the Single Supervisory Mechanism, run by the ECB. Centralization of supervision for eurozone banks through the Single Supervisory Mechanism means that the ECB is now the prudential supervisor of the eurozone banking sector. Under the Single Supervisory Mechanism Regulation of October 2013, the ECB is vested with the necessary investigatory and supervisory powers. Second, EU plans for the harmonization of member state resolution laws and introduction of integrated resolution structures are being implemented. The Single Resolution Mechanism established by Regulation (EU) No 806/2014 is aimed at safeguarding the continuity of essential banking operations, protecting depositors, client assets, and public funds, and minimizing risks to financial stability. This mechanism should be more efficient than a network of national resolution authorities, particularly in cross-border failures, given the need for speed and credibility in addressing issues amid crisis. Third, the development of common EU rulebooks for the single market by the European Supervisory Authorities is a laudatory development that is proceeding rapidly.

While from the standpoint of Asia—even within ASEAN—the level of centralization being pursued in the EU as a result of the eurozone crisis is not politically feasible, the process nonetheless

---

<sup>32</sup> Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms OJ 2014 L 173/190.

highlights the three key areas which need to be considered in further Asian financial integration efforts, namely (i) harmonization of domestic regulatory systems, (ii) supervision of cross-border financial institutions, and (iii) arrangements to address cross-border financial institution failures. Each of these should be seen as essential preconditions to integration, in the same way that the Asian financial crisis strongly demonstrated the necessity of strengthening domestic financial systems prior to liberalization.

#### **D. Lessons of the Eurozone Crisis**

The EU crisis response in the development and functioning of single market operations has emphasized the need to improve international and regional coordination on fiscal, monetary, and financial policies affecting other states.

Financial stability risks are magnified within integrated cross-border markets. The cascading effects of the eurozone crisis are a vivid reminder of the contagion risk in a highly integrated system (ADB 2012). Thus, it should not be controversial, even though it does challenge orthodox thinking, to argue that financial integration—in contrast to the general consensus regarding trade integration—is not always beneficial. Despite the increased importance of enhanced regionalism and integration, policy formulation must take a balanced view. The European crisis provides deep insight into the risks of integration and identifies mistakes that should not be repeated in the adoption of integration plans elsewhere, chiefly in ASEAN.

The European experience has demonstrated that centralization of bank supervision and resolution within a single currency zone is an essential condition for a functional monetary union (although it is no panacea). It has clearly exposed the weaknesses of regulatory structures along national lines when these have to deal with integrated cross-border financial markets. The soundness and credibility of domestic policies are not substitutes for regional commitments, even though, when reform of domestic policies is “blocked,” regional commitments can help to “tie hands” and exert external pressure. Further, rather than imposing strict benchmarks and milestones to meet the idiosyncrasies of individual economies, the integration framework should facilitate and encourage the growth of regional economies while allowing the market to work freely.

The EU faces a number of hard choices, including the intractable trade-off between national sovereignty and collective financial stability. The establishment of the European Banking Union within the boundaries of the eurozone—which includes a single supervisor, a single resolution authority and, in the future, a pan-European deposit guarantee scheme—has clearly tilted the balance toward further centralization and pooling of sovereignty. With the decision of the UK to exit the EU, discussions are now moving forward in the context of regional securities and insurance supervisory arrangements as well. This highlights the level of sovereignty concessions necessary to support an effective single market. This is even more so when the single market is underpinned by common currency arrangements. In that case, a fiscal union to smooth out trade imbalances and to contain shocks in the financial sector seems essential (Bénassy-Quéré, Ragot, and Wolff 2016).

This level of sovereignty sacrifice though is beyond the capacity of most national polities, including the UK, as has been clearly demonstrated by Brexit, a point that has certainly not gone unnoticed in Asia.

## V. BRIEF ANATOMY OF THE RESPONSES TO THE CRISES AND CRITICAL COMPARISONS

The three crises analyzed here are quite distinctive. Nevertheless, they share common causes, including high leverage in the financial system, undercapitalized banks, weak lending standards, asset bubbles of varied nature and force, captured or weak regulators, a self-reinforcing negative loop between banks and their sovereigns, and lax monetary environments. And there are common lessons, principally the need ahead of time for frameworks and systems to address the main forms of financial crisis, including currency, banking/financial, current account/competitiveness, and sovereign debt crises. But before examining lessons, it is reasonable to provide a critical overview of crisis responses mostly comprising ex post remedial steps and legislative and regulatory reforms.

### (1) Commonalities and Differences in Crisis Prevention and Crisis Management

The biggest similarities in a way are between the two regional crises (Asian financial crisis and eurozone crisis) rather than between them and the global financial crisis, as the prospect of financial sector and sovereign bankruptcy loomed large in both cases. But there have been marked differences in approach in these two crises.

#### (a) Strengthening Supervision and Resolution and Tackling Nonperforming Loans to Restore Confidence

Whereas in the Asian financial crisis, a deep intervention in the financial sector and a resolve to tackle NPLs through asset management companies came early, in the eurozone, measures to strengthen the supervision of the financial sector (e.g., the Single Supervisory Mechanism) came later in the crisis, and the same delayed response is also seen in crisis management measures like the European Stability Mechanism and the Single Resolution Mechanism. On the other hand, the eurozone periphery is still grappling with a serious NPL problem. Thus, whereas in the Asian financial crisis, confidence in the banking sector was restored relatively early, in the eurozone, this has been a drawn-out process.

#### (b) Deposit and Currency Runs

Arguably, while the run on deposits in the eurozone periphery was not dissimilar to the panic experienced by East Asian economies during the Asian financial crisis, the eurozone did not experience a run on the common currency and thus did not have to take measures to stem short-term capital flows, and nor did it have to raise interest rates to stem investor flight.

#### (c) Levels of Legal Autonomy in Designing Bank Rescue Policies

While states affected by the Asian financial crisis had retained legal and legislative autonomy and flexibility, in spite of IMF oversight, eurozone countries have to comply with EU legal restrictions on state aid and public bailouts—to some extent replaced by compulsory bail-ins—and a largely predetermined bank resolution script based in EU legislation (the bank recovery and resolution directive).<sup>33</sup> Yet the EU approach to its banking crisis has been far from uniform. For every bail-in-centered bank resolution (e.g., Cyprus, Denmark), the EU can also show a series of public rescues,

---

<sup>33</sup> Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms OJ 2014 L 173/190.

for example, Germany, Greece, and Italy, in the Asian mode, but unlike the Asian blueprint, very few bank closures.

#### **(d) Central Bank Intervention: Extraordinary Monetary Policies and the Lender of Last Resort**

While eurozone member states, like Asian countries, lack a common treasury, the former do share a central bank. It was the ECB's threat to buy as much as needed of its member's debt, the so-called Outright Monetary Transactions program (ECB 2012) that eventually calmed bond markets and brought down sovereign debt premiums. This proclaimed policy, alongside a truly massive asset purchase and quantitative easing (QE) program (Jones 2015) implemented by the ECB seems to have worked miracles in stabilizing previously volatile markets for sovereign lending in the EU. In addition, during both the global financial crisis and the eurozone crisis, central banks cast aside any concerns about moral hazard and became especially liberal lenders of last resort (chiefly, again, the US Federal Reserve, but the ECB as well) (Avgouleas 2016b).

It is widely accepted that the ECB's QE has smoothed out liquidity shortages within the eurozone financial system. Extraordinary monetary policy measures, often in substitution of fiscal policy measures, have been a feature of both the global financial crisis and the eurozone responses, where QE was used very extensively by central banks (especially the US Federal Reserve and the Bank of England) to alleviate the credit crunch. On the other hand, there is no evidence of the use of QE and loose monetary policy in general in the Asian financial crisis. On the contrary, faced with a currency crisis, East Asian economies raised interest rates, thereby tightening rather than loosening money supply. This is, of course, an important distinction, since the robust growth rates that East Asian economies have posted since 2008 (and for the 2 prior decades) might constitute a strong lesson against the dominant (Kindleberger 1978, Friedman and Schwartz 1963) liquidity supply paradigm relative to economic crisis prevention and resolution. Namely, this policy contrast could mean that robust macroeconomic fundamentals and rapid implementation of reforms may be as important for the alleviation of liquidity shortages in the economy, as central bank intervention is in the medium term. In addition, macroeconomic adjustments and rapid implementation of financial sector reforms come with none of the financial stability risks that a loose monetary policy brings. Surprisingly, this policy contrast has remained largely unexplored in economics to this day, and no empirical data appears to be available as to which liquidity or confidence restoration paradigm is the most effective (see Avgouleas 2016a).

#### **(e) New Structural and Resolution Frameworks to Limit Too-Big-To-Fail Institutions**

In a number of jurisdictions—especially the US and the UK—the universal banking business models operated by major banks, which combined commercial banking and deposit taking with investment and trading activity in securities and derivatives markets, came under attack. Not only was it considered as one of the reasons that made banks TBTF, but it was also thought to be a channel for systemic risk propagation from one market segment to another, raising the levels of market fragility both at the institutional and the systemic level (Avgouleas 2010). As a result, both the US and the UK have passed structural reform legislation (respectively the so-called Volcker Rule in the US Dodd Frank Act and ring-fencing via the UK Banking Act 2013). Both sets of legislations aim to downsize and otherwise restrict the operations of TBTF institutions, although the model of activity or business entity separation that each jurisdiction has followed is quite different, with the UK's ring-fencing model being the more draconian.



As already mentioned, when the global financial crisis erupted in 2008, a series of public bailouts took place, whereby the state took a direct stake in banks, or nationalized them outright (Arner, Avgouleas, and Gibson 2017). But, in contrast with the Asian financial crisis, asset management companies seem to have been out of favor. International (e.g., FSB) and national regulators moved fast to pass resolution standards (e.g., FSB Key Attributes) that minimized the room for public rescues, eliminated the so-called TBTF subsidy that large financial institutions were found to enjoy in their funding base making them more profitable than smaller competitors. (Weber et al. 2014)

#### **(f) Derivatives Markets Reform**

Furthermore, while financial sector leverage was a feature of all three crises, the trigger for the global financial crisis was the combined effect of bad lending (subprime mortgages) and complex (innovative) financial products. So, the markets for complex derivatives and securitized debt had to be dealt with through an additional wave of regulation. Whereas the Asian financial crisis and the eurozone crises were merely the product of outright bad bank lending and its impact on sovereign indebtedness, therefore, derivatives market infrastructure reforms have not been seen as critical.

#### **(g) Augmented Governance, Compensation, and Prudential Standards**

Finally, all three crises have been followed with a tightening of supervisory structures and augmented supervisory standards, including higher levels of capital and liquidity reserves, as well as the introduction of a macroprudential or systemic approach to regulation. In addition, banks' governance and risk management techniques have been overhauled as a reaction to all three crises. As compensation structures in the banking sector were found to be flawed generating perverse incentives, strong measures have been adopted to deal with this cardinal problem, leading to a realignment of bank management's incentives with financial stability goals.

### **VI. LOOKING FORWARD**

Taken together, the differences between the specific triggers and origins of the three crises may be greater than their similarities, which suggests that our next crisis (and history teaches there will always be another), will be different in its causes and consequences than any of these three. And in terms of remedial policies, in spite of several similarities, the differing approaches when it came to tackling NPLs and the use of the monetary tool, place differences in crisis response policies into sharp relief. In fact, the most critical divide centers on whether rapid macroeconomic adjustment (as in the Asian financial crisis, and to some extent the eurozone crisis) or use of extraordinary monetary measures is the best way to restore confidence and stabilize liquidity conditions. In the context of the COVID-19 crisis, the focus is initially the latter in order to avoid a health and economic crisis becoming a financial crisis.

Nevertheless, three important lessons and recommendations for Asia stand out.

First, in an increasingly globalized world, formal international cooperation in financial stability and cross-border bank supervision and resolution might in the long run come to be seen as a necessary ingredient of national prosperity whenever national financial markets are closely integrated.<sup>34</sup> At the

---

<sup>34</sup> For an example of such a model for the governance of global financial markets (albeit one that requires an enormous amount of trust on behalf of international regulatory community), see chapter 9 in Avgouleas (2012b).

same time, in today's environment, tensions regarding sovereignty at various levels make this unlikely outside of the EU (following the exit of the UK).

While Asia—even in the context of ASEAN—is unlikely to be willing to accept the level of sovereignty sacrifice necessary for the creation of a true single regional financial market based on a regional currency (parallel to the EU Single Market), economic and financial cooperation and coordination in the region remain essential. Beyond the G-20 context, this is most likely in the context of ASEAN, ASEAN+3, Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) and perhaps the Shanghai Cooperation Organisation. As integration continues, it is essential for parallel discussions to take place not only on liberalization, but also crisis preparation, with a stronger role for AMRO and/or through further development of the various regional forums of the international standard setting bodies, such as the FSB Asia Regional Consultative Group.

Second, it is always prudent to prepare for the next financial crisis. The only working assumption about which any regulator can be confident is that there will be one—and its precise nature and timing will be exceptionally difficult to predict, as can be seen from the COVID-19 crisis. Building a robust crisis management, early intervention, and resolution framework should be seen as the paramount responsibility of regulators and public policy planners in the region. In addition to the effective implementation of the FSB and Basel frameworks, Asian countries should also design their own mechanisms for national and cross-border liquidity relief to cope with the next crisis. Liquidity has fleeting properties, whether as foreign money inflows or financial system funding, and can easily disappear when the economy is exposed to short-term shocks or emerging structural weaknesses, or the financial system suffers a run due to a confidence crisis. In the same context, even for stable economies, financial regulators should remain watchful of interconnectedness risks and the possibility of contagion from the shadow banking sector that may quickly undermine the stability of the regulated sector. This is particularly true as a result of sustainability crises, such as COVID-19.

While Asia focused on improving regulation in the aftermath of the Asian financial crisis, with very good results during the global financial crisis, which left the region largely unscathed, it has made relatively less progress in resolution mechanisms. As such, at the domestic level, continued emphasis on improving regulation and building financial infrastructure and implementing financial safety nets, including resolution frameworks, need to continue. This is especially the case in the region's developing members, which should be guided by the experiences—positive and negative—of its emerging and developed members. At the same time, as the PRC's financial system continues to integrate internationally and regionally, this raises new risks both for the PRC as well as for the region. Regionally, as integration efforts continue, there is a consequent necessity to build a framework to deal with potential crises of the major forms identified: currency, banking/financial, current account/competitiveness, and sovereign debt.

In crisis prevention, approaches vary in each context. For currency crises, a flexible exchange rate, backed by reasonably large foreign exchange reserves, is probably the best starting point, supplemented by bilateral and regional arrangements under AMRO and the CMIM, as well as precautionary international lines from the IMF and possibly others, such as the New Development Bank and major currency central banks. For banking and financial crises, the starting point is regulation, with a focus on participation in international standard setting processes, development of regional implementations, and, most importantly, focusing on domestic arrangements. For current account/competitiveness crises, at the regional level, AMRO offers a macroeconomic monitoring arrangement to supplement the international monitoring of the IMF. But at the end of the day, this—as once again shown in the EU—is a domestic focus in the first instance. The same applies to sovereign

debt crises, but, as noted above, development of domestic and regional financial systems to support local currency financing and risk management can play a very important role.

Third, if in spite of the above protective measures an economic disturbance or a financial sector shock develops into a full-blown financial crisis, then the speed of the policy response and the decisiveness of public institutions matter greatly for the restoration of confidence. In this context, tested remedies, such as asset management companies, which provide a radical solution to overstretched bank balance sheets, ought not to be discarded on grounds of moral hazard and bailout subsidies. On the contrary, affected countries should instead try to build a transparent framework which distributes losses equitably and prudently, targeting rapid restoration of confidence in the health of the financial system, and avoiding the type of creditor runs experienced in all three crises discussed in this paper.

Much of the great expansion of regulation in the aftermath of the global financial crisis has been well adopted to prevent another one. But loopholes remain, especially in the regulatory perimeter, with most shadow banking activity remaining unregulated and in terms of cross-border supervision. If anything, these issues are in fact greater across most of Asia than in the G-20, raising risks but also presenting opportunities for increased cooperation, coordination, and monitoring in the region. In particular, as FinTech continues to transform Asian financial systems at an increasing rate, issues relating to appropriate treatment of new technologies and new participants beyond traditional financial institutions such as information technology, communications, e-commerce, and social media firms becomes even more important in Asia than in the developed markets of Europe or North America. The need for financial inclusion and financial development are higher, the opportunities for leapfrogging are greater, and the risks which arise are potentially far more significant, domestically and regionally. Improving the technology and abilities of regulators across the region through RegTech must be a major focus. (Arner, Buckley, and Zetzsche 2018) After all, financial innovation and liberalization are often central to financial crises. And FinTech is likely to be no exception to this traditional cycle, with COVID-19 dramatically increasing digitization.

In summary, we have a globalized financial system that was designed by John Maynard Keynes and Harry Dexter White in the early to mid-1940s, to be a series of lightly interconnected national systems. Ever since the system began to globalize in the 1980s, we have been working to accommodate new regulatory settings to the new, profoundly different reality of a globalized financial system. But while we have made much progress, we also have a long way to go. In Asia, geopolitics and economics—particularly the rise of India, ASEAN, and even more critically of the PRC—highlights that the nature of global market integration has changed, with significant implications for crisis prevention and management. As we learned in the Asian financial crisis, Asia must take steps to secure its own success and to protect itself from financial crises, from whatever source they derive. COVID-19 is likely to drive this forward.

So, what could realistically be considered as possible areas of concrete action in the coming years in Asia? Given how loose is Asian integration in institutional infrastructure and what a tortuous affair EU institutional integration has been, deeper integration may not be expected in the absence of substantial political will, which normally only arises in the aftermath of a major disaster, such as the three crises considered in this paper or a seismic event such as Brexit or COVID-19. In fact, it was the Asian financial crisis which largely triggered much of the East Asian financial development and integration activity which has taken place over the past 20 years, in particular the evolution of EMEAP, CMIM, AMRO, ASEAN+3 Bond Market Initiative, ASEAN Capital Market Development Plan and ASEAN Banking Integration Framework. Likewise, the Asian financial crisis caused a strong focus on financial stability and step-by-step integration across the region in domestic, regional, and

international initiatives, including the regional preference for foreign exchange reserve accumulation. Those efforts served the region very well in the global financial crisis, with many of the post-Asian financial crisis predilections adopted globally after the global financial crisis.

Going forward, the most likely source of a major transformative event in our view are the region's large economies: the PRC and India, with ASEAN potentially a third. While the PRC has already emerged as one of the world's largest and most important economies, India is likely to also do so over the coming decades. The evolution of these two major economies and powers will pose huge challenges to the region, particularly for smaller economies, which are likely to be impacted by potential economic, financial, or political spillovers and likely contagion. Most of the region's currencies are already more directly impacted by the yuan than the dollar, given increasing trade relations with the PRC. This means that in some ways, a regional currency is emerging, in the same way the pound sterling, the US dollar, and the Deutsche mark did over the previous 150 years. Renminbi internationalization for the region is already a significant reality. Likewise, as the PRC's financial system and capital account is gradually liberalized and financial institutions in the PRC expand across the region (in the same way that UK, US, and European financial institutions followed their national enterprises across the world), the PRC, in particular, will assume an ever-increasing financial role in the region. It has already stepped into many of the spaces previously occupied by US and European financial institutions in the region, in the wake of the global financial crisis. This trend may well be enhanced with the planned establishment of the PRC's central bank digital currency.

The outsize dominance of Southeast Asian financial systems by foreign institutions (in future perhaps predominantly Chinese) will require careful consideration and step-by-step processes to manage integration with the PRC, and eventually India as well, and manage the consequential reactions in ASEAN. Arguably, the PRC's rise serves the same sort of incentive to regional integration which the rise of the US in the postwar period played in the evolution of the EU.

The first step in any crisis management approach is, of course, prevention, but this should also be combined with management and resolution. Cooperation in cross-border and cross-sectoral systemic risk monitoring should be revisited, and supervisory colleges should be strengthened by establishing a coherent structure for microprudential supervision cooperation. This should be followed with a crisis management structure and knowledgeable regulators with a role in standard setting.

CMIM is primarily a mechanism to share surplus foreign exchange reserves in order to manage international currency volatility. It is a liquidity arrangement and thus useful in managing liquidity-based banking/financial, currency, and sovereign debt crises. As such, it has a clear role and function and one which justifies further development. In particular, both expansion of resources combined with greater institutionalization should be pursued, with an expansion of AMRO and the development of a treaty-based framework for its operation.

AMRO of course extends beyond merely serving as a platform for the CMIM and plays an important preventative role. This role likewise should be expanded and augmented in the context of a treaty-based framework in order to provide more extensive and more effective macroeconomic monitoring across the region. This sort of macroeconomic monitoring provides an important preventative function in the context, particularly, of sovereign debt crises but also in the context of competitiveness/balance of payments crises and currency crises.

AMRO would thus become a regional liquidity and macroeconomic surveillance mechanism based on a treaty-based framework. It could thus be opened to participation beyond ASEAN+3, potentially extending across the region. In this new role, it could complement the Asian Development Bank (ADB) and the Asian Infrastructure Investment Bank as well as the Bretton Woods Institutions and the New Development Bank.

In addition to liquidity and macroeconomic surveillance, the global financial crisis, in particular, has highlighted the importance of financial stability arrangements, particularly from the macroprudential standpoint, domestically, regionally, and internationally. Since the global financial crisis, new or reformed financial stability and macroprudential arrangements have been put in place, including the FSB internationally and the European Systemic Risk Board in the EU.

Apart from the widening of the Chiang Mai Initiative, the region should consider having a regional systemic risk council supported by country central banks in the mode of the European Systemic Risk Board. The latter is backed by the ECB and it operates on the basis of an EU statute, although it is a soft law body (i.e., it has no standing under EU law). The responsibilities of an “Asian Systemic Risk Council” (or at least an “ASEAN Systemic Risk Council”) would fit very well in an Asian framework for systemic risk detection, including serving warning and signaling functions, but will require Asian central banks to participate and share data. Initially, this would be an arrangement which would not entail any loss of sovereignty but instead only the sharing of confidential information and the issuance of confidential warnings to members. It could be included within the institutional expansion of AMRO. However, EMEAP may well in time prove to be a more appropriate institutional environment, given its history, related activities, and deep personal relationships between central banks from the more developed financial jurisdictions of the region.

Such an Asian Systemic Risk Council would be particularly timely given the challenge of the rise of FinTech across the region, both from the standpoint of cybersecurity and potential digital identity and electronic know-your-customer utilities, to the rapid expansion particularly of e-commerce in the PRC and social media firms such as Alibaba and Tencent into finance across the region (the so-called “TechFins”) (Zetzsche et al. 2018). The region is already a leader in this area and is likely to face many demands to develop harmonized frameworks to allow FinTech and TechFin firms to expand across the region, particularly in the aftermath of COVID-19. At the same time, these firms not only bring opportunities, but also risks. This has been most clearly demonstrated by the rise of cybersecurity concerns across the region, most pointedly in the Bangladesh central bank robbery and related international concerns, with the result of restricting access of regional financial institutions to international networks through historical correspondent banking relationships.

In addition, given shadow banking’s importance and cross-border links (including through FinTechs and TechFins), a future Asian Systemic Risk Council would have a valuable role as a systemic risk data consolidator and impartial monitor.

In addition, a future Asian Systemic Risk Council could serve as a secretariat for regional colleges of supervisors. For banks active in the region, on a cross-border basis, colleges of supervisors ought to be strengthened and the Asian Systemic Risk Council could coordinate the work of colleges. When a crisis hits, such a body could prove invaluable, especially when it comes to coordinated bank rescues or resolutions on a subsidiary-by-subsidiary basis. Naturally, it will not involve any form of burden sharing, but it could have evolved as a trusted venue for information sharing and could be utilized as trusted venue for rescue or resolution cooperation.

The Asian Systemic Risk Council could also become the principal forum for consultation and the coordinated feeding back of policy responses to Basel and the FSB of regional considerations.

In the domestic implementation of international and regional financial regulatory standards, ADB itself would be the lead—as it largely already is today—in supporting domestic and regional reform processes. Further, ADB, in cooperation with the IMF and the World Bank, must become a major agent of change in bank corporate governance cultures across the region, augmenting bank management accountability.

In resolution, TBTF avoidance of bail-ins on a systemic basis does not mean that creditors (with the exception of depositors) should always escape lightly. Asian jurisdictions ought to introduce or upgrade bank resolution regimes and not overly rely on bailouts (at least in principle).

Finally, a culture of transparency, openness, and cooperation ought to be pursued in all future integration initiatives in the Asian market. Since the risks are increasingly regional (and global), purely country-based responses may prove largely obsolete when a cross-border crisis hits. Recognizing that financial stability in the region can easily fall victim to “tragedy-of-the-commons” behaviors is an important first step. Like trade and environmental protection, regional financial stability closely binds the prosperity of Asian nations—as evidenced most clearly in the Asian financial crisis. Therefore, it offers a very fertile ground to augment interaction between national regulatory authorities, central banks, and governments in Asia, giving rise to a wider economic cooperation impetus for the benefit of all nations in the region.

## REFERENCES

- Arensman, Ruse. 1997. "Economy Stall in Thailand Has a Familiar Look." *The Denver Post*, November 2.
- Arner, Douglas W. 2007. *Financial Stability, Economic Growth and the Role of Law*. Cambridge: Cambridge University Press.
- . 2009. "The Global Credit Crisis of 2008: Causes and Consequences." *The International Lawyer* 43 (1): 91–136.
- . 2011. "Adaptation and Resilience in Global Financial Regulation." *North Carolina Law Review* 89 (5): 1579–628.
- Arner, Douglas W., Emiliios Avgouleas, and Evan Gibson. 2017. "Overstating Moral Hazard: Lessons from Two Decades of Banking Crises." University of Hong Kong Faculty of Law Research Paper No. 2017/003.
- Arner, Douglas W., Janos N. Barberis, and Ross P. Buckley. 2016. "The Evolution of FinTech: A New Post-Crisis Paradigm?" *Georgetown Journal of International Law* 47 (4): 1271–319. <https://www.ssrn.com/abstract=2676553>.
- . 2017. "FinTech, RegTech and the Reconceptualisation of Financial Regulation." *Northwestern Journal of International Law and Business* 37: 371–414. <https://www.ssrn.com/abstract=2847806>.
- Arner, Douglas W., Ross P. Buckley, and Dirk Zetsche. 2018. *FinTech for Financial Inclusion: A Framework for Digital Financial Transformation*, Special Report, Alliance for Financial Inclusion/Group of 24.
- ASEAN+3 Macroeconomic Research Office (AMRO). 2007. "ASEAN+3 Region: 20 Years after the Asian Financial Crisis." In *ASEAN+3 Regional Economic Outlook 2017*. Singapore.
- Asian Development Bank (ADB). 2012. *Asian Economic Integration Monitor*. Manila.
- Avgouleas, Emiliios. 2000. "The Harmonisation of Rules of Conduct in EU Financial Markets: Economic Analysis, Subsidiarity and Investor Protection." *European Law Journal* 6 (1): 72–92.
- . 2009. "The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy." *Journal of Corporate Law Studies* 9 (1): 23–59.
- . 2010. "The Reform of 'Too-Big-To-Fail' Bank: A New Regulatory Model for the Institutional Separation of 'Casino' from 'Utility' Banking." 7th EUROFRAME Conference on Economic Policy Issues in the European Union, June 11–12, University of Amsterdam.
- . 2012a. "Eurozone Crisis and Sovereign Debt Restructuring: Intellectual Fallacies and New Lines of Research." Paper presented at the Society of International Economic Law, 3rd Biennial Global Conference, Centre for International Law and Faculty of Law, National University of Singapore, July.

- . 2012b. *Governance of Global Financial Markets: The Law, the Economics, the Politics*. Cambridge: Cambridge University Press.
- . 2015. “Bank Leverage Ratios and Financial Stability: A Micro- and Macroprudential Perspective.” Levy Economics Institute WP 849.
- . 2016a. “Central Banks, Financial Stability and Legal Liability – The Central Banking Contract.” Keynote address to the Annual Conference of the Society of Legal Scholars, Banking and Financial Law Section, Oxford University, September 6.
- . 2016b. “Fundamentals of Bank Supervision and the Lender of Last Resort in the Post-2008 Era: A Critical Appraisal and Forward Looking Recommendations.” Centre for Banking & Finance Law, Faculty of Law, National University of Singapore, Edinburgh School of Law Research Paper No. 2016/24.
- . 2016c. “Large Systemic Banks and Fractional Reserve Banking.” Chapter 14 in *Reconceptualising Global Finance and Its Regulation*, edited by Ross Buckley, Emiliós Avgouleas, and Douglas Arner. Cambridge: Cambridge University Press.
- Avgouleas, Emiliós, and Douglas Arner. 2017. “Eurozone Debt Crisis and the European Banking Union: ‘Hard Choices’, ‘Intolerable Dilemmas’ and the Question of Sovereignty.” *The International Lawyer* 50 (1): 29–67.
- Avgouleas, Emiliós, Douglas Arner, Uzma Asharaff. 2014. “Regional Financial Arrangements Lessons from the Eurozone Crisis for East Asia.” In *Global Shock, Asian Vulnerability and Financial Reform*, edited by Iwan J. Azis and Hyun Song Shin. Cheltenham: Edward Elgar.
- Avgouleas, Emiliós, Charles Goodhart, and Dirk Schoenmaker. 2013. “Bank Resolution Plans as a Catalyst for Global Financial Reform.” *Journal of Financial Stability* 9 (2): 210–18.
- Bank for International Settlements (BIS). 2011. “Weathering Financial Crises: Bond Markets in Asia and the Pacific.” Paper presented at the BOJ-BIS High Level Seminar on The Development on Regional Capital Markets, November 21–22.
- . 2016. “Triennial Central Bank Survey of Foreign Exchange and OTC Derivative Markets in 2016.” December 11. <http://www.bis.org/publ/rpfx16.htm>.
- Bénassy-Quéré, Agnès, Xavier Ragot, and Guntram Wolff. 2016. “Which Fiscal Union for the Euro Area?” Bruegel Policy Contribution. February 12.
- Bergsten, C. Fred, and Jacob Funk Kirkegaard. 2012. “The Coming Resolution of the European Crisis.” Policy Brief. Peterson Institute for International Economics.
- Bлиндер, Allan S. 1999. “Eight Steps to a New Financial Order.” *Foreign Affairs* 78 (5): 50–63.
- Blustein, Paul. 1997. “Investors Reconsider Big Emerging-Markets Bets.” *The Washington Post*, July 20.
- Brunnermeier, Markus K. 2009. “Deciphering the Liquidity and Credit Crunch 2007–2008.” *Journal of Economic Perspectives* 23 (1): 77–100.



- Brunnermeier, Markus K., and Charles Goodhart. 2009. *The Fundamental Principles of Financial Regulation*. Geneva Reports on the World Economy. July 11.
- Brunnermeier, Markus K., and Lasse Heje Pedersen. 2009. "Market Liquidity and Funding Liquidity." *Review of Financial Studies* 22 (6): 2201–38.
- Buckley, Ross P. 1999. *Emerging Markets Debt: An Analysis of the Secondary Market*. London: Kluwer.
- Buckley, Ross P., and Douglas Arner. 2011. *From Crisis to Crisis: The Global Financial System and Regulatory Failure*. London: Kluwer.
- Bustelo, Pablo, Clara Garcia, and Iliana Olivié. 1999. "Global and Domestic Factors of Financial Crises in Emerging Economies: Lessons from the East Asian Episodes (1997–1999)." ICEI Working Paper No. 16, Instituto Complutense De Estudios Internacionales, Madrid.
- Caballero, Ricardo J., and Arvind Krishnamurthy. 2009. "Global Imbalances and Financial Fragility." NBER Working Paper No. 14688.
- Chang, Roberto, and Andrés Velasco. 1998. "The 1997–98 Financial Crisis: Why in Asia? Why Not in Latin America?" Unpublished paper. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.468.5775&rep=rep1&type=pdf>.
- Chow, H. 1997. "Crawling from the Wreckage." *Emerging Markets Investor* 4 (15).
- Cranston, Ross, Emiliós Avgouleas, Kristin van Zwieten, Christopher Hare, and Theodor van Sante. 2018. *Principles of Banking Law*, Chapter 2. Oxford: Oxford University Press.
- Dawson, Frank Griffith. 1990. *The First Latin American Debt Crisis: The City of London and the 1822–1825 Loan Bubble*. New Haven: Yale University Press.
- Dornbusch, Rudi. 1997. "A Bail-Out Won't Do the Trick in Korea." *Business Week*, December 8.
- Eichengreen, Barry. 2003. "What to Do with the Chiang Mai Initiative." *Asian Economic Papers* 2 (1): 1–49.
- Eichengreen, Barry, and Ricardo Hausmann. 1999. "Exchange Rates and Financial Fragility." NBER Working Paper No. 7418.
- European Central Bank (ECB). 2012. "Technical Features of Outright Monetary Transactions." Press release, September 6.
- European Union (EU). 2012. *European Economic Forecast*. Commission Directorate-General for Economic and Financial Affairs.
- Feldstein, Martin. 1999. "A Self-Help Guide for Emerging Markets." *Foreign Affairs*, March/April.
- Financial Stability Board (FSB). 2011. "Key Attributes of Effective Resolution Regimes for Financial Institutions." FSB paper.

- Fischer, Stanley. 1988. "The Asian Crisis: A View from the IMF." Speech at the Midwinter Conference of the Banker's Association of Foreign Trade, Washington, DC, Jan 22.
- Freixas, Xavier, Luc Laeven, and Jose-Luis Peydró. 2015. *Systemic Risk, Crises, and Macroprudential Regulation*. Boston: MIT Press.
- Friedman, Milton, and Anna J. Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. Princeton: Princeton University Press.
- Furuoka, Fumitaka, Beatrice Lim, Catherine Jikunan, and May Chiun Lo. 2012. "Economic Crisis and Response: Case Study of Malaysia's Response to Asian Financial Crisis." *Journal of Contemporary Eastern Asia* 11 (1): 43–56.
- Garicano, Luis, and Rosa M. Lastra. 2010. "Towards a New Architecture for Financial Stability: Seven Principles." *Journal of International Economic Law* 13 (3): 597–621.
- Garran, Robert. 1997. "Korea Crisis." *The Australian*, November 19.
- Geanakoplos, John. 2010. "Solving the Present Crisis and Managing the Leverage Cycle." *FRBNY Economic Policy Review* (August): 101–31.
- Gibson, Evan C. 2014. "Managing Financial Stability and Liquidity Risks in Hong Kong's Banking System: What is the Optimum Supervisory Model?" PhD dissertation, University of Hong Kong.
- Gochoco-Bautista, Ma. Socorro, Soo-Nam Oh, and S. Ghon Rhee. 2000. "In the Eye of the Asian Financial Maelstrom: Banking Sector Reforms in the Asia-Pacific Region." In *Rising to the Challenge in Asia: A Study of Financial Markets*. Manila: Asian Development Bank.
- Gorton, Gary B., and Andrew Metrick. 2009. "Securitized Banking and the Run on Repo." NBER Working Paper No. 15223.
- Goswami, Mangal, and Sunil Sharma. 2011. "The Development of Local Debt Markets in Asia." IMF Working Paper No. 11/132.
- Hanson, Samuel G., Anil K Kashyap, and Jeremy C. Stein. 2011. "A Macroprudential Approach to Financial Regulation." *The Journal of Economic Perspectives* 25 (1): 3–28.
- Harwood, Alison, Michael Pomerleano, and Robert E. Litan. 1999. "The Crisis in Emerging Financial Markets: A World Bank-Brookings Conference Report." Brookings, May 1. <http://www.brookings.edu/research/the-crisis-in-emerging-financial-markets-a-world-bank-group-brookings-conference-report/>.
- Hsiao, Frank S.T., and Mei-chu Wang Hsiao. 2001. "Capital Flows and Exchange Rates." *Journal of Asian Economics* 12 (3): 353–81. doi:10.1016/S1049-0078(01)00092-6.
- International Monetary Fund (IMF). 1998. *World Economic Outlook*. Washington, DC.
- . 2000. "Recovery from the Asian Crisis and the Role of the IMF." June. <https://www.imf.org/external/np/exr/ib/2000/062300.htm>.

- Jones, Claire. 2015. "European Central Bank Unleashes Quantitative Easing." FT.com, January 22.
- Julian, Craig C. 2000. "The Impact of the Asian Economic Crisis in Thailand." *Managerial Finance* 26 (4): 39–48.
- Jungjaturapit, Kuejai. 1999. "Has Thailand Learned from the Asian Crisis of 1997?" Working paper. Semantic Scholar.
- Kaeochotchuangkul, Isawan, Thamon Benjapongsapun, and Veeris Ammarapala. "Lessons Learned from the European Union (EU) Debt Crisis to the ASEAN Economic Community (AEC)." Thammasat University.
- Kawai, Masahiro. 2003. "Bank and Corporate Restructuring in Crisis-Affected East Asia: From Systemic Collapse to Reconstruction." In *Financial Markets and Policies in East Asia*, edited by Gordon de Brouwer, 82. London: Routledge.
- Keys, Benjamin, Tanmoy Mukherjee, Amit Seru, and Vikrant Vig. 2010. "Did Securitization Lead to Lax Screening? Evidence from Subprime Mortgage Loans." *Quarterly Journal of Monetary Economics* 125 (1): 307–62.
- Kihwan, Kim. 2006. "The 1997–98 Korean Financial Crisis: Causes, Policy Response, and Lessons." Speech at the High Level Seminar on Crisis Prevention in Emerging Markets, organized by the IMF and the Government of Singapore, Singapore, July 10–11. <https://www.imf.org/external/np/seminars/eng/2006/cpem/pdf/kihwan.pdf>.
- Kindleberger, Charles. 1978. *Manias, Panics and Crashes: A History of Financial Crises*. New York: Macmillan.
- Laplamwanit, Narisa. 1999. "A Good Look at the Thai Financial Crisis in 1997–98." Paper. [http://www.columbia.edu/cu/thai/html/financial97\\_98.html](http://www.columbia.edu/cu/thai/html/financial97_98.html).
- Lastra, Rosa M., and Jean-Victor Louis. 2013. "European Economic and Monetary Union: History, Trends and Prospects." *Yearbook of European Law* 32 (1): 57–206.
- Lee, Eddy. 1999. "The Debate on the Causes of the Asian Crisis: Crony Capitalism Versus International System Failure." *Internationale Politik und Gesellschaft* 2: 162–67.
- Liu, Qiao, Paul Lejot, and Douglas Arner. 2013. *Finance in Asia: Institutions, Regulation and Policy*. Abington: Routledge.
- Liu, Weiping. 2007. "Short-Term Foreign Funds, a Comparative Study between China and Victim Countries of 1997 Asian Financial Crisis." *Global Journal of Finance and Banking Issues* 1 (1): 41–56.
- Marichal, Carlos. 1989. *A Century of Debt Crisis in Latin America*. Princeton, NJ: Princeton University Press.
- Masciantonio, Sergio, and Andrea Tiseno. 2012. "The Rise and Fall of Universal Banking: Ups and Downs of a Sample of Large and Complex Financial Institutions Since the Late '90s." 74<sup>th</sup> International Atlantic Economic Conference, October 14.

- Meyer, Laurence H. 1999. "Lessons from the Asian Crisis: A Central Banker's Perspective." Levy Economics Institute Working Paper No. 276.
- Minsky, Hyman P. 1992. "The Financial Instability Hypothesis." Jerome Levy Economics Institute of Bard College, Working Paper No. 74.
- Mishkin, Frederic S. 2010. "Over the Cliff: From the Subprime to the Global Financial Crisis." NBER Working Paper No. 16609.
- Noerlina, and Sylvia Cinthya Dewi. 2003. "Asian Financial Crisis: Overview of Asian Crisis and Recovery Progress." *The Winners* 4 (1): 13–17.
- Novoa, Alicia, Jodi Scarlata, and Juan Sole. 2009. "Procyclicality and Fair Value Accounting." IMF Working Paper No. WP/09/39.
- Obstfeld, Maurice, and Kenneth Rogoff. 1995. "The Mirage of Fixed Exchange Rates." *Journal of Economic Perspectives* 9 (4): 79–81.
- Padoa-Schioppa, Tommaso. 2000. *The Road to Monetary Union in Europe: The Emperor, the Kings and the Genies*. Oxford: Oxford University Press.
- Park, Cyn-Young. 2016. "Developing Local Currency Bond Markets in Asia." ADB Economics Working Paper Series No. 495.
- Passell, Peter. 1997. "Economic Scene; For a New Generation of Asian Tigers, A Harsh Currency Lesson." *The New York Times*, July 24.
- Pettis, Michael. 1998a. "Can Financial Crises be Prevented?" Unfinished paper, June.
- . 1998b. "The New Dance of the Millions: The Asian Crisis." *Challenge, Taylor and Francis Journals* 41 (4): 90–100.
- Phuwanatnaranubala, Thirachai. 2009. "Implementation Plan for ASEAN Capital Markets Integration." Speech at the 2nd OECD Southeast Asian Regional Forum, Bangkok, April 27.
- Poli, Eleonora. 2014. "Is the European Model Relevant for ASEAN?" Istituto Affari Internazionali Working Paper No. 14/13.
- Rajan, Raghuram. 2005. "Has Financial Development Made the World Riskier?" *Proceedings, Federal Reserve Bank of Kansas City* (August): 313–69.
- Rajan, Raghuram G., and Luigi Zingales. 1998. "Which Capitalism? Lessons from the East Asian Crisis." *Journal of Applied Corporate Finance* 11 (3): 40–48.
- Rana, Pradumna Bickram, Wai-Mun Chia, and Yothin Jinjarak. 2012. "Monetary Integration in ASEAN+3: A Perception Survey of Opinion Leaders." *Journal of Asian Economics* 23 (1): 1–12.

- Ranta, Paula. 2017. "Malaysia's and Indonesia's Recovery from the Asian Financial Crisis – Comparison and Causes behind the Recovery." Bachelor of Business Thesis, Metropolia University of Applied Sciences, Helsinki.
- Reinhart, Carmen M., and Kenneth S. Rogoff. 2011. "From Financial Crash to Debt Crisis." *American Economic Review* 101 (5): 1676–706.
- Reserve Bank of Australia. 2003. "Bond Market Development in East Asia." Reserve Bank of Australia Bulletin. <http://www.rba.gov.au/publications/bulletin/2003/dec/1.html>.
- Richardson, David. 2017. "Asian Financial Crisis." The Parliament of Australia. [http://www.aph.gov.au/About\\_Parliament/Parliamentary\\_Departments/Parliamentary\\_Library/Publications\\_Archive/CIB/CIB9798/98cib23](http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/CIB/CIB9798/98cib23).
- Schoenmaker, Dirk. 2011. "The Financial Trilemma." Discussion Paper, Duisenberg School of Finance, Amsterdam, Vrije Universiteit Amsterdam, Tinbergen Institute.
- Schwarcz, Steven. 2008. "Disclosure's Failure in the Subprime Mortgage Crisis." *Utah Law Review* 1109–122.
- . 2009a. "Understanding the 'Subprime' Financial Crisis." *South Carolina Law Review* 60: 549–72.
- . 2009b. "Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs." *Yale Journal on Regulation* 26 (2): 457–70.
- Schwartz, Herman. 2002. "The Long (Term) and Short (Term) of the Asian Financial Crises." In *Nations Under Siege: Globalization and Nationalism in Asia*, edited Roy Starrs. London: Macmillan.
- Segoviano, Miguel, Bradley Jones, Peter Lindner, and Johannes Blankenheim. 2013. "Securitization: Lessons Learned and the Road Ahead." IMF Working Paper No. WP/13/255.
- Senhadji, Abdelhak S., and Charles Collyns. 2002. "Lending Booms, Real Estate Bubbles and the Asian Crisis." IMF Working Paper No. 02/20.
- Seth, Rama, Asani Sarkar, and Sunil K. Mohanty. 2001. "Loan Flows, Contagion Effects, and East Asian Crisis." *Journal of Emerging Markets* 6 (3): 42–54.
- Sherlock, Stephen. 1988. "Crisis in Indonesia: Economy, Society and Politics." Current Issues Brief, Parliament of Australia.
- Singh, Ajit, and Ann Zammit. 2006. "Corporate Governance, Crony Capitalism and Economics: Should the US Business Model Replace the Asian Way of 'Doing Business?'" *Corporate Governance: An International Review* 14 (4): 220–33.
- Soulard, Alain. 1994. "The Role of Multilateral Financial Institutions in Bringing Developing Companies to U.S. Markets." *Fordham International Law Journal* 17 (5): 145–51.

- Stallings, Barbara. 1987. *Banker to the Third World: U.S. Portfolio Investment in Latin America, 1900–1986*. Oakland, CA: University of California Press.
- Stevens, Glenn. 2007. “The Asian Crisis: A Retrospective.” Speech at the Anika Foundation Luncheon Supported by the Australian Business Economists and Macquarie Bank, Sydney, July 18.
- Sugisaki, Shigemitsu. 1998. “Economic Crises in Asia.” Address at the 1998 Harvard Asia Business Conference, Harvard Business School, January 30.
- Takayasu, Kenichi, and Yosie Yokoe. 2000. “Non-Performing Loan Issue Crucial to Asia’s Economic Resurgence.” RIM 44. <https://www.jri.co.jp/english/periodical/rim/1999/RIMe199903npl/>.
- Taylor, Michael W., Douglas W. Arner, and Evan C. Gibson. 2019. “Central Banks’ New Macroprudential Consensus.” In *The Oxford Handbook of the Economics of Central Banking*, edited by David G. Mayes, Pierre L. Siklos, and Jan-Egbert Sturm. Oxford: Oxford University Press.
- Terada-Hagiwara, Akiko, and Gloria O. Pasadilla. 2004. “Experience of Asian Asset Management Companies: Do They Increase Moral Hazard? – Evidence from Thailand.” ERD Working Paper Series No. 55.
- Thygesen, Niels. 2003. “Comments on the Political Economy of Financial Harmonisation in Europe.” In *Financial Supervision in Europe*, edited by Jeroen J.M. Kremers, Dirk Schoenmaker, and Peter J. Wierds. Cheltenham: Edward Elgar.
- Viscio, I. 1998. “The Recent Experience with Capital Flows to Emerging Market Economies.” *OECD Economic Outlook* 65: 177–95.
- Wang, Hongying. 1999. “The Asian Financial Crisis and Financial Reforms in China.” *Pacific Review* 12 (4): 537–56.
- Weber, Rolf, Douglas Arner, Evan Gibson, and Simone Baumann. 2014. “Addressing Systemic Risk: Financial Regulatory Design.” *Texas International Law Journal* 49 (149): 149–200.
- Welch, John H., and Darryl McLeod. 1993. “The Costs and Benefits of Fixed Dollar Exchange Rates in Latin America.” *Economic and Financial Policy Review* 1: 31–44.
- Well-Strand, Anne, Pei-Fen Chen, and Graeme Ball. 2011. *East Asia* 28: 329–50. doi: 10.1007/s12140-011-9151-2.
- Wong, Richard Y.C. 2011. “Asian Financial Crisis: Causes and Development.” Hong Kong Institute of Economics and Business Strategy.
- World Bank. 1997. *Global Development Finance, Vol. 1*. Washington, DC.
- . 1998. *Global Development Finance, Vol. 1*. Washington, DC.
- Wouters, Jan, and Thomas Ramopoulos. 2012. “The G20 and Global Economic Governance: Lessons from Multilevel European Governance?” *Journal of International Economic Law* 15 (3): 751–75.

- Zetzsche, Dirk A., Ross P. Buckley, Janos N. Barberis, and Douglas W. Arner. 2017. "Regulating a Revolution: From FinTech and Regulatory Sandboxes to RegTech and Smart Regulation." *Fordham Journal of Corporate & Financial Law* 23 (1): 31–103.
- . 2018. "From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance." *New York University Journal of Law & Business* 14 (2): 393–446.

## Three Decades of International Financial Crises

*What Have We Learned and What Still Needs to be Done?*

Fragility that periodically erupts into a full-blown financial crisis appears to be an integral feature of market-based financial systems despite the emergence of sophisticated risk-management tools and regulatory systems. Although it is impossible to forecast financial crises with a high degree of accuracy, earlier crises always leave lessons useful in preparation for future crises, from whatever source. This paper compares and contrasts the three major crises of the past 3 decades (the Asian Financial Crisis, the Global Financial Crisis and the Eurozone Debt Crisis), both to distill the lessons to be learned from them, and to identify what more can be done to strengthen financial systems.

### About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.



**ASIAN DEVELOPMENT BANK**

6 ADB Avenue, Mandaluyong City

1550 Metro Manila, Philippines

[www.adb.org](http://www.adb.org)