

Cambridge University Press
978-1-107-18951-5 — Critical Junctures in Mobile Capital
Edited by Jocelyn Pixley, Helena Flam
Frontmatter
[More Information](#)

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,
New Delhi – 110025, India
79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781107189515

DOI: 10.1017/9781316995327

© Cambridge University Press 2018

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2018

Printed in the United Kingdom by Clays, St Ives plc

A catalogue record for this publication is available from the British Library.

ISBN 978-1-107-18951-5 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Cover illustration: 'Survey', 2007, originally shown in the ISCP, New York, USA.
© Louisa Dawson (louisadawson.com).

2 *Coping with the Dangerous Component of Capital Flows and Asia's Ineffective Cooperation*

IWAN AZIS

Free flows of capital became a standard sermon of the International Monetary Fund (IMF) and other international financial institutions (IFIs) since 1980s.¹ It is at the heart of financial and capital account liberalization (KAL) that promises a better way to allocate capital, greater opportunities to savers and investors, and ease of financial innovation, all of which can lead to higher economic growth. KAL is also expected to build discipline to secure macroeconomic stability.

The evidence confirms that many countries have indeed experienced a jump in economic growth post-KAL. But most of them subsequently experienced instability. Some even failed to escape from a crisis. It is no coincidence that the frequency of financial turmoil reached an all-time high during the 1990s, starting from the Exchange Rate Mechanism (ERM) crisis in Europe in 1992, the tequila crisis of Mexico in 1994, the Asian Financial Crisis (AFC) in 1997, the Russian crisis in 1998, and the Long-Term Capital management crisis in the United States during the same year. The game changer, however, did not begin until the 2008 Global Financial Crisis (GFC) erupted.

Capital flows have played a major role in the AFC and the GFC. In both episodes, the shock was preceded by massive capital inflows. The contagion of the crisis was forceful. In the GFC case, it started with the US subprime crisis before the spillovers were felt globally. In the case of AFC, the trouble began in Thailand before spreading to other Asian countries. The early hope for Asia's cooperation in financial safety nets following the AFC turned out to be a disappointment. The utter failure of global regulations as discussed by Mayntz in Chapter 1 and the emerging "financial nationalism" in advanced economies (AE) do

¹ The catch phrase "Washington Consensus" introduced by John Williamson (1990) reinforced the argument favoring unrestricted capital flows.

not bode well for efforts to reduce the risks of capital flows.² It is argued in this chapter that as long as capital flows and the risks persist, it is imperative for individual countries to cope with the problems by putting a damper on some components of capital flows.

Asian Financial Crisis (AFC)

The 1997 AFC marked a turning point in Asia. The praise towards the region's economic performance before summer 1997 appeared in many articles, books, and reports, including those published by the IMF, the World Bank, and the Asian Development Bank. They failed to predict correctly where the Asian economies were heading for. Even when the signs of trouble and contagion had clearly emerged, in late 1997 the Fund continued to predict no major crisis in the region.³ As soon as the 1997 crisis broke out, these institutions began to propagate a sharply different analysis. All of a sudden, the very same countries previously praised for their policies and remarkable performances were swiftly coined as economies with misplaced development strategies (Azis, 2005).

Confronted with such an embarrassing contradiction, the IFIs were quick to claim that they *saw* the faults and had *reminded* the governments about weak banking systems, flawed institutions, and widespread corruption. The role of frictionless capital flows under KAL in causing the crisis, however, had never been questioned. It took a major shock of the scale of 2008 GFC to wake them up to the reality of capital flows. After decades of preaching the virtues of cross-border capital flows, the IMF has now conceded that some restrictions on capital flows can help protect the economy from financial turmoil (IMF, 2012). Experts now acknowledge that the "First Best"

² Emerging 'financial nationalism' is discussed among others in James (2009) and Azis and Shin (2015b), and Azis (2016).

³ In its *World Economic Outlook 1996*, the IMF's comments on Asia reads: "the prospect of a fourth consecutive year of very high growth was welcomed." The Fund's forecast for 1998 were: 3.5 percent, 6.2 percent, and 6 percent for Thailand, Indonesia, and Korea, respectively (IMF, *World Economic Outlook 1997*). These three are the most severely hit countries during the AFC. Such forecast was way off from what actually happened: -9.4 percent, -13.7 percent, and -5.8 percent, respectively. The World Bank's forecast was equally off. But the most overly optimistic was that of the Asian Development Bank: 6.6 percent, 7.9 percent, and 6.9 percent (ADB's *Asian Development Outlook, 1997-1998*).

approach of financial liberalization – where frictionless flows are venerated – is faulty and should be replaced by an alternative approach where financial regulation is given far greater importance and capital controls are no longer taboo (CIEPR, 2012). Central to the shift is the need to maintain financial stability and macro-prudential policy (Azis & Shin, 2015a).

We know now that the major culprit behind the 1997 crisis was the excessive borrowing by the private sector that caused a double mismatch: debt in foreign currency versus spending and returns in local currency (currency mismatch); and a large share of debt was short-term – less-than 1-year maturity – used to finance long term projects (maturity mismatch). While the region’s relatively sound macro fundamentals may have supported the debt surge, the trend was made possible by a regime of free flows of capital following KAL. Over-emphasizing the role of the earlier and undermining the risks of the latter, in “The East Asian Miracle” the World Bank claimed that “favorable feedback from other policies enabled the four HPAEs that did borrow abroad – Indonesia, Korea, Malaysia, and Thailand – to sustain debt better than other developing economies.” Note that HPAE stands for High Performing Asian Economies, and the publication was in 1993, the year when private debt began to surge. The rest is history.

The Fund’s recommended policies after the crisis focused on factors unrelated to KAL and capital flows: to create greater transparency in financial markets, and fix institutional factors such as minimizing state intervention, dismantling state-owned enterprises, and removing corruption (Stiglitz, 2007). On the macro side, the IFI’s recommended a standard prescription: fiscal austerity, monetary tightening, and no bail-out of distressed firms/banks, which essentially favored creditors and punished debtors. Again, questions over the risks of free flows of capital never took a center stage.⁴ Delayed recovery, worsened socio-economic conditions, and growing instability were the outcome of such misplaced analysis and policies.

The Fund also insisted that countries in crisis had to do away with most State intervention including activities by the state-owned enterprises (SOEs) despite the fact that they were far from the reasons that caused the crisis. The two largest Asian countries, India and China, had a large share of SOEs, but they resisted capital account

⁴ See also Andreas Nölke’s Chapter 7.

liberalization and both were spared the crisis. The Fund's standard prescriptions of no bail-out and fiscal-monetary austerity ignored the fact that different type of crisis requires different measures. They may be appropriate for a first-generation crisis like in Latin America during the 1980s but not for the AFC. Socioeconomic conditions deteriorated fast. In the case of Indonesia, massive demonstrations followed by arson and looting forced President Suharto to bow the public pressure and resigned. It is also interesting to note that in the 2007–8 crisis, the policy response of the United States was the opposite of those prescriptions (bailing out financial institutions, loosening the fiscal stand, and easing monetary policy).

Regional Cooperation

A turning point in Asia's regional cooperation came after the AFC. Out of the disappointment with the IMF's handling of the crisis, authorities in thirteen countries (later known as the ASEAN+3 – 10 ASEAN countries plus China, Japan and Korea) made an attempt to cooperate more closely. An early proposal initiated by Japan to set up an Asian Monetary Fund (AMF) was shelved because of the rejection by the United States, which argued that Asia's capacity to provide resources for a regional financial safety net in terms of both financial resources and capacity to do surveillance was limited.⁵ A lack of China's support for the AMF (because they were not consulted by Tokyo beforehand) was another factor. Many suspect the real reason for rejection was a fear of duplication and competition that could undermine the IMF's role and credibility. That, however, did not stop authorities from pursuing further cooperation.

Beginning with a series of bilateral swaps, in 2010 a new arrangement of regional financial safety was set up, known as the Chiang Mai Initiative (CMI), which was eventually multilateralized, hence CMIM.⁶ This multilateral currency swap arrangement marked the beginning of a more institutionalized cooperation (Azis, 2011). The woes of double

⁵ Such an argument clearly ignored the fact that financial resources and capacity can be built overtime.

⁶ Swap is an arrangement where a foreign central bank agrees to sell a specified amount of its currency to the central bank of another country in exchange for the currency of the latter (usually hard currency such as US dollar) at the prevailing market exchange rate.

mismatch and banks' limited capacity to finance the badly needed infrastructure (hard and soft) led the authorities in ASEAN+3 to focus on the development of a local currency bond market through the Asian Bond Market Initiative (ABMI). One of the ABMI's creation was the Credit Guarantee Investment Facility (CGIF) designed to facilitate the use of local currency bonds for infrastructure development. The Asian Bond Market Forum (ABMF) is another initiative intended to serve as a common platform for pursuing standardization of market regulation and practices (Azis, 2014a). These initiatives reflect a clear intention to do away with short-term borrowing in foreign currencies, as well as to facilitate efforts to recycle regional savings (since the AFC, the region has transformed from excess-investments to excess savings).

Interestingly, this stronger cooperation emerged amid geopolitical tensions and growing rivalry among the "+3." Individually, each of the "+3" (China, Japan, and Korea) also intensified their efforts to strengthen cooperation with ASEAN countries, resulting in more transactions and greater cross-border flows. A trend is likely to emerge where overseas direct investment by the "+3" will increasingly use local currencies.

But as far as financial cooperation is concerned, not everything is as rosy as expected. The safety net provided by the CMIM (Chiang Mai) is far from what it should be. The progress has been slow, and the process often collides with flagging political will. As a result, rather than using the CMIM facility, most countries opted for bilateral swaps, including with non-members. For example, during the heightened financial stress in 2008, Korea and Singapore approached the US Federal Reserve, each asked for US\$30 billion "swap" lines of credit. ASEAN countries also did not use CMIM facilities; they too preferred the bilateral swap arrangements.

Optimists argue that it is because the region has done quite well that no external help including from the CMIM was needed. But the fact is, some had looked for swap arrangements. Also, discussions with policy makers in the region indicate that some may have been taking advantage of the CMIM facility had it been ready and not suffering from fundamental inconsistencies. One of such inconsistencies is the adoption of the IMF-link, where only 30 percent of CMIM borrowing quota can be taken without linking it to IMF programs. This is clearly inconsistent with the *raison d'être* of CMIM. Given the short-term nature of the facility (ninety days), and recognizing the fact that the

effect of any attached conditionality will last much longer, adopting such a link makes very little sense. Not to mention that borrowing from the IMF sends negative signals to the public and markets alike (*IMF stigma*).

Questions are also raised as to the small size of financial resources committed by member countries (only less-than 5 percent of total ASEAN+3's foreign reserves). Not less fundamentally, the notion that only some ASEAN countries – not the “+3” – are the likely users of the facility is clearly misguided. It undermines the risk of contagion that the “+3” may be hit with, even when the crisis originates in ASEAN countries. As an analogy, one can think of the European Financial Stability Facility (EFSF).⁷ Imagine if in designing its facility, the EFSF used the assumptions that during a crisis only some members, say periphery countries, and not other members, can use the facility when the crisis originates in Eurozone periphery. That would reflect a dangerous and absurd assumption that crisis in the periphery will never create contagion to nonperiphery countries. The essence of a regional financial safety net is precisely to minimize the possibility of contagion.

Global Financial Crisis (GFC)

The importance of financial safety nets cannot be over-emphasized especially with the growing uncertainties in global financial conditions following the GFC. As the fall in the housing market (subprime crisis) in the United States spread across border, following the fall of the Lehman Brothers, global banks operating in the United States, particularly those headquartered in Europe, were forced to deleverage. A large sum of money raised by these banks in the US money market was invested in emerging markets (EM) especially in Asia. Thus, the deleveraging squeezed EM liquidity. When the global markets eventually took a severe hit, market confidence reached an all-time low. At the same time, global trade also collapsed. What started as a domestic subprime crisis in the United States ended with the GFC.

For emerging Asia, the low interest rates in AEs since mid-2000 have caused a surge in capital inflows. At first, most of the flows would

⁷ The European Financial Stability Facility (EFSF) was set up in 2010. It issues bonds, but not loans, as a temporary solution for Eurozone members hit by a crisis.

up in the banking sector (bank-led flows). The subsequent quantitative easing (QE) policy, which is essentially a large-scale asset purchase program to halt the precipitous fall in the US asset prices, created an even more significant spillover in the region. While bank-led flows continued, after the QE another round of inflows came through the capital market especially the debt market (debt-led flows), driven primarily by search-for-yield amid low returns in AE. Despite a lot of talk about policy coordination and cooperation, including in the G20, the QE policy was taken unilaterally, irrespective of its spillovers to other countries (an emerging form of “financial nationalism”).

This was not the sovereign country’s “fault” (i.e., the Fed). It is rather the responsibility of the IMF (notably) to counter “spillovers” given the IFIs’ main responsibility is to maintain global economic stability. By definition, they should persuade countries to avoid adopting policy that will create negative externalities to others. QE falls in this category. Chapter 1 also shows that the original purpose of establishing the IMF, WTO, and World Bank was precisely to maintain world stability. Past episodes demonstrate that they did it quite forcefully to “less strong” countries, e.g., the WTO punished China and others for protection and deliberate currency devaluation; the IMF pressed developing countries to remove any controls on finance and capital. But when it comes to policy taken by the United States and other “strong” countries they seem not “to see” the negative externality to others. Yet, the effect on the rest of the world is clearly significant.

Indeed, the size of capital inflows to emerging Asia has been larger and more volatile than during the pre-1997 period. As a result, there was a large expansion of liquidity. The depressed cost of borrowing spurred credit creation and economic growth. But at the same time, it also elevated the overall risks of financial instability.

With plenty of liquidity and the low cost of borrowing, banks and other institutions shifted their preference toward risky investing. Banks used the inflows-driven liquidity to expand credits for risky sectors like property and real estate, and to invest in financial assets such as securities and equities rather than investing in productive activities. In some countries, this led to property and financial bubbles.

When capital inflows subsequently flocked to the capital market, fund managers played as the protagonists. Facing pressures on short-term performance, most of them preferred quick returns and were more willing to tolerate riskier investment. Increased reward on the

upside and reduced penalty on the downside provided further incentives for fund managers to be pro-cyclical. In the public sector, the low cost of borrowing also motivated governments to raise debt, including foreign currency debt. Everyone took advantage of the cheap money and fast growing financial sector during the “party” time. Everyone danced with the tune.

But this also helped to exacerbate the skewed distribution of wealth and income (“Piketty moment”) as only a tiny portion of the population – mostly urban-rich – owned or had access to the fast-growing financial sector; and the economy’s capacity to generate employment (measured by “the employment elasticity”) declined, because the growing preference for financial assets implies a far lower investment in factories, machinery, infrastructure, and other job-creating activities (Azis, 2014b). In retrospect, the (privately) rational behavior of agents was far from socially optimal.

Nonetheless, the capital inflows-driven growth of financial sector improved the standard macroeconomic data including the GDP growth in emerging Asia. But the risks of financial instability also increased. The episode during summer 2013 provided a clear evidence when the then Fed chairman Ben Bernanke floated the idea of gradually reducing or “tapering” the QE. His remarks immediately sparked a sell-off in the US market. The effect then spread quickly to all emerging markets including in Asia where some capital began to leave, causing the currencies, bond, and equity prices to move sharply. All these occurred despite the fact that there was actually no change in the US policy.⁸ At least not yet. As the Fed eventually raised the rate in 2014, outflows surged in 2015. As a result, for the first time since 1988 the recorded net capital flows in all emerging markets turned negative.

Putting A Damper

The lesson from the AFC, the GFC, and most crisis episodes for that matter, is that capital flows could be very risky. Some components easily deceive recipients by creating a perceived strength while at the same time raising the debt and encouraging risky behavior,

⁸ In reality, bond purchases as part of QE did not end until more than one year later (October 2014), and the first reversal of US federal fund rate occurred only more than two years later (December 2015).

all of which makes the system vulnerable to flows reversal. There are hence plenty of reasons to put a damper on those dangerous components.⁹ Doing so is equivalent to discouraging risky behavior. It has been clearly shown that risky behavior will not only raise the probability of a crisis but also worsen the income inequality since the latter depends critically on how agents manage and use the inflowing capital (Azis, 2014b).

An example of risky component of capital inflows is bank debt (bank-led flows). The growth of such inflows enlarges banks' liability and hence banks' balance sheet. As a result, in conducting their operations banks are no longer constrained by the size of core and traditional source of liquidity such as savings and deposits. Additional sources of liquidity from capital inflows-driven debt, or noncore liability, allow them to be more expansionary and more risk-taking. As discussed earlier, this could threaten financial stability. It is on this component of inflows that a levy is proposed to be imposed. With such a levy, debt is expected to be lower, so are the incentives for risky behavior (a kind of crisis prevention). But imposing a levy on banks during good times can also strengthen the authority's capacity to manage a crisis during bad times, as they can use the money from the levy to bail out failing banks, a kind of safety nets for crisis resolution.

Having gone through banking crisis, countries like the UK, Germany, France, and the US realize the merit of imposing a levy. In the G20 forum, they are the proponents of imposing a global bank levy too. On the other hand, those rarely experiencing banking problems, Canada and Australia, for example, may not see the importance of it as reflected in their persistence to water down the proposal. For an emerging Asia who are among the major recipients of capital inflows, it is important to consider such a measure because of their relatively open capital account system. To the extent bank-led flows cause banks' risky behavior and the latter tends to exacerbate the income inequality problem, the region could reap additional benefits from implementing the measure.

Outcomes from the Korean experience are noteworthy. Hit hard by the 1997 AFC and the 2008 GFC, the source of vulnerability in both

⁹ After decades of promoting unrestricted capital flows, the IMF has finally acknowledged the merit of capital controls of this sort (Ostry et al. 2012; Gosh et.al. 2016).

cases was a rapid build-up of short-term foreign currency debt driven by capital inflows resulting from cheap and abundant money. The evidence was clearly displayed by the rapid growth of Korean banks' liquidity from debt, not from the core sources such as savings and deposits; hence, rising noncore rather than core liability. Realizing the risks of such a trend, in 2010 Korea announced the imposition of levy on noncore liabilities. The new measure was eventually adopted in 2011. This was taken after implementing other measures (e.g., imposing a leverage cap on the notional value of foreign currency derivatives contracts that banks could maintain). The levy rate was set at twenty basis points for short-term foreign exchange-denominated liabilities of up to one year, falling to five basis points for liabilities exceeding five years. Unlike the levy in the United Kingdom, the proceeds in Korea were held in a special account under the Exchange Stabilization Account managed by the finance ministry, because the main purpose is to maintain financial stability, although they can also be used as part of official foreign exchange reserves.

The impact of the levy imposition in Korea shows that total inflows did not fall but the composition changed towards a much lower share of short-term inflows; hence a lower share of non-core liability. Based on a panel study comprising forty-eight economies, Bruno and Shin (2014) found that in contrast to other economies, after a levy was introduced, capital flows into Korea have also become less sensitive to global supply-push factors.¹⁰

In general, however, understanding the mechanisms of how a levy on bank-led flows affects banks' operation is important, particularly for the purpose of determining the levy rate. Obviously, a country's stage of financial development and structure matter. For the levy to be effective, the preferred rate could be different for different countries. To shed some light on this, a stylistic model can be used. The details of such a model is presented in the Appendix. What follows is the intuition behind the model.

¹⁰ Other ideas are Fantacci and Gobbi's Chapter 4 on Keynes's 'bancor'; another is Tom Palley's Asset-Based Reserve Requirements that aims to give central banks powers to raise or lower the amount of dangerous/safer loans, respectively, for asset trading. It is discussed in Chapter 9 on inequalities; the Tobin Tax in the Introduction is a way to reduce high speed trading, not long-term investment. Neither brings much revenue, nor has success, unlike this proven Korean scheme.

In deciding their operations to generate highest revenues, banks decide the size and composition of their balance sheet. While that may give the best outcome for individual banks, nevertheless it may not be optimal for the entire financial system and societal interest. For example, when the costs of money are low due to massive capital inflows, individual banks may wish to raise debt, hence inflating the size of the balance sheet, to enable them to expand operations that will boost revenues. But the resulting credit boom can lead to bubbles and heightened vulnerability (e.g., credits to risky sector). When the bubbles burst, the internal buffer may not be adequate to cover the loss. With the presence of systemic risks, often undermined in standard vulnerability indicators, the entire financial system is affected and a crisis may ensue. Thus, what may be best for individual banks can actually contradict with societal interests by elevating the risks of financial instability.

The proposed levy is intended precisely to minimize such risks. But the size of the levy has to be determined carefully by considering the prevailing economic cycle and the market conditions; not one size fits all. To begin with, the decision of individual banks about their operations is influenced by the following factors: the leverage costs, interest rates, returns on assets, the balance sheet position, and the cost to meet the rules and standards such as the capital adequacy ratio (CAR). Concerned with the potential systemic risks, policy makers, and regulators need to make sure that the resulting decision by individual banks will not jeopardize financial stability. Thus, they need to figure out some sort of benchmark level of banks' operation that will ensure such stability, and design a corresponding policy instrument to achieve it. In essence, what they try to minimize is the so-called "loss function," which is the difference between the level at which individual banks prefer to operate and the benchmark level (similar to the logic of avoiding "too big to fail"). If a levy is the intended instrument, policy makers need to determine the rate. In so doing, they will have to consider the prevailing economic cycle.¹¹

Obviously, there is a question of what is the money from the levy for. Two distinct views are notable. The first is to treat the levy as an

¹¹ If a bank levy is to be imposed at the global level, as has been considered in the G20 forum, the size of the levies is likely to be smaller than otherwise to keep a reasonably level playing field. A global agreement is also needed to avoid double taxation when a bank from a country imposing a levy has branches in another levy-imposing country.

instrument of insurance scheme; the second is to treat the levy as an instrument to deter and discourage bank-led flows altogether. While both are valid, the problem with the first view is that there is a risk the levy will make banks see that raising debt is no longer risky because it is insured, and consequently it fails to reduce bank debt. At any rate, the money raised should not be part of government revenues in the regular budget; instead it should be channeled into a special fund that could be used to pay for the cost of cleaning up future banking crises (financial safety nets).

Closing Remarks

Episodes of crisis including the AFC and the GFC clearly show that unrestricted capital flows can be dangerous. The key point of the analysis in this chapter is that a levy can act as an additional lever to dampen the growth of bank-led flows, one of the dangerous components of capital flows. While the scheme has been discussed also at the global level through various fora including the G20, each country should set its own standard. Imposing a levy at the national level can be part of comprehensive efforts to secure financial stability in the midst of massive capital flows. It is a part of macro-prudential policy; at the same time it is also a form of domestic financial safety nets.

Given the spillover effects of AE's unilateral policy and the risks of contagion while regional cooperation such as the CMIM remains far from effective, for emerging Asia the proposed measure makes a lot of sense.

Appendix

Increased capital flows driven by the ultra-easy money policy in AEs bring down the cost of borrowing q . This gives incentives for banks to increase foreign currency borrowing (recorded as the noncore liability, labeled L^{NC} , in the balance sheet). With growing debt-led flows, banks' capacity to lend can increase beyond whatever savings and deposits (the core liability, L^C) that they have. The unit cost for L^C is w . Banks have also to pay the cost for keeping a certain level of capital adequacy ratio CAR as part of the standards imposed by the authority, the unit cost of which is v . Hence, given the returns on asset r , the banks' total net returns are the difference between gross returns $r.A$ and the total costs incurred by them:

$$r.A - q.L^{NC} - w.L^C - v.CAR.A$$

If levy (l) is to be imposed, there will be additional costs. How much would that be depends on the bank' relative size or asset size A/Y where Y is the level of national output, since the growth of banks' asset is driven primarily by noncore liability or bank-led flows. Considering the potential systemic risks, the imposed levy is expected to be progressive. Thus, the total costs of levy are specified $0.5 (l. A^2/Y)$, that is, the levy is higher when banks expand too rapidly. Hence banks' total net returns to be maximized subject to the balance sheet are:

$$\text{Max} [r.A - q.L^{NC} - w.L^C - v.CAR.A] - 0.5 l A^2 / Y$$

where the balance sheet is $A = L^{NC} + L^C + CAR.A$,
 the solution of which is $A^* / Y = \frac{r - q + (q - v).CAR}{l}$

This is what banks decide in terms of their level of operation. From the policy makers' perspectives however, that may not be in line with

the level that will not jeopardize financial stability because the banks' decision does not take into account the growing systemic risks. What the policy makers try to do is therefore to minimize the so called "loss function" which is the difference between (A^*/Y) and the benchmark level set by policy makers denoted by $(A/Y)^T$. In square terms:

$$\text{Min}_l \left[A^*/Y - A^T/Y \right]^2$$

How is $(A/Y)^T$ determined? Policy makers may want to consider the prevailing economic cycle such as how far the current level and growth of the economy deviates from the potentials. A particular rule can be used. Denoting the level gap (also known as the output gap) by $YGAP$, and the growth gap by $gYGAP$, the following rule can be applied: when the economy is right on the potential path (no deviation), the benchmark level is $(A/Y)^T = \theta_1$. If it is lower (higher) than the potential path, the level should be lower (higher) than θ_1 :

$$\begin{aligned} (A/Y)^T &= \theta_1 \text{ if } YGAP = gYGAP = 0 \\ (A/Y)^T &< \theta_1 \text{ if } YGAP > 0; \text{ and } gYGAP > 0 \\ (A/Y)^T &> \theta_1 \text{ if } YGAP < 0; \text{ and } gYGAP < 0 \end{aligned}$$

When the prevailing economic condition is overheating (the level and growth of output is greater than the potential level), the benchmark needs to be adjusted downward, and vice-versa. In general, therefore, the benchmark level can be written: $(\theta_1 - \theta_2 \cdot YGAP - \theta_3 \cdot gYGAP)$ where parameters θ_2 and θ_3 represent the adjustment part. In particular θ_3 reflects the speed at which the gap between potential and actual growth of output is closing.

Thus, after acquiring information about the level of operation banks wish to conduct (A^*/Y) , the optimal size of levy ($0 < l < l_{max}$) that policy makers may impose will be governed by:

$$\text{Min}_l \left[A^*/Y - (\theta_1 - \theta_2 \cdot YGAP - \theta_3 \cdot gYGAP) \right]^2$$

Or, through substitution,

$$\text{Min}_l \left[\frac{r - q + (q - v) \cdot CAR}{l} - (\theta_1 - \theta_2 \cdot YGAP - \theta_3 \cdot gYGAP) \right]^2$$

the first-order conditions of which is

$$-2 \left[\frac{(r - q + (q - v) \cdot \text{CAR})}{l^2} \right] \left[\frac{r - q + (q - v) \cdot \text{CAR}}{l} - (\theta_1 - \theta_2 \cdot \text{YGAP} - \theta_3 \cdot g\text{YGAP}) \right] = 0$$

The solution for the optimal level of levy is:

$$l^* = \frac{r - q + (q - v) \cdot \text{CAR}}{\theta_1 - \theta_2 \cdot \text{YGAP} - \theta_3 \cdot g\text{YGAP}}$$

It is clear that the proposed size of levy l^* is not “one size fits all” since it is not independent of the market conditions (reflected by r , q and v), the prevailing rule of CAR, and the size of banks’ operation (A^*/Y) that gets larger when capital inflows surge.

References

- Azis, Iwan J (2005). “IMF Perspectives and Alternative Views on the Asian Crisis,” in P. Gangopadhyay and M. Chatterji (eds) *Economics of Globalisation*, Ashgate, England.
- (2011). “Assessing Asian Economic Integration With Cautionary Notes,” *Journal of Northeast Asia Development*, 13, p 17–42.
- (2014a) “Capital Market in the Context of Financial Safety Nets,” in *Asian Capital Market Development and Integration: Challenges and Opportunities*, Oxford University Press.
- (2014b) “Integration, Contagion, and Income Distribution,” in Nijkamp, Peter; Rose, Adam; Kourtit, Karima (Eds.) *Regional Science Matters*, Springer.
- with Hyun Song Shin (2015a) *Managing Elevated Risk: Global Liquidity, Capital Flows, and Macroprudential Policy—an Asian Perspective*, Springer.
- with Hyun Song Shin, eds (2015b) *Global Shock, Asian Vulnerability and Financial Reform*, Edward Elgar.
- (2016) “Four-G Episode and the Elevated Risks,” *Asian Pacific Economic Literature*, Wiley
- Bruno, Valentina and Hyun Song Shin. (2014). “Assessing Macroprudential Policies: The Case of South Korea.” *Scandinavian Journal of Economics*. 116(1). pp. 128–157.
- Committee on International Economic Policy and Reform (CIEPR) (2012). *Banks and Cross-Border Capital Flows: Policy Challenges and Regulatory Responses*, Washington D.C., September.

- Ghosh, Atish R., Jonathan D. Ostry, and Mahvash S. Qureshi. (2016). "When Do Capital Inflow Surges End in Tears?" *American Economic Review*, 106(5): 581–85.
- International Monetary Fund (IMF), (2012). *The Liberalization and Management of Capital Flows: An Institutional View*, Washington D.C., November 14.
- James, Harold (2009). *The Creation and Destruction of Value*, Cambridge, MA: Harvard University Press.
- Ostry, Jonathan D., Atish R. Ghosh and Anton Korinek (2012). "Multilateral Aspects of Managing the Capital Account," *IMF Staff Discussion Note*, September (Washington, DC: International Monetary Fund).
- Stiglitz, Joseph (2007). "10 Years After the Asian Crisis," *Daily Star*, July.
- Williamson, John, ed. (1990). *Latin American adjustment: how much has happened?* Washington, DC: Institute for International Economics