SEACEN
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Insights and Thought Leadership on Financial Stability

Sound Financial Regulation Essential to Sustainable Economic Growth: We Can All Do Better
By William M. Isaac

The IILM Short-Term Sukūk for Liquidity Management: A Success Story in Enhancing Financial Stability
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SEACEN's core membership is comprised of twenty central banks/monetary authorities in the Asia-Pacific region. SEACEN serves its members through its learning programs, research work, and networking and collaboration platforms for capacity building in central banking knowledge. Through its various activities, SEACEN also strives to promote financial stability in the region, especially through maintaining cooperative relationships and the advocacy of good and best practices in financial institution supervision and central bank policy actions. In addition to its 20 members, it has an outreach of 15 other central banks in the Asia-Pacific region, as well as 26 regional and international strategic partners with which SEACEN collaborates in the design and delivery of its learning programs.

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Article Submission Guidelines

The ***SEACEN Financial Stability Journal*** Editorial Board welcomes potential contributions to the ***Journal.*** Articles written for the ***SEACEN Financial Stability Journal*** should focus on providing insights and thought leadership with respect to information and developments relevant and critical to promoting financial stability and related matters, contextualized to the Asia-Pacific region.

- Article drafts should be submitted in 12 point Times Roman font and should be double-spaced, and sent by email to: article@seacen.org.
- The length of draft articles will generally range from 3,000 to 5,000 words (12 to 20 double-spaced typed pages), though treatment of some topics could necessitate longer articles, which would be considered.
- Authors should include a biographical summary at the end of the article. If an article expresses expert opinions, contributors' expert credentials should be apparent.
- Articles will be evaluated by the ***Journal's*** Editorial Board.
- The Chief Editor and Senior Manager, Communications Unit, are available at any time to answer authors' questions, discuss potential articles, review early drafts, or provide other input. Their contact details are as follows:

Mr. Michael Zamorski
Tel: +603-9195 1881
Email: mzamorski@ seacen.org

Ms. Seow Yun Yee
Tel: +603-9195 1832
Email: yunyee@ seacen.org

Letter from the Executive Director

Dear Colleagues and Readers

We are pleased to celebrate the First Anniversary of the launch of the **SEACEN Financial Stability Journal** with the publication of this issue. We continue to receive very positive feedback from our readers, and the number of subscribers continues to grow.

The Editorial Board has selected four excellent articles for inclusion in this issue. Dr. William ("Bill") M. Isaac, former Chairman of the U.S. Federal Deposit Insurance Corporation, and now a top global banking industry consultant, has submitted a thought-provoking article on lessons learned from the 2008 banking crisis in the U.S. Parenthetically, during Chairman Isaac's FDIC tenure, he helped to avert a possible systemic banking crisis in the U.S. by arranging an orderly resolution of the failure of Continental Illinois Bank and Trust, then one of the largest U.S. banking organizations. Up until the 2008 Crisis, this had been the largest bank failure in U.S. history.

In his article, Chairman Isaac contends that, prior to the Crisis, bank supervisors had sufficient regulatory powers and tools to deal with developing problems and curb excessive risk-taking, but were reluctant to use them. Chairman Isaac also questions the value and relevance of the voluminous U.S. post-Crisis regulatory reform legislation, as he believes it does not closely relate to the root causes of the Crisis.

An article by Professor Datuk Rifaat Ahmed Abdel Karim and Professor Simon Archer discusses innovative liquidity management options that have been developed to assist Islamic banks in managing their liquidity and also in meeting the liquidity requirements of the new Basel III standards.

Dr. Frank Packer from the Bank for International Settlements (BIS) and his co-authors Mr. Jimmy Shek, also with the BIS, and former BIS colleague Dr. Haibin Zhu, have provided a comprehensive analysis of bank loan loss provisioning practices in Asia during 2000-2013. They conclude that Asian banks have generally been conservative in their approaches and that countercyclical loan loss provisioning is a common practice.

The fourth article by Dr. Herbert Poenisch, a former BIS Senior Economist and central bank researcher, discusses the need to develop better financial integration indicators for ASEAN banking and money markets. Greater clarity on interconnectivity risk will enable more detailed financial stability monitoring, an important capability in view of ongoing ASEAN integration initiatives.

I would like to take this opportunity to express our gratitude and thanks to the Editorial Board and SEACEN member central banks/monetary authorities for their input and contributions to the **Journal.**

Hookyu RHU
Executive Director
5 November 2014

Sound Financial Regulation Essential to Sustainable Economic Growth: We Can All Do Better

By William M. Isaac

I have traveled to Asia many times over the past thirty years, and it is my sense that policy makers in Asia tend to look to the U.S. for leadership on financial regulatory issues. This is somewhat unfortunate, as the U.S. has made many mistakes in financial regulation in recent decades. In my view Asia and the rest of the world should not emulate the U.S. but should instead study the U.S. to learn from both our successes and our failures in financial regulation. I hope to provide in this article an objective and candid assessment of U.S. financial regulatory policies.

The period from 1978 to 1993 was tumultuous for the U.S. economy and financial system. The 1970s was a period of low economic growth and high inflation – "stagflation" was the term coined to describe it.

Paul Volcker was appointed Chairman of the Federal Reserve in 1979 with the mandate of getting inflation under control. Volcker, a courageous and principled man, did just that – but at great short-term cost. The prime rate soared to 21 ½% creating havoc throughout the economy and financial system.

The U.S. suffered through a deep economic recession with the unemployment rate reaching 11%. A depression ensued in the agricultural sector along with a collapse in the energy sector and a serious recession in real estate. The thrift industry was badly insolvent, and the deposit insurance agency for the savings and loans was depleted and was merged into the FDIC with U.S. taxpayers absorbing US$150 billion of losses.

In the middle of all this turmoil, the largest U.S. banks were loaded with loans to lesser developed countries (LDC). The Federal Reserve, FDIC and Treasury developed a contingency plan to nationalize the major U.S. banks if the LDC countries renounced their debts.

Thousands of insured banks and thrifts failed during this period. The seventh largest U.S. bank, Continental Illinois, failed and was in effect nationalized by the FDIC and many large regional banks went under, including nearly all of the ten largest banks in Texas.

Economic conditions in the recent crisis of 2008-2009 were benign in comparison to 1980-1981. And the condition of the banking system was much better in the recent period than in the 1980s – only 519 banks and thrifts failed from 2007 to date in 2014 versus 2,920 from 1980 through 1993.

Yet, the U.S. was able to get through the 1980s without creating panic in the financial markets and without perpetuating economic malaise. In fact, the economy

began the longest peacetime expansion in U.S. history around 1983 even as we continued resolving thousands of bank and thrift failures. Today's economic recovery in the U.S., in contrast, is the weakest since the Great Depression.

How do we account for these differences in results between the two periods? Surely, fiscal and monetary policies and a dysfunctional political system in the U.S. have something to do with it. But without question, regulatory policies also have a great deal to do with both the severity of the crisis in 2008-2009 and the tepid recovery.

I point specifically to the pro-cyclical accounting and regulatory policies the U.S. began to put in place about two decades ago. Sound bank regulation should always be counter-cyclical and lean against the prevailing winds.

The time to be tough on banks and to demand that they increase capital and reserves, tighten credit standards, and slow their growth is when the economy is booming, as it was in 2004-2007. When the economy is struggling, as it has been for the past six years, regulators should encourage relatively sound banks to increase their lending activities rather than making incessant demands for more capital, piling on massive new regulatory burdens, and creating more uncertainty about the future.

I will be more specific. Mark to market accounting was and is a highly destructive force in the banking world. Mark to market accounting requires banks to mark their financial assets to current market prices even when the markets are barely functioning, as happened in 2008-2009. Some refer to it as "fair value accounting" but I refuse to use that terminology because it's not "fair," it adds no "value," and it does not "account" for the actual results of operations. Mark to market accounting needlessly destroyed more than US$500 billion of capital in the U.S. financial system during 2008-2009 – eradicating US$4 trillion of lending capacity and creating chaos in the financial markets.

Had mark to market accounting been required in the 1980s, the entire financial system would have collapsed. Surely, nearly every S&L and savings bank would have been shuttered or taken over by the government along with most of the money center banks which were loaded with sovereign loans for which there was no market. Keep in mind that we had nearly 3,000 bank and thrift failures during this period without having to deal with massive paper losses under the accounting rules.

Few people know that the U.S. employed mark to market accounting during the 1930s. President Roosevelt in 1938 asked Secretary of the Treasury Henry Morgenthau to meet with regulators to determine why banks were not increasing their lending and helping the U.S. recover from the Great Depression. They concluded that mark to market accounting was a serious impediment to bank lending and agreed to move to historical cost accounting.

The Securities and Exchange Commission (SEC) pushed the Financial Accounting Standards Board (FASB) to revert to mark to market accounting in the early 1990s, a move opposed by the Federal Reserve, FDIC and the U.S. Treasury. Secretary of the Treasury Nicholas Brady wrote to the FASB on March 24, 1992 opposing mark to market accounting, saying in part: "Market value accounting could even result in more intense and frequent credit crunches, since a temporary dip in asset prices could result in immediate reductions in bank capital and an inevitable retrenchment in bank lending capacity." He could not have been more prescient.

Despite the abysmal performance of mark to market accounting in the recent crisis, U.S. accountants and regulators refuse to sweep it aside and in fact propose to expand it to include loans, which would have a devastating impact. Let me be very clear: there's no place for mark to market accounting in banking apart from assets held in trading accounts.

Loans and securities not held in trading accounts should be written down only if there is serious doubt about collection of the full amount of principal and interest. Fluctuations in value due solely to market price movements should be disclosed in footnotes to the balance sheet and should not impact banks' earnings or capital accounts.

Another major area of concern for me is the Basel capital accords, which rely on exceedingly complex, backward looking models to measure risks and set capital requirements for banks. Basel I (we are now on Basel III) was suggested when I was still Chairman of the FDIC. It sounds good in theory to set capital requirements in accordance with perceived risks, but I had (and still have) major concerns and refused to go down that path.

Models are necessarily backward looking. They cannot see around corners and can only predict the future based upon the past. This means that models are pro-cyclical and accentuate whatever has gone before. Boom times are extended beyond reason as are difficult times. That clearly happened in the 2004-2007 boom period and is happening today in the opposite direction. Moreover, models cannot cope with unknowable factors such as the impact of unprecedented fiscal and monetary policies, military conflicts, political instability, and the whimsical impact of mark to market accounting.

I was also concerned about the temptation the Basel models would create for the governments to use them to allocate credit. My specific concern in the 1980s was that regulators would be under great pressure to underweight politically favored classes of loans such as residential real estate and sovereign loans. This, of course, happened to such a massive degree that these two classes of debt are at the core of the recent worldwide crisis.

Despite their utter failure in the recent crisis, models are being used to an even greater extent today. All banks of consequence are required to allocate capital and reserves and stress test their portfolios based on models. And we continue to have a political debate about how residential real estate and sovereign loans should be weighted.

While models can be useful tools to aid management and regulators, they are no substitute for wisdom, experience, and sound judgment in operating and evaluating a bank. Banks cannot be managed or regulated on auto-pilot. Models must be accompanied by absolute standards for safe and sound banking and by hands-on examination and supervision of banks.

We need a minimum ratio of tangible equity capital to total assets in all banks, and I would set that number at somewhere around 7 or 8%. We need on-site examiners evaluating assets, governance processes including board oversight, management capabilities, and compliance with laws.

In his speech at the Asian Banker Summit in Jakarta last year, FDIC Vice Chairman Tom Hoenig suggested that the U.S. adopt a minimum ratio of tangible equity to total assets as the primary measure of capital adequacy and use risk-weighted capital as a secondary measure to insure that banks do not take excessive risks. I concur wholeheartedly.

Another serious concern is that bank regulation is being made uniform throughout the world. I know this might strike you as a bit odd because it is conventional wisdom that world-wide uniformity in bank regulation is a good thing that will prevent competition in laxity.

While this notion has a certain amount of appeal, it breaks down when the rules of the road are uniformly bad and are set at the least common denominator. If regulators throughout the world are pursuing the same pro-cyclical policies and are employing similar models that underweight or overweight risks and fail to properly account for important macro-economic factors, how will we get out of the global crises we will inevitably create?

The most fundamental risk control element in banking is diversification. Europe cannot help the U.S. right now and the U.S. cannot help Europe because we are both in the same mess at the same time for the same reasons and we are employing the same remedies. I believe the U.S. should focus its attention on getting U.S. policies right, and a good place to start would be rejection of Basel III in its present form.

Banks provide loans and access to capital markets to allow businesses to grow and create jobs and consumers to save, borrow, and make payments. They are absolutely essential to economic growth. People enjoy cursing banks from time to time, but in truth we cannot prosper without them.

There have always been bank failures and always will be. The trick is to allow sufficient risk taking to promote economic growth but not so much that leads to widespread failures and financial panic.

It is clear from the three major banking crises in the U.S. in the past 40 years (1974-1976, 1980-1992, and 2008-2009) that the U.S. has not achieved this balancing act. None of these crises occurred because of lack of regulatory authority but rather the failure of regulators to use their authority effectively to rein in excessive speculation by financial institutions. The U.S. responded to each crisis by piling on more burdensome regulations without addressing the real causes of the crisis or the ineffective regulatory system that allowed it to happen.

The post-Crisis enacted Dodd-Frank legislation in the U.S. is the worst of many bad examples. It is nearly 2,500 pages long and will produce over 20,000 pages of new regulations from the same regulators who presided over the last three major financial crises. Dodd-Frank does not address the major causes of the recent crisis and will not prevent the next one. What regulatory authority did U.S. financial regulators not have to rein in the risks taken by financial institutions that precipitated the latest crisis? I cannot think of any.

It is naïve and contrary to all historical experience to believe that Dodd-Frank and the Basel III capital accords, which significantly increase the cost of capital and regulation to banks and their customers, will solve the problems or will eliminate too big to fail banks. So how do we fix this perennial problem? The solution is a combination of greater market discipline and more effective regulators, not mountains of senseless regulations.

There are three warning signs when an institution, large or small, is approaching the danger zone. We need regulators who have the political will and financial skill to take strong actions when they see these warning signs develop and before they become large enough to crash the system.

The first warning sign is concentration of risk. Most financial institutions fail because their risks are too concentrated by geography, industry and/or product line. A large bank should be able to diversify its risks more broadly than a small bank. Admittedly, if a large bank does not diversify its risks, it can cause considerably more damage than a small bank.

During the 1980's, large Texas banks were among the most profitable and highly capitalized in the U.S. just before nearly all of them failed. They failed because there was no interstate banking at that time and they were highly concentrated in Texas commercial real estate and energy loans.

The second warning sign is inadequate liquidity. U.S. investment banks Bear Stearns and Lehman Brothers reported relatively high levels of capital, but they failed because of insufficient liquidity – the proverbial run on the bank. It is stunning that

those institutions were allowed to operate with balance sheets approaching a trillion dollars funded primarily by short-term liabilities. Inadequate liquidity has been a primary cause of financial failures, forever. Why can't management and regulators get this right?

The third warning signal is significant exposure to capital markets on either the asset or funding side. Capital markets have seized up in the past and will seize up in the future – and it usually cannot be anticipated.

A company that syndicates and sells a large percentage of its loans and other assets is at greater risk of failure than a company that originates and holds its assets. Capital markets can seize up at any time and severely disrupt the business of a company that relies on an originate-and-sell business model, forcing the company to hold loans it has neither the capital nor the liquidity to support. Moreover, with little or no recurring income because originated and securitized assets are sold not held, they have to keep "feeding the beast" – originating and selling more and more regardless of the risks and markets. When this model relies primarily on short-term wholesale funding sources, it is especially toxic – a clear sign to regulators to be vigilant.

Given the long history of financial crises, we should acknowledge that at least in the U.S. regulators are incapable of preventing them without turning banks into government-controlled public utilities that are inhibited from taking sufficient risks to support economic growth. Regulators are being asked to do too much – to carry too much of the burden of controlling bank behavior. We must enlist the marketplace to impose more discipline on overly aggressive behavior by banks.

The U.S. needs a system that assumes failures will occur but are handled in a way that does not devastate the economy or result in taxpayer bailouts. The U.S. must make clear that in all bank failures creditors – other than insured depositors – will face risk of loss so that neither the FDIC nor taxpayers will lose money.

Requiring large firms to increase their common equity capital to breathtaking levels – some people suggest 10 to 20% – is not the answer. That lowers return on equity to the point that banks will be unable to raise sufficient capital and will shrink their balance sheets, impeding economic growth. The very companies and individuals who most need bank loans will be denied access. This is happening in Europe and the U.S. today.

Because equity capital is permanent and cannot declare an "event of default" when it perceives the risks to be excessive, it is only marginally effective in imposing discipline on management. Moreover, equity holders have upside potential and are therefore more tolerant of risk than creditors.

If minimum tangible equity capital were set at 8% of assets and banks were required to issue long-term senior and subordinated debt equal to at least 12% of

assets, it would create a 20% cushion and make it highly unlikely that deposit insurers such as the FDIC, much less taxpayers, would ever incur losses. Moreover, this plan would impose discipline from the marketplace, making failures much less likely. A risky bank would have to pay higher interest on its debt (sending a clear negative signal to management, the board, investors and regulators) and ultimately might not be able to issue long-term debt, forcing it to curtail growth.

When a large bank fails, the FDIC will place it in a bridge bank that will operate under FDIC control with new management and directors. The bridge bank will continue to serve the needs of depositors and borrowers, while leaving the equity, long-term debt, and perhaps a portion of the uninsured deposits behind in a receivership with no guarantee of recovery. The bridge bank will be re-privatized or sold in whole or in part as soon as possible.

In addition to instilling much greater discipline from the marketplace, the U.S. needs to substantially reform its regulatory system at the federal level. There are too many regulators – the Comptroller of the Currency (part of the U.S. Department of Treasury), the FDIC, the Federal Reserve, the Consumer Financial Protection Bureau, the SEC, the Credit Union Administration, the Federal Housing Finance Agency, the Commodity Futures Trading Commission, FinCEN, and the Treasury, among others. Too many things fall through the cracks, the agencies are too politicized and not sufficiently independent, and when the agencies come together for rule-making they generally do so at the lowest common denominator.

I believe the U.S. needs to consider a Federal Financial Institutions Commission that oversees U.S. banks, thrifts, securities and commodities firms, the housing agencies, credit unions, and financial holding companies. The Commission should have a bi-partisan five-member board with fixed six-year terms. The Treasury and Federal Reserve should each have a voting member on the board bringing the total to seven members.

If the Consumer Financial Protection Bureau remains independent, which I believe it should, it would have a non-voting seat on the Commission's board as would a state banking commissioner. I would reform the Consumer Bureau by giving it a bi-partisan five-member board of directors at least one of member of which should be appointed from the Commission's board. Finally, the Bureau's budget should be subject to Congressional approval.

It is essential that the FDIC remain independent to serve as a watch-dog on the Commission. The FDIC would no longer be a bank regulator (approving branches and mergers and other such things) but would continue to have the authority to examine and take enforcement actions against any federally insured institution and its affiliates. The FDIC would also continue to handle the resolution of failing financial institutions. It would be appropriate for the FDIC to have a non-voting seat on the Commission and for a board member from the Commission to have a non-voting seat on the FDIC board.

A regulatory restructuring plan generally along these lines was proposed by Senator Dodd in November of 2009. Unfortunately, Senator Dodd decided to retire from the Senate and dropped his plan in favor of the disastrous Dodd-Frank legislation. More recently, on the eve of the fourth anniversary of Dodd-Frank, former Senator Dodd issued another call for regulatory reform and restructuring.

We also need to focus on mission creep by bank regulators in the U.S. and other countries – mission creep that is diverting regulators' attention and resources away from their core prudential mission of maintaining a safe and strong banking system. When I was Chairman of the FDIC, the banking agencies developed the CAMELS rating system which measured Capital adequacy, Asset quality, Management capabilities, Earnings performance, Liquidity, and Sensitivity to interest rate fluctuations.

The purpose of this very important endeavor was to bring greater objectivity and consistency to bank supervision. Rather than leaving it to each agency and to each regional office within each agency to decide what prudential standards to impose on the banking industry, uniform, objective, and measureable standards were developed.

The primary mission of the FDIC and other U.S. banking agencies prior to the 1980s was unambiguous - to regulate and supervise the banking system so as to maintain stability and avoid depositor runs and panics. Beginning in the late 1970s, the agencies were asked to also consider how well the banking system was serving customers across the economic spectrum and across racial, ethnic, and gender lines.

The U.S. banking agencies have increasingly lost focus on their primary reason for being and have strayed far from their core missions. One of the most notable examples is introduction of the concept of so-called "reputational risk." Instead of maintaining laser-like focus on the objective CAMELS ratings, U.S. regulators decided at some point during the past two decades to use undefined, nebulous claims about risks to the reputation of banks to pursue unlegislated social agendas.

No one really knows what reputational risk means beyond the fact that a bank is doing something that a regulator does not like but cannot quantify in terms of risk under the CAMELS rating system. This development has been a major factor in shifting the banking agencies from their primary role as guardians of the soundness and stability of the financial system to amorphous financial social welfare agencies.

I believe firmly that management and the board of directors should be the guardians of a bank's reputation, not a banking agency. Banking agencies have more than enough on their plates in trying to assess and apply the CAMELS factors. Regulators cannot afford to divert time and energy to assessing potential reputational risks about which their expertise is limited at best.

The measures I am suggesting – smarter and more focused and effective regulation coupled with greater market discipline – will significantly reduce moral hazard, end too big to fail, and make taxpayer bailouts and hopefully banking panics a thing of the past. Dodd-Frank and similar laws around the world need to be replaced with serious reform legislation that addresses the real issues we all face.

I encourage financial executives, regulators, and policy makers throughout the world to view objectively and draw lessons from both the strengths and weaknesses in the U.S. regulatory regime. We can all do better – and our citizens deserve better.

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William M. Isaac is former Chairman of the Federal Deposit Insurance Corporation (FDIC) and current Global Head of Financial Institutions for FTI Consulting, a Director of the leading global payments processor TSYS, former Chairman of Fifth Third Bancorp, and author of *Senseless Panic: How Washington Failed America.* He spent his entire 45-year career in the financial industry in various capacities, beginning as a bank regulatory and acquisition expert at Foley & Lardner law firm in Wisconsin and later serving as General Counsel and Corporate Secretary of the largest bank in Kentucky. He was appointed by President Carter to the Board of Directors of the Federal Deposit Insurance Corporation (FDIC) in 1978 and named Chairman of the FDIC by President Reagan in 1981 and remained in that position until the end of 1985, two years beyond his six-year term. He has been a consultant to financial institutions prior to his current position as Global Head of Financial Institutions for FTI Consulting, a firm with some 4,000 professionals in 26 countries. He has served on several financial company boards, including serving as Chairman of Fifth Third Bancorp, as a Director of TSYS, one of the largest payment processors in the world, and as a Director of Amex Centurion Bank.

The IILM Short-Term Sukūk for Liquidity Management:
A Success Story in Enhancing Financial Stability

By Simon Archer and Rifaat Ahmed Abdel Karim[1]

1. Introduction

Liquidity management can simply be defined as the means employed by a financial institution to remain 'liquid' enough to make its payments on time while maintaining an optimal cost-return balance to achieve that purpose, selecting and using the most appropriate tools for this aim. Meeting demand for deposit withdrawals and other cash outflows is a visible indicator of a bank's viability.[2] A key factor in this is the way banks balance their assets and liabilities, which includes deposit accounts, borrowed funds and long-term funds. Liquidity has two aspects: funding liquidity, namely access to liquid funds on the liabilities side; and market or asset liquidity, which is the ability to access liquidity by monetizing assets.

While goals and objectives can differ depending upon the circumstances and environment of the financial institution, a prudent liquidity management should always address ensuring enough liquidity to guarantee the orderly funding of the depositors' needs, providing a prudent cushion for unforeseen liquidity needs and investing liquid funds in a manner which emphasizes the need for security and liquidity.

Following the recent financial crisis, financial institutions seem to be exposed to a markedly different economic and regulatory landscape. Throughout the recent global financial crisis, which began in 2007, many banks struggled to maintain adequate liquidity. Indeed, the collapse of banks such as Northern Rock, Bear Stearns and Lehman Brothers in 2007 and 2008 highlights the fragility of institutions that fail to manage their liquidity risk even though such banks appear to be profitable and are relatively well capitalized. The runs on such banks indicate banks' predisposition to liquidity risk and the severity of impact this risk can have on the banking sector and the wider economy as a whole.[3] These risks are closely tied to the basic nature of banking activity, namely deposit taking, originating loans and ensuring that payment obligations, such as depositors' withdrawals, are met as they come due.

The crisis illustrated how quickly and severely liquidity risks can crystallize and certain sources of funding can evaporate, compounding concerns related to the valuation of assets and capital adequacy, as well as the wider impact on the economy. On the funding liquidity side, normally reliable sources of funding may dry up, resulting in an inability to renew funding as it matures. On the market liquidity side, assets that can normally be monetized without difficulty may fail to find buyers at non-distressed prices.

The fallout and lessons learnt from the financial crises underpin the strong focus by regulators, central banks and other supervisory authorities on liquidity risk management as being central to ensuring financial stability and to enhancing the ability to withstand financial and economic shocks over the long-term. Unprecedented levels

of liquidity support were required from central banks in order to sustain the financial system and even with such extensive support, a number of banks failed, and were either forced into mergers or required bail-outs at public expense.

In particular, the main observable features of the crisis were the following:

- The liquidity position of banks was seriously impaired;
- Inappropriate funding structures and inadequate liquidity buffers were prevalent;
- Liquidity stress situations led, on occasions, to public interventions; and
- Liquidity stress situations have proved to be lasting over time.[4]

This paper is divided into seven sections. Section 2 gives some background about Islamic banks (IBs) and discusses the liquidity management challenges that they face. Section 3 examines the importance of liquidity management and Basel III. Sections 4 and 5, respectively, examine the establishment of the International Islamic Liquidity Management Corporation (IILM) and in its role in facilitating cross-border liquidity management for IBs by issuing short-term Shari'ah-compliant financial instruments, which mitigate the serious problems of market liquidity faced by IBs and were not available hitherto in the Islamic financial services industry (IFSI). Section 6 highlights possible implications that the IILM Sukūk would have for the IFSI. The concluding remarks are presented in Section 7.

2.   Islamic Banks and Liquidity Management

Banking institutions offering Islamic financial services (BIIFS), namely IBs, have been in existence for over four decades and have experienced significantly rapid growth in recent times. Standard & Poor's (S&P)[5] states that the assets of the top 500 Islamic banks expanded 28.6% to US$822 billion at year-end 2009. According to Ernst & Young,[6] in 2013 the total assets of the institutions offering Islamic financial services (IFSI) were estimated to amount to approximately US$1.8 trillion and were expected to achieve a 13% annual growth rate. It is worth noting that the Islamic banking sector has been the driving force of this growth, accounting for around US$1.4 trillion of assets within the IFSI. Ernst & Young also forecasts that Islamic banking assets will grow beyond the US$2 trillion milestone in 2014. Nevertheless, Islamic banking assets still account for less than 1% of global banking assets.

IBs adhere to the rules and principles of Islamic (Shari'ah) commercial jurisprudence (*fiqh al muamalat*). This distinguishes IBs from conventional banking institutions. For example, the basic business model of a conventional bank is to borrow and lend money. Although IBs also borrow money, e.g. from current account holders, these banks also mobilize funds from profit sharing investment accounts (PSIA) on the basis of the Mudarabah (or more rarely, the Wakalah or agency) contract[7] [8]. On the asset side, IBs mainly use contracts such as sale-on-credit (*Murabahah or Bai-bithaman-ajil*), or leasing (*Ijārah*) to finance their customers' needs. The business model of an IB resembles in some respects that of a universal bank in which there is no legal, financial or administrative separation between commercial and investment banking.[9] Indeed,

licences offered to IBs by their regulatory and supervisory authorities allow them to perform the activities of universal banks.

Liquidity management has been one of the most discussed and challenging issues in the IFSI.[10] The main reasons for this issue coming into prominence are concerns around market liquidity, namely the degree to which the available liquidity instruments are Shari'ah-compliant, the lack of properly structured and easily transferable instruments, and the resultant necessity for IBs to maintain higher cash reserves (compared to conventional banks) with a zero return in their portfolio, which harms the profitability and competitiveness of IBs.

Like conventional banks, IBs have to manage their liquidity in an effective manner. However, whereas with respect to market liquidity, conventional banks have a catalogue of easily monetizable financial instruments that have been developed over many years to assist them in managing their liquidity, IBs do not seem to have many options. This situation has been highlighted by the liquidity risk management requirements of Basel III.

Even though there exist successfully applied local products and instruments that have been customized by the monetary and regulatory authorities in some jurisdictions to help IBs overcome this limitation and facilitate their liquidity management, there remains a clear lack of tradable, globally recognized and widely accepted short-term financial instruments. Figure 1 shows the main financial instruments that are available to IBs in managing their liquidity:

**Figure 1: Existing Financial Instruments Available for
Islamic Banks to Manage their Liquidity**

Central Bank and other Islamic Financial Instruments	Duration	Local/ International	Rating
Idle Cash	Unlimited	Either	
Commodity Murabahah	1 Week- 6 Months	Either	Counterparty Rating
Interbank Mudarabah	Overnight – 1 Month	Either	Counterparty Rating
Interbank Wakalah	1-3 Months	Either	Counterparty Rating
Islamic repo	Overnight – 1 Month	Local	Unrated
Long-term Sukūk	More than 1 Year	Either	Rated
Short-term Sukūk	Various Maturities less than 1 Year	Local in Few Countries (e.g. Bahrain)	Rated

Idle Cash: IBs face a liquidity/profitability trade-off. IBs can opt to maintain idle cash, which by its nature is liquid and represents the least risky choice. However, holding idle cash to meet their liquidity does not generate any return to IBs nor does it provide them with the flexibility of the return-generating instruments that are used by their conventional peers.

One major limitation of the *Commodity Murabahah,* which is one the main financial instruments used by IBs in managing their liquidity,[11] is its non-tradability. This is because when an IB sells an asset to a customer based on the *Commodity Murabahah* contract, the sale, which is on a deferred payment basis, results in a debt (account receivable). In most jurisdictions where IBs operate, the adopted Shari'ah rules and principles prohibit trading of debt. This means that an IB will keep the assets (receivables) relating to the sale using this instrument until maturity and cannot off-load them from their balance sheet by selling them to a third party, as is practiced by conventional banks, to raise funds in order to meet their liquidity needs. Furthermore, this instrument is far from being universally accepted from a Shari'ah perspective, as was evidenced in the recent Thomson Reuters Survey.[12]

Interbank Deposits Whether on a Mudarabah or Wakalah Basis: IBs may deposit funds with other banks. However, this exposes an IB to the counterparty risk of the institution in which it deposits funds. Moreover, such deposits do not meet Basel III requirements for High Quality Liquid Assets (HQLA) – see below.

Long-term Sukūk: IB may choose to invest in long-term, highly rated Sukūk issued by Sovereigns and supranational institutions, e.g. the Islamic Development Bank and the International Financial Corporation Sukūk (both rated AAA). However, there is a limited issuance of globally recognized tradable Sukūk, underdeveloped secondary market trading and a tendency for investors to 'buy and hold'. Most importantly, these long-term Sukūk would not be eligible to meet the HQLA criteria set out in Basel III because of price volatility, unless their remaining maturities are very short.

Creating alternatives to the above financial instruments is integral to improving market liquidity and ultimately to enabling the overall development of an integrated Islamic financial system. Liquidity management of IBs does not tend to differ much from that of conventional institutions in terms of purpose and reasoning, but more with regard to the need to use different tools because of Shari'ah-compliance concerns. Given the current shortage of such high quality, liquid, tradable short-term instruments, this requirement represents a key challenge for IBs. As will be shown below, the IILM Sukūk assist IBs in mitigating problems of market liquidity, including meeting the liquidity coverage ratio requirement under Basel III regulatory standards.

3.   Importance of Liquidity Management and Basel III

For IBs, the requirement for readily available, highly rated, tradable, short-term liquidity management instruments was brought into sharp focus by the introduction of Basel III's regulatory standards. In December 2010, the Basel Committee on Banking Supervision (BCBS) announced the introduction of a Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), to be put in place starting in 2015 and 2018, respectively (liquidity requirements being part of the Basel III new regulatory framework).

Under Basel III's criteria for the LCR, banks should hold a sufficient buffer of HQLA to cover total net cash outflows over 30 days under a stress scenario. Such HQLA should exhibit low credit and market risk (having high credit quality and low price volatility), be tradable, have ease and certainty of valuation and have low correlation with risky assets.

4.   Establishment of the IILM

The idea of establishing the IILM originated from a technical taskforce formed in 2007 by the Islamic Financial Services Board (IFSB) to examine key issues around the lack of a formal or organized Shari'ah-compliant money market, shortage of Shari'ah-compliant liquidity management instruments and unsuitability of existing instruments for secondary market trading, amongst other concerns. An IFSB High-level Task Force on Liquidity Management, which Governor Zeti Akhtar Aziz of Bank Negara Malaysia chaired and which included representatives from the Central Banks of Malaysia, Saudi Arabia, Qatar and Singapore, Asian Development Bank and the Islamic Development Bank, recommended the creation of the IILM.

The IILM is an international organization that was established on 25 October 2010 by central banks, monetary authorities and multilateral organizations to develop and issue short-term Shari'ah-compliant financial instruments to facilitate effective cross-border liquidity management for IIFS. The IILM aims to facilitate cross-border liquidity management among IBs by making available a variety of high quality, short-term, tradable Shari'ah-compliant financial instruments on commercial terms to suit the varying liquidity needs of these institutions.

Membership of the IILM is open only to central banks, monetary authorities, financial regulatory authorities or government ministries or agencies that have regulatory oversight on finance or trade and commerce, and multilateral organizations. The current members of the IILM are the Central Banks of Indonesia, Kuwait, Luxembourg, Malaysia, Mauritius, Nigeria, Qatar, Turkey and the United Arab Emirates, as well as the Islamic Development Bank Group.

The IILM is based in Malaysia and is headquartered in Kuala Lumpur. As an international organization, the IILM enjoys a range of privileges and immunities conferred in the International Islamic Liquidity Management Corporation Act 2011 that was promulgated by the Parliament of Malaysia. These privileges and immunities are similar to those that are granted to diplomatic missions. The IILM is governed by its Articles of Agreement, which were adopted on 25 October 2010.

The IILM's governance structure comprises a General Assembly, a Governing Board (the primary strategy and policy-making body), and three Board committees, namely Board Executive Committee, Board Risk Management Committee and Board Audit Committee. The President of the Islamic Development Bank Group together with the respective Governors of member central banks represent their institutions on the Governing Board.

5.   The IILM's Role in Facilitating Cross-Border Liquidity Management for IB

5.1   The IILM Short-term Sukūk Program

The IILM was the first institution in the IFSI to implement a short-term Sukūk Program. Although such a financial technology (Asset Backed Commercial Paper) is used in the USA and Western European countries, it is hardly practiced in emerging markets and certainly not in many jurisdictions that host IBs.

Although the IILM was not a rated institution, its short-term Sukūk Program, which was launched in April 2013, was rated 'A-1' by S&P. This represented a landmark rating achievement because, among other things, it combined aspects of structured finance rating methodology with Sukūk distribution channels that were more akin to how central banks distribute their own short-term papers.

For the purpose of this program, the IILM has adapted the Asset Backed Commercial Paper (ABCP) model to the specificities of Islamic finance. The program includes two special purpose vehicles ("SPV"), which are based on the Wakalah contract, domiciled in Luxembourg, one for Sukūk issuance and the other for holding assets.

The program has three main components:

1. *Assets*. An obligor ("asset obligor") sells an asset to a local special purpose vehicle (SPV), which securitizes the assets and sells the resultant Sukūk to an asset-holding SPV set up by the IILM. The Governing Board has mandated that the underlying assets of the Sukūk can only be those of sovereign, sovereign-linked and supranational entities. The local SPV is owned by the sovereign or sovereign-linked entity. Such assets must be Shari'ah-compliant (e.g., not a hotel or a conventional financial institution) and the underlying assets should have a minimum long-term rating of 'A' by S&P. This rating translates into an 'A-1' short-term rating which ultimately becomes the rating of the Sukūk Program. These underlying assets are thus securitized and purchased by the IILM asset-

holding SPV in the form of Sukūk. The IILM in turn issues short-term Sukūk, which give holders the rights to the cash flows from the underlying assets. The underlying assets, which are held to maturity and not intended for trading, have different tenors that are mutually agreed between the IILM and the asset obligors.

2. *Time Reserve*. The rating requirements of the Program also include, among other requirements, having a time reserve amounting to 2% of the size of the issuance to manage timing mismatches in cash flows.

3. *Primary Dealers Network.* The IILM distributes its short-term Sukūk through a network of primary dealers (PDs) that bid in an auction to set the price and quantity at which each PD wishes to purchase the Sukūk. One of the rating requirements of the program is that at least one or more of the PDs that would commit to bid in an auction to purchase the Sukūk offered for sale, should have an 'A-1' rating by S&P. The member central banks nominate the PDs who are required by their Primary Dealer Agreement with the IILM to distribute the Sukūk and maintain a secondary market presence for the Sukūk.

5.2 Challenges of the IILM Short-term Sukūk Program

The short-term Sukūk Program has posed a number of unexpected challenges to the IILM, especially since this was the first time that such short-term Sukūk were issued. The challenges included, among others:

1. Identifying and accessing a pool of suitable sovereign assets. Not many sovereigns would wish to sell their assets. In addition, no sovereign would wish to sell its assets and buy them back at a higher price. It is a Shari'ah requirement that when an asset is sold back to the seller such a sale should be at fair value, not market price as was widely misunderstood;

2. Compliance with Shari'ah rules and principles. Given that it is an institution that complies with Shari'ah rules and principles, it is a necessity for the IILM not only to comply with this cardinal requirement, but also to ensure broad market acceptance for the Sukūk that it issues as these are meant to be purchased by IBs. For example, in 1. above, the need for compliance with Shari'ah rules and principles relates to the undertaking by a sovereign to buy back the asset at the same price at which the asset was sold. Furthermore, the Shari'ah requirement that there must be a genuine sale of an asset has raised concern with some Shari'ah scholars with regard to the legal concept of beneficial ownership that exists in jurisdictions that use common law as opposed to those that use civil law. This is because the transfer of ownership rights in the underlying assets by the local SPV to the asset-holding SPV would normally be a sale of beneficial rather than legal ownership. It was not until the IILM organized two Roundtables on Shari'ah issues in 2013 and 2014 relating to capital markets that Shari'ah scholars started to appreciate the

distinction between sovereign and corporate *Ijārah* Sukūk and their Shari'ah implications, especially the issue of a purchase undertaking in sovereign Sukūk and the price at which the underlying assets should be sold back to the sovereign;

3. Having competent staff that understand structured finance, the ABCP financial technology and who also have the necessary expertise to implement and adapt such a technology to the specificities of Shari'ah;

4. The availability of only one IB that was rated 'A-1' by S&P to fulfil the rating requirement of PDs, especially given that the IILM was mainly established to assist IIFS, in particular IBs, in managing their liquidity. However, the only IB that was rated 'A-1' by S&P was not one of the PDs. Hence, the IILM made use of conventional banks that offer Islamic financial services who were rated 'A-1' or above by S&P and were willing to participate in the Program; and finally

5. Creating awareness of the financial technology of the IILM Sukūk Program and short-term Sukūk among the stakeholders. One of the main obstacles to creating such awareness is that all the available Sukūk in the international market were long-term.

5.3   Sukūk Issuance and Re-issuance

On 26 August 2013, the IILM achieved a significant milestone and a major breakthrough in the IFSI by issuing the first US Dollar-denominated, highly rated, tradable, short-term, Shari'ah-compliant Sukūk. The IILM inaugural Sukūk, which had a tenor of 3 months, amounted to US$490 million and were rated 'A-1' by S&P, were fully subscribed. The Sukūk issued by the IILM were a new asset class in the IFSI for which the IILM has received a number of regional and international awards.

These Sukūk were successfully re-issued six times at their maturities. It is worth clarifying that this was not a rollover of the Sukūk, as is the case in debt bonds where the rollover of the invested funds is done on the same terms at which the bonds were issued. In contrast, in the case of the Sukūk re-issuance at their maturity, at each auction, there would be a different price from the previous one at which a primary dealer would have bought the Sukūk. In addition, primary dealers would receive an allocation of the amount of Sukūk that would be different from what they had received in the previous ones or for which they had bid. Furthermore, each series of the Sukūk will bear a profit rate based on the outcome of the auction process.

In addition to the 3-month tenor Sukūk, on 25 August 2014, i.e., one year after its inaugural Sukūk issuance, the IILM passed another major milestone by extending the length of the tenor of its Sukūk. The IILM announced the issuance of 6-month tenor Sukūk for an amount of US$400 million, bringing the cumulative amount of

the Sukūk that it has issued since 26 August 2013 to US$1.650 billion. The total amount of issued and re-issued Sukūk until 26 August 2014 was US$5.33 billion of which US$3.68 billion was re-issued.

There are several important features of the IILM Sukūk that are intended to assist the establishment of a liquid, cross-border market for IBs.

* The IILM Sukūk are short-term tradable Shari'ah-compliant US Dollar-denominated financial instruments issued at maturities of up to one year. The IILM has the flexibility to design tenors in accordance with market demand.

* The IILM Sukūk are money market instruments backed by highly rated sovereign assets (minimum of single 'A' rating by S&P). This underpins the credit quality of the underlying asset pool.

* The IILM Sukūk are distributed and traded globally via a multi-jurisdictional primary dealer network. There are currently 9 primary dealers spanning South-East Asia, Middle East and Europe supporting both primary and secondary market-making activities in the IILM Sukūk Program.

* The IILM Sukūk have strong global support as they represent a unique collaboration between several central banks and a multilateral development organization with the aim of enhancing financial stability and the efficient functioning of the Islamic financial markets. A network of market primary dealers also supports this unique collaboration.

* The IILM Program has a wide Shari'ah acceptance. The IILM is guided and supervised by its Shari'ah Committee whose members comprise scholars from Malaysia, Indonesia, Nigeria, Kuwait and Saudi Arabia.

* The IILM Sukūk have received a number of favorable regulatory treatments from its member central banks that would certainly enhance demand for these Sukūk.

Indeed, the IILM Sukūk mark the first of many things, not only for Islamic finance but also across the conventional space as well. The IILM Sukūk:

* are the first Shari'ah-compliant, short-term, highly rated, tradable, US Dollar-denominated instruments in the market;

* are the first money market instruments backed by sovereign assets in the form of Sukūk; and

* have the first multi-jurisdictional primary dealer network that facilitates distribution to investors worldwide.

The IILM's continued efforts to promote efficient and effective liquidity management are crucial to ensuring the long-term growth and health of IBs in the years to come, as well as to enhancing the financial stability of the jurisdictions in which IBs operate. The issuance of high quality, short-term, tradable Sukūk should enable IBs to compete on a more level playing field with their conventional counterparts.

6.   Implications for Financial Stability

Making short-term Sukūk like those of the IILM available to IBs assists them in managing the liquidity risk to which they are exposed. Indeed, with the IILM short-term Sukūk, an IB can off-load these Sukūk from its balance sheet and sell them when it is in need of liquidity, especially for cross-border transactions. In addition, acquiring the IILM Sukūk would help an IB to meet Basel III requirements for HQLA, while receiving income on these HQLA.

The above would certainly enhance the financial stability of jurisdictions that host IBs, in that the characteristics of the IILM short-term Sukūk assist these institutions to mitigate liquidity risks similar to the ones to which banks were exposed in the recent financial crises.

7.   Concluding Remarks

The establishment of the IILM demonstrates a far-sighted vision by the Council of the IFSB. The IILM has no equivalent in the conventional financial community, and its Sukūk are a new asset class. The fact that the IILM has succeeded in emulating the financial technology of ABCP and in adapting it to the specificities of Islamic finance is a landmark in the IFSI. Indeed, issuing and re-issuing high quality, tradable, Shari'ah-compliant Sukūk amounting to US$5.33 billion in a span of one year certainly assists IBs in managing their liquidity risks, as well as enhancing the financial stability of the jurisdictions that host IBs. This is certainly a success story.

Prof. Simon Archer is Visiting Professor at the ICMA Centre at University of Reading. Previously, he was Professor of Financial Management at the University of Surrey, UK, having been Midland Bank Professor of Financial Sector Accounting at the University of Wales, Bangor. He has been a visiting professor at various universities and business schools, including Bordeaux, Metz, ESCP-EAP and HEC in France, Frankfurt and Koblenz in Germany, and International Islamic University Malaysia. He is also Adjunct Research Professor at INCEIF, Malaysia.

Prof. Datuk Rifaat Ahmed Abdel Karim is currently the Chief Executive Officer of the International Islamic Liquidity Management Corporation (IILM). Prior to this, he was the Secretary-General of the Islamic Financial Services Board (IFSB), the international body that sets prudential and supervisory standards for the Islamic financial services industry from 2003 - 2011. He was also Secretary-General, Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), a post he held for eight years up to 2003. Prof. Rifaat is an authority in the Islamic financial services industry (IFSI) both at the professional and academic levels. He has played a pioneering role in the development of Islamic finance, while his leadership in setting accounting, auditing, governance, Shari'ah and regulatory standards has been instrumental in establishing the position of the IFSI in the mainstream of global financial services.

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1. The views expressed by the authors do not necessarily reflect those of the institutions to which they are affiliated. Any errors or omissions are the sole responsibility of the authors. The authors would like to thank the technical staff of the IILM, namely Abdoul Aziz Ba, Lee Wan Mone, and Dalal Aassouli for their useful comments on an earlier draft.

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7. A Mudarabah contract is a profit sharing and loss bearing contract whereby the provider of funds, in this case the holder of the PSIA, bears the risk of loss that is not due to misconduct and negligence. The other party to the contract, entrepreneur, in this case the bank, shares with the holders of the PSIA in the profits that are determined on the performance of the assets in which the funds are invested. A Wakalah contract is one under which an agent (Wakeel) manages funds on behalf of an investor in return for a fee.

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Countercyclical Loan Loss Provisioning in Asia

By Frank Packer, Jimmy Shek and Haibin Zhu[1]

1.   Introduction

Banks in Asia and the Pacific were strikingly resilient in the aftermath of the global financial crisis that began in 2007. While many banks in Europe and the Americas needed an infusion of public capital, assistance to Asian banks was limited to temporary liquidity support and guarantees of debt issuance to deal with market dysfunctions. Banks in Asia and the Pacific were far less likely to get downgraded than those in Europe and the United States. The profitable and well capitalized banks evident in much of Asia were a far cry from those that had characterized the region just a decade earlier (Mohanty and Turner (2010)).

It has been argued that one factor contributing to the resilience of Asian banks was changes in the regulatory environment from the late 1990s. In particular, most jurisdictions in Asia, spurred by the severe losses of the Asian financial crisis, adopted stronger risk management and more conservative loan loss provisioning standards (Angklomkliew, et al. (2009)). As a result, loan loss reserves and provisioning expense levels were generally higher in the run-up to the current financial crisis than they were before the Asian crisis. From a global perspective, they were also higher than those of many countries outside Asia that were significantly affected by the crisis.

However, the degree to which provisioning practices have reduced financial system procyclicality in Asia has not yet been fully tested. In this paper, we consider two types of countercyclical loan loss provisioning practices. One is "leaning against the business cycle," i.e. loan loss provisioning tends to rise during periods of high GDP growth and fall during periods of low GDP growth (after adjusting for the credit quality of bank loans and other control variables). The other is "income smoothing," i.e. banks put aside more provisions when their profits are high. Both practices can be used to dampen financial system procyclicality.

Based on a final sample of 238 banks in 11 Asian economies spanning more than a decade (2000-2013), we examine whether banks in Asian jurisdictions have in fact been provisioning in a fashion that reduces financial system procyclicality. The analysis of Asia's post-financial crisis experience should be of interest to the many national and international authorities that are now considering measures to promote more forward-looking provisioning practices (FASB (2012), IASB (2013))[2], so that banks enter periods of worsening credit quality with higher levels of reserves, providing a buffer to reduce the downward pressure on earnings and capital that would otherwise occur.

The main findings of the paper are as follows. First, countercyclical loan loss provisioning is a common practice in Asia. Second, the exact forms of countercyclical loan loss provisioning practices differ across countries. Our empirical analysis shows that "income smoothing" is adopted in China, India and Southeast Asia, while "leaning against the business cycle" is used in India and Japan. Lastly, there appears little cross-

bank differences in loan loss provisioning behavior (except during the 2007-2009 global financial crisis), suggesting that countercyclical loan loss provisioning is not driven by individual banks' decisions, but is more likely a result of stricter regulatory environments at the national level.

2.   Literature Review

Research on loan loss provisioning used to focus narrowly from an accounting perspective on whether provisions were used by banks to smooth earnings (Greenawalt and Sinkey (1988)). More recently, work has focused on how provisions contribute to the procyclicality of financial systems by being lower when output and credit are expanding and higher in periods of contraction. In early work from this perspective, Borio et al. (2001) document a strong negative correlation of bank provisions with the business cycle for 10 OECD countries. Subsequent empirical studies have used bank-level information to investigate the procyclicality of loan loss provisions in more detail (Cavallo and Majnoni (2002), Laeven and Majnoni (2003), Davis and Zhu (2009), Bikker and Metzemakers (2005), Bouvatier and Lepetit (2008, 2012), Craig et al. (2006), Wong et al. (2011), Soedarmo et al. (2012); see Table 1). Researchers use regression analysis to explain annual provisioning expenses, usually scaled by the total stock of loans or assets of the bank. Some of the explanatory variables used in these studies are discussed below.

Credit Quality. Given that provisions are set aside as a buffer against credit losses, credit quality variables should be expected to be important determinants of loan loss provisions. Two variables are widely used in the literature to proxy (inversely) for credit quality: the non-performing loan (NPL) ratio and the loan/asset ratio. The latter is used as loans are generally considered to be riskier than other types of bank assets (e.g., cash, reserves, bonds) and therefore a high loan/asset ratio is associated with lower credit quality. Both the NPL and loan/asset ratios are found to be positively associated with loan loss provisions in the literature.

Another proxy for bank-specific loan portfolio credit quality is loan growth, which at higher levels may reflect higher levels of risk being taken on. However, in most of the studies examined in Table 1, provisioning expenses vary negatively with loan growth, consistent with provisions declining even as surges in new loans might indicate increased riskiness. One exception is Bikker and Metzemakers (2005), who found a significantly positive impact of loan growth on provisions.

GDP Growth. The most important variable in this study for examining whether provisioning practices might exacerbate the business cycle is (real) GDP growth. In six out of the eight prior studies reviewed in which real GDP growth is an explanatory variable, provisioning expenses are found to vary negatively with the business cycle (see Table 1). The latter result is consistent with the traditional view that loan loss provisions tend to be procyclical.

Earnings. If banks use provisions to smooth earnings, there should be a positive relationship between provisions and earnings. Evidence of the existence of earnings smoothing through provisions remains fairly strong, at least for industrialized countries (e.g., see Pérez et al. (2008)) for the case of provisioning in Spain). In a few papers, provisions are found to vary inversely with earnings when they are negative, which would contribute to procyclicality. Meanwhile, studies on emerging markets have not found evidence for earnings smoothing; in fact, earnings have been found to negatively affect provisioning in emerging Asia (Laeven and Majnoni (2003), Craig et al. (2006), Soedarmono, (2012)). It is worth noting that income smoothing is considered as a violation of the internationally accepted accounting standards (e.g., IFRS or IAS 39), which determined provisioning *solely* based on evidence of incurred losses or impairment.

Capital Ratio. Higher provisioning when capital is low is consistent with capital depletion being correlated with efforts to build up a greater reserve cushion. While the studies of Bikker and Metzemakers (2005) and Bouvatier and Lepetit (2008, 2012) are consistent with a negative relation of provisioning and capital levels, other studies do not document a strong association with capital constraints and provisioning. Both Davis and Zhu (2009) and Craig et al. (2006)) include capital as an explanatory variable, and do not find a significant impact on provisioning, while Soedarmono (2012) finds the impact to be positive.

Asset Prices. Provisioning may be lower when asset prices are rising, if the latter are reflected in collateral valuations (changed expectations about future fundamentals are another channel). Davis and Zhu (2009) find that provisions are lower when commercial property prices are rising. This suggests that provisioning may amplify credit cycles through the collateral channel.

The first major study focusing on provisioning of Asian banks was that of Craig et al. (2006), who investigate the provisioning decisions of 242 Asian banks between 1996 and 2003. Their findings are consistent with the view that provisioning practices in Asia exacerbated financial system procyclicality more than in other regions. Higher real GDP, loan growth, asset prices and earnings led to lower provisions. To be sure, these results were probably driven by the collapse in many variables during the Asian financial crisis, when provisions needed to be increased.

Angklomkliew et al. (2009) also explored the degree to which provisioning has been countercyclical in eight Asian countries, but using national data only, over 1998–2008. Regressions using annual data incorporating fixed country effects are reported. Like Craig et al. (2006), they also found over the full period that GDP and credit growth, earnings and capital were related to provisioning in a way that may exacerbate financial system procyclicality. However, when estimated over the more recent period only (2003–08), while GDP growth is statistically significant, the other variables lose their significance. This suggests that many of the earlier results may have

been driven by the behavior of the variables around the Asian financial crisis of the late 1990s, and may not represent current provisioning practice. However, the paucity of observations, the limitations to system-wide data and the lack of a full cycle in either sub-period of the paper limit the strength of any inferences to be drawn from the comparison.

Subsequent research on the procyclicality of provisioning in Asia has produced mixed results. Bouvatier and Lepetit (2012) estimated the determinants of loan loss provisions for more than 900 banks from Japan and Southeast Asia, as well as thousands of banks in other regions between 1995-2008. They found bank provisions used to smooth income in Japan as well as Southeast Asia, varying positively with earnings, while at the same time moving negatively with GDP growth, or in a procyclical fashion. However, Soedarmono et al. (2012), focusing on 686 banks in Asia over a slightly longer period found contrasting results, with provisioning varying negatively with earnings and having an insignificant relation to GDP growth. The empirical exercise of this paper represents the first attempt to use the large numbers of observations since the global financial crisis to assess the procyclicality of provisioning in Asia. It also carefully documents the changes in the regulatory environment over the past 15 years with a view towards assessing whether they may have contributed to ameliorating the procyclicality of provisioning practices in a time period inclusive of the global financial crisis.

3.   Loan Loss Provisioning Regimes in Asia

In the aftermath of the Asian financial crisis of the late 1990s, many Asian central banks and supervisory authorities tightened their prudential supervision to ensure that banks established reserves at a level commensurate with the level of risk in the loan portfolio in a timely manner (Figure 1). Many of these moves involved convergence with internationally accepted accounting regimes (such as IFRS) or improvements to loan grading and provisioning schemes. Importantly, the general principles of the IFRS, including IAS 39, required reserves to be established for specific loans only if there is objective evidence of impairment. Such requirements can give provisioning a backward-looking focus.

Two things are worth noting here. First, significant heterogeneity remains. Not all jurisdictions are converging with IAS 39. The treatment of collateral differs, as does the tax deductibility of provisions or the inclusion of reserves in capital.

Second, even among those jurisdictions that have adopted IAS 39, most impose additional provisioning and reserve requirements. Indeed, some authorities in the Asian region have adopted measures on a discretionary basis to encourage the build-up of loan loss reserves in good times, for instance by increasing the level of reserves required in cyclical sectors. Such departures from the incurred loss approach to provisioning can be viewed as consistent with the more forward-looking perspectives recently proposed as one of the guiding principles for provisioning by the Basel Committee on Banking Supervision.[3]

What follow are country-specific descriptions of the salient features of loan loss provisioning regimes in 10 Asian jurisdictions.

China. Banks in China have been required to set aside general reserves of at least 1% of loans outstanding since 2005. Effective 2002, as part of a broader convergence with international practices, loan classification rules were revised such that specific reserves were mandated for the four lowest grades. Prudential guidelines allow banks to establish specific reserves for loans graded either substandard or doubtful that are 20% greater or less than the prudential norm. Factors considered when determining the appropriate level of reserves include specific risk scenarios (which may vary by region or industry), probability of losses and historical experience. In 2009, in response to rapid loan growth, the China Banking Regulatory Commission (CBRC) raised loan loss reserve requirements to 150% of NPL. This recommendation was intended to provide sufficient coverage not only for currently identified problem loans but also for a potential increase in NPLs in the aftermath of the credit boom. In 2011, the CBRC further required that loan loss reserves should be above 150% of NPLs or 2.5% of total loans, whichever is higher.

Hong Kong SAR. Hong Kong SAR (hereinafter Hong Kong) implemented IAS 39 in 2005. As a result, loan provisions are made when objective evidence of impairment occurs. As an additional measure, to ensure that the level of protection for expected credit losses does not decline, financial institutions are expected to maintain a "regulatory reserve" of approximately 0.5–1% of total loans to cover losses which may occur in the future. The regulatory reserve is an "earmarked" amount in retained earnings and is therefore distinct from loan loss reserves. The Hong Kong Monetary Authority expects that the regulatory reserve should approximate the difference between the sum of general and specific reserves that would have been established prior to the implementation of IAS 39 and the level of reserves required after its implementation.

India. Over the past decade, loan classification standards in India have become more conservative and have moved closer to international norms. To this end, India has raised its benchmark general provision level for standard loans (from 0.25% to 0.40% in 2005), noting the need "to build up provisioning to cushion banks' balance sheets in the event of a downturn in the economy." Required reserve levels also consider collateral. Compared to other central banks, the Reserve Bank of India (RBI) applies a sector-specific approach to general provisions based on the riskiness of the sector and public policy objectives, and the adjustment is more frequent. For instance, required reserve levels for performing personal loans, residential housing loans above INR 20 million, and credit card, capital market-related and commercial real estate loans were increased from 0.4% to 1% in 2006. In 2007, the RBI further raised general provisions for personal loans, capital market exposures and commercial real estate loans from 1% to 2%, and increased provisioning requirements for banks' exposure to systemically important non-deposit-taking non-banking finance companies from 0.4% to

2%. In 2012, the RBI raised the provisions for restructured standard accounts from 2% to 2.75%, and in 2013 it was further increased to 5% in cases of new restructurings but in a phased manner over a two year period for the existing standard restructured accounts. Conversely, provisioning requirements for performing loans to the agricultural and SME sectors are exempted from the additional provisioning requirements enacted in 2005.

Indonesia. Bank Indonesia adopted a prudential loan classification scheme with five grades in December 1998, and later tightened the definition for each grade in 2005. Provisions are allowed to be made net of collateral, with the appraised value of collateral reduced according to the age of the appraisal (i.e. older appraisals result in a greater discount to the appraised value of the collateral). General provisions of no less than 1% of loans are required, though the requirement can be waived if the loan is secured by high-quality collateral such as cash or gold. With regards to the adoption of IAS 39 in 2010, banks in Indonesia are required to provide provisions for accounting purposes on the basis of incurred losses. For prudential purposes, banks are also required to calculate the expected loan losses based on prudential loan classification matrices. Whichever results in the higher provisions among the two approaches will be used in capital adequacy ratio calculation.

Japan. The accounting standards board in Japan aimed to achieve convergence between Japanese GAP and IFRS by 2011. Japan has long had general provisions in addition to specific provisions. Required provisions have been a function of the past three-year loss experience in each category. General and specific provisions are tax-deductible and, as in many other countries, have been allowed to be included in Tier 2 capital up to a certain fixed percentage (Table 2). The main regulatory changes which affected provisioning were changes in loan classification standards, which were particularly intense in the late 1990s and early 2000s, when Japan tightened its guidelines on loan classification, which had come under attack for its overly slow recognition of problem loans (Packer (2000), Ueda (2000)). However, provisioning requirements in Japan are not subject to discretionary changes or different sectoral treatments.

Korea. Korea has tightened provisioning norms on numerous occasions over the past decade. The general reserve requirement for corporate loans was increased to 0.5%, 0.7% and 0.85% in 1999, 2005 and 2007, respectively. The minimum reserve levels for other categories of loans were also raised. Sectoral differences in provisioning requirements are also enforced, with higher provisioning requirements for residential housing and credit card loans relative to corporate loans in place since December 2006. In addition to the sectoral differences, Korean prudential authorities explicitly incorporate "expected loss" considerations into their guidance on provisions: local banks, when assessing the loan classification, are required to apply "forward-looking criteria", including future cash flow projections, when determining an appropriate level of reserves.

Malaysia. With the effective adoption of IAS 39 in 2010, all banking institutions in Malaysia were expected to put in place sound provisioning policies that are supported by a robust impairment assessment methodology to identify, monitor, and measure the quality of the loan portfolio on an ongoing basis. To ensure a smooth transition to IAS 39, the Central Bank of Malaysia has required all banking institutions to maintain a minimum collective impairment provision of 1.5% for the first two years of implementation. The Central Bank of Malaysia also retains the power to require additional regulatory reserve where the impairment assessment methodology of the banking institution are not sufficiently robust or supported by adequate historical loss data.

Philippines. The Philippines adopted new accounting standards in 2005 in line with IFRS and the loan impairment criteria contained in IAS 39. For financial institutions, however, the Bangko Sentral ng Pilipinas (BSP) requires that reserve levels be maintained in accordance with IAS 39 or BSP guidelines, whichever results in a higher reserve. The BSP requirements include a general provision for loans without heightened credit risk characteristics of 1% and 5% for those that were previously restructured. Specific reserves are determined based upon the particular loan grade assigned.

Singapore. As in Hong Kong and the Philippines, IAS 39 became effective in Singapore in 2005. Banks that are not yet compliant with IAS 39 must maintain a minimum specific reserve level based upon the supervisory loan grade. Though there is no specific guidance on general provisions, the Monetary Authority of Singapore states that as a "transitional arrangement" the level should be maintained at not less than 1% of loans net of collateral values. All minimum provision levels are net of collateral.

Thailand. In 1998, Thailand significantly increased the minimum loan loss reserves required for the various supervisory loan grades, with the requirements applied net of collateral value. In 2006 and 2007, in order to mitigate the impact of convergence with IAS 39, which has taken place since 2007, the Bank of Thailand (BoT) further tightened provisioning standards for all loans graded substandard or below such that they are consistent with IAS 39. As a result, for these loans, a reserve equalling 100% of the difference between the balance sheet amount of the loan and the present value of expected cash flows from the debtor or the sale of collateral must be established. It is worth noting that the BoT has not yet fully applied IAS 39 to performing and so-called special mention loans, where provisions of 1% and 2% are required against loans net of collateral, respectively. All banks are expected to be fully compliant with IAS 39 by 2013.

In summary, a number of measures taken by supervisors in Asia after the Asian financial crisis have resulted in banks maintaining higher levels of loan loss reserves in relation to total loans during a period when many jurisdictions have been experiencing economic growth and declining levels of NPLs.

In three of the countries discussed above, authorities adopted measures on a discretionary basis to respond to increasing levels of risk (Table 2). Authorities in India and Korea, for example, increased their loan loss reserve requirements on several occasions in sectors experiencing rapid credit growth. China's recommendation that banks maintain a loan loss reserve-to-NPL ratio of 150% was another measure that has resulted in the establishment of reserves in advance of an identifiable deterioration in credit quality.

The process of convergence with international accounting standards has been managed so as to ensure increased provisioning standards ahead of the full implementation of IAS 39. But when the process has threatened to reduce loan loss reserve levels, a number of authorities have instituted additional provisioning requirements, maintained existing measures on a provisional basis (Philippines) or created a special regulatory reserve account (Hong Kong).

The shifting regulatory environment described could have affected Asian banks' provisioning practices in at least two ways. For one, it may have led to banks' provisioning practices being more conservative across the board, and thus invariably higher than they would have been once the values of all other determinants were accounted for. The evidence reported in Angklomkliew et al. (2009) suggests that provisioning did tend to be higher subsequent to regulatory changes. For another, the new environment may have made Asian banks' provisioning practices more countercyclical, and thus higher mainly in good times, and lower than they otherwise would have been in bad times. The empirical analysis that follows tests this second proposition. Since many of the new measures in Asia were adopted on a discretionary basis to build up loan loss reserves in good times, to be drawn upon in the event of an economic or earnings downturn, even without the emergence of rule-based countercyclicality measures indicated by regimes such as those in Spain, they could have encouraged banks to behave in a manner consistent with countercyclical provisioning.

4.   Methodology

The baseline model specification adopted in this study follows the existing literature:

$$LLP_{i,t} = \beta_1 LLP_{i,t-1} + \beta_2 NPL_{i,t} + \beta_3 LOANASSET_{i,t} + \beta_4 CAR_{i,t} + \beta_5 DLOAN_{i,t}$$
$$+ \beta_6 EBTPTA_{i,t} + \beta_7 DGDP_{i,t} + \delta\ COUNTRY_i + \gamma\ YEAR_t + \varepsilon_{i,t} \qquad (1)$$

The key objective is to investigate the determinants of loan loss provisions. Explanatory variables include the (inverse) proxy variables for credit quality (NPL ratios, loan/asset ratios, bank loan growth), as well as capital adequacy ratios, GDP growth and earnings before tax and provisions (as a percentage of total assets). In addition, country and year dummies are also included.

The key results of interest in our analysis are the two coefficients on GDP growth and earnings, ie β_6 and β_7 in equation (1). We interpret both coefficients as indicative of the important question whether bank provisioning is countercyclical or not. In particular, the two coefficients could reflect two different forms of countercyclical (or procyclical) provisioning practices. One form of countercyclical provisioning is contingent on bank-specific accounting results, in particular bank earnings. A positive coefficient (β_6) implies that banks put aside extra provisions when profits are high ("income smoothing"). The other form of countercyclical provisioning is related to the state of macroeconomic conditions. A positive coefficient (β_7) implies that banks accumulate provisions during economic upturns, which will be used in economic downturns ("leaning against the business cycle"). In practice, the statistical provisioning method adopted in Spain is such an example of countercyclical provisioning, although it is imposed by the regulatory authority rather than self-motivated by banks.[4] Throughout this paper, we will distinguish between these two possible sources of countercyclical (or procyclical) provisioning behavior, one micro-oriented and the other macro-oriented.

Two points are worth noting here. First, the correlation of two key explanatory variables, GDP growth and bank earnings, might cause a multicollinearity problem in the econometric analysis. Investigation into the data suggests that this is not a huge issue. While these two variables are generally positively correlated (except for Indian banks), their correlation is not overly high. Importantly, earnings also exhibit substantial differences across banks even within the same country, thus including both variables in the regression can yield evidence of whether countercyclical (or procyclical) provisioning is linked to the macroeconomic cycle, which is typically due to additional requirements imposed by supervisors/regulators, and/or linked to bank-specific performance cycles, which is typically driven by individual banks' incentives.

Second, we chose the list of explanatory variables to be consistent with previous studies, so that readers can compare the provisioning practices in Asia after the Asian financial crisis with the results found in studies of other experiences. Separately, we also analyzed the impact of numerous other explanatory variables. Some of the results are reported in this paper (see Section 6.4) but others are omitted for space reasons. For instance, we included asset prices (house prices and equity prices) in unreported specifications, but as they turned out to be insignificant, they were excluded from our final reported specifications.

5.   Data

Our empirical analysis covers 12 economies in Asia and the Pacific, namely Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Thailand. Data come from two sources: bank-level balance sheet and income statement information, taken from the Bankscope database; and macrofinancial variables in each jurisdiction, taken from the national data maintained by the BIS.

We retrieve balance sheet and income statement information on individual banks in the 12 economies during the period 2000–13. The data are available on an annual basis. Following the practices in earlier studies, such as Cavallo and Majnoni (2002) and Davis and Zhu (2009), we clean up the data in the following steps.

First, our analysis covers only commercial banks and excludes other types of financial institution (such as government-sponsored financial institutions, investment banks, investment and trust corporations, finance companies, savings banks and cooperative banks). We choose to use unconsolidated bank balance sheet data, to distinguish between parent and subsidiary banks which are located in different jurisdictions and thus may follow different provisioning practices. There are in total 779 banks from the 12 economies with reported data at some point during our sample period.

Second, we eliminate those banks with outlier observations to minimize the bias related to measurement errors. In particular, we calculate the 1st and 99th percentile values of the following five variables: returns on assets, growth rates of bank assets, growth rates of bank loans, loan-to-asset ratios and NPL ratios. For any of the five variables, if a bank has an outlier observation that is smaller than the 1st percentile or larger than the 99th percentile value, the whole record of the bank will be removed from our sample. This outlier filtering procedure leaves 489 banks with reported data from 11 economies (no Australian bank remained in sample after this round of filtering).[5]

Third, and lastly, we eliminate those banks that have fewer than four consecutive years of financial statements, in order to control for the quality of bank reports. Imposing such a requirement is also motivated by our desire to explore the determinants of loan loss provisioning not only from a cross-sectional but also from a dynamic perspective.

The final sample that satisfies the above criteria includes 238 banks from 11 economies. Table 3 summarizes the distribution of sample banks. By jurisdiction, Japanese banks represent half of the sample, followed by Indian (18%) and Chinese (12%) banks. Southeast Asia, which includes Indonesia, Malaysia, the Philippines and Thailand, has 35 banks (15% of the total). Surprisingly, Hong Kong and Singapore, the two leading global financial centres in the region, each have only one bank that survives the filtering process. By rating, only about 30% of sample banks are rated by one of the three major agencies (Standard & Poor's, Moody's and Fitch); the vast majority of these are investment grade.

Table 4 reports the summary statistics of key variables. For each bank-specific variable, our sample has between 2,543 and 2,788 bank-year observations, that is, on average 10 to 11 annual observations for each bank during 2000–13. Loan loss provisioning averages 0.43% of total assets, despite the occurrence of negative values for numerous bank-years when loan loss provisions were run down rather than accumulated. In terms of stock, loan loss reserves average 1.52% of total assets, and the ratio ranges between 0.047% and 20.16%. Across countries, the levels of loan loss provisions and reserves are at comparable levels in China, India and Japan, although

they are higher on average in Southeast Asian economies (Indonesia, Malaysia, the Philippines and Thailand).

The NPL ratio averages 3.28%, though it is as high as 24% for certain bank-year observations. The occurrence of the Asian financial crisis, as well as the large-scale disposal of NPLs in China and Japan in the early 2000s, contribute to the high levels and large variation of NPL observations in our sample.

Asset growth and loan growth average about 8–9%, but exhibit substantial cross-country differences. The growth rates are much lower in Japan, which was consistently troubled by banking system distress, sluggish economic performance and weak bank lending over the sample period. This is also reflected by the much lower earnings for Japanese banks. By contrast, emerging Asian economies, especially China and India, were experiencing waves of financial liberalization and financial deepening over the sample period. Accordingly, banks in these economies reported on average double-digit growth rates in total assets and total loans, with the highest annual increase of nearly 50% in our sample.

In addition, we also retrieve a number of macroeconomic and financial variables for each jurisdiction. The list of variables includes real GDP growth, inflation and growth rates in national house prices. The house price data, which are updated from the study by Glindro et al. (2011), are collected from national sources, though definitions of house prices vary somewhat across jurisdictions. The coverage of residential properties varies from those in a single major city (e.g., in Thailand) to nationwide (e.g., China, Korea and Malaysia). The methodologies of constructing house price indices also differ. Some series are derived using a hedonic pricing method and others are based on floor area prices collected by the authorised land registration authorities or the private sector, for which no quality adjustment was done. Another important caveat is that house price data have become available in most Asian economies only since the late 1990s, and are still not available in some countries (e.g., Indonesia).

6. Empirical Findings

Following the methodology described in Section 4, we examine the determinants of loan loss provisioning of Asian banks. There is clear evidence for countercyclicality in provisioning when banks in Asia and the Pacific are examined in aggregate; at the same time differences in provisioning practices in response to earning and business cycle across banking systems are also noticeable. We find evidence of countercyclical income smoothing practices in China, India and Southeast Asia. On the other hand, Japanese and Indian banks tend to be more likely to provision in a countercyclical way over the business cycle.

6.1 Preliminary Analysis

As a starting point, a panel OLS regression based on equation (1) is estimated and the results are reported in Table 5.[6] Country and time dummies are included in the

regression, and the t-statistics are calculated based on clustered standard errors grouped by banks following the method proposed by Peterson (2009).

The coefficients for both the NPL ratio and the loan-asset ratio both have the expected positive signs, and both are statistically significant. This finding suggests that Asian banks put aside higher provisions when the credit risk of bank assets is higher, which is consistent with standard accounting principles as well as the results found in previous studies. The coefficient for loan growth is negative and statistically significant, indicating that provisioning tends to be low even when rapid loan growth is suggestive of increased credit risks.

The coefficients for other standard control variables also have the expected signs. First, the coefficient for the lagged dependent variable is positive and statistically significant, suggesting a certain degree of persistency in the time series of loan loss provisions. Second, the coefficient for the capital adequacy ratio is negative and statistically significant. To the extent that provisions and bank capital are two differing forms of protection against credit losses – albeit one for expected losses and the other for unexpected losses – it is possible that banks with a strong capital base may have less incentive to provision as the two forms of protection are viewed as substitutable.

Of the two key coefficients with regard to procyclicality of provisioning, one for EBTPTA and the other for DGDP, only the former is statistically significant. The coefficient for EBTPTA is positive and statistically significant, supporting the income-smoothing hypothesis and suggesting that Asian banks have been loan loss provisioning in a countercyclical fashion by setting aside extra buffers in high-earning years. Using the sample statistics reported in Table 4, we estimate that a one-standard-deviation increase in EBTPTA (0.93%) increases loan loss provisions by around 14.0 basis points.

The coefficient for DGDP has the expected positive sign, but is only borderline statistically significant, suggesting (weakly) some countercyclical provisioning over the business cycle.

As a check on the econometric specification, we also estimate equation (1) with the dynamic panel data Generalized Methods of Moments (GMM) approach developed by Arellano and Bond (1991).[7] Variables are in differences to control for unobserved bank-specific effects. To mitigate the endogeneity issues associated with the joint determination between loan loss provisions and the list of bank-specific explanatory variables, we use as instruments two- and three-year lags of the explanatory variables. Results are reported in Table 5; while they are in most respects similar to those using the panel OLS regression, there are some differences. The importance of capital adequacy, loan growth and the non-performing loans are even stronger than in the earlier regression. The two coefficients proxying for cyclicality of bank provisioning behavior are again positive, though the one for DGDP becomes statistically insignificant.

6.2 Baseline Analysis: Country-specific Regressions

The empirical results in Section 6.1 should be treated with caution. A major concern is that the pooled regression implicitly assumes that loan loss provisioning practices are the same for banks from different countries, which is highly debatable. As described in Section 3, accounting and regulatory regimes in Asia have differed quite a bit across countries. Reflecting this, we revisit the issue by dividing the sample into four groups: China, India, Japan and Southeast Asian economies (Indonesia, Malaysia, the Philippines and Thailand).

Table 6 reports the results of various country/region-specific regressions, each using the observations of the banks of one country/regional group. The coefficients for the conventional control variables, including lagged dependent variable, NPL ratios, capital adequacy ratios and loan growth, remain very similar to those in the pooled regression, although statistical significance varies across countries.

Nevertheless, the most remarkable finding is that the coefficients for EBTPTA and DGDP differ considerably across the four groups. In particular, the country-specific analyses provides clear evidence that bank provisioning tends to be countercyclical in earnings in emerging Asia (China, India and Southeast Asia), and against the business cycle in India and Japan.

In both China and Southeast Asia, it is the coefficient on EBTPTA that is significantly positive, consistent with countercyclical provisioning in these regions being attributable to income-smoothing behavior on the part of banks. Banks in these economies contribute additional loan loss provisions when their profits are high. This countercyclical provisioning can be used to reduce the volatility of reported bank profits, but it can also reduce the possibility that a bank may have to eat into its capital when actual losses exceed expected losses. By contrast, there is little evidence that banks in these economies provision against the business cycle (the coefficients for DGDP are negative, though insignificant in China). Therefore, countercyclical provisioning in these economies arises from additional provisioning when the performance of individual banks is better, but not necessarily when their economies are expanding.

In India, countercyclical provisioning originates not only from income-smoothing behavior but also from additional loan loss provisions during economic upswings. In particular, a one-standard-deviation increase in bank earnings is estimated to result, other things equal, in an Indian bank making an additional 0.11–0.12% of provisions (as a percentage of total assets). Similarly, a one-standard-deviation increase in India's economic growth rate (2.37%) is associated with an increase in loan loss provisions of slightly higher magnitude (0.27–0.28%). The economic significance of these impacts of earnings or economic growth shocks on provisions is thus rather large, given that Indian banks report on average 0.52% provisions/total asset ratios with a sample standard deviation of 0.37% (Table 4).

The finding that Indian banks provision against the economic cycle probably reflects, at least in part, the shifts in regulatory practice with regard to loan loss provisioning. India not only raised its benchmark general provision level for standard loans from 0.25% to 0.40% in 2005, but the RBI also increased the reserve levels for sectors deemed risky, such as residential housing and commercial real estate loans, from 0.4% to 1.0% in 2006, and again from 1.0% to 2% in 2007. Mortgages provided by banks declined considerably after these new requirements (Patnaik et al. (2011)). However, in November 2008, in response to the global financial crisis, the RBI lowered its provisioning requirements for real estate lending again to 0.4%. Clearly, to the extent that individual banks provisioning decisions' were constrained by the existing regulations, the timing of the regulatory changes would appear to have guided provisioning to be countercyclical, i.e., higher in good times, and lower in downturns.

Japan is also a case in which bank provisioning is countercyclical over the business cycle, in that the coefficients for EBTPTA and GDP growth are both positive, and at levels of statistical significance for the latter coefficient. It may be a sign that the Japanese banking system within the sample had recovered from the severest of the banking crisis of the 1990s in that they could afford to provision more in good times. We will examine other explanations for the provisioning behavior of Japanese banks with additional empirical specifications in the next section.

In sum, the distinct findings regarding loan loss provisioning practices in different jurisdictions help to explain the mixed results in Section 6.1. Reflecting this, we will focus on country/region-specific results in the remainder of the analysis.

6.3   Extended Analysis with Interactive Terms

In addition to cross-country differences in the coefficients as described above, we are also interested in whether certain bank characteristics within any of the countries under investigation might affect the determinants of bank provisioning, in particular the impact of earnings and GDP growth. We address this issue by extending the above country-specific baseline analysis, by adding additional interactive terms between bank earnings or GDP growth and a number of other variables. The results are reported in Tables 7 to 10.

6.3.1 Bank Size

We first examine whether bank size matters for the cyclicality of the provisioning decision. Here we define large banks as any bank that belongs to the list of the top 1,000 banks globally ranked by *The Banker* magazine in 2012 (the ranking is based on total equity).

The results, reported in column 1 in Tables 7 to 10, show little evidence that large and small banks have different provisioning strategies over either the earnings or economic cycles except China. The coefficients for the interactive terms are all

insignificant in India, Japan and Southeast Asia. As an exception, in China small and mid-sized banks tend to be more likely to provision in a countercyclical way over the earning cycle, while large banks tend to move in a countercyclical way over the business cycle.

6.3.2   *High Asset Growth Years*

We also examine whether the cyclicality of bank provisioning is affected by whether or not their assets are growing rapidly. To start with, we define a dummy variable that indicates a high asset growth year for a bank, which equals one if the year-on-year asset growth exceeds 15% (which is about the 80th percentile for asset growth within the entire sample of bank-years).

Whereas in China there is no difference in the provisioning pattern in banks' high-growth years, in South-East Asia the coefficients for the interactive terms are statistically significant, with the signs suggesting that banks tend to use provisions for income-smoothing more in high asset growth years. In Japan, banks with high asset growth tend to go against the grain in terms of provisioning more with GDP growth.[8] The results for India are rather mixed, with banks with high asset growth adopting more countercyclical income smoothing, but leaning less against the business cycle.

The two effects seem to cancel each other out.

6.3.3 *Bank Loan Quality*

Banks with high NPL ratios might also adopt different provisioning strategies in relation to credit and economic cycles. We construct a dummy variable that equals one if the NPL ratio exceeds 5%, and introduce an interactive term between this dummy variable and earnings as well as GDP growth. As shown in Tables 7-10, there is no evidence that banks with different quality have adopted different provisioning strategies.

6.3.4 *Bank Capitalization*

Due to the close relationship between bank capital and loan loss provisions, we also examine whether capital adequacy affected the cyclicality of banks' provisioning behavior. Two dummy variables are constructed for this purpose, one equalling one if the capital adequacy ratio is higher than 12% (well-capitalized banks) and the other equalling one if the ratio is below 8% (low-capitalized banks).

The results are reported in column 4 in Tables 7 to 10. In general, capital adequacy seems to have little impact on banks' choice between the two possible countercyclical provisioning methods, as most interactive coefficients are statistically insignificant. The exception is in India, in which well-capitalized banks tend to have more countercyclical provisioning over the income cycle while at the same time adopting a less countercyclical practices over the business cycle.

The Global Financial Crisis

Finally, we examine whether the occurrence of the global financial crisis has contributed to the cyclicality of Asian banks' provisioning behavior. A dummy variable indicating the period 2007–09 is introduced. The results, as reported in column 5 in Tables 7 to 10, suggest that the observation of the global financial crisis has contributed significantly to the empirical findings of the countercyclical loan loss provisions in earning cycle in India, as well as the countercyclical loan loss provisioning over the business cycle in Japan.

6.4   Robustness Check

As a robustness check, we use another variable as an alternative to GDP growth to investigate the procyclicality of provisioning practices. The substitute variable is the output gap, another metric of the economic cycle, which is calculated as the difference between GDP and its trend (as calculated by a one-sided HP filter). Borio and Lowe (2001) document a negative relationship between the output gap and bank provisioning expenses. We use the same regression method as in Table 6, i.e., dividing the sample by country/region. The results, as reported in Table 11, do not differ significantly from those of Table 6. The fit of the specification is virtually identical.[9]

7.   Conclusion

In the wake of the Asian financial crisis, many jurisdictions in Asia adopted stricter provisioning practices and began the process of converging with international accounting standards. Under certain circumstances, convergence with international standards could increase the procyclicality of provisions. However, a number of regimes overlaid additional prudential provisioning requirements, and adopted discretionary measures to increase provisioning in good times in response to rising levels of risk. Based on a final sample of 238 banks in 11 Asian economies since the Asian financial crisis of the late 1990s, this paper examines whether banks in Asian jurisdictions have in fact been applying loan loss provisions in a countercyclical fashion.

The main findings of the paper show that countercyclical loan loss provisioning is a prevalent practice in Asia, which has arguably increased the resilience of Asian banking system. Evidence of "income smoothing" is strong in China, India and Southeast Asia, which is consistent with previous findings in industrialized economies. In addition, provisioning expenses are found to vary positively with the business cycle in India and Japan. Such "leaning against the business cycle" behavior is absent in earlier studies. The evidence is consistent with the conclusion that in Asia, loan loss provisioning did not simply become more conservative at all points in time subsequent to the Asian financial crisis, but actively leaned in a fashion that ameliorated swings in earnings and the macroeconomy. The degree to which the numerous policy initiatives that followed the Asian financial crisis were responsible for this, relative to independently more prescient behavior on the part of banks, remains a subject for future investigation.

Frank Packer is Head of Economics and Financial Markets at the Bank for International Settlements' (BIS) Representative Office for Asia and the Pacific. He has been at the Representative Office since 2009, previously he was head of Financial Markets in the Monetary and Economics Department at the BIS in Basel, and Editor of the Bank's Quarterly Review of International Banking and Financial Market Developments. He has published widely on banking and financial stability issues both in BIS publications and academic journals. Prior to joining the BIS in 2003, he worked for the Federal Reserve Bank of New York and Nikko Citigroup in Tokyo. He received his PhD in Economics and Finance from Columbia University, an MBA from the University of Chicago and a BA from Harvard University.

Jimmy Shek is Senior Research Analyst at Bank for International Settlements (BIS), where he has worked since 2007. Prior to this, he had worked at the Hong Kong Monetary Authority. He has worked on various research topic areas such as bank balance sheets, capital flows and emerging markets. Some of his work has been published in BIS publications. Mr Shek holds a MPhil in Economics and a BSSc in Economics from the Chinese University of Hong Kong.

Haibin Zhu is Chief China Economist and Head of Greater China Economic Research at J.P. Morgan, where he has worked since 2011. Prior to this, he had worked for a decade at the Bank for International Settlements (BIS) where he wrote on various research topic areas such as the inter-linkages between the financial system and the real economy, risk management and bank regulation, the Chinese economy and real estate cycles. His work has been published in BIS publications as well as in numerous academic journals. Dr Zhu holds a PhD in Economics from Duke University, an MA in Economics from the Graduate School of the People's Bank of China and a BS in Information Science and Geographic Economics from Beijing University.

Table 1: Literature Review: Determinants of Loan Loss Provisions (LLP)							
	Sample	Sample Period	Impact of				Memo
			GDP Growth	Loan/ Asset Ratio	Loan Growth	Bank Earnings	
Cavallo and Majnoni (2002)	1,176 banks, 36 countries	1988–99		+ve	-ve	+ve	(1) Per capita GDP and public debt/GDP ratio also have significantly negative impact on LLP; (2) No evidence of income smoothing for non-G10 banks (the opposite); (3) Legal systems affect provisioning behavior
Laeven and Majnoni (2003)	1,419 banks, 45 countries	1988–99	-ve		-ve	+ve	Japanese and Asian banks have less procyclical LLP behavior than in other countries
Bikker and Metzemakers (2005)	8,000 bank-year obs, 29 OECD countries	1991–2001	-ve	+ve	+ve	+ve	Capital/asset ratios are negatively associated with provisioning; there exist significant cross-country differences
Craig et al. (2006)	242 Asian banks, 11 Asia-Pacific economies	1996–2003	-ve	+ve	-ve	-ve	Property prices are negatively related to provisioning levels; short-term funding/ asset ratios (a proxy for liquidity risk) have a negative impact on provisioning levels
Bouvatier and Lepetit (2008)	41 banks, 8 European countries	1995–2001	-ve			+ve	NPLs are positively related to provisioning levels, while the capital/ asset ratio are negatively related to LLP
Davis and Zhu (2009)	904 banks 15 OECD countries	1989–2002	Insig	+ve	-ve	+ve	Property prices are negatively related to provisioning levels

Table 1: Literature Review: Determinants of Loan Loss Provisions (LLP)							
			Impact of				
	Sample	**Sample Period**	**GDP Growth**	**Loan/ Asset Ratio**	**Loan Growth**	**Bank Earnings**	**Memo**
Wong et al. (2011)	192 banks, 11 Asia-Pacific economies	1996-2009	-ve				Negative coefficient on GDP growth for 69-100% of banks in 11 Asia-Pacific economies. Loan growth and earnings variables included in model but coefficients not reported.
Bouvatier and Lepetit (2012)	12,623 banks, 8 European countries, US, 12 Central and South American countries, 7 Asia-Pacific economies	1995-2008	-ve	+ve		+ve	Lagged dependent variable, loans to asset ratio not significant for Asia-Pacific banks. Total capital ratio negative and significant for European, US, Asian banks.
Soedar-mono et al. (2012)	686 banks, 12 Asian economies	1992-2009	insig	insig		-ve	NPLs, capital-asset ratio positively related to LLP; GDP growth positively related to provisioning for small bank subsample only.
+ve = positive; -ve = negative; insig = insignificant.							

Table 2: Provisioning Practices in Selected Jurisdictions									
	CN	**HK**	**ID**	**IN**	**KR**	**MY**	**PH**	**SG**	**TH**
Convergence to International Standards									
General Provisions†	✓	✓ [1]	✓	✓ [2]	✓	✓	✓	✓	✓
Adoption of IAS 39	✓ [3]	✓ [4]	✓ [5]		✓ [5]	✓ [5]	✓ [4]	✓ [4]	✓ [5]
Strengthening Loan Classifications			✓ [6]	✓ [6]					
National Discretion									
Increase in Specific Provisions	✓ [7]				✓				✓ [8]
Increase in General Provisions	✓ [7]			✓	✓				
Differences by Industry Sector				✓	✓				
"Expected Loss" Considerations	✓	[9]	✓		✓ [10]				
Issues of Capital And Incentives††									
Tax Deductibility	✓ [11]	✓ [12]	na	✓ [12]	✓ [12]	✓ [12]		✓ [13]	✓ [12]
Capital Allocation	✓	✓ [14]	na	✓ [15]	✓ [15]	na	✓ [16]	✓ [14]	✓ [14]

CN = China; HK = Hong Kong SAR; ID = Indonesia; IN = India; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand.

✓ = yes; blank space = no; na = not available.

Taken from Angklomkliew et al (2009).

1. The Hong Kong Monetary Authority established a Regulatory Reserve without imposing a minimum level but stated that banks are expected to maintain a regulatory reserve of between 0.5% and 1% of total loans.
2. In addition to general provisions, prudential norms require banks to create a "floating provision" which can only be used for predefined contingencies and under extraordinary circumstances as determined by the board; moreover, it may only be used for specific provisions and with prior approval from the Reserve Bank of India.
3. IAS 39 was implemented by all listed banks on 1 January 2007, and in 2009 for all other all other banks.
4. Effective since 2005.
5. Full implementation occurred in 2010 for Indonesia and Malaysia and in 2011 and 2013 for Korea and Thailand respectively.
6. Reducing the number of days past due to assign an adverse supervisory loan grade (i.e. substandard or worse).

7. Raising the NPL coverage ratio to a minimum of 150% by end-2009.
8. Tighter rules for provisioning against NPLs introduced in preparation for the implementation of IAS 39.
9. Reflected in the Regulatory Reserve for loan losses which is part of retained earnings and is in addition to the reserves established under IAS 39.
10. Based on forward-looking criteria which consider the borrower's business and operational environment, financial condition and future cash flow projection.
11. General provisions are tax-deductible.
12. Specific provisions are tax-deductible.
13. General provisions are tax-deductible up to a maximum of 3% of qualifying loans and investments.
14. Aggregate of regulatory reserves and collective impairment allowance is allowed to be included in Tier 2 capital up to a maximum of 1.25% of risk-weighted assets.
15. General provisions may be included in Tier 2 capital up to a maximum of 1.25% of risk-weighted assets.
16. General provisions are allowed to be included in Tier 2 capital up to a maximum of 1% of risk-weighted assets.
† Enhancements for prudential requirements for general provisions.
†† Information in this section is drawn from World Bank, bank loan classification and provisioning practices in selected developed and emerging countries (a survey of current practices in countries represented on the Basel Core Principles Liaison Group), June 2002; and J. Barth, G. Caprio and R. Levine, bank regulation and supervision database, World Bank, 2008.

Source: National Data.

Table 3: Distribution of Sample Banks			
By Jurisdiction	Number of Banks	By Rating	Number of Banks
China	29	Aa	4
Hong Kong SAR	1	A	36
India	44	Baa	18
Indonesia	9	Ba	9
Japan	115	Unrated	171
Korea	9		
Malaysia	12		
New Zealand	4		
Philippines	8		
Singapore	1		
Thailand	6		
Total	238	Total	238

	LLP	LLR	CAR	NPL	DASSET	DLOAN	LOAN ASSET	EBTPTA
Table 4: Summary Statistics of Key Variables								
Whole Sample	0.43	1.52	11.73	3.28	8.01	8.55	60.59	1.13
	(0.45)	(1.27)	(3.62)	(2.59)	(10.2)	(11.68)	(10.79)	(0.93)
	2,733	2,690	2,643	2,677	2,543	2,543	2,788	2,733
China	0.46	1.34	12.82	2.22	19.47	18.16	51.73	1.71
	(0.37)	(0.99)	(6.1)	(3.26)	(11.94)	(11.72)	(8.68)	(0.74)
	250	257	206	219	233	233	265	250
India	0.52	1.27	12.68	2.58	17.39	20.95	53.71	1.81
	(0.37)	(0.74)	(2.01)	(1.78)	(8.08)	(9.51)	(9.54)	(0.85)
	544	482	554	555	516	516	560	544
Japan	0.35	1.27	10.30	3.59	1.60	1.01	65.79	0.50
	(0.42)	(0.78)	(2.23)	(2.15)	(3.95)	(4.04)	(7.34)	(0.36)
	1415	1430	1429	1428	1314	1314	1430	1415
South-East Asia[1]	0.55	3.13	15.19	4.66	10.71	11.48	56.51	2.05
	(0.61)	(2.21)	(4.97)	(3.91)	(9.75)	(12.3)	(12.37)	(1.02)
	365	366	339	336	331	331	369	365

LLP = ratio of loan loss provisions over total assets; LLR = ratio of loan loss reserves over total assets; CAR = ratio of total capital over risk-weighted assets; NPL = ratio of non-performing loans over total assets; DASSET = growth rate of total assets; DLOAN = growth rate of bank loans; LOANASSET = ratio of bank loans over total assets; EBTPTA = ratio of earnings before tax and provisions over total assets. The unit of scale is in percentage points for all variables. In each cell, the first number represents sample mean and the second number (in parenthesis) its standard deviation, and the third number represents the number of bank-year observations.

1. Indonesia, Malaysia, the Philippines and Thailand.

Table 5: Determination of Loan Loss Provisions: Panel-Data Regression

Explanatory Variables	Dependent Variable: LLP		Dependent Variable: ΔLLP	
	OLS		Dynamic GMM	
	Coefficient	t-statistics	Coefficient	t-statistics
LLP(-1)	0.21	6.12	-0.07	-4.54
NPL (%)	5.51	5.86	8.08	10.99
LOANASSET (%)	0.23	2.27	0.27	2.04
CAR (%)	-1.07	-3.23	-1.25	-5.06
DLOAN (%)	-0.90	-6.01	-0.56	-7.73
EBTPTA (%)	15.00	7.50	16.75	10.63
DGDP (%)	0.87	1.87	0.23	1.46
Adjust-R^2	0.41			
Country Dummies	Yes		No	
Year Dummies	Yes		Yes	
Number of Observations	2,350		2,112	

The dependent variable (LLP) is defined as the ratio of loan loss provisions over total assets. Explanatory variables include lagged dependent variable, the ratio of non-performing loans over total assets (NPL), the ratio of bank loans over total assets (LOANASSET), capital adequacy ratio (CAR, the ratio of total capital over risk-weighted assets), the growth rate of bank loans (DLOAN), the ratio of earnings before tax and provisions over total assets (EBTPTA) and the growth rate of real GDP (DGDP). All variables are scaled in per cent except for LLP (in basis points). Two estimation methods are used. The first method is to use panel OLS regression, with country dummies and time dummies (by year) as additional variables. The t-statistics are calculated based on clustered standard errors grouped by banks (Peterson (2009)). The second method is to use the dynamic GMM approach proposed by Arellano and Bond (1991), using first differences. Period fixed effects are included and instruments for the endogenous variables use lags 2 to 3 for explanatory variables. The t-statistics are calculated based on a White period weighted covariance matrix.

Table 6: Determination of Loan Loss Provisions (Baseline Analysis): By Country/Region							
Explanatory Variables	Dependent Variable: LLP						
	China		India		Japan		South-East Asia
LLP(-1)	0.29	***	0.31	***	0.03		0.30 ***
NPL (%)	5.33	***	6.56	***	7.97	***	4.75 ***
LOANASSET (%)	0.08		0.28		-0.08		0.07
CAR (%)	0.11		-3.16	***	-2.07	***	-0.05
DLOAN (%)	-0.42		-0.89	***	-2.42	***	-0.47
EBTPTA (%)	16.47	***	13.85	***	4.93		21.22 ***
DGDP (%)	-1.64		11.47	**	21.58	***	-4.34 *
Adjust-R^2	0.42		0.59		0.44		0.38
Year Dummies	Yes		Yes		Yes		Yes
Number of Observations	176		492		1,291		290

The dependent variable (LLP) is the ratio of loan loss provisions over total assets. Explanatory variables are defined in Table 5. Estimation method: panel OLS regression with time dummies. The t-statistics are calculated based on clustered standard errors grouped by banks (Peterson (2009)). The subgroup "Southeast Asia" in the last column includes all banks from Indonesia, Malaysia, the Philippines and Thailand.

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Explanatory Variables	Dependent Variable: LLP									
	(I)		(II)		(III)		(IV)		(V)	
LLP(-1)	0.26	***	0.26	***	0.28	***	0.27	***	0.29	***
NPL	4.12	***	4.53	***	5.10	**	4.77	***	4.76	***
LOANASSET	-0.14		0.09		0.10		0.01		0.08	
CAR	0.36		0.12		0.18		0.23		0.27	
DLOAN	-0.54		-0.72	*	-0.63	*	-0.66	*	-0.65	*
EBTPTA	21.52	***	8.82		13.82	*	18.65	**	18.20	***
DGDP	-0.54		-0.08		-1.06		-1.22		-2.05	
EBTPTA*LARGE	-20.43	***								
EBTPTA*HIGH_GROWTH			9.04							
EBTPTA*HIGH_NPL					27.81					
EBTPTA*HIGH_CAP							-6.16			
EBTPTA*LOW_CAP							4.30			
EBTPTA*2007-09 CRISIS									-10.01	
DGDP*LARGE	2.93	***								
DGDP*HIGH_GROWTH			-1.33							
DGDP*HIGH_NPL					-3.57					
DGDP*HIGH_CAP							0.87			
DGDP*LOW_CAP							-0.43			
DGDP*2007-09 CRISIS									4.87	*
Adjusted-R^2	0.39		0.37		0.35		0.34		0.36	
Year Dummies	Yes		Yes		Yes		Yes		Yes	
Number of Observations	154		154		154		154		154	

Table 7: Determination of Loan Loss Provisions in China

LLP is the ratio of loan loss provisions over total assets. Explanatory variables are defined in Table 5 with additional interactive terms with earnings (EBTPTA) and GDP growth (DGDP). The additional variables included in the interactive terms are: a dummy for large banks (ranked as one of the top 1,000 in The Banker's global ranking in 2012) in model I, a dummy for high asset growth (year-on-year asset growth exceeding 15%) in model II, a dummy for high NPL ratios (exceeding 5%) in model III, two dummies representing well-capitalized (capital adequacy ratios exceeding 12%) and low-capitalized banks (below 8%) in model IV, and a dummy variable indicating the period of the global financial crisis (2007–09)

in model V. Estimation method: panel OLS regression with time dummies; the t-statistics are calculated based on clustered standard errors grouped by banks (Peterson (2009)).

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Table 8: Determination of Loan Loss Provisions in India										
Explanatory Variables	Dependent Variable: LLP									
	(I)		(II)		(III)		(IV)		(V)	
LLP(-1)	0.31	***	0.32	***	0.31	***	0.32	***	0.32	***
NPL	6.33	***	6.60	***	9.23	***	6.61	***	6.20	***
LOANASSET	0.20		0.30		0.25		0.28		0.40	**
CAR	-3.32	***	-3.04	***	-3.04	***	-3.70	***	-3.13	***
DLOAN	-0.92	***	-0.85	***	-0.83	***	-0.90	***	-0.87	***
EBTPTA	13.58	***	11.33	***	14.53	***	10.79	***	10.42	***
DGDP	12.73	***	11.44	**	9.74	*	13.50	**	10.87	**
EBTPTA*LARGE	2.23									
EBTPTA*HIGH_GROWTH			4.49	*						
EBTPTA*HIGH_NPL					1.21					
EBTPTA*HIGH_CAP							5.52	*		
EBTPTA*LOW_CAP							-0.79			
EBTPTA*2007-09 CRISIS									11.47	**
DGDP*LARGE	0.09									
DGDP*HIGH_GROWTH			-1.27	**						
DGDP*HIGH_NPL					-3.76					
DGDP*HIGH_CAP							-1.24	*		
DGDP*LOW_CAP							-2.72			
DGDP*2007-09 CRISIS									-8.04	***
Adjusted-R^2	0.59		0.59		0.59		0.59		0.60	
Year Dummies	Yes		Yes		Yes		Yes		Yes	
Number of Observations	492		492		492		492		492	

For an explanatory note, see Table 7.

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Table 9: Determination of Loan Loss Provisions in Japan

Explanatory Variables	Dependent Variable: LLP									
	(I)		(II)		(III)		(IV)		(V)	
LLP(-1)	0.03		0.03		0.03		0.02		0.03	
NPL	7.62	***	7.64	***	7.75	***	7.49	***	7.68	***
LOANASSET	-0.07		-0.07		-0.06		-0.03		0.06	
CAR	-2.07	***	-2.25	***	-2.13	***	-2.36	***	-2.13	***
DLOAN	-2.51	***	-2.61	***	-2.51	***	-2.50	***	-2.53	***
EBTPTA	7.58		5.96	*	6.75		5.23		6.53	
DGDP	21.56	**	23.04	***	21.22	**	21.55	**	21.13	**
EBTPTA*LARGE	-3.07									
EBTPTA*HIGH_GROWTH			-1.52							
EBTPTA*HIGH_NPL					-3.99					
EBTPTA*HIGH_CAP							5.17			
EBTPTA*LOW_CAP							-0.92			
EBTPTA*2007-09 CRISIS									-2.88	
DGDP*LARGE	-0.24									
DGDP*HIGH_GROWTH			26.10	*						
DGDP*HIGH_NPL					1.98					
DGDP*HIGH_CAP							0.35			
DGDP*LOW_CAP							4.10			
DGDP*2007-09 CRISIS									-26.19	**
Adjusted-R^2	0.43		0.43		0.43		0.43		0.43	
Year Dummies	Yes		Yes		Yes		Yes		Yes	
Number of Observations	1,279		1,279		1,279		1,279		1,279	

For an explanatory note, see Table 7.

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Table 10: Determination of Loan Loss Provisions in Southeast Asia										
Explanatory Variables	Dependent Variable: LLP									
	(I)		(II)		(III)		(IV)		(V)	
LLP(-1)	0.29	***	0.29	***	0.29	***	0.30	***	0.28	***
NPL	3.68	*	4.07	**	3.50		3.90	**	4.12	**
LOANASSET	0.17		0.17		0.19		0.21		0.19	
CAR	1.35	*	1.01		1.07		1.29		1.44	*
DLOAN	-0.51		-0.65	*	-0.49		-0.48		-0.54	
EBTPTA	19.53	***	18.18	***	20.40	***	18.39	***	20.71	***
DGDP	-0.84		0.23		-0.61	*	3.74		-3.95	
EBTPTA*LARGE	-1.56									
EBTPTA*HIGH_GROWTH			7.65	***						
EBTPTA*HIGH_NPL					1.88					
EBTPTA*HIGH_CAP							2.83			
EBTPTA*LOW_CAP							-33.97			
EBTPTA*2007-09 CRISIS									-1.24	
DGDP*LARGE	0.58									
DGDP*HIGH_GROWTH			-3.29							
DGDP*HIGH_NPL					0.67					
DGDP*HIGH_CAP							-4.85			
DGDP*LOW_CAP							-29.76			
DGDP*2007-09 CRISIS									13.27	*
Adjusted-R^2	0.37		0.38		0.37		0.37		0.38	
Year Dummies	Yes		Yes		Yes		Yes		Yes	
Number of Observations	274		274		274		274		274	

For an explanatory note, see Table 7.

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Table 11: Determination of Loan Loss Provisions: By Country/Region (Replacing GDP Growth with Output Gap)

Explanatory Variables	Dependent Variable: LLP						
	China		India		Japan		Southeast Asia	
LLP(-1)	0.29	***	0.31	***	0.03		0.30	***
NPL (%)	5.33	***	6.56	***	7.97	***	4.57	**
LOANASSET (%)	0.08		0.28		-0.08		0.20	
CAR (%)	0.11		-3.16	***	-2.07	***	0.01	
DLOAN (%)	-0.42		-0.89	***	-2.42	***	-0.49	
EBTPTA (%)	16.47	***	13.85	***	4.93		21.30	***
GAP (%)	-5.20		227.59	**	41.58	**	0.60	
Adjust-R^2	0.42		0.59		0.44		0.37	
Year Dummies	Yes		Yes		Yes		Yes	
Number of Observations	176		492		1291		290	

The model specification is the same as in Table 6, except that GDP growth is replaced by the output gap.

*, ** and *** represent statistical significance at 90%, 95% and 99%, respectively.

Figure 1: Banks' Provisioning Behavior By Country: 2000–13
in Percent

China

India

Japan

Southeast Asia
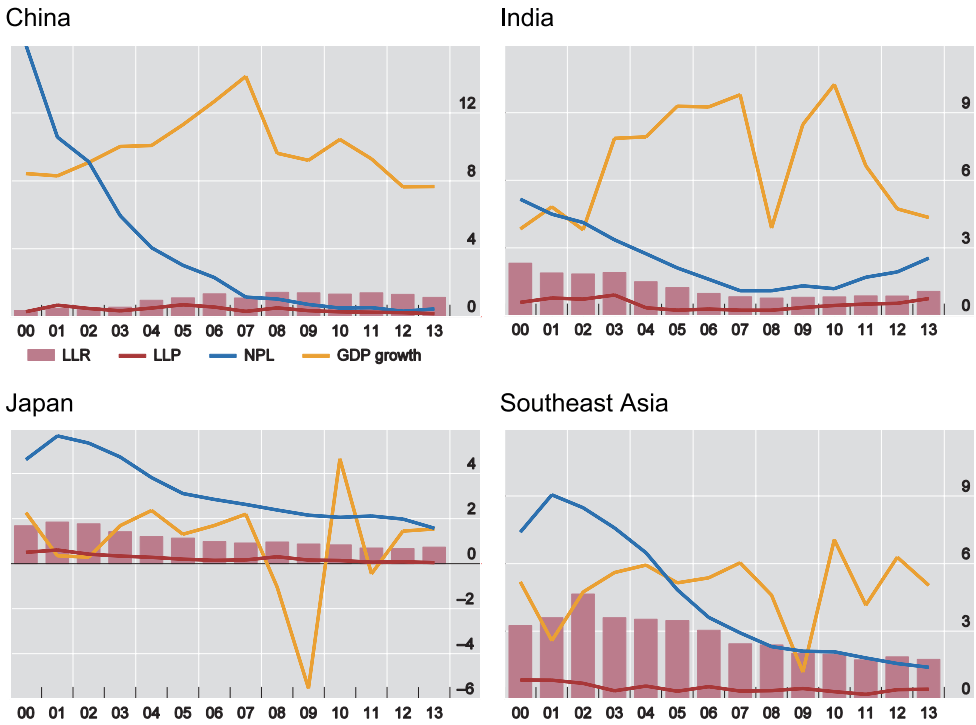
LLR = ratio of loan loss reserves over total assets; LLP = ratio of loan loss provisions over total assets; NPL = ratio of non-performing loans over total assets; GDP growth = annual growth rate of real GDP in each economy. LLR, LLP and NPL are calculated as the median of individual banks in each economy in each year. Southeast Asia includes Indonesia, Malaysia, the Philippines and Thailand, and GDP growth uses weighted averages based on 2005 GDP and PPP exchange rates.

Sources: IMF, World Economic Outlook; Bankscope; Authors' Calculations.

Endnotes

1. *Address for correspondence*: BIS Representative Office for Asia and the Pacific, 78th Floor, Two International Finance Centre, 8 Finance Street, Central, Hong Kong SAR. E-mail: frank.packer@bis.org, jimmy.shek@bis.org and haibin.zhu@ jpmorgan.com. Frank Packer is Head of Economics and Financial Markets, BIS Asian Office, Jimmy Shek is Senior Research Analyst, BIS Asian Office, and Haibin Zhu is Chief China Economist, JP Morgan Chase Bank. The views expressed are those of the authors and not necessarily those of the BIS or JP Morgan Chase Bank. The authors would like to thank Michael Zamorski, Philip Turner and Madhu Mohanty for comments on earlier drafts; Claudio Borio, Stephen Cecchetti, Robert McCauley, Ilhyock Shim and Christian Upper also made helpful comments on a related article in the *BIS Quarterly Review* by Frank Packer together with Sarawan Angklomkliew and Jason George.

2. Both the Financial Accounting Standards Board (2012) and IASB (2013) have issued proposals to move from accounting for credit impairment using "incurred loss" models, which delays recognition until the loss is probable or even incurred, to "expected credit loss" models, that recognize expected credit risks. Many experts have argued that "incurred loss" models are not forward looking enough to alert investors to expected credit losses.

3. Namely, that provisions should be based on methodologies that "reflect expected losses … over the life of the loans …". See BCBS (2009).

4. On the flip side, negative coefficients (β_6 and β_7) are evidence of procyclical loan loss provisions.

5. We use two alternative filtering criteria as robustness checks. In the first exercise, we change the percentile thresholds to the 5th and 95th percentile values of the same five variables, and the filtering results are the same. In the second exercise, we use filtering criteria defined in terms of absolute values: (i) the return on assets in absolute terms less than 10%; (ii) the growth rate of bank assets in absolute terms less than 50%; (iii) the growth rate of bank loans in absolute terms less than 50%; (iv) the loan-to-asset ratio in the range of 10% and 90%; and (v) the NPL ratio smaller than 100%. The filtering results are quite similar: 551 banks remain in the sample.

6. In addition to the list of explanatory variables in equation (1), we also examined the impact of other possible factors, eg growth rates of property prices (suggested by Davis and Zhu (2009)) and equity market returns. Neither of them has a significant impact on loan loss provisions.

7. There are two potential caveats associated with the dynamic panel data GMM approach. One is the degree of freedom issue, in that taking first difference and using lagged variables as instruments will significantly reduce the number of observations (our sample data have a relatively short time horizon). In addition, it is not easy to choose the right instrument variables. Therefore, we choose the panel OLS regression as the benchmark approach in this study.

8. However, there were only a few cases of high asset growth of Japanese banks over the sample period (5 out of 934 bank-year observations), so perhaps not too much should be read into this result.

9. Only when the adjusted R-squared is calculated at the three-digit level does there appear to be a slightly worse fit than those of the Table 6 regressions. Unreported regressions in which the credit gap is inserted in place of the GDP gap also have a slightly worse fit than those of Table 6.

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Monitoring Financial Integration:
EU and ASEAN Compared

By Herbert Poenisch

Financial integration within ASEAN has been declared a goal within the framework of the ASEAN Economic Community (AEC), to be achieved by 2015. It is desirable from the point of view of consumers of financial services who can tap broader and deeper financial markets to finance economic growth. It should also be desirable from the investors' point of view, recycling Asian savings within the region. Finally, it is also desirable from the perspective of policy makers as it provides risk sharing between participating countries and regions. The issue of whether it adds to financial stability, the risk sharing aspect, or adds instability, the contagion aspect has not been resolved, neither in the theoretical discussion nor in practice. The SEACEN 30th Anniversary Conference, held on 22 October 2013, was devoted to the relationship of financial integration and financial stability.

The recent EU crisis highlighted the potential for contagion risk, once one sector, the sovereign debt market or interbank market became impaired (indicators are shown below).

The Global Financial Crisis (GFC) reminded us once again of how interconnections within the financial sector can amplify shocks. When the financial dominoes do begin to fall, they do not respect national borders. Thus, by its nature, interconnectedness demands a policy response that goes beyond the national level. International cooperation is essential to *monitor* and respond to vulnerabilities.[1]

This article will not address the vulnerabilities, but rather confine itself to the *monitoring* of financial integration with technical measures. With better frameworks and tools for identifying and measuring interconnectedness, our understanding of how such systemic risk is transmitted has advanced considerably. However, this understanding still remains incomplete.[2] Once we have a clearer idea on how to measure where we are on the way towards financial integration, the discussion can revert back to financial stability aspects.

The European Central Bank (ECB), in charge of monetary and financial stability in the Eurozone has already compiled such financial integration indices since 2005. They publish annual price-based measures as well as quantity-based measures for various segments of the financial markets, the money markets, the banking (credit) markets and the bond and equity markets.

The Asian Development Bank (ADB) also publishes annual economic integration indicators. It operates a website called Asia Regional Integration Centre (ARIC)[3] as well as publishes its annual Asian Economic Integration Monitor (AEIM). In the finance area, these include quantitative indicators, such as regional cross-border bank lending and holdings of financial assets (bonds and equities) as well as price

indicators, such as the correlations in money market rates, in lending market rates, in bond market rates, in stock market returns and portfolio indicators.

This article will show the availability of financial integration indicators, comparing those published by the ECB and the ADB. This will give an impression where financial integration stands, in the Eurozone after 15 years of existence of a common currency and within ASEAN on the eve of the AEC. The BIS International Banking Statistics are added as measure of banking integration.

1.   Measures of Financial Integration

The European Central Bank (ECB) defines financial integration as:[4]

The market for a given set of financial instruments and/or services that is fully integrated if all potential market participants with the same relevant characteristics:

(1) face a single set of rules when they decide to deal with those financial instruments and/or services;
(2) have equal access to the above-mentioned set of financial instruments and/or services; and
(3) are treated equally when they are active in the market.

1.1   The Financial Landscape[5]

Any comparison should include the importance of various financial segments in the national systems. Both the Eurozone and ASEAN have financial systems dominated by banking systems. This is in contrast to market based system, such as the US system, where intermediation by capital markets overshadows banking intermediation. The banking assets over GDP amount to some 300% in the Eurozone, 200% in Japan and 100% in the US.[6]

A general comment is that Eurozone countries' economies were far more homogenous at the start of the integration process in the 1970s than ASEAN economies are today. However, ASEAN policy makers claim merit in diversity.

With significantly more diverse economies and financial systems, promoting greater regulatory convergence in Asia is more likely to proceed on the basis of a set of shared principles for developing and maintaining sound financial systems.[7]

Reflecting the diversity of their economies, some standard metrics of financial development—such as deposit money banks' assets, stock market capitalization, and the value of bonds outstanding as a proportion of GDP—show considerable differences across ASEAN.[8]

1.1.1 Banking Systems

Comparing the importance of banking in the financial system for the EU, the ratios of total banking assets range between 2 and 4 times of their GDP. In financial centres, such as Luxembourg, the ratio even reaches 12 times the GDP.[9] The banking assets for the Eurozone are in between at some 3 times the GDP. There are major differences between more market based systems, such as the UK, Netherlands, France, etc., and more bank-based systems, such as Germany, Austria, etc.[10]

In ASEAN, commercial banks are by far the most important type of financial institutions. Overall, they accounted for more than 82% of total financial assets in 2009.[11] As in the EU, there is great dispersion between Singapore at 110% and Malaysia at 102% on the one hand and Indonesia and Philippines at some 30% on the other.[12]

Measured in terms of assets, ASEAN banks are, on average, rather small on an international scale. In terms of market capitalization, only three Singaporean banks and one Malaysian bank rank among the world's top 100 banks. Moreover, the market capitalization of all of the 24 ASEAN commercial banks combined is smaller than that of Industrial and Commercial Bank of China (ICBC), China Construction Bank, or Hong Kong and Shanghai Banking Corporation (HSBC).[13]

Other banking indicators which should be compared up front are the different funding structures. European banks rely far more on wholesale funding, interbank market as well as issuing money market papers and longer term securities. Asian banks mostly rely on domestic deposits, which are a stable source of funding but less regionally integrated.[14]

The penetration by foreign banks, for this purpose only from other regional member countries is reflected on both sides of the balance sheet: cross-border loans (including interbank loans) and security purchases on the asset side and cross-border deposits, interbank borrowing and securities issued on the liability side. These data should include intra bank funding within the same bank holding, such as branches, subsidiaries and joint ventures.

The Committee on the Global Financial System (CGFS) in its Report on banking systems and regional financial integration concludes that various indicators suggest that EME banking sector internationalization is increasing. For example, aggregate cross-border claims (which include loans, deposits, debt securities and other financial instruments) on economies in the three major EME regions have increased almost threefold in the past decade. Although cross-border claims dipped sharply in 2008, they have since surpassed pre-crisis levels.[15] The EME Asian region in this case comprises ASEAN plus China, Hong Kong SAR and Korea.

The CGFS also highlights that banks in Singapore and Hong Kong provide important intermediation services for the Asian region, illustrating the supporting role played by financial centres as a conduit for financing to regional economies, especially among EMEs. Cross-border flows between the two financial centres and the rest of Asia, both emerging and developed, have increased since the global financial crisis, reflecting greater regional integration.[16]

Although the ASEAN 5 states have taken steps to open up their banking industry, cross-border banking and the cross-border penetration of ASEAN-based banks within ASEAN have been slow to develop. In 2010, not a single ASEAN-based commercial bank had either a branch or a subsidiary in all ASEAN member states. The three ASEAN banks with the widest regional presence (Maybank of Malaysia, Bangkok Bank of Thailand, and United Overseas Bank of Singapore) have operations in seven ASEAN member states.[17]

1.1.2 Bond Markets

The size of total outstanding bonds issued in Euro by Eurozone residents, i.e. bonds issued by sovereigns, financials and corporates is approximately 130% of GDP for all Eurozone countries.[18]

In ASEAN, only a few have developed bond markets, notably Malaysia (93%), Singapore (55%) and Thailand (57%).[19]

1.1.3 Equity Markets

The size of equity markets in the Eurozone trails the size of banking markets and also the equity markets in ASEAN. For the EU as a whole, the stock market capitalization is only 43%, with the highest value in Sweden at 88%.[20] In ASEAN, they are highly developed only in a few countries, Singapore 172%, Malaysia 180%, Philippines 77% and Thailand 73%.[21]

1.1.4 Portfolio Investment Assets

While available statistics do not enable a breakdown between advanced economy and EME portfolio investors, the IMF's Coordinated Portfolio Investment Survey suggests a growing role for EME investors in same-region activities.[22] Reflecting the gradual pace of financial integration, intra-ASEAN portfolio investments as a proportion of the region's total investments have been relatively small. Among the ASEAN 5, Singapore and Malaysia are the two largest portfolio investors, with 84.2% and 12.1% of the total intra-ASEAN portfolio investments in 2009.[23] Asian Bond Funds 1 and 2 were designed as a boost for Asian savings to be recycled in Asia. The issuers are high quality Asian borrowers, in the first Asian Bond Fund issuing in USD, in the second Asian Bond Fund in local currency. The purchasers initially were Asian central banks. Later on private investors were admitted to the Funds.[24] More popular than the securities themselves was the Pan Asian Index Fund (PAIF),[25] which is actively traded.

In all security markets, market liquidity matters. It is defined as the willingness of market participants to trade. A liquid market is one where large volumes can be bought and sold without affecting the price (such as US Treasuries). The degree of market liquidity varies across market segments, from country to country and through time. Periods of stress have seen market liquidity drying up completely.

Measurements of integration, such as dispersion and co-movements of price-based indicators reflect the underlying market sentiment, i.e. they vary from tranquil periods to turbulent periods. They are affected by national, regional or global news.

Finally, financial account liberalization varies between the EU and ASEAN.

Whereas the capital account has been liberalized in the EU since the late 1980s, various financial account impediments remain in place in ASEAN. These drive a wedge between national price-based measures which can be sustained over time.

Even if capital is substantially allowed to move across national borders, as is the case in many ASEAN countries, capital mobility is still considered not free if it is subject to control in the form of permission, ex ante reporting requirements, or quantity restrictions, even if permission is generally granted.[26]

1.2   Types of Measures

The first category is *price-based measures,* which measure discrepancies in prices or returns on assets caused by the geographic origin of the assets.[27]

A second category is *quantity-based measures* such as ease of market access, and cross-border holdings of securities.

A third category refers to *news-based* measures. In a financially integrated area, portfolios should be well diversified. Hence, one would expect news (i.e. arrival of new economic information) of a regional character to have little impact on prices, whereas common or global news should be relatively more important.[28]

2.   Financial Integration in the Eurozone

The European Central Bank publishes an Annual Report on Financial Integration in Europe (latest 2014). The key observations were that the process of financial integration in Europe was reversed somewhat in 2012 because of concerns of the breakup of the Euro. This reversal demonstrates that financial integration is not a one way process but subject to backlashes due to volatility in market confidence.
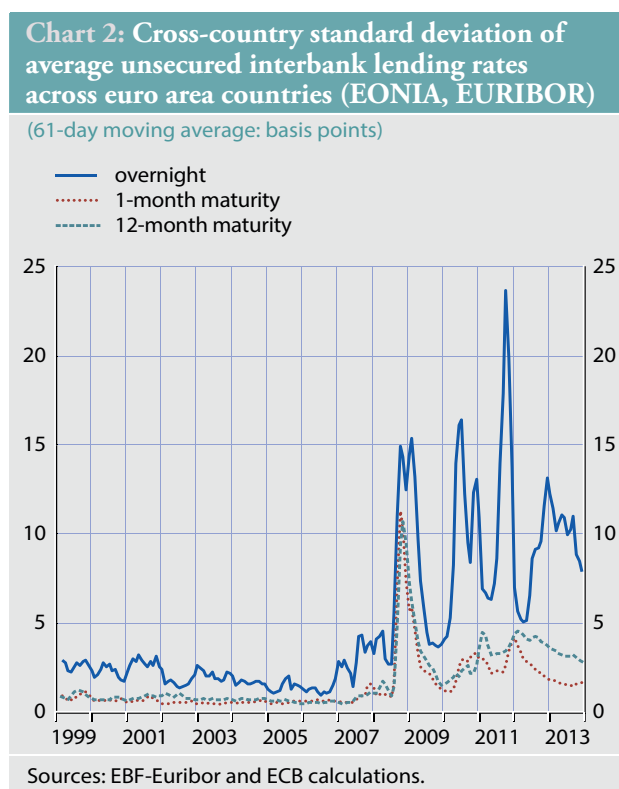
Although fears of a breakup of the Euro subsided in 2013, significant financial fragmentation still remains in the euro area, especially in some market segments. Further progress towards financial integration and stability cannot be taken for granted but should be underpinned by sustained policy action, especially on two fronts: effective

implementation of the Banking Union in all its components and continuous effort, at the national level, towards fiscal consolidation and structural reforms aiming also at reducing competitiveness imbalances.[29]

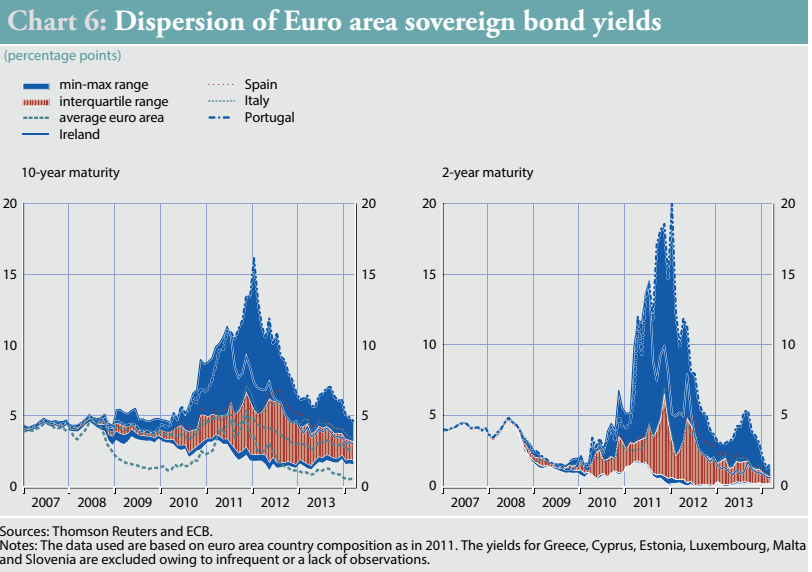## 2.1   Price-based Measures

2.1.1 Money Market Rates

As expected, in a currency union, money markets rates of unsecured as well as secured lending should converge, the cross-country standard deviation should be low. As the graphs below[30] shows, since the GFC, money market rates in the Euro area have diverged significantly, compared with previously stable values. This reflects the risk differentiation across countries and banks.

Chart 2: Cross-country standard deviation of average unsecured interbank lending rates across euro area countries (EONIA, EURIBOR)

(61-day moving average: basis points)

— overnight
...... 1-month maturity
------ 12-month maturity

Sources: EBF-Euribor and ECB calculations.

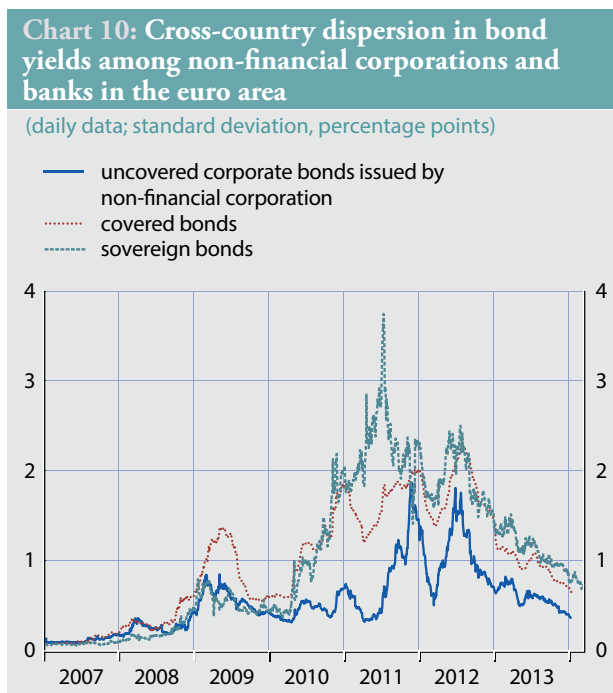*Source: ECB, (2014), pp. 15.*

2.1.2 Sovereign Bond Yields

As a result of the European debt crisis, these indicators showed the reversal of integration, most clearly in the dispersion of sovereign bond yields in 2011 and 2012. However, these have declined markedly recently for the 2 year as well as the 10 year maturity.[31]

Chart 6: Dispersion of Euro area sovereign bond yields

(percentage points)

- min-max range
- interquartile range
- average euro area
- Ireland
- Spain
- Italy
- Portugal

10-year maturity

2-year maturity

Sources: Thomson Reuters and ECB.
Notes: The data used are based on euro area country composition as in 2011. The yields for Greece, Cyprus, Estonia, Luxembourg, Malta and Slovenia are excluded owing to infrequent or a lack of observations.

Source: ECB, (2014), pp. 19.

2.1.3 Corporate Bond Yields

Non-financial corporate bond markets and covered bonds suffered an increase, albeit lower, in dispersion of yields compared with sovereigns.[32]

Chart 10: Cross-country dispersion in bond yields among non-financial corporations and banks in the euro area

(daily data; standard deviation, percentage points)

- uncovered corporate bonds issued by non-financial corporation
- covered bonds
- sovereign bonds

Source: ECB,(2014), pp. 21.

Chart 19: Country and sector dispersions in euro area equity returns

(percentages)

Source: ECB, (2014), pp. 26.
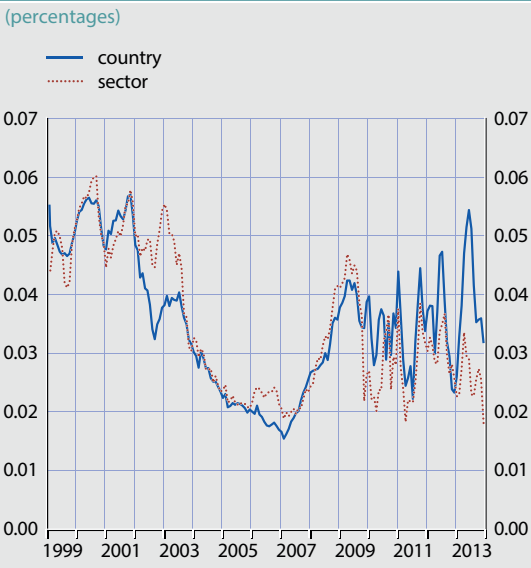
Equally, country and sector dispersion of equity returns in the Eurozone show the reversal in integration, with the country dispersion exceeding the sectoral dispersion.[33]

Chart 25: Cross-country standard deviations of MFI interest rates on new loans to non-financial corporations

(unweighted three-month moving averages, basis points)

Source: ECB, (2014), pp. 30.
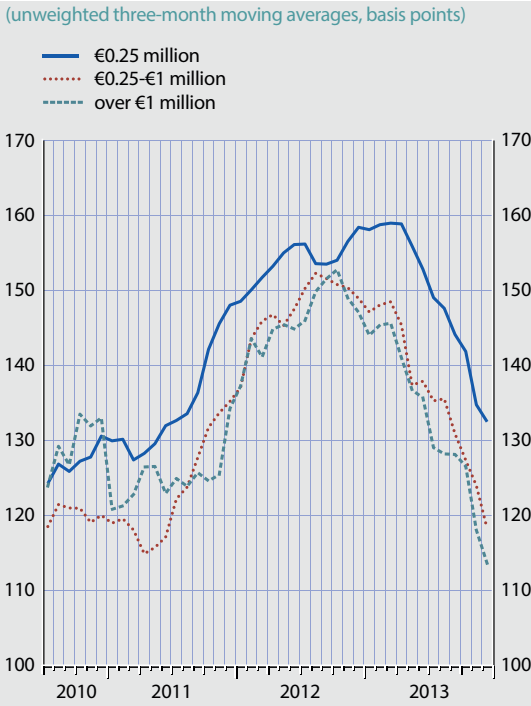
2.1.4 Credit Markets

The cross country standard deviation of interest rates charged by Monetary Financial Institutions (MFI) increased markedly during the EU debt crises, more so for small loans than for medium sized loans and large loans.[34]

2.2   Quantity-based Measures

2.2.1 Cross-border Holdings of Debt Securities

The decline in the share of cross-border holdings by MFI of Euro area and EU issued debt securities, both sovereign as well as corporate started during the GFC and has been stabilized only recently.[35]
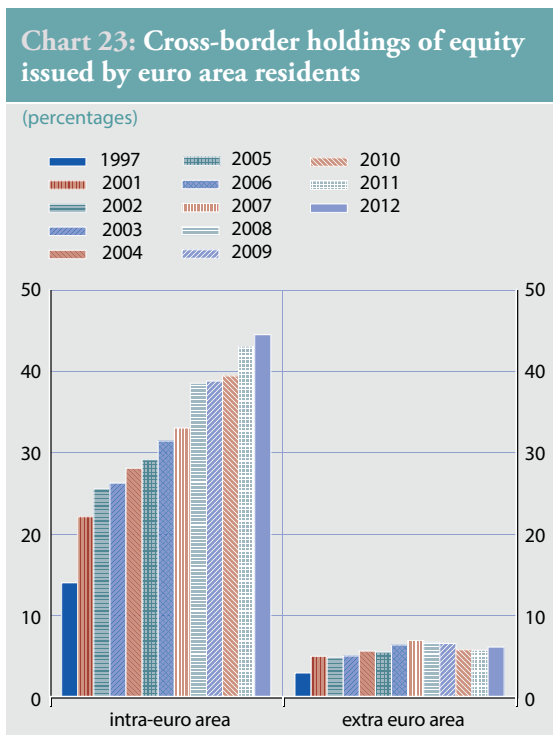
Source: ECB, (2014), pp. 26.

Chart 9: Share of MFI cross-border holdings of debt securities issued by euro area and EU corporates and sovereigns

(percentage of total holdings, excluding the Eurosystem)

— other euro area government and corporate bonds
····· other euro area corporate bonds
---- other euro area government bonds
— rest of EU government and corporate bonds
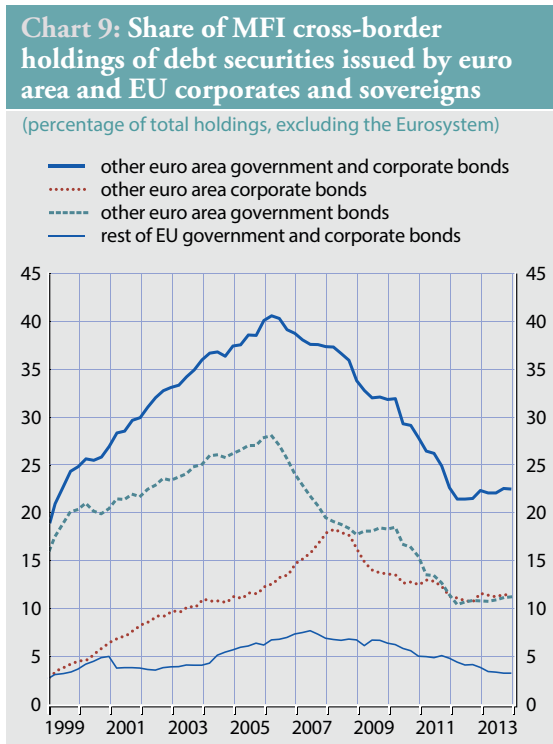
2.2.2 Cross-border Equity Holdings

The cross-border holdings of equity issued by Eurozone residents has increased steadily and been unaffected by the GFC as well as by the EU debt crisis.[36]

Source: ECB, (2014), pp. 28.

Chart 23: Cross-border holdings of equity issued by euro area residents

(percentages)

1997 2005 2010
2001 2006 2011
2002 2007 2012
2003 2008
2004 2009

intra-euro area   extra euro area

2.2.3 Cross-border Credit Markets

The share of cross-border loans by MFI has declined during the GFC as well as following the EU debt crisis as there was some reversal towards more domestic lending. The already low share of cross-border lending to non-financial corporates and households has remained unchanged.[37]

Source: ECB, (2014), pp. 32.

**Chart 28: Share of cross-border loans for different sectors in the euro area**

(monthly; percentage)

- MFIs (excluding ESCB)
- households
- non-financial corporations
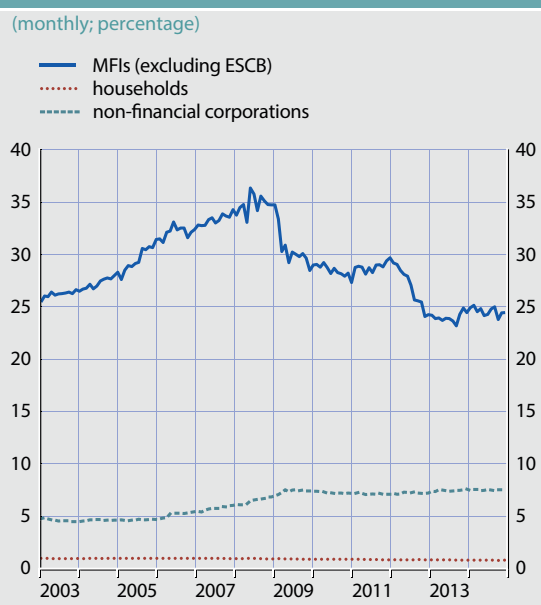
3. Financial Integration in ASEAN+3

The ADB publishes an annual update of its Asian Economic Integration Monitor (2014). Regarding financial integration, it publishes the following quantity based and price based indicators.

3.1 Quantity-based Indicators: Cross-border Portfolio Holdings

While Asian investors continue to prefer investing in their own markets ("home bias") or outside the region ("global bias"), intraregional holdings of equity and debt securities continued to rise in 2012, as global risk aversion waned and the region's growth differential with advanced economies attracted more investors. In particular, intra-Asian bond holdings rose from 13.6% in 2011 to 14.8% in 2012. Excluding Japan (which tends to hold a large share of US assets), intra-Asian bond holdings is even higher at 31.6% in 2012. During the same period, intra-Asian equity holdings also rose from 22.8% to 25.2%.[38]

Figure 15: Cross-Border Portfolio Holdings—Asia (% share)
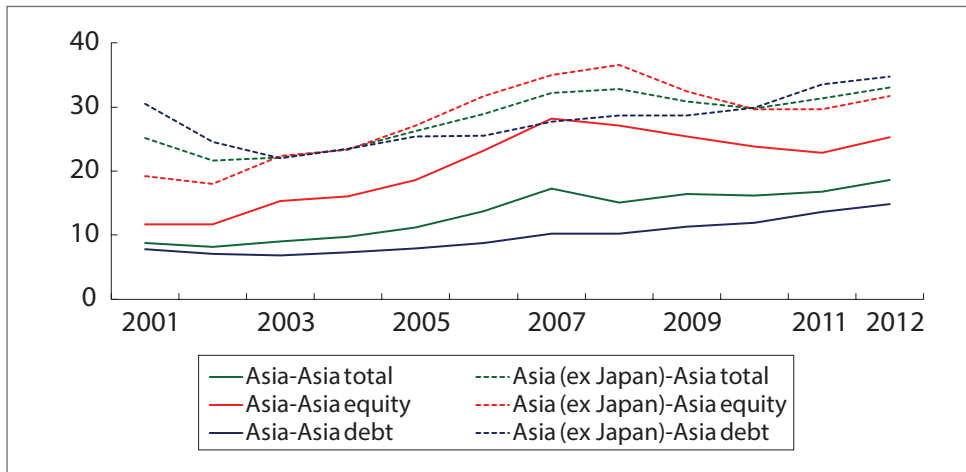
Source: ADB, (2014), pp. 24.

3.2   Price-based Indicators: Co-movements or Cross-market Dispersion

The extent of integration in Asian financial markets can also be measured through price indicators such as the co-movements of financial asset returns—specifically by cross-market dispersion of daily stock-index returns and of 10-year bond yields. The trend shows a declining dispersion with a major setback after the GFC when foreign investors (both regional and global) sold Asian equity.

Figure 17: Cross-Market Dispersion of Equity Returns (%)
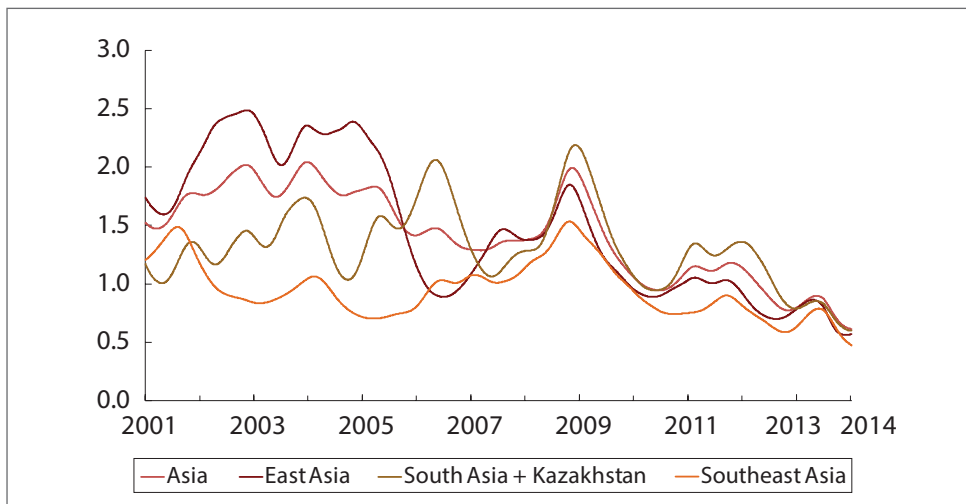
Source: ADB, (2014), pp. 25.

3.3   Price Indicators: Coefficient of Variation of 10-year Bond Yield Spreads

In 2013, the coefficient of variation for 10-year bond yield spreads had increased due to the massive sell-off by foreign investors (both regional and global) which affected economies with weaker macroeconomic fundamentals more. The coefficient of variation of bond yields in South Asia remains relatively stable (albeit slightly declining). In contrast, the coefficient of variation of 10-year bond yield spreads on East Asian bonds has increased, yet remained lower than that in Southeast Asia.[39]

Figure 18: Coefficient of Variation of 10-Year Bond Yield Spreads
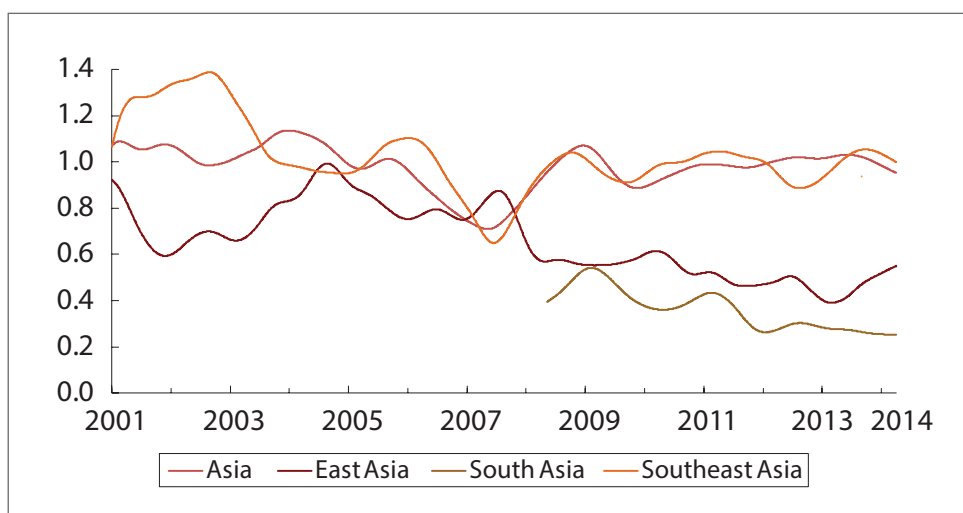
Source: ADB, (2014), pp. 31.

4.   The BIS Banking Statistics

Since the 1970s, the Bank for International Settlements has been collecting cross-border banking flows from major financial centres in two formats. The first reporting is on locational basis which captures activities of international banks on a geographic basis, which is comparable to the balance of payments statistics of the IMF.[40]

The second reporting is based on ownership of banking systems. The series are called consolidated banking statistics and they are comparable to supervisory returns of national banking systems.[41]

The first series can be used as a measure for financial integration as it captures the cross-border activities of banks resident in a certain country (locational). If vis-a-vis data are used they would even capture the penetration of banking system (assets as well as liabilities) within a certain region. The bilateral flows include transactions with their own affiliates (branches, subsidiaries, joint ventures). The locational statistics even offer a nationality breakdown.

The consolidated data are less indicative of mutual penetration as they net out the inter-office flows of banks. However, they were used extensively by the CGFS to highlight the regional ownership of banks.

Of the 28 EU countries,[42] the major 16 are reporters to the BIS banking statistics, the locational as well as the consolidated statistics. Out of the 18 Eurozone countries, 12 major ones are reporters to the locational as well as consolidated statistics. The bilateral flows (which are confidential and thus only available to the reporting central banks) can be analyzed in such a way as to establish a degree of mutual banking penetration.

Out of 10 ASEAN countries, only 3 are reporters to the locational statistics, i.e., Singapore, Malaysia and Indonesia and only 1, Singapore also reports to the consolidated statistics. For ASEAN+3, one can add Japan and Korea, which report to both the locational as well as the consolidated statistics. In this case again, the bilateral data (which are confidential except for the reporting central banks) can be used for measuring the mutual banking penetration.

At present, the BIS banking statistics would allow the extraction of the following information regarding ASEAN banking: the claims and liabilities of Singapore based banks on Malaysian banks and Indonesian banks; claims and liabilities of Malaysian banks on Singaporean and Indonesian banks; and finally, claims and liabilities of Indonesian banks on Singaporean and Malaysian banks. These mutual claims and liabilities could be compounded in a penetration index.

The BIS banking statistics were extensively used in the Report by the CGFS on EME banking and financial integration. As a result, the activities of Hong Kong and Singapore based banks feature far more prominently and capture the dynamic impact of these two financial centres on the rest of Asia. Regarding penetration, the share of banking activities by foreign banks from outside the Asian region is still rather high,[43] thus confirming the ADB findings of 2013.

5.   Available Indicators of Financial Integration Compared

The major difference between the two surveyed regions is in the process of integration. Whereas the EU chose to adopt a common currency, the Euro, before embarking on financial integration, ASEAN promoted the drive towards financial integration without even mentioning the possibility of adopting a common currency any time in the future.

As a result of the common currency, many measures of financial integration which are of prime importance for the conduct of monetary policy, such as the dispersion of money market rates do not apply in ASEAN. The Euro has undoubtedly played a very important role as a catalyst for financial integration in general – integration is most advanced in those market segments that are closer to the single monetary policy, notably the money market. The Eurozone had already achieved full integration of the

money markets and the related derivatives, such as the interest rate swap market, in 2005.[44]

In 2005, integration across other financial market segments was uneven – it was very strong in the money market; has progressed significantly in government bond markets; has improved for the corporate bond market; is slow but progressing in the case of the equity market; and is much less advanced in a range of banking market segments.[45]

Progress on banking integration rests on the EU Banking Union to which the ECB devotes a whole chapter of its 2014 Report.

Regional financial integration among emerging market economies (EMEs) is on the rise. Specifically, there are signs that banking groups headquartered in EMEs have started a process of expansion that will tend to increase their importance in regional financial systems; for example, by raising the intra-regional share of portfolio investment or of foreign bank ownership.[46]

While regional bank expansion has the potential to affect the global financial system in a variety of ways, the still small overall footprint of regional banking groups suggests that current trends are unlikely to have significantly changed the risk profile of EME banking systems at this stage. Yet, broader effects are possible over time, as balance sheet capacity for further cross-border expansion exists and as business models of the larger, more systemically important EME bank affiliates have started to converge with those of similarly sized, more regionally focused advanced economy peers.[47]

The ADB notes in the 2013 Road on Integration Report that ASEAN's banking market has so far seen little integration.[48] Subsequently, the ADB AEIM 2014, devotes only one paragraph to bank credit flows, which focuses on the role of Japanese banks in the region.[49] The increasing activity of Chinese banks in the ASEAN region as well as the rapid expansion of regional banks in the region, such as Singaporean banks, Malaysian banks and Thai banks does not even get mentioned in the report.

The usefulness of the BIS International Banking Statistics (IBS) remains largely untapped in the region. Equally, any efforts to replicate these statistics for ASEAN have not been pursued by any of the regional international organizations.[50]

5.   Conclusion

While the publication of financial integration indicators in the EU and ASEAN cover bond and equity markets reasonably well and give some idea about intra-regional portfolio investments, the money market and banking market integration in ASEAN remains in the dark. As ASEAN banks from some countries have been very active in promoting banking activities in other ASEAN countries, it would be recommended to enhance the banking indicators. Once the horizon is extended to ASEAN+3, the role

of Japanese banks in the region is well documented but reporting on Korean Banks and, above all on the expansion of activities of Chinese owned banks in the region need better coverage in order to capture market driven integration of banking systems.

The necessary data can be obtained from national central banks which report banking activities of foreign owned banks in their statistics. However, the key impediment to gaining a clear picture of cross-border activities in ASEAN or extended ASEAN+3 is that no regional organization, neither ADB, through its Asian Regional Integration Center (ARIC) nor ASEAN through its Initiative for Asian Integration (IAI) nor ASEAN+3 Macroeconomic Research Office (AMRO) has a mandate to collect cross-border (BIS) type of statistics to monitor banking developments.

Any concerns about loss of confidentiality can be met by publishing only aggregate data, such as lending by all other ASEAN banks, either by location or by ownership to residents of a certain ASEAN country. Equally, ownership by other ASEAN countries of banks operating in a certain ASEAN country can be captured this way. This type of reporting condition can also be extended to ASEAN+3 countries. The BIS has successfully published global cross-border banking statistics under this constraint and thus greatly facilitated monitoring of global banking developments.

Herbert Poenisch was Senior Economist in the Monetary and Economic Department of the Bank for International Settlements (BIS), which he joined in 1990. He served in various capacities including assisting the integration of the transition economies into the international financial system, organizing workshops and seminars for officials from these countries to learn about the functioning of market economies, mainly at the Joint Vienna Institute. In support of the BIS' decision to disseminate the research and discussions conducted by the Bank to non-member central banks with the help of regional central bank organizations, such as SEACEN, he was in charge of organizing and delivering such workshops and seminars.

Prior to joining the BIS, Mr. Poenisch worked in various capacities at the Austrian National Bank. This included the analysis of commercial banks, research of global economic developments as well as foreign exchange control. He represented the Austrian National Bank in various international conferences at the International Monetary Fund (IMF), the Organization for Economic Co-operation and Development (OECD) and the BIS. This work covered mainly statistical issues for the compilation of internationally comparable statistics, such as on cross-border capital flows, indicators of banking systems and also the liberalization of capital movements. During this time he was sent on short-term assignments to international organizations, notably the IMF, OECD and Asian Development Bank.

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