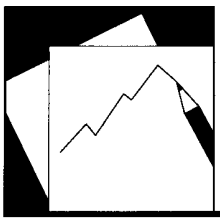
WP/11/135



IMF Working Paper

Developing ASEAN5 Bond Markets: What Still Needs to be Done?

Simon Gray, Joshua Felman, Ana Carvajal and Andreas Jobst

INTERNATIONAL MONETARY FUND

 WP/11/135

IMF Working Paper

Asia and Pacific

Developing ASEAN5 Bond Markets: What Still Needs to be Done?

Prepared by Simon Gray, Joshua Felman, Ana Carvajal and Andreas Jobst

Authorized for distribution by Mahmood Pradhan

June 2011

Abstract

This paper examines a range of issues relating to bond markets in the ASEAN5 (Indonesia, Malaysia, Philippines, Singapore and Thailand) – physical infrastructure including trading, clearing and settlement; regulation, supervision and legal underpinnings; and derivatives markets – and finds that the frameworks compare well with other Emerging Markets, following a decade of reform. A number of areas where further enhancements could be made are highlighted. The paper also examines the interrelationship between central bank management of short-term interest rates and domestic currency liquidity, and development of the wider money and bond markets; and suggests some lessons from the recent crisis in developed country financial markets which may be important for the future development of the ASEAN5 markets.

JEL Classification Numbers: D4, D53, E44, E58, F36, G1, G3

Keywords: Bond markets: Bond markets, ASEAN, market development

Author's E-Mail Address: sgray@imf.org; jfelman@imf.org; acarvajal@imf.org; ajobst@imf.org

Contents **Page**

INTRODUCTION[1]

Three broad factors influence the development of bond markets – the investor base, the issuer base, and financial intermediation. All three can be influenced by policy, at least to a certain extent. For example, policy makers may be able to enlarge the investor and issuer base by reducing barriers to entry, such as information gaps, administrative controls, and monopolistic behavior. In these areas the link between reforms and the desired objectives is indirect at best. This paper focuses on a number of areas most immediately amenable to policy action. Section II considers issues in market infrastructure, monetary operations, and taxation, making use of an IMF questionnaire completed by ASEAN5 countries.[2] Section III draws some lessons from the recent global financial crisis and implications for the ASEAN countries. Section IV concludes.

This paper, and the companion paper "ASEAN Bond Market Development: Where Does it Stand? Where is it Going?", provide an initial assessment of developments in the five ASEAN markets. This paper cannot be comprehensive or prescriptive, but does try to draw out some common themes and point to some issues which all of the markets are likely to face in the coming months and years.

I. DEVELOPMENTAL ISSUES

A. Physical Infrastructure

Market infrastructure in ASEAN5 countries compares well to that in other emerging markets, following a series of reforms in recent years (Annex I)**.** An infrastructure that spreads risk to ensure market integrity and collective interest is important to market development. Against a background of greater macroeconomic stability and financial liberalization, enhanced disclosure standards, capital rules and other statutory and prudential provisions have helped address past infrastructural shortcomings in a pro-active manner. Dematerialization (or at least immobilization) of securities is now common practice in the region. In all countries, wholesale trading usually takes place on a delivery versus payment basis (DvP), reducing counterparty risk.[3] In some countries, public trading venues are being developed, which can bring benefits in terms of transparency —although in the majority of countries over the counter (OTC) markets continue to be the main venue to trade government and corporate bonds. In addition, all of these OTC markets, with the sole exception of corporate bond markets in Singapore, have post-trade transparency, mainly as a result of trade reporting obligations imposed by the regulatory authorities.

---

[1] The authors of this paper are Simon Gray, Joshua Felman, Ana Carvajal, and Andreas Jobst (IMF-MCM). This and a companion paper ("ASEAN5 Bond Market Development: Where does it Stand, and Where is it Going?") were presented to an ASEAN5 Deputy Governors' seminar held in Bangkok on November 5, 2010. The final versions benefit from discussion during that seminar and subsequent comments from the ASEAN5 central banks. The authors wish to express their gratitude for this helpful input.

[2] In this paper, ASEAN5 refers to Indonesia, Malaysia, Philippines, Singapore, and Thailand.

[3] DVP means that buyer and seller fulfill their obligations simultaneously, eliminating settlement risk - the risk that the seller of securities delivers them but does not receive payment, or vice versa.

However, some consolidation and standardization of depository and settlement systems at the local level would increase market efficiency. A central securities depository (CSD) promotes efficiency by reducing the number of securities accounts and connections required by an investor or trader, and economizes on the cash settlement leg.[4] Thailand has a book entry system for both government and corporate bonds that is centralized in a single CSD; and Malaysia has a CSD which captures unlisted bonds issued by both the government and corporates. Thus, some of the countries could explore further consolidation of book-entry systems. In addition, the Philippines could consider strengthening key legal concepts in clearing and settlement (such as finality, novation, and netting), by embedding these in the legal framework, rather than having them recognized only in regulations.

Some standardization of market infrastructure across ASEAN would also help promote more intra-regional intermediation. Currently each country has its own market infrastructure, and no linkages have been developed with infrastructures of other countries in the region. For example, none of the CSDs has linkages to the others. Furthermore, only in the cases of Malaysia and Singapore does the local CSD have links with international CSDs.[5] The lack of linkages of market infrastructure, in particular clearing and settlement, is a challenge for the region, since it increases transactions costs and might deter investors – whether resident or non-resident - from investing across the region.[6] It must be acknowledged, however, that this is a challenge in many regions that are striving towards integration, including in the euro area, and the European Union more widely.

Cross-border investors face an additional settlement risk. In a cross-border transaction, settlement involves a foreign exchange settlement risk in addition to the settlement risk of the bond trade itself. Settlement of a domestic bond normally involves payment in a local currency. Non-resident investors buying/selling domestic bonds will normally need to purchase/sell local currency. As a result, cross-border investors are exposed to the settlement risk of the foreign exchange trade, in addition to the settlement risk of the bond trade itself. In this context, a key problem for foreign investors is the timing difference between the securities and cash movements, and this difference in timing is compounded by the fact that most foreign exchange deals in the ASEAN countries are transacted against the U.S. dollar, which settles after Asia business hours. Thus there would likely be a major benefit from a cross-country clearing and settlement arrangement.

---

[4] For instance, if an investor sells a government bond and invests the proceeds in a corporate bond, a single CSD means that the cash flows can net out.

[5] A taskforce set up in June 2010 involving the central banks of Indonesia, Malaysia and Thailand, as well as the HKMA, together with Euroclear, aims to explore a gradual harmonization based on a common platform model.

[6] As with a single national CSD, links between CSDs in different countries (or the introduction of an ICSD) reduce the need for multiple securities accounts and simplify cash management.

The final report of the Asian Bond Markets Initiative Group of Experts (2010) discusses the development of a cross-border arrangement to address the foreign exchange risk of cross-border bond transactions. It provides a comparative analysis of the benefits of different options for such regional arrangements, in particular comparing the benefits of an Asian International CSD (ICSD) versus those of a CSD linkage. It also includes a high-level feasibility study for these two options. A key finding from this study is that multiple legal and regulatory barriers would need to be removed for any option to be operationally feasible. What is needed now is a development plan that combines both government and market efforts.

In the ASEAN region, Central Clearing Counterparties (CCPs) exist in the context of markets operated by the exchanges. However in the majority of regional countries, bond trading takes place mostly OTC, and settles on a bilateral basis, without the intervention of a CCP. While the benefits of a CCP in terms of management of counterparty risk are clear, the costs of implementing it are significant. CCPs have sizable fixed costs that are characterized by economies of scale; thus a minimum settlement volume is needed to make them economically feasible. In the context of each domestic market in the ASEAN region such costs might outweigh the benefits; however a stronger business case might exist in the context of a regional market. Thus, when considering a regional CSD, the region may also find it useful to consider the implementation of a regional CCP (Box 1).

B. Disclosure

ASEAN5 markets fare well on disclosure requirements, vis-à-vis international best practices (Annex II). The increasing complexity of capital markets, and their ever growing range of products, creates challenges in the efficient dissemination of information. With the increasing sophistication of financial products amid a greater diversity of financial institutions, vulnerabilities are likely to be found where disclosure of material information is insufficient. At the same time, the availability of timely and relevant information on corporate bonds is key for pricing and thus has an impact on liquidity of secondary markets. All countries in the region require the provision of a prospectus at the moment of registration, as well as periodic information during the life of an issue. Furthermore, the implementation by Malaysia, Singapore and Thailand of the common set of standards developed by the ASEAN Capital Markets Forum (ACMF) in 2008 will increase the efficiency and reduce the costs of multi-jurisdictional debt offerings. Such efforts could be followed by the remaining countries in the region.

However, some further improvements could still be made:

- IOSCO assessments conducted in the region have identified weaknesses in the enforcement of securities regulation, including enforcement of disclosure obligations. Such weaknesses could act as a deterrent to investors.

- Thailand could consider strengthening disclosure obligations in connection with material events.

- Some countries could streamline procedures to reduce regulatory costs associated with the offering of securities. In particular, many of the countries could explore whether reductions in their respective deadlines for the review of prospectuses are feasible. In addition, Indonesia could consider the development of "shelf registration" or similar type of streamlined procedures for "seasoned" issuers or "issue programs", in order to allow issuers to take advantage of market windows and raise capital more quickly.

Box 1. Central Clearing Counterparties (CCPs)

Central clearing counterparties reduce settlement risk by interposing themselves between every trade, performing multilateral netting, and centralizing collateral management.[1] CCPs act as clearinghouses between the trading counterparties. After execution (confirmation) of a trade, they enforce the specific terms of the contract until maturity. They also guarantee fulfillment of the contract (including payment obligations and margin requirements) in order to ensure that a failure of a member does not affect other members. CCPs net exposures across multiple transactions of all clearing members, optimizing their use of collateral and better conserving economic capital.

However, CCPs concentrate credit and operational risk associated with their own failure, which could destabilize financial markets.[7] As a result it is critical that they be subject to robust regulation as well as oversight. That is why in tandem with the recommendation to clear standardized OTC derivatives through CCPs the G-20 have recommended that all CCPs be subject to effective oversight by central banks and other supervisors, to ensure they meet high standards in terms of risk management, operational arrangements, default procedures, fair access and transparency. The BIS and IOSCO are currently in the process of reviewing the recommendations for CCPs to ensure their application to CCPs that clear derivatives.

While the crisis has highlighted the importance of CCPs for OTC derivatives and repo markets, the rationale for their implementation (i.e., the reduction of counterparty risk and greater efficiency of clearing and settlement) is applicable to any type of market. Although initially CCPs were developed in connection with exchange-traded derivatives, over time their use in major jurisdictions has expanded to cover also equity, bond and even repo markets. Indeed, CCPs exist in all major equity markets in the world, including the NYSE, Euronext and the LSE. Moreover, in the United States, the FICC (since 1986) and the NSCC (since 1976) act as CCPs in connection with government bonds, corporate and municipal bonds, and, in Europe, LCH.Clearnet (since 1998) offers a multi-market centralized and clearing netting facility for the European government repo and cash bond markets.

In the ASEAN region, CCPs exist in the context of markets operated by exchanges. However in the majority of the countries in the region, bond trading takes place mostly OTC, and settles on a bilateral basis, without the intervention of a CCP. The implementation of DvP in all the countries (for government bonds in some countries, and in others also for corporate bonds) has helped reduce counterparty risk, in particular settlement risk. However, DvP does not eliminate replacement cost or liquidity risk. The magnitude of replacement cost risk might not be negligible, if for example from the time of an initial "failed" trade the market has changed direction, and the party that needed the money (or the securities) has now to enter into another trade to get the money or securities at the new market prices. Liquidity risk involves the risk that the buyer of the securities might need to borrow cash or liquidate assets to complete the payments, or that the seller might need to borrow securities in order to meet its obligations. As indicated, a CCP helps manage such risks.

_____

1/A CCP uses a variety of tools to manage risks, such as capital requirements on members, the posting and maintenance of collateral to prevent a build-up of market exposure (including position limits), and loss sharing arrangements in case posted collateral proves insufficient. In this capacity, it undertakes the following functions: (i) daily valuation of the contract, including the determination/application of "haircuts" and the adjustment of margins according to day-to-day changes in replacement cost ("variation margin on mark-to-market valuations"); (ii) the monitoring of counterparty risk to ensure the compliance of dealers with the terms of the contract; and (iii) if default or termination occurs, initiate settlement to recover net final payments (IMF, 2010).

[7] On the risk faced by a CCP see BIS (2004).

- All countries need to complete their processes of convergence with International Financial Reporting Standards (IFRS). Plans are currently in place in all countries that aim to bring the ASEAN5 region fully convergent with IFRS by 2012.

- The level of disclosure required for private offerings, including those placed directly with institutional investors, could be reviewed, in particular in the context of asset backed securities and other structured products. While private offerings remain a useful practice, authorities could review the extent to which some level of disclosure is needed in those markets, as Malaysia is currently doing.

C. Information Providers

ASEAN5 countries are strengthening the oversight of key information providers, such as credit rating agencies (CRAs) and external auditors (Annex III). This is another area where the region as a whole fares well compared to international best practices.

The existence of good rating agencies is an important element of efficient pricing. While there are local rating agencies in each ASEAN5 jurisdiction, they all use different rating scales and methodologies, which hinders the comparability of ratings across countries. Moreover, domestic rating agencies have yet to build a track record, while international rating agencies assess only the companies that issue cross-border. The authorities could encourage the adoption of a common regional methodology and rating scale, which would provide one more building block to regional integration by making investments across the ASEAN markets easier to compare by investors. These actions should not detract from analyzing the benefits of establishing a regional credit rating agency.

All countries except Singapore have implemented registration regimes for CRAs, as required by the revised International Organization of Securities Commissions (IOSCO) Principles. In some cases this is a recent development, such as in Indonesia, where rules were issued in 2009. However, improvements can be made regarding the regulatory framework applicable to them. In this regard, for example, the Philippines still needs to implement the IOSCO Code of Conduct. Singapore is currently reviewing its system in light of international developments. Following new trends in emerging markets, price vendors are required to register in all countries except Singapore.

External auditors of issuers are subject to oversight by an independent entity -- either the securities regulator or a specialized body created to perform this function. Such oversight is built upon a registration regime that provides the responsible authority with supervisory and enforcement powers over auditors. Furthermore, many of the countries are strengthening such systems of independent oversight, as the revised IOSCO principles now require. In Thailand, the SEC is in the process of establishing an effective supervisory model of independent oversight, which emphasizes supervision of the quality assurance systems of the audited firms. The SEC is putting in place a full on-site inspection program. In Malaysia, a law approved in 2009 created the Auditor Oversight Board, which began operations in April 2010. It will exercise direct independent oversight over external auditors. Such boards have proven to be useful in assisting securities regulators to oversee external auditors. In the

Philippines the regulator is working towards improving the monitoring of the quality of external auditors' work. In Singapore auditors have to register with the Accounting and Corporate Regulatory Authority. Day to day regulation is undertaken by the Public Accountants Oversight Committee.

D. Derivatives

Despite their relatively well-developed securities infrastructure, ASEAN counties show considerable variation in derivatives and repo markets (Annex IV). In Singapore, for instance, interest rate swaps, interest rate futures and bond futures markets provide an outlet for bond investors to hedge their interest rate risks. In other countries, where suitable derivatives are absent, investors would need to engage in more costly cash transactions to replicate what could be done more efficiently using derivatives.[8]

Derivatives markets rely on two-sided underlying cash markets for reference prices, including the ability to take short positions and to lend securities in repurchase transactions. For example, primary dealers can only make markets effectively if they are allowed to take long and short positions across the yield curve, and they often use derivatives as hedging instruments.[9] But the development of interest rate derivatives markets has been constrained by insufficient liquidity of the underlying government bond yield curve. While liquid collateral (including pricing benchmarks) ensures efficient price formation of derivative markets in the initial stage of development, increasingly the depth and liquidity of cash markets themselves have to some extent come to depend on the presence of similarly well-developed derivatives markets.

Despite their considerable growth over the recent past, local derivatives markets are generally underdeveloped in ASEAN5 countries, with the notable exception of Singapore. Out of the five main types of derivatives (foreign exchange, interest-rate, equity[10], commodity and credit derivatives) trading of foreign exchange derivatives has

[8] For instance, by borrowing in foreign currency to finance maturity-matched domestic investment in government bonds, investors can hedge covered interest rate parity.

[9] Two-sided markets are critical to enhance liquidity. They also avoid distortions arising in derivative markets, in case derivatives are primarily used as substitutes for taking short positions in cash markets. Repo markets also provide efficient funding instruments, which should not be substituted by short selling or derivatives markets.

[10] Stock index futures and stock index options are the most widely traded equity derivatives. Index futures are usually among the first products to be developed before options on individual assets are introduced. Following the merger of three exchanges, the Malaysian Derivatives Exchange has started trading equity futures and has doubled trading volume, albeit from a low base, over the last two years.

recorded the strongest growth over the recent past,[11] followed by exchange-traded equity derivatives[12] and some OTC interest rate contracts (see Table 1). Deficiencies in prudential regulation and supervisory oversight (e.g., capital rules, disclosure requirements, accounting rules), operational infrastructure (e.g., market trading, clearing and settlement systems, sound risk management), and limited market participation by domestic and foreign institutional investors as well as banks have frequently resulted in a slow development of derivative markets. Some derivatives, such as forward rate

agreements as well as interest rate futures and options, which are critical to address the risk-management issues raised by the growing market determination of interest rates, are entirely absent in some ASEAN5 countries.[13]

Table 1. ASEAN Derivatives Market Turnover: Notional Amounts [1]

(daily averages, in millions of USD)

	Over-the-Counter (OTC)				Exchange-Traded					
	Foreign Exchange Derivatives[2]		**Interest Rate Derivatives[3]**		**Interest Rate Derivatives[4]**			**Equity Derivatives[5]**		
	2004	2007	2004	2007	2007	2008	2009	2007	2008	2009
Indonesia	1,355	1,357	22	71	—	—	—	n.a.	n.a.	n.a.
Malaysia	854	2,359	58	137	38,932	58,484	36,119	58,806	46,589	29,946
Phillippines	338	1,256	15	4	—	—	—	n.a.	n.a.	n.a.
Singapore	91,123	153,000	9,000	57,000	465,294	221,697	137,892	520,212	672,454	491,727
Thailand	1,979	4,931	96	386	—	—	—	20,598	28,068	31,187
Share of global trading: (In percent)	*5.41*	*5.47*	*0.69*	*2.65*	*1.08*	*0.70*	*0.53*	*0.65*	*1.13*	*0.88*

Sources : BIS Triennial Central Bank Survey (2007), WFE Annual Report and Statistics (2009), dXdata, Datastream.

[1] All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions. vis-à-vis other reporting dealers. Gross market values have been calculated as the sum of the total gross positive market value of contracts and the absolute value of the gross negative market value of contracts with non-reporting counterparties.

[2] outright forwards and foreign exchange swaps, currency swaps and options

[3] forward rate agreements (FRAs), swaps and options.

[4] futures and options.

[5] options and futures on single stock as well as equity indices.

[11] This is in contrast to other EM regions, where interest rate derivatives are more commonly traded than currency derivatives. Currency derivatives are traded only in a handful of emerging market exchanges as the bulk of the trading is in the OTC market. In Asia, only Korea and Hong Kong SAR have active exchange-based trading of currency derivatives. Until recently the bulk of currency derivatives trading was offshore in the region, and as capital account restrictions are being relaxed, OTC markets are the first to be developed.

[12] Stock and equity-index derivatives activity is concentrated at the organized exchanges, where equity derivatives are the most liquid among all derivatives products. Contract trading volume continued to expand vigorously in the last few years. Equity index derivatives account for the bulk of the trading.

[13] Latin America accounts for over 90 percent of exchange-based trading of interest rate derivatives, with Emerging Asia lagging behind even though interest rate derivatives are traded in most major Asian exchanges.

Formalized, regulated and demutualized exchanges are leading the growth in ASEAN derivatives markets. The ASEAN region features all the three types of derivatives exchanges:

- Singapore and Malaysia have fully demutualized exchanges, which offer a wide range of derivative products.

- Indonesia, the Philippines and Thailand have no or marginal exchange-based and limited OTC derivative trading. Indonesia established the Jakarta Futures Exchange and introduced equity index futures at the Surabaya Stock Exchange. Since 2007 this function has been conducted on The Indonesian Stock Exchange, but trading volumes remain very low due to weak market infrastructure and low investor interest. The Philippines closed the Manila Futures Exchange in 1997. The Thailand Futures Exchange (TFEX) was established in 2004, and currently offers seven financial derivatives products.[14]

Going forward, ASEAN countries face challenges in developing local derivatives markets. While several countries have taken large strides in developing the enabling legal environment, regulatory obstacles in other countries hinder capital market development (e.g., transaction taxes as well as restrictions on various instruments, short selling, and parties to transactions) (Kramer et. al., 2007; Hohensee and Lee, 2006). The most common issues are:

- *Legal and regulatory frameworks*: (i) solid accounting and regulatory standards are needed, grounded in specific derivative laws, including full balance sheet disclosure, the alignment of local accounting standards to IFRS[15], and market supervision through self-regulating organizations (SROs); as well as (ii) a tax environment that creates a level playing field for all cash and derivatives trading. Some national laws either ail to identify the regulatory jurisdiction over derivatives or make derivative contracts unenforceable. Furthermore, restrictions on short-selling and securities lending[16] impede efficient derivative trading.

- *Infrastructure-related challenges*: (i) the implementation of modern trading systems, which executes clearing and settlement through central counterparties and multilateral close-out netting (for assessing margin requirements) based on mark-to-market valuation, and (ii) surveillance systems to detect improvident behavior especially in areas that straddle the cash and derivative markets. Almost all ASEAN countries have

[14] The TFEX started trading its first financial futures contract (on the SET 50 Index) in 2006. The product proved very successful, with trading volumes rising eightfold between 2006 and 2009. The seven contracts traded on TFEX include the SET index futures, the SET 50 index option, single stock futures, gold futures, bond futures, BIBOR futures, and THBFIX futures.

[15] Only Indonesia and Malaysia have local accounting standards that conform to IFRS; the others should be convergent by 2012.

[16] For instance, there is little securities lending in Indonesia and Thailand.

advanced clearing and settlement systems with appropriate safety mechanisms for institutional distress and market failures; however, these systems will need to expand to handle larger volumes of transactions going forward.

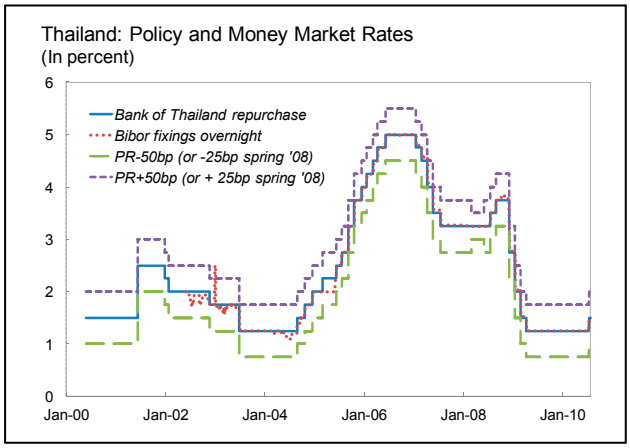
- *Relatively underdeveloped cash money and bond markets:* the use of derivatives as a risk transfer mechanism requires efficient pricing in cash markets as well as a balanced mix of market making/speculative trading (to provide liquidity) and natural hedging demand. Efficient pricing in the cash market benefits the derivatives markets (interest rate swaps or futures) because it allows investors to make more reliable projections of future interest rates. In some ASEAN countries, trading of government debt differs across maturities (due to fragmented issuance), which limits the extent to which sovereign debt markets can provide pricing benchmarks for the private sector.

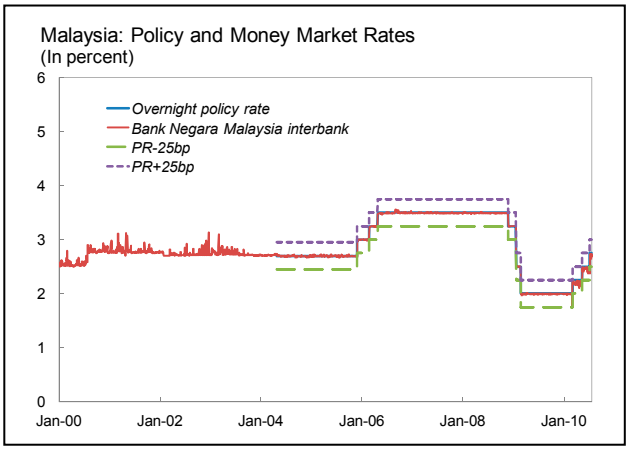
E. Central Bank Liquidity Management and Market Development

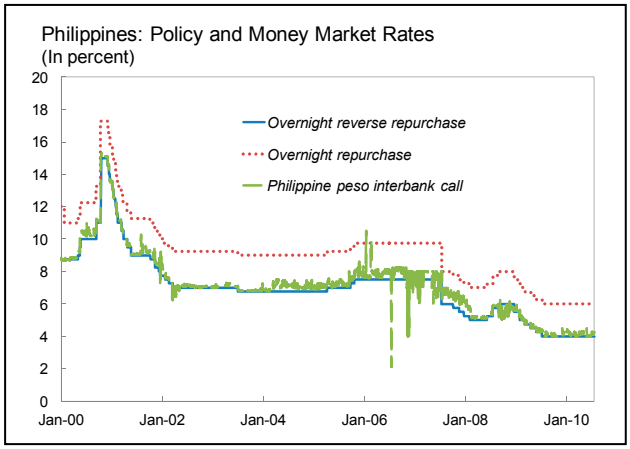
Central bank liquidity management also shapes the development of securities markets. The interaction is through different channels. First, in environments of a persistent liquidity overhang, banks regularly hold high levels of excess reserve balances at the central bank. In these cases, banks rarely find themselves with deficits of cash, rendering interbank transactions largely unnecessary, thereby stunting the growth of money markets. Second, when surplus liquidity in the system is structural, this blunts the incentive for banks to develop securitization markets. And finally, if monetary operations fail to fully offset shocks to the demand for reserve balances, short-term interest rate volatility will hinder the development of a term yield curve, and this in turn will hamper the development of interest and exchange rate forwards and futures.

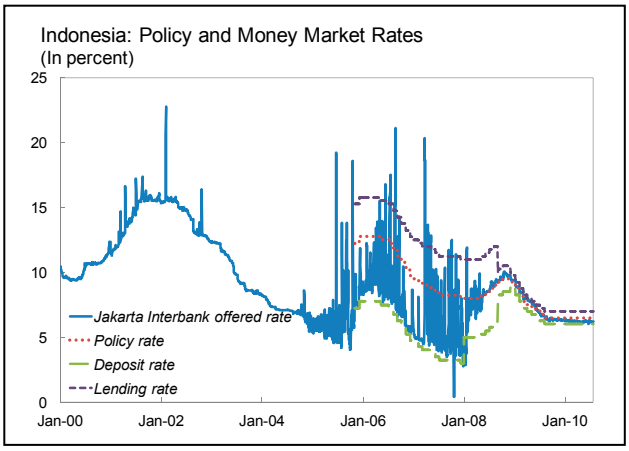
These channels appear to be operational throughout most of the ASEAN5, albeit to different extents, as all, apart from Singapore, are characterized by a structural surplus of reserve balances. In most of these countries, central bank bills are used to mop up this surplus liquidit**y** (at least partially), though not in the Philippines. A comparison of policy rates and overnight interbank rates shows that central bank liquidity management practices have delivered predictable short rates anchored around the center of the policy rate corridor in Malaysia and Thailand, but more volatility in Indonesia and the Philippines, where rates are normally close to the bottom of the policy rate corridor, suggesting residual surplus reserves in spite of mopping-up operations.[17]

[17] In Singapore, interest rates are not a policy instrument.

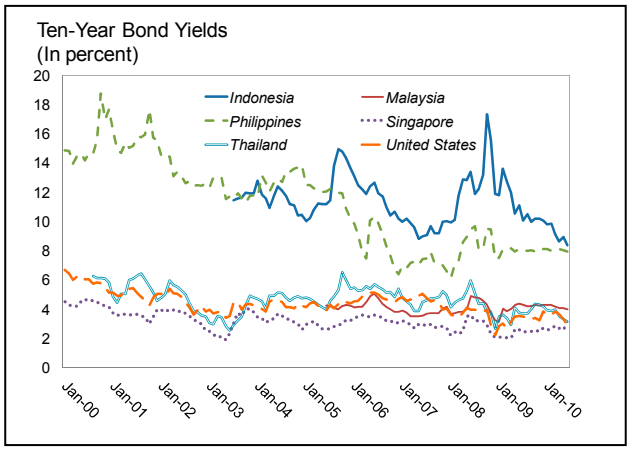








The modalities and effectiveness of liquidity management in the ASEAN5 are reflected in the secular behavior of bond rates. A comparison between the short-term money market yields and those of the region's government bond yields suggests that long yields in Malaysia, Singapore, and Thailand are lower and less volatile than those in Indonesia and the Philippines. While a variety of factors influence long rates, especially inflation expectations, effective reserve money management may be an important contributing factor, since more predictable short rates reduce the risk premium that investors will demand for providing longer term funds.



Inefficient reserve money management has other implications for market development. For example, liquidity draining operations that do not fully absorb excess liquidity may imply an undesirable influence of the central bank on the term yield curve, especially if central bank bills of different maturities are used. If the central bank does not drain all

surplus reserves, then it will in practice be taking decisions on the cut-off rate at various maturities, and therefore deciding on the level and slope of the yield curve. This could drive the yield curve away from its longer-term market equilibrium, and will in any case impede market development.

F. Taxation

In the region, two countries offer withholding tax exemptions for non-residents' holdings of bonds. Singapore has long been open to foreign investors without withholding taxes or qualitative and quantitative restrictions. In recent years, Malaysia has eased investment restrictions and adopted a more flexible tax regime. With the exception of Malaysia and Singapore, however, ASEAN countries levy taxes on interest income and/or capital gains on local bond holdings by non-resident investors. For instance, Indonesia withholds 20 percent on both interest income and capital gains.[18] Thailand has recently revoked the exemption of capital gains and interest withholding tax for government bonds and certain quasi-government bonds granted in 2005.

The case for exempting non-residents from withholding tax is not clear-cut, and the appropriate stance will not be the same for all countries. For instance, an international financial center, such as Singapore, will likely find it more important to attract non-resident business. Attracting non-resident investors may also be useful, as they bring additional and more diversified demand, so increasing depth and heterogeneity and possibly trading techniques, all of which will support market development.[19] But for the government (or central bank, or any state-owned entity) as issuer, the net of tax cost of issuance may be more important than the gross yield. A tax exemption for non-residents may increase the overall cost of issuance. That said, the UK government abolished the withholding tax in 1996 when repo was introduced in the UK, to avoid distorting the market, and in the expectation that the delay in receipts (the interest income was still taxable) would be more than offset by reduced issuance yields obtained through enhanced market liquidity.

Taxation can distort pricing signals. Reforming withholding taxes and ensuring comparability of treatment with equity investments may help address the uneven development of capital markets in Asia. Withholding tax applies in all but Singapore and Malaysia[20], and in all cases is levied at different levels depending on the nature and residency of the investor. Varying withholding tax levels can complicate yield curve development and

[18] In practice, this leads non-resident investors to hold Indonesian bonds via Singapore, in order to benefit from Singapore's withholding tax treaty with Indonesia.

[19] Sophisticated resident investors may route purchases through offshore routes to avoid or reduce the cost of withholding tax, if non-residents get preferential treatment.

[20] In 2004 Malaysia abolished its withholding tax on interest income/profits from investments in debt securities and sukuk.

repo trading, as well as leading to market distortions.[21] In such cases, however, a flat rate (including zero) is the least distortionary.

II. LESSONS FROM THE CRISIS

The global financial crisis has brought to light a range of weaknesses in developed economy financial markets. While the crisis was triggered by deterioration in asset quality (sub-prime U.S. mortgages and related structured products), it was greatly exacerbated by poor liquidity and risk management by a range of borrowers and investors, including in the securities markets and outside the formal banking sector. As the ASEAN countries seek to broaden their investor and issuer bases, they can draw some lessons from the weaknesses which have been uncovered elsewhere.

Liquidity transformation

Maturity transformation normally takes place in banks, which take short-term (sight) deposits redeemable at par and uses them to make term loans. Because it is important to the functioning of the economy that economic agents can readily use the banking system as a store of value and to make payment transfers, a safety net ensures, as far as possible, that this maturity transformation is undertaken prudently. The safety net typically involves regulation and supervision (both capital adequacy and appropriate liquidity management); access to central bank lending facilities; and a deposit protection scheme to give some comfort to retail depositors.

This maturity transformation became a problem when some banks took on excessive leverage. Both banks and supervisors trusted too much in the ratings of securitized assets and the ability to sell them easily at close to book value. Nor did they recognize the extent of risk from off balance-sheet commitments, such as liquidity lines offered to securitization vehicles. New regulations to control liquidity risk undertaken by banks should mitigate these risks, but it will be important to be aware of unintended consequences. It is possible that in some countries which previously imposed leverage ratios on banks, that such controls pushed business off balance sheet or into unregulated markets, rather than reducing risks in the financial markets as a whole.

In some developed markets, substantial maturity transformation took place outside the banking system, leading to systemic liquidity risk - notably in the U.S. "shadow banking" sector - but without the safety nets imposed on the banking sector.[22] The liquidity risks, in particular, appear to have been underestimated, as the ease of selling or refinancing securities in strong markets became taken for granted, and the need for robust liquidity management – which undoubtedly carries a cost – was downplayed. This resulted in

[21] Distortions include 'coupon washing', where bonds are sold over the coupon payment period – perhaps via repo – to investors paying low or zero withholding tax, and cross-border tax arbitrage (footnote 18).

[22] The market turbulence in the wake of the U.S. subprime market meltdown also highlighted the possible spread effects on investment classes as asset shocks move across capital market segments, with adverse knock-on effects for liquidity management.

widespread market dislocation from 2008, as concerns about counterparty creditworthiness and the demand for precautionary liquidity (and thus its cost) both increased sharply. As the non-banking sector in the ASEAN markets is developed to encourage a wider investor base, it will be important that both issuers and investors are clear what risks they are undertaking, and that regulated entities such as banks are not able to disguise liquidity risks to which they are exposed.

In principle, a clear distinction can be drawn between bank deposits, on the one hand, and other investments (both fixed income and equity) whose value will vary over time depending on credit, term premia and broader economic factors. But in practice the line can become blurred if short-term investments (including loans not intermediated by the banking system) are portrayed or treated as so liquid and of such high quality that they are as good as bank deposits from the point of view of access, and better than bank deposits from the point of view of expected return. In the U.S., the commoditization of some money market instruments meant that investors did not properly appreciate, and so did not adequately price in or allow for, the liquidity and credit risks involved. In particular, the liquidity of some instruments turned out to be excessively pro-cyclical, sparking a run on some investments—similar to a bank run—when investors became worried about access to funds and about credit risk. This was notably the case with money market mutual fund (MMMF) investments[23], triparty repo, and cross-border U.S. dollar funding.

This suggests that investors should only rely on the liquidity of money or capital market instruments, to the extent that liquidity providers – whether market makers or banks extending funding back-up to investment vehicles – are in a position to meet any calls on liquidity in adverse circumstances as well as in bull markets. This in turn requires appropriate regulation and supervision. For instance, a pension fund required by its regulator to hold a certain proportion of cash assets should not treat a money market investment as equivalent to a bank deposit.

In addition to ensuring transparency of financial products, and adequate liquidity management by intermediaries, the authorities need also to consider how far financial sector safety nets should extend. Formal protection normally extends only to retail deposits, and protection against fraud by investment intermediaries. Wholesale investments need to rely rather on sound judgment, good regulation and infrastructure, and supportive legal systems.[24]

As financial markets in the ASEAN region diversify beyond a bank-dominated system, it will be useful to review the extent of both explicit and implicit guarantees, and the authorities' ability to respond to potential systemic shocks. Moreover, as financial

[23] The use in the USA of stable Net Asset Values was problematic. In Europe and Japan, where MMMF investments are not treated as quasi-deposits, there was no liquidity run. MMMFs in most countries are marked to market daily.

[24] Access to the central bank's standing credit facility – part of the safety net – can provide help to illiquid, but not to insolvent, institutions.

intermediation becomes more balanced and competitive as a result of greater capital market sophistication, the macro-financial linkages are also likely to change, often with major implications for policy makers.

Domestic currency funding

Repo borrowing against non-government securities may be particularly vulnerable. Such borrowing grew in the U.S. after the 2005 amendments to the bankruptcy code, giving greater protection to the use of non-government securities in repo. But the 2008 crisis revealed a problem: the underlying assets—such as mortgage bonds and structured products—may be relatively illiquid and hard to value**.** Consequently, in the face of a market shock, higher margins may prove difficult to meet, while selling assets into a falling market will cause losses and may lead to financial market distress.

If enterprises increase the use of commercial paper (CP) issuance—as opposed to relationship banking—they should consider what liquidity back-up, if any, might be appropriate. Because bond finance is typically longer-term it is less susceptible to short-term liquidity runs. But if lenders in the CP market become more risk averse in response to an economic shock, corporates may struggle to repay, while renegotiating loans from CP holders – with which the corporate may have no relationship—can prove difficult. Similarly, investors – particularly supervised institutional investors—should not be allowed to treat CP or other short-term private sector debt as if it were the equivalent of a bank deposit.

Offshore funding

The global crisis has highlighted risks in over-reliance on offshore funding, particularly where banks borrow relatively short-term offshore, and in foreign currency, to fund longer-term domestic (or foreign) currency loans onshore. While borrowing short-term from a parent company may appear reliable—because of the connection—it may mask an indirect reliance on the parent's liquidity strength, which may not be so reliable.

If banks hit a funding problem, they can normally access standing credit facilities (part of the safety net) at the central bank. But if they rely on foreign currency funding, it may not be so easy for the central bank to provide support, though intra-central bank foreign exchange swap arrangements were established in some countries over the past two years, and the ASEAN swap agreement provides some buffer.[25]

Derivatives

The dominance of OTC derivatives (particular for foreign exchange) requires a careful assessment of some of the key lessons learned from the collapse of derivatives trading during the recent crisis. The main vulnerabilities of OTC derivative markets stem from counterparty and concentration risk. Virtually all OTC trading of interest rate and FX

[25] In the Asia Pacific region, the U.S. Federal Reserve made funds available to the central banks of Australia, Korea, New Zealand, and Singapore.

derivatives (swaps and forwards) in ASEAN countries is conducted by a few banks, which implies substantial counterparty risk in the absence of market provisions that would safeguard collective interest and prevent individual failure from translating into systemic crisis. (Only Malaysia has exchange-traded interest rate transactions exceeding those traded through OTC markets and forward rate agreements). In addition to questions surrounding the legality of some OTC products, further improvements of the existing market infrastructure would require a comprehensive netting law in combination with the introduction of a CCP to complement collateral provisions in assessing the adequacy of margins and risk management practices. Nonetheless, standardized contract documentation in compliance with *International Swaps and Derivatives Association* (ISDA) standards and syndicated trading among investment-grade rated banks are risk mitigants in OTC markets.

The crisis has shown the critical role of market infrastructure in risk management and financial stability. In this regard, the G-20 countries have committed to improve the resilience of derivatives markets by strengthening the associated infrastructure. In particular, the G-20 countries recommended that all standardized OTC derivatives be cleared through central clearing counterparties (CCPs) as a way to better manage counterparty risks. The G-20 also encourage trading of derivatives on exchanges (or other public venues) in order to improve transparency, price formation and liquidity. Finally, the G-20 countries have also recommended that all OTC derivatives trades be reported to a trade repository to improve transparency and price formation. Policy makers could take cues from regulatory proposals to enhance the infrastructure of OTC derivatives markets, such as in the United States, and the 2010 Basel Committee on Bank Supervision (BCBS) paper on "Strengthening the Core Financial Infrastructure and Markets."

III. CONCLUSION

In many ways, the ASEAN5 bond markets compare well with other emerging markets. But there is still work to be done. Countries may wish to consider the potential benefits of:

- Standardizing and consolidating CSDs, while introducing CCPs for fixed income markets.

- Tightening enforcement of securities regulation, including of disclosure obligations; strengthening disclosure obligations of material events; reviewing disclosure obligations for private offerings in particular in the context of asset backed securities and other structured products, and streamlining registration procedures for offering securities.

- Improving oversight of credit rating agencies and external auditors.

- Developing the legal and regulatory framework for expanding the use of derivatives, and adapting the infrastructure systems accordingly.

- Tightening reserve money management, to reduce interest rate volatility and spur the development of money markets.

- Reforming withholding taxation for non-resident income from bond holdings.

As the non-bank financial sector develops in the ASEAN countries, the lessons learned from the recent crisis in developed financial markets will become increasingly important. In particular, it will be important to review pre-crisis regulatory frameworks in the light of recent developments to ensure that:

- Liquidity risk taking does not become excessive, whether by issuers, investors or intermediaries. As a first step, regulators will need to make sure they can identify the liquidity risks to which entities are exposed, and maintain a clear distinction between liquid bank deposits and investments whose value may fluctuate.

- Repo borrowing remains focused on securities which are likely be liquid, even during periods of financial stress.

Cross-border, cross-currency links do not create risks (such as excessive reliance on financial firms whose own liquidity is uncertain) with which the financial sector safety nets cannot cope.

Annex I. Market Infrastructure

Trading venues

In all countries with the exception of Philippines and Singapore (for government debentures) trading of government and corporate bonds continues to be done mostly OTC, usually telephone based (Tables 1 and 2). In the case of Philippines, almost all transactions with government debt and corporate bonds take place in electronic platforms developed by PDEX, the local exchange. In the case of Singapore, government bonds are mostly traded through an electronic platform developed by Bloomberg. In Thailand an electronic system developed by the Stock Exchange is used to trade both government and corporate bonds, but OTC trading continues to be the most commonly used venue. Electronic platforms for the trading of government and corporate bonds exist also in Indonesia and Malaysia, but are not as frequently used as OTC.

Market transparency

More "formal" venues, such as electronic platforms, can help to enhance market transparency and thus can be a positive development for fixed income markets — especially in the context of broader investor participation in those markets. However, all OTC markets in the ASEAN region, with the exception of the corporate bond market of Singapore, have enjoyed additional transparency, in most cases due to trade reporting obligations imposed by the regulatory authorities. As a result, OTC markets in the region fare well in transparency vis-à-vis international best practices.

- In Indonesia, there is mandatory trade reporting for all trades executed. Reporting agents are the banks, securities firms, and custodians. Reporting must be done to the exchange, with a 30 minutes delay. Information is available to market participants via a reporting terminal with dissemination to all data vendors, and to the public via the exchange website.

- In Malaysia, pre-trade information is available to both market participants and the public. In addition, there are post-trade transparency requirements for both government and corporate bonds, on the seller of securities, although approved interbank institutions usually report on behalf of their clients. Information should be communicated to the exchange, within 10 minutes after concluding a transaction. Information is available to participants and the public through a bond website, the Bond Info Hub on the Central Bank's website, as well as through the exchange website.

- In Philippines, PDEX platform provides pre trade transparency and post trade transparency for both market participants and the public, through its website. Information is updated on a 15 minutes delay basis.

- In Singapore the E-Bond platform for government bonds provides pre-trade transparency to participants (primary dealers). There are also post-trade reporting obligations in relation to government bonds vis-à-vis the regulator and market participants. Trade information can be accessed by participants on real time. The SGS website provides updated end of day prices for all SGS benchmarks and is available to the public.

- In Thailand there are pre trade transparency requirements vis-à-vis market participants. There are also post-trade transparency obligations vis-a-vis other market participants and the public. Dealers are required to report trade information to the Thai Bond Market Association with a 30 minutes delay. Information is made available to both participants and the public through the Thai BMA website, almost in real time.

Box 2. Trading of Corporate Bonds: OTC versus Exchanges

Traditionally corporate bonds and other fixed income products have been traded on over the counter (OTC) markets, as opposed to equity which have been mostly traded on exchanges. A key reason for the difference was the notion that corporate bond markets were fundamentally for professional investors who could fend for themselves.

OTC markets are largely "inf**or**mal" and unregulated. Parties would agree on the terms of the trade over the phone, including terms of clearing and settlement, and each party would decide on an individual basis how to manage counterparty risks. They were usually very opaque not only vis-à-vis the public but also vis-à-vis other participants. In the best scenario, there would be some pre-trade transparency via screens where participants would post their bid and asks but trades could be finalized at different prices.

On the other hand, exchanges are regulated markets, where rules of access, trading and transparency would be set up by the market operator, and approved by the regulator. They usually operate in electronic platforms, under a high degree of pre and post trade transparency vis-a-vis participants and the public. In many countries they would work with a central clearing counterparty that assumes counterparty risk for all trades.

Recently, the differences between the two types of markets have begun to narrow. On the infrastructure side, some OTC markets not only have screens where bid and ask are displayed to market participants but also electronic platforms, where the trades can be completed. The use of such platforms has helped to increase the level of pre and post trade transparency of such markets.

On the regulatory side, significant attention is being placed on the need for more transparency in OTC markets to enhance price formation, as well as to better monitor unfair practices. Thus, many regulators are imposing post-trade transparency requirements in OTC markets. In the United States, an early experience was TRACE, whereby the SEC imposed reporting obligations in all trades for government and corporate debt. Information had to be provided to a central system, with an initial delay of 75 minutes. Over time, the delay has shortened. The recent crisis has highlighted the importance of bringing additional transparency to OTC markets for structured products and derivatives. Furthermore the G-20 has recommended that authorities encourage OTC derivatives markets to move to public venues.

Dematerialization of securities and central securities depositories

In all countries dematerialization or at least immobilization has eliminated the risk of paper based securities (loss, destruction, theft), which facilitates the trading of securities, as well as trade settlement (Table 1 and 2). Philippines and Malaysia have already moved from scrip to a dematerialized system of representation of securities. In Singapore corporate bonds are not required to be dematerialized. In Indonesia not all corporate bonds are dematerialized and in Thailand both government and corporate debt have to be issued in paper form due to legal requirements; but in all three countries immobilization has to a large extent eliminated the risk of paper securities.

However, book entry systems remain fragmented at the local level. In Indonesia and Philippines the book entry system for government securities remains in the hands of a governmental body (the Treasury in Philippines, and the central bank in Indonesia), while the book entry system for corporate bond markets has been trusted to a central securities depository under the supervision of the securities regulator. In Malaysia government bonds and all other unlisted corporate securities—which constitute the bulk of secondary trading—are deposited in RENTAS, operated by MyClear Sdn Bhd, a wholly owned subsidiary of the Central Bank of Malaysia which acts as the depository and registrar. Listed corporate bonds are deposited at Bursa Malaysia Depositories. Only in Thailand is the book entry for both government bonds and corporate bonds centralized into one depository, the Thailand Securities Depository. At a local level there might be synergies arising from the consolidation of the book entry systems into one single depository.

Clearing and settlement risks

Also a very positive development is the fact that in all countries wholesale trading usually takes place in central bank money, and under a delivery versus payment (DvP). For example, in Thailand such conditions are achieved for trades cleared through the Thailand Clearing House. Indeed, the implementation of DvP has helped to reduce settlement risk, that is the risk that the seller of securities delivers but does not receive payment for the securities, or vice versa.

In this regard, except for transactions with listed corporate bonds in Malaysia, clearing and settlement of transactions with government and corporate bonds do not involve a central clearing counterparty. While not yet a global standard, consideration could be given to moving towards clearing of fixed income markets through central counterparties to eliminate settlement risks altogether. Given that the viability of these entities depends on the existence of a minimum trading volume, ASEAN countries might wish to analyze the convenience of such entities in a regional context.

At the legal level, it is important that key concepts for clearing and settlement such as finality, novation and netting be fully recognized by the laws. In all countries except for Philippines such countries are already imbedded in the legal framework, along with relevant regulations.

Table 1. Corporate Debt—Most Common Trading Venues

	INDONESIA		MALAYSIA (1)		PHILIPPINES (2)		SINGAPORE		THAILAND	
	Government	Corporate	Government	Corporate	Government	Corporate	Government	Corporate	Government	Corporate
Are bonds required to be dematerialized?	Yes	No	Yes	Yes, starting in 1996. Corporate bonds issued in script basis prior to 1997 were left to be in that form until they reach maturity.	Yes	Yes, except for old issues	Yes	No	No	No
Who is the CSD?	Bank of Indonesia	Indonesian Central Securities Depository	RENTAS	RENTAS for unlisted corporate bonds. Listed corporate bonds are deposited at Bursa Malaysis Depository	Bureau of Treasury			Central Depository Limited, a whole owned subsidiary of Singapore Exchange Limited	Thailand Securities Depository	TSD
What is the most common venue to trade?	OTC	OTC	OTC	OTC	PDEx	PDEx	E-Bond, a proprietary bloomberg developed platform	OTC/DCSS	OTC telephone based	OTC telephone based
Who can participate?	No restrictions, allowed for securities firms, institutional investors and individuals	No restrictions.	Same players for government and corporate bond markets: interbank players, money brokers, insurance companies, takaful operators and other institutional investors	Same players for government and corporate bond markets: interbank players, money brokers, insurance companies, takaful operators and other institutional investors	Broker/dealers, qualified buyers	Broker dealers	Primary dealer banks only	Institutional investors	Dealers (commercial banks and securities firms) and institutional and retail investors	Dealers (commercial banks and securities firms) and institutional and retail investors
What is the settlement cycle?	As agreed by parties	As agreed by parties	t + 2 for bonds; t + 1 for short term bills	t + 2 for bonds; t + 1 for short term bills	t + 1	t + 1	t + 1	As agreed, usually t+1	t + 2	t + 2
How is settlement done?	RTGS	As agreed by parties	RTGS	RTGS	RTGS	RTGS	RTGS (MEPS+)	RTGS	RTGS	RTGS
Is settlement done through a CPP?	No	No	No	No	No	Yes	N/A	No	No	No
Is cash settlement done in central bank money?	Yes	N/A	Yes, for settlement done on DVP via RTGS	Yes, for settlement done on DVP via RTGS	Yes	Yes	Yes	Yes	Yes if settled through the TCH	Yes if settled through the TCH
Is settlement done on a delivery versus payment basis?	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are there pre-trade transparency requirements?	Yes for government bond benchmark by primary dealers	No	Yes	No	Yes	Yes	Yes through E-broking module on the E-Bond platform	No	Yes	Yes
What information is available to other market participants?	Individual bid-offer of primary dealers	There is information on bid and ask prices	Bid and ask prices	Bid, and offer price by financial institutions	Bid and ask	Bid and ask	Inside prices (best bid and ask), order depth, representative sizes shown to all primary dealers	N/A	Bid and ask	Bid and ask
How is information disseminated?	Via website fo the debt management office	Such information is available through the Interdealer Market Association (IDMA) page, Bloomberg and Indonesia Bond Pricing Agency (IBPA)	Electronic Trading Platfom (ETP)	Distributed by financial institutions; Made available in information vendors; ETP	PDEx system	PDEx system	Electronic platform	N/A	Via voice box for interdealer broker	Via voice box of interdealer broker

Table 1. Corporate Debt—Most Common Trading Venues (continued)

	INDONESIA		MALAYSIA (1)		PHILIPPINES (2)		SINGAPORE		THAILAND	
	Government	Corporate	Government	Corporate	Government	Corporate	Government	Corporate	Government	Corporate
Is such information also available to the public?	Yes	Yes	The information (limited to only stock code, amount and price) is available on Bond info hub/Bursa's website	The information (limited to only stock code, amount and price) is available on Bond info hub/Bursa's website	Yes	Yes	No	N/A	No	No
How is such information disseminated?	N/A	Available in the IDMA, Bloomberg/IBPAwebsite and Debt Management Office website	Bond Info Hub and Bursa's website. Newswire services like Bloomberg and Reuters also disseminate such information to suscribers	Bond Info Hub and Bursa's website. Newswire services like Bloomberg and Reuters also disseminate such information to suscribers	PDEx website	PDEX website	N/A	N/A	N/A	N/A
Are there post-trade transparency obligations?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
What information should be reported?	Bond name, trade date, settlement date, transaction type, price and volume	Bond name, trade date, settlement date, transaction type, price and volume	Stock code, amount, price and counterparty	Stock code, traded amount, price/yield, and counterparty	Terms of trade: price/yield, volume, instrument name, and trading time	Terms of trade	Volume, price, time/date of last trade	N/A	Terms of trade?	Terms of trade?
Who has to communicate information?	Rules applies to all trades but reporting agents are banks, securities firms and custodians	Rules applies to all trades but reporting agents are banks, securities firms and custodians	Seller, however approved interbank institutions usually report on behaf of their clients	Seller, however approved interbank instituions usually report on behalf of their clients	Broker/dealers	Broker dealers	Primary Dealers	N/A	Dealers	Dealers
When should such information be reported?	Within 30 minutes price and volume	Within 30 minutes price and volume	Within 10 minutes of trade	Within 10 minutes of trade	Real time for market participants; 15 minutesd delay for others	Real time for market participants; 15 minutes delay for others	Real time	N/A	Information must be sent to ThaiBMA within 30 minutes	Information must be sent to ThaiBMA within 30 minutes
To who should such information be reported?	To BAPEPAM, but operation outsourced to exchange, and Ministry of Finance	To BAPEPAM, but operation outsourced to exchange	Bursa as the operator of the ETO will channel information to the regulators (i.e. Central Bank of Malaysis and Securities Commission)	Bursa as the operator of the ETO will channel information to the regulators (i.e. Central Bank of Malaysis and Securities Commission)	PDEx system	PDEx, SEC, General Public	Regulator and market participants	N/A	ThaiBMA	ThaiBMA
Is it available to other market participants?	Yes, but limited to info series, price, yield and volume	Yes	Yes, except counterparty	Yes, except counterparty	Yes	Yes	Yes	N/A	Yes	Yes
How is such information disseminated?	Stock Exchange website	Stock Exchange website	ETP, and bond website	ETP; bond website	PDEX system	PDEx website	Bloomber/Reuter pages	N/A	ThaiBMA website	ThaiBMA website
How often is information updated?	Real time	Real time	Almost real time	Almost real time	1 day delay	1 day delay	Real time	N/A	Almost real time	Almost real time
Is such information also available to the public?	Yes for transaction summary	Yes but no counterparty ID or other settlement information	Yes	Yes	Yes	Yes	Real time updtes are only available via Bloomberg and Reuters	N/A	Yes	yes
How is such information disseminated?	Stock exchange website	Stock Exchange website	For government bonds and unlisted corporate bonds: Bond Info Hub Website and Bursa Malaysia website	For government bonds and unlisted corporate bonds: Bond Info Hub Website and Bursa Malaysia website	PDEX website	PDEx website	The SGS website provides updated end of day prices fo all SGS benchmarks and is available to the public	N/A	ThaiBMA website	ThaiBMA website
How often is information updated?	Real time	Real time	Real time	Real time	Daily	Daily	Daily at market close	N/A	Almost real time	Almost real time

(1) All listed bonds must trade on the exchange.

(2) 100% of secondary trading takes place in PDEX

Source: Regulatory authorities, 2010

Table 2. Corporate Bonds—Disclosure Requirements for Public Offering

	Indonesia	Malaysia (1)	Philipinnes	Singapore	Thailand
Is the issuer required to submit a prospectus?	Yes	Yes	Yes	Yes	Yes
Are there specific guidelines on the content of the prospectus?	Yes	Yes	Yes	Yes	Yes
Is there a specific deadline for the review of the prospectus?	Yes, the prospectus is part of the registration statement, which becomes effective 45 days after receipt in complete form	Yes, 60 working days for bonds listed on the main market and 40 working days for bonds listed on the ACE Market.	Yes, the SEC has 45 days from the date of filing to complete the review	Yes, 21 days but may be extended by the Authority.	Yes, 45 days upon completion of information
What approach is followed for the review process?	Disclosure-based	Disclosure-based	Disclosure-based	Disclosure-based	Disclosure-based
Is the issuer require to update the prospectus?	No	Yes, via issuance of a supplementary prospectus	No, but there is an obligation to provide financial statements and disclosure	Yes, a prospectus is valid for 6 months from the date of registration. If after the prospectus is registerd but before the closing of the offer, there are new circumstances that are materially adverse from an investor perspective, the issuer must lodge a supplementary prospectus	Quarterly and every time when there is material information changed.
Is the issuer required to submit financial statements?	yes, on a semi-annual basis	Yes, on a quarterly basis	yes, on a quarterly basis.	yes, on a semi-annual basis	Yes, on a quarterly basis.
Is the issuer required to submit annual audited financial statements?	Yes	Yes	Yes, 105 days from the end of issuers's fiscal year	Yes	Yes
What accounting principles are applicable?	IFRS (however full implementation is expected by 2012)	Yes (however full convergence is expected by 2012)	Local standards, which have substantially adopted IFRS. Full implementation of IFRS is expected by 2012.	Companies can submit their statement according to IFRS, US GAAP, Financial Reporting Standards or other accounting standards approved by the MAS.	Local standards, which are based on IFRS. Full implementation of IFRS is expected in 2011
Is the issuer required to communicate material events?	Yes, within 2 working days	Yes, as soon as possible	Yes, as soon as the event happens.	Yes	Listed companies are required to communicate material events as soon as the event happens. Non listed companies are required to prepare a quarterly report.
Is credit rating mandatory?	Yes	Yes	Yes, except for issuance amounting to not more than 25% of the issuer's net worth or where there is an irrevicable credit line with a bank covering 100% of the proposed issuance.	No	Yes
Is there an obligation to update the ratings?	Yes, annually	Yes	Yes, a CRA is obliged to monitor rating on a continuous basis.	N.A.	Yes
Are there streamlined procedures for registration of seasoned issuers?	No	Yes, shelf registration. The issuer is required to register a supplementary prospectus ecah time bonds are issued under the scheme.	Yes.	Yes. Issuers may offer debentures under a debenture issuance programme. Under the programme, issuers have to register a base prospectus which is applicable to every offer under the programme. For each offer if debentures, issuers need only register a pricing statement containing information specific to that particular offer.	Yes, shelf prospectus. The issuers can file the base prospectus in advance. They are required to update prospectus (supplement) quartely and submit pricing information 1 day before the offering date.
Is underwriting mandatory?	No	No	Bond issues are typically handled by lead underwriters.	No	Yes

(1) Public offering is currently limited to offerings on the stock exchange by the public listed companies.

Source: Regulatory authorities, 2010

Annex II. Disclosure Requirements for Corporate Bonds

Significant emphasis on disclosure and transparency has been made in the context of equity markets, however it is also critical for corporate bond markets and even for more complex products, such as asset backed securities (ABS)—as the recent financial crisis has highlighted. Indeed the availability of timely and relevant information on corporate bonds and ABS is key for pricing and has an impact on liquidity of secondary markets. Thus, international best practices are moving towards strengthening disclosure in the context of corporate bonds and ABS —in some cases even beyond public offerings.

All five countries require the submission of a prospectus for public offerings of corporate bonds. To assist issuers in meeting these obligations in all the countries securities regulatory agencies have issued specific guidelines on the content of such prospectus.

In addition, they all require periodic update of key information, in particular submission of financial statements (semiannually in the case of Indonesia and Singapore, quarterly in the case of Malaysia, Philippines and Thailand) as well as audited annual financial statements. Finally all countries require the communication of material events. However, in Thailand (in the case of unlisted securities) such communication is done through their quarterly reporting.

At the same time, all five countries have adopted disclosure based approaches to the registration/review process. Except for Philippines they all have established deadlines for the review of the prospectus (14 working days in Malaysia, 21 days in Singapore, and 45 days in Indonesia and Thailand). Additional effort to shorten those deadlines would be beneficial. All but Indonesia have established "shelf registration" or similar type of streamlined procedures for "seasoned" issuers or "issue programs", in order to allow issuers to take advantage of market windows and raise capital more quickly.

Furthermore, the ASEAN Capital Markets Forum (ACMF) has worked on increasing the efficiency and reducing the costs of multi-jurisdictional debt offerings. To this end, it has developed two levels of standards, comprising of a set of common ASEAN standards which are fully in line with IOSCO's standards for international debt offerings and additional standards known as the "Plus Standards." An issuer that makes a multi-jurisdictional offer would need to provide only a common set of disclosure documents based on the ASEAN standards together with the appropriate wrap-around for the Plus-Standards to investors in each jurisdiction. The timeframe for the implementation of the Scheme depends on the readiness of each ASEAN member on an opt-in basis, As of June 2009 Malaysia, Singapore and Thailand had announced the implementation of the Scheme in their respective jurisdictions. Members of the ACMF have also agreed to work towards reducing the number of Plus standards over time to maximize the benefits of this initiative to issuers. Thus it is envisaged that the ASEAN and Plus Standards

Scheme would evolve and progress towards overall convergence of the disclosure requirements. In addition, they have also agreed to work on the harmonization of distributions rules for offerings and time lines for approval of registration of the offering documents. It is envisioned that its implementation will shortened substantially the approval time for registration in many of the ASEAN jurisdictions. It will also ensure that investors in different jurisdictions will have access to the same information at the same point in time.

An additional challenge for integration and foreign investor participation relates to the usefulness of ratings. Currently rating for corporate bonds is mandatory in countries[26] except Singapore. As a general principle, issuers should get the rating from a local rating agency registered in the jurisdiction.[27] While there are local rating agencies in each jurisdiction, they all use different rating scales and methodologies, which hinders the comparability of the ratings of issuers across countries. Positive steps have been taken through the Association of Credit Rating Agencies in Asia in the area of capacity building, and in establishing common terminology such as regarding the definition of default event. However the authorities could encourage the adoption of a common methodology and rating scale, which would provide one more building block to the efforts on integration by making investments across the ASEAN markets easier to compare by investors. These actions should not detract from analyzing the benefits of establishing a regional credit rating agency.

[26] In Philippines rating is mandatory except for issuances amounting to not more than 25 percent of the issuers net worth or where there is an irrevocable committed credit line with a bank covering 100 percent of the proposed issuance.

[27] Many local ratings have ties with the global rating agencies (for example, the global rating agency is a shareholder in the local rating agency). Overall global rating agencies only rate issues of foreign issuers, issuers that are affiliated with foreign companies, or issues that will be simultaneously place in more than one jurisdiction.

Box 3. Best Practices on Disclosure in Corporate Bond and Fixed Income Markets

The level of disclosure required for the offering of fixed income products has varied depending on whether the issue would be placed through a public or a private offering.

For offerings directed to the public (public offerings) international best practices require a system of registration, under a disclosure-based approach. Under such approach, regulators ensure that an issuer has provided investors with all material information necessary to understand the characteristics and risks of the issuer and the issue, but is not the role of the regulator to decide whether an issue is "too risky" for investors — as is the case in merit based regime.

Issuers meet their disclosure obligations through the submission of a prospectus that should be subject to the review of the regulator. IOSCO has issued guidelines on the content of prospectus for bond offerings as well as for asset-backed securities, the latter as a result of the lessons from the crisis. A key component of the prospectus for a corporate bond offering are the financial statements of the company. Best practices indicate that they should be produced in accordance with high quality accounting standards. IFRS are recognized as such quality standards which global use ensures comparability of financial information of issuers from different jurisdictions.

Indeed the time that a regulator takes in reviewing a prospectus can affect a company's opportunity to tap the market at a particular point in time when there are favorable market conditions. Thus, best practices point to the need to establish deadlines for such review —though non-compliance with the deadlines should not amount to approval of the prospectus. For example, the E.U. Prospectus Directive established a deadline of 20 working days for the review of a prospectus of a new issuer, and 10 days for the review of other prospectus. In addition, best practices point to the development of more streamlined registration procedures directed at seasoned issuers who keep up-to-date information with the securities regulator, as well as for the issuance of programs of securities. Such procedures are, for example, systems of shelf registration.

Best practices also subject issuers to periodic filing aimed at providing investors with up-to-date information. Issuers must submit financial statement and a management report at least on a semiannual basis, and audited financial statements on an annual basis. Material events, that is those than can affect the price of securities, should be disclosed under tight schedules (usually, at the most within a couple of days of their occurrence).

Best practices have allowed room for offerings that are subject to a lower level of disclosure, predicated on the notion that they are not directed to the "average investor". While specific criteria varies among countries they usually entail offers directed only to professional or sophisticated investors who do not need regulatory protection in the form of mandated disclosure because they have their own means to get the information necessary to assess the risk of the issue.

Thus in many countries offerings directed only to institutional investors would not be subject to the general disclosure requirements of a public offering. The exact level of disclosure varies from country to country. In some, there are no disclosure requirements attached to a private offering, in other there is a minimum initial disclosure. To a certain extent, however, the crisis has questioned the notion that private offerings do not require some level of disclosure, at least in the context of structured products. In this regard the TFUMP of IOSCO has recommended that additional disclosure is needed in connection with structured products.

Mandatory rating has only been a common practice in emerging markets. In industrialized countries rating has been voluntary vis-a-vis the authorization for public offering, but in practice required by the market or even by other regulations –such as those for institutional investors that require a minimum grade for investment. The crisis has highlighted however the inherent conflict of interest existent in the business model of the rating agencies and has therefore prompted regulators to reevaluate regulatory reliance on ratings. This is a work in progress.

Annex III. Best Practices on the Regulation of Information Providers

The regulation of entities that provide key information to the markets, such as auditors and credit rating agencies is now recognized as a best practice. Furthermore IOSCO has recently finalized a review of its Principles, and as a result a new set of principles on "information service providers" have been approved. Their overall objective is to strengthening regulation and oversight of external auditors, credit rating agencies and other entities that provide information or evaluative services to the market.

External auditors play a key role in ensuring the reliability of the financial information submitted by issuers. As a result of such critical role as gatekeepers it is recognized that they should be subject to independent regulation and oversight, mainly geared to address potential conflicts of interest and ensure the quality of the services they provide. Such independent oversight can be done by the securities regulator, or by specialized entities - such as the public accounting oversight boards that have been recently created in some jurisdictions such as Canada and U.S. - but is no longer sufficient that external auditors be subject to oversight by the professional association bodies.

Credit ratings have played a role in reducing information asymmetries between issuers and investors by providing a simple and straightforward measure of the default probabilities of an issuer. For this reason many emerging markets require mandatory rating of corporate bonds. However, the recent financial crisis has highlighted the inherent conflicts of interest arising from the issuer-pays model that is characteristic of most CRAs, which can impinge on the quality of ratings. At the same time it has also highlighted the problems of over-reliance in credit ratings by market participants. While such conflicts have led to more acute problems in the context of ABS —where rating agencies took a more active role in the structuring of products—they are still present in regard to rating of other products, including bonds. As a result, it is now recommended that credit rating agencies be subject to oversight by a financial regulator, based on a registration regime that follows the IOSCO Code of Conduct. This Code of Conduct seeks to ensure (i) the quality and integrity of the rating process; (ii) the independence and adequate management of conflicts of interest; and (iii) the responsibilities of CRAs vis-a-vis the public and the issuers.

A more recent development is the appearance of price vendors or pricing agencies, especially in emerging market jurisdictions. They provide the prices of illiquid securities—for which a "market price" is not available—that are used by market participants to value their own portfolios as well as the portfolios of the collective investment schemes that they manage (mutual funds, pension funds). To do that, they develop their own pricing methodologies. While not yet a global standard, regulators are starting to subject them to a registration regime aimed at ensuring the quality of the methodologies they develop and the integrity of the pricing process as well as to address potential conflicts of interest, thus under a similar approach to that developed for credit rating agencies.[28]

[28] In Malaysia, the bond pricing agency Bondweb Malaysia Sdn Bhd was registered by the Securities Commission in April 2006.

Another recent development relates to the appearance of centralized data depositories or trade repositories. In order to improve price discovery, regulators are imposing reporting obligations on OTC markets, as well as seeking to centralize all information about a security in one "data depository". As a result, specialized entities are appearing in some jurisdictions with the function of collecting and disseminating price information to the markets. In some jurisdictions, such function requires registration with the regulator. Main regulatory concerns relate to fair access to such information, and conflict of interest. The CPSS-IOSCO group is currently working on the development of a set of recommendations for trade repositories in connection with OTC markets.

Annex IV. Derivatives

Macroeconomic fundamentals

Well-functioning derivative trading tends to be associated with deep and liquid underlying cash markets. For instance, limited equity market turnover remains a constraint on the introduction and the expansion existing derivative markets in ASEAN countries. Similarly, the development of interest derivatives markets is contingent on reliable benchmarks and sufficient liquidity of the underlying government bond yield curve across the whole term structure. The development of derivative markets is also hampered by problems of limited asset supply, which leads to liquidity-induced market risks (e.g., difficulties in executing securities margin requirements).

The association, however, also runs the other way. In recent years, the depth and liquidity of cash markets themselves have come to depend on the presence of similarly well-developed derivative markets.

Operational infrastructure

Reaping the full benefits of derivatives by fostering their wider development requires careful management of risks arising from the organization of trading activity. Transparent derivative markets governed by orderly market and trading rules are generally deeper, more liquid and more efficient in their price setting activities than unregulated trading, which is generally characterized by more concentrated market participation, higher information asymmetry, and fewer measures that guarantee collective interest in market stability.

Well-structured clearing and settlement systems facilitate efficient market trading and transparent market practices conducive to market stability. Systemic risk is reduced when trading occurs in formally regulated exchanges that impose appropriate margin requirements and position limits, engage in vigilant market surveillance, and mutualize risks through loss-sharing arrangements, capital deposits of trading parties, and international excess-of-loss insurance, which all prevent the shifting of excess risk to end users.

In absence of rule-based trading, OTC derivative markets can be augmented with transparency-enhancing features in order to mitigate potential vulnerabilities that may trigger system-wide failures. In some ASEAN countries without formal derivative exchanges and centralized clearing, OTC derivatives enjoy growing popularity especially for currencies and interest rates. Since OTC trading lacks market rules and mechanisms of collective burden and loss sharing, counterparty risk is higher, requiring greater disclosure and transparency. Thus, the credit standings of trading parties (together with position limits and capital provisions) are more important in OTC than exchange-based trading. Features normally found in exchange-based trading, such as the installation of market makers and the adoption of generally agreed limits on transactions and positions, can be adapted to OTC trading in order to mitigate counterparty risk. Hence, in some ASEAN countries without derivative exchanges, the rising popularity of OTC derivatives underlines the need for greater emphasis on disclosure and transparency of licensed banks. Good governance and risk

management remain vital to minimize potential threats to financial stability posed by unregulated derivative trading (Fratzscher, 2006).

Investor base and market access

Sustainable derivative trading necessitates regulatory guidelines that have sufficient flexibility to foster convergence of demand and supply of risk protection. For instance, the complementary term structure transformation of banks and insurance companies makes them natural candidates for the creation of viable interest risk transfer markets. In some ASEAN countries, however, market participation of institutional investors in interest rate derivative markets is fairly constrained, which encumbers the sufficient supply of counterparty lines.[29]

Regulatory requirements on institutional investors and the investor composition of cash markets determine the need for derivative markets. Price discovery in derivative markets is most efficient if regulation grants market access to a wide range of economic agents. In many ASEAN countries, pension funds and insurance companies are subject to stringent investment guidelines that mandate substantial holdings of government debt. While relaxation needs to be gradual, in view of the credit and other risks involved with non-government securities, it will be difficult for corporate securities markets to develop (and positive effects on funding costs) if major potential investors are not able to take positions in derivative markets. In many instances, however, derivative market regulations and reporting requirements limit the participation of institutional investors and their ability to hedge cash market exposures to interest rate and exchange rate volatility.

Consistent and stable macroeconomic policies, as well as increased market surveillance, rather than investment restrictions, temper speculative pressures in derivative markets over the medium- and long-term. As long as the policy mix is inconsistent, market participants will take advantage of weaknesses in regulatory frameworks governing trading activity (e.g., window dressing as well as accounting and reporting rules). Moreover, the distinction between speculative purposes and legitimate hedging is not straightforward and complicated by practical limitations. Market infrastructure and prudential regulations that mitigate risks and enhance market transparency can help redress these practical limitations of detecting speculative activity at a stage of advanced macroeconomic reforms.

Risk management, regulation, supervisory oversight, and enabling derivative laws

Prudential regulation, disclosure requirements, and market supervision through monitoring systems promote sound risk management that ensures the balanced growth of derivative markets. Appropriate regulation and supervision of institutions active in derivative markets lower counterparty risk, discourage trading activity detrimental to market integrity, and minimize potential threats to financial stability.

---

[29] If institutional investors can purchase derivatives, this can allow them to hedge risk. However, selling derivatives – as happened with AIG, for example – can clearly lead to problems.

In many ASEAN countries, regulatory and legal frameworks related to derivative markets still require further elaboration. While derivative contracts in mature markets are structured under tried and tested norms of market practice and governed by a highly developed legal regime, statutory barriers and uncertainty surrounding legal and accounting requirements specific to the creation, trading, and enforcement of derivatives have inhibited the development of derivative markets. In many instances, legal codes and accounting rules are silent on all or certain types of derivatives, fail to identify the regulatory jurisdiction over derivatives, or make derivative contracts unenforceable. Also, restrictive cash market regulation, such as occasional limits on short-selling, or limited securities lending (Indonesia and Thailand), have inhibited derivative trading.

REFERENCES

ABMI Group of Experts Final Report, Revised July 2010. Available via the internet: http://asean3goe.adb.org

Bank for International Settlements (BIS), 2004, "Recommendations for Central Counterparties," *CPPS-IOSCO*, November. Available via the internet: www.bis.org/publ/cpss64.pdf

Basel Committee on Bank Supervision, 2010, "Strengthening the Core Financial Infrastructure and Markets," March 1.

Fratzscher, Oliver, 2006, "Emerging Derivative Markets in Asia," Chapter for EAP Flagship on Asian Financial Market Development", The World Bank, March 2006.

Hohensee, Martin and Kyungjik Lee, 2006, "A Survey on Hedging markets in Asia: A Description of Asian Derivatives Markets from a Practical Perspective," in: Asian Bond Markets: Issues and Prospects, BIS Papers No. 30, Monetary and Economic Department (Basel: Bank for International Settlements), pp. 261-81.

International Monetary Fund. 2010. "Chapter 2: Systemic Liquidity Risk: Improving the Resilience of Institutions and Markets." In *Global Financial Stability Report* (October), pp. 3f

Kramer, Charles, Hiroko Oura, Catriona Purfield and Andreas Jobst, 2008, "Asian Equity Markets: Growth, Opportunities, and Challenges," *Macroeconomics and Finance in Emerging Market Economies* (2007), Vol. 1, No. 2, pp. 22–48. Previously published as IMF Working Paper 06/266, Asia and Pacific Department (October 2006).