WORKSHOP ON DEVELOPING GOVERNMENT BOND AS MONETARY POLICY INSTRUMENTS IN APEC ECONOMIES

11-12 DECEMBER 2003
BALI, INDONESIA

Asia-Pacific
Economic Cooperation

The WorldBank

APEC Finance and Development Program

BANK INDONESIA

Workshop on Developing Government Bond as

Monetary Policy Instruments in APEC Economies

Intercontinental Resort, Bali, Indonesia
December 11-12, 2003

PROGRAM

Wednesday, December 10

19: 00 – 21:00 **Welcome Reception**

Venue: The Bukit Area (please see Hotel Map)

Alternatif venue (in case of rain) : Pre-function Area (In Front of Puri Kencana Grand of Meeting Room)

Host : **Mr. Budi Mulya**, on behalf of **Dr. Anwar Nasution**, Senior Deputy Governor of Bank Indonesia

Thursday, December 11

08:30 – 09:00 **Opening Session**

Venue: Puri Kencana Grand Meeting room

Opening Speakers:
1. Senior Deputy Governor, Bank Indonesia
2. Mr. Li Kouqing, Deputy Secretary-General, AFDP Secretariat

09:00 – 09:25 **Photo Session**

09:25 – 09:40 **Coffee Break**

Session 1

09:40 – 10:30 **Overview of Government Bond as Monetary Policy Instruments and Coordination Issues between Public Debt Management and Monetary Policy**

Venue: Puri Kencana Grand Meeting Room

Speaker : **Dr. S. Ghon Rhee** , K.J. Luke Chair of International Finance and Banking, College of Business Administration, University of Hawaii, U.S.A

10:30 – 10:50 Q & A

10:50 – 11:40 **The Role of the Central Bank in Developing Money Markets**

Venue: Puri Kencana Grand Meeting room

Speaker : **Mr. Michael Taylor**, Financial Sector Resident Representative, International Monetary Fund, Jakarta, Indonesia

11:40 – 12:00 Q & A

12:00 – 13:00 **Lunch**

Venue: Taman Gita Restaurant

13:00 – 14:00 **Panel Discussion: Economy Experience in Conducting Coordination between Public Debt Management and Monetary Policy**

Venue: Puri Kencana Grand Meeting room

Panelists :

New Zealand : **Mr. Mick Flynn**, Project Team Leader/Advisor for Indonesian Debt Management Project

Philippines : **Mr. Sergio Gonzales Edeza**, Treasurer of the Philippines

Singapore : **Mr. LEE Chuan Teck**, Director Monetary Management, Reserve and Monetary Management Directorate, Monetary Authority of Singapore

14:00 – 14:30 Q & A

14:30 – 15:30 **Market Infrastructure**

Venue: Puri Kencana Grand Meeting room

Speaker : **Mr. Noritaka Akamatsu**, Lead Financial Economist, the World Bank

15:30 – 16:00 Q & A

16:00 – 16:15 **Coffee Break**

16:15 – 17:15 **Panel Discussion: Economy Experience in Role of Clearing and Settlements**

Venue: Puri Kencana Grand Meeting room

Panelists :

Indonesia : **Mr. Budi Mulya**, Director, Monetary Management Directorate, Bank Indonesia

Australia : **Mr. Greg Johnston**, Senior Manager, Domestic

market Department, Reserve Bank of Australia

United Kingdom: **Mr. Robert Fair**, Business Development Manager, Settlement Services, CREST Co., Ltd.

17:15 – 17:45 Q & A

19:30 – 21:30 **Dinner (voucher will be distributed upon arrival) & Sight Seeing to Kuta**

Venue: Hoteland Kuta

Friday, December 12

08:30 – 09:15 **The Role of Repos as Monetary Policy Instruments**

Venue: Puri Kencana Grand Meeting room

Speaker : **Mr. Tatsushi Kurihara**, Director, Monetary and Capital Market Division, Financial Market Department, Bank of Japan

09:15 – 09:45 Q & A

09:45 – 10:00 **Coffee Break**

10:00 – 11:15 **Panel Discussion: Central Banks Experience in Dealing With Government Bond as Monetary Policy Instruments**

Venue: Puri Kencana Grand Meeting room

Panelists :

China : **Mr. Huo Yingli**, Deputy Director, Monetary Market, Monetary Policy Department, the People's Bank of China

Malaysia : **Mr. Muhamad bin Ibrahim**, Director, Investment and Financial Market Operation Department, Bank Negara Malaysia

Korea : **Mr. Jin-kyu OH**, Market Operation Team, Financial Markets Department, Bank of Korea

11:15 – 11:45 Q & A

11:45 – 13:15 **Lunch and Friday Prayer for Moslems**

Venue: 1) Lunch : Taman Gita Restaurant

2) Friday Prayer : Pendawa 1 Room

13:15 – 14:30 **Break-out Sessions**

All participants are divided into 3 groups to discuss and prepare brief notes to a specific issue based on the participant's economy experiences as follows :

- **The role of Central Bank in Primary Auction of Government Bond**

  Venue: Pendawa 2 Room

- **The Role of Primary Dealer in Developing Government Bond Market**

  Venue: Nakula Room

- **Use of Government Bond Repo and Central Bank Bills in Open Market Operation**

  Venue: Sadewa Room

14:30 – 15:00 **Discussion Report**

Coordinators from each breakout session present the findings of the group.

15:00 – 15:15 **Coffee Break**

15:15 – 16:15 **Trading Market Architecture**

Venue: Puri Kencana Grand Meeting room

Speaker : **Mr. Noritaka Akamatsu**, Lead Financial Economist, the World Bank

16:15 – 16:45 Q & A

16:45 – 17:15 **General Introduction to Regional Bond Market Initiatives : Asian Bond**

Venue: Puri Kencana Grand Meeting room

Speaker : **Mr. Ismail Dalla**, Principal Financial Sector Specialist, Asian Development Bank

17:15 – 17:45 Q & A

17:45 – 18:00 **Concluding Session**

Venue: Puri Kencana Grand Meeting room

Speaker: **Mr. Budi Mulya**, Director, Monetary Management Directorate, Bank Indonesia

18:00 – 18:15 **Closing Ceremony**

Venue: Puri Kencana Grand Meeting room

Speaker : **Dr. Aslim Tadjuddin**, Deputy Governor of Bank Indonesia

19:30 – 21:00 **Farewell Dinner**

Venue: Alun-alun Area (please see Hotel Map)

Alternatif venue (in case of rain) : Pre-function Area (In Front of Puri Kencana Grand of Meeting Room)

Host: **Dr. Aslim Tadjuddin**, Deputy Governor of Bank Indonesia

Saturday, December 13

08:00 - 13:00 **Bali Excursion**

15:00 **Check Out**

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Intercontinental Resort, Bali, Indonesia
December 11-12, 2003

ANNOTATED AGENDA

Wednesday, December 10, 20003

19.00 – 21.00: **Welcoming Reception hosted by Senior Deputy Governor of Bank Indonesia**

Thursday, December 11, 2003

08.30 – 09.00: **Opening Session - Speech delivered by:**

1. Senior Deputy Governor, Bank Indonesia
2. Mr. Li Kouqing, Deputy Secretary-General, AFDP Secretariat
3. World Bank (TBD)

09.00 – 09.25: **Photo Session**

09.25 – 09.40: Coffee Break

SESSION 1 **Speaker: Dr. S. Ghon Rhee,** K.J. Luke Chair of International Finance and Banking, College of Business Administration, University of Hawaii

09.40 – 10.30: a. Overview of Government Bond as Monetary Policy Instruments and Coordination Issues between Public Debt Management and Monetary Policy

Many economies have used government bond as their monetary policy instruments. To make a quick and clear understanding about government bond as monetary policy instruments, the following issues would be discussed: the market structure of goverment bond, the development of primary and secondary market of government bond, criteria to select a monetary instrument, the

infrastructure of government bond market, the operating procedure of open market operation, the liquidity issue and so on. Choice between government securities and central bank bills. This session would also refer to the overall development of government bond market in the APEC region.

Both public debt management and monetary policy have their own objectives. Debt managers, central bankers should share an understanding of the objectives of debt management and monetray policy, given the interdependencies between their different instruments. This session would have some discussion about the way of coordination, the role of central bank in debt management operation, the influence of public managemnent on monetary policy operation, and the solving method when conflicts occured.

10.30 – 10.50: b. Q & A Session

SESSION 2 **Speaker: Mr. Michael Taylor,** Financial Sector Resident Representative, International Monetary Fund, Jakarta

10.50 – 11.40: a. The Role of the Central Bank in Developing Money Markets

There are three key conditions required to develop a well-functioning money market: (1) banks and other financial institutions must be commercially motivated and respond to incentives to actively manage risk and maximize profit; (2) the central bank must shift from direct to indirect methods of implementing monetary policy; and (3) the government must have a good capacity for cash management, thereby giving the central bank greater freedom in setting its operating procedures. This session will discuss the role that the central bank can play in fostering the development of money markets and explores some of the coordination issues between the monetary and fiscal authorities that will occur.

11.40 – 12.00: b. Q & A Session

12.00 – 13.00: **Lunch at Taman Gita Restaurant**

SESSION 3 **Panelists from : New Zealand, Philippines and Singapore**

13.00 - 14.00: a. PANEL DISCUSSION. Economy Experience in Conducting Coordination between Public Debt Management and Monetary Policy

Indonesia: **Mr. Mick Flynn**, Project Team Leader/Advisor for Indonesian Debt Management Project

Philippines: **Mr. Sergio Gonzales Edeza,** Treasurer of the Philippines, Bureau of the Treasury, Department of Finance

Singapore: **Mr. LEE Chuan Teck**, Director Monetary Management, Reserve and Monetary Management Directorate, Monetary Authority of Singapore

14.00 – 14.30: b. Q & A Session

SESSION 4 Speaker: Mr. Noritaka Akamatsu, Lead Financial Economist, World Bank

14.30 – 15.30: a. Market Infrastructure

A well-developed market infrastructure is a key underpinning of an effective government bond market and monetary policy operation. To make government bond more effective as monetary policy instruments, the construction of legal and regulatory framework, development of clearing and settlement system, and reasonable tax policy about government bond would be necessary. In this session. the role of market infrastructure as to facilitate the implementing of monetary policy with government bond as instruments, access to market infrastructure by intermediaries and investors, general intruduction of the role of Clearing and Settlement system etc. are discussed.

15.30 – 16.00: b. Q & A Session

16.00 – 16.15: Coffee Break

SESSION 5 Panelists from: Indonesia Australia, and UK

16.15 - 17.15: a. PANEL DISCUSSION Role of Clearing and Settlements: Economy Experience

Indonesia: **Mr. Budi Mulya**, Director, Monetary Management Directorate, Bank Indonesia

Australia: **Mr. Greg Johnston**, Senior Manager, Domestic market Department,Reserve Bank of Australia

United Kingdom: **Mr. Robert Fair**, Business Development Manager, Settlement Services, CREST Co., Ltd.

17.15 – 17.45: b. Q & A Session

19.30 – 21.30: **Dinner at the Hotel (voucher will be distributed upon arrival) and sight seeing to Kuta**

Friday, December 12, 2003

SESSION 6 **Speaker: Mr. Tatsushi Kurihara,** Director, Monetary and Capital Market Division, Financial Market Department, Bank of Japan

08.30 - 09.15: a. The Role of Repos as Monetary Policy Instruments

Government bond repos are very important in fostering secondary markets. Also, it's one of the main channels used for open market operation of the central bank In this session, official will describe current development of repo market in brief, the role of central bank in fostering repo of government bond in repo market operation in Open Market Operation (OMO), necessary steps that are needed to be taken (Master of Repo Agreement), payment and transfer, default and netting, margins, substitution, insterest payment and risk control during the repos operation process.

09.15 – 09.45: b. Q & A Session

09.45 - 10.00: Coffee Break

SESSION 7 **Panelists from: Malaysia, China and Korea**

10.00 - 11.15: a. PANEL DISCUSSION Dealing With Government Bond as Monetary Policy Instruments: Central Banks Experience

China: **Mr. Huo Yingli**, Deputy Director, Monetary Market, Monetary Policy Department, the People's Bank of China

Malaysia: **Mr. Muhamad bin Ibrahim,** Director, Investment and Financial Market Operation Department, Bank Negara Malaysia

Korea: **Mr. Jin-kyu OH**, Market Operation Team, Financial Markets Department, Bank of Korea

11.15 – 11.45: b. Q & A Session

11.45 – 13.15 **Lunch at Taman Gita Restaurant and Friday Prayer for the Moslems at Pendawa 1 Room**

SESSION 8

13.15 - 14.30: BREAK OUT SESSION

a. In this session participants are divided into 3 groups to discuss and prepare brief notes to a specific issue based on the participant's economy experiences as follows :

- ✍ The role of Central Bank in Primary Auction of Government Bond **at Pendawa 2 Room**
- ✍ The Role of Primary Dealer in Developing Government Bond Market **at Nakula Room**
- ✍ Use of Government Bond Repo in Open Market Operation **at Sadewa Room**

14.30-15.00: b. Group discussion report

15.00 – 15.15: Coffee Break

SESSION 9 Speaker: Mr. Noritaka Akamatsu, Lead Financial Economist, World Bank

15.15- 16.15: a. Trading Market Architecture

This session focus on the market trading architecture, including the applicability and selection of market structure, fair trading and disclosure, efficiency and liquidity issue, risk management issue and so on. At the same time, the relation between government bond market trading architecture and monetary policy operation would be discussed in this session.

16.15 – 16.45: b. Q & A Session

SESSION 10 **Speaker: Mr. Ismail Dalla,** Principal Financial Sector Specialist, Asian Development Bank

16.45 – 17.15: a. General Introduction to Regional Bond Market Initiatives : Asian Bond

Official will describe the background and present status of the Asian Bond Market Initiatives. The description would include the topics such as what is Asian Bond, how to build up the Asian Bond market, and its significance to the APEC economies.

17.15 – 17.45: b. Q & A Session

17.45 - 18.00: **Concluding Session**

18.00 - 18.15**:** **Closing Ceremony by Deputy Governor of Bank Indonesia**

19.30 - 21.00: **Farewell Dinner hosted by Governor of Bank Indonesia**

Saturday, December 13, 2003

08.00 - 12.00: **Bali Excursion**

15.00: Check Out

Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies

Intercontinental Resort, Bali, Indonesia
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Opening Remarks by
Prof. Dr. Anwar Nasution
At the Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies
Jimbaran-Bali, 11 – 12 December 2003

Distinguished Participants,
Ladies and Gentlemen,

On behalf of Bank Indonesia, and in my capacity as Senior Deputy Governor, let me first off all express my great pleasure at having this opportunity to welcome all delegates from 18 countries in the *Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies*. I am truly delighted to see such a distinguished group of local and international experts gathered in Bali for two days to focus their attention on *Developing Government Bond as Monetary Policy Instruments in APEC Economies*. Let me also take this opportunity to express my deep appreciation to APEC Finance Developing Program (AFDP) and the World Bank for effort made in sponsoring this conference in collaboration with Bank Indonesia.

Furthermore, I would like to express my sincere appreciation to all the distinguished speakers, particularly to Dr. Li Kouqing (baca Li Kou Ching) and Mr. Noritaka Akamatsu, for your willingness to meet our invitation as speakers in this workshop. Your attendance would become an invaluable support for us in the efforts to enhance our understanding of topics that will be discussed in this workshop.

Ladies and Gentlemen,

It is a great honor for me to open and to host this workshop in this exotic island of Bali. I would like to welcome everyone and wish you an enjoyable stay in Bali

while participating in this workshop. I expect that this workshop to be very special for all of us since we are all going to have an intensive and fruitful discussion regarding the use and the process of developing government bond as Monetary Policy Instruments by sharing the experiences of other APEC economies. As the title of this workshop indicates, this event is expected to become a forum for sharing the experience of the participants with respect to Developing Government Bond as Monetary Policy Instruments in APEC economies.

Ladies and Gentlemen,

As we are all aware, International financial organizations have long emphasized the importance of the government debt market and supported local officials in many regions of the world to learn the ways to develop and enhance the markets. A notable recent successful effort was the AFDP Workshop on Developing Government Bond Markets in APEC Economies in Shanghai, China, November 2002. Organized by the APEC Finance and Development Program (AFDP), the World Bank, and International Monetary Fund, the workshop covered an extensive ground on government bonds. This Workshop intends to serve as a continuation of the Shanghai workshop. While the Shanghai Workshop on November 2002 reviewed a broad range of issues in Developing Government Bond Market, the Bali Workshop this time will focus on specific issues related to the central bank, which conducts Monetary Operations by using government securities.

Ladies and Gentlemen,

In fact, not all countries in the Asia Pacific region use government securities as monetary instruments. Some countries still use central bank bills while some others are experimenting with both central bank bills and government securities. The use of government securities as monetary instruments is a country choice. To become an effective instrument there are several requirements and conditions

that have to be met. Those include monetary conditions that enable the central bank to acquire government securities to conduct sell operations, effective coordination in implementation of monetary and fiscal policies and a sound regulatory framework and market infrastructure. Fulfilling those conditions will also result in an important outcome, development of a liquid and efficient secondary government securities market, which by itself is a requirement for the use of government securities as monetary instrument.

Ladies and Gentlemen,

Transition from the use of central bank bills to that of government securities as a monetary instrument is not an easy task. What problems or difficulties may arise in this transition? How can a particular country develop its government securities market before the central bank uses them as a monetary instrument? How successful are the countries in the region in these transitions? The Workshop aims to explore these interesting questions. To conclude the workshop, there will be a session on an overview of Asian Bond Market Initiative as a new common effort of the countries in the region to promote the bond market development.

Ladies and Gentlemen,

We hope that this workshop could achieve the objectives as follows :

- to address roles played by central banks in monetary operations by using government securities;
- to explore experiences of central banks and finance ministries on coordinating primary market issuance of government securities, foreign exchanges reserve management and open market operation, and
- to promote exchange of experiences, ideas, and best-practices among APEC economies from the view of the governments as issuers, central banks and market players.

Hence, I do hope that constructive discussion and knowledge sharing in this workshop will contribute to a better understanding for all of us in developing government bond in its use as a monetary policy instrument.

Thank you.

Bali, 10 December 2003
Senior Deputy Governor of Bank Indonesia

Prof. Dr. Anwar Nasution

Session 1

Overview of Government Bond as Monetary Policy Instruments and Coordination Issues between Public Debt Management and Monetary Policy

Government Bonds as Monetary Policy Instrument & Coordination Issues between Public Debt Management and Monetary Policy

S. Ghon Rhee
K. J. Luke Distinguished Professor of Finance
Executive Director
Asia-Pacific Financial Markets Research Center
University of Hawai‘i

Workshop on Developing Government Bond Market as Monetary Policy Instruments in APEC Economies
December 11-12, 2003, Bali, Indonesia

Gaisai Bond Market In Japan

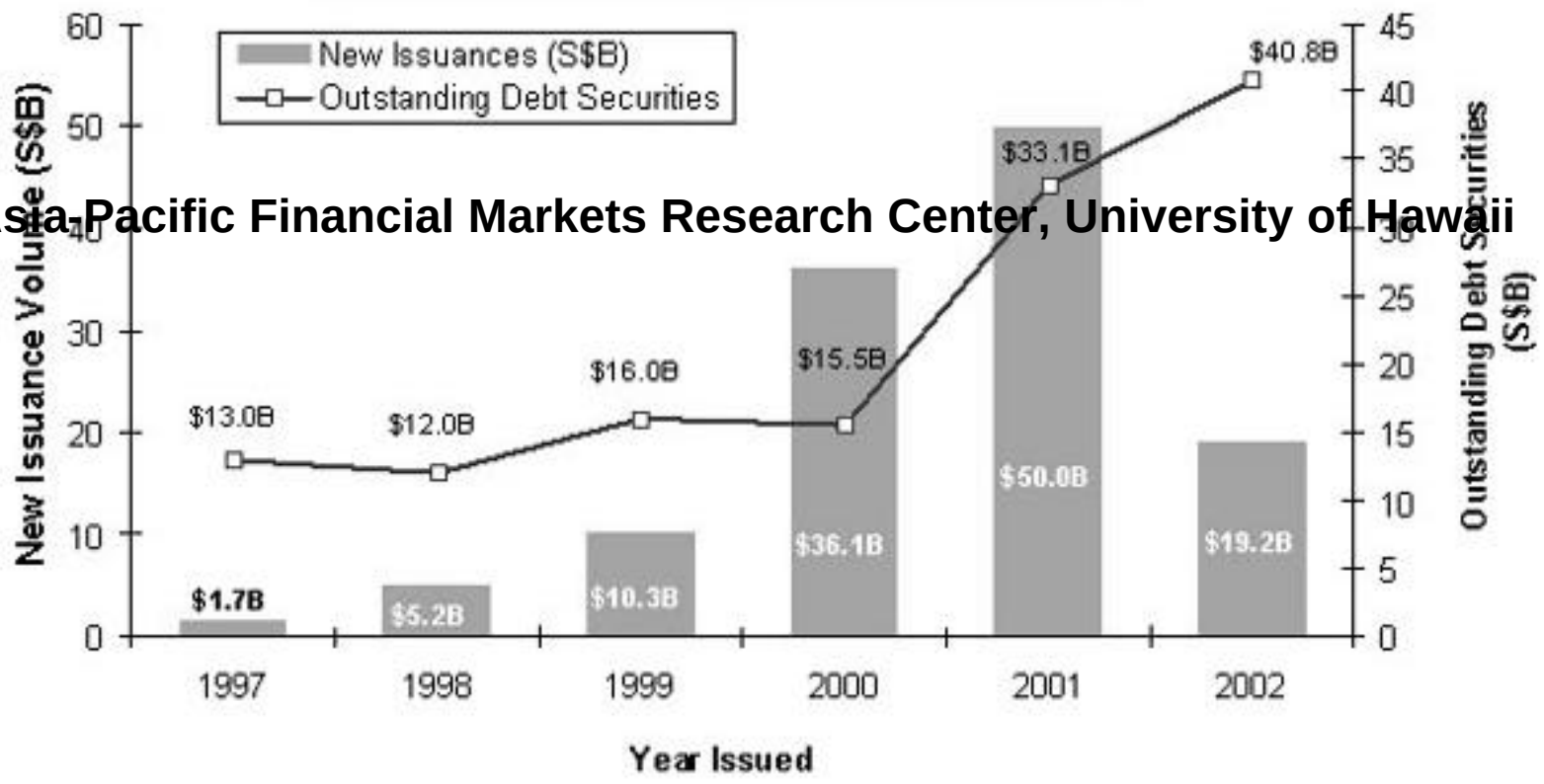
Unit: ¥ trillion

Year	Number of Issues	Samurai Bonds	Number of Issues	Shogun Bonds
1991	27	0.71	1	0.41
1992	37	1.57	0	0
1993	49	1.23	1	0.59
1994	60	1.26	0	0
1995	85	2.11	0	0
1996	154	3.79	0	0
1997	66	1.58	0	0
1998	10	0.15	0	0
1999	24	0.87	0	0
2000	63	2.38	0	0
2001	47	1.55	0	0
2002	29	0.64	0	0

Source: Japan Securities Dealers Association

ADM

Non-S$ Bond Issuance: Asian Dollar Market in Singapore



Asia-Pacific Financial Markets Research Center, University of Hawaii

Source: Monetary Authority of Singapore

End

Why Is the Tokyo Market Struggling?

- During the East-Asian financial crisis: Tokyo market was slow and inactive
- The development of the Gaisai bond market should go in tandem with the development of the Japanese government bond (JGB) market
  - JGB Market:
    Largest in the World with US$4 trillion JGBs outstanding
  - Comprehensive Big Bang Reforms since 1997

- What is the Major Cause of this Problem?

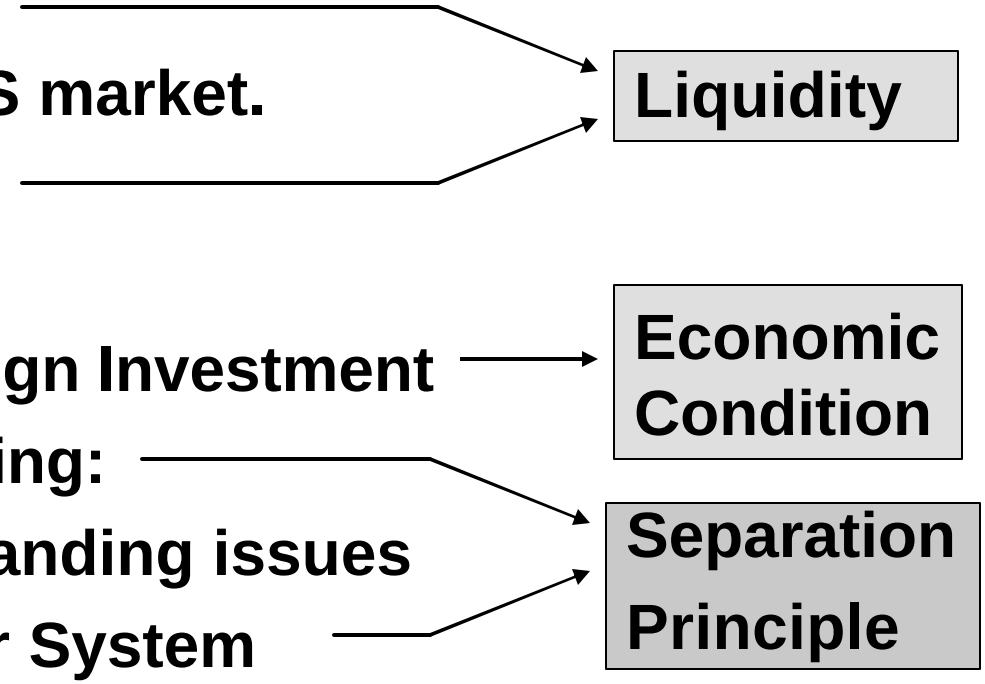
US Treasury and JGB Markets

	Japan	United States
Turnover Ratio	6.9	22.0
Bid-Ask Spread (10-Year Bond)	7.0	3.1
Government Holding (%)	46.3	13.1
Non-Resident Holding (%)	4.5	36.9
No. of Primary Dealers	None	37

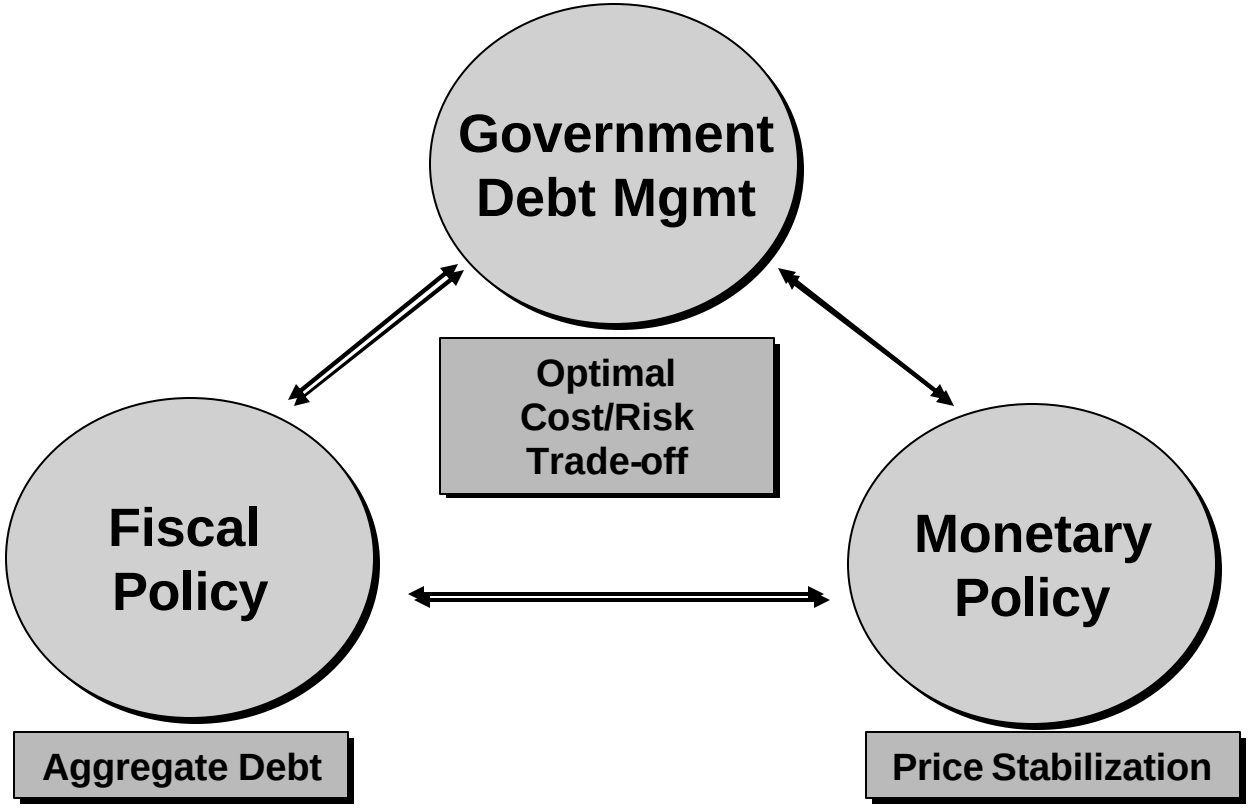
Source: BIS (2001)

Weaknesses in the JGB Market Infrastructure

1. **Turnover Ratio:**
   One-Half of the US market.
2. **Bid-Ask Spreads:**
   Twice As Large.
3. **Insignificant Foreign Investment**
4. **Government Holding:**
   One-Half of Outstanding issues
5. **No Primary Dealer System**



Separation of Government Debt Management from Monetary and Fiscal Policies



Open Market Operations in an Ideal Setting (I)

1. **The central bank can expand or contract bank reserves and money supply and transmit its policy signaling through open market operations**
2. **Two Alternatives in Setting:**
   a. **Target Amount of Bank Reserves with Short-Term Interest Rate Fluctuating**
   b. **Target Short-Term Interest Rate with Bank Reserves Fluctuating**

With well-functioning government bond markets, second alternative becomes the norm among industrialized countries

Open Market Operations in an Ideal Setting (II)

3. **With Liquid and Efficient Government Bond Market**

   a. **Open Market Operations:**
      Secondary Market
      Government Debt Management:
      Primary Market

   b. **Long-term interest rates: Determined by the market by adding appropriate inflation expectation, term premium, and risk premium to the short-term interest rate** hr

   c. **Separation of Government Debt Management from Monetary Policy Can Be Readily Achieved**

   d. **Market Risk is the Major Concern for Government Debt Management**

   e. **Easier Transmission of Signaling Effect of Monetary Policy**

Historical Rates of Returns: US Market (1950-2000)

Inflation	4.25%
Treasury Bills	4.38%
Treasury Notes	5.28%
Treasury Bonds	5.34%
AAA Corporate Bonds	5.52%
Large Company Stocks	13.00%
Small Company Stocks	15.92%

Source: Ibbotson (2002)

end

Open Market Operations with Under-Developed Government Bond Market

a. **Rollover Risk Emerges as the Main Concern while Market Risk Remains Important**
b. **Separation between Monetary Policy and Government Debt Management and between Monetary Policy and Fiscal Policy Becomes More Difficult**

Conflicts between Monetary Policy and Government Debt Management (I)

a. **Monetary Policy Goal:**

   Price Stabilization

   Government Debt Management Goal:

   Optimal Trade-off between Cost and Risk

b. **Conflicts Deepen with Under-Developed Government Bond Market and Fiscal Deficits**

Conflicts between Monetary Policy and Government Debt Management (II)

Classic Example

Short-term or floating-rate domestic debt

Inflation-indexed bonds iib

Foreign currency debt

- **Preferred by the Central Bank**
- **Feared by the Government Debt Management Office ….. Rollover Risk triggered by External Shock** rr

Inflation-Indexed Bonds (I)

Designed to protect the bonds' purchasing power by adjusting interest and principal payments to an index of price changes

Inflation-Indexed Bonds

a. The real return is certain but the nominal return is uncertain at the time of purchase
b. Government assumes purchasing power risk

Nominal bonds

a. The nominal return is certain, but the real return is uncertain
b. Investors assume purchasing power risk

Inflation-Indexed Bonds (II)

Pros

a. Complete Financial Markets by Providing Truly Risk-Free Securities
b. Increase Credibility of Monetary Policy by Extending Maturity of Government-Issued Securities
c. Fostering Development of Long-Term Government Bond Markets
d. Cost Savings for Issuers
e. Increase Savings Rate.
f. Mitigate Wealth Transfer caused by Unanticipated Inflation between Creditors and Debtors

Fisher/Keynes/Alchian-Kessel Hypothesis

With "+" Unanticipated Inflation:	Debtors Gain at the Expense of Creditors
With "-" Unanticipated Inflation:	Creditors Gain at the Expense of Debtors

Inflation-Indexed Bonds (III)

Proponents: Marshall, Fisher, Keynes, Friedman, and Barro

Inflation-Indexed Bonds First Issued by:

Australia (1985), Canada (1991), New Zealand (1995), United Kingdom (1981), United States (1997), Japan (Planning)

In US: Known as

Treasury Inflation-Indexed Securities (TIIS) or
Treasury Inflation-Protected Securities (TIPS)

As of June 2003:

US$155 Billion: Outstanding TIIS
US$3.38 Trillion: Outstanding Treasury Securities
US$350 billion: Worldwide Inflation-Indexed Bonds Outstanding

Inflation-Indexed Bonds (IV)

Q.1: Why are Inflation-Indexed Bond Issues Small and Issued infrequently?

Q.2: Why Don't Corporations Issue Such Bonds?

Cons

a. Cost Savings:

Negligible or non-existent

b. Perpetuate Inflation

end

Looking Back: The East-Asian Financial Crisis

Reversal of Capital Flows to Five Crisis-Affected Economies ($105-$110 billion) was the trigger of Rollover Risk

a. **Less than 5% of Pre-Crisis Combined Domestic Savings of $2.3 Trillion**
b. **Only 1/6th of Pre-Crisis Foreign Exchange Reserves of $700 Billion**

Accumulated by 5 Crisis-Affected Economies Plus China, Hong Kong, Japan, Singapore, and Taiwan

end

Dual Role of Japan's MOF

Japan's Ministry of Finance is the Issuer and Buyer of JGBs

a. Government owns approximately one-half of US$4 trillion JGBs Outstanding
b. JGB Issues (US$330 billion) in 2003 account for 45% of Fiscal Revenue
d. Fiscal deficits in 2003: 7.4% of GDP expected GD
e. MOF's Dual Role is attributed to

Fiscal Investment and Loan Program (FILP)

Government Debt and Fiscal Balances

	Japan	United States	United Kingdom
Government Debt /GDP(%)			
2000			
2001			
2002			
2003*			
Fiscal Balance /GDP(%)			
2000			
2001			
2002			
2003*			

* Estimates

Source: IMF, *World Economic Outlook* (September 2003)

End

Fiscal Investment and Loan Program Prior to 4/1/2001

a. **MOF is effectively the largest fund manager in the world, managing total assets of US$3.5 trillion**

b. **Sources of FILP Funds**

   Postal Savings Deposits and Employees' Insurance Deposits prior to April 1, 2001

c. **Uses of FILP Funds**

   FILP-Dependent Enterprises*, Municipal Governments, and Government-Owned Banks through MOF's Trust Fund Bureau….Extension of the Fiscal Budget

* **Transportation, Education, Utilities, Housing, Roads, Bridges, Airports, SMEs**

Fiscal Investment and Loan Program After 4/1/2001 (I)

a. Postal Savings Deposits, Employees' Insurance Deposits, and other Pension Premiums: "Theoretically" no longer sources of FILP funds
b. FILP-Dependent Enterprises must raise funds (FILP-agency bonds or FILP bonds) with and without government guarantees on "market principles"
c. Transparency of FILP-Dependent Enterprises Promoted

Fiscal Investment and Loan Program After 4/1/2001 (II)

d. Cynical View of These Reforms

1. **No Difference before and after**

   Because Postal Savings System and Postal Life Insurance, and Government Pension Funds are Major Buyers of FILP-agency bonds and FILP bonds [Cargill and Yoshino (2002)]
2. **75% of FILP Loans are Non-Performing;**

   Estimated Losses = ¥75 trillion (=US$680 billion) or 15% of GDP [Doi and Hoshi (2002)]

Negative Consequences: MOF's Dual Role

A. Primary Market:

The lack of intense competition

B. Secondary Market:

Additional uncertainty on long-term interest rates

Fiscal Investment and Loan Program blurs the distinction among government debt management, monetary and fiscal policies in Japan

What Are Practical and Operational Reasons for Developing Government Bond Markets?

1. To Finance Fiscal Deficits
2. To Sterilize Large Capital Inflows

Turner (2002) and Mihaljek et al. (2002)

Fiscal Deficits in Emerging Market Economies (I)

1. **IMF expresses its concern about increasing public debt in emerging market economies [*World Economic Outlook* (2003)]** weo

Public debt:
- **a. Liabilities of central government**
- **b. Liabilities of municipal governments**
- **c. Public sector enterprises**
- **d. Government contingent liabilities (loan guarantees, public sector pension liabilities, and costs of bank recapitalization)**

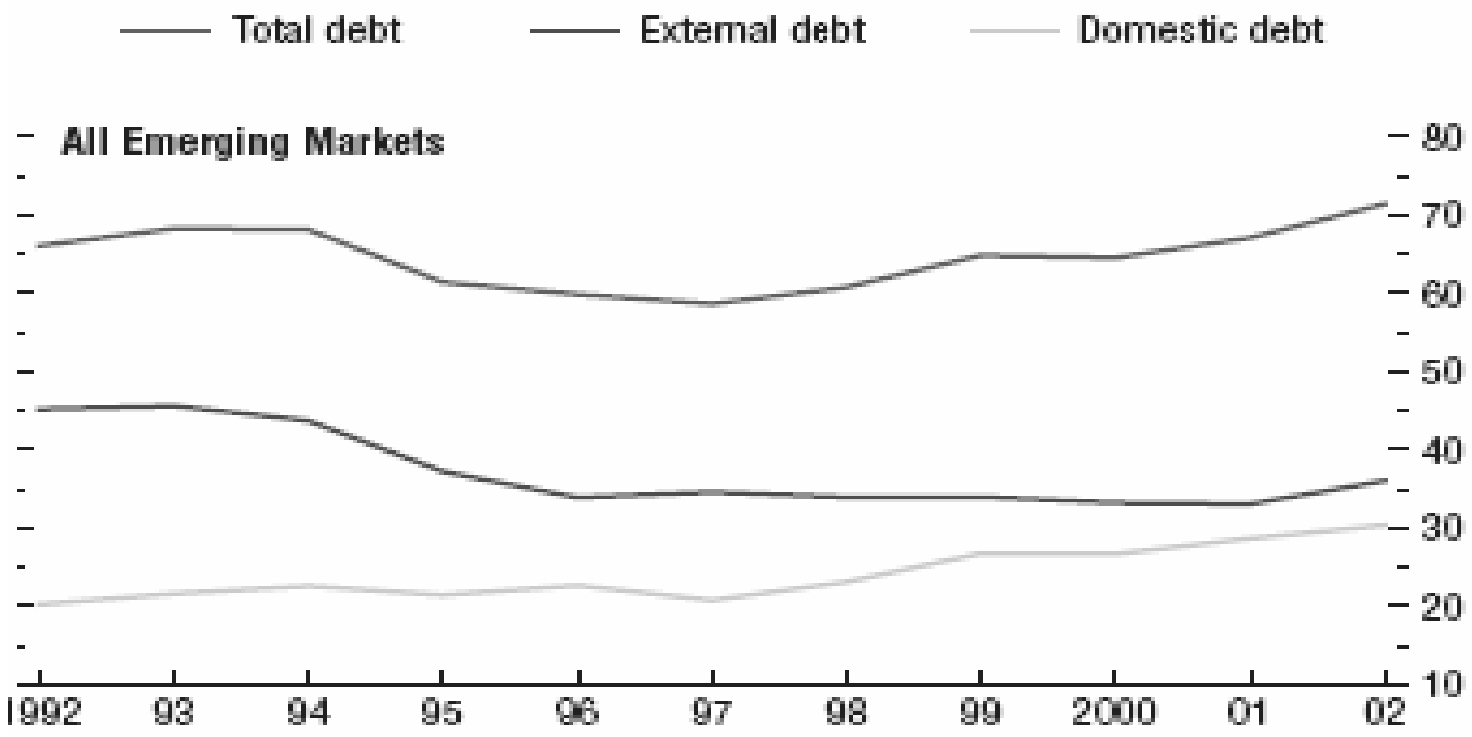
2. **High Level of Public Debt:**

i. raises the risk of fiscal crisis in some countries
ii. increases government borrowing costs
iii. discourages private investment

Figure 3.1. Public Debt In Emerging Market Economies[1]

(Percent of GDP)

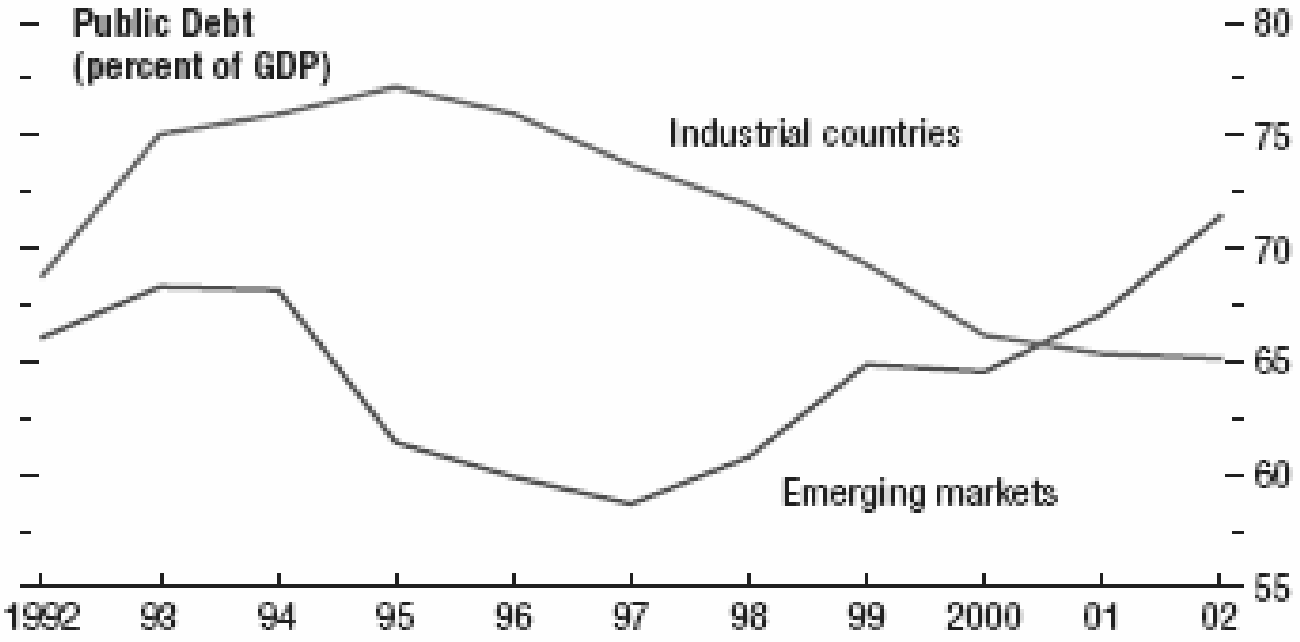
Public debt has risen across a broad range of emerging market economies since the mid-1990s. This rise has been due to domestic debt, which now accounts for nearly one-half of total debt.



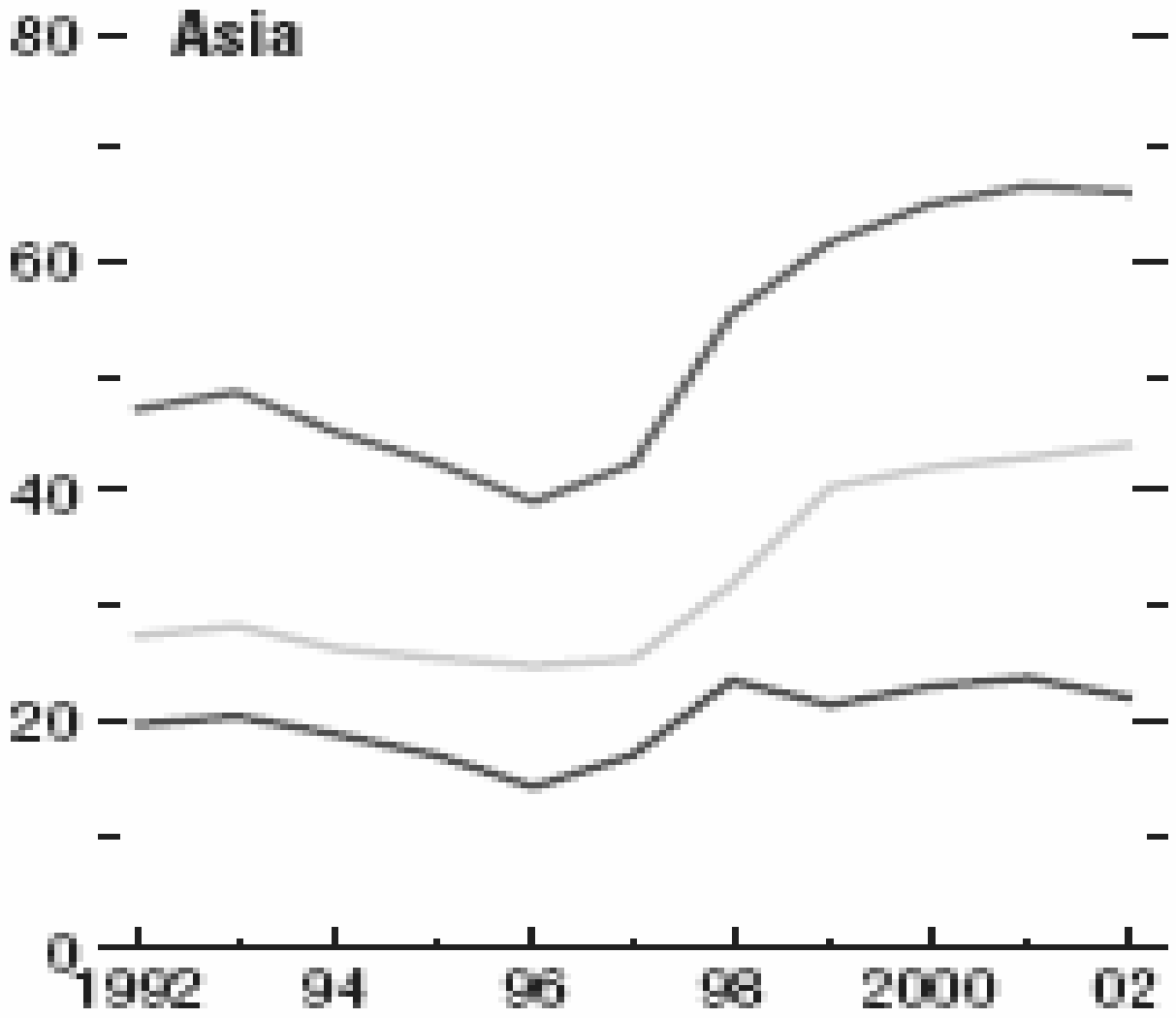
Source: IMF, WEO (2003)

Figure 3.2. Comparison of Public Debt Levels in Emerging Market and Industrial Economies[1]

Public debt in emerging market economies is now higher than in industrial countries when compared to GDP, and is significantly higher in relation to government revenues. External debt also accounts for a higher proportion of public debt in emerging markets.



Source: IMF, WEO (2003)



Source: IMF, WEO (2003)

End

Emerging Market Economies in Asia

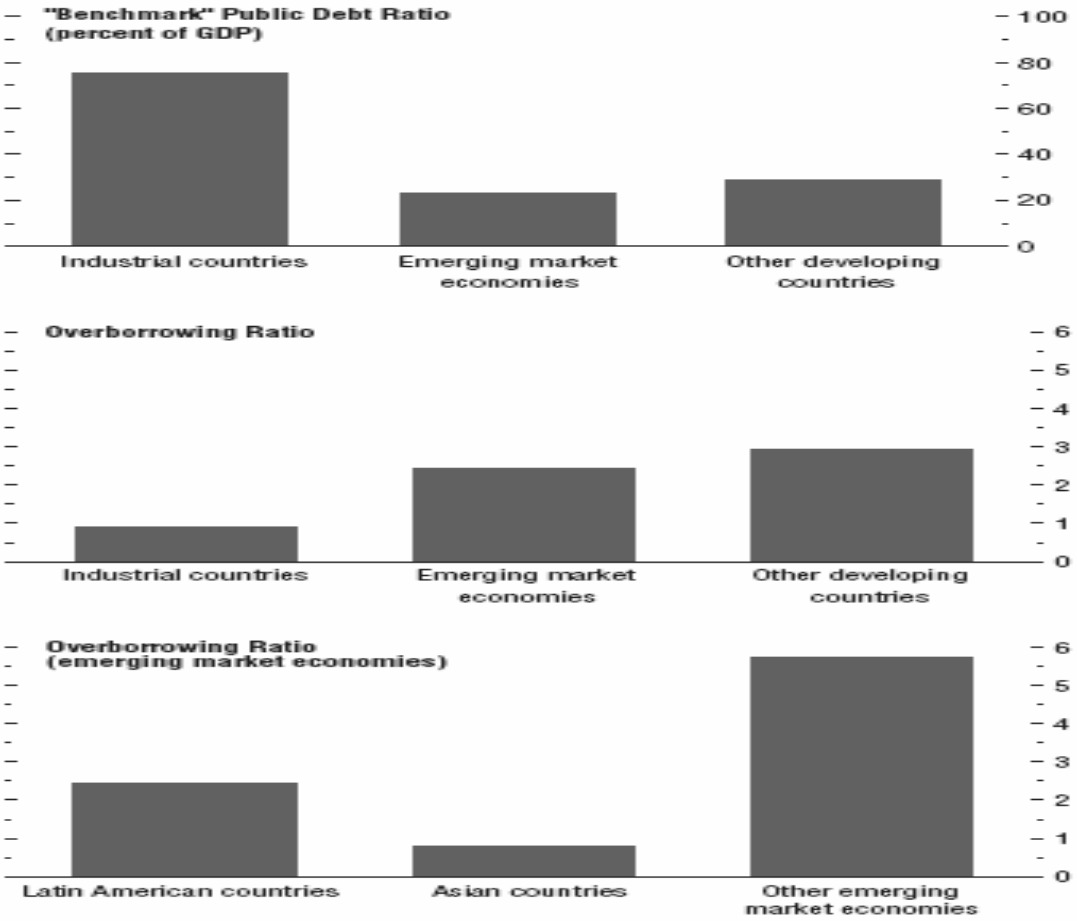
1. Better Public Debt Sustainability than Emerging Market Economies in Other Regions **OBR**
2. Post-Crisis Management of Banking and SOE Sectors Requires Continuous Issuance of Government Bonds
3. Sound Market Infrastructure Development Under Progress: India, Indonesia, Korea, Malaysia, Singapore, Thailand

Government Bond Markets Will Grow in Asia

Figure 3.11. Do Governments In Emerging Market Economies Overborrow?

(Median values)

Governments in emerging market countries have a tendency to overborrow; however, there are important regional differences.



Source: IMF staff estimates.

Source: IMF, WEO (2003)

End

Sterilization of Capital Inflows (I)

1. **Increasing capital inflows are not necessarily good news**
   a. Appreciate the local currency
   b. Undermine the competitiveness of export industries
   c. Cause inflation to rise
2. **Central banks tend to rely on short-term debt instruments for sterilization with under-developed government bond market**
   a. Drive up short-term interest rates
   b. Encourage further capital inflows
   c. Heavy burden on government debt servicing cost
   d. Make open market operations more difficult

Sterilization of Capital Inflows (II)

3. Temporary Solutions [Lee (1996)]

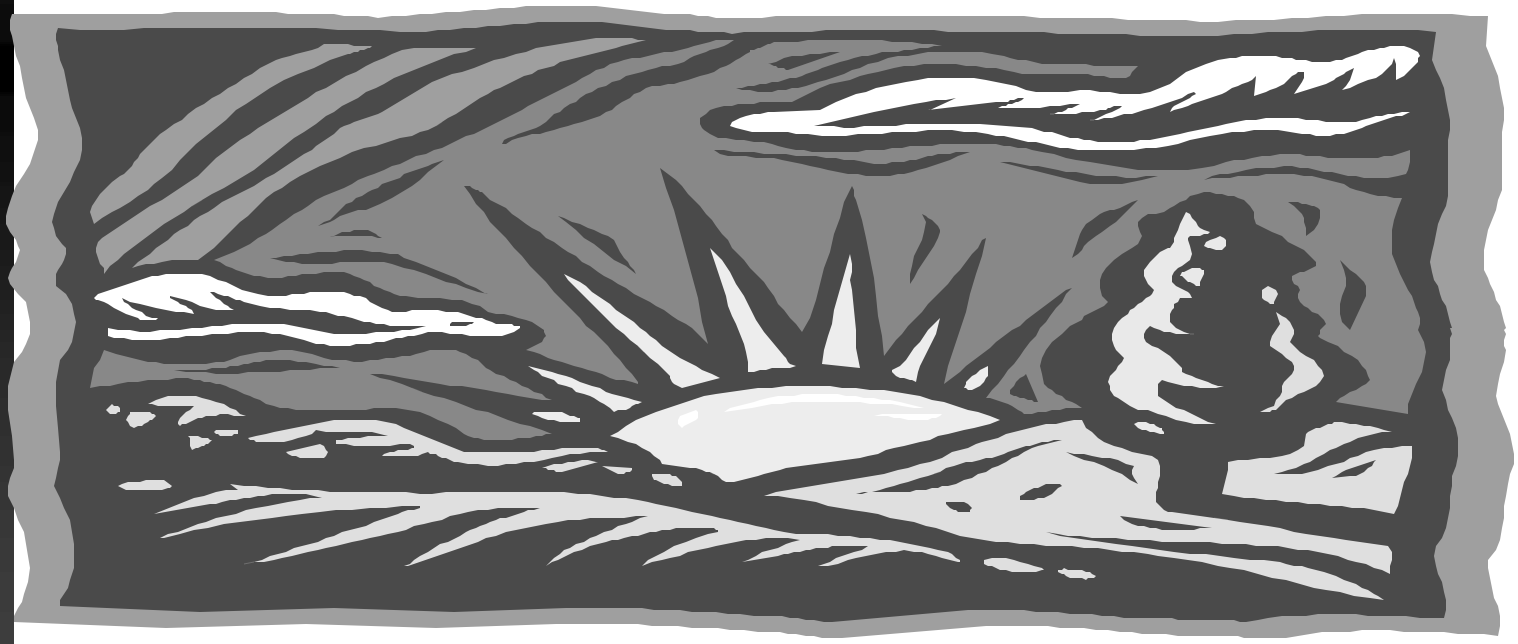
Thailand:	**Fiscal adjustment and Switch government deposits from commercial banks to central bank**
Chile, Colombia, and Spain:	**Eased restrictions on capital outflows and Flexible exchange rate regime**
Colombia and Korea:	**Accelerated trade liberalization**
Indonesia:	**Foreign exchange swaps**
Other Countries:	**Many variations of direct policy instruments such as variable reserve requirements on certain categories of foreign borrowing**

4. Most Effective Solution

Develop Long-Term Government Bond Markets!

Thank You!

For Further References, Please visit http://www2.hawaii.edu/~rheesg



Open Market Operations with Shrinking Government Bond Markets (I)

1. **Government Debt to GDP of Industrialized Countries (excl. Japan):**
   - **45% in 1995**
   - **40% in 1999**
2. **Improved Fiscal Balance: Shrinking Government Debt Market**
   - **Australia, Canada, Germany, Sweden, United Kingdom (no longer)**
   - **United States (no longer)**

Open Market Operations with Shrinking Government Bond Markets (II)

3. **Reasons for Using Government Bonds in Open Market Operations**
   a. **Liquidity**
   b. **Zero Credit Risk**
   c. **Minimization of Influencing Private Sector Credit Allocation**
4. **Simple Solution for Shrinking Government Bond Issues**
   a. **Broaden the Range of Securities Accepted as Collateral in REPOs and Reverse-REPOS [Zelmer (2001), Wheelock (2002)]**
   b. **Foreign Exchange Swaps**

Biography of Mr. S. GHON RHEE

K. J. Luke Distinguished Professor of International Finance and Banking and
Executive Director of Asia-Pacific Financial Markets Research Center
University of Hawai'i

Dr. Rhee received his BA from Seoul National University Law School, MBA from Rutgers University, and Ph.D. from Ohio State University. He is the K. J. Luke Distinguished Professor of International Finance and Banking and serves as Executive Director of the Asia-Pacific Financial Markets (FIMA) Research Center at the University of Hawai'i. The overall objective of the FIMA Research Center is to spearhead both academic and policy research on financial markets development in the Asia-Pacific region, integrating the academic and practitioner viewpoints. The FIMA Research Center is globally recognized as a leading research institute in the area of Asian financial markets and banking systems and it is the home of ***Pacific-Basin Finance Journal***, a premier academic journal focusing on Asia-Pacific capital markets and financial systems.

He is a member of the U.S. National Committee for Pacific Economic Cooperation (USNCPEC). He is a founding member of the Asian Shadow Financial Regulatory Committee (ASFRC). This committee is a part of the Global Shadow Financial Regulatory Committees which include the committees of United States, Europe, Japan, Latin America, and Asia. The ASFRC is charged to identify and analyze developing trends and ongoing events in Asia that may affect the efficiency and safe operation of financial markets and the financial services industry; to explore the spectrum of short- and long-term implications of emerging problems and policy changes; to help develop private, regulatory and legislative responses to problems that hinder efficiency; and to assess and respond to proposed and actual public policy initiatives with respect to the impact on the public interest .

Before he joined the University of Hawai'i in August 1999, he was Resident Scholar (1997-1999) of the Asian Development Bank and a Professor of Finance and Director of the Sandra Ann Morsilli Pacific-Basin Capital Markets (PACAP) Research Center of the University of Rhode Island. He also taught at University of Pittsburgh, Carnegie-Mellon University, Ohio State University, University of Zagreb, and Hanoi School of Business.

As Resident Scholar of the Asian Development Bank, he spearheaded research programs on Asian financial crisis, mortgage-backed securities markets, and government bond markets. He was involved with financial sector reform programs for Thailand, Indonesia, and Korea as part of the International Monetary Fund's support packages.

He serves as Managing Editor of ***Pacific-Basin Finance Journal***. His research has been published or forthcoming in numerous academic journals, including: ***Journal of Finance, Journal of Financial and Quantitative Analysis, Journal of Accounting and Economics, Journal of Risk and Insurance, Journal of Financial Services Research, Journal of International Business Studies, Decision Sciences, Managerial and Decision Economics, Financial Management, Journal of Business Finance & Accounting, Pacific-Basin Finance Journal***, etc. He has published over 50 academic papers and edited or authored 17 books on Asian financial markets, including:

- *The Feasibility of Creating Mortgage-Backed Securities Markets in the Asia-Pacific Region* (Manila, Philippines: Asian Development Bank, 2000)
- *Rising to the Challenge in Asia: A Study of Financial Markets* Volume 1-12 (Manila, Philippines: Asian Development Bank, 2000)
- *Pacific-Basin Capital Markets Research* Volumes I, II, and III (Amsterdam, Netherlands: North-Holland)
- *Dynamic Asian Securities Markets and Systemic Risks* (Paris, France: Organization for Economic Cooperation and Development, 1992).

He is a board member of the Asian Finance Association, an association of academic researchers with research interests in Asian finance. He was the founding president of the *Pacific-Basin Financial Management Society*, an academic association created to promote academic research on the region's financial and capital markets. He also served as a board member of the *U.S. Financial Management Association*. He served as Program Chair of the *Annual Pacific-Basin Finance Conferences*, 1989-1997.

Dr. Rhee consulted for a number of international institutions such as Asian Development Bank, Asian Development Bank Institute, International Chamber of Commerce, International Monetary Fund, Organization for Economic Cooperation and Development, Securities and Futures Commission of Hong Kong, United Nations Industrial Organization, U.S. Agency for International Development, Kuala Lumpur Stock Exchange, Jakarta Stock Exchange and a number of financial institutions in the Asian and Pacific Region.

Recently, he received the 2001 Archimedes Award from University of Catania (Sicily) and Erasmus University (Netherlands) for his contribution to academic research on Asian capital markets.

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Session 2

The Role of the Central Bank in Developing Money Markets

Development of Money Markets

Michael Taylor

International Monetary Fund

Monetary and Financial System Department

Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies

Bali December 11-12, 2003

Overview of Presentation

1. Benefits of money markets
2. Conditions for money market development
3. Role of central bank in developing money markets
4. Coordination between monetary operations and government cash management

Benefits of Money Markets

- Promote financial stability and development
  - Financial institutions can cover their short-term liquidity needs
  - Facilitate development of a liquid bond market

    Reason: Enable to obtain regular financing of bond inventories to carry out their market making function

Benefits of Money Markets (cont.)

Consequently……money markets could help to

- Reduce the need to use monetary financing / foreign currency debt
- Reduce the cost of government financing (lower liquidity premium)

Benefits of Money Markets (cont.)

Moreover….. effective monetary policy

- First step of transmission of monetary actions to economy
- Money market rates are a useful indicator of expectations regarding future monetary actions

Conditions for Money Market Development

- Conditions for developing a well-functioning money market:

– Financial institutions commercially motivated to to actively manage risk and maximize profits.

– Sound financial institutions.

– Use of indirect monetary policy instruments.

– Sound government cash management and good coordination.

Role of the Central Bank

- Stability oriented monetary policy
- Liquidity management of central bank
  - affects the stability of the money market

    and
  - the incentives to use the money market to manage risk

Role of the Central Bank (cont.)

- Standing facilities
  - penalty rates should provide incentives for interbank activity
  - wide enough corridor should encourage trading

Role of the Central Bank (cont.)

- Open market operations
  - foster the development of secondary markets
  - foster collateralized money markets (repos, buy/sell backs)
  - Need for coordination

Role of the Central Bank (cont.)

- Resources for Open Market Operations
  - Add-ons to Treasury Auctions
  - Central bank paper
  - Deposits from banks for intervention purposes

Role of the Central Bank (cont.)

- Reserve requirements

  Trading in overnight market will be influenced by

  – Length of reserve maintenance period

  – Averaging provisions for meeting reserve requirements

Role of the Central Bank (cont.)

- Importance of accurate liquidity forecasts
  - Liquidity management decision are based on liquidity forecasts
  - Govt. cash flows large impact on the autonomous component of liquidity supply
  - Often difficult to predict govt. cash flows

Coordination between monetary operations and govt. cash management

Government cash flows often unpredictable

- can be a major source of uncertainty in liquidity management
- adds volatility

To reduce volatility

- Coordination central bank ↴ government

*Effective **information-sharing** and **coordination** between CB, MoF, and debt managers is **critical** (see Guidelines for Public Debt Management)*

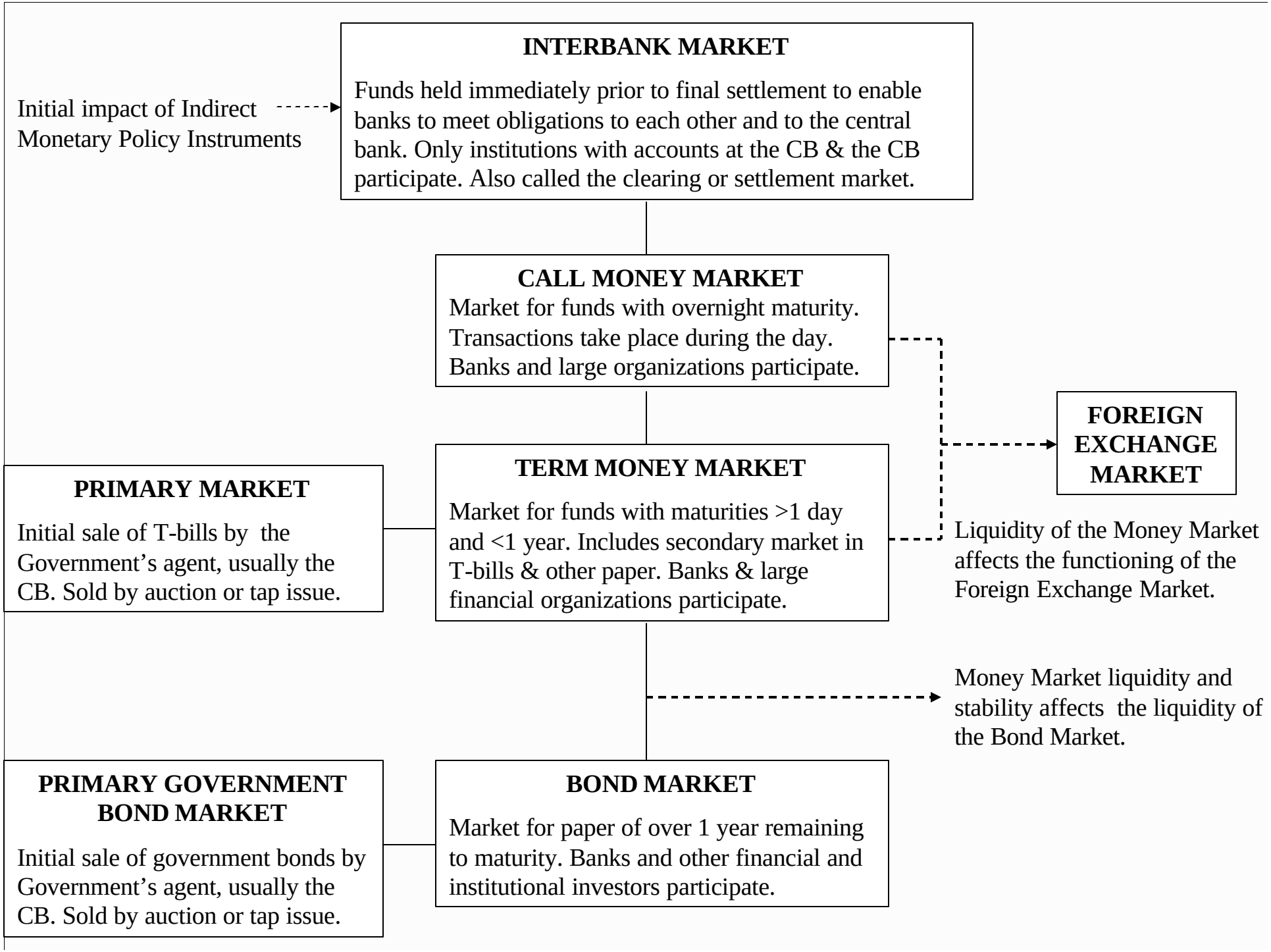
Coordination between monetary operations and govt. cash management (cont.)

- Ways of coordination
  - CB acts as fiscal agent – information of debt calendar is available.
  - Govt. shares cash flow projections with CB on a daily basis and promptly informs about new information (liquidity-forecasting committee can be useful).
  - Uncertainty is reduced when overdraft is limited or prohibited and govt. deposits not held with CB (but: problem when banks are weak).

Summary

Factors for money market development:

- Profit oriented and sound banks
- Monetary operations through market based instruments
- Incentive structure for interbank trading provided through CB’s operating procedure
- Coordination between government cash management and monetary operations


INTERBANK MARKET
Funds held immediately prior to final settlement to enable banks to meet obligations to each other and to the central bank. Only institutions with accounts at the CB & the CB participate. Also called the clearing or settlement market.
Initial impact of Indirect Monetary Policy Instruments
CALL MONEY MARKET
Market for funds with overnight maturity. Transactions take place during the day. Banks and large organizations participate.
FOREIGN EXCHANGE MARKET
Liquidity of the Money Market affects the functioning of the Foreign Exchange Market.
PRIMARY MARKET
Initial sale of T-bills by the Government's agent, usually the CB. Sold by auction or tap issue.
TERM MONEY MARKET
Market for funds with maturities >1 day and <1 year. Includes secondary market in T-bills & other paper. Banks & large financial organizations participate.
Money Market liquidity and stability affects the liquidity of the Bond Market.
PRIMARY GOVERNMENT BOND MARKET
Initial sale of government bonds by Government's agent, usually the CB. Sold by auction or tap issue.
BOND MARKET
Market for paper of over 1 year remaining to maturity. Banks and other financial and institutional investors participate.

Biography of Mr. MICHAEL WILLIAM TAYLOR

Date of Birth: 6 July 1962

Marital Status: Married (to Lee Chung Chan), no children.

Address for Correspondence:

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International Monetary Fund
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Washington DC 20431 USA

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Education and Qualifications:

BA, Philosophy, Politics and Economics, Oxford University (first class honors).

D Phil, Oxford University.

Postgraduate Diploma in Law, Middlesex University (commendation; winner Cavendish prize.)

Languages:

French (good), German, Spanish, Mandarin Chinese, Bahasa Indonesia.

Employment:

Present: *Financial Sector Issues Representative, International Monetary Fund Jakarta Office, Jakarta, Indonesia.*

Responsible for overseeing the implementation of the financial sector elements of the Fund programme (bank restructuring, asset disposals, return of banks to private sector ownership), providing policy advice on the design of a modern financial safety net, and for managing the work of four technical assistance advisors working on banking supervision and financial stability projects with Bank Indonesia.

Senior Economist, Systemic Banking Issues Division, International Monetary Fund. (1999-2002)

Financial sector policy work relating to the design and implementation of financial safety nets (lender of last resort, deposit insurance) and bank restructuring strategies in Fund programme countries. Countries worked on include Argentina, Iran, Pakistan, and Thailand. Represented the Fund on the Financial Stability Forum Working Group on deposit insurance.

Previous: Reader in Financial Regulation, International Securities Markets Association Centre, Reading University, England (1997-99)

Reader in Financial Regulation, London Guildhall University (1995-97).

Analyst/Manager, Bank of England (1989-95).

Main experience in banking supervision policy. Also represented the Bank on the Eurocurrency Standing Committee (now Committee on the Global Financial System) Working Group on derivatives disclosure (the "Fisher Group.")

Lecturer, Lincoln College, Oxford (1986-89).

Other Activities:

Member of editorial board, *Journal of International Banking Regulation* .

Founding editor, *The Financial Regulator* (editor from 1996-99)

Associate editor, *FT Financial Regulation Report* (1997-1999)

Honors and awards:

Visiting Professorial Fellow, Centre for Commercial Law Studies, University of London.

Visiting Professor, London Guildhall University

Visiting Fellow, Centre for Euro-Asian Studies, University of Reading

Fellow, Royal Society for the Encouragement of Arts, Manufactures and Commerce (FRSA).

Former Visiting Fellow, Department of Economics, University of Buckingham, England

Publications

Books, Edited Books and Monographs:

Building Sound Banks: Surveillance and Resolution (editor with C Enoch and D Marston, IMF, forthcoming.)

Blackstone's Guide to The Financial Services and Markets Act 2000 (with M Blair et al, 2001).

Transition Economies: Banking, Finance, Institutions (editor with Y Kalyuzhnova, 2001).

Bond Markets: Law and Regulation (editor with T Little and H Parry, 1999)

Blackstone's Guide to the Bank of England Act 1998 (with M Blair, R Cranston M.P. and C Ryan, 1998)

Peak Practice: How to Reform the UK's Regulatory System (London, Centre for the Study of Financial Innovation, 1996).

'Twin Peaks': A Regulatory System for the New Century. (London, Centre for the Study of Financial Innovation, 1995).

Papers:

"US and UK Responses to the Regulatory Challenges of Modern Financial Markets", *Texas International Law Journal*, forthcoming (with Heidi Schooner).

"The New Capital Adequacy Framework: Institutional Constraints and Incentive Structures" (with Cem Karacadag), Societe Universitaire Europeenne de Recherches Financieres (SUREF) Studies, No. 8, Vienna, 2000.

"Issues in the Unification of Financial Sector Supervision", (with Richard K. Abrams), IMF Working Paper 00/213, 2000 (a shortened version is forthcoming in *Current Legal Issues in Central Banking*, IMF Legal Department).

"Convergence and Competition: The Case of Bank Regulation in Britain and the United States" (with Heidi Mandanis Schooner), *Michigan Journal of International Law*, Vol.20, No.4, Summer 1999.

Numerous articles in professional journals including *Butterworths Journal of International Banking and Financial Law*, *The Journal of Financial Regulation and Compliance*, *The Financial Regulator, FT Financial Regulation Report*.

References:

On request.

Session 3

Panel Discussion: Economy Experience in Conducting Coordination between Public Debt Management and Monetary Policy

Coordination of Fiscal / Debt Policy and Monetary Policy in New Zealand

Michael P C Flynn B Com, M Fin, CPA, FAIBF

Project Team Leader of Republic of Indonesia / AusAID Indonesian Debt Management Project

Previous Head of Portfolio Research, NZDMO

Disclaimer: The views expressed in this presentation are those of the author, and do not necessarily reflect the views of New Zealand Government, or the Republic of Indonesia's / AusAID's Indonesian Debt Management Project .

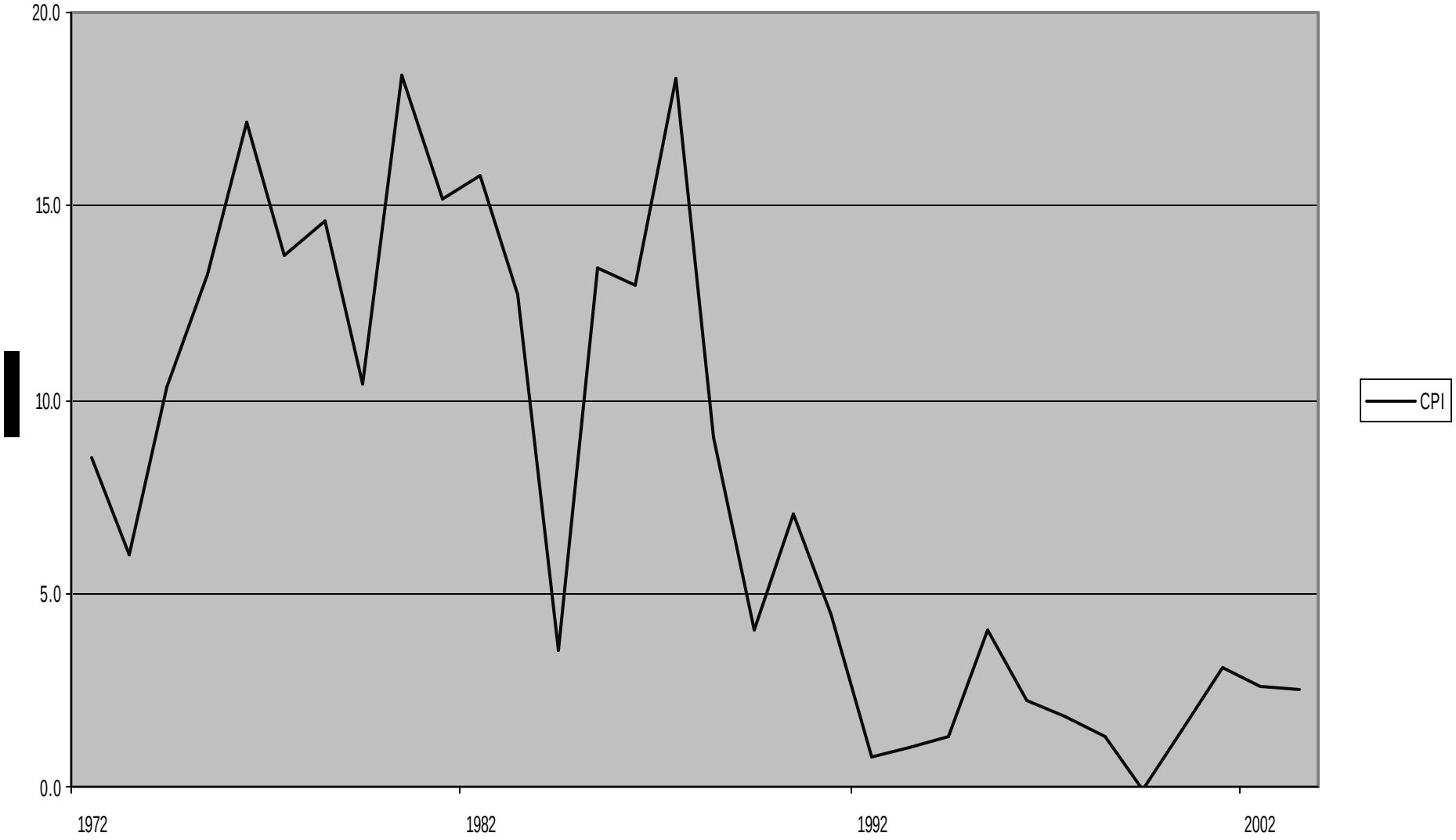
New Zealand Fiscal / Debt Policy and Monetary Policy Coordination

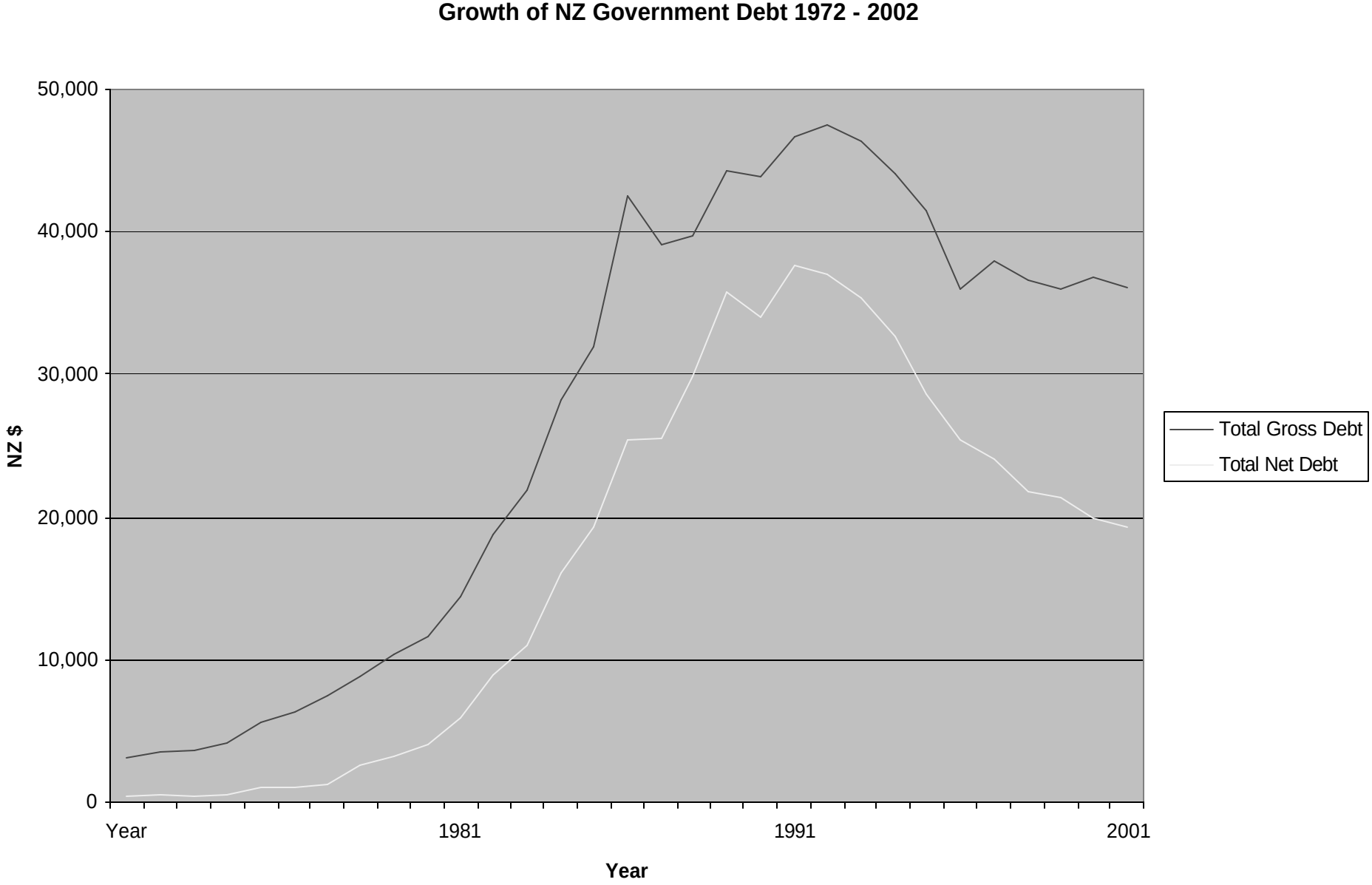
- Background and Context
- Coordination of Fiscal Policy and Monetary Policy
- Coordination of Debt Policy and Monetary Policy

Background and Context

In late 1980s and early 1990s there was significant political momentum to change Fiscal / Debt and Monetary Policy:

- poor economic record in 1970s and crises in 1980s,
- high inflation,
- growth in government debt,
- volatile fiscal balances and poor GDP growth


New Zealand CPI 1972 -2003
20.0
15.0
10.0
5.0
0.0
1972
1982
1992
2002
Year
CPI



Workshop: Government Bonds as
a Monetary Policy Instrument

Coordination of Fiscal/ Debt Policy and Monetary Policy

Framework for coordination of Monetary Policy, Fiscal /Debt Policy set by:

- Reserve Bank of NZ Act 1989
- Fiscal Responsibility Act 1994

Reserve Bank of New Zealand Act 1989

Primary goal is maintaining price stability

RBNZ is exclusively responsible and has operational independence for this goal

Framework assumed:

- Inflation is ultimately a monetary phenomenon
- Fiscal policy has no lasting effect on inflation (except if it subverts monetary policy)

RBNZ responds to developments in the economy, including fiscal and debt policy, that have material impact on price stability

The Fiscal Responsibility Act 1994

Five principles of responsible fiscal management

1. Reduce total Government debt to prudent levels
2. Maintain prudent debt levels: on average, over time, the total operating expenses not exceeding total operating revenues.
3 Maintain an adequate buffer of Government net worth
4. Prudent management of fiscal risks
5 Policies that encourage stability of tax rates.

Government defines definitions such as “prudent” level of debt, or “reasonable” degree of predictability

Government can depart from the principles, if they specify the reasons for departure, the approach and time to return to the principles

Short-term fiscal intentions	**Long-term fiscal objectives**	**Five Principles of responsible Fiscal mgmt**
Expenses, revenues, operating balance, debt, net worth	Expenses, revenues, operating balance, debt, net worth	Debt, revenues/ expenses, net worth, risks & stable tax
Fiscal forecasts	Progress outlooks 10 years	Budget Policy Statement
Cyclical adjusted operating balance	“What if?” long-term fiscal scenarios (typically 50-years)	Fiscal Strategy Report
Fiscal Provisions	Workshop: Government Bonds as a Monetary Policy Instrument	Explain inconsistencies

Coordination of Fiscal and Monetary Policy

In summary Government is required to conduct monetary and fiscal / debt policy with full transparency, but to operate independently

Most major fiscal discretionary changes are reported well in advance; therefore the RBNZ has time to factor them into its macroeconomic assessments and monetary policy settings

Fiscal policy affects demand and inflation:

- direct spending by Government, and
- changes in disposable income through tax and benefits
- At the margin signaling on debt composition.

RBNZ's clear goal allows Treasury to take monetary policy into account in setting fiscal and debt policy

Coordination of Fiscal, Debt and Monetary Policy

A good example of interplay is income tax cuts in 1995.

- Because of rapidly falling government debt ✍ room for income tax cuts
- Income tax cuts would stimulate demand
- Budget Policy Statement that the size and timing of tax cuts would depend on a few conditions including "***there will be no introduction of tax cuts if there are significant inflationary pressure or balance of payments emerging as a result"***
- Government consulted RBNZ and on receiving RBNZ's assessment that tax cuts would not cause significant inflationary pressure

Example of interplay … continued

- **Active consultation between fiscal and monetary authorities, but they did not act in concert**
- In fact demand was greater than anticipated by RBNZ and monetary policy was tightened
- The consultation with the Government had not bound the RBNZ to a particular action

Coordination of Debt and Monetary Policy

Agency agreement between NZDMO and RBNZ assumes:

- Government fully funds its borrowing requirement by sale of debt instruments (no monetization of deficit)
- Government debt sales will not be used to influence market interest rates and thus inflation

Full funding and acceptance of market interest rates makes transparent the full cost of fiscal decisions and keeps monetary and fiscal/ debt policy independent

NZDMO is charged with identifying the best composition of debt that meets the fiscal/debt objectives

Coordination of Debt and Monetary Policy

Under an Agency Agreement the RBNZ acts as NZDMO agent in:

- Selling T Bills, NZ denominated bonds and index linked bonds at competitive auctions
- NZDMO determines auction timetable and amount
- RBNZ has experience and has close relationship with domestic market. The importance of government cash flows to banking system
- RBNZ manages foreign currency reserves

Coordination FX Debt and FX Reserves

Coordination in foreign currency reserves and foreign currency debt management

- The Treasurer can direct RBNZ to intervene in the foreign exchange market
- So far no intervention ✍ reserves held only for a crisis when they would inject liquidity into fx market
- NZDMO independently assessed that optimal FX net debt was zero;
- Coordination between NZDMO and RBNZ in closely matching the characteristics of fx debt and fx reserves
- This makes transparent the cost of holding reserves, as NZ FX borrowing costs is greater than return from highly liquid G3 bonds

Coordination of Debt and Monetary Policy

Without clear separation of debt policy and monetary policy, the central banks are likely to use debt management to lower inflation

- Domestic debt management should be predictable, passive and focused on impact on 5 principles and short term fiscal targets

If debt management subservient to monetary policy

- DMO might be more active and unpredictable, and focused on lowering inflation;
- DMO might have larger net FX debt or inflation indexed bonds to signal that government will not use inflation to decrease real cost of debt. DMO more concerned about cost / risk tradeoff and market acceptance;
- Open market operations may be used to signal for monetary policy; and not a cost / risk decision made by a DMO eg acceptance of a T Bill tender;
- Duration of portfolio may be shortened, as central bank may think long term fixed portfolio signals government's intention to use inflation. Therefore central bank may prefer shorter duration and DMO longer term duration

Independence of the Debt Manager

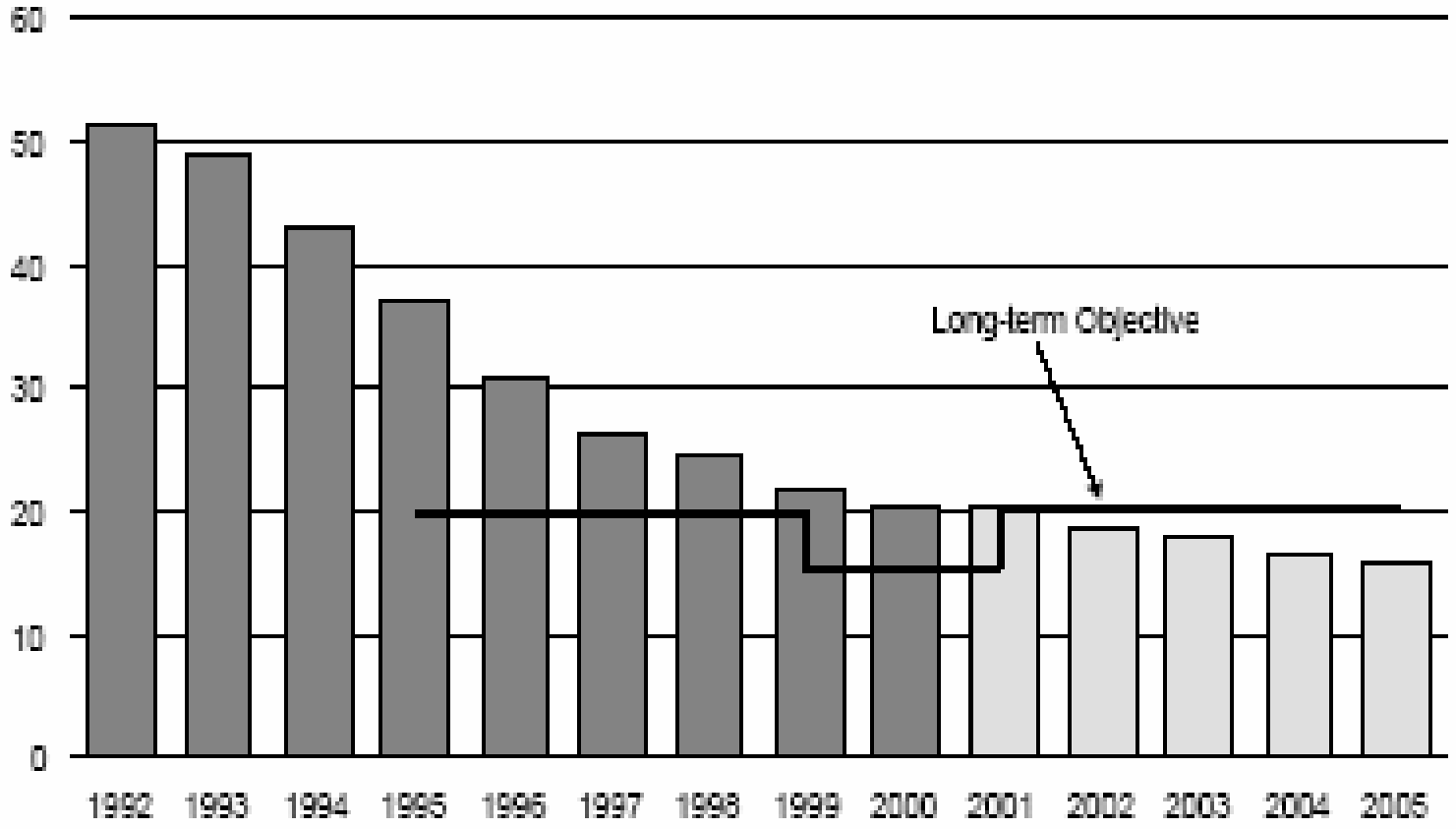
How independent should DMO be?

- NZ chose not to determine monetary and fiscal / debt policy jointly
- Debt policy is independent of monetary policy
- NZDMO needed to be operationally independent when it was actively hedging NZ's large FX debt portfolio and paying down debt 1988 ✍ 1998
- Post 1998 net debt is at prudent levels and there is no net FX debt the DMO is more aligned to Treasury Department
- DMO structure should follow strategy and take into account ability to maintain systems, attract skilled staff and operate prudently

Conclusion

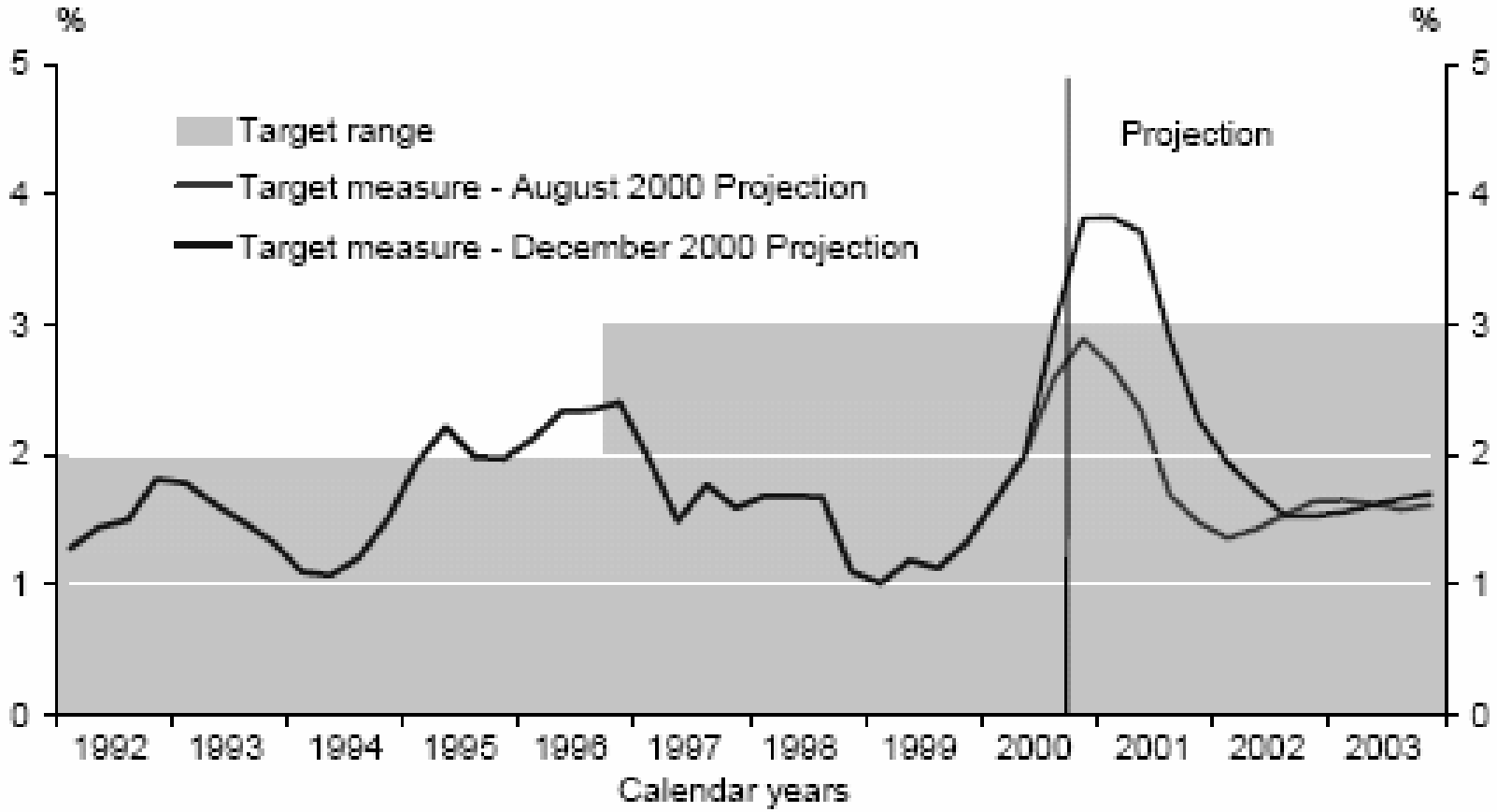
- NZ's approach tailored to its own circumstances
- Initially based on theory, however practice over last decade has been satisfactory
- Recent Review that current system works well and need not be changed – lower inflation; prudent debt levels; three credit upgrades; lower cost of funding; liquid benchmark; diversified investor base; good debt composition
- More explicit coordination would only produce small benefits and reduce operational independence of RBNZ and Treasury /NZDMO
- RBNZ ✍ price stability
- Treasury ✍ Fiscal responsibility including NZDMO who minimize costs to balance sheet within risk limits.

Figure 3 – Net Crown debt: Actual and forecasts (June years, % GDP)



Source: The Treasury, December Economic and Fiscal Update, 2000.

Figure 1.9: Inflation projection, December 2000



References

Independent Review of the Operation of Monetary Policy 2000

Treasury Working Paper: New Zealand's Fiscal Policy Framework: Experience and Evolution 2001 – John Jansen

New Zealand's Experience with Autonomous Sovereign Debt Management 1996 – Graeme Wheeler

Further Questions?

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+62 21 3452562 work

- mpcflynn@bigpond.net.au

Public Finance Reform

- Public sector management reform – organisation flexibility, accountability, and outputs
- State Sector Act 1988 – Department heads on renewable contracts with annual performance, flexibility to pay staff
- Public Finance Act 1989 – appropriates funds on outputs (not inputs) and accruals (not cash). Defines responsibility of NZDMO / Treasury for financing deficit

Biography of Mr. MICHAEL P C FLYNN

Career Summary

A finance and banking senior executive with twenty years experience in all facets in risk management (credit, market and operational), financial control and business planning.

Career highlights: successfully leading the development and implementation of internationally regarded risk frameworks, systems and practices in both banking and public sector.

2002 until present:	Independent consultant and Project Team Leader of the Indonesian Debt Management Project
2000-2002	Global Head of Business Risk, AMP
1996-2000:	Head of Group Operational Risk, Commonwealth Bank of Australia
1993-1995	Head of Portfolio Research New Zealand Debt Management Office
1987-1992	Manager Prudential Control and Planning Manager Financial Control NatWest Markets Australia
1983-1986	Research Officer Australian Commonwealth Public Service, Canberra

Qualifications and Industry Membership

Fellow of the Australasian Institute of Banking and Finance

Associate of the Australian Society of Certified Practicing Accountants

Associate of the Securities Institute of Australia

Past Visiting Fellow to Australian Center for Applied Finance, Macquarie University, Australia

Winner of Australasian Institute of Banking and Finance's annual scholarship

Master of Applied Finance, Macquarie University, Australia

Graduate Diploma in Public Economic Policy, Australian National University

Bachelor of Commerce and Administration, Victoria, New Zealand

Interests and Hobbies

Raising children (three daughters), singing in choirs, watching rugby union, playing touch rugby, reading and gardening.

Philippines' Experience in Conducting Coordination between Public Debt Management and Monetary Policy

Eduardo Sergio Gonzales Edeza

Treasurer of the Philippines

11 December 2003

Presentation Outline

- **Directions on Monetary and Fiscal Policies**
- **Relevant Laws Governing National Government Borrowings in Coordination with the Monetary Authority**
- **Levels of Coordination**
  - **Policy**
  - **Implementation**

Directions of Monetary Policy

- **Market and Structural Reforms**

  - Inflation targeting that has resulted in price stability, low interest rate regime, and a market-determined exchange rate system

- **Fiscal Discipline**

  Fiscal prudence and keeping the fiscal program

Directions of Monetary Policy

- **Further Strengthen the Financial System**

  -Improving risk management practices with the shift to forward-looking and risk-based framework

- **Encourage merger of banks**
- **Institutionalize the Special Purpose Vehicle Act to help reduce the level of non-performing loans**
- **Review of disclosure requirements for banks**

Directions of Monetary Policy

- **Structural Reforms**

  - Thrust toward microfinancing

  - Proposed amendments to the BSP and PDIC charters to improve supervisory powers

- **Good Governance Measures**

  - Anti Money Laundering Measures

  - Strengthened & aligned prudential standards with international norms for corporate governance

Fiscal Policy Directions

- **Fiscal discipline is a key element of the Philippine economic and fiscal program**

- **Streamlining of the tax system continues to be a priority particularly the passage of specific legislation concerning the following:**

  - **Indexation of excise tax on tobacco and alcohol as well as petroleum products**

Fiscal Policy Directions

- **Rationalization of documentary stamp taxes on financial transactions**

- **Introduction of new taxes on the more buoyant sectors of the economy**

Fiscal Policy Directions

- **Pursue administrative and legislative reform measures to sustain growth in revenue collections and meet targets such as the NARA Bill and the conclusion of lifestyle checks at the BIR and BOC**

- **Continue the enhancement of capabilities of the Internal Revenue and Customs Bureaus especially through the use of IT**

Relevant Laws Governing National Government Borrowings in Coordination with the Monetary Authority

- ***Republic Act 245*** **or an An Act Authorizing the Secretary of Finance to borrow to meet public expenditures authorized by law and for other purposes**

(NG seeks full powers from the President after consultation with the Monetary Board on the impact on the monetary aggregates)

Relevant Laws Governing National Government Borrowings in Coordination with the Monetary Authority

- ***Republic Act 1000*** **or an An Act Authorizing the President of the Philippines to issue bonds to finance public works and projects for economic development authorized by law and for other purposes**

(Upon recommendation of the Secretary of Finance after consultation with the Monetary Board)

Relevant Laws Governing National Government Borrowings in Coordination with the Monetary Authority

- ***Republic Act 7653 (Sections 117-129 and other sections related to fiscal functions)*** **this pertains to the issue and placing of government securities, the support of the Bangko Sentral of the government securities market and its functions as the financial advisor as well as the official depository of the government**

(RA 7653 is the New Central Bank Act)

Policy Level of Coordination through the :

- **Development Budget Coordination Committee (DBCC)**

  - a vital institutional link between planning and budgeting in government,

  - ensures the conformity and harmony of the Philippine annual budget with the country's overall development plan

Policy Level of Coordination through the :

- **Development Budget Coordination Committee (DBCC)**

  - involves development planning in the principal fiscal and monetary agency in basic budgetary decision making and the Office of the President for oversight policy linkage and consistency

Policy Level of Coordination through the :

- **Development Budget Coordination Committee (DBCC)**

  This is the venue wherein the National Government presents its borrowing program for approval after discussions on a technical level with the monetary counterparts as to the implication to their monetary policy

Policy Level of Coordination through the :

- **Auction Committee**

  The Auction is being *chaired* by the Secretary of Finance and *vice-chaired* by the Treasurer of the Philippines with the Deputy Treasurers for Operations and Policy and Planning, and representatives from the Department of Finance, Bangko Sentral ng Pilipinas and Securities and Exchange Commission as members.

Policy Level of Coordination through the :

- **Auction Committee**

  Auction Committee convenes at 1:00 P.M. and views the array of bids in the wide screen and deliberates on the yield and volume to be awarded

Policy Level of Coordination through the :

- **Financial Programming and Monitoring Committee**

  The Committee is being chaired by the Bangko Sentral and the National Government, as member, reports the actual fiscal position and projections as well as its borrowing strategies

Implementation Level of Coordination

- **Securing Monetary Board approval for every issuance of government securities as to the impact to the monetary aggregates**

Implementation Level of Coordination

- **Servicing and redemption of the public debt is being effected through the Bangko Sentral ng Pilipinas (The National Government coordinates with the BSP on the schedule of payment and fund sourcing)**
- **Participation of the Bangko Sentral during the roadshow presentations whenever a foreign bond is being issued by the National Government**

The Government of the
Republic of the Philippines

Website: www.treasury.gov.ph

Biography of Mr. SERGIO GONZALES EDEZA

Birthday	**:**	**9 September 1957**
Email	**:**	egedeza@treasury.gov.ph, gioedeza@yahoo.com
Office	**:**	**(632) 527 31 84**
Fax	**:**	**(632) 527 31 79**

Academic Record:
Accepted in 1997 at the John F. Kennedy School of Government – Harvard University to pursue an 11-month Master's Degree Program in Public Policy and Administration.

Master in Business Administration – 1984 (completed academics only)
De La Salle University – Manila, Philippines

Bachelor of Science in Commerce – 1977
De La Salle University – Manila, Philippines

Non-Degree

Advanced Bank Management Program – 1989
Asian Institute of Management – Manila, Philippines

Professional Qualifications:
Certified Public Accountant
Career Service Professional

Current Positions:
Treasurer of the Republic of the Philippines – since 16 February 2001
President - World Association of Debt Management Offices (WADMO) – since 16 February 2001. WADMO is an international organization based in Geneva, Switzerland and funded by the United Nations Conference on Trade and Development (UNCTAD).
Vice-Chair – Auction Committee for Government Securities – since 16 February 2001, Chaired by the Secretary of Finance
Member – Asset Privatization Council - since 16 February 2001
Director – National Development Corporation – October 2002
President – Palacio del Gobernador Condominium Corp. – 2002-2003

Immediate Past Position:
Senior Vice President – Treasury Group, Metropolitan Bank and Trust Co. – Mid 2000 to 15 February 2001, Head of Foreign Currency Division (foreign currency fixed income and currency trading and money markets). 1998 – 2000, Head of funds Management Division (local and foreign currency fixed income and currency trading and money markets). Head of Treasury Information Technology Unit from 1998-2000).

Other Positions Held:
Director and President – ACI Philippines 2001
Director – First Metro International Investment Corporation, Hong Kong 1999-2001
Director – Multicurrency Foreign Exchange Corp. 1999-2001
Director and Board Secretary – ACI Philippines 2000-2001
Director – Money Market Association of the Philippines 1999

Director – ACI Philippines – 2001-2002

Employment History:
Director of the Treasury Department and Treasurer, Central Bank of the Philippines. Head of Reserves Management, Head of Fixed Income, Currency and Gold and Derivatives Trading, Head of Risk Management, Head Treasury IT Unit, and Head of Settlements, Central Bank of the Philippines from 1994-1997

Deputy Director of the Treasury Department and Treasurer, Provident Fund Office, Central Bank of the Philippines – 1992-1993

Deputy Director of the Treasury Department, Head of Risk Management and Management Information Systems, Central Bank of the Philippines 1986-1993

Past Committee Memberships:

Regional
Member – EMEAP Working Group on Central Banking Operations, International Reserves Management – 1996 – 1997. Chaired by the Reserve Bank of Australia and composed of 11 Central Banks.

Local
Member – Auction Committee for Government Securities 1995 – 1997
Chaired by the Secretary of Finance, Republic of the Philippines

Member – Philippine Financial Programming Committee 1995 – 1997
Chaired by the Deputy Governor – BSP

Relevant Workshops and Seminars Attended:

Government Borrowers Forum
Swedish National Debt Office
19-20 May, 2003, Stockholm, Sweden

International Monetary Convention
Reinventing Bretton Woods Committee
13-14 May, 2003, Madrid, Spain

JP Morgan Winter Conference
JP Morgan Chase
26-28 January, 2003, Denver, Co., U.S.A.

Seminar on Sovereign Bonds
Deutsche Bank
Dec. 15-17, 2002, London, United Kingdom

Workshop on Government Securities
The World Bank, IMF and APEC
November 2002, Shanghai, China

Sovereign Debt Management Workshop
The World Bank and AusAid

10-12 October 2002, Bali, Indonesia

Seminar on Fixed Income
Deutsche Bank
12-14 July 2002, Barcelona Spain

12th OECD Workshop on Government Securities Market and Public Debt Management in Emerging Markets
23-24 May 2002, Rome, Italy

First ASEM Public Debt Management Forum
November 2001
Chang Mai, Thailand

1st Central Banks Conference on Reserves Management
Swiss Bank Corporation
16-20 March 1997, St. Moritz, Switzerland

International Reserves Management Seminar
Monetary Authority of Singapore
26-27 February 1997, Singapore

Fixed Income Seminar for Sovereign Institutions
Union Bank of Switzerland
2-7 June 1996, Ermatigen, Switzerland

Foreign Exchange Reserves Management Support Systems
The World Bank
20-22 November 1995, Washington, DC, USA

Citibank Central Banking Seminar
3-7 July 1995
Singapore and Bali, Indonesia

Seminar on Financial Derivatives – Risks, Controls and Procedures
Bank of America
26-27 January 1995
Manila, Philippines

Interest Rate Risk Management
New York Institute of Finance
31 October – 4 November, 1994, New York, NY, USA

North American Derivatives Summit
International Research Institute
22-23 October, 1994, Boca, Raton, Fl. USA

Capital Markets and Treasury Instruments Course
Chase Manhattan Bank
24 February – 7 March, 1994, Manila, Philippines

Central Bank Reserves Management Seminar – Practical Aspects
The World Bank

20-24 January, 1992, Bangkok, Thailand

Open Market Operations as a Monetary Tool
SEACEN Training Centre
19-21 July 1988, Manila, Philippines

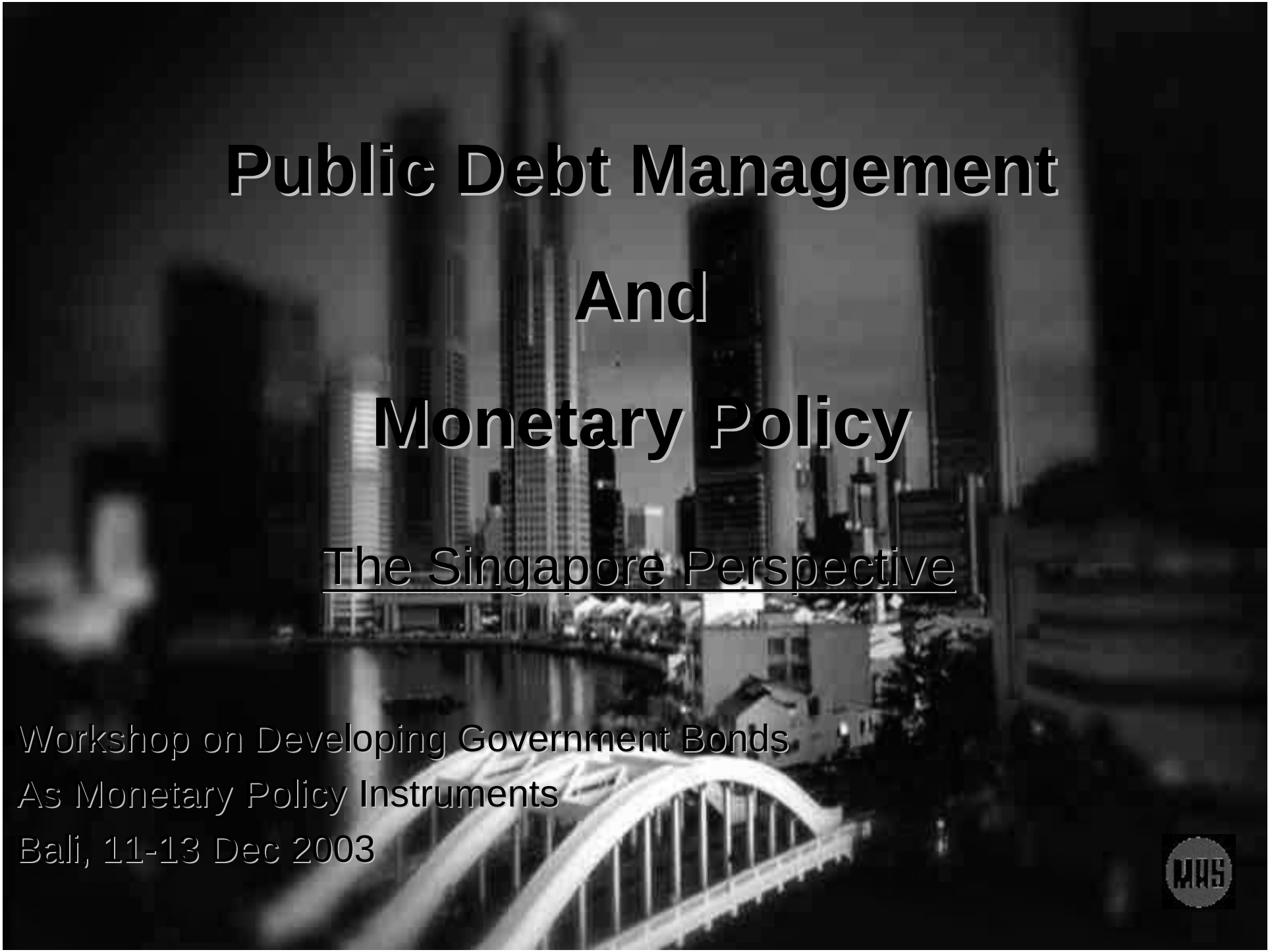
Friendsh ip Programme for the 21st Century
Tokyo, Japan
August to September 1986
(one of 27 participants selected by the Government of Japan from over 600 applicants nationwide)

The Unorganized Money Markets in the SEACEN Countries
SEACEN Training Centre
20-22 November, 1985, Yogyakarta, Indonesia

Foreign Currency Treasury and Foreign Exchange Seminar
Central Bank of the Philippines
20 April to 30 May 1981, Manila, Philippines
(one of 20 twenty participants selected from over 1500 applicants nationwide during their hiring process)

Other Relevant Information:

Chairman	-Bureau of the Treasury Provident Fund – 16 February
Project Coordinator	-Treasury Computerization Project – Metropolitan Bank and Trust Company – 1998
Project Coordinator	-Treasury Computerization Project – Central Bank of the Philippines – 1993
Lecturer	-South East Asian Central Banks Training Centre, Kuala Lumpur, Malaysia
President	-Central bank Employees' Association – 1990
Member	-Board of Trustees, Central Bank Provident Fund– 1990
Member	-Investment Committee, Central Bank Provident Fund
Chairman	-Board of Trustees, Mutual Aid Benefit Fund - 1990



Public Debt Management And Monetary Policy

The Singapore Perspective

Workshop on Developing Government Bonds
As Monetary Policy Instruments
Bali, 11-13 Dec 2003

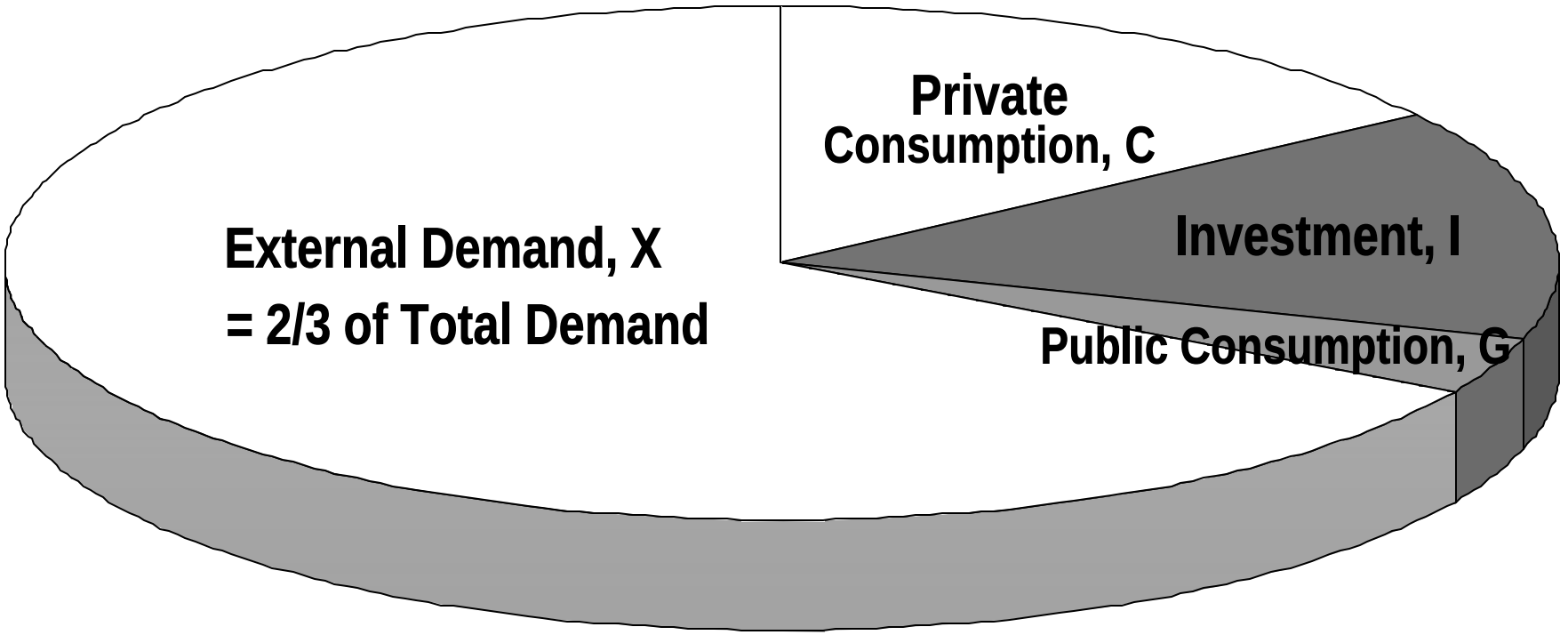
Outline of Presentation

Part 1 : MAS experience in coordinating debt management and monetary policy

Part 2 : Issues for Consideration

Part 1

Exchange Rate-Centred Monetary Policy



Total Demand = C + G + I + X

Part 1

Exchange Rate-Centred Monetary Policy

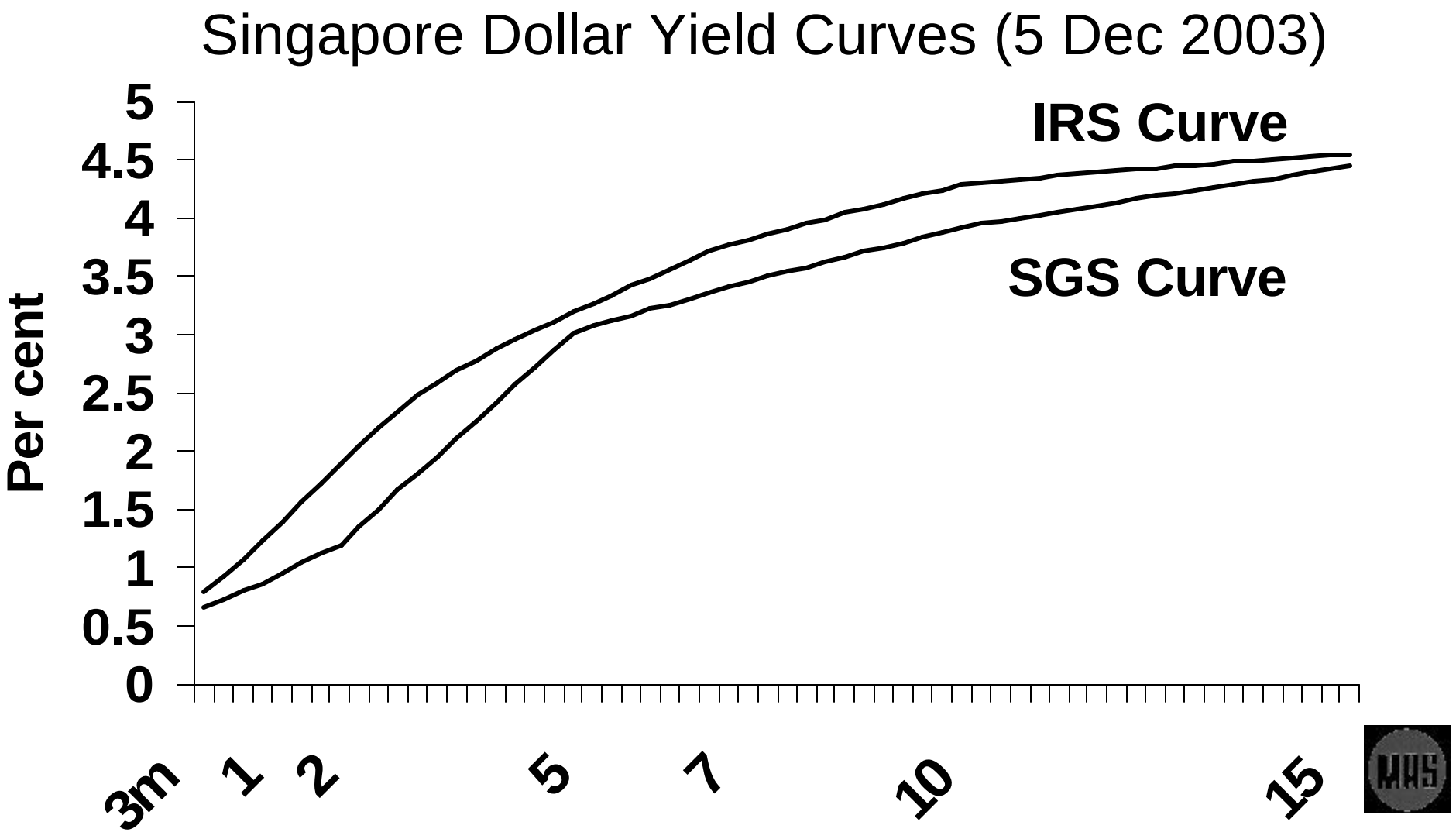
- Basket : S$ managed against a trade-weighted basket of currencies of our major trading partners and competitors

- Band : Trade-weighted S$ allowed to float within an undisclosed target band

- Crawl : Announce path for target

Part 1

SGS Issuance to Build Yield Curve



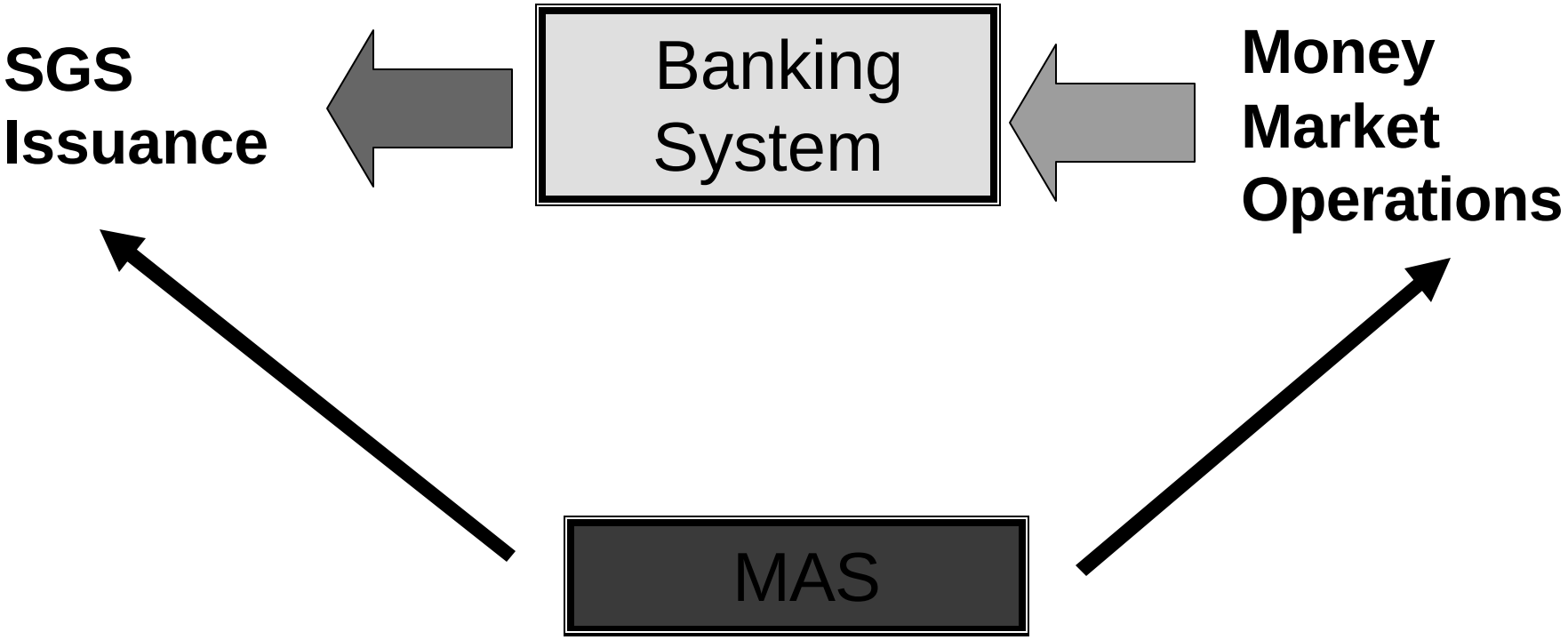
Part 1

Main Implications

- Net liquidity drag from SGS issuance needs to be neutralized by money market ops.

Part 1

Neutralizing Liquidity Drag of SGS Issuance



Part 1

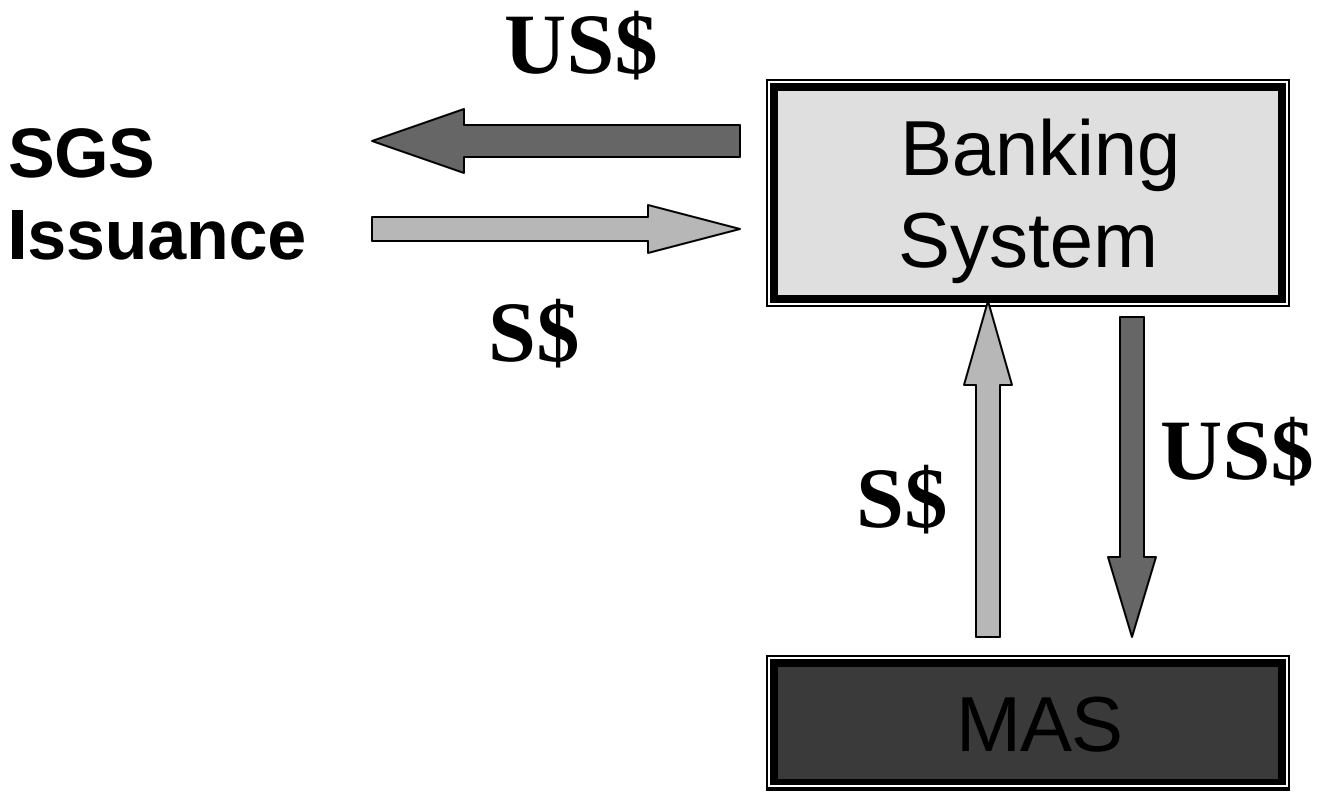
Main Implications

- Net liquidity drag from SGS issuance needs to be neutralized by money market ops.

- Investment of SGS proceeds overseas subservient to exchange rate policy.

Part 1

Exchange Rate Impact of SGS Issuance



Part 1

Main Implications

- Net liquidity drag from SGS issuance needs to be neutralized by money market ops.

- Investment of SGS proceeds overseas subservient to exchange rate policy.

- Can we use SGS issuance for monetary policy goals?

Part 1

Why Using SGS Issuance for Exchange Rate Management is Not Optimal

- Relationship between Interest Rate and Exchange rate not strong

- SGS Issuance needs to be predictable:
  - Full Year's Issuance Calendar
  - Issue Size of $1.5-2.5bn

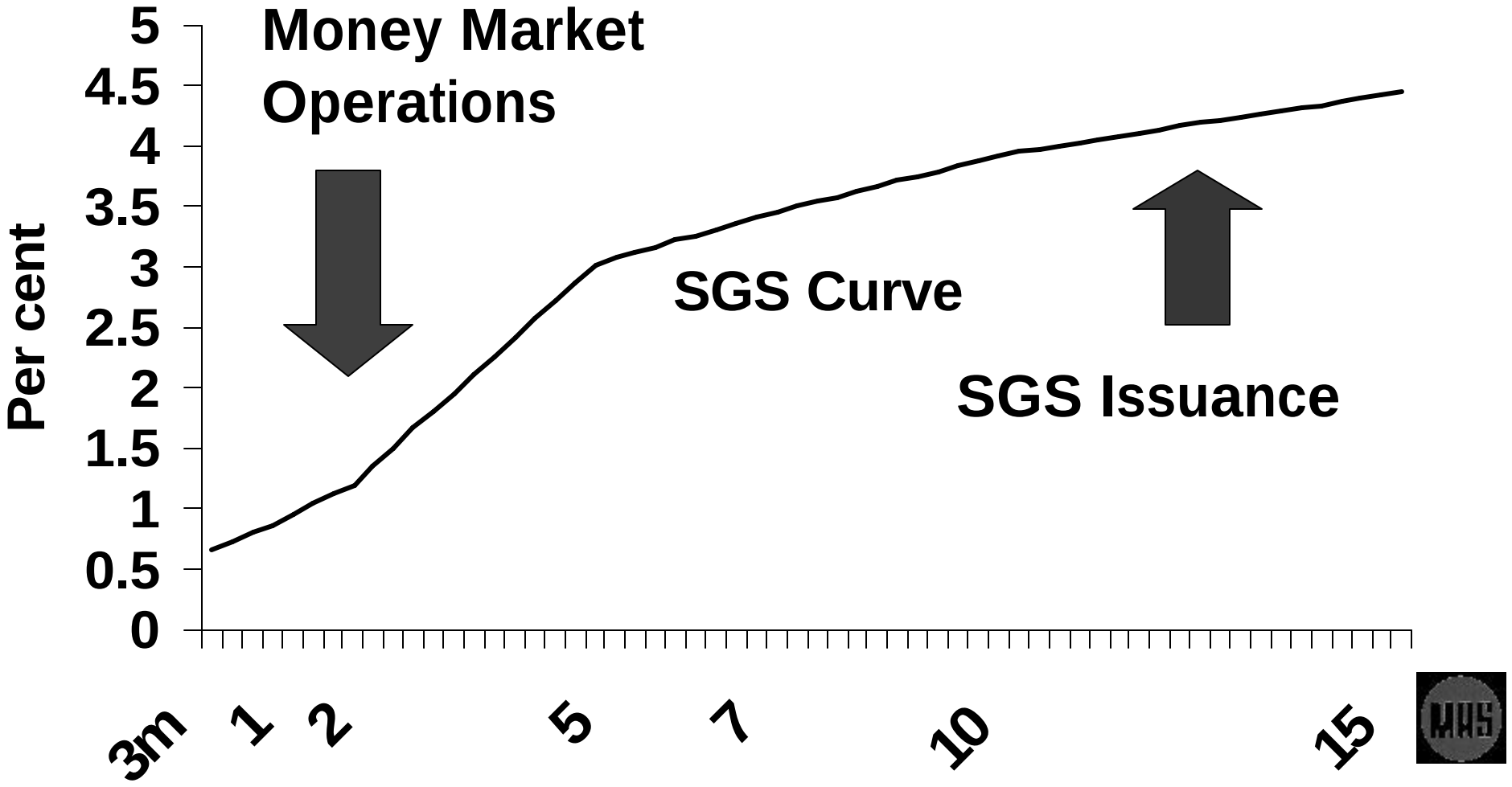
Part 2

Issues for Consideration

- Yield Curve Effects

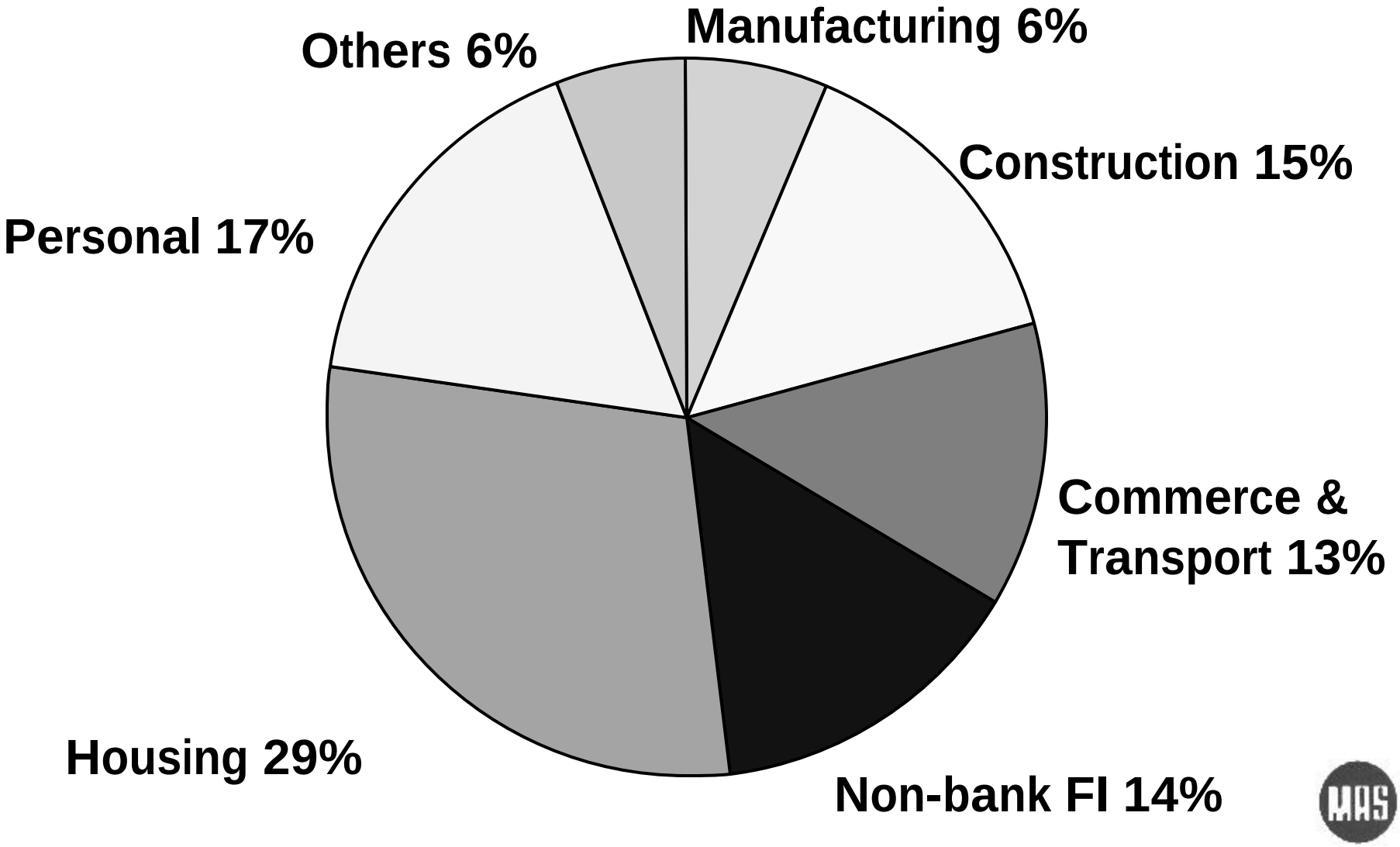
Part 2

Yield curve effect of SGS Issuance



Part 2

Composition of Loans (Mar 2003)



Part 2

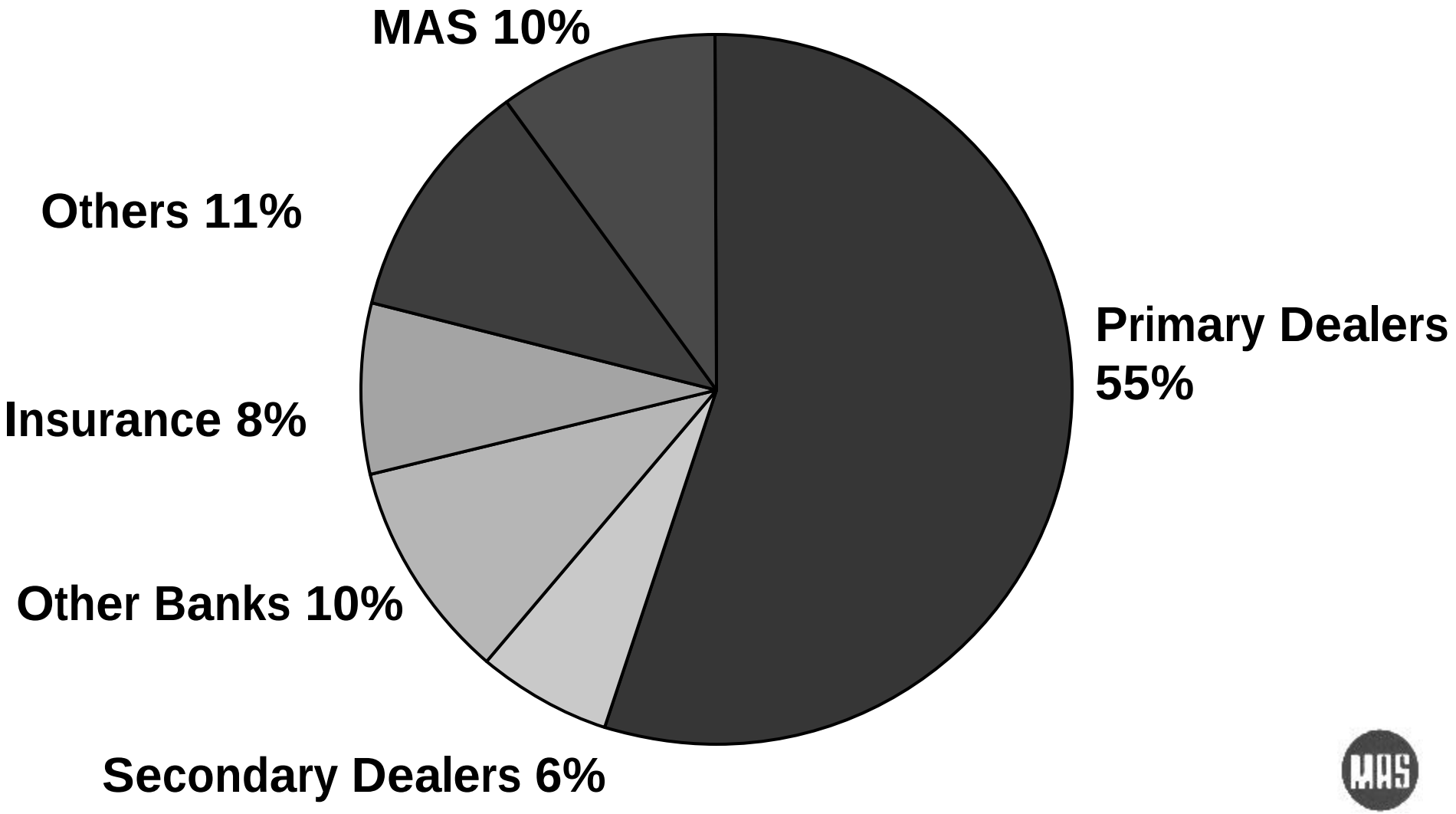
Issues for Consideration

- Yield Curve Effects

- Durations Effects

Part 2

Distribution of SGS Holdings



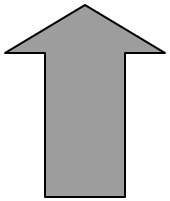
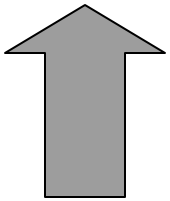
Part 2

Issues for Consideration

- Yield Curve Effects
- Durations Effects
- Balance Sheet Effects

Part 2

Balance Sheet Effects of SGS Issuance

Asset	Liabilities
Loans to Banks	Deposits of Government
	


The End
Workshop on Developing Government Bonds
As Monetary Policy Instruments
Bali, 11-13 Dec 2003

Experience in Coordinating Between Public Debt Management & Monetary Policy

1. I have divided my speech into 2 parts. In the first half, I'll talk a bit about the nature of monetary policy and public debt management in Singapore. And more specific to our discussion, how we coordinate the two, such that the effects of one do not compromise the objectives of the other. In the second half, I'll like to turn around and critique our own system. I'll question the efficacy of our process by identifying key theoretical assumptions behind it that may not necessarily hold true in practice. I'll also highlight secondary effects of debt issuance that our coordination process may not have provided for.

2. First, allow me to share with you Singapore's experience. The situation in Singapore is peculiar in 2 ways. First, our monetary policy is centered on the exchange rate rather than interest rates. In an open economy like Singapore, where exports make up 70% of total demand, focusing on the exchange rate makes sense. For those of you who are not familiar, there are 3 important characteristics of our monetary policy, commonly referred to by the acronym "BBC": Basket, Band and Crawl. Basket because we manage the S$ against a basket of currencies. Band because we do not set an absolute peg but allow it to deviate around a

target within a prescribed band. Crawl because we also prescribe a path for the target, whether it's neutral, appreciating or depreciating, and this optimal policy stance is reviewed every six months.

3. The second peculiarity about the Singapore situation is that the issuance of public debt, Singapore Government Securities (SGS), is not intended to fund a budget deficit. Because the government has been running healthy fiscal surpluses, there was no need to borrow. The key objective of SGS issuance was to establish an efficient and liquid government bond market to serve as a benchmark for the pricing of private sector debt.

4. These 2 peculiarities have some interesting implications for the topic we are discussing here. I will just highlight 3 of them. Firstly, because we are not borrowing to spend, the issuance of SGS, represents a net drag on domestic liquidity in the economy. To neutralize this effect, we use open market operations, re-injecting funds through FX swaps, direct lending and SGS repo transactions. Coordination of this process is critical and in Singapore, this is aided by the fact that the same people in MAS take care of both SGS issuance and open market operations. In addition, because the issuance of SGS and its counteracting open market operations tend to

be very lumpy in nature, we need to avoid issuing in the months of December and January, when market liquidity is very thin.

5. The second implication is this. To the extent that the funds borrowed are not spent, a substantial amount will need be invested overseas. In an exchange rate centered monetary policy, this can be an important issue. The conversion of S$ proceeds into foreign assets, especially in bulk, can arguably place considerable downward pressure on the exchange rate. Our solution to this is to make the overseas investment of SGS proceeds subservient to the conduct of monetary policy. In other words, operationally, we need to be aware of the consequences of converting the proceeds of the SGS issuance into foreign holding of assets on the domestic exchange rate. Again, it helps that the people doing SGS issuance are also the same people implementing monetary policy.

6. The third implication. Because we are not issuing SGS to finance spending, we have arguably wide latitude in determining how much to issue and when to issue. Theoretically, we can choose to issue a lot or not at all. This begs a question: Given all this flexibility, instead of just coordinating to ensure that issuance does not disrupt monetary policy, can we actually plan our issuance in such a way that it helps us validate our monetary policy goals? Say we want a higher exchange rate, can we

issue less, which will push interest rates higher, and in turn lead to a stronger S$? Our conclusion is that it is not optimal to use debt issuance as the discretionary exchange rate management tool in Singapore. For one thing, the relationship between SGS yields and the S$ is tenuous given that foreign investors hold less than 5% of SGS. Exchange rate management is handled directly by foreign exchange interventions, while liquidity management including in response to the SGS issuance programme, is seen as an endogenous sterilization process. More importantly, to encourage participation in the bond market, it is important that our issuance programme be fully transparent and predictable. To give more certainty to investors, we have deliberately limited our own flexibility. Thus, we pre-announce a full-year's issuance calendar, stating which security will be auctioned when. The issue size is kept to within S$1.5-2.5bn.

7. Having listed a few possible areas of contention between debt issuance and monetary policy, and how we coordinate the two to mitigate these, let me move on to the second part of my speech, which is basically to ask if we have indeed missed out anything in this process. Before I do that, let me say that we are quite satisfied with our current arrangement now. Nonetheless, it is important that we constantly question the underlying principles and assumptions to see that they remain appropriate.

8. First point of critique. Earlier I argued that the main contractionary effect from SGS issuance is through the withdrawal of liquidity from the system. We mitigate the volume of liquidity through open market operations. But unless we match the tenure of the bond issuance with the tenure of the open market operations, the price of liquidity, i.e., the level of interest rates is not necessarily neutralized, at least in the immediate period following issuance. If you believe in the open economy trilemma, then this is not an issue. The fact that Singapore targets its exchange rate makes our interest rates necessarily endogenous. In other words, SGS yields are determined by expectations of the future path of the S$ and not by our issuance. In reality, because segmentations between capital markets remain and because not many investors have a 10 or 15-year view on the exchange rate, our issuance can have an effect on interest rates. Specifically, as we increase our issuance of long-term bonds and neutralize this with short-term injection of funds, we may be pushing up long-term rates while pushing down short-term yields. Does this matter? The current belief is probably not, principally because of key structural factors in the Singapore economy. In general, growth and inflation in Singapore are more sensitive to the exchange rate than the level of interest rates. While this is true at the macro level, one wonders if there are sectoral effects that we should also pay attention to. For example, it

may affect borrowing and spending behavior in the economy. It may spur consumption and house purchases, which in Singapore are typically financed with variable rate loans, at the expense of business fixed investments. Low short-term rates may also discourage savings or cause savers to channel their funds into bonds or stocks. Not all of these effects are significant enough to be noteworthy. But those that are, should be factored in our monetary policy and debt management programme.

9. The second point of critique concerns the duration risks added to banks. In Singapore, a significant portion of SGS is held by banks. When MAS makes short-dated liquidity injections to banks to fund purchases of long-dated bonds, duration risks are created. This duration gap can be quite significant if we for example, use a 3-month market operation to neutralize a 15-year bond. One only needs to remember the savings and loans crisis in the US to see how damaging these duration gaps can be when interest rates start to rise. This is not to say that the situation in Singapore is akin to the S&L crisis. It is not. Nonetheless, we need to be vigilant on this front. We think that the longer-term solution is to encourage the development of more interest rate hedging tools like futures and swaps that banks can use to hedge their exposures.

10. The final point of critique concerns the risks on the MAS, itself. When we issue bonds and neutralize through open market operations, the balance sheet of the central bank grows. With this, our credit exposure to banks also increases. We have tried to limit these risks in several ways. We kept the tenure of open market operations short. We use collateralized instruments like swaps and repos. We set counterparty limits that take into account a bank's credit ratings. Even with all these controls in place, one wonders if we can increase these credit exposures indefinitely. Or if there is a point where we have to find other means of neutralizing the withdrawal effects of debt issuance.

Biography of Mr. LEE CHUAN TECK

Organisation: Monetary Authority of Singapore

Current Position: Director, Monetary Management Division

Academic Qualifications

Masters of Science (Computation Finance)
Carnegie Mellon University, Pennsylvania, USA

Bachelor of Social Science (Economics) Honours (First Class)
National University of Singapore, Singapore

Chartered Financial Analyst

Financial (GARP)

Employment

1992-1997: Foreign Exchange Division, Monetary Authority of Singapore

1997-2001: New York Office, Monetary Authority of Singapore

2001-2003: Global Credit Division, Monetary Authority of Singapore

2003- : Monetary Management Division, Monetary Authority of Singapore

Session 4

Market Infrastructure

Clearance and Settlement for Government Securities

December, 11-12, 2003
Bali, Indonesia

Noritaka Akamatsu
Financial Sector Operations and Policy
The World Bank

Agenda

- Why efficient C&S is important for GS market.
- Criticality of Delivery versus Payments (DVP) for GS market.
- RTGS versus net settlement.
- Alternative institutional setups of C&S bodies and use of government securities as collateral.
- Functions and services to be provided by C&S systems.
- Central counter-party (CCP): Is it needed?
- Conflicts of interest in governance of C&S institutions

After Trade Execution …..

- Comparison (of terms of the trade):
  - affirmation by the client to the agent
  - confirmation by the counterparties
- Communication of settlement instructions to central depositories / custodians.
- Computation of the obligations of the counterparties resulting from the comparison
  - gross settlement
  - net settlement
- Settlement:
  - Final delivery of securities and final payments.
- C&S can also involve other complex processes such as repo clearing, collateral management, securities lending, cash management, etc.

“International Standards”

CPSS-IOSCO Recommendations (19) addresses:

- Legal framework
- Trade confirmation / affirmation (T+0, T+1 or less)
- *Settlement cycles (T+3 or less)*
- *Central counterparties (CCP) & guarantee mechanisms*
- *Securities lending / borrowing and repos*
- *CSD and risk control against participant’s failure*
- *DVP by CSD, settlement finality and same day funds*
- Cash settlement assets (e.g., central bank money)
- CSD operational reliability & business continuity
- Custody risk mitigation
- *Governance, open access*
- Efficiency
- Communication procedures and standards

Why C&S is particularly important for GS market

- GSs are traded frequently in large value, thus posing significant systemic risks to the financial system.
- Fixed income trading activities are very sensitive to cost and risk of transaction. Efficient C&S is crucial in reducing those.
  - Funds and securities tied up in C&S process not only necessarily but sometimes also unnecessarily;
  - Investment and operating cost of C&S systems
- Effectiveness in organizing the trading market depends heavily on the integrity of C&S
  - Anonymity and DVP

Criticality of DVP

- Simultaneous transfer of money and securities.
- Lack of DVP leaves the secondary market fragmented, non-transparent and under-developed.
  - Makes anonymous trading very difficult, and telephone OTC trading prevails.
  - Big banks and institutions deal only among themselves worrying about counter-party risk, i.e., the secondary market remains fragmented and non-transparent, i.e.,

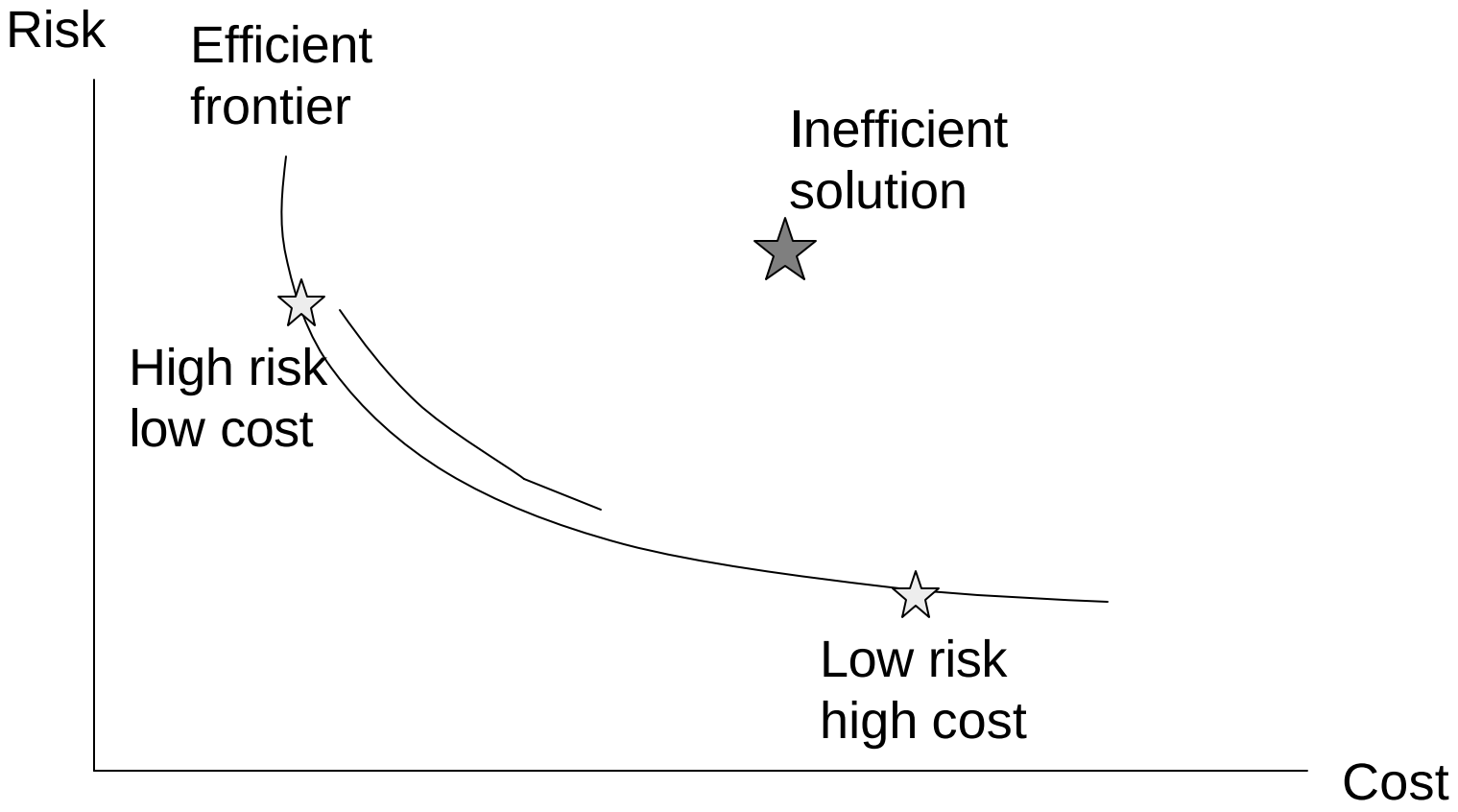
  Therefore,

  - The secondary market would fail to develop beyond a small group of large banks/institutions.

RTGS vs. Net Settlement

- There is tradeoff between cost and risk in C&S.
- Unnecessary cost and risk should be eliminated.
- In choosing optimal tradeoff, utility functions of Central Bank and the market participants are often different.
  - RTGS eliminates systemic risks and often preferred by Central Bank.
  - Net settlement saves funds and securities needed for settlement and often preferred by market participants (especially if Central Bank acts as CCP).
  - Central Bank can require banks to adopt a desired safe solution or incentivize them to seek it through prudential rules.

Risk and cost tradeoff

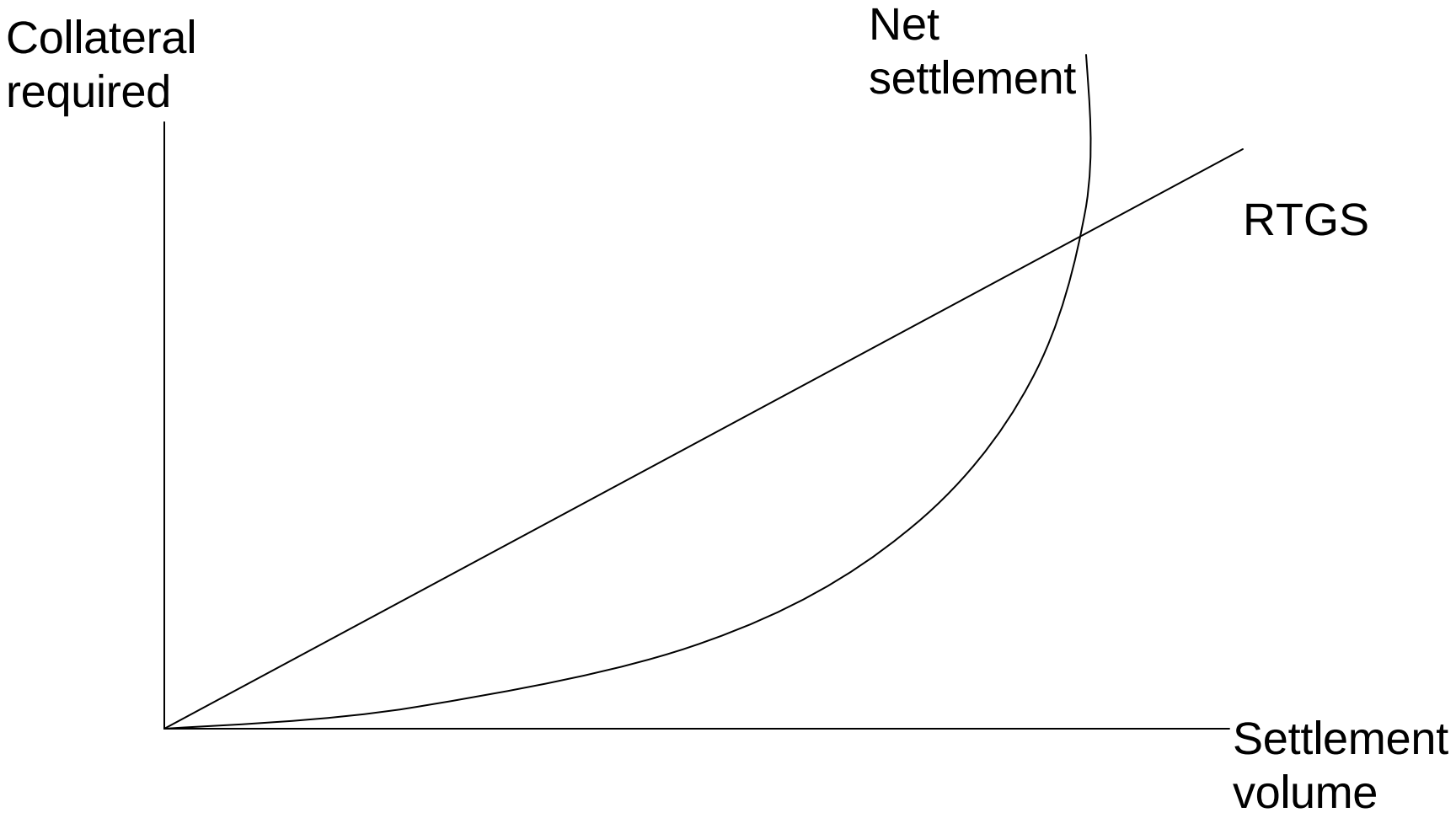


Costs and Risks in RTGS and Net Settlement

- Funds needed for **RTGS** need to be provided by Central Bank against collateral.
  - Funds needed tend to increase *proportionally* to the volume of trading.
  - Thus, collateral required *should* also increase proportionally to the volume.
- Risks in **net** settlement should be backed up by collateral.
  - Risks in net settlement tend to increase *exponentially* with the volume of trading.
  - Thus, collateral required should also increase exponentially.
- Collateral tied up involves opportunity costs.

RTGS vs. Net settlement

systemic risk and collateral requirements



RTGS and automatic Repos for liquidity provision

- RTGS requires a high level of fund liquidity.
- High opportunity cost for market participants if they had to maintain it by themselves.
- Central bank can provide *intra-day overdraft* by automatically collateralizing GSs of a bank seeking the liquidity.
- The same logic applies to securities. I.e., GSs can be lent for market participants (e.g., market makers) who need those for timely settlement / delivery.
  - Central depository of GSs could provide such a service (i.e., CSD lending). Who operates the CSD?

Central Counter-party

Q. What value would CCP add over and beyond what is already achieved by DVP?

Issues:

- Need of post-trade anonymity;
- Need of safer settlement? Proper risk management is needed (e.g., a loss sharing arrangement among participants to avoid moral hazard);
- Convenience, i.e., no need to assess risk of individual counterparties, thus facilitating active trading;
- Need of sure settlement for fund liquidity management (e.g., repos);
- Need of net settlement in addition to RTGS (repos).

Settlement of primary issues of GSs (T-bills & T-bonds)

- The settlement cycle should be standardized and made reasonably short.
  - To enable effective cash management by the government.
  - The more capable the government becomes in cash management, the more it will appreciate swift settlement.
- Use of RTGS is highly desirable.
- The settlement system should be capable of handling netting in funds for *exchange offers* for refinancing of outstanding debt.
- Direct counterparties for Central Bank in OMO may be limited to qualified banks holding money and securities accounts at Central Bank?

Settlement for OMO

- OMO in GSs, repos or CB bills (though not impossible to use certain other securities).
- Settlement of OMO should be very swift.
  - by the end of the settlement day if not intraday or real time.
- Cash balance of the government and excess reserve of the banking system as key parameters.
  - Sophistication of government cash management can simplify monetary policy of the central bank.

C&S of repos and reverse

- A settlement system should be capable of handling:
  - swift settlement (by end of day, intraday or real time);
  - sell & buyback repos (e.g., the obligation of the parties to trade to reverse the transaction as well as ownership transfer should be noted.);
  - collateralized lending (e.g., the pledgor is blocked from using the pledged GSs.).
- If notional securities are used, the system should be capable of controlling use of GSs owned by clients of the market participant in repo
  - Otherwise, integrity of DVP and finality is compromised.
- A system should permit netting repos and reverse.

Settlement finality and Account holding structure

- Multi-tier account holding (central depository/ registrar and sub-depositories/registrars or custodians)
- Recognition of transfer of ownership at multi-level with duplication of beneficiary accounts at CSD for ownership transparency and supervisory effectiveness.

Important basics:

- Dematerialized (book-entry) GSs (or Securities Accounts)
- Electronic payment / transfer instructions (e.g., SWIFT messaging standards)
- Straight through processing (STP)

Securities C&S Institutions and their integration

- Types of institutions
  - (Trading system)
  - Clearing House
  - Depository
  - Registrar
- Integration and/or consolidation:
  - across functions / instruments (Economies of “Scope”)
  - across institutions of the same type (Economies of “Scale”)
  - To avoid duplication of system investments, fragmentation of exposures requiring additional capital, liquidity, margins.
- Natural monopoly? But risk control is necessary.

Business Functions

- Securities registration
- Netting and clearing
- Securities settlement / transfer
- Safekeeping
- Collateral management
- Credit lines and risk management
- Securities lending and borrowing
- Cash management
- Corporate event services

Integration across instruments or functions

- Integration across instruments
  - Equity, corporate debt, government securities, derivatives
  - E.g., Crest (UK), VPC (Sweden), Euroclear France, etc.
- Integration across functions / institutions
  - Trading, clearing, custody and registration
  - The functions can be integrated in a variety of combinations to suit an existing institutional setting.
- C&S process should be as “STP” as possible regardless of the combination. Easy to say but ….

Costs and business viability of settlement systems

- System investment, maintenance and upgrading.
  - An obvious advantage if duplication can be avoided.
- Operating cost including human resources required.
  - An advantage but a politically difficult issue to address.
- Prudential requirements (capital, collateral, liquidity) for risk management.
  - Less obvious but a potentially very significant cost factor.
  - Settlement systems should permit most efficient use of capital, collateral and liquidity to back up systemic risks.
  - To do so, GSs should be used efficiently for cross margining, etc. since they can be high quality collateral.

Commercial Services by CSD

SLB, repo clearing, collateral management and cross margining involve complex “commercial” services.

- Necessary for dealing / market making.
- Efficient “CSD lending” requires efficient system architecture and competitive pricing based on contracts with participants.
- Collateral and risk management for safekeeping
- Clearing of tri-party repo.

Q. Consistent / relevant with the fundamental mission of the Central Bank?

A. Partially “Yes” (e.g., management of systemic risk) and partially “No”.

Central Bank as a commercial service provider?

Advantages:

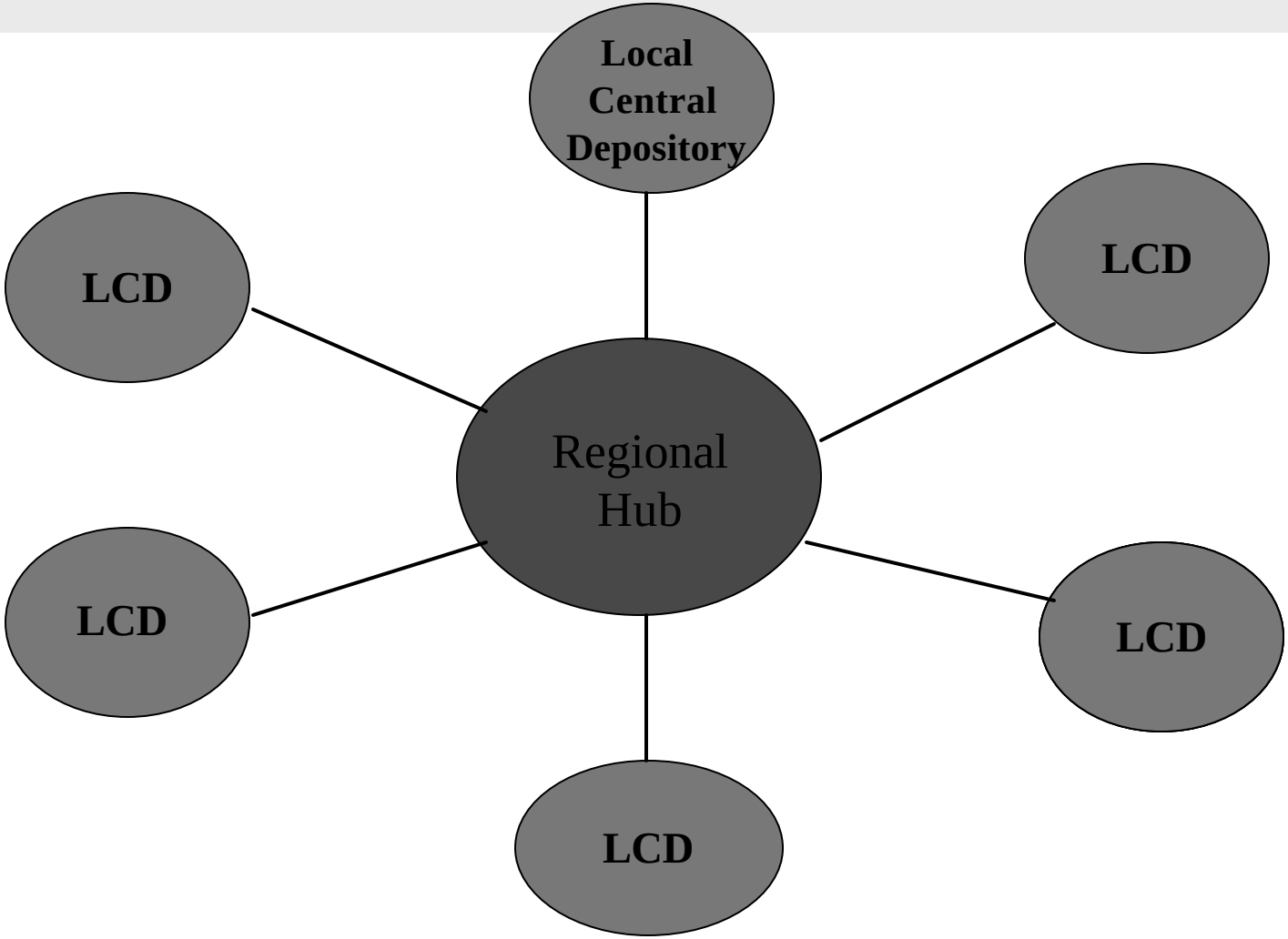
- Competent institution
- Have resources
- The surest going-concern

Disadvantages:

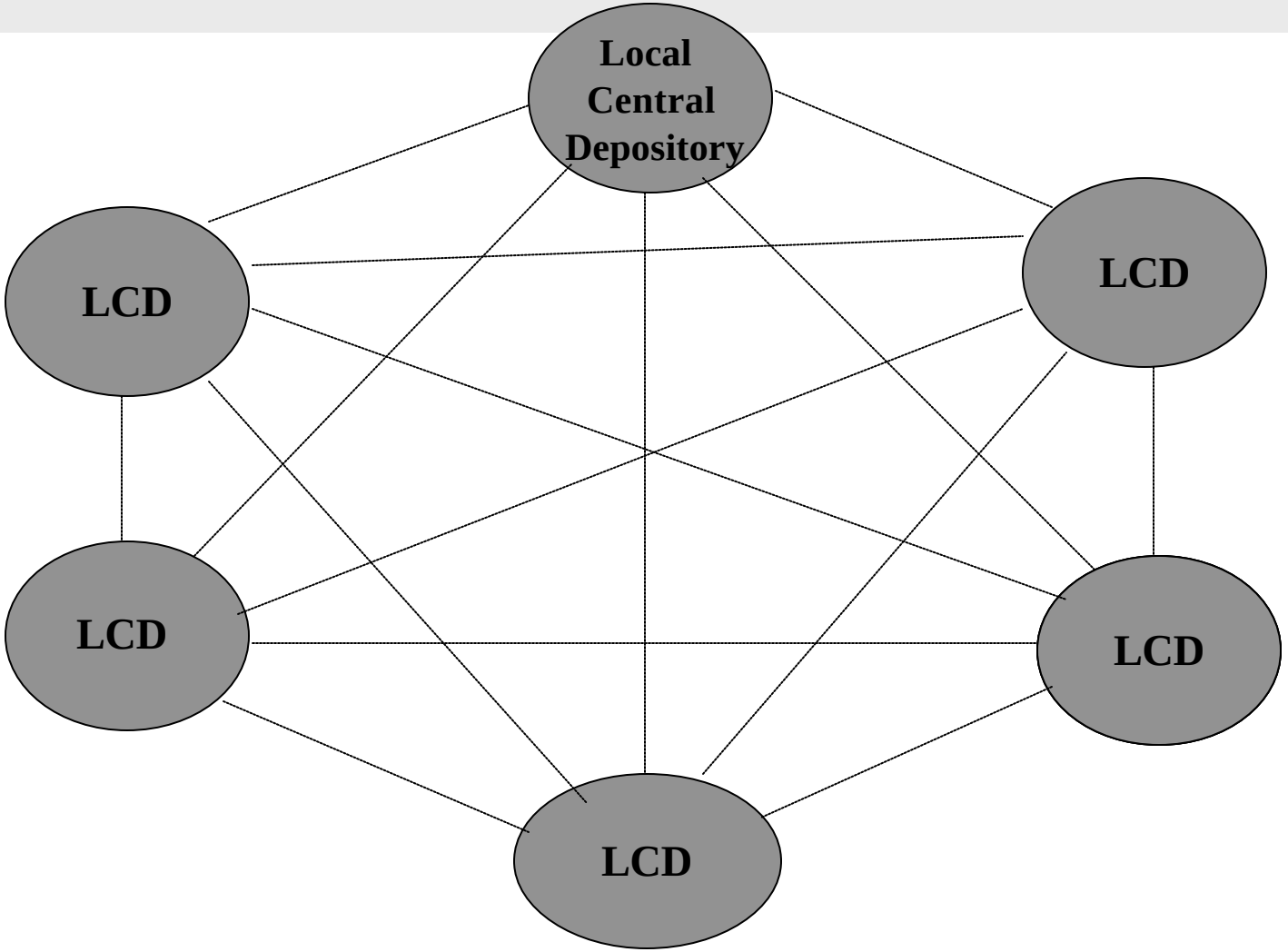
- Not central to its mission as Monetary Authority
- Absence of governance by participants
- Creation of a regional hub will not be possible.

Regional Custody Architecture – 1

With a Regional Hub



Regional Custody Architecture – 2
With a Network



Outsourcing

- A *good* idea to avoid duplication of system investments and operating expenses.
- A *great* idea if it can facilitate minimization of prudential requirements without increasing risks.
- A *terrific* idea if role sharing can be arranged to take advantage of different strengths of different providers of C&S services to create the best of all possible world.

Governance, Access ….

- Appropriate governance is a “key” to successful implementation of all institutional reforms of C&S.
- Who owns, governs and/or controls CSD / Clearing House / CCP?
- Who uses (has access to) them and, therefore, pays for their services?
- Whose interest do they represent?
  - How are *custodians* represented on the board of CSD???

Relationship with Custodians

- A delicate relationship because custodians are important members / users of a clearing house / central depository while at the same time they are providers of similar services.
  - ? A need to manage conflict of interest.
  - ? Standardized service for “core clearing” by a central depository/clearing house while more tailor-made services for individual institutional clients by custodians.
- What if custodians do not have “proper” representation on the Board of the central depository??
  - ? A concern about the “monopoly”.

Summary

- Efficient C&S is critical for GS market while GSs are a critical instrument for efficient C&S.
- Sound settlement system is a pre-requisite for creating an efficient trading market.
- Choice between RTGS vs. net settlement is important.
- There are a variety of possible institutional arrangements for C&S, but unnecessary cost should be avoided.
- Governance and access are an important policy issue.
- Choice between central bank vs. private CSD requires.

Thank you!

Trading Market Architecture for Government Securities

December 11-12, 2003
Bali, Indonesia

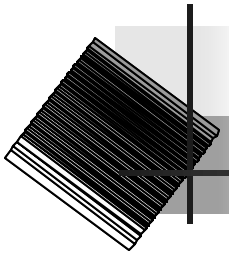
Noritaka Akamatsu
Financial Sector Operations & Policy Dept.
The World Bank

Agenda

- Transparency vs. Liquidity
- Optimal Market Structure
- Trading mechanism
- Fees for Trading and Reporting
- Exclusivity, Access and Information
- Business Model and Commercial Viability
- Links with C&S system
- Off-the-Shelf Platforms and Architectural Models
- Governance and Self-Regulation
- Legal and Regulatory Issues

Loose organization of bond market

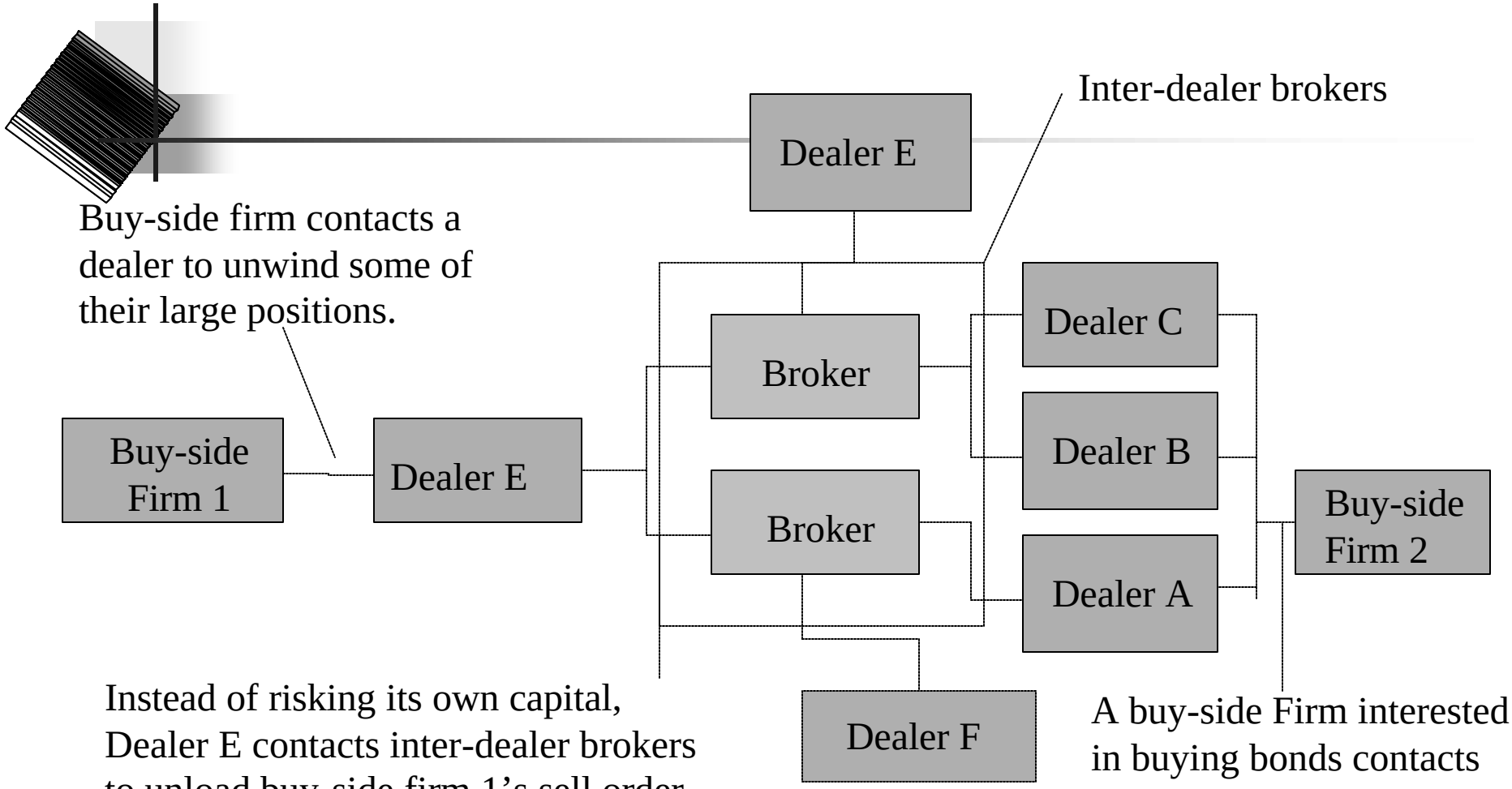
- Traditionally, bonds have been traded over the counters of dealers. Traditional stock exchanges have failed to attract bond trading.
- The lack of liquidity and transparency causes high yield of GS, costing the government.
- A better organized trading market can contribute to enhancing both liquidity and transparency.
  - Standardize yield calculation methods and adopt clean price.
  - Create a trading platform??



Stylized facts

- A majority of bond trading around the world is taking place in over-the-counter (OTC) market. Emerging markets in Asia are not an exception.
- Conventional stock exchange order-driven trading mechanism is not suitable for bond trading by institutional market participants.
- Block trades, which constitute a significant part of the trading, need to be negotiated over the counter.
- Benchmark bonds and non-benchmarks tend to require different trading arrangements. Market for benchmarks are easier to organize due to the typically standardized simple design of the instrument and resulting greater volumes.

A Structure of Secondary Bond Market



Source: Celent Communications, World Bank

Transparency and market architecture

- Transparency is not one thing: one as a public good and another as a private good owned by those who “pay” for it, implicitly or explicitly.
  - ***Pre-trade*** price and volume information is a partly public and partly private good while ***post-trade*** price and volume information should be mostly a public good.
  - ***Anonymity***: identify of market participants, pre- and post-trade.
- Balancing the public and the private goods is a key to designing the secondary market structure.
  - Public goods: the more, the better,
  - Private goods: need to compromise conflicting business interests of different groups of market participants.

Optimal Market Architecture

- Compromising different business interests of different groups of market participants.
  - Primary dealers / market makers
  - Non-market maker intermediaries
  - Institutional investors
  - Retail investors
- Primary market structure influences the optimal secondary market structure.
  - Primary dealer (PD) system with an “exclusive” privilege to participate in the primary auctions.

Exclusivity, Access and Information

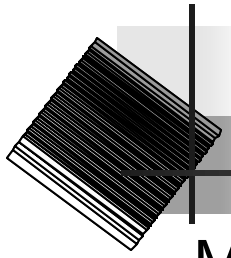
- PDs demand an exclusive privilege to participate in the primary auctions when required to make market for GS.

On the other hand,

- End investors demand greater transparency/access to the secondary market in exchange for the exclusion from the primary market.
- In particular, they want “inter-dealer pre-trade price” information while PDs prefer less transparency.
  - Inter-dealer price quotes vs. client price quotes
  - Viewing vs. hitting quotes for execution.
  - Firm vs. indicative quotes

PD system and secondary market organization

- A PD system without a market making obligation hardly makes sense.
  - although there can be a variety of compromised forms of market marking.
- PD's performance against their market making obligation must be monitored.
- A requirement to route market making transactions through an organized trading platform enables the monitoring.
- PDs often demand exclusivity also in access to the trading platform and/or limited transparency of pre-trade price information.

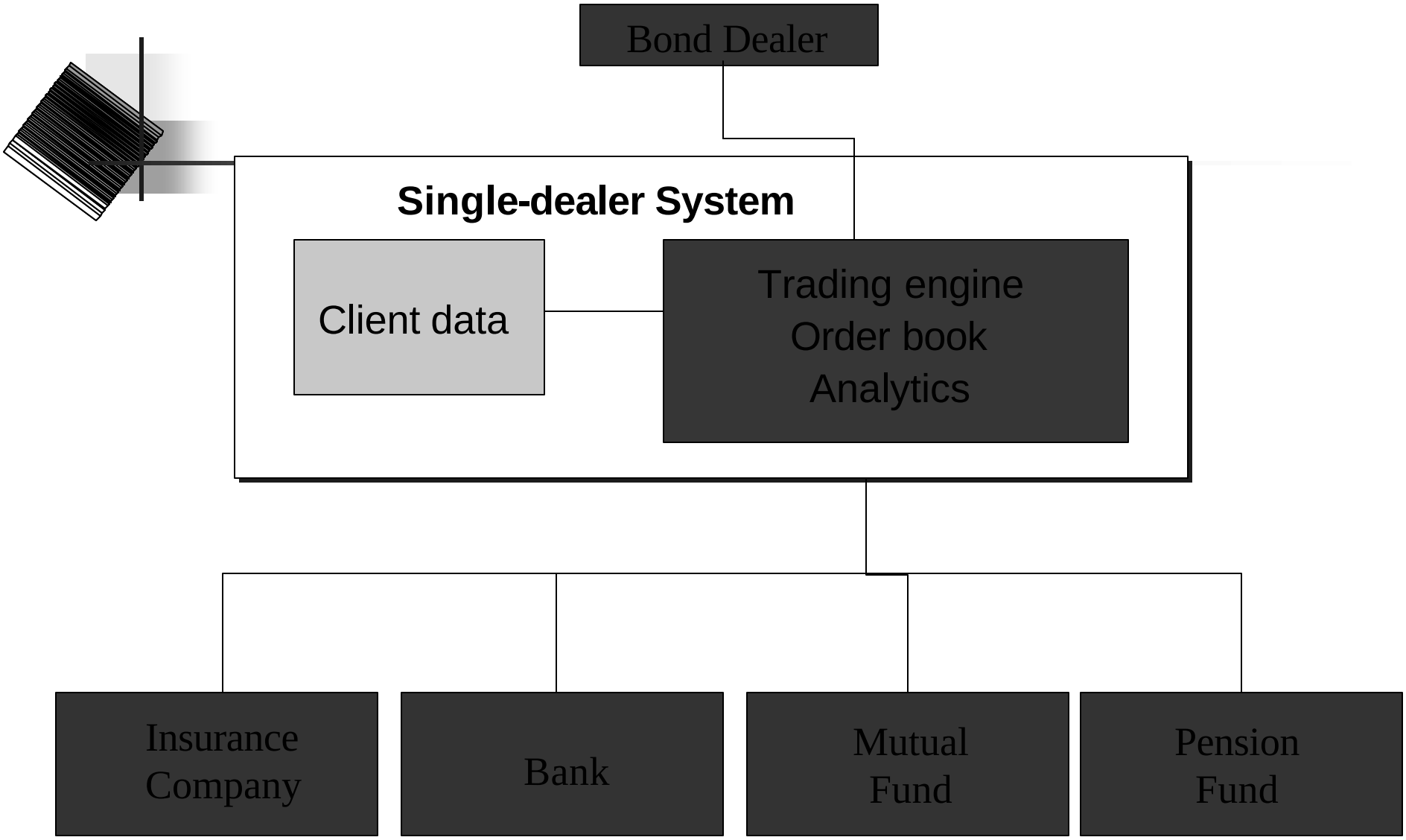


Architectural Models

Many possibilities exist (see www.bondmarkets.com).

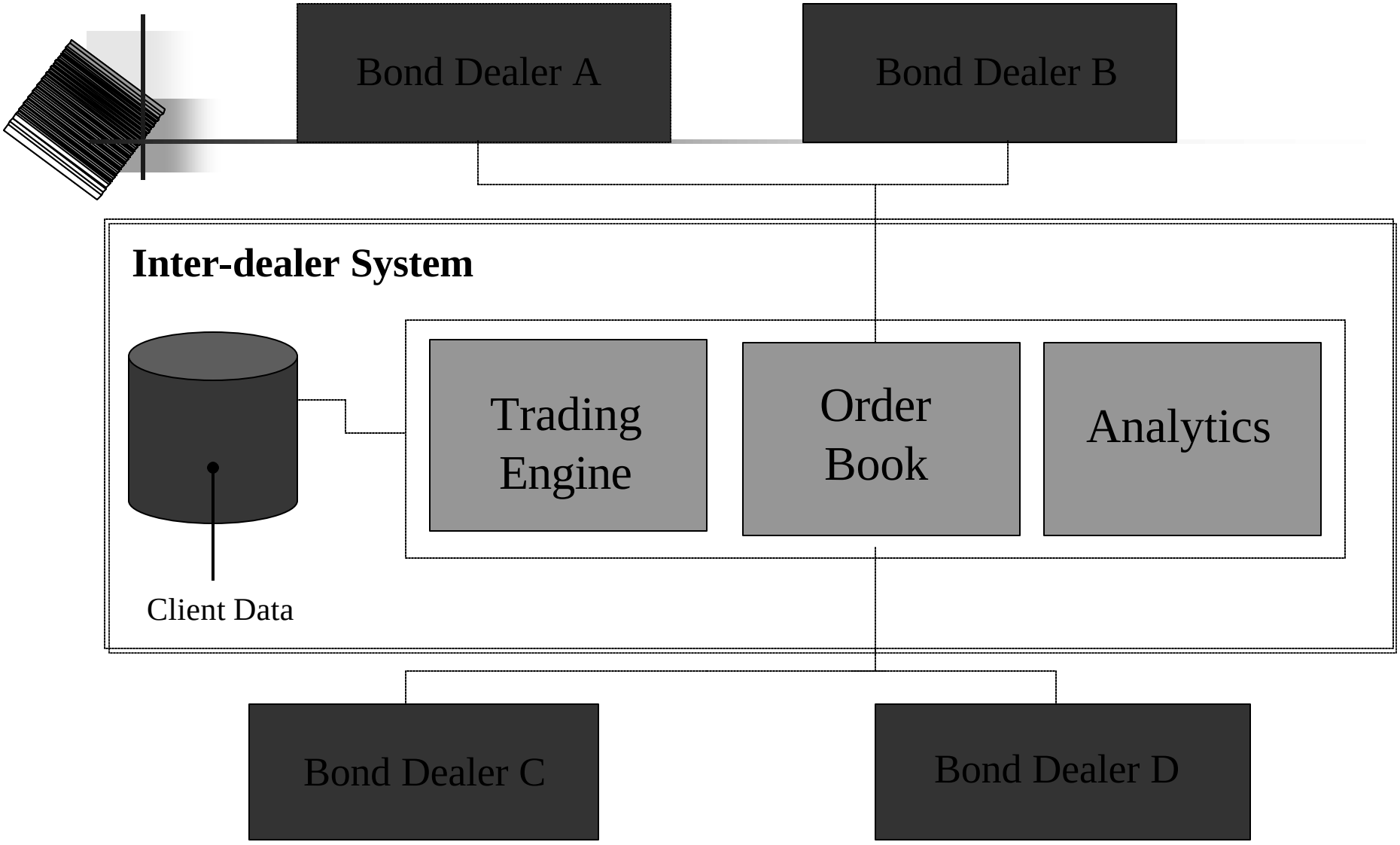
- Single dealer systems
- Inter-dealer systems
  - eSpeed (Canter Fitzgerald), ETC (Garban Intercapital), MTS (which acquired BrokerTec and Coredeal), etc.
- Multi-dealer systems
  - Market Access, TradeWebb, Bloomberg BondTrader, BondsinAsia, etc.
- Cross matching systems
  - Automated Bond System (NYSE, i.e., order-matching system)
- Auction systems
  - BondVision (for MTS to create a multi-dealer system)

Structure of a Single-dealer System



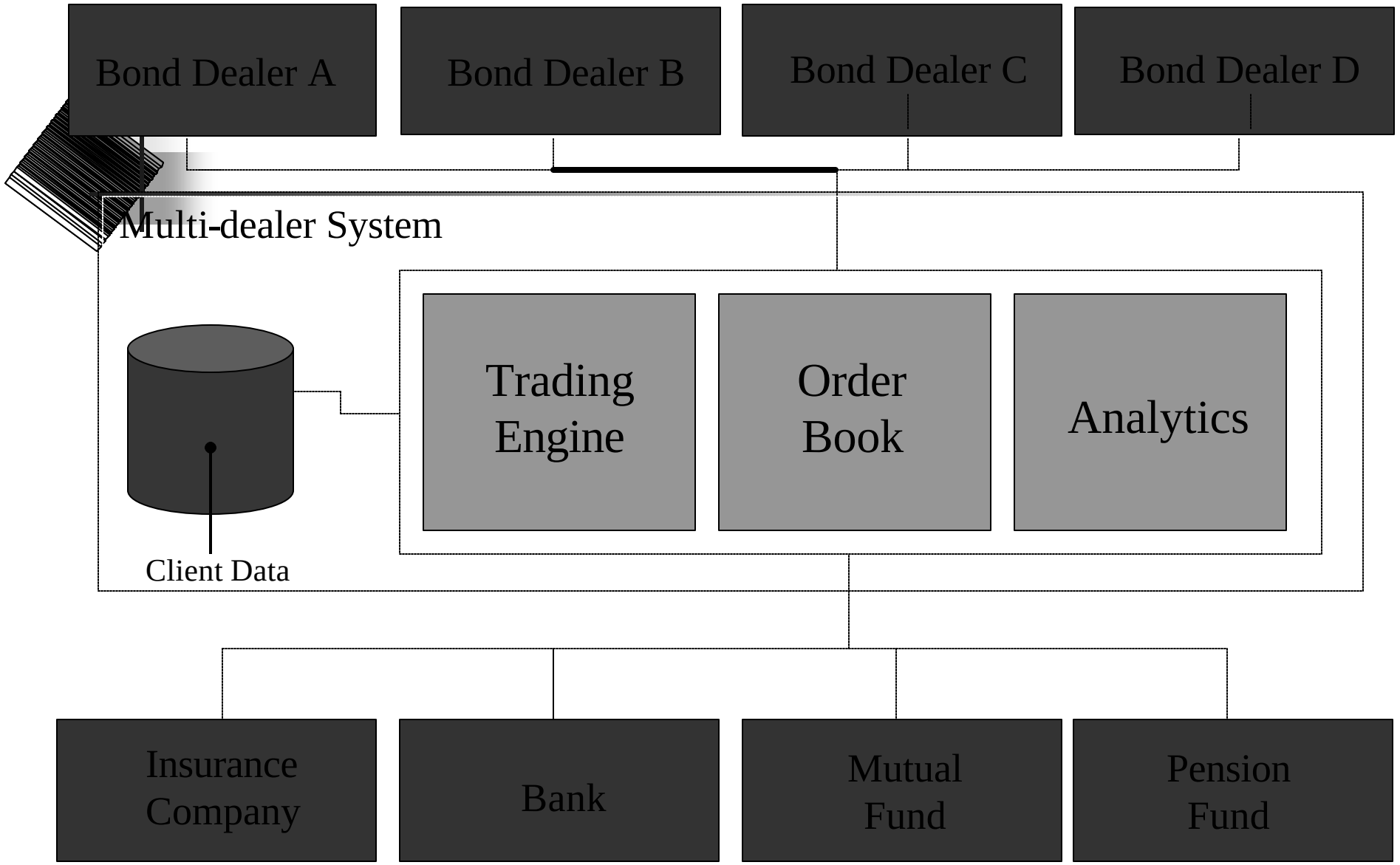
Source: Celent Communications, World Bank

Structure of Inter-dealer Systems



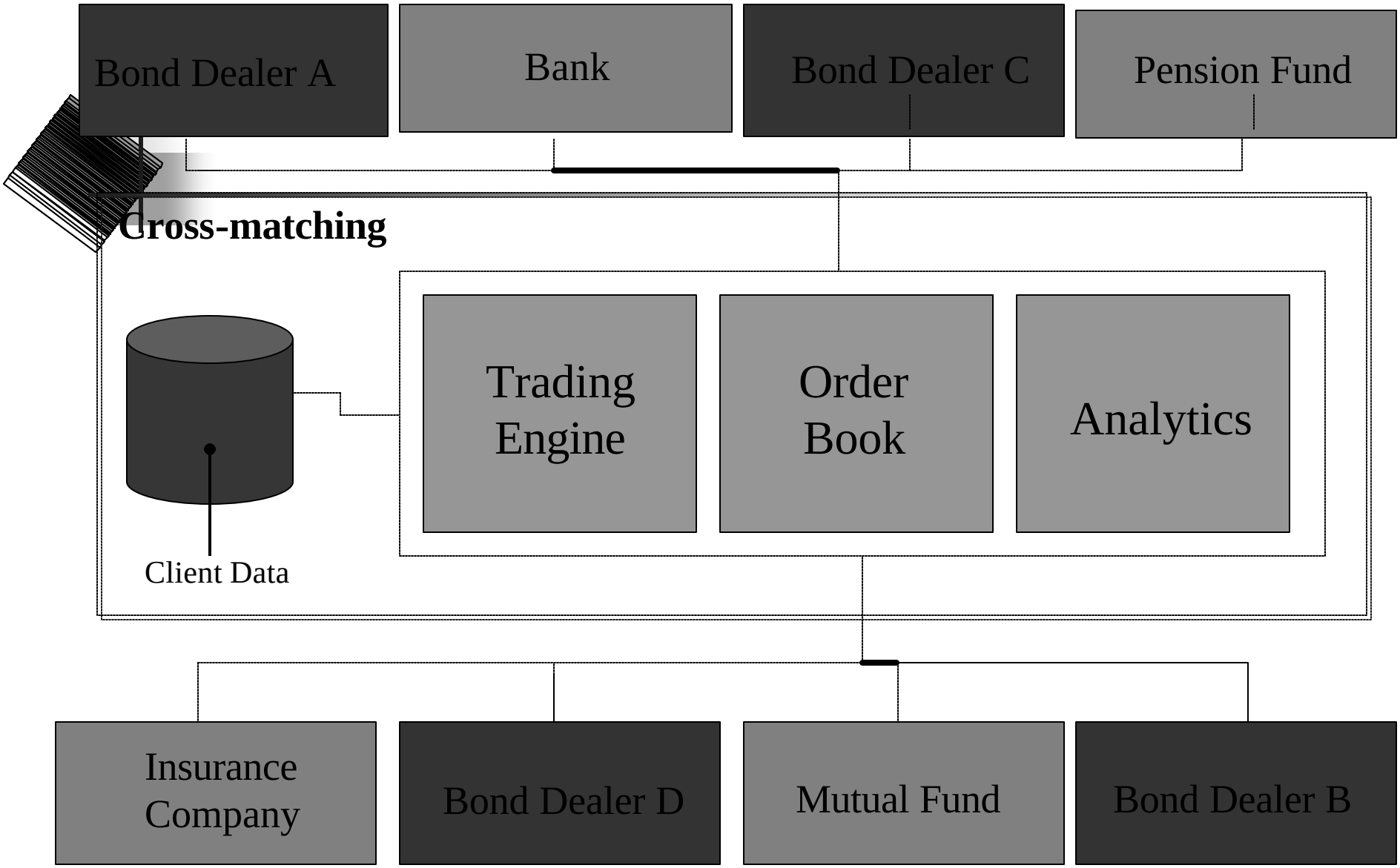
Source: Celent Communications

Structure of Multi-dealer Systems



Source: Celent Communications

Structure of Cross-matching Systems



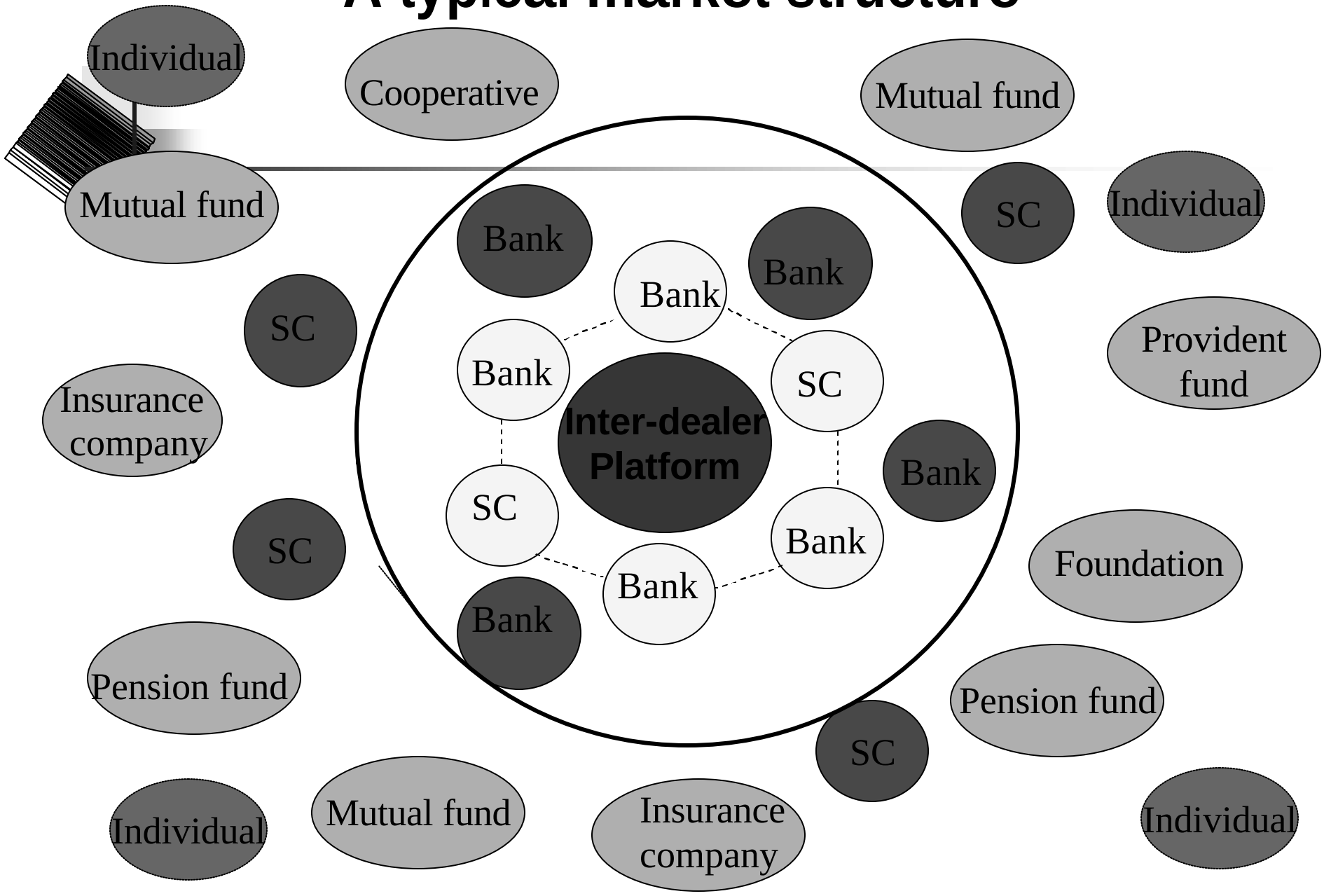
Source: Celent Communications

Types of Electronic Trading Systems
Four Main Types of Electronic Bond Trading Systems

Type of System	Strength	Weakness	Examples
Single Dealer system	Replacement of phone-based trading system	Necessity for end-users to connect more than one single-dealer systems to get a broad picture of the market.	Autobahn Electronic Trading (Deutsche Bank Securities), CSFB, Goldman Sachs, J.P. Morgan Express, MSDW, BondsinAsia, etc.
Inter-dealer system	Additional liquidity and extension of traditional inter-dealer broking role.	Neglects to incorporate a large source of liquidity by excluding buy-side firms.	MTS (including Coredeal and BrokerTec), Garban-ICAP ETC, eSpeed, BondsinAsia, etc.
Multi-dealer system	Increased access to market information and more options for trading.	Limited market information and reliance on dealers for continued liquidity.	Market Axess, TradeWeb, Bloomberg BondTrader, BondsinAsia, etc.
Cross-matching system	Major improvement in market information and cost savings in trade executions.	Unless backed by proven liquidity source, no guaranteed source for continued liquidity.	BondBook, BondLink, Bond Connect, Bond-Net, BondMart, LIMI-Trader, Visible Market, etc.

Source: Celent Communications, World Bank

A typical market structure



Trading Mechanism
A case of Inter-Dealer Platform

- Firm quotes vs. indicative quotes with negotiation;
- OTC: bilateral or brokered negotiation for block trades
  - ID platform best price viewable for transparency?
- Chatting function available?
  - anonymity
  - Tedious method of communication as compared to telephone,
  - Counterparty may not respond.
- Voice broking available at ID platform (e.g., Garban ICAP)?
  - Legal & regulatory issues
  - Money brokers and securities companies provide it
  - ID platform may become a competitor to securities companies.

Trading Mechanism - continued

- Control for counterparty exposure limits
  - DVP helps but may still be needed.
- Request-for-quotes (RFP) for the dealer-to-client market of a multi-dealer platform
- Regulatory issues
  - Is the ID platform an exchange, an ATS/ECN or a broker?
  - Is chatting system a trading system?
  - Is voice broking allowed for an exchange?
  - If a multi-dealer platform is adopted, is the dealer-to-client segment without firm quotes a “trading” system?
  - If the dealer-to-client system is developed separately from the inter-dealer system sharing the same platform, how should the dealer-to-client system be authorized?

Need online links with settlement system

- Straight through processing (STP) from trading to settlement
  - critical for the ability of a trading platform to attract transactions and, therefore, for its commercial viability
  - Market transparency can also be enhanced.
- The settlement system should be accessible by all “qualified” trading platforms to ensure fair competition.
- Is a central counterparty (CCP) useful?
  - In gross-gross DVP environment?
  - How about repo market?

Inter-Dealer Market Architectures

- Monopolistic vs. competitive IDM structures:
  - Italian MTS (monopolistic) vs. South Africa Bond Exchange (competitive)
- PD system and market makers are an integral part of MTS which is a highly structured market with four different levels of accessibility.
- Contestability at entry
  - a key for a small market with a potential to grow big.

Governance and Self-Regulation

- Mutual organization with membership.
  - Participation of MOF and/or central bank?
  - Voting rules? Big dealers, big voice?
  - Any representation of end investors???
  - BMA (trade association) vs. ISMA (SRO)
- Admission criteria?
- Prudential rules?
- Trading rules for members themselves or code of ethics for their clients as well?
- Supervision capacity?
- Investigation and enforcement capacity and authority?

Fees for Trading and Reporting

- **A dilemma:** Trading platform is a private business requiring commercial viability while bond trading is sensitive to transaction cost.
- ID platform charges a fee for each way of trade. Brokers pay both ways if they use it and, sometimes, tax on top.
  - A securities broker must also cover a fee to a sub-registry and bear a funding cost of settlement when the transaction is booked.
  - Should securities brokers join the ID platform??
- Charge transactions reported for transparency???
  - Don't discourages transparency.
  - Sell the information to information venders (e.g., Reuters, Bloomberg, etc.)

Business Models

- Private network (high cost & high speed/security) vs. internet (low cost & low speed/security?)
- An overseas server (low entry cost & high maintenance cost) vs. local stand alone system (high investment cost & low maintenance cost)
- Fee income
  - Membership, transactions,
- Equity investment by market participants.
- Joint Venture between a foreign provider and local bond dealers' association.

A strategic business model ?

Q. How to start with a small volume: a chicken-and-egg problem.

- Government investment or financial support? (e.g., MTS of Italy, TBDC in Thailand)

Legal & Regulatory Issues

- Should ID platform be authorized as an exchange? Can it be allowed to offer voice broking without a brokerage license?
- Supervised as an exchange as well as an SRO by the securities regulator?
- How should IDB be authorized and regulated?
- Is there Regulation ATS to authorize and regulate electronic trading platform and ECNs?
- Whether and how should Bloomberg, Reuters, Telerate be regulated if they offer trading services?
- How can possible public sector ownership be treated under the existing regulatory framework?

Strategy?

- Consider business model and viability. A monopolistic inter-dealer market tends to be a core.
- Consider whether a PD / market maker system should be adopted.
- Consider expanding it to create a multi-dealer trading environment (e.g., MTS + BondVision) particularly as you try to establish a more formal PD system.
- Consider regulatory framework. Consider whether self-regulation makes sense and whether is conflict of interest manageable.
- Consider creating a competitive inter-dealer market with multiple inter-dealer brokers and high transparency (e.g., Bond Exchange of South Africa).
- Meanwhile, consider requiring “reporting” of OTC transactions for transparency.

Thank you !

Biography of Mr. NORITAKA AKAMATSU

Mr. Akamatsu is a Lead Financial Economist of Financial Sector Operations and Policy Department and a Task Team Leader of the World Bank's Public Debt Reform Program. He joined the Bank in January 1993 as a Financial Economist. He specializes in the area of financial market development and has been working on numerous lending operations, technical assistance projects and the Financial Sector Assessment Program (FSAP) of the World Bank and IMF to support the development of emerging financial markets around the world. He has worked on Indonesia, China, Thailand, South Korea, the Philippines, Vietnam, India, Russia, Romania, Turkey, Croatia, Latvia, Kazakhstan, Armenia, Georgia and Peru among other countries. He is one of the primary contributors to the Bank's publication of Handbook of Government Bond Market Development. Prior to joining the World Bank, Mr. Akamatsu worked for Nomura Research Institute in Tokyo and London where he was responsible for advising governments on financial market development in Asia and privatization in Central and Eastern Europe while supporting international bond underwriting operations of Nomura Securities. Mr. Akamatsu holds an MBA from the University of Chicago and an MSc in Economics from London School of Economics.

Session 5

Panel Discussion: Role of Clearing and Settlements: Economy Experience

Clearing and Settlement of Government Bonds:

Indonesian Experience

By Budi Mulya
Director of Monetary Management Directorate
Bank Indonesia

Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies

Bali
11 December 2003

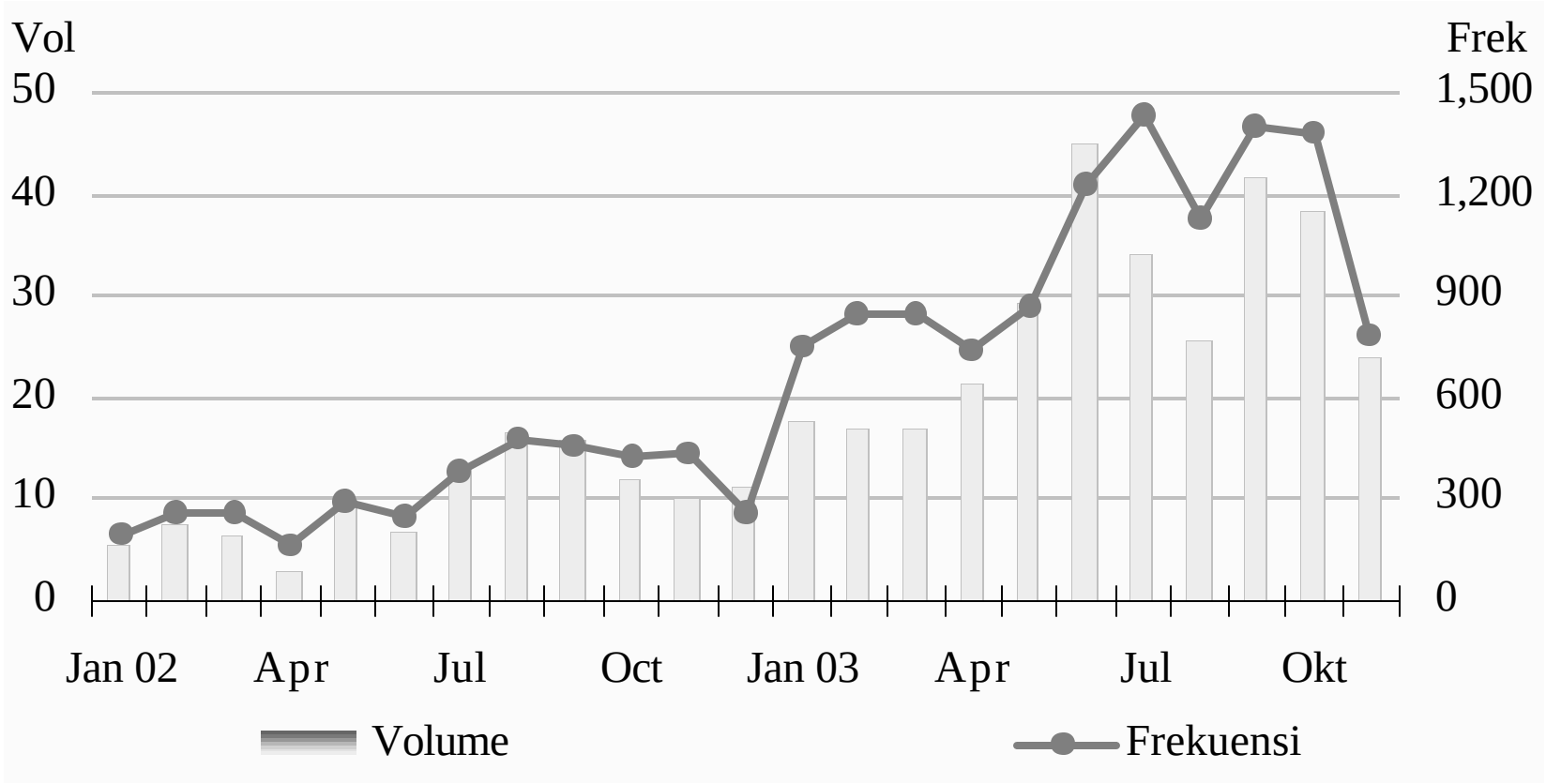
Outline of Presentation

- The Indonesian Government Bond
- Overview : Clearing and Settlement System
- Current Settlement System : BI-SKRIP
- Developing A More Reliable System : BI SSSS

The Indonesian Government Bond

- **Issuance of government bonds** :
  - to finance banking recapitalization program in 1999
  - Auction and buy back as part of government debt management strategy
- **Total Gov Bonds Outstanding** (as of Nov, 2003) is Rp. 400,60 Trillion
  - Fixed Rate (FR) : Rp. 155,84 Trillion
  - Variable Rate (VR) : Rp. 231,28 Trillion (rates based on 3 month SBI)
  - Hedge Bond (HB) : Rp. 13,52 Trillion
- **Role of Bank Indonesia** (Government Securities Law, No. 24, 2002): Auction agent and Administering agent
- **Transaction in secondary market continue to increase:**
  - January 2002, volume = Rp 5,38 T (USD 632 million) or frequency = 192 transactions
  - Januari 2003, volume = Rp 17,6 T (USD 2 billion) or frequency = 752 transactions
  - November 2003, volume = Rp 23,9 T (USD 2,8 billion) or frequency = 788 transactions

Government Bonds Transaction in The Secondary Market
(As of Nov 003)



Overview : Clearing & Settlement System

- *Need to conduct an efficient securities clearing and settlement system*

- *Benefits from from an efficient securities clearing and settlement system*
  - Timely reliable settlement of securities trades
  - Minimal risk to participants in case of institutional failure
  - Minimal risk to system operator(s)
  - Market confidence in the infrastructure

- *Disclosure Framework :*

  Necessary information disclosed to the public

Administering Government Bonds

- Bank Indonesia Act (No. 23 of 1999) article 55 paragraph (1)

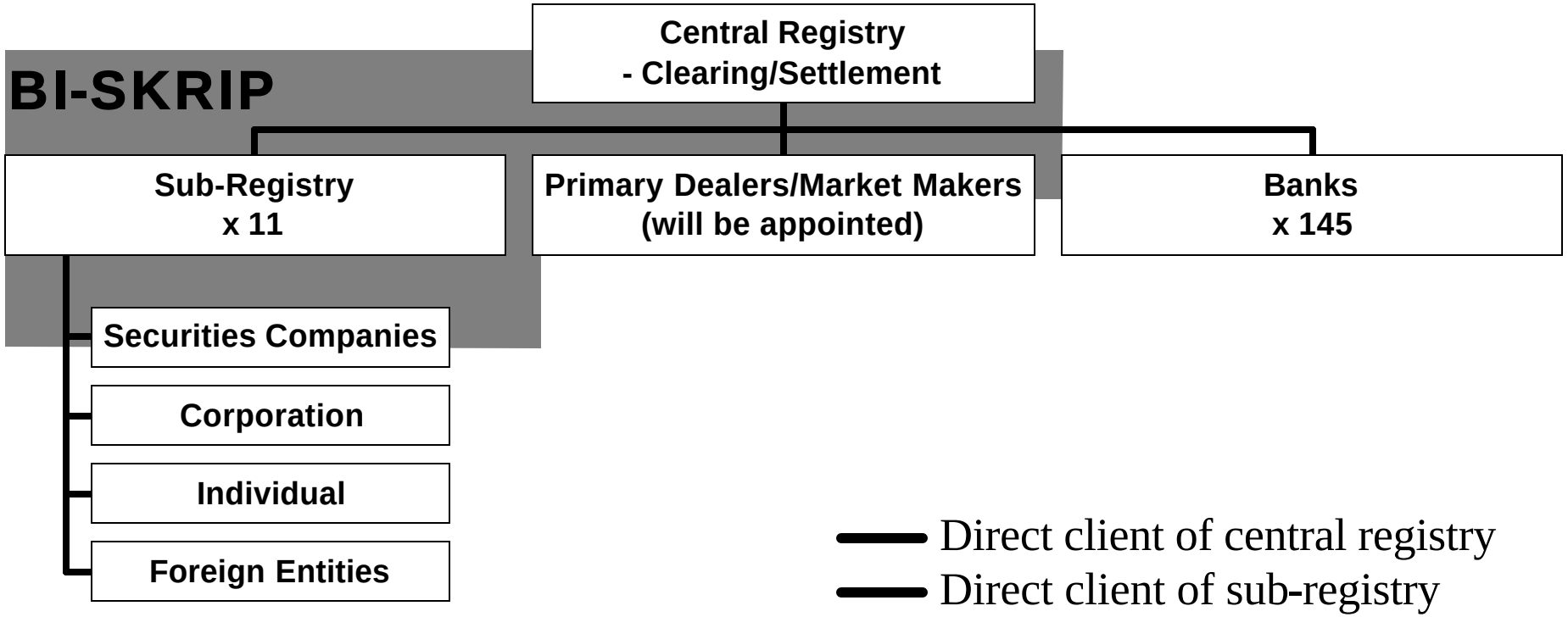
  The Government shall, in the event that the Government will issue the state debt securities, hold a prior consultation with Bank Indonesia.

- The Law (No. 24 of 2002) stipulates that the administration of government securities in the primary and secondary market is conducted by Bank Indonesia. **Administering activities** include ownership registration, clearing and settlement and paying agent for the payment of interest and principal

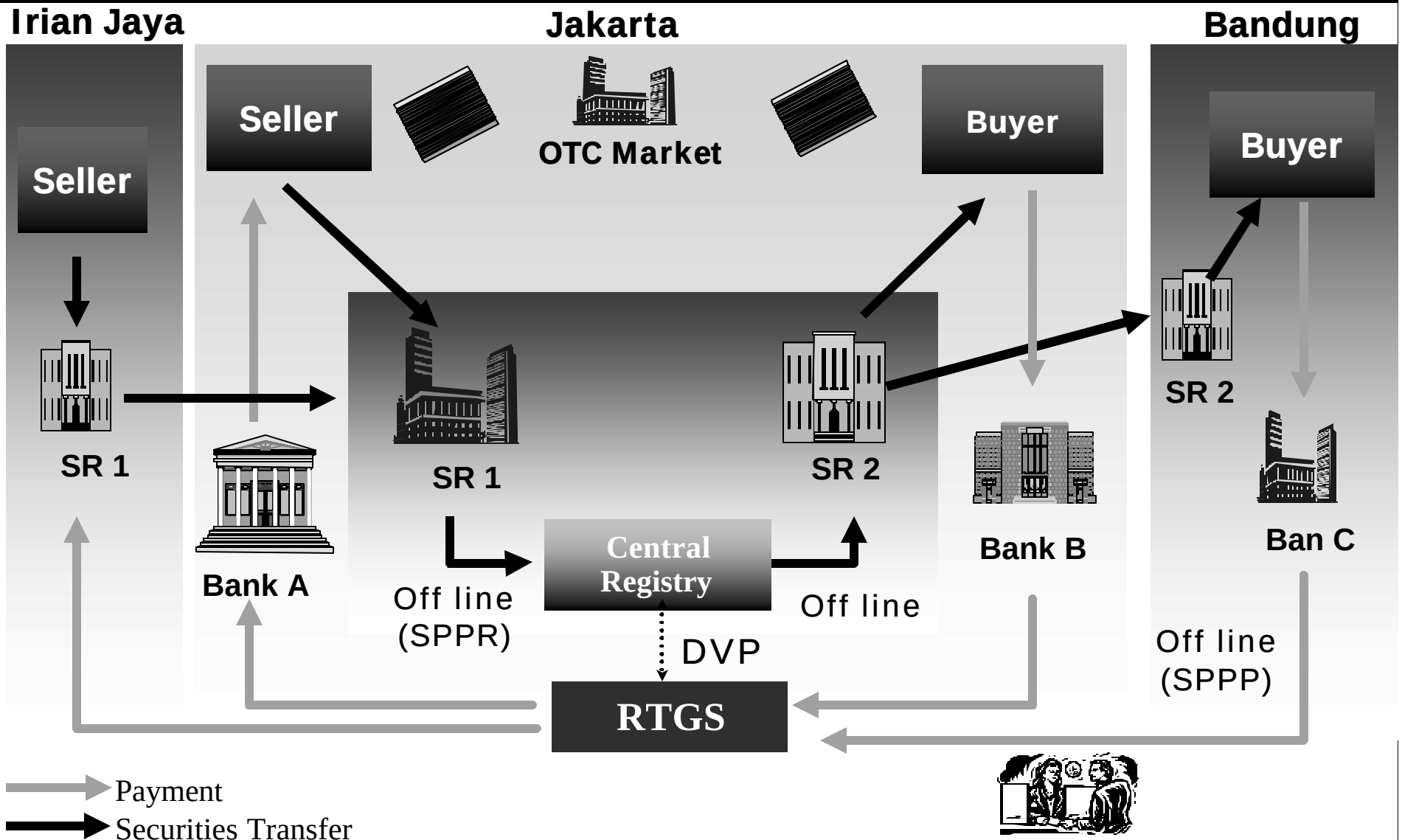
- February 2000 has been operating registry and settlement system known as BI-SKRIP (Bank Indonesia - Clearing, Registration, Information and Administration system of government bonds)
  - Comply with BIS standards
  - Book-Entry Registry Form (scripless) system for government bonds and Central Bank Bills (SBI)
  - Linkage with 11 designated sub-registries
  - Linkage with BI-Real Time Gross Settlement (BI-RTGS interface)

Current Settlement System BI-SKRIP

- A two-tier system: Central Registry and Sub-Registries
- Settlement of transaction : Outright and Repo Transactions settled on a DVP or FOP basis
- BI-SKRIP is currently only used for registry of Government Bonds and Central Bank Bills (SBI)



Existing BI-SKRIP (off-line registry system)



Developing A More Reliable System : BI-SSSS

Current Problem:

- Delayed transaction
- Unsettled transaction,
- Delayed Sub-Registry report.

What we hope to achieve:

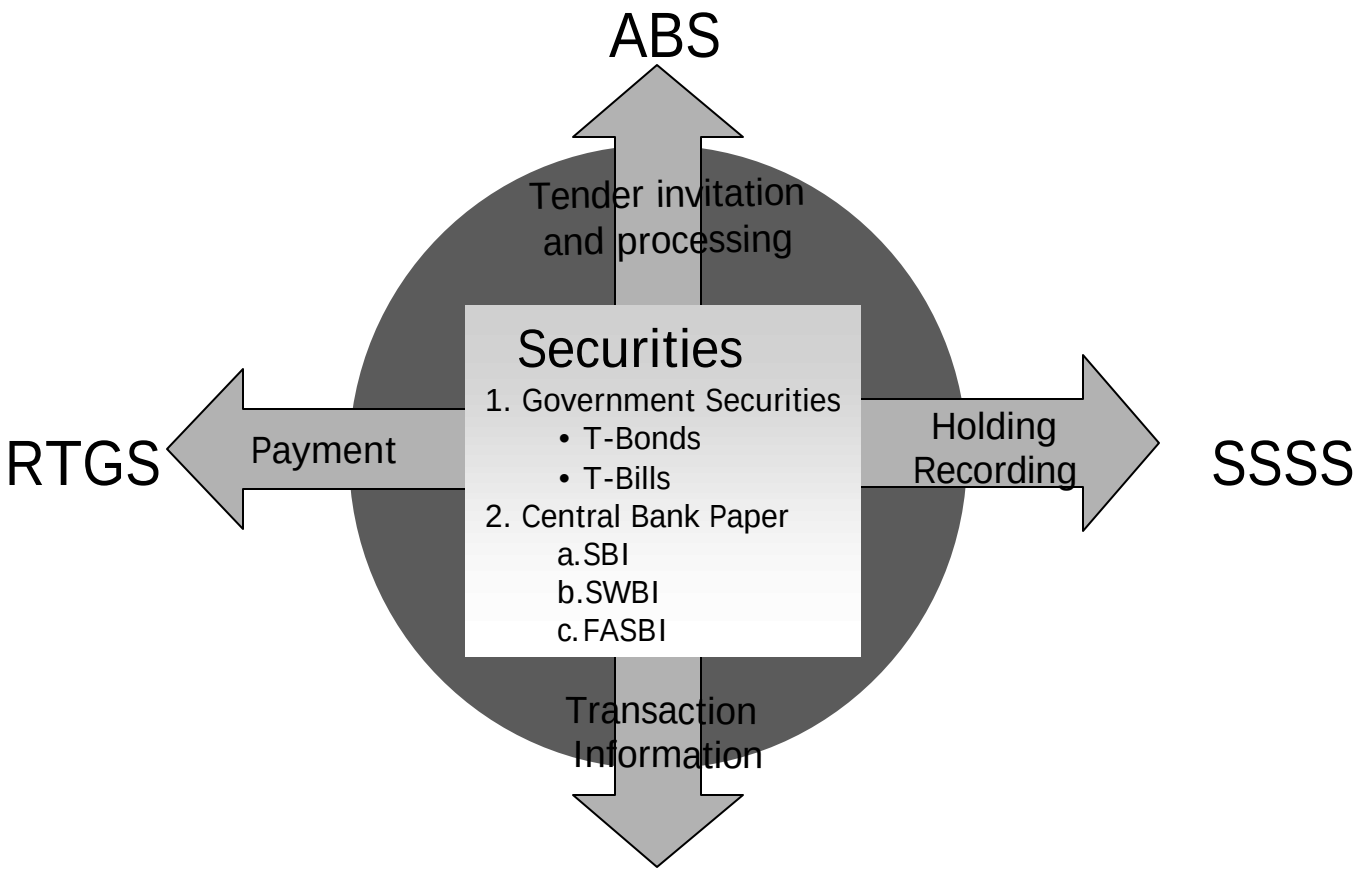
- Efficient securities settlement
- Decreased settlement risk
- Promote secondary market transactions

Solution:

an integrated automatic registry system that connects Central Registry with Sub-registries and other direct clients of the Central Registry

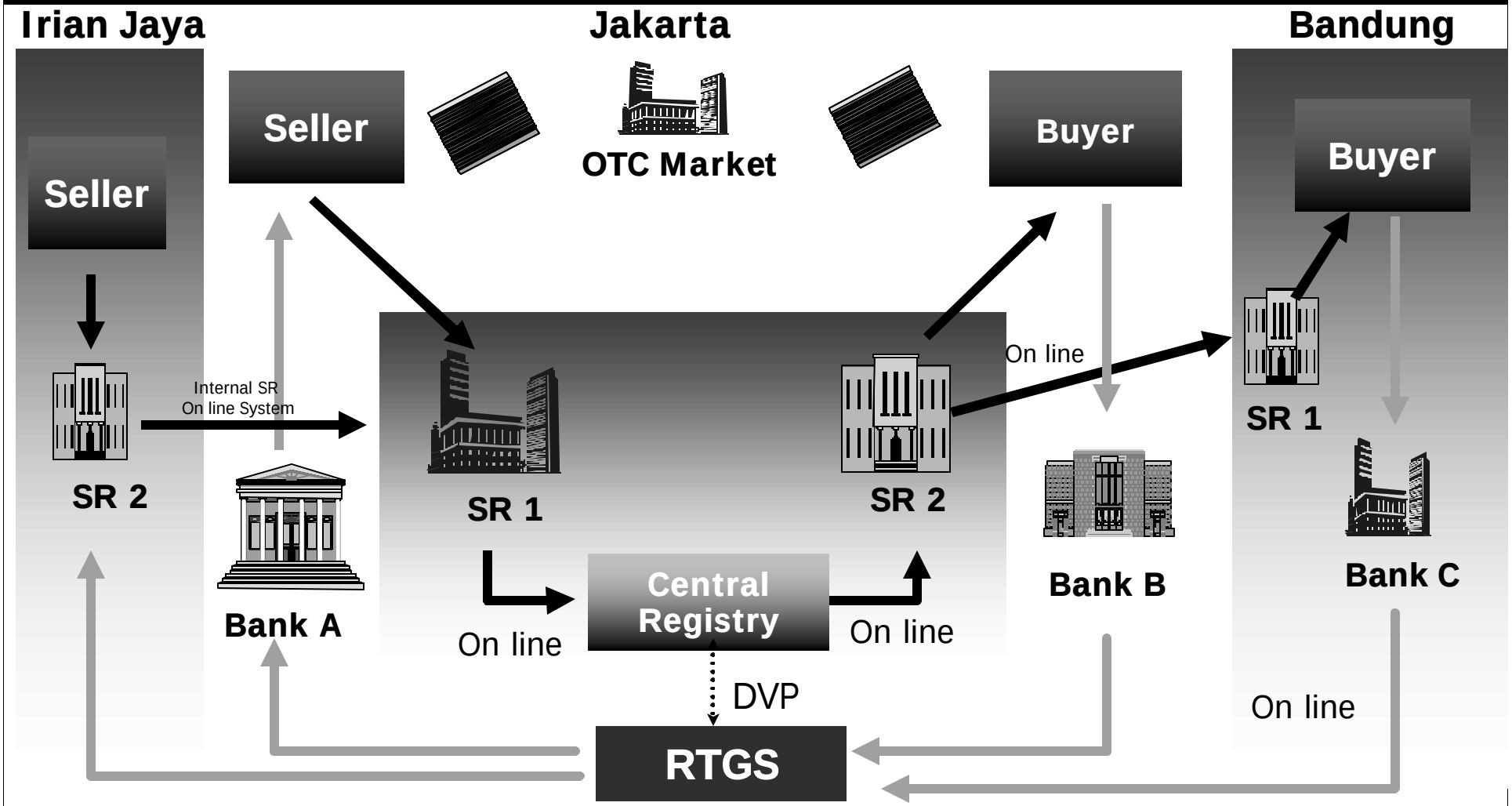
Scripless Securities Settlement System

BI- SSSS : Securities Issuance and Trading Infrastructure



www.bi.go.id /
PIPU/ Bloomberg/ BES/
Other Information provider

Current Development BI-SSSS : Bank Indonesia Scripless Securities Settlement System



Monetary Policy

Existing Monetary Policy

- Monetary Policy has been aiming on the Inflation rate as the final objective.

- BI will implement Inflation Targeting Framework (ITF) gradually starting from 2004.

Immediate Planning

- Accomodating the Government Bond as an Eligible Asset in OMO.

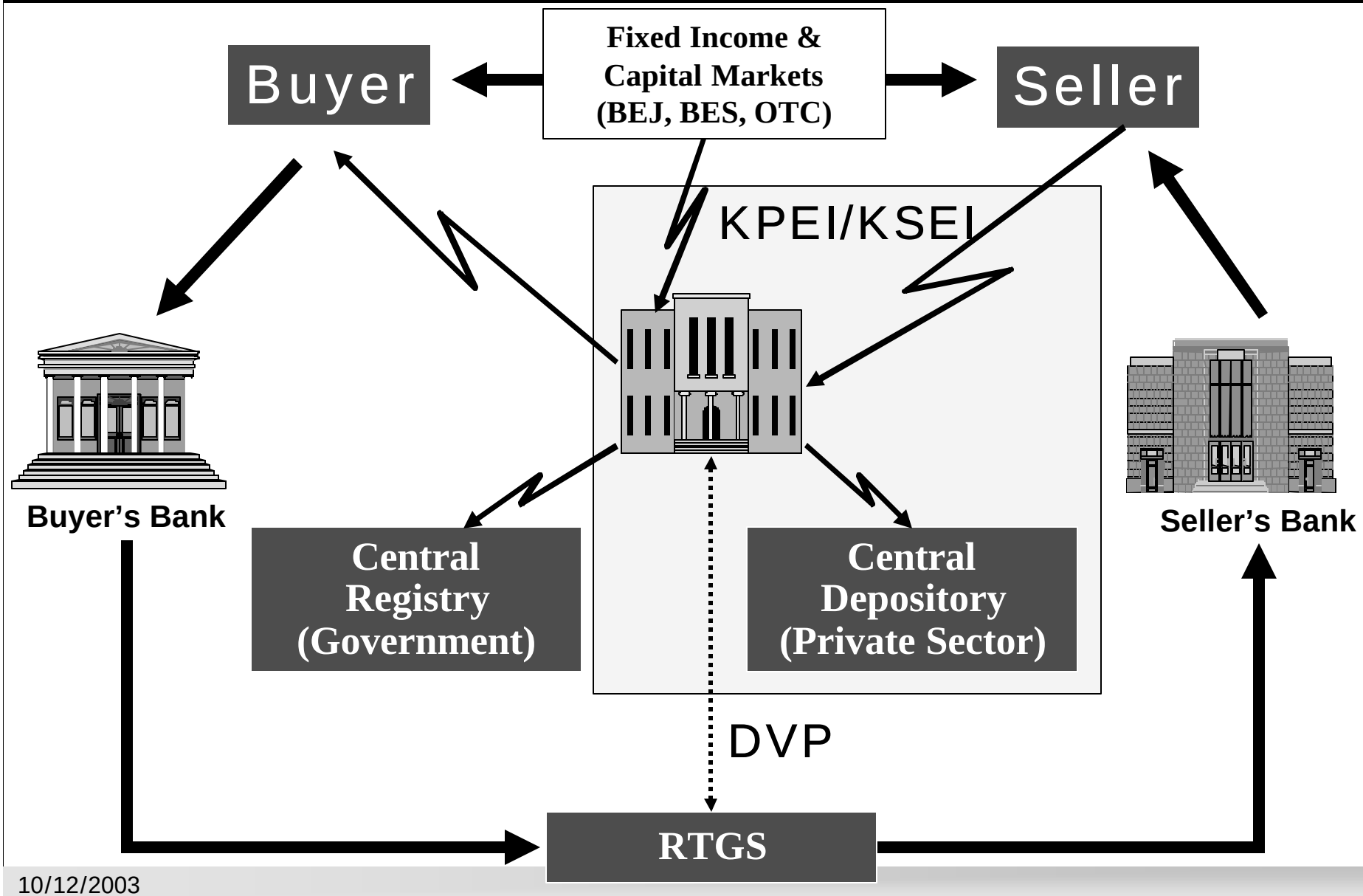
- Activating interbank repo market in purpose of:
  - supporting secondary market for the Government Bond.
  - improving the effectivity and the efficiency of monetary management.

Impact of BI-SSSS to the Monetary Management

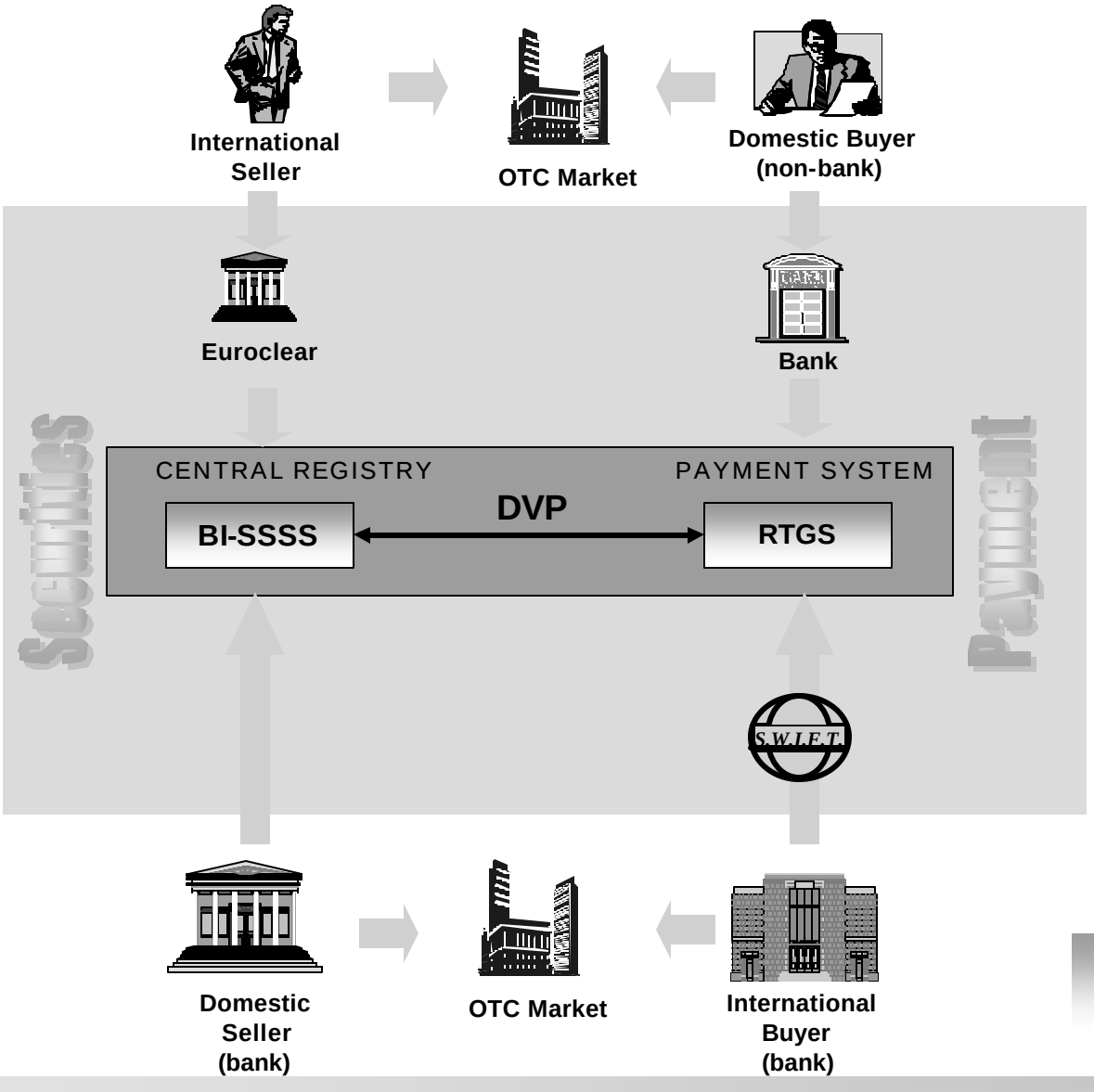
Increasing the Effectivity of Monetary Management

- Becoming more integrated with market player, BI is now able to perform instant and effective Fine Tune Operations at the right moment, in purpose of maintaining the stability of the short term interest rate.
- More efficient bond transactions have been developing interbank repo market. It contributes in reducing bank segmentation in the market, thus minimizing the possibility of shock because of the liquidity needs. Overall, this will maintain the stability of the short term interest rate.
- The efficient securities settlement will enrich the type of elligible asset in OMO conducting, thus will enrich the OMO instruments.

Longer Vision I : Integration with Capital Market Settlement System



Longer Vision II : Cross Border Transaction



Thank you

Website : www.bi.go.id

Email : timppsb@bi.go.id

Biography of Mr. BUDI MULYA SE MSc.

Place / date of Birth	: Bogor, 29 July 1954
Occupation	: Director, Directorate of Monetary Management
Office Address	: Bank Indonesia Tower B, 11th Floor Jl. MH Thamrin no. 2 Phone no. 62-21-381 8332 Jakarta, Indonesia
Home Address	: Rasamala IV / 6 Kompleks BI Pancoran Jakarta Selatan, Indonesia

Education / Experience :

1978	University Degree, Economic Major – UNPAD Bandung
1985	Master of Science in Economics (MSc) University of Illinois, Campaign Urbana Illinois, USA
1980	Staff of Economic and Research Department Bank Indonesia (Central Bank)
1991	Senior Economic Researchers Representative Office Bank Indonesia – England
1996	Head Division International Trade and Economic Cooperation International Department – Bank Indonesia
1999	Deputy Chief Biro Gubernur – Bank Indonesia
1999	Board of Director PT. Bank Ekspor Indonesia (Persero)

Maret 2003	Deputy Director Directorate of Monetary Management
Juli 2003	Director Directorate of Monetary Management

.

Developing Government Bonds as Monetary Policy Instruments

Role of Clearing and Settlement Systems

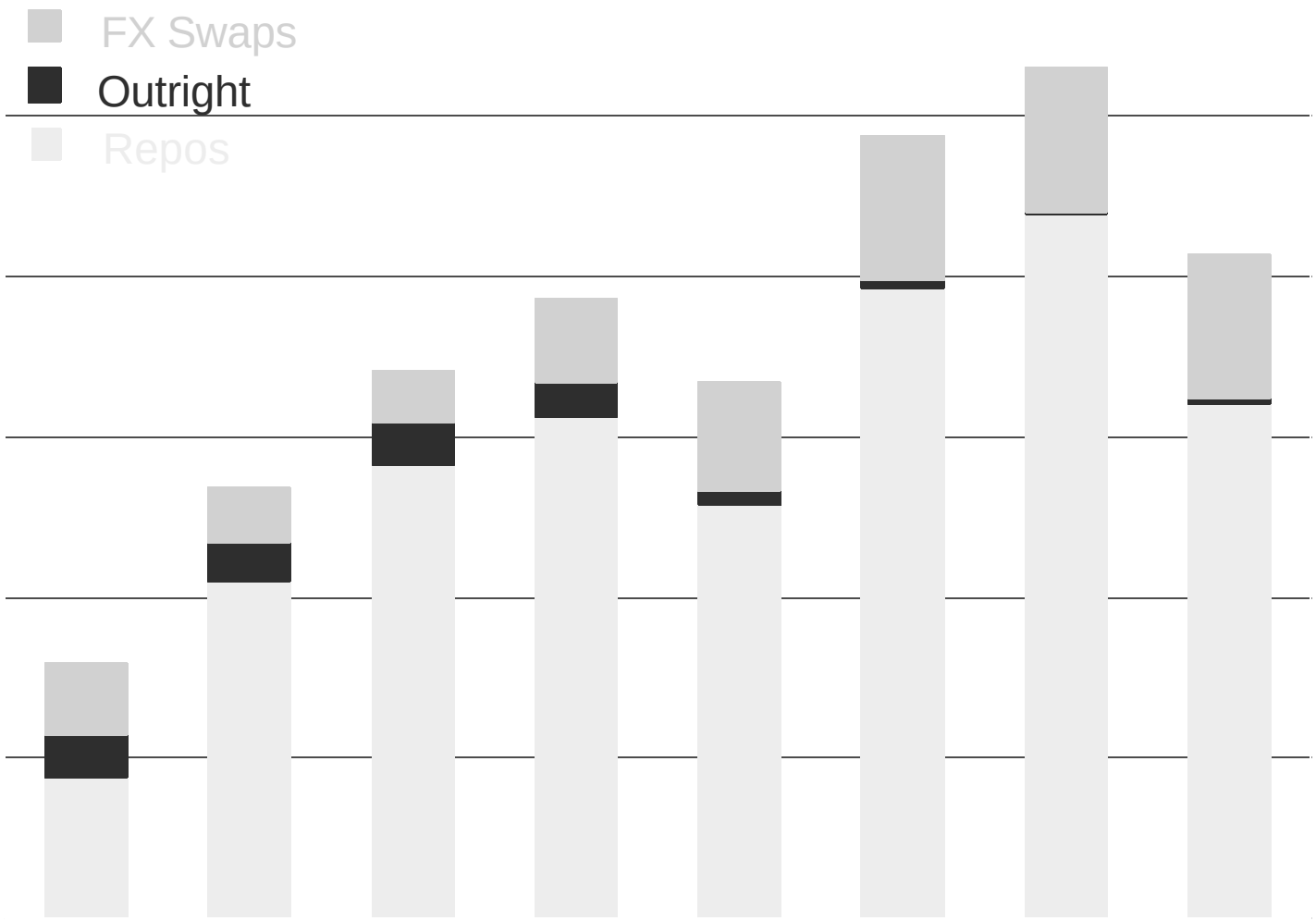
Greg Johnston
Reserve Bank of Australia

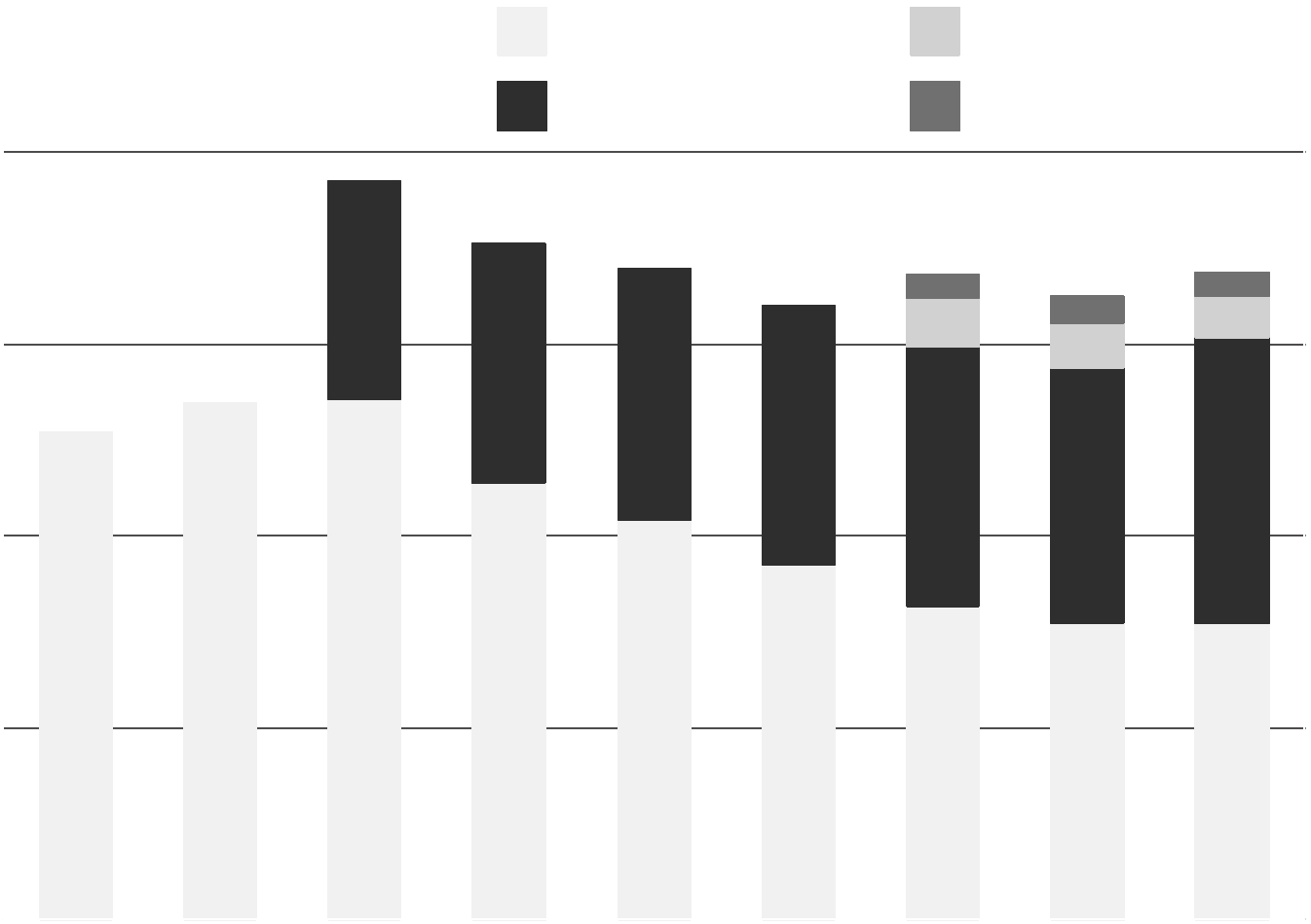
Outline

- Monetary policy in Australia
- Role of clearing & settlement systems
- Key standards
- Progress in Australia

Monetary Policy Operations in Australia

- Monetary policy expressed in terms of a target cash rate
- Cash rate is the cost of overnight unsecured interbank funds in the cash market
- Monetary policy instruments include repos, outright sales and purchases and swaps
  - Repos by far the most commonly used instrument
- We deal with both bank and non-bank market participants

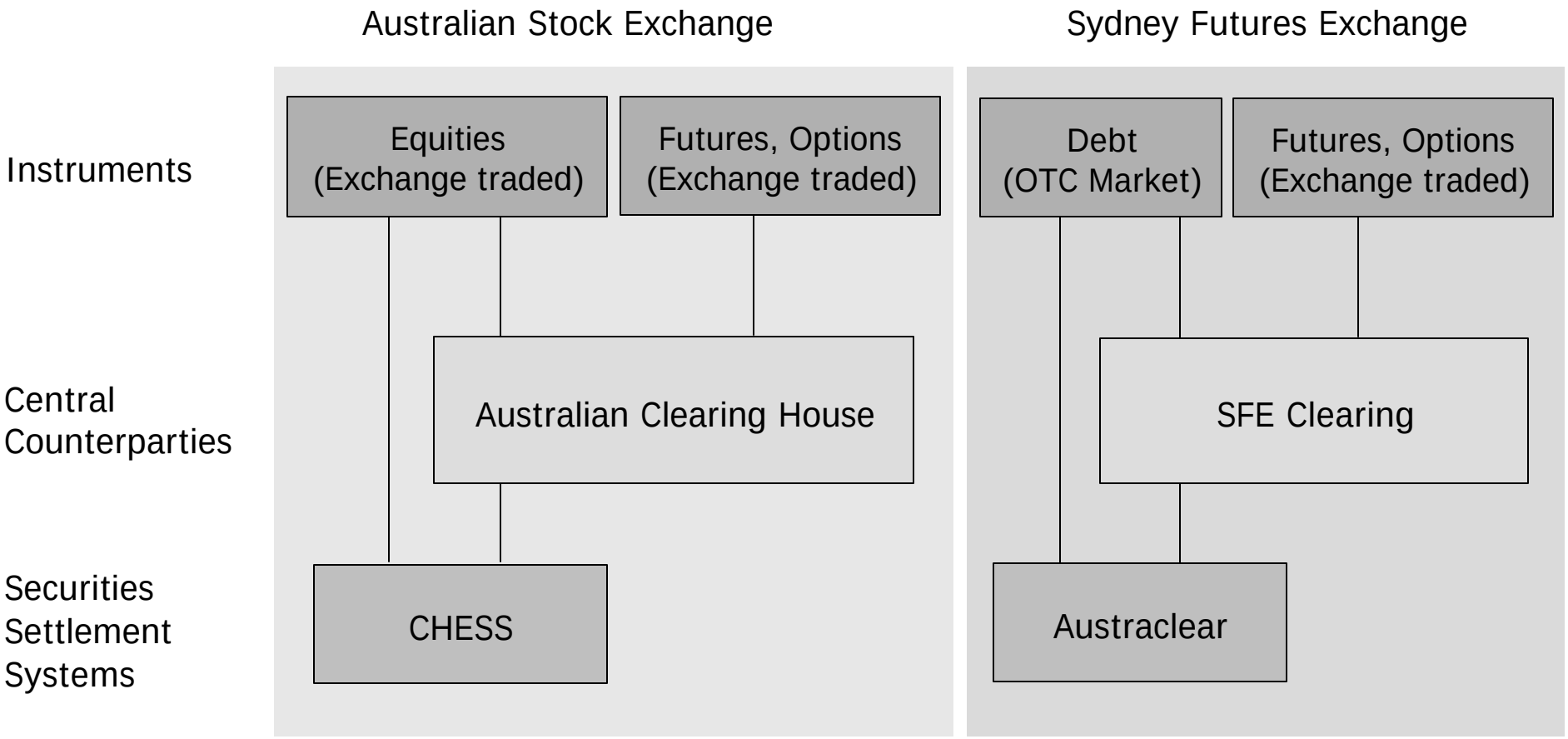

FX Swaps
Outright
Repos



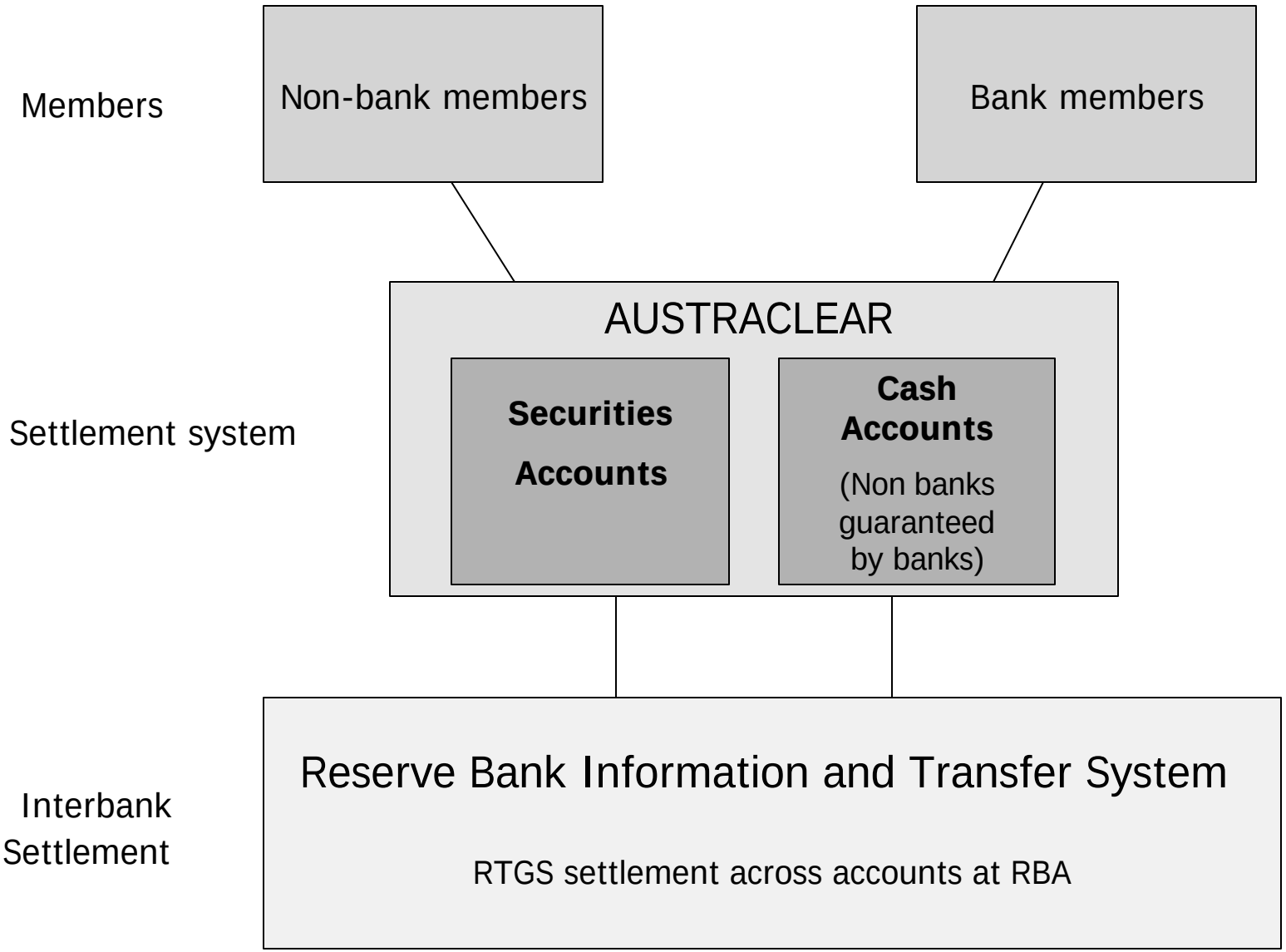
Clearing and Settlement Systems

- A reliable and well designed settlement system is essential for the Bank's open market operations
- Key functions
  - Records ownership of securities
  - Provides the necessary infrastructure to transfer title to securities
- Central counterparty for Government bonds is not essential for open market operations
  - Does have an important role in supporting futures market

Clearing and settlement Infrastructure in Australia



Austraclear



Key standards

- Certainty of title
- Assets used to pay for securities should have little or no credit risk
- Electronic settlement
  - Settlement finality
  - Delivery versus payment (model 1 or model 3)
- Settlement cycle no longer than T+3
  - but very short settlement cycles (eg T+0) for all trades can create problems

Key Standards

- Objective membership standards
  - all key market players should have ability to become a member of settlement system
- High operational reliability
- Settlement system should be a separate legal entity from a central counterparty
- Well designed and transparent oversight arrangements
- Sound legal arrangements required for most of the above standards

Experience in Australia

- Implementing key standards takes time
  - Electronic settlement introduced progressively for various debt and equity securities from mid 1980s
  - DvP introduced over same period (model 1 RTGS arrangements introduced in 1998)
  - Legislation underpinning settlement finality enacted in 1998
  - Regulatory standards issued in May 2003

Experience in Australia

- Many stakeholders, including market participants, regulators and Government, involved
  - Prioritisation of tasks depends on local circumstances
- Other important objectives, such as achieving greater efficiencies, an ongoing task

Biography of Mr. GREG JOHNSTON

Greg Johnston has over 13 years' central banking experience and is currently Senior Manager, Domestic Portfolio and Liquidity Analysis at the Reserve Bank of Australia. He is responsible for the Bank's domestic liquidity forecasting activities, matters relating to Commonwealth Government's debt management and policy issues relating to the composition of the Bank's domestic asset portfolio.

Prior to taking up this role, he held the position of Senior Manager, Payments System Stability. In this role, he was heavily involved in the establishment of a new regulatory regime for securities clearing and settlement systems in Australia, and in developing minimum risk control standards for these systems. He was also part of the Reserve Bank team responsible for implementing real-time gross settlement arrangements in Australia. Prior to joining the Reserve Bank, Greg worked in the retail and corporate banking divisions of a commercial bank.

UK Market Infrastructure

Clearing and Settlement infrastructure in the context of Government debt markets

euroclear

Introduction

- Significant reforms in the UK market over past 5 years
- Speaking about those reforms
  - Background to reforms
  - Benefits of reforms

Background

- Currently in the UK
  - All security types (except Unit Trusts) eligible for settlement in CREST
  - Finality of stock and cash at point of settlement
  - Full STP
  - Handles significant volume

Background (2)

- Not always the case
  - Gilts (long term government debt) in CGO system
  - Treasury Bills (short term government debt) in CMO system
  - Other securities (equities, warrants, some corporate debt) in CREST system
  - No full DvP in any of the systems
- Supporting 3 systems costly
  - Central infrastructure costs
  - Costs to members in having 3 different processes
  - Costs to members in having inefficient collateral and liquidity management procedures
- Led to the “Securities Settlement Priorities Review” in 1998

Securities Settlement Priorities Review

- Initiated by Bank of England in 1998
  - Gain market opinion
  - Gain market buy in for change
- Clear response from the market
  - Consolidate!
- Inaugurated a program of work
  - Close CGO, migrate gilts to CREST
  - Link to RTGS payments processor at Bank of England
    - Obtain Central Bank Money
  - Close CMO, migrate Treasury Bills (plus other instrument types to CREST
    - Bankers Acceptances
    - Certificates of Deposit

Benefits of consolidation

- Central infrastructure costs
  - Closure of CMO realised 85% saving for market
- Members own costs
  - Standardised procedures and processes
    - Removal of manual processes
    - Removal of volume constraints
    - Automation
  - Enhanced collateral management
  - More efficient Central Bank Money liquidity generation
- Risk Reduction
  - Simultaneous Delivery versus Payment
  - Removal of counterparty credit lines

Key requirements for infrastructure

- Reliability
- Transparency
- Widest possible range of instruments
- Dematerialisation
- Settlement finality
- Automation
- Efficiency
- Cost effective

Key requirements for infrastructure (2)

- If these requirements can be met
  - Constraints to trading removed
  - Collateral can be mobilised and utilised efficiently
  - Markets in general will be more liquid
- This is the case for all market infrastructure
  - Not solely confined to government debt
  - Equally important for equities, corporate debt and other instrument types

Conclusions

- UK market transformed in 5 years
  - SSPR concluded
  - World class infrastructure in place
- The UK Central Bank played a major role
  - Long term strategy of risk reduction
  - Enhanced market efficiency
  - Liquid, risk free environment for trading of all instrument types
- CRESTCo now part of Euroclear Group
  - Seeking to achieve the same consolidation on a European scale
  - Aiming to give the European market the same cost savings and efficiency gains

Links

- Securities Settlement Priorities Review
  - http://www.bankofengland.co.uk/markets/payments/sspr.htm
- CRESTCo/Euroclear merger details
  - http://www.crestco.co.uk/home/home.html#/news/proposal_main.html
- Euroclear Group Business Model
  - http://www.euroclear.com/wps/portal/_pagr/108/_pa.108/124

euroclear

APEC Speech - market infrastructure in the UK for Government bonds

Introduction

It is a great pleasure to be asked to partake in this panel discussion on the role of Clearing and Settlement infrastructure in the context of Government debt markets. My interest in this subject is the result of my own involvement over the last few years in the reform of the UK financial markets infrastructure, which was completed recently with the closure of the Central Money Markets Office - otherwise known as the CMO - and the migration of UK money market instruments onto the CREST platform.

These reforms, most of which have occurred over the last five years, have significantly modernised the UK settlement infrastructure. So I would like to speak to you today about the history behind the developments in the UK financial markets infrastructure over the past few years, and to share with you some thoughts on the UK experience of how settlement and clearing systems can facilitate the liquid trading of government bonds.

Background

Today, in the United Kingdom, the settlement of trades in equities, government debt, money market instruments and other types of security can all be settled in dematerialised form on one settlement system, CREST, against immediate Central Bank Funds in sterling or euro at the Bank of England. This provides true Delivery versus Payment - immediate finality of title to securities against immediate payments of real funds.

Straight Through Processing is the norm for CREST members, and the CREST system is able to handle significant volumes. This permits members of the settlement system - which includes banks, custodians, wholesale market brokers and retail market brokers - to engage in, for example, automated programme trading without needing to worry about whether the central infrastructure is up to the task, or whether they have any intra-day counterparty exposures on settlement date.

It is a world class environment for the risk-free settlement of securities transactions.

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However, this has not always been the case in the United Kingdom. As recently as the late 1990s, the UK settlement infrastructure was fragmented across 3 different securities settlement systems, and all payments were undertaken on an end of day basis at the Bank of England. Thus, significant exposures could be generated between counterparties each day, which, whilst manageable with an assured payments mechanism, left a residual element of default risk in the settlement process. Hence, trading was constrained by the level of risk that each firm felt it could be exposed to per counterparty. In addition, different working practices in different systems, as well as different levels of STP, added to the cost of trading in the UK.

In terms of the settlement arrangements in the late 1990s for the various different security types, money market instruments, a class of short term debt instrument that includes government issued Treasury Bills, were settled via the Central Money Markets Office (the CMO). This was a depository based immobilisation system, that had no Delivery versus Payment capability, even on an assured payments basis, no Straight Through Processing and held instruments that had a legal

basis stretching back to the 19th century! In addition, whilst the primary market actively used this system and was deeply liquid, the secondary market was virtually non-existent. The recent migration of Treasury Bills to CREST has already resulted in a wider range of participants using Treasury Bills as collateral, and is expected to encourage the development of a secondary market in due course.

Equities were settled via the CREST settlement system. The CREST system, which went live in 1996, was based on a modern, highly secure and resilient platform, and was a major step forward, both in terms of the user-owned governance of CRESTCo, the company set up to develop, run and enhance the system, and in terms of its functional richness. It had full STP capabilities, sophisticated collateral management facilities, an efficient settlement algorithm capable of handling significant volumes and, when it first went live it operated with an assured payments mechanism that afforded a good quality of Delivery versus Payment. Securities are held in dematerialised form under a robust legal framework, and automated links to registrars ensured that the system could enable issuers to fulfil their companies act obligations in relation to shareholder rights. More importantly, the company itself was independent of any Stock Exchange, and was owned and goverened by its users, so was free to develop into areas that a stock exchange may not wish to venture into.

Long term government debt instruments (otherwise known as gilts) were settled via the Central Gilts Office system, which was implemented in 1986 by the Bank of England. This system had very limited STP, and payments were assured between the payment banks, as per the CREST system. As per CREST, the debt was dematerialised on the books of CGO, and the system was upgraded in 1997 to run on a modified clone of the CREST software, permitting a degree of back office standardisation, but did not address any of the risks.

None of these systems were able to address fully the issue of default risk in the payments world, although the risks were mitigated to a degree by the assured payments mechanisms in CGO and CREST.

So, by 1997, the UK had a fragmented settlement infrastructure, with differing degrees of automation, settlement finality and legal basis. None of these systems were connected to the Real Time payments processor at the Bank of England, the RTGS system, in a way that permitted real time payments to be made. The situation was not ideal, and the UK market started to consider the next steps towards improving efficiency and removing risks.

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By 1998, following a period of bedding down and experience of live operations, it became clear that CREST was a reliable, modern system, capable of high volumes and with a very high level of Straight Through Processing and automation. Similarly, it was clear that the market wished to take advantage of the new automated settlement environment in order to reduce their own costs, having recently invested in new systems to interface to CREST. To facilitate the debate, the Bank of England once again took the lead and commissioned a formal review, the "Securities Settlement Priorities Review," to gauge the opinion of the UK market in relation to the future development of the financial infrastructure. The result of that review was a clear signal from the market that they wished to consolidate all their settlement activity onto a single IT platform, CREST, and that the settlement system should be linked directly to the central payments processor, RTGS, at the Bank of England. Most of the responses to the review signaled that the UK market for government debt was constrained by an inefficient, fragmented infrastructure and the lack of full DvP.

As a result of the review, the Bank of England agreed that it was appropriate for CRESTCo, the

market owned and market governed operator of the CREST system, to assume control of the CGO and CMO systems, with a view to beginning the task of integrating the systems. It was clear we had a lot of work to do!

The first step was to migrate gilts from the CGO onto the CREST platform, a task accomplished in July 2000, following a period of market consultation, amendments to the legislation under which CREST operates and some software development on CREST itself to accommodate stripping of gilts, and other specific requirements.

The introduction of gilts into CREST, and the subsequent increase in the value of transactions being settled in that system made the introduction of full DvP in Central Bank Money the next priority. The link to the Bank of England RTGS payments processor was inaugurated in November 2001, following further software development to allow payment banks to seamlessly manage their liquidity between CREST and RTGS, to provide for self collateralisation functionality and to ensure robust operations in the linkage between the two systems. At the same time, the legislation underpinning the CREST system was amended to permit the CREST records to be the definitive record of title to securities, a pre-requisite for the migration of bearer securities in the CMO to CREST. These two developments ensured that the settlement of stock against cash was absolutely simultaneous for securities settled through CREST.

The final stage in the consolidation process occurred in October this year, when following a lengthy period of market consultation, system design and legislative change, money market instruments were finally migrated onto the CREST platform. With the exception of Unit Trust settlement, for which there are currently no central settlement arrangements and is the subject of work currently being undertaken in the UK, all types of security are now eligible for dematerialised settlement within CREST. The consolidation of settlement systems in the UK is complete.

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The benefits to the market are immeasurable - as part of the money markets project, we estimated that the closure of the CMO and the exploitation of economies of scale inherent in the CREST system would save the market 85% of the costs it incurred in keeping the CMO system running. The migration of CGO to CREST would have saved the market a similar amount, so the benefits of the consolidation of 3 settlement systems into one had a real, tangible effect on the costs of doing business in London. But the cost savings didn't end there.

The injection of new sources of liquidity into the settlement process have additionally had countless advantages to a wide range of counterparties. The introduction of full DvP removes intra day default risk, which removes a significant contraint on trading by removing the need for credit lines to be managed. The ability to Straight Through Process transactions, either on a proprietary file transfer basis or via ISO15022 messages allows firms to reduce their own back office costs immensely by allowing them to focus on exceptions only, resulting in the need for fewer staff to run the operation, and, more importantly in the context of this panel, removing a significant operational constraint on their trading activity.

So London is now a world leader in terms of it's market infrastructure, and has been successful in delivering a very intensive program of modernisation over the last 5 years. This has been achieved by close interaction between all sectors of the financial markets, and very close co-operation between CRESTCo, the Bank of England and HM Treasury.

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Key requirements for market infrastructure

So that's where we are today, but the question that has been asked is what do I believe to be the key requirements for the central market infrastructure in order to support liquid trading for bonds? Well, in my view, liquidity is greatly facilitated by the ability to mobilise many different asset types in a seamless process for different business needs – certainly in the UK, equity stock borrowing and lending activity can be enhanced by the appropriate use of government debt as collateral. If it is made easy for members to transfer the relevant assets seamlessly in the same CSD using the same messages, same procedures, at a low cost and no risk, then they will naturally make active use of the collateral.

So to facilitate liquid trading in general, irrespective of security type, the clearing and settlement infrastructure must fulfil the following criteria:

- Members need to be able to rely on the system to meet their needs. In our view, this means that the settlement system should be Market owned and Market governed and exchange independent to ensure it represents the interests of its users, not its shareholders;
- Following on from this, membership policies and tariffs must be transparent to users of the system, and should be applied fairly, and access should be granted to the widest community of members possible;
- The settlement system should accommodate the widest possible range of instruments, to allow its members to standardise their processes across different security types. If there is more than one CSD in a region, the focus should be on consolidation in order to gain the benefits of economies of scale;
- Ideally, securities should be held in dematerialised form;
- The settlement system should be able to achieve the best level of finality of stock and cash available in the jurisdiction in which it operates;
- The settlement system should ensure that it's members are able to automate their settlement processing to the greatest extent possible - the goal should be true STP, from trade to settlement with no intervention by human hand. This requires a disciplined approach to message standards and product enhancements - for example, CRESTCo generally publishes technical details of enhancements at least 6 months before they are due to be introduced to the live environment, allowing members to perform the necessary enhancements to their own systems;
- The settlement system must be efficient and robust; and
- Must be low cost! A single settlement system for all securities is able to exploit economies of scale, in comparison with operating different systems for different classes of security

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If all these criteria are met, then firms involved in the trading of government debt will not feel constrained by market infrastructure issues or counterparty default issues, and will be able to trade freely with counterparties.

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Conclusions

To conclude my remarks therefore, it is clear that the United Kingdom has come a long way since the introduction of CREST in 1996, and now that the reforms are complete, the UK market has been transformed. We must acknowledge the role of the UK Central Bank; in it's capacity as the guardian of the financial stability in the UK, has adopted a long term strategy of risk reduction,

starting with the introduction of CGO in 1986 and the associated dematerialisation of gilts, the introduction of CMO, the setting up of CREST and the eventual consolidation of all the platforms into one.

So, the strategy adopted by the Bank of England and implemented by CRESTCo to facilitate the consolidation of the Uks settlement systems has resulted in a resilient, user governed system that can settle transactions in the widest possible range of securities with immediate finality of title, and immediate payment of cash at the Central Bank. Hence, to all intents and purposes, intra-day settlement risk no longer exists in the UK where the securities are dematerialised, and members are free to progress trading strategies without constraints from the market infrastructure. The effect of a secure, robust and, ultimately, trustworthy infrastructure is a reassurance for market participants that any trading activity, no matter what the volume or value, can be handled and this is, in itself, a major facilitator for liquid trading of all security classes.

Of course, I cannot finish this speech without mentioning the the merger of CRESTCo and Euroclear, and the creation of a new settlement system for Europe. It is envisaged that the benefits of consolidation already gained by the London market in terms of cost and standardised processing will be delivered on a European scale by this merger. The european financial markets have been demanding consolidation of the securities settlement infrastructure since the advent of the euro, for all the reasons outlined earlier, and Euroclear Group is more than happy to play it's part in the consolidation.

Thank you for listening, and I hope you found it informative.

Biography of Mr. ROBERT FAIR

Robert Fair has worked at CRESTCo since March 1996. Robert was involved in the initial market acceptance testing of the CREST system prior to the launch of CREST in July 1996, and has been involved in most of the major market infrastructure developments in the UK since that time. Most recently, Robert was the project sponsor for the project to dematerialise UK money market instruments and to close the legacy settlement system for those instruments, the CMO. That project concluded an intensive period of market infrastructure renewal in the UK.

Robert is now part of the Business Model Harmonisation Division at Euroclear group, a Division looking to bring the benefits of consolidation to the market on a European scale.

Robert graduated from the University of Lancaster in 1993 with a BSc in Environmental Science.

Session 6

The Role of Repos as Monetary Policy Instruments

The Role of Repos as Monetary Policy Instruments

(Basic features of JGS Repos and BOJ's challenge)

December 12, 2003

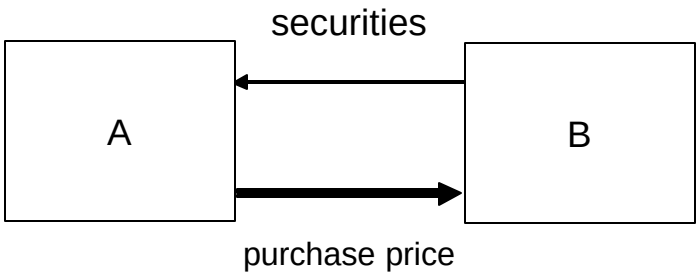
Tatsushi Kurihara
Financial Markets Department
Bank of Japan

(Chart 1)

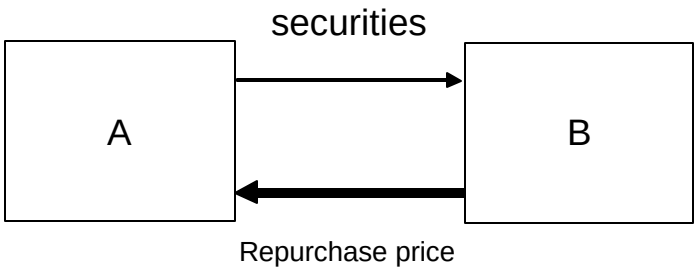
1. Basic concept of Repos

- Purchase of securities with repurchase agreement

(1) Purcase day



(2) Repurcase day



- Two Aspects for player A
  - Loan to player B with collateral of risk free government securities
  - Securities borrowing from player B with cash collateral

(Chart 2)

2. Repos market in Japan (1)

✍ Repos market is one of the main money markets in Japan.

(as of end of 2002, trillion yen)

Inter - bank markets			15	8%
	Call		15	8%
		uncollateralized	4	2%
		collateralized	11	6%
Open markets			172	92%
	C D		30	16%
	C P		15	8%
	T B		35	19%
	F B		44	24%
	Repo		47	25%
Total			187	100%

(Chart 3)

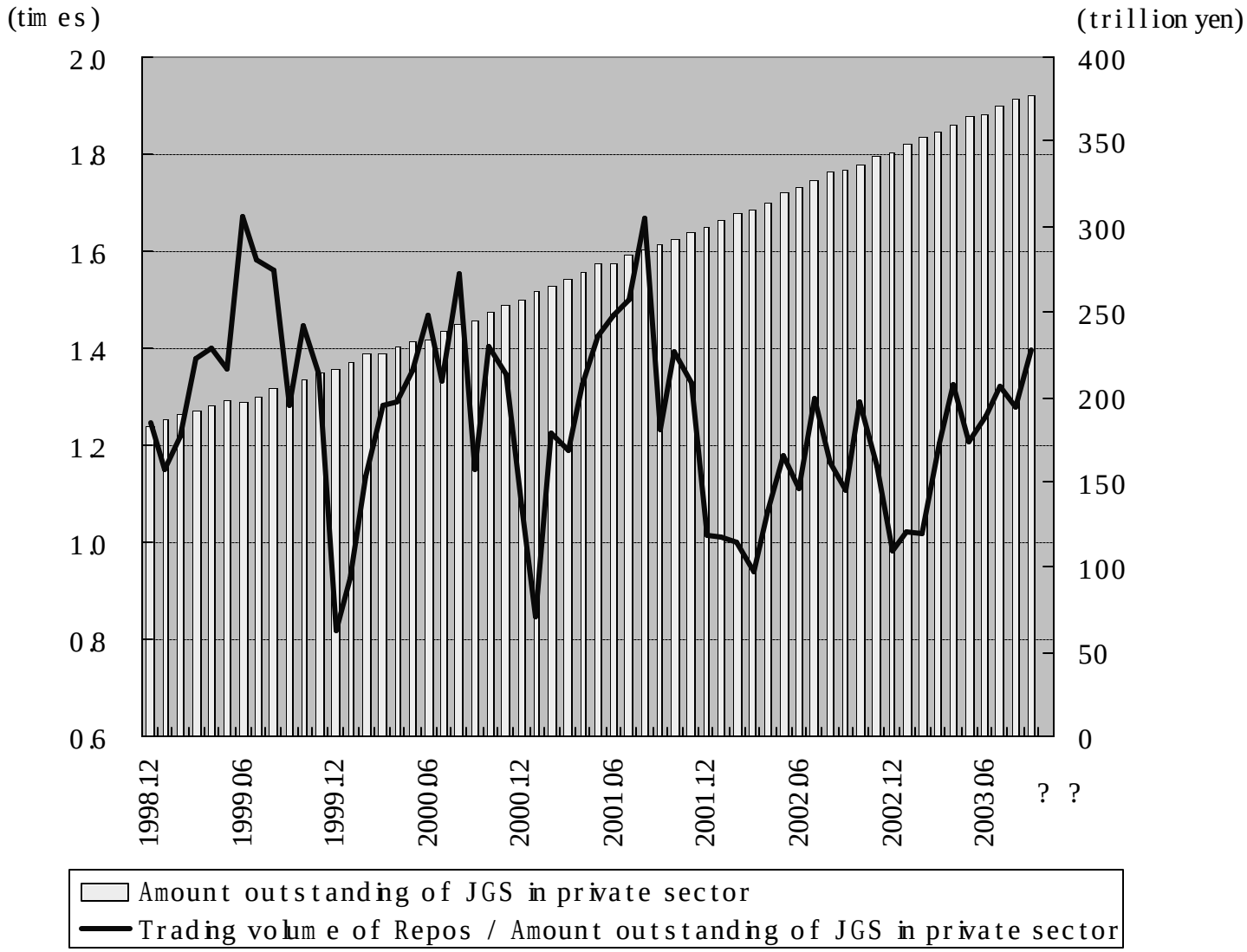
3. Repos market in Japan (2)

- Participants of GC Repos market are…

Buyer (Fund lender) -- Player A	✍Mutual funds ✍Trust banks ✍Regional banks ✍Mega banks
Seller (Fund borrower) -- Player B	✍Securities dealers ✍Mega banks

(Chart 4)

4. Repos vs. JGS outstandings



5.Chronology of Repos Market in Japan

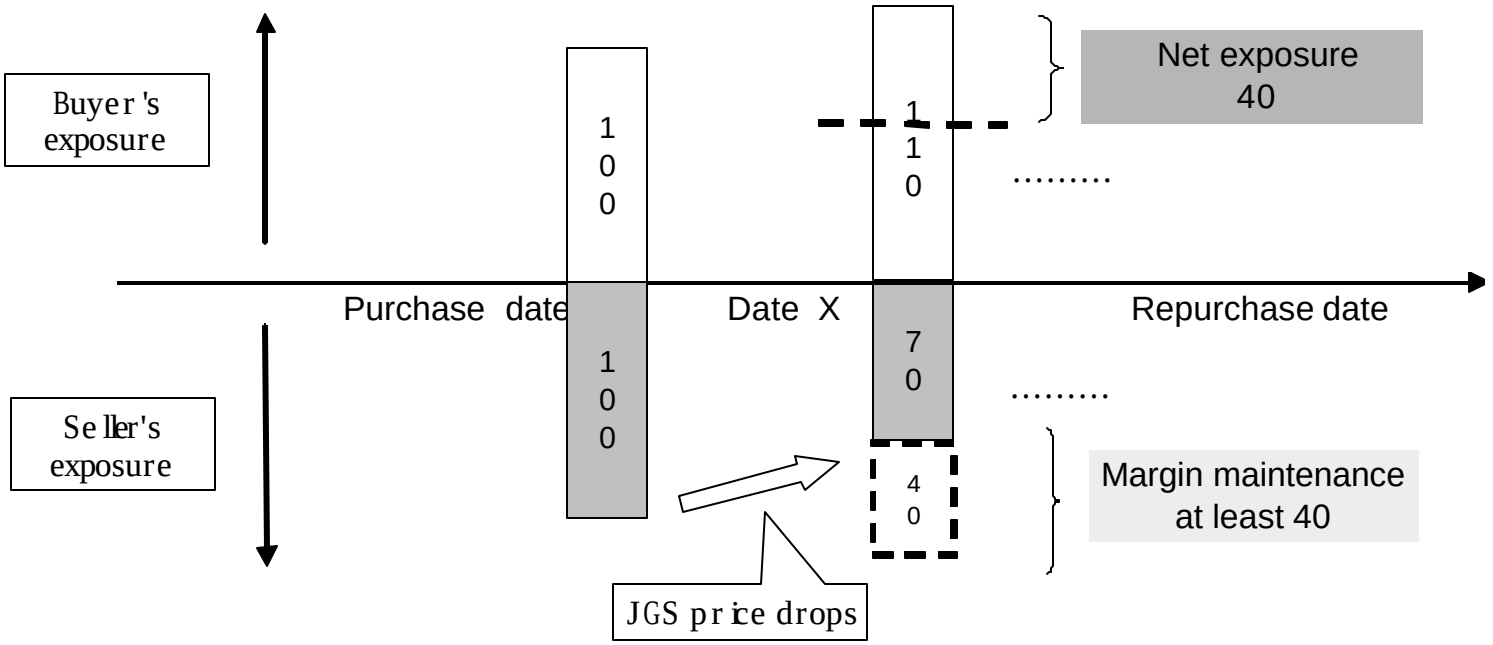
	Old *Gensaki*	Repo *Gentan*	New *Gensaki*
Trading Style	· JGS Purchase w/ repurchase agreement without risk control	· JGS Borrowing w/ cash collateral w/ risk control	· JGS Purchase w/ repurchase agreement w/ risk control
From When?	1949~ (2001)	1996~	2001~
Purpose, etc	(Not active due to securities transaction tax)	· Increasing needs of active transaction for securities funding following introduction of “Rolling settlement” · To avoid securities transaction tax, taking “borrowing style” -- Different from Global Standard · Existence of risk control was appreciated under unstable condition of financial system in ’97-’98	(In 1999, securities transaction tax was abolished) ? Adapt to Global Standard

6. Basic scheme of GC Repos

- For safer transaction,
  a. Risk management
     - Hair cut
     - Margin maintenance
  b. Close-out netting clause
  c. Master agreement
- For more convenience,
     - Substitution
- For more reflecting substantial nature as loans with collateral,
     - Coupon payment for the purchased securities is delivered from buyer to seller

(Chart 7)

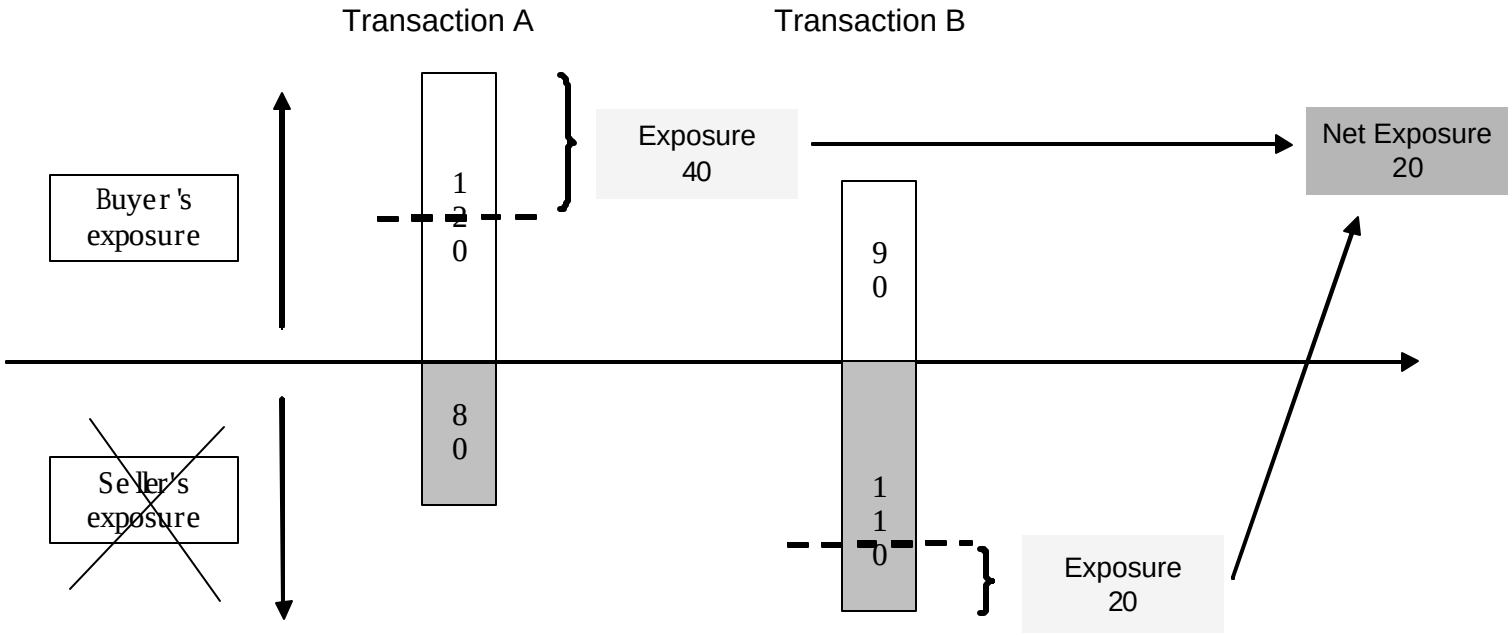
7. Margin maintenance



- On Date X (= any day between Purchase date and Repurchase date),
  - Buyer's exposure = purchase price + interest based on daily application of repo rate
  - Seller's exposure = Market value of Purchased JGS
  - Net exposure = the difference between the above two exposures
- If one party with Net exposure requires ("margin call"), another party must make a margin transfer, the value of which is at least equal to the Net exposure.
  - In the above case, Seller must deliver securities or cash of at least 40.

8. Close-out netting clause (1)

On Date X…



- Based on close-out netting clause, in the case that an event of default, typically petition for bankruptcy, happens to one party, all claims and obligations between the parties under Repos master agreement are replaced by one claim and obligation equal to the existing net exposure.
  - In the above case, only a claim of 20 form Buyer to Seller remains.

9. Close-out netting clause (2)

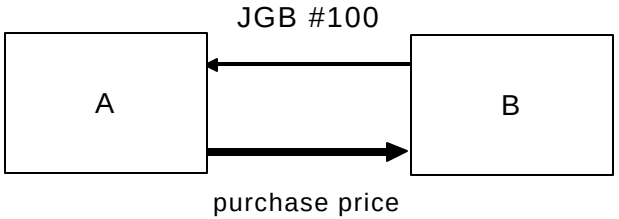
- Purpose ; to enhance transactions by minimizing effect of one party's bankruptcy to transactions (=credit risk).
  - Existing exposure can be minimized.
  - "Cherry picking" by trustee in bankruptcy can be avoided.
    -- If close-out netting clause did not exist, In the above case, rational trustee in bankruptcy of Seller would terminate transaction A, while execute transaction B. As the result, Seller's bankruptcy estate obtains a claim of 20 to Buyer.

- Validity ; authorized by a special law. The law requires close-out netting clause to be on master agreement and its procedure to start automatically when an event of default happens.

(Chart 10)

10. Substitution

(1) Purchase day

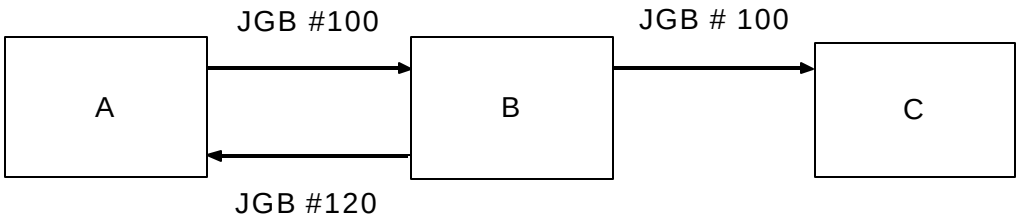


(2) Date X

Investor C asks dealer B to sell # 100, but B does not have inventory…

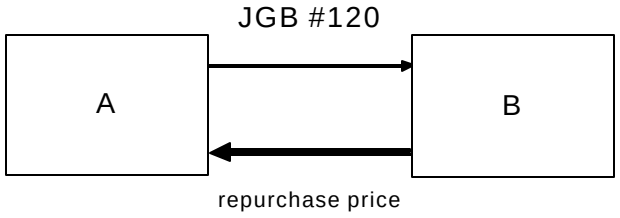
⇩

B can use "substitution", if A accepts.



Note : Market value of JGB # 120 must be equal to or exceeds that of JGB #100.

(3) Repurchase day



(Chart 11)

11. BOJ's challenge

- Fostering Repos market
- Open market Operations
- Specific phenomena under Zero-interest rate environment

(Chart 12)

12. Fostering Repos market by BOJ

- Responding to needs from market participants for support as central bank,
  - Participating in forum for introducing new Repos scheme, drafting master agreement
  - Collecting and publishing related statistics such as Repo rate and Fail

Note : One of present issues is to enhance T+0 Repos transaction
(Today's main = T+2)

(Chart 13)

13. Open market operations by BOJ

✍ JGS Repos operation is main fund provision operations next to Outright purchase of bill and Outright purchase of TB/FB.

<Amount outstanding of Open market operations by BOJ>

(trillion yen)

	1997	1998	1999	2000	2001	2002	end of Sept, 2003
Open market operations target level of current account balance	?	?	?	?	10-5? 10-15	15? 15-20	27-30
Net amount outstanding of short-term operations	17	1	48	48	58	57	51
Provision of short-term funds	23	21	48	51	58	58	53
JGS Repos	8	5	31	43	11	4	6
Outright purchase of bill	5	6	4	4	21	28	25
CP Repos	5	8	9	4	4	4	3
Outright purchase of TB/FB			2	0	21	23	19
Lending	5	2	2	1	1	0	0
Absorption of short-term funds	-5	-20	0	-3	-0	-2	-2
JGB	35	40	44	45	48	56	62

Note: 1. As of end of year, except 2003

2. Current account balance target was introduce in March, 2001.

3. Pooled collateral for Outright purchase of bill was introduced in January 2001.

4. JGB includes amount outstanding of outright puchase of JGB and those rolled over at maturity and underwritten by the Bank.

(Chart 14)

14. Basic Scheme of BOJ's Repos operations

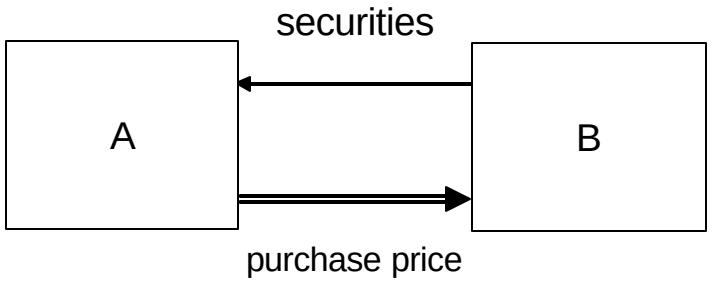
- GC (counterparties can choose which issues will be delivered)
- Taking market standard
  - Risk control : hair cut, margin maintenance
  - Close-out netting clause
  - Master agreement
  - Substitution
- Term
  - Usually 1M – 3M
  - Policy Board admits as long as 1Y.
- Settlement
  - T+0 – 2
  - STP (Straight Through Processing), RTGS

(Chart 15)

15. Specific Phenomena under Zero interest rate environment (1)

✍ Negative Repo rate

(Normal phase)



✍ Player A can earn interest which reflects short-term money market situation.
-- Currently, as for S/N (T+2 O/N) transaction, 0.001 – 0.005%.

(Rare Issue)

✍ The rate by which Player A can borrow special issue from Player B is increased.
✍ It sometimes happens that A is imposed negative repo rate on by this transaction

(Chart 16)

16. Specific Phenomena under Zero interest rate environment (2)

- Amount outstanding of JGS Repos operation has decreased.

  - Our counterparties prefer long-term fund provision by outright purchase of bills with pooled collateral.

  - JGS Repos operations is conducted usually 1M-3M. Thus, performance of this operation is limited in term of fund provision.

17. Global trend in fund provision operations

	How to use collateral	
	One to one correspondence	Pooled collateral
FED	?	×
ECB	×	?
BOJ	? (JGS Repos, CP Repo)	? (Outright purchase of bill)

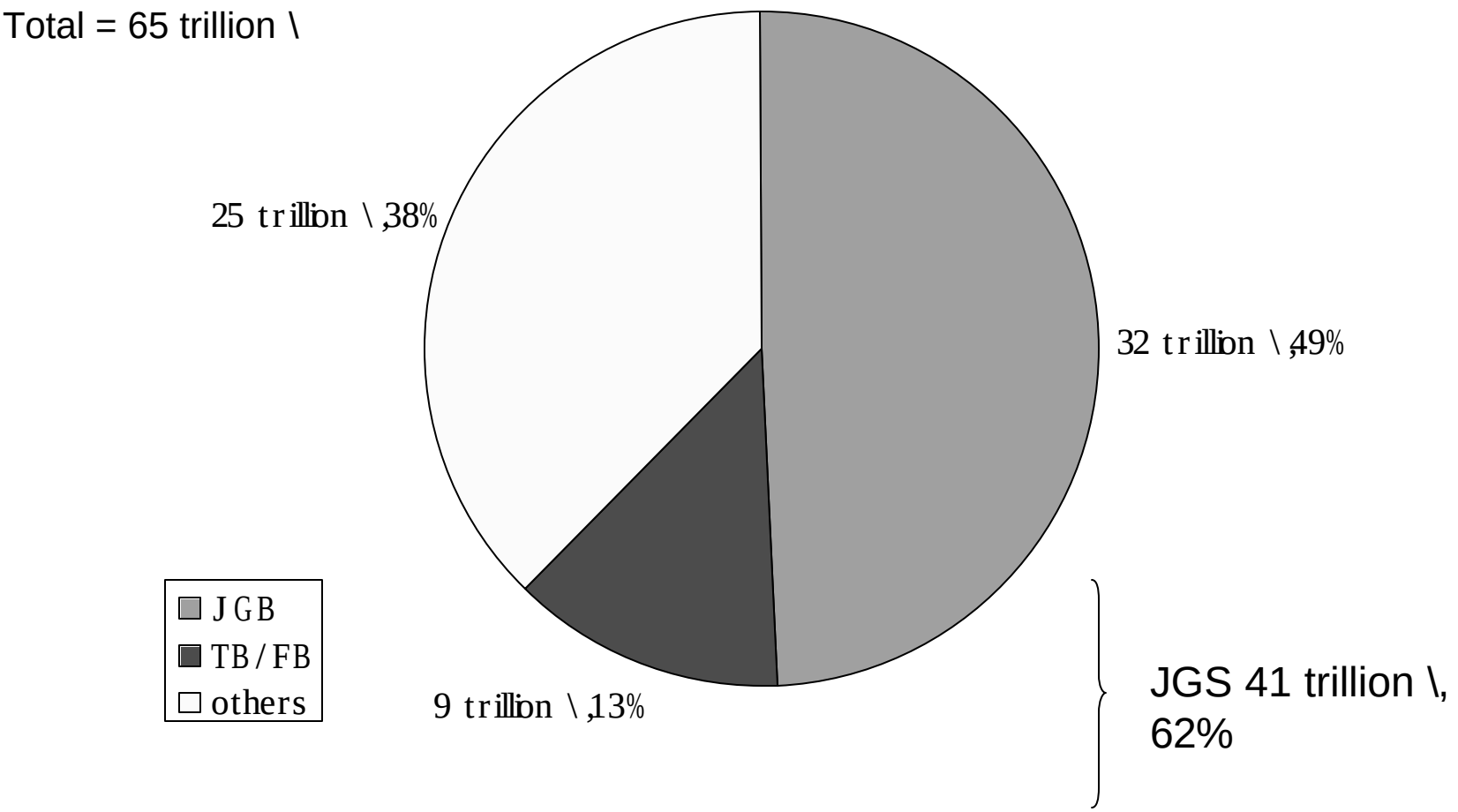
Note : What is “pooled collateral” ?

- BOJ’s counterparties pledge JGS, corporate bonds, etc to BOJ.
- Limits up to which BOJ can provide fund to them are calculated by amount of pooled collateral.
- They can substitute other eligible asset for pledged collateral at any time.

(Chart 18)

18. Pooled collateral accepted by BOJ

(as of the end of Oct., 2003)



Biography of Mr. Tatsushi KURIHARA
Bank of Japan

- Date of Birth: June 5, 1961

- Professional Career

April 1984	Joined the Bank of Japan
July 1997	Senior Economist, Research and Statistics Department
July 1998	Senior Economist, Policy Planning Office
March 2001	Senior Economist, Financial Markets Department
May 2002	Head of Open Market Operations Division, Financial Markets Department
June 2003	Head of Money and Capital Markets Division, Financial Markets Department

Session 7

Panel Discussion: Dealing with Government Bond as Monetary Policy Instruments: Central Bank Experience

China Bond Market and Open Market Operation

Huo Yingli , The People's Bank of China

Workshop on Developing Government Bond
as Monetary Policy Instruments in APEC Economies
Bali,Indonesia December 11-12,2003

Contents

The instruments of money market

- Inter-bank lending
- Repos and reverse repos
- Bank acceptances(BA’s)

The inter-bank lending market

- **Short-term, non-collateral lending between banks**
- **Origins from 1980s**
- **The core part of money market**

The maturities structure of inter-bank lending

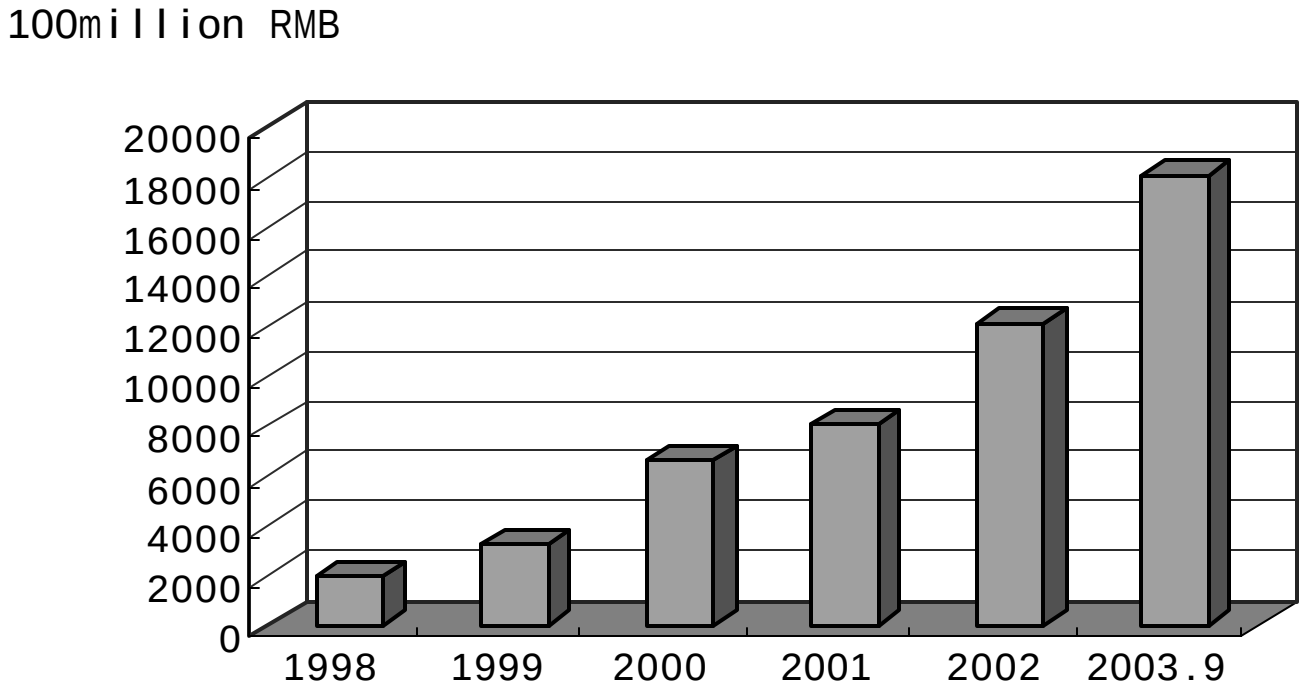
----mostly within 7 days,but term lending available

1997	6.5	26.15	10.63	13.74	23.14	12.91	6.93
1998	6	22.5	14.5	22.6	18.3	10.5	5.6
1999	10.9	28.6	7.4	21.2	27.9	3.3	0.7
2000	7.7	63.7	12	4.9	9.2	2.3	0.1
2001	12.85	69.38	11.55	4.37	1.16	0.58	0.11
2002	16.6	70.4	8.3	2.4	0.90	0.39	1

The members of inter-bank lending market

The members (2002)	
Commercial banks	129
City commercial banks	100
Financial companies	25
Foreign commercial banks	32
Securities companies	41
rural crecit unions	206
Total	533

The turnover of inter-bank lending



The interest rate of inter-bank lending(CHIBOR)

- June 1996, PBC streamlined its administration of CHIBOR
- CHIBOR : decided by supply and demand of money market and credit of counterparty
- the beginning of interest rate reform in China

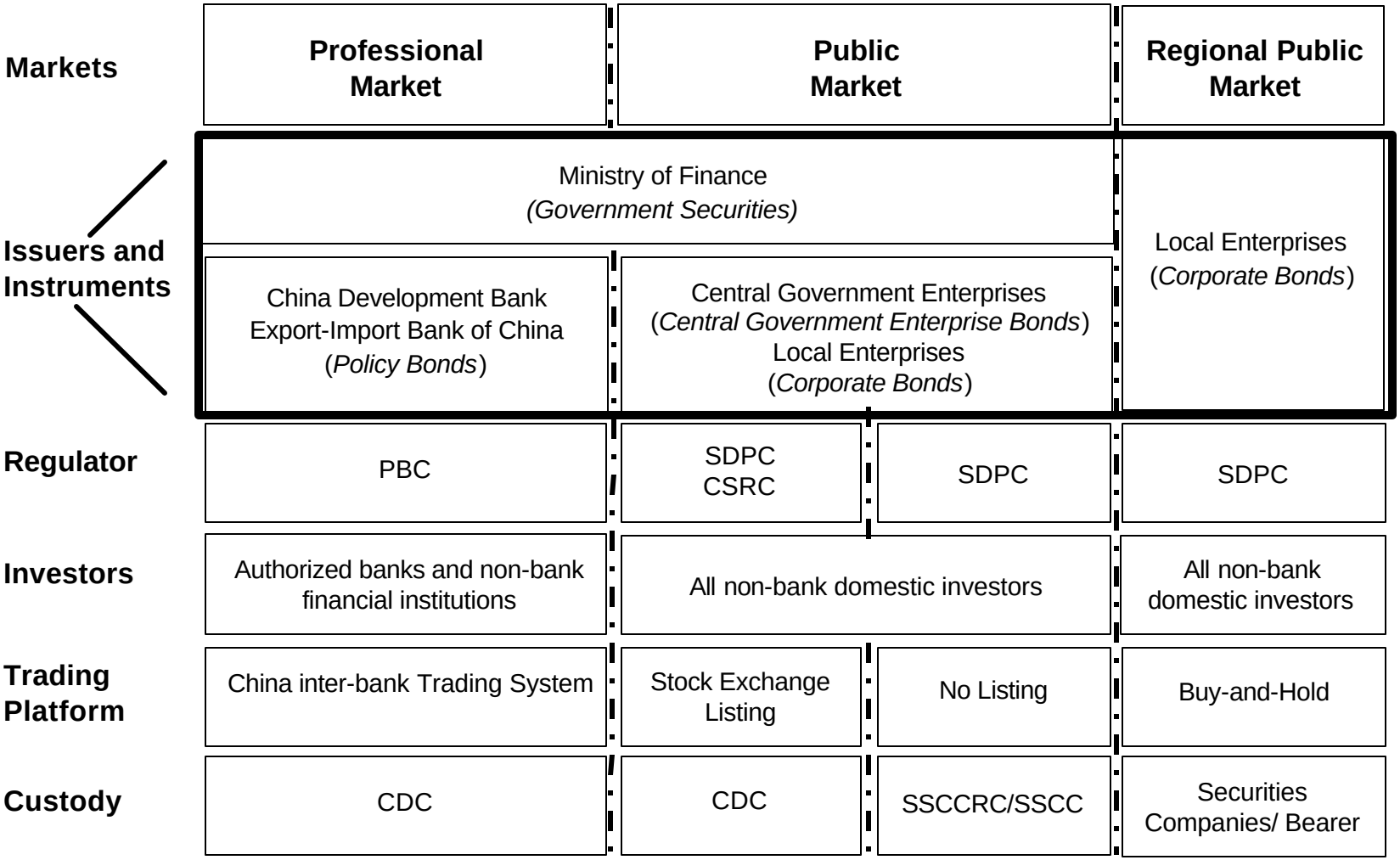
Bankers' acceptances market

- BA's started in 1980s in China,quickly developing since 1994.

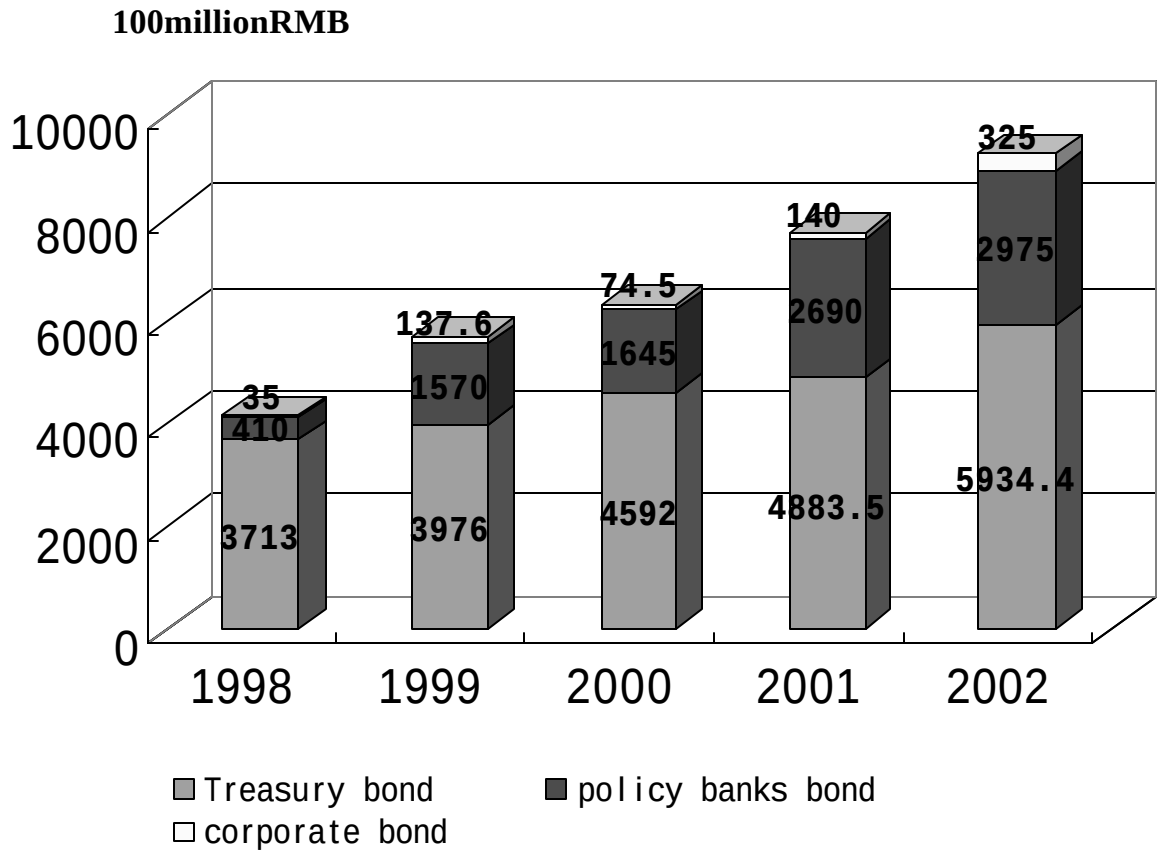
RMB 100million yuan

year	transaction of draft	cumulative discount	cumulative rediscount
1998	3481	2650	1200
1999	5076	2499	1150
2000	7445	6447	2667
2001	12843	15548	2778
2002	12397	16790	181

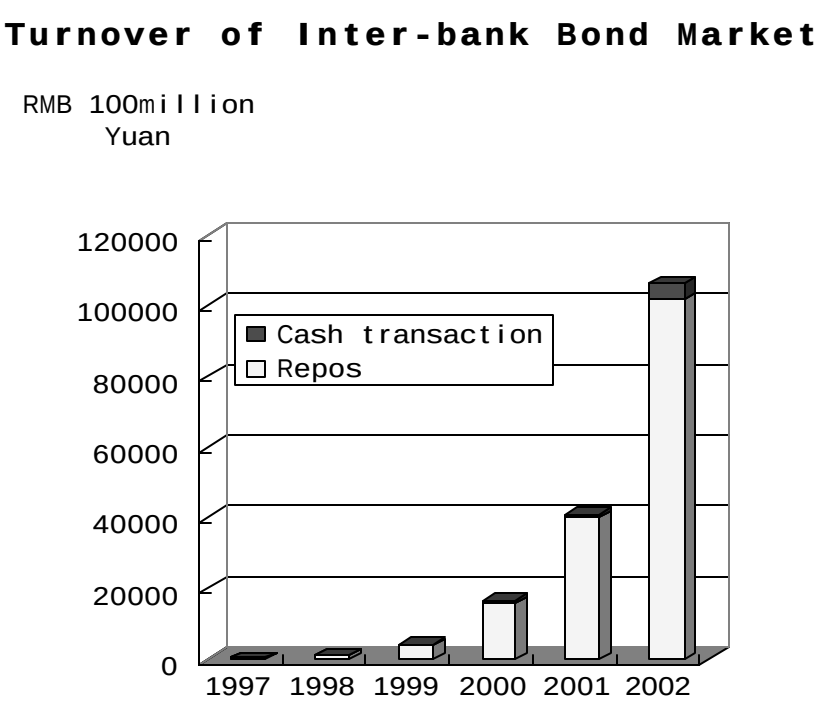
China bond market :Fragmentation

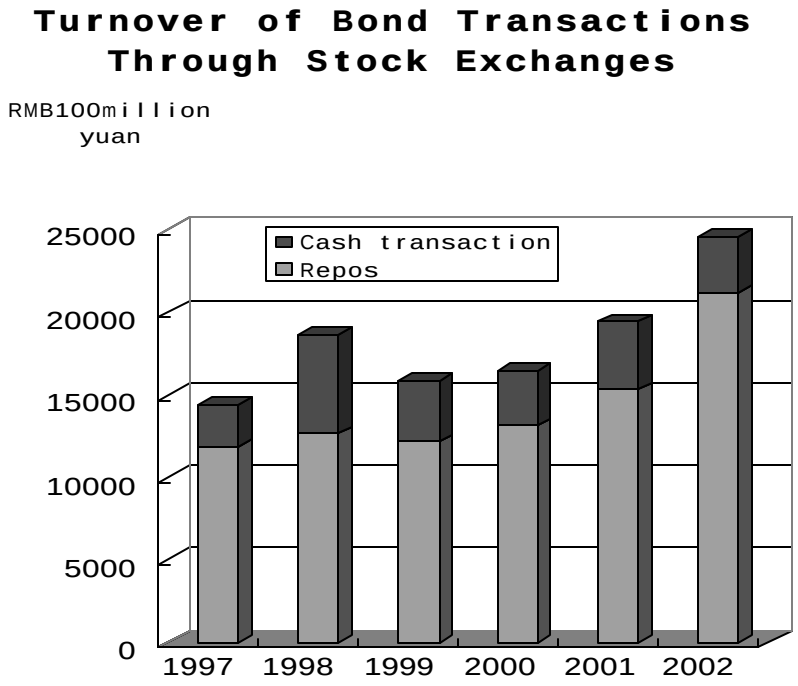


Bond issuance growing rapidly in recent years

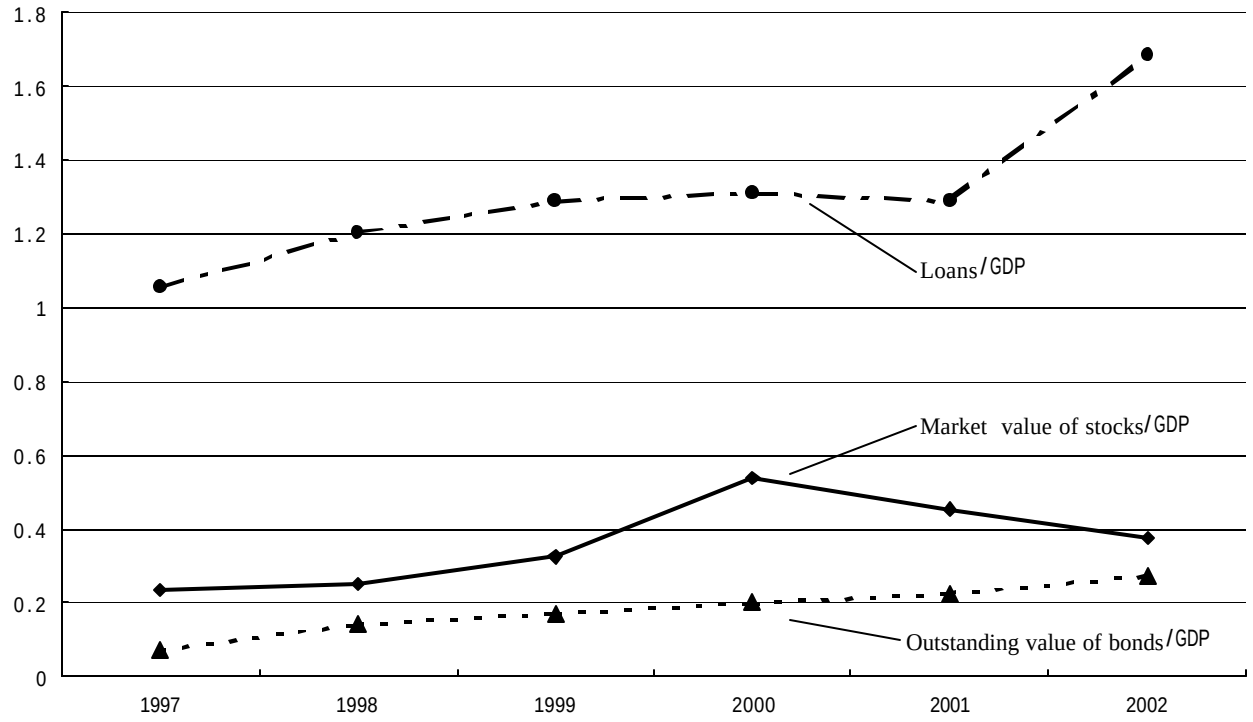


Turnover of bond market





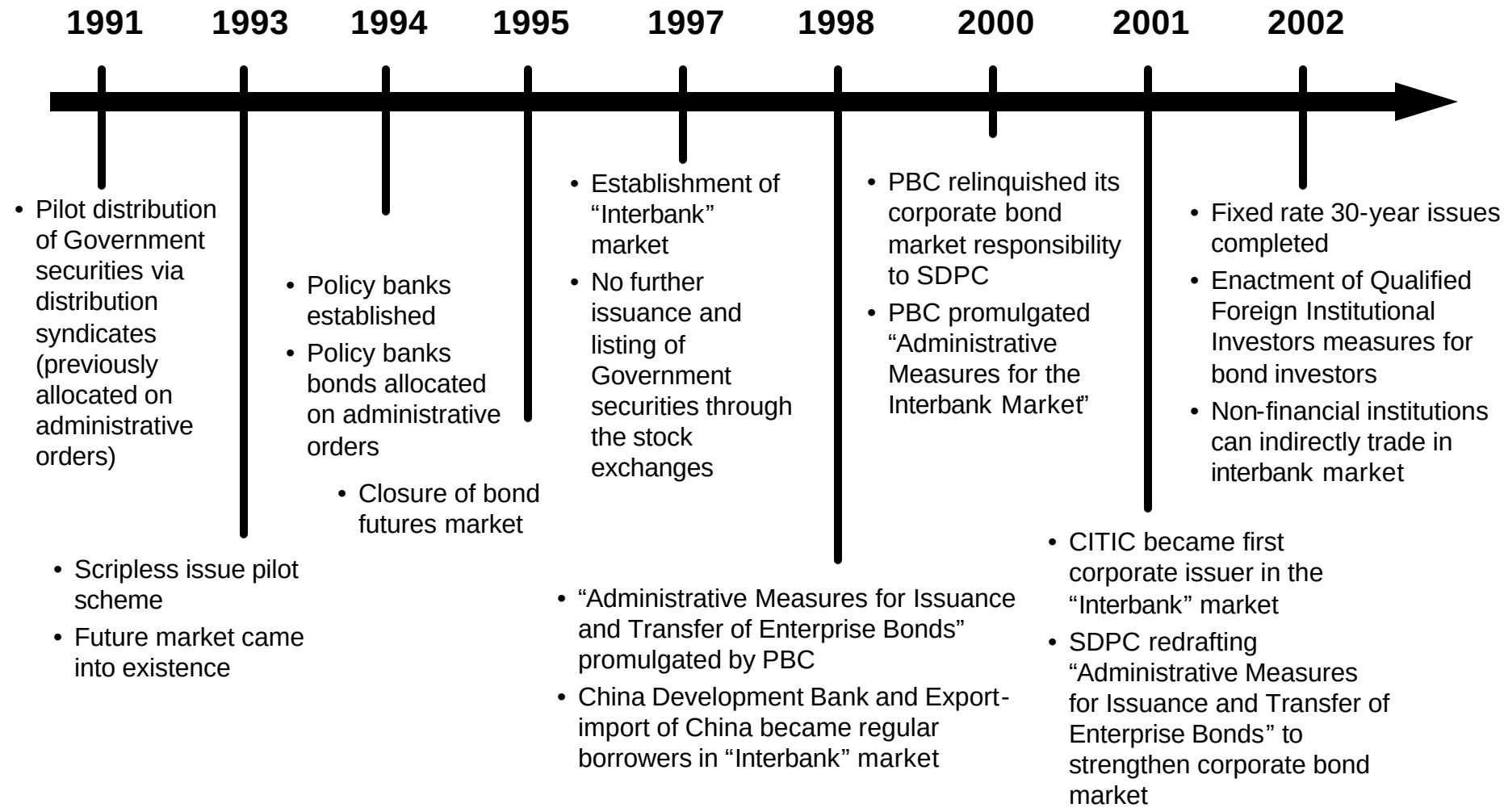
Structure of financing in China is unbalanced,indirect financing played a dominant role ,the share of direct financing was excessively small.



Issues to be addressed in developing China bond market

- Inadequate bonds supply and unbalanced market structure
- Insufficient market liquidity
- Underdevelopment of rating system
- Relatively weak infrastructure

China Bond Market Development



Monetary policy in China

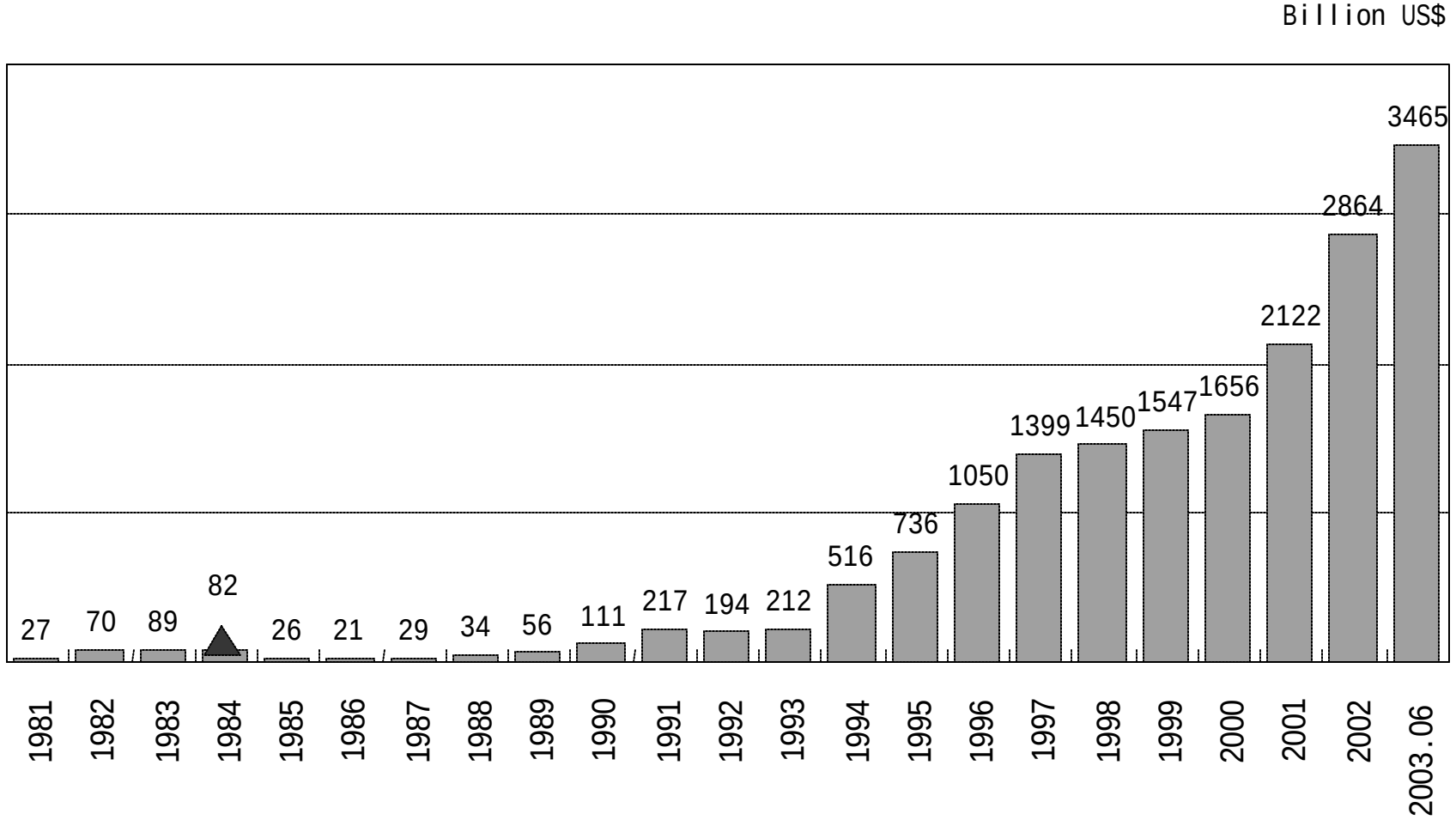
- Reforms on monetary policy system
- Open market operation

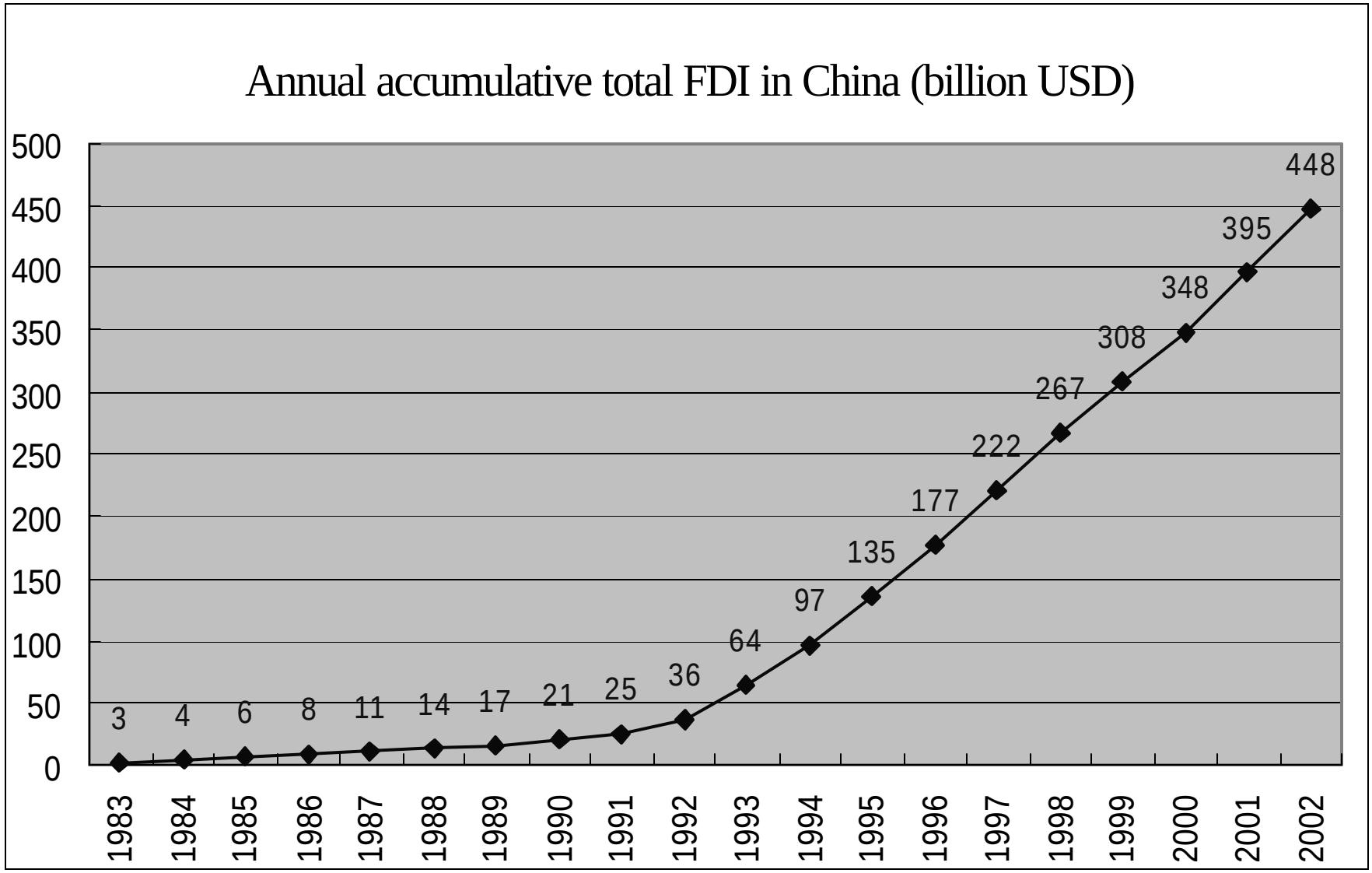
✍ Foreign exchange operation

✍ RMB operation

- Open market operation :the most important instrument to sterilize foreign currency inflow

Foreign Exchange Reserve of China




Annual accumulative total FDI in China (billion USD)
500
450
400
350
300
250
200
150
100
50
0
3
4
6
8
11
14
17
21
25
36
64
97
135
177
222
267
308
348
395
448
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002

The way to release base money changed

RMB open market operation is the most important sterilization measures.

Base money supply	1997?		1998?		1999?		2000?		2001?	
	Growth	Share(%)	Growth	Share(%)	Growth	Share(%)	Growth	Share(%)	Growth	Share(%)
central bank loan for financial institutions	-112	-3	-1972	334	1222	33	3313	152	450	17
net foreign assets	3072	81	440	-75	1013	28	753	35	3813	144
securities	1133	30	1577	-267	1915	52	-1142	-53	-1553	-58.8
others	-288	-8	-635	108	-468	-13	-750	-34	-61	2.2
TOTAL	3805	100	-590	100	3682	100	2174	100	2649	100

net foreign assets: base money injection through foreign currency transaction

RMB Open market operation

- Target: base money, money market rates
- Instruments:

✍Repos and Reverse

✍ Cash transaction

✍ Central banks bills

Case-study: open market operation in 2003

The situation faced up: Loan, M1, M2

The measures PBC employed:

- Reserve requirement ratio: raised from 6% to 7%
- Open market operation: intensified
- Central bank bills: issued every week
  maturities :3month, 6month

Conclusion

- Bond market provide a platform for Open Market Operation, a stable market environment for financial system development and conduct monetary policy.
- Coordination between Financial Policy and Monetary Policy
- PBC as an agent to issue short-term Treasury bond

Biography of HUO YINGLI

Huo Yingli, Senior Economist in the People's Bank of China – Monetary Policy Department. She joined the People's Bank of China in 1994, after getting master degree from the graduate school of the People's Bank of China.

Before she joined the People's Bank of China, she had an experience of working for a big commercial bank of China.

At present, she is working in the Monetary Policy Department. Next month, she will move to a new department in the People's Bank of China, the Financial Market Department.

Dealing with Government Bonds as Monetary Instruments

Malaysia's Experience

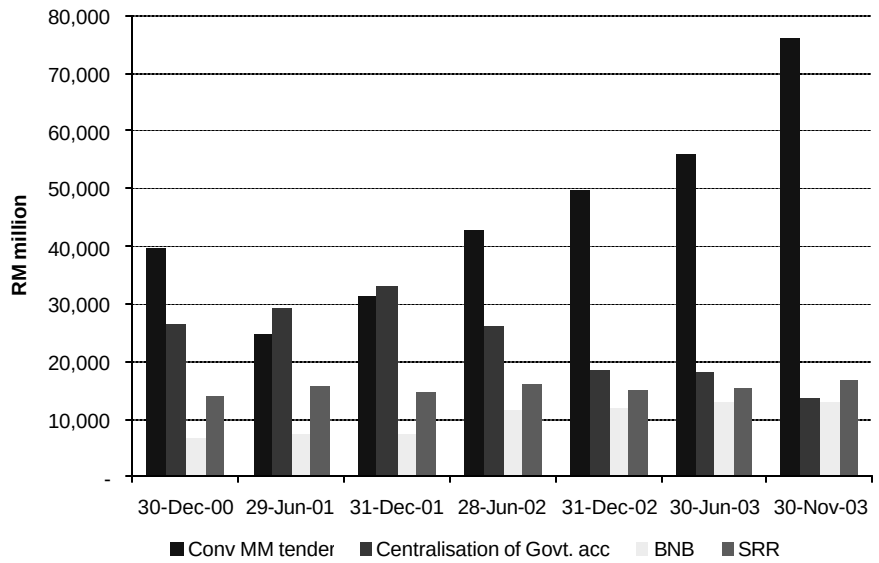
Bali, Indonesia
12 December 2003

Agenda

- Introduction
- Collateralised Monetary Operations
- Challenges and Measures Undertaken
- Conclusion

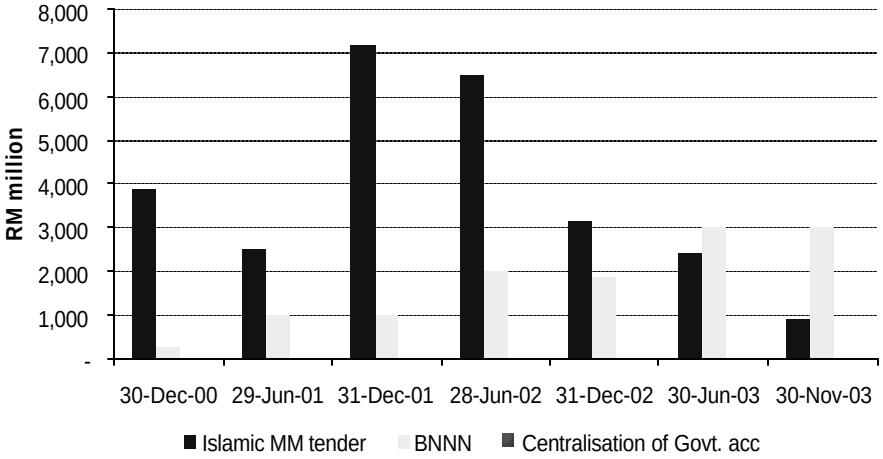
Introduction

Conventional Monetary Instruments (Dec 00 to Nov 03)



Source: BNM statistics

Islamic Monetary Instruments (Dec 00 to Nov 03)



Source: BNM statistics

- BNM influences the conventional money market via several monetary instruments:-

Money Market Operations

- Money market tenders
- Intervention via agent banks

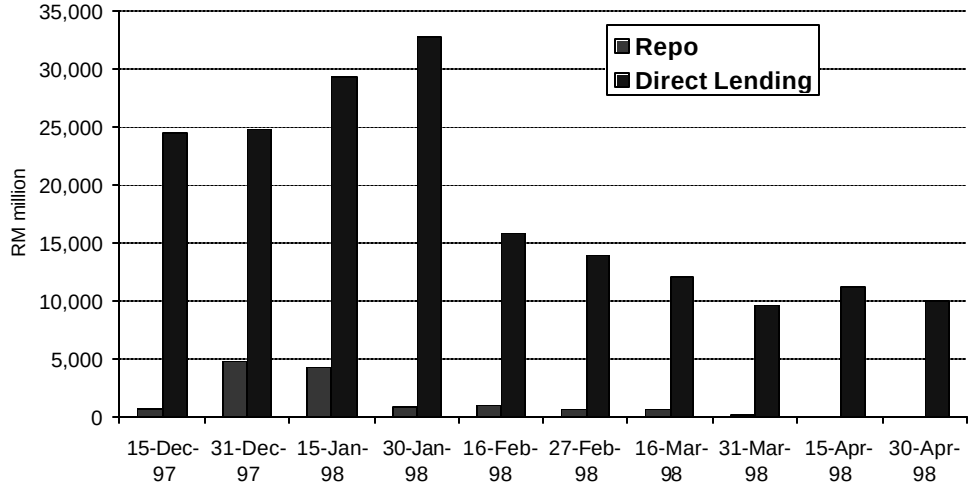
Open Market Operations (OMO)

- Bank Negara Securities
- Repo and reverse repo
- Sale and purchase of securities

- Other monetary instruments used:-
  - Variations in Statutory Reserves Requirement (SRR)
  - Centralisation of government deposits with BNM
- Islamic banking system runs parallel with the conventional banking system
  - Government Investment Issues (GII)
  - Bank Negara Negotiable Notes (BNNN)

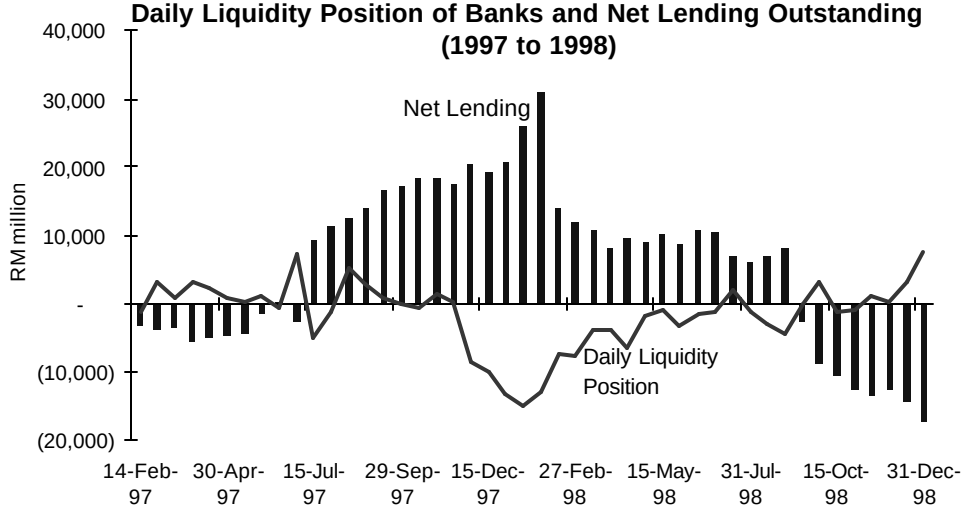
Collaterised Monetary Operations

Repo Operations volume versus Direct Lending volume (Dec 97 to Apr 98)



Source: BNM statistics

Daily Liquidity Position of Banks and Net Lending Outstanding (1997 to 1998)



Source: BNM statistics

- Shortage liquidity versus excess liquidity environment
- Collateralised monetary operations essential for lending as risks are involved

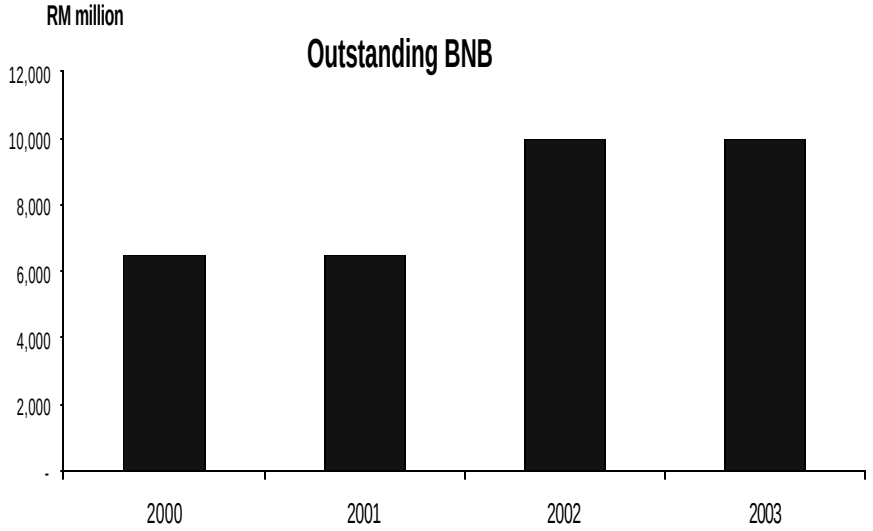
Repurchase Agreements

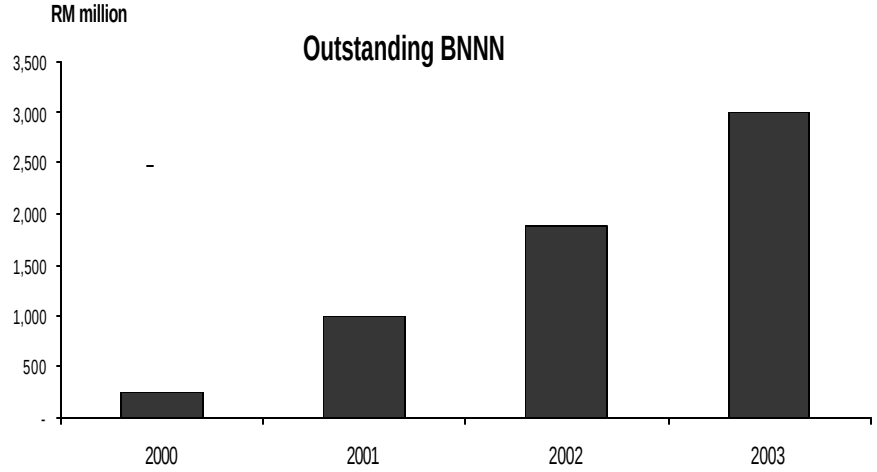
- Repo operations during financial crisis - arranged bilaterally and concluded on short-term basis (overnight to 2 weeks tenor)
- At higher than market rates to ensure liquidity is provided as a last resort
- Net lending position reached a high of RM31 billion (USD8 billion) towards end of 1997 before returning to a net borrowing position by end of 3Q 1998 until now

Repo Auctions

- Early 1990s - conducted small-scale repo auctions for sterilisation of excess market liquidity using Malaysia Treasury Bills (MTB)
- Became less effective when monetary base increased from less than RM50 billion in mid 1990s until current RM120 billion surplus – constrained by small securities holding

Collaterised Monetary Operations





Issuance of Bank Negara Bills

- BNBs issued since 1992 to supplement monetary operations
- For longer tenure sterilisation and conduct of OMO

Islamic Money Market

- GII based on Islamic principles used for OMO from 1983-2001 via outright sale and purchase
- Short-term BNNN issued since 2000 to complement Islamic monetary operations and liquidity management

Discount Window Facility

- Available for Principle Dealers
- Discount instruments utilised – Malaysian Government Securities (MGS), Malaysian Treasury Bills (MTBs), BNBs and other specified securities via outright sale

	Challenges	Measures undertaken
Illiquid secondary Market	✍ Limit active repo market and prevent competitive pricing ✍ Captive holdings	✍ Principal Dealership since 1989 ✍ Weekly indicative MGS price list ✍ Liberalise asset holding requirements - Employees Provident Fund - Insurance companies
Liquid Asset Requirement	✍ Non-compliance with liquid asset requirement if sale or repo transactions undertaken	✍ New Liquidity Framework in 2001
Government Supply Issue	✍ Constant issuance in sizeable amount ✍ Surplus budget position	✍ National Bond Market Committee ✍ Auction Calendar since 2000 ✍ Re-open off-the-run MGS issues
Securities Issuance Limit	✍ Issuance limit for BNBs	✍ Review statutory issuance limit
Limited Securities Holdings	✍ Due to attrition and sale ✍ Crowding-out limited supply	✍ Securities lending program
Regulatory Framework and Market Infrastructure	✍ Comprehensive legal and regulatory framework ✍ Sound market infrastructure	✍ Amendments to law ✍ Execution of TBMA/ISMA GMRA ✍ RENTAS Model 1 DVP settlement system

Market Liquidity

- Establish **Principal Dealership** (PD) for an effective distribution network of benchmark securities and improve market liquidity with continuous two-way price quotes towards more competitive pricing
- Overcome the captive market problem, e.g. through **securities lending programme** by institutional investors

Legal, Regulatory Framework and Market Infrastructure

- **Legal and regulatory framework,** and **market infrastructure** must support securities-based monetary operations
  - Efficient settlement system
  - Dynamic liquidity framework
  - Automated repo system to facilitate tendering of repo transactions
  - Execution of legal agreement - TBMA/ISMA GMRA

Government Commitment

- Establish transparent and accurate **Auction Calendar** issuance of government securities to obtain government commitment on market development and facilitate investment strategy for market participants.
- **Regular issuance of securities** by the government even during times of budget surpluses to ensure sufficient supply in promoting a **l**iquid government benchmark yield curve

Transparency of Market Information

- Disseminate **timely and accurate market information** to all market players in order to increase transparency, thereby facilitating more efficient trading in secondary market and enhance market liquidity

Biography of Mr. MUHAMMAD BIN IBRAHIM

Director
Investment Operations and Financial Market Department
Central Bank of Malaysia
Jalan Dato' Onn, P.O. Box 10922
50929 Kuala Lumpur
Tel : 603 - 2691 6107 Fax : 603 - 2692 5130

Mr. Muhammad bin Ibrahim joined the Bank in 1984 starting with the Bank Examination Department currently known as the Banking Supervision Department. Subsequently, appointed to the position of Head of Bank Negara Malaysia's Financial Offshore office in Labuan. Upon his return to the Headquarters, he joined the Bank Regulation Department. In 1997, Mr. Muhammad was entrusted to head the SMARTCARD Project, one of the seven Multimedia Super Corridor flagship applications. He then headed the Bank's Strategic Planning Unit. He was appointed Director of the Insurance Regulation Department, Bank Negara Malaysia before he was seconded to Danamodal Nasional Berhad, a bank recapitalisation agency, in September 1999 as the Managing Director.

In March 2001, Mr. Muhammad assumed duties as the Director of Investment Operations and Financial Market Department of Bank Negara Malaysia.

Mr. Muhammad graduated from the University of Malaya with a Degree in Accounting and obtained his Masters Degree in Public Administration from Harvard University.

Mr. Muhammad is a member of the Malaysian Institute of Accountant and also a Senior Associate of the Institute Bank-Bank Malaysia.

Using Government Bonds as Monetary Policy Instruments: the Korean Experience

Dec. 12, 2003

Jin Kyu Oh,
associate director (jkoh@bok.or.kr)

Market Operations Team
Financial Markets Department
The Bank of Korea

✍ Recent Developments

in the Government Bond Market

? Remarkable changes since the outbreak of the financial crisis in 1997

. 'balanced budget' principle until 1997

. a huge public fund needed for financial restructuring and economic recovery

? the need for well-organized bond markets

. with the technical assistance
from the IMF and the World Bank

. a series of measures for government bond market
since 1998

- regular auctions (Oct. 98)
- primary dealer system (Jun. 99)
- futures market for government bonds (Sep. 99)
- integration of different types of bonds (Jan. 00)
- fungible issue program (May 00)

<Table 1> Market Trends of Government Bonds

(billion won)

	1997.12 (A)	2000.12	2001.12	2002.12	2003.10 (B)	B/A
Gov't Bonds						
Outstanding Vol.	15,390	53,437	61,744	72,564	95,088	6.2
Trading volume (monthly avg.)	446	42,175	73,865	37,797	107,794	241.7
Turnover ratio(%)	2.9	78.9	123.9	52.1	113.3	39.1

* KTBs, FESF Bonds, and Grain Fund Bonds

✍ BOK's role in government bond market development

? to monitor and analyze the bond market

? The Ministry of Finance and Economy (MOFE) and the BOK

? The Financial Supervisory Commission and the BOK

✍ BOK's Experiences of using government bonds as monetary policy instrument

? Current tools for open market operations

. Repurchase agreements (RPs)

. outright transactions against government bonds

. Monetary Stabilization Bonds (MSBs)
  - issuing ceiling : 50% of M2 (currently about 18%)

(History of Open Market Operations in Korea)

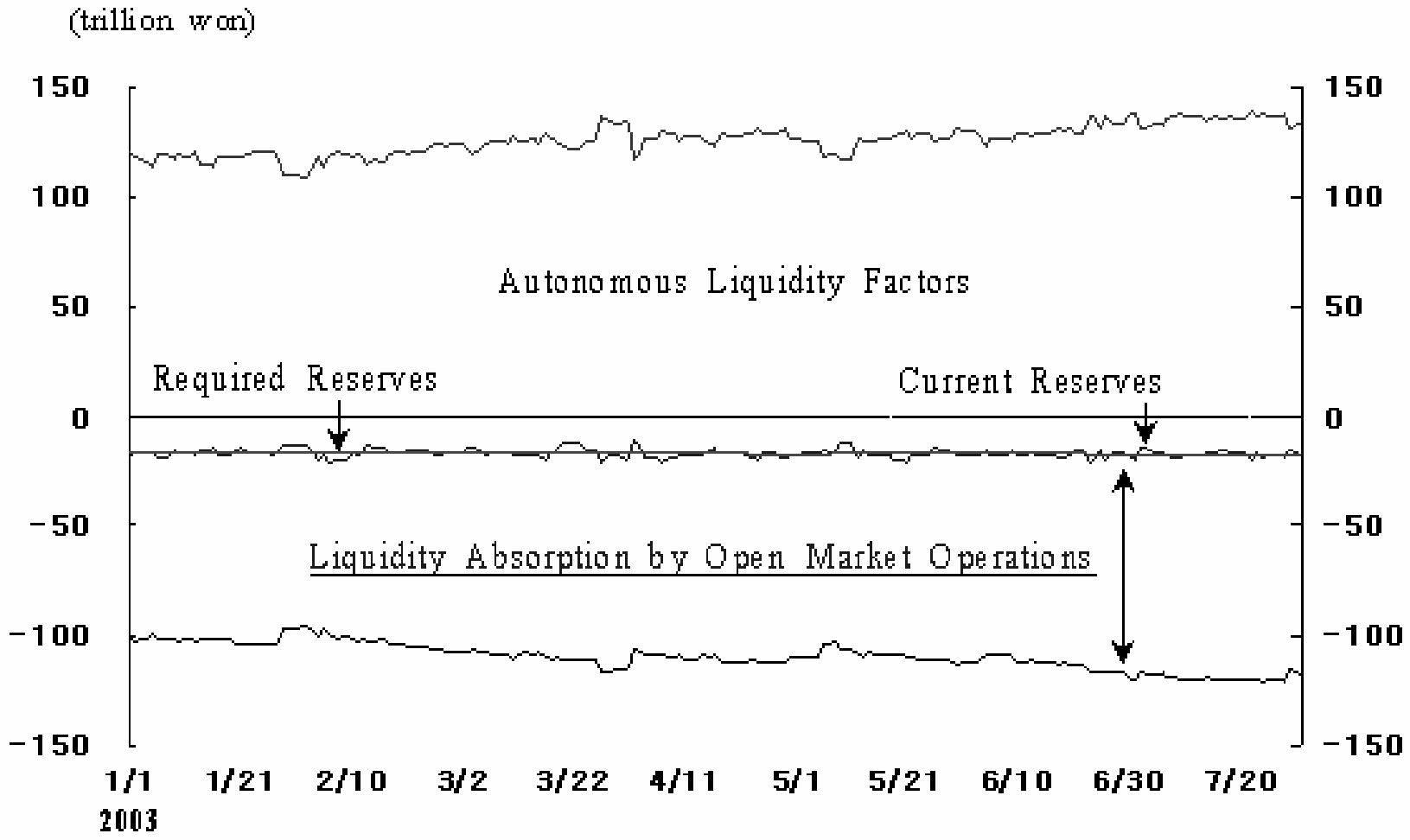
- Monetary Stabilisation Bonds(MSBs) issued in 1961
- RPs of Government and public bonds available in 1969
- non-bank financial institutions designated as eligible counterparts in 1977
- Competitive tender for RP transactions introduced in 1993
- Electronic bidding through BOK-Wire in Aug. 1997

(Structure of Liquidity Supply and Demand)

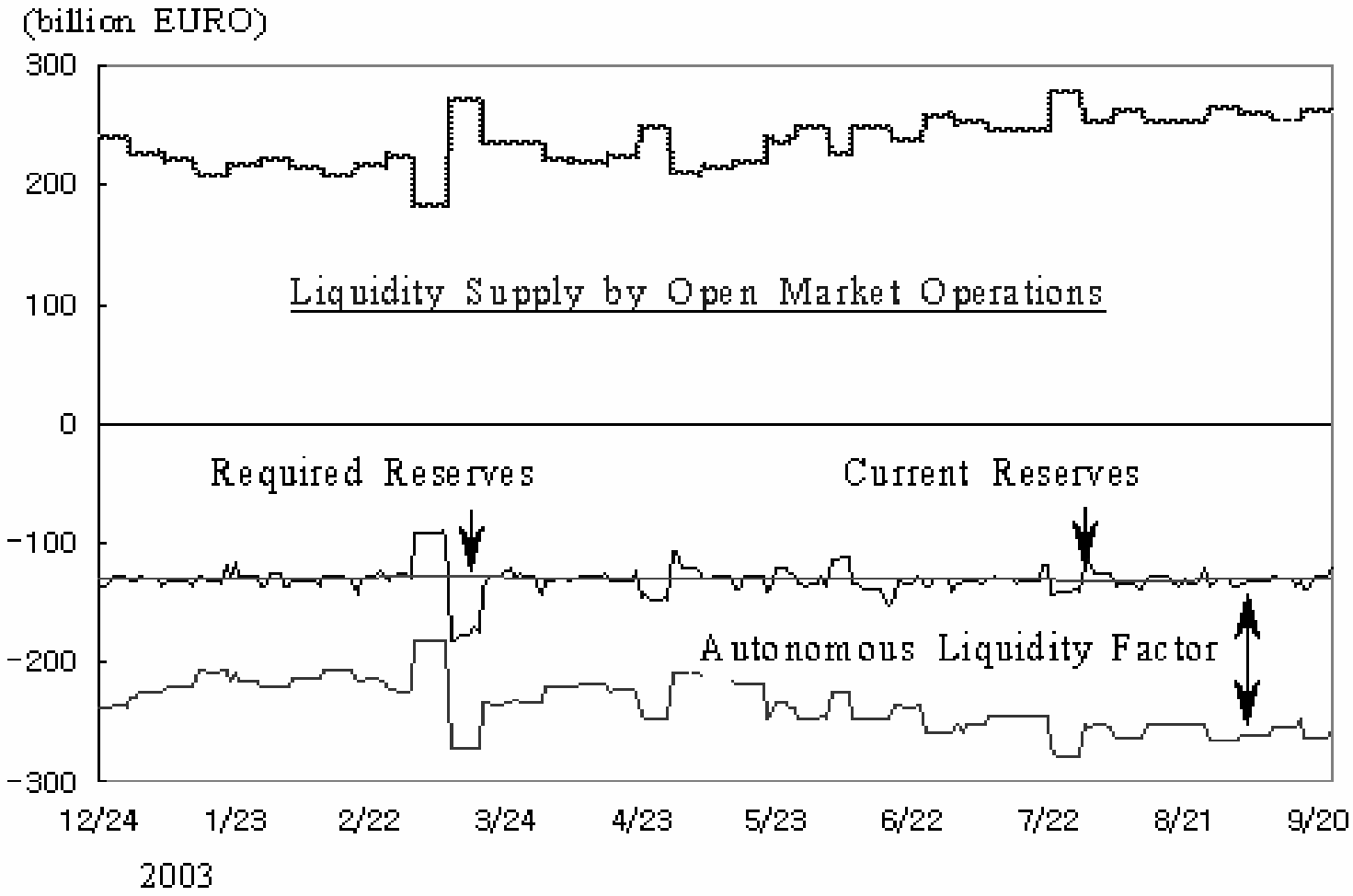
? Excess liquidity over the demand for reserves

. So, the BOK has continuously sought to drain such excess liquidity and manage the reserve base in an appropriate level.

<Graph 1> The amount of Open Market Operations and Banks' Reserves



ECB's Open Market Operations



? Structural problem with excess liquidity

. preventing BOK from holding a substantial amount of government bonds

. no other choice but to issue MSBs to absorb excess liquidity

- sales of government bonds clearly not an option

(Government bonds for monetary control)

? not for funding deficit, but for managing liquidity

? during 1987 to 1994

? government's special account at BOK

<Table 2> Outstanding amount of Treasury Bills for liquidity control and MSBs

(trillion won)

	87	88	89	90	91	92	93	94
Treasury Bills	1.0	1.5	2.5	2.5	2.2	1.6	0.6	0.1
MSBs	9.0	16.3	18.0	15.6	13.9	20.6	24.4	25.3

(no more treasury bills for monetary purposes)

? government's burden of interest payments

? back to the 'balanced-budget' approach

. Accordingly, BOK has heavily depended on MSBs

<Table 3> **Market Trends of MSBs and Foreign Exchange Reserves**

(billion won, billion US dollar)

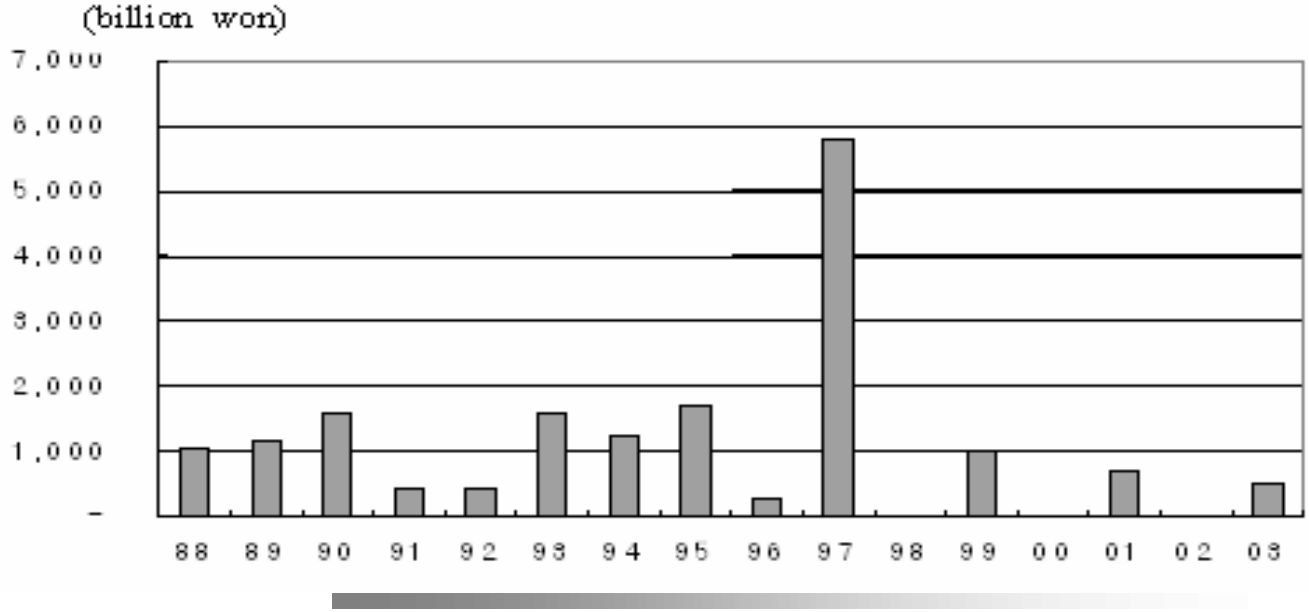
	1997.12(A)	2000.12	2001.12	2002.12	2003.10(B)	B/A
MSBs						
Outstanding vol.	23,470	66,377	79,121	84,277	105,331	4.5
Trading volume (monthly avg.)	318	51,213	70,580	50,222	82,708	260.1
Turnover ratio(%)	1.4	89.2	77.2	59.6	78.5	56.1
FX Reserves	20.4	96.2	102.8	121.4	143.3	7.0

? Using government bonds as monetary policy instruments

. for short-term liquidity management only

. BOK's need to hold a certain amount of government bonds (meaning issuing more MSBs)

<Graph 2> Government bonds accepted or bought by the BOK



✍ Proposal for

the efficiency of government bonds as monetary policy instruments and the development of government bond market in Korea

(Controversial issue in Korea)

? Replacing MSBs with government bonds

. This is not the first time and unique.

. The problem is whether the government will share the burden of monetary management with BOK or not.

(Problems of MSBs)

? A vicious circle :

the more MSBs are issued,
the more interest would have to be paid
and resulting in more MSBs issued to make these payments

? MSBs with maturity no more than 2 years

. a huge amount at maturity

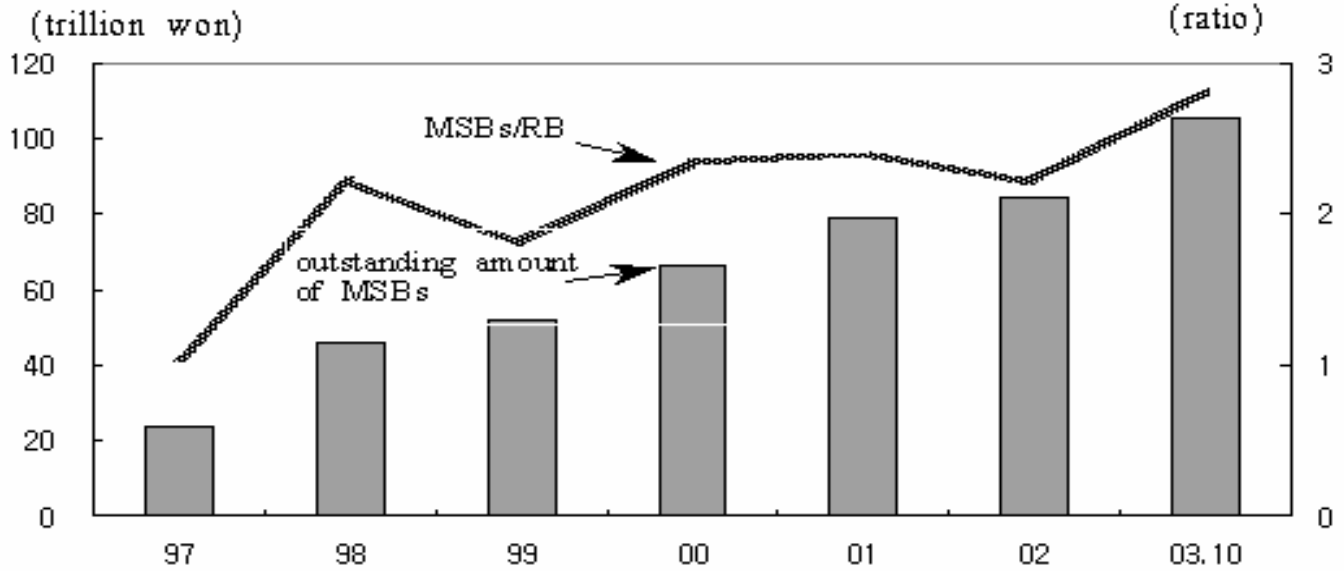
? working on a plan to hold back and reduce the amount of MSBs

<Table 4> Interest Paid on MSBs and Changes of RB

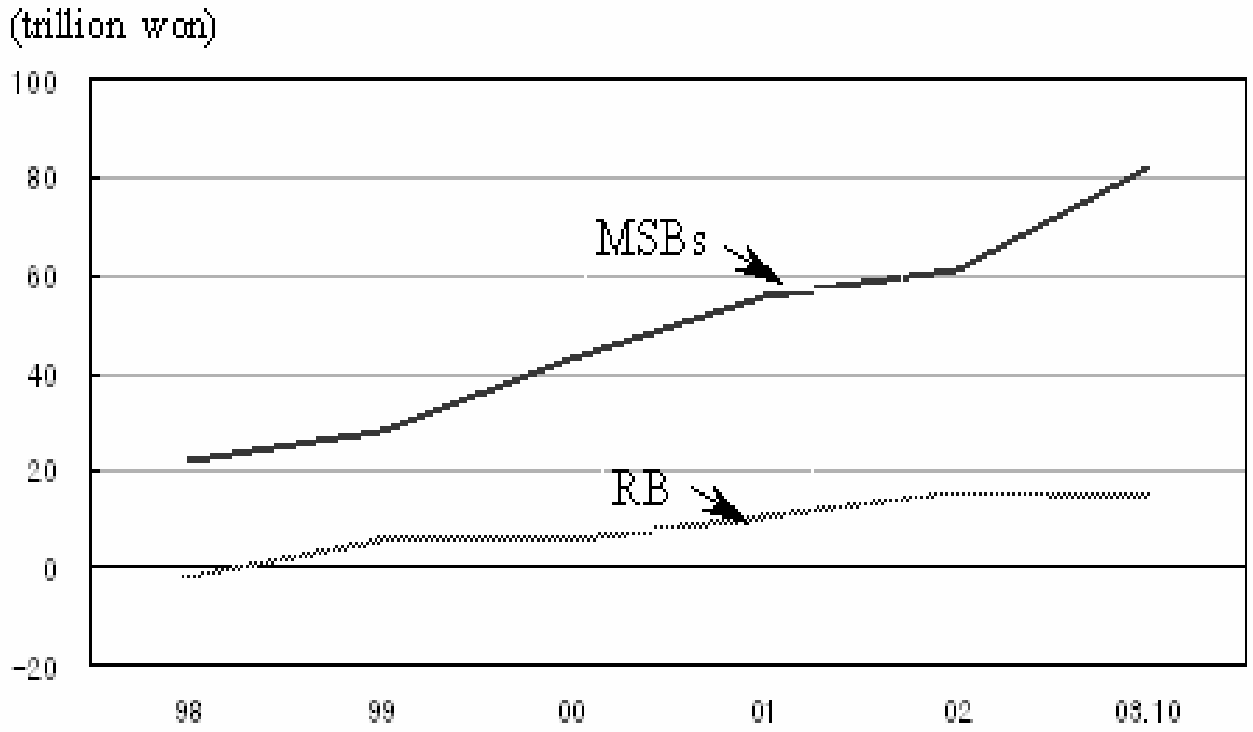
(trillion won)

	98	99	00	01	02	03.1 ~ 10
Interest Paid on MSBs	4.8	3.8	4.7	4.9	4.8	4.1
Changes of RB	-1.8	7.8	-0.2	4.6	5.2	-0.8

<Graph 3> Trends of MSBs issued and Reserve Base



Cumulative Growth of MSBs and RB



(Reasons for Proposal)

? **The possibility of liquidity reduction of government bonds**

? Expectation of decrease of the newly issued amount of government bonds

. Financial restructuring to a close

. Back to the 'balanced-budget' principle

? Government bonds as benchmark securities in the Korean bond market

. In order to maintain this status, government bonds must be newly issued over a certain amount and continue to be provided in an ample amount.

? BOK's escape from a vicious circle

. government bonds for liquidity control

. consultation and cooperation between the BOK and the government

? The creation of conflicts between government bonds and MSBs

? Due to fungible issue system, inevitable issuing short term TBs to prepare cash for massive redemption at maturity

. short-term government bills vs MSBs

? Undesirable confusion in the benchmark rate

. government bonds and MSBs are all risk-free

? Market will be confused at the spread of their rates.

? Possible misunderstanding on the central bank's manipulating or controlling the term-rates in the bond market at specific levels.

✍ conclusion

? The development of the government bond market itself is very important and indispensable.

? Equally important is **the nurturing of environment for the central bank to efficiently implement monetary policy with government bonds**, which is a prerequisite to the development of the government bond market.

Thank you !

Using Government Bonds as Monetary Policy Instruments: the Korean Experience

1. Recent developments in the government bond market

The government bond market in Korea has experienced remarkable changes since the outbreak of the financial crisis in 1997. Not only have the primary and secondary markets been totally reshaped, but also the infrastructure itself has been significantly altered. Until 1997, the issuance of government bonds had been restrained in line with the principle to keep the budget balanced. With the outbreak of the crisis, however, the government urgently needed to raise a huge public fund to implement financial restructuring as well as to boost the depressed economy through fiscal pump priming measures. So, the government abandoned the long-cherished principle of maintaining a balanced budget and started to issue bonds actively. As a result, the size of the government bond market has exhibited remarkable growth.

Having issued a huge volume of bonds, the Korean government recognized the need to develop well-organized bond markets. Supported by the technical assistance it received from the IMF and the World Bank, the government initiated since 1998 a series of measures to develop the government bond market on step by step basis. For instance, the regular auctions, the primary dealer system, the integration of different types of bonds, the futures market for government bonds, and the government bond fungible issue program have all been launched or introduced during the time. Recently in March this year, the period of fungibility has been extended from 3 months up to 6 months. In consequence, the outstanding volume of Korean government bonds in October this year has grown more than six times compared to that in 1997, while the turnover ratio of the bonds has soared almost 40 times compared to that in 1997 <Table 1>.

Recently, during 2003, two major improvements have been made to the local bond markets. First of all, a 5-year KTB (Korean Treasury Bond) futures market was launched in August. Secondly, the dates of bond settlement were changed from T+0 ~14 to T+1~30 in June. The issuance of 5-year treasury bonds is expected to expand further than it did last year as institutional investors, such as pension funds and life insurance companies, will continue to invest in long-term treasury bonds. To hedge against associated risks, a 5-year KTB futures market has been launched. In this year alone, the ratio of the issuance of 5-year treasury bonds to total treasury bonds has increased by 11%p from 29% in 2002 to 40% in 2003. The change in the period for bond settlements will not only stabilize over-the-counter bond settlements, but also activate forward trading and foreign investments in domestic bonds.

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* This document was prepared by Jin Kyu Oh, Associate Director, Market Operations Team, Financial Markets Department, the Bank of Korea. The views in this report are his and do not necessarily reflect those of the Bank of Korea.

2. To what extent has the BOK taken roles in government bond market development?

The primary role of the BOK in the bond market is to monitor and analyze the bond market. The Ministry of Finance and Economy (MOFE) is responsible for planning and developing the market system, focusing primarily on the government bond market. And the Financial Supervisory Commission deals with the market regulations.

However, as the Director General of the Financial Markets Department of BOK is a member of the Primary Dealer Designation Examination Committee of MOFE and MOFE frequently exchanges its opinion about government policy in the bond market with the BOK, the BOK is, in fact, indirectly participating in the formulation and implementation of government policy.

In addition, as the Deputy Governor of BOK is a member of the Financial Supervisory Commission, the BOK is also indirectly involved in the regulation of the bond markets.

3. Experiences of the BOK using government bonds as monetary instruments

The BOK currently has two tools to perform open market operations; repurchase agreements (RPs) and outright transactions against government bonds, and Monetary Stabilization Bonds (MSBs). The ceiling on the total volume of MSBs that BOK issues is determined by the Monetary Policy Committee as a percentage of M2. It is currently set at 50%. Outstanding MSBs currently stands at about 18% of M2. There are no limits in the amount of RPs and outright transaction of government bonds.

The purchases and sales of government bonds with banks became available since 1969. In 1977, non-bank financial institutions were included as counterparts in open market operations. In 1993, a competitive tender method was introduced for transactions of government bonds binded by repurchase agreements, as opposed to the former compulsory assignment. This move paved the way for open market operations to be conducted with prevailing market interest rates. And in 1997 with the introduction of electronic bidding through BOK-wire, the Bank of Korea's RTGS (Real Time Gross Settlement) system, open market operations based on market principle became firmly established.

After the 1997 crisis, the government bond market has changed incredibly. But there has been no change in the structure of the liquidity supply and demand in the market. There remains excess liquidity over the demand for reserves. So, the BOK has continuously sought to drain such excess liquidity and manage the reserve base in an appropriate level <Graph 1>. Structural problem with excess liquidity prevents BOK from holding a substantial amount of government bonds and utilize them as instruments for monetary policy, especially in open market operations.

Recently, due to the constant inflow of foreigners' portfolio investments and the current account surplus in the balance of payments, the won has been appreciated

vis-a-vis the US dollar. During the course of stabilizing exchange rate movements, the foreign exchange reserve holdings of the BOK has substantially increased, oversupplying further liquidity to the market. In response, the Bank had no other choice but issue MSBs to absorb excess liquidity, as sales of government bonds was clearly not an option for BOK could not hold enough government bonds to begin with.

During the period from 1987 to 1994, the BOK had experiences in implementing open market operations with government bonds with maturity of short-term treasury bills less than one year. These treasury bills were not issued to fund the fiscal deficit, but to manage liquidity <Table 2>. The fund raised by issuing them were deposited in the government's special account opened at the BOK. The government, however, were reluctant to assume interest payment burden on such bills. In the consideration of its balanced-budget approach, the government ceased to issue treasury bills for monetary management purposes. Accordingly, the BOK since then has heavily depended on MSBs in absorbing excess liquidity in the market <Table 3>.

Except during 1987 to 1994, there has never been an instance where the BOK used government bonds as monetary policy instruments to absorb excess liquidity resulting from chronic structured problem with excess liquidity. since 1995, MSBs issued by the BOK have been the sole instrument for controlling excess market liquidity. Since 1988, the BOK had often accepted or bought government bonds in order to expand government bond holdings and supply liquidity to stabilize the financial market <Graph 2>. The BOK operates RP transactions against government bonds for short-term liquidity management only. But when the amount of liquidity absorbed during short-term for fine-tuning purposes exceeds BOK's government bond holdings, the efficiency of RP operations as an instrument of liquidity control may be impeded. Therefore, the Bank needs to hold a certain amount of government bonds just for RP transactions, meaning that it must issue more MSBs.

4. Proposal for enhancing the efficiency of government bonds as monetary policy instruments and the development of government bond market

The idea of the replacement of MSBs with government bonds is now a controversial issue in Korea. This is not the first time. Such a measure had been executed earlier during 1987 to 1994. Replacing the MSBs with government bonds implies that the government issue treasury bills only for the purpose of controlling the liquidity and share the burden of monetary management with the BOK. The current acceleratingly increasing pace in the outstanding amount of MSBs is seemingly causing a somewhat vicious circle, the more MSBs are issued, the more interest would have to be paid, resulting in more MSBs issued to make these payments <Table 4>. While the reserve base has shown a stable trend of increase, MSBs have increased rapidly <Graph 3>.

Furthermore, the maturities of MSBs may not extend more than 2 years, as opposed to those of government bonds, which extend from 3 years to 10 years. As the outstanding amount of MSBs increases, rolling-over such a huge amount at maturity

could become very difficult, particularly should market interest rates increase. The BOK is working on a plan to hold back and reduce the amount of MSBs.

In view of the topic of this workshop, for the development of the government bond market and the efficiency of monetary policy in Korea, I personally propose replacing a certain amount of MSBs, the liability of the central bank, with government bonds, based on the two main reasons.

(the possibility of liquidity reduction of government bonds)

Due to ample supply of government bonds to the market and measures to develop the government bond market, government bonds have become the benchmark securities in the Korean bond market. In order to maintain this status, government bonds must be newly issued over a certain amount and continued to be provided in an ample amount to the bond market.

However, as financial restructuring draws to a close and the government sticks back to the balanced-budget principle, the amount of government bonds issued can not be expected to increase in the future. Against the possibility of such squeezing by the government, a study on how to cope with the situation and how to supply enough government bonds should be conducted. Replacing a certain amount of MSBs with government bonds could be one of the ways for maintaining liquidity on an appropriate level. In so doing, the BOK, as a central bank, could escape the vicious circle caused by MSBs.

Of course, the government will be reluctant to this plan because, ever since the crisis, it has become nervous and sensitive to the increase in national debt and the negative effect this brought to its sovereign rating. The replacement of MSBs should be implemented in consultation and cooperation between the BOK and the government.

(the creation of conflicts between government bonds and MSBs)

One of the most unique features of the Korean bond market is that MSBs for the purpose of monetary control are among the most predominant bonds in the market. In order to reduce possible market segmentation caused by competition among these default-free bonds, the government and the BOK are maintaining good cooperation on the technical level. The BOK limits the maturities of its MSBs to a maximum of 2 years, while keeping the maturities of government bonds longer than 3 years.

However, as the government bonds are applied to the fungible issue system, it inevitably calls for massive redemption at maturity, and the government has to prepare cash by issuing short-term bills. Issuance of short-term government bills necessarily clashes with the BOK's open market operations that rely heavily on shorter-term MSBs. Consequently, the government debt management role may come into conflict with the BOK's role of monetary control. This conflict may lead to a confusion in the benchmark rate of the market. The government bonds and MSBs

are all risk-free and considered as benchmark rate bonds. When government bonds and MSBs are issued with same maturities, the market could become confused at the spread of their market rates.

Basically, I personally think frequent central bank operations that influence bond yields may hinder the development of markets and reduce the significance of central bank's interest rate policy, particularly if that central bank sets the overnight call rate as its operating target as does the BOK. And also they may cause the market to misunderstand the central bank as manipulating or controlling the term-rates in the bond market at specific levels.

In conclusion, even though the government bond market develops with respect to liquidity, institutional measures and the infrastructure, the central bank cannot utilize government bonds with efficiency in implementing monetary policy. The development of the government bond market itself is very important and indispensable. Equally important is the nurturing of the environment for the central bank to efficiently implement monetary policy with government bonds, which is a prerequisite to the development of the government bond market.

<Table 1> Market Trends of Government Bonds

(billion won)

	1997.12(A)	2000.12	2001.12	2002.12	2003.10(B)	B/A
Gov't Bonds						
Outstanding vol.	15,390	53,437	61,744	72,564	95,088	6.2
Trading volume (monthly avg.)	446	42,175	73,865	37,797	107,794	241.7
Turnover ratio(%)	2.9	78.9	123.9	52.1	113.3	39.1

* KTBs, FESF Bonds, and Grain Bonds

<Table 2> Outstanding amount of Treasury Bills for liquidity control and MSBs

(trillion won)

	87	88	89	90	91	92	93	94
Treasury Bills	1.0	1.5	2.5	2.5	2.2	1.6	0.6	0.1
MSBs	9.0	16.3	18.0	15.6	13.9	20.6	24.4	25.3

<Table 3> Market Trends of MSBs and Foreign Exchange Reserves

(billion won, billion US dollar)

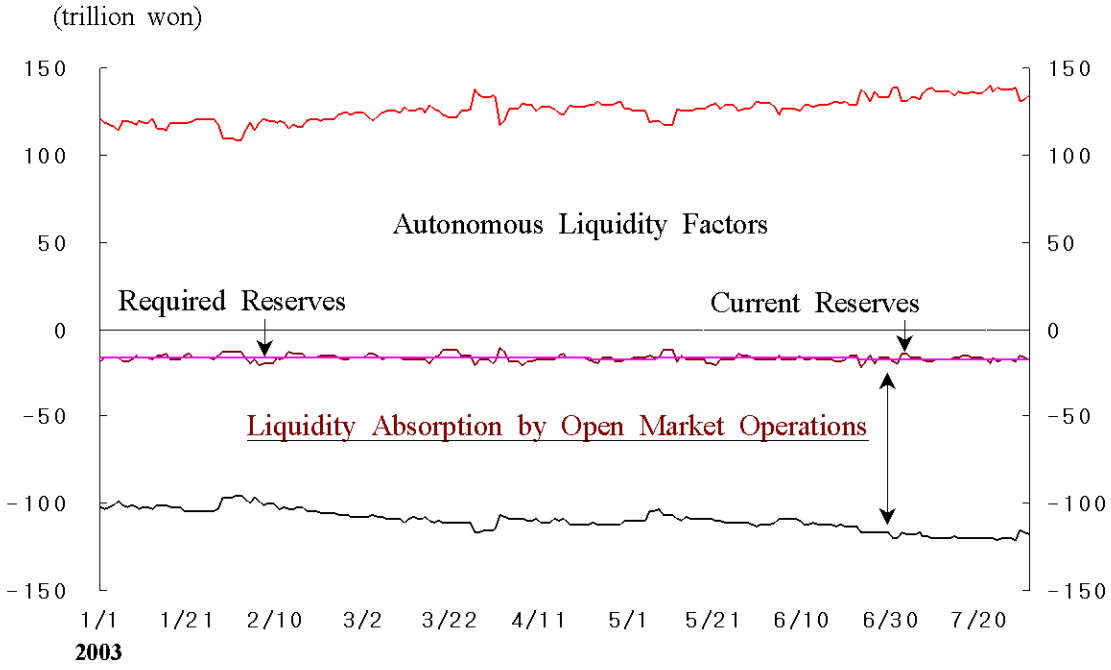
	1997.12(A)	2000.12	2001.12	2002.12	2003.10(B)	B/A
MSBs						
Outstanding vol.	23,470	66,377	79,121	84,277	105,331	4.5
Trading volume (monthly avg.)	318	51,213	70,580	50,222	82,708	260.1
Turnover ratio(%)	1.4	89.2	77.2	59.6	78.5	56.1
Foreign Reserves	20.4	96.2	102.8	121.4	143.3	7.0

<Table 4> Interest Paid on MSBs and Changes of RB

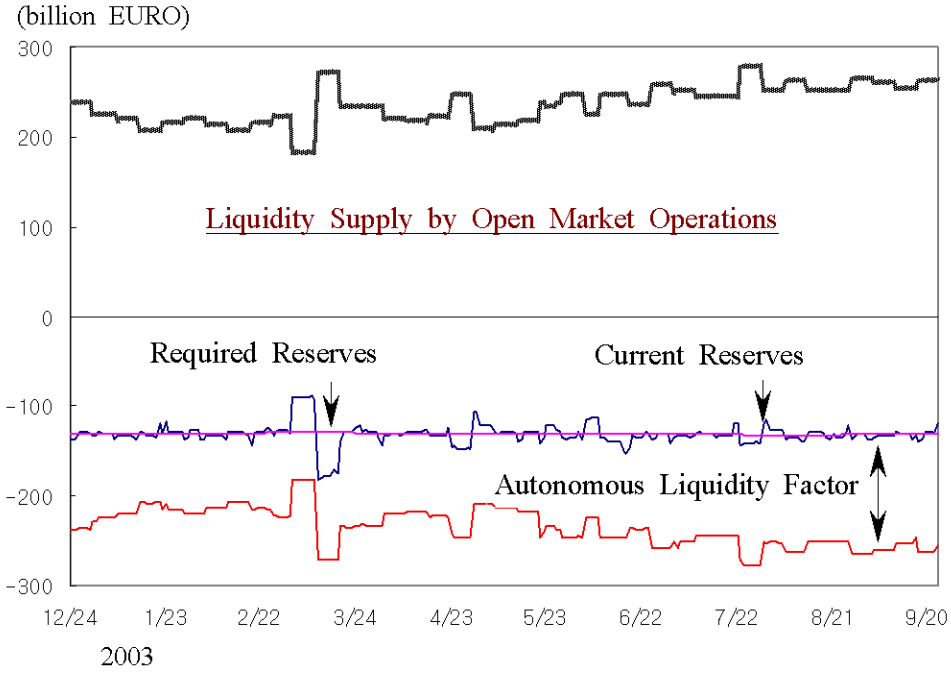
(trillion won)

	98	99	00	01	02	03.1～10
Interest Paid on MSBs	4.8	3.8	4.7	4.9	4.8	4.1
Changes of RB	-1.8	7.8	-0.2	4.6	5.2	-0.8

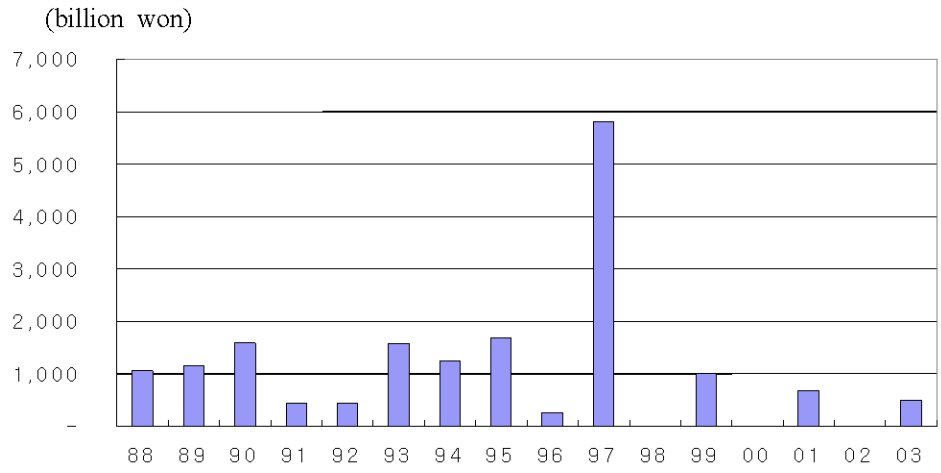
<Graph 1> **The amount of Open Market Operations and Banks' Reserves**



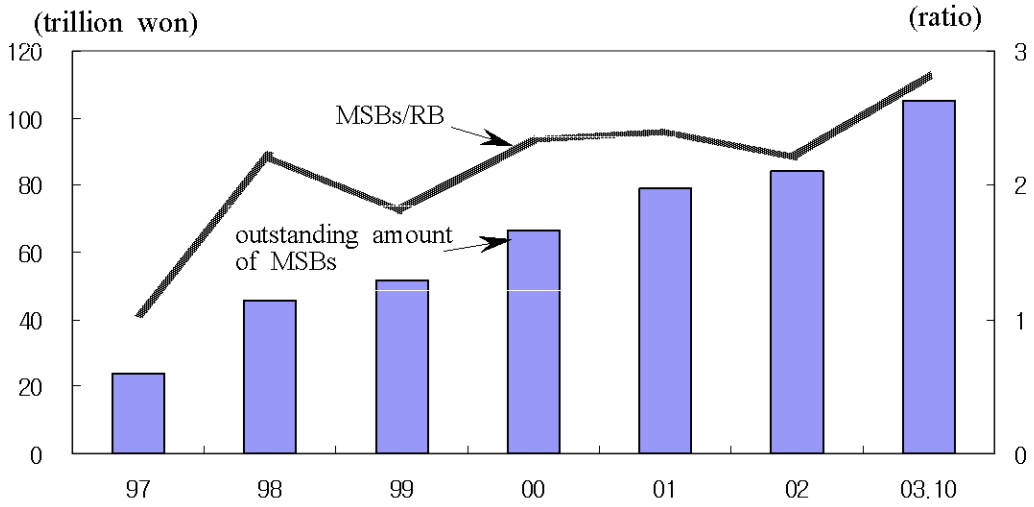
ECB's Open Market Operations



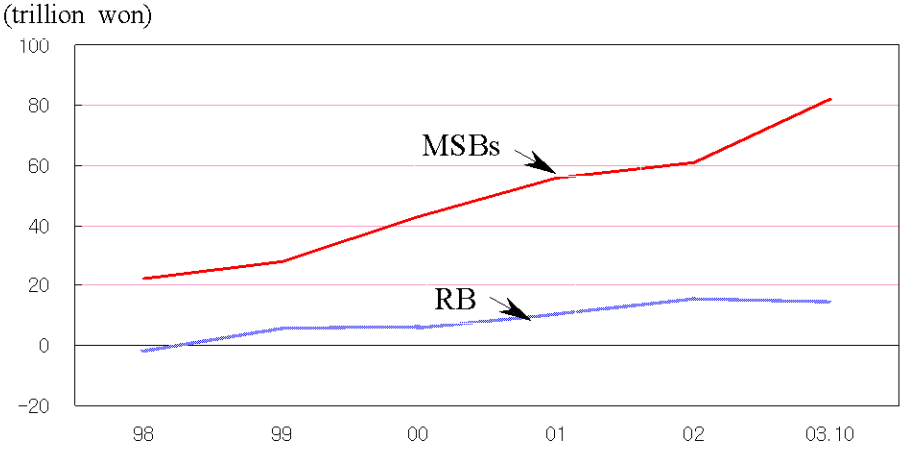
<Graph 2> **Government bonds accepted or bought by the BOK**



<Graph 3> **Trends of MSBs issued and Reserve Base**



Cumulative Growth of MSBs and RB



Biography of Mr. JIN KYU OH

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B.A. in Economics, Seoul Narional University, 1978-1982

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CAREER AT THE BANK OF KOREA

1984-1986	**Personnel Department**
1986-1989	**Foreign Exchange Control Department**
1989-1991	**Monetary Policy Department**
1991-1993	**Incheon Branch, the Bank of Korea**
1995-2000	**Monetary Policy Department**
2000-2001	**Assistant to MPC Member, Monetary Policy Committee Office**
2001-2001	**Monetary Policy Department**
2001-2002	**Chungju Branch, the Bank of Korea**
2003-present	**Financial Markets Department**

Session 8

Trading Market Architecture

Trading Market Architecture for Government Securities

December 11-12, 2003
Bali, Indonesia

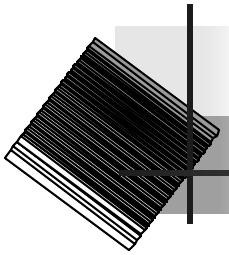
Noritaka Akamatsu
Financial Sector Operations & Policy Dept.
The World Bank

Agenda

- Transparency vs. Liquidity
- Optimal Market Structure
- Trading mechanism
- Fees for Trading and Reporting
- Exclusivity, Access and Information
- Business Model and Commercial Viability
- Links with C&S system
- Off-the-Shelf Platforms and Architectural Models
- Governance and Self-Regulation
- Legal and Regulatory Issues

Loose organization of bond market

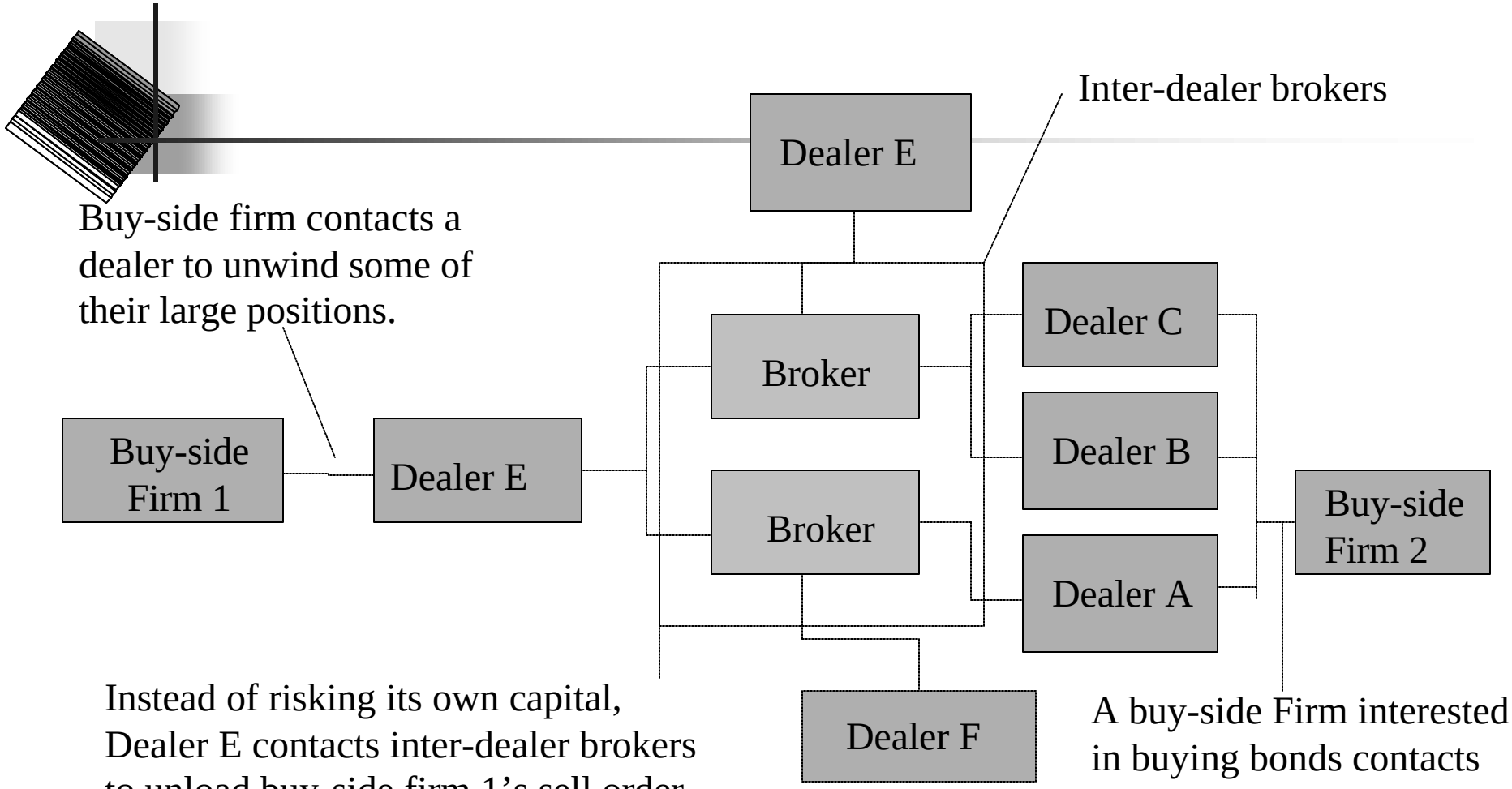
- Traditionally, bonds have been traded over the counters of dealers. Traditional stock exchanges have failed to attract bond trading.
- The lack of liquidity and transparency causes high yield of GS, costing the government.
- A better organized trading market can contribute to enhancing both liquidity and transparency.
  - Standardize yield calculation methods and adopt clean price.
  - Create a trading platform??



Stylized facts

- A majority of bond trading around the world is taking place in over-the-counter (OTC) market. Emerging markets in Asia are not an exception.
- Conventional stock exchange order-driven trading mechanism is not suitable for bond trading by institutional market participants.
- Block trades, which constitute a significant part of the trading, need to be negotiated over the counter.
- Benchmark bonds and non-benchmarks tend to require different trading arrangements. Market for benchmarks are easier to organize due to the typically standardized simple design of the instrument and resulting greater volumes.

A Structure of Secondary Bond Market



Source: Celent Communications, World Bank

Transparency and market architecture

- Transparency is not one thing: one as a public good and another as a private good owned by those who “pay” for it, implicitly or explicitly.
  - ***Pre-trade*** price and volume information is a partly public and partly private good while ***post-trade*** price and volume information should be mostly a public good.
  - ***Anonymity***: identify of market participants, pre- and post-trade.
- Balancing the public and the private goods is a key to designing the secondary market structure.
  - Public goods: the more, the better,
  - Private goods: need to compromise conflicting business interests of different groups of market participants.

Optimal Market Architecture

- Compromising different business interests of different groups of market participants.
  - Primary dealers / market makers
  - Non-market maker intermediaries
  - Institutional investors
  - Retail investors
- Primary market structure influences the optimal secondary market structure.
  - Primary dealer (PD) system with an “exclusive” privilege to participate in the primary auctions.

Exclusivity, Access and Information

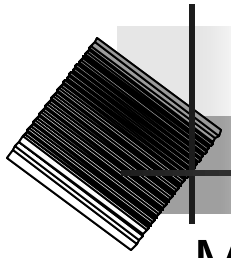
- PDs demand an exclusive privilege to participate in the primary auctions when required to make market for GS.

On the other hand,

- End investors demand greater transparency/access to the secondary market in exchange for the exclusion from the primary market.
- In particular, they want “inter-dealer pre-trade price” information while PDs prefer less transparency.
  - Inter-dealer price quotes vs. client price quotes
  - Viewing vs. hitting quotes for execution.
  - Firm vs. indicative quotes

PD system and secondary market organization

- A PD system without a market making obligation hardly makes sense.
  - although there can be a variety of compromised forms of market marking.
- PD's performance against their market making obligation must be monitored.
- A requirement to route market making transactions through an organized trading platform enables the monitoring.
- PDs often demand exclusivity also in access to the trading platform and/or limited transparency of pre-trade price information.

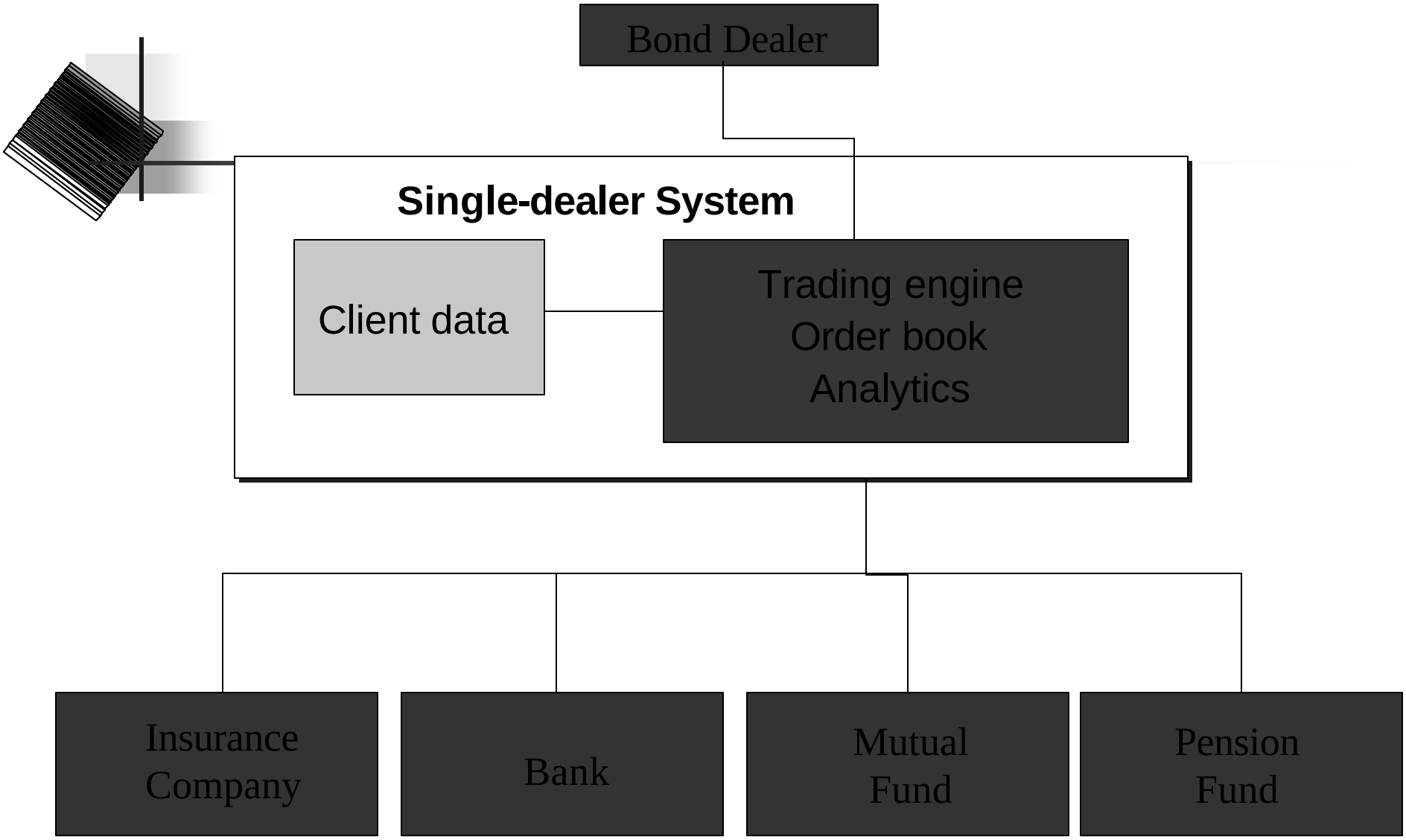


Architectural Models

Many possibilities exist (see www.bondmarkets.com).

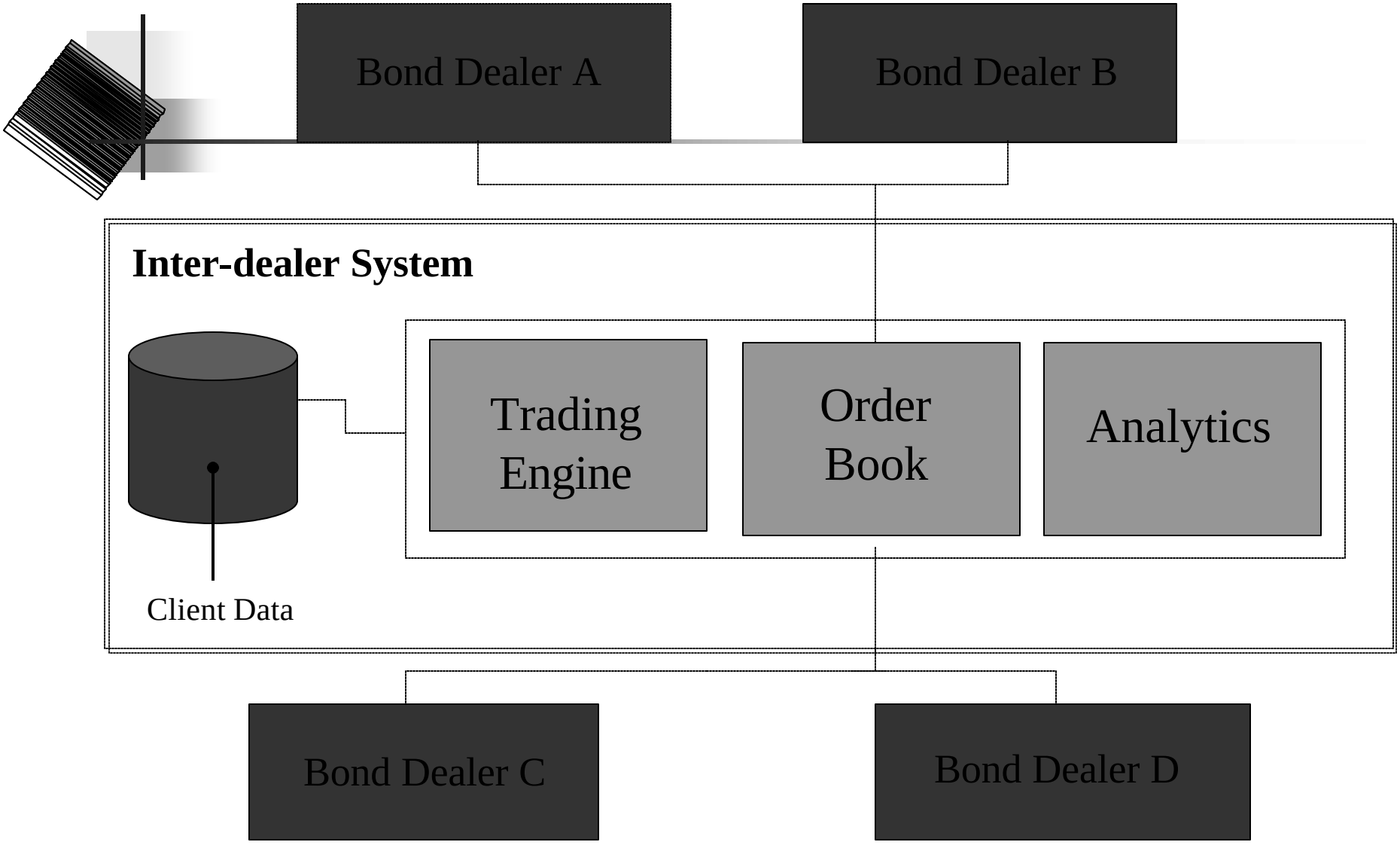
- Single dealer systems
- Inter-dealer systems
  - eSpeed (Canter Fitzgerald), ETC (Garban Intercapital), MTS (which acquired BrokerTec and Coredeal), etc.
- Multi-dealer systems
  - Market Access, TradeWebb, Bloomberg BondTrader, BondsinAsia, etc.
- Cross matching systems
  - Automated Bond System (NYSE, i.e., order-matching system)
- Auction systems
  - BondVision (for MTS to create a multi-dealer system)

Structure of a Single-dealer System



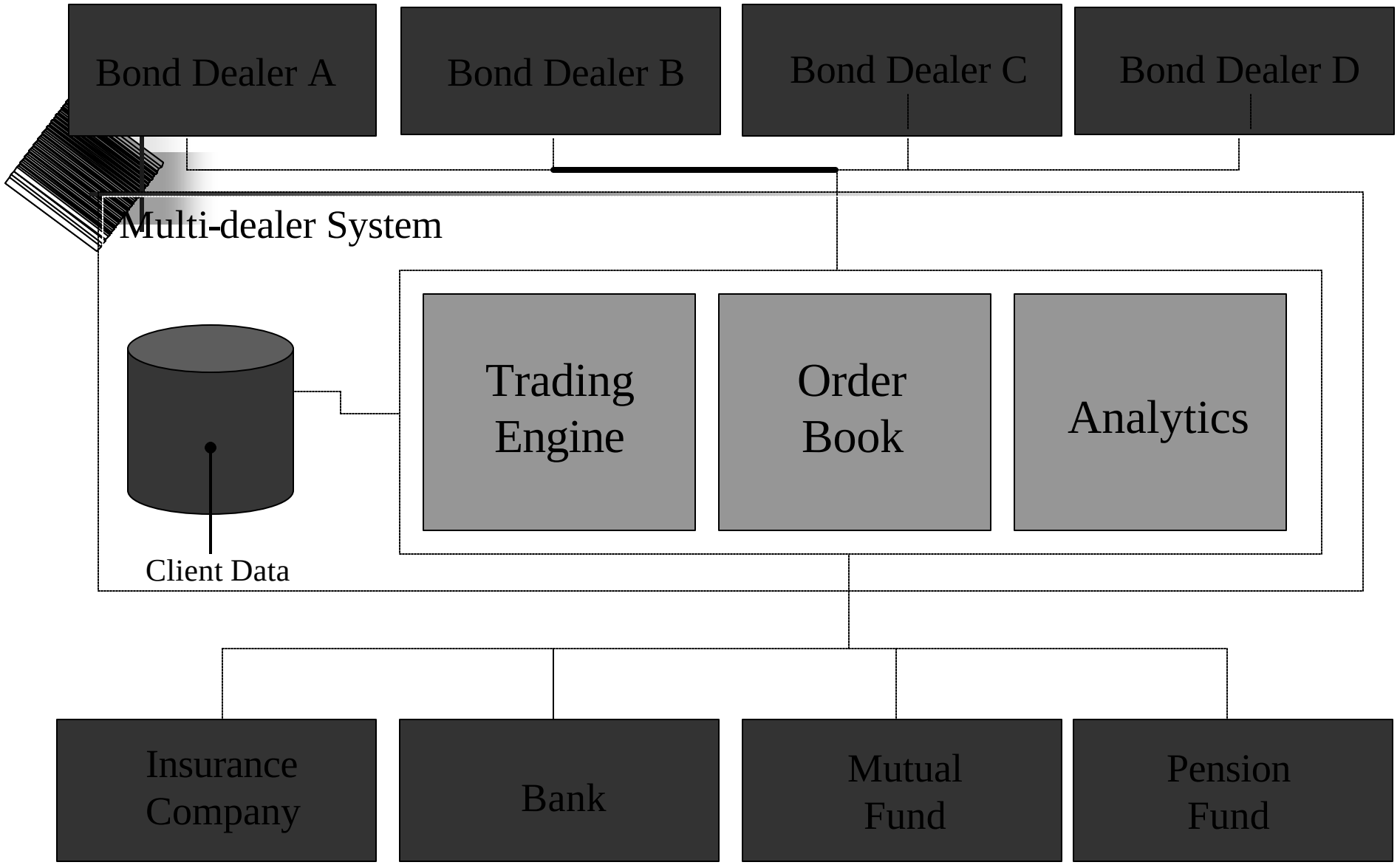
Source: Celent Communications, World Bank

Structure of Inter-dealer Systems



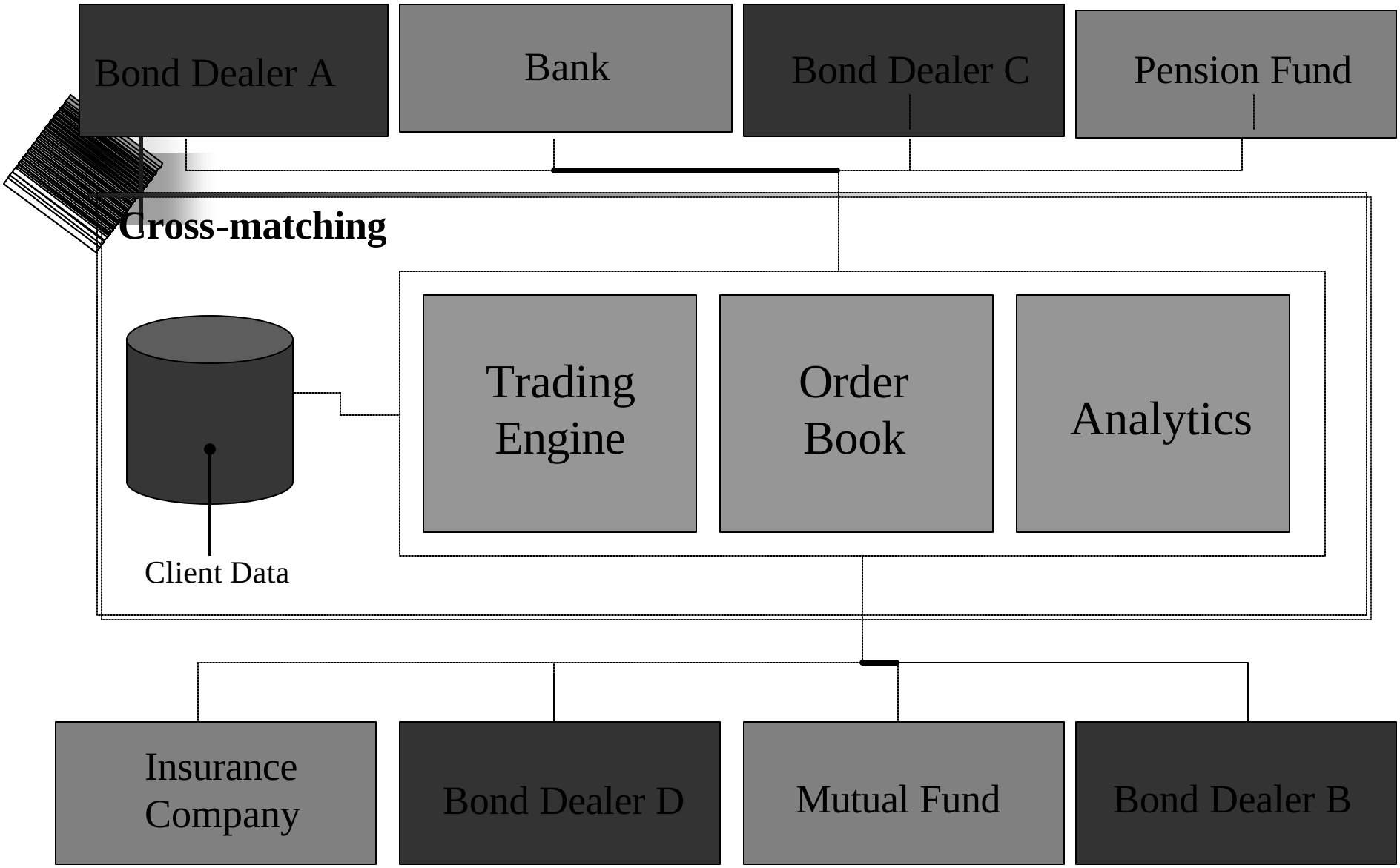
Source: Celent Communications

Structure of Multi-dealer Systems



Source: Celent Communications

Structure of Cross-matching Systems



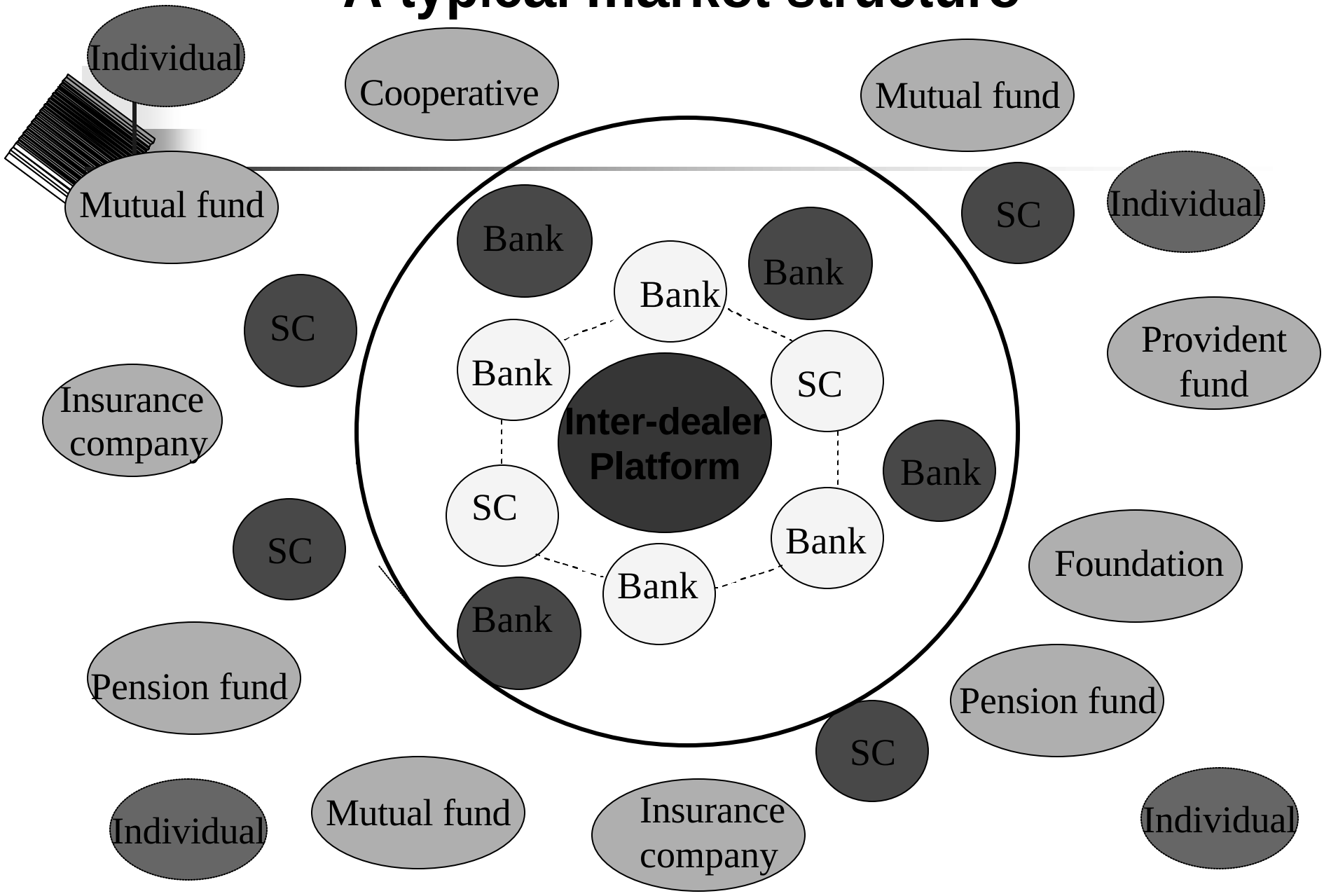
Source: Celent Communications

Types of Electronic Trading Systems
Four Main Types of Electronic Bond Trading Systems

Type of System	Strength	Weakness	Examples
Single Dealer system	Replacement of phone-based trading system	Necessity for end-users to connect more than one single-dealer systems to get a broad picture of the market.	Autobahn Electronic Trading (Deutsche Bank Securities), CSFB, Goldman Sachs, J.P. Morgan Express, MSDW, BondsinAsia, etc.
Inter-dealer system	Additional liquidity and extension of traditional inter-dealer broking role.	Neglects to incorporate a large source of liquidity by excluding buy-side firms.	MTS (including Coredeal and BrokerTec), Garban-ICAP ETC, eSpeed, BondsinAsia, etc.
Multi-dealer system	Increased access to market information and more options for trading.	Limited market information and reliance on dealers for continued liquidity.	Market Axess, TradeWeb, Bloomberg BondTrader, BondsinAsia, etc.
Cross-matching system	Major improvement in market information and cost savings in trade executions.	Unless backed by proven liquidity source, no guaranteed source for continued liquidity.	BondBook, BondLink, Bond Connect, Bond-Net, BondMart, LIMI-Trader, Visible Market, etc.

Source: Celent Communications, World Bank

A typical market structure



Trading Mechanism
A case of Inter-Dealer Platform

- Firm quotes vs. indicative quotes with negotiation;
- OTC: bilateral or brokered negotiation for block trades
  - ID platform best price viewable for transparency?
- Chatting function available?
  - anonymity
  - Tedious method of communication as compared to telephone,
  - Counterparty may not respond.
- Voice broking available at ID platform (e.g., Garban ICAP)?
  - Legal & regulatory issues
  - Money brokers and securities companies provide it
  - ID platform may become a competitor to securities companies.

Trading Mechanism - continued

- Control for counterparty exposure limits
  - DVP helps but may still be needed.
- Request-for-quotes (RFP) for the dealer-to-client market of a multi-dealer platform
- Regulatory issues
  - Is the ID platform an exchange, an ATS/ECN or a broker?
  - Is chatting system a trading system?
  - Is voice broking allowed for an exchange?
  - If a multi-dealer platform is adopted, is the dealer-to-client segment without firm quotes a “trading” system?
  - If the dealer-to-client system is developed separately from the inter-dealer system sharing the same platform, how should the dealer-to-client system be authorized?

Need online links with settlement system

- Straight through processing (STP) from trading to settlement
  - critical for the ability of a trading platform to attract transactions and, therefore, for its commercial viability
  - Market transparency can also be enhanced.
- The settlement system should be accessible by all “qualified” trading platforms to ensure fair competition.
- Is a central counterparty (CCP) useful?
  - In gross-gross DVP environment?
  - How about repo market?

Inter-Dealer Market Architectures

- Monopolistic vs. competitive IDM structures:
  - Italian MTS (monopolistic) vs. South Africa Bond Exchange (competitive)
- PD system and market makers are an integral part of MTS which is a highly structured market with four different levels of accessibility.
- Contestability at entry
  - a key for a small market with a potential to grow big.

Governance and Self-Regulation

- Mutual organization with membership.
  - Participation of MOF and/or central bank?
  - Voting rules? Big dealers, big voice?
  - Any representation of end investors???
  - BMA (trade association) vs. ISMA (SRO)
- Admission criteria?
- Prudential rules?
- Trading rules for members themselves or code of ethics for their clients as well?
- Supervision capacity?
- Investigation and enforcement capacity and authority?

Fees for Trading and Reporting

- **A dilemma:** Trading platform is a private business requiring commercial viability while bond trading is sensitive to transaction cost.
- ID platform charges a fee for each way of trade. Brokers pay both ways if they use it and, sometimes, tax on top.
  - A securities broker must also cover a fee to a sub-registry and bear a funding cost of settlement when the transaction is booked.
  - Should securities brokers join the ID platform??
- Charge transactions reported for transparency???
  - Don't discourages transparency.
  - Sell the information to information venders (e.g., Reuters, Bloomberg, etc.)

Business Models

- Private network (high cost & high speed/security) vs. internet (low cost & low speed/security?)
- An overseas server (low entry cost & high maintenance cost) vs. local stand alone system (high investment cost & low maintenance cost)
- Fee income
  - Membership, transactions,
- Equity investment by market participants.
- Joint Venture between a foreign provider and local bond dealers' association.

A strategic business model ?

Q. How to start with a small volume: a chicken-and-egg problem.

- Government investment or financial support? (e.g., MTS of Italy, TBDC in Thailand)

Legal & Regulatory Issues

- Should ID platform be authorized as an exchange? Can it be allowed to offer voice broking without a brokerage license?
- Supervised as an exchange as well as an SRO by the securities regulator?
- How should IDB be authorized and regulated?
- Is there Regulation ATS to authorize and regulate electronic trading platform and ECNs?
- Whether and how should Bloomberg, Reuters, Telerate be regulated if they offer trading services?
- How can possible public sector ownership be treated under the existing regulatory framework?

Strategy?

- Consider business model and viability. A monopolistic inter-dealer market tends to be a core.
- Consider whether a PD / market maker system should be adopted.
- Consider expanding it to create a multi-dealer trading environment (e.g., MTS + BondVision) particularly as you try to establish a more formal PD system.
- Consider regulatory framework. Consider whether self-regulation makes sense and whether is conflict of interest manageable.
- Consider creating a competitive inter-dealer market with multiple inter-dealer brokers and high transparency (e.g., Bond Exchange of South Africa).
- Meanwhile, consider requiring “reporting” of OTC transactions for transparency.

Thank you !

Clearance and Settlement for Government Securities

December, 11-12, 2003
Bali, Indonesia

Noritaka Akamatsu
Financial Sector Operations and Policy
The World Bank

Agenda

- Why efficient C&S is important for GS market.
- Criticality of Delivery versus Payments (DVP) for GS market.
- RTGS versus net settlement.
- Alternative institutional setups of C&S bodies and use of government securities as collateral.
- Functions and services to be provided by C&S systems.
- Central counter-party (CCP): Is it needed?
- Conflicts of interest in governance of C&S institutions

After Trade Execution …..

- Comparison (of terms of the trade):
  - affirmation by the client to the agent
  - confirmation by the counterparties
- Communication of settlement instructions to central depositories / custodians.
- Computation of the obligations of the counterparties resulting from the comparison
  - gross settlement
  - net settlement
- Settlement:
  - Final delivery of securities and final payments.
- C&S can also involve other complex processes such as repo clearing, collateral management, securities lending, cash management, etc.

“International Standards”

CPSS-IOSCO Recommendations (19) addresses:

- Legal framework
- Trade confirmation / affirmation (T+0, T+1 or less)
- *Settlement cycles (T+3 or less)*
- *Central counterparties (CCP) & guarantee mechanisms*
- *Securities lending / borrowing and repos*
- *CSD and risk control against participant’s failure*
- *DVP by CSD, settlement finality and same day funds*
- Cash settlement assets (e.g., central bank money)
- CSD operational reliability & business continuity
- Custody risk mitigation
- *Governance, open access*
- Efficiency
- Communication procedures and standards

Why C&S is particularly important for GS market

- GSs are traded frequently in large value, thus posing significant systemic risks to the financial system.
- Fixed income trading activities are very sensitive to cost and risk of transaction. Efficient C&S is crucial in reducing those.
  - Funds and securities tied up in C&S process not only necessarily but sometimes also unnecessarily;
  - Investment and operating cost of C&S systems
- Effectiveness in organizing the trading market depends heavily on the integrity of C&S
  - Anonymity and DVP

Criticality of DVP

- Simultaneous transfer of money and securities.
- Lack of DVP leaves the secondary market fragmented, non-transparent and under-developed.
  - Makes anonymous trading very difficult, and telephone OTC trading prevails.
  - Big banks and institutions deal only among themselves worrying about counter-party risk, i.e., the secondary market remains fragmented and non-transparent, i.e.,

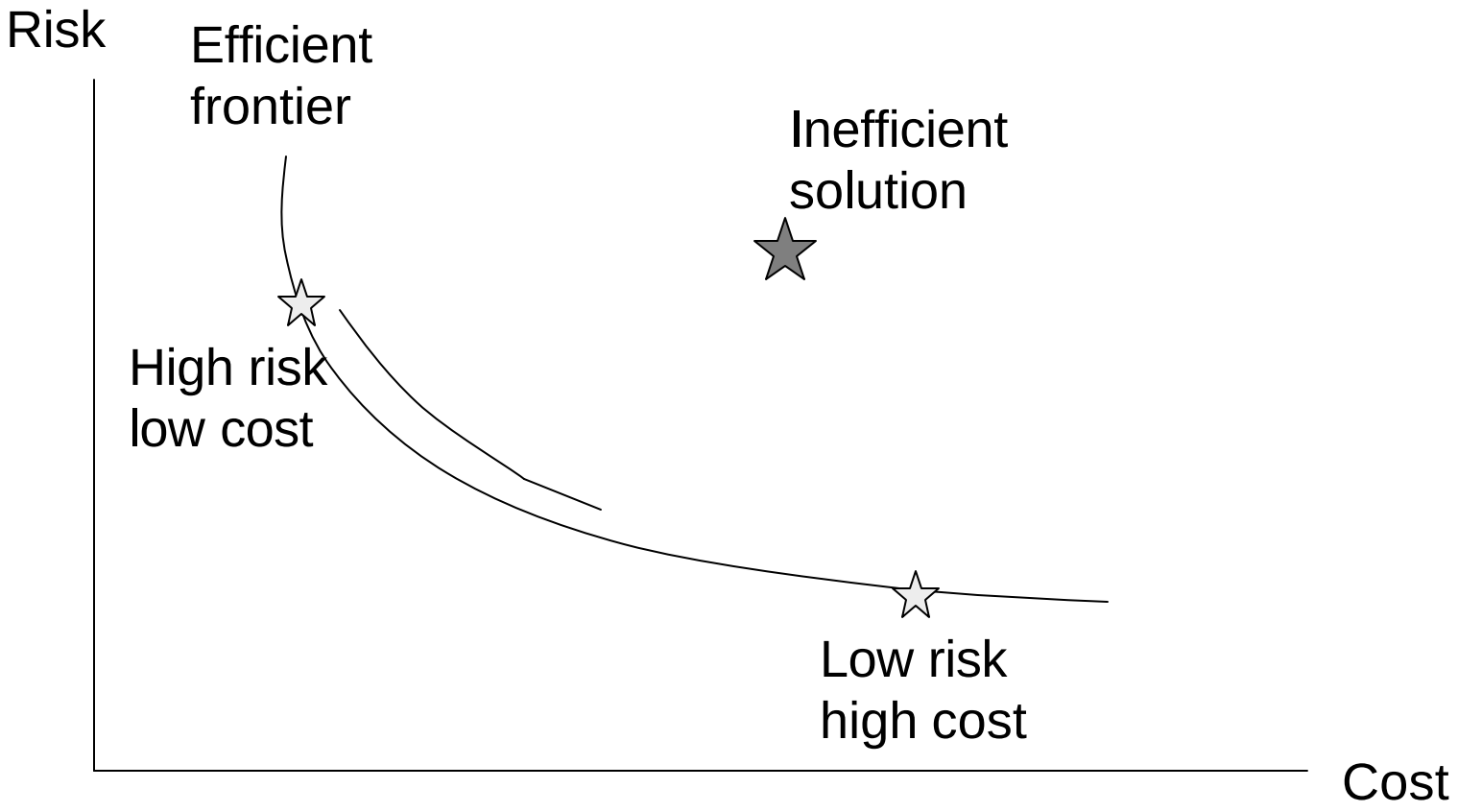
  Therefore,

  - The secondary market would fail to develop beyond a small group of large banks/institutions.

RTGS vs. Net Settlement

- There is tradeoff between cost and risk in C&S.
- Unnecessary cost and risk should be eliminated.
- In choosing optimal tradeoff, utility functions of Central Bank and the market participants are often different.
  - RTGS eliminates systemic risks and often preferred by Central Bank.
  - Net settlement saves funds and securities needed for settlement and often preferred by market participants (especially if Central Bank acts as CCP).
  - Central Bank can require banks to adopt a desired safe solution or incentivize them to seek it through prudential rules.

Risk and cost tradeoff

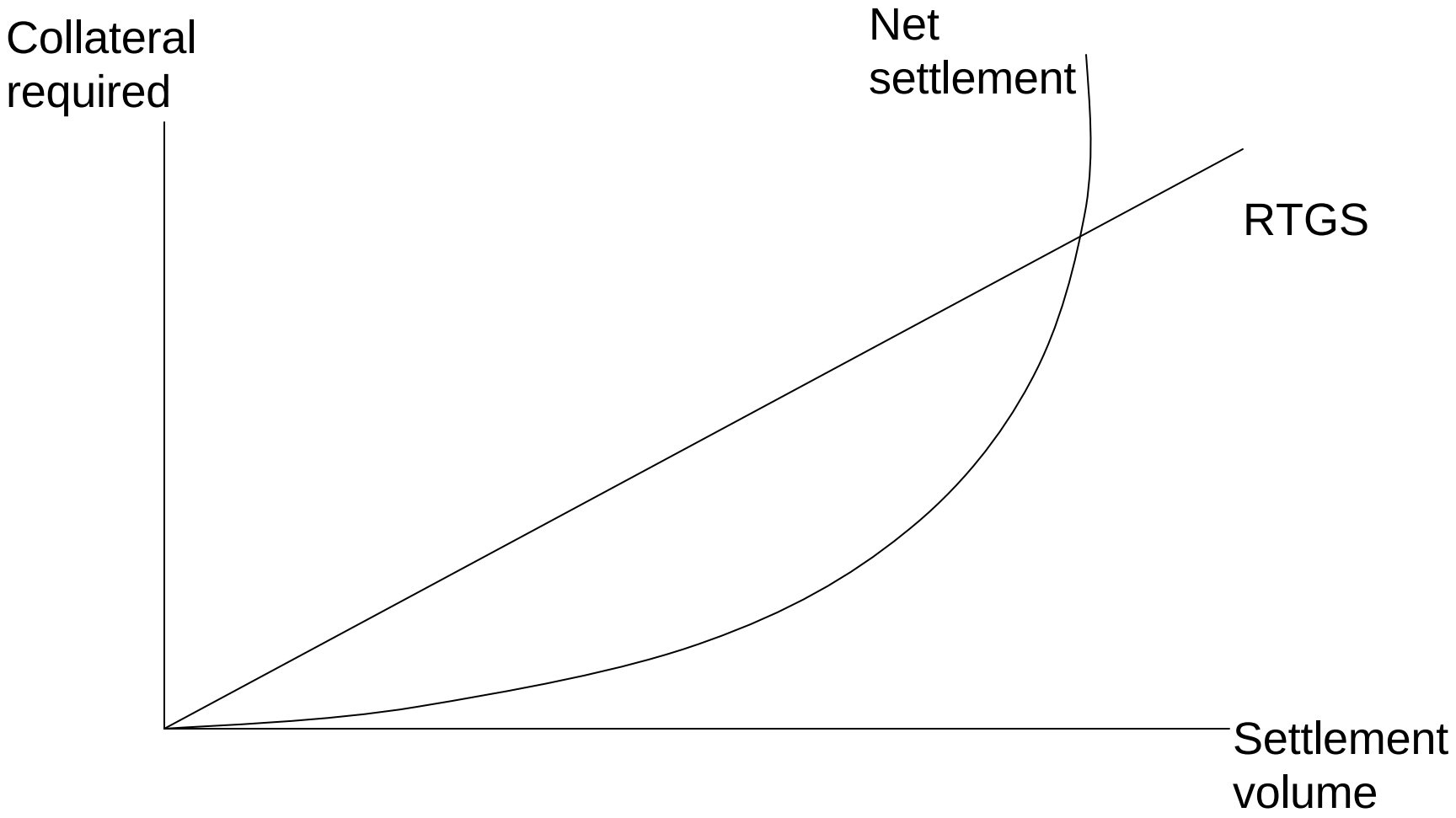


Costs and Risks in RTGS and Net Settlement

- Funds needed for **RTGS** need to be provided by Central Bank against collateral.
  - Funds needed tend to increase *proportionally* to the volume of trading.
  - Thus, collateral required *should* also increase proportionally to the volume.
- Risks in **net** settlement should be backed up by collateral.
  - Risks in net settlement tend to increase *exponentially* with the volume of trading.
  - Thus, collateral required should also increase exponentially.
- Collateral tied up involves opportunity costs.

RTGS vs. Net settlement

systemic risk and collateral requirements



RTGS and automatic Repos for liquidity provision

- RTGS requires a high level of fund liquidity.
- High opportunity cost for market participants if they had to maintain it by themselves.
- Central bank can provide *intra-day overdraft* by automatically collateralizing GSs of a bank seeking the liquidity.
- The same logic applies to securities. I.e., GSs can be lent for market participants (e.g., market makers) who need those for timely settlement / delivery.
  - Central depository of GSs could provide such a service (i.e., CSD lending). Who operates the CSD?

Central Counter-party

Q. What value would CCP add over and beyond what is already achieved by DVP?

Issues:

- Need of post-trade anonymity;
- Need of safer settlement? Proper risk management is needed (e.g., a loss sharing arrangement among participants to avoid moral hazard);
- Convenience, i.e., no need to assess risk of individual counterparties, thus facilitating active trading;
- Need of sure settlement for fund liquidity management (e.g., repos);
- Need of net settlement in addition to RTGS (repos).

Settlement of primary issues of GSs (T-bills & T-bonds)

- The settlement cycle should be standardized and made reasonably short.
  - To enable effective cash management by the government.
  - The more capable the government becomes in cash management, the more it will appreciate swift settlement.
- Use of RTGS is highly desirable.
- The settlement system should be capable of handling netting in funds for *exchange offers* for refinancing of outstanding debt.
- Direct counterparties for Central Bank in OMO may be limited to qualified banks holding money and securities accounts at Central Bank?

Settlement for OMO

- OMO in GSs, repos or CB bills (though not impossible to use certain other securities).
- Settlement of OMO should be very swift.
  - by the end of the settlement day if not intraday or real time.
- Cash balance of the government and excess reserve of the banking system as key parameters.
  - Sophistication of government cash management can simplify monetary policy of the central bank.

C&S of repos and reverse

- A settlement system should be capable of handling:
  - swift settlement (by end of day, intraday or real time);
  - sell & buyback repos (e.g., the obligation of the parties to trade to reverse the transaction as well as ownership transfer should be noted.);
  - collateralized lending (e.g., the pledgor is blocked from using the pledged GSs.).
- If notional securities are used, the system should be capable of controlling use of GSs owned by clients of the market participant in repo
  - Otherwise, integrity of DVP and finality is compromised.
- A system should permit netting repos and reverse.

Settlement finality and Account holding structure

- Multi-tier account holding (central depository/ registrar and sub-depositories/registrars or custodians)
- Recognition of transfer of ownership at multi-level with duplication of beneficiary accounts at CSD for ownership transparency and supervisory effectiveness.

Important basics:

- Dematerialized (book-entry) GSs (or Securities Accounts)
- Electronic payment / transfer instructions (e.g., SWIFT messaging standards)
- Straight through processing (STP)

Securities C&S Institutions and their integration

- Types of institutions
  - (Trading system)
  - Clearing House
  - Depository
  - Registrar
- Integration and/or consolidation:
  - across functions / instruments (Economies of “Scope”)
  - across institutions of the same type (Economies of “Scale”)
  - To avoid duplication of system investments, fragmentation of exposures requiring additional capital, liquidity, margins.
- Natural monopoly? But risk control is necessary.

Business Functions

- Securities registration
- Netting and clearing
- Securities settlement / transfer
- Safekeeping
- Collateral management
- Credit lines and risk management
- Securities lending and borrowing
- Cash management
- Corporate event services

Integration across instruments or functions

- Integration across instruments
  - Equity, corporate debt, government securities, derivatives
  - E.g., Crest (UK), VPC (Sweden), Euroclear France, etc.
- Integration across functions / institutions
  - Trading, clearing, custody and registration
  - The functions can be integrated in a variety of combinations to suit an existing institutional setting.
- C&S process should be as “STP” as possible regardless of the combination. Easy to say but ….

Costs and business viability of settlement systems

- System investment, maintenance and upgrading.
  - An obvious advantage if duplication can be avoided.
- Operating cost including human resources required.
  - An advantage but a politically difficult issue to address.
- Prudential requirements (capital, collateral, liquidity) for risk management.
  - Less obvious but a potentially very significant cost factor.
  - Settlement systems should permit most efficient use of capital, collateral and liquidity to back up systemic risks.
  - To do so, GSs should be used efficiently for cross margining, etc. since they can be high quality collateral.

Commercial Services by CSD

SLB, repo clearing, collateral management and cross margining involve complex “commercial” services.

- Necessary for dealing / market making.
- Efficient “CSD lending” requires efficient system architecture and competitive pricing based on contracts with participants.
- Collateral and risk management for safekeeping
- Clearing of tri-party repo.

Q. Consistent / relevant with the fundamental mission of the Central Bank?

A. Partially “Yes” (e.g., management of systemic risk) and partially “No”.

Central Bank as a commercial service provider?

Advantages:

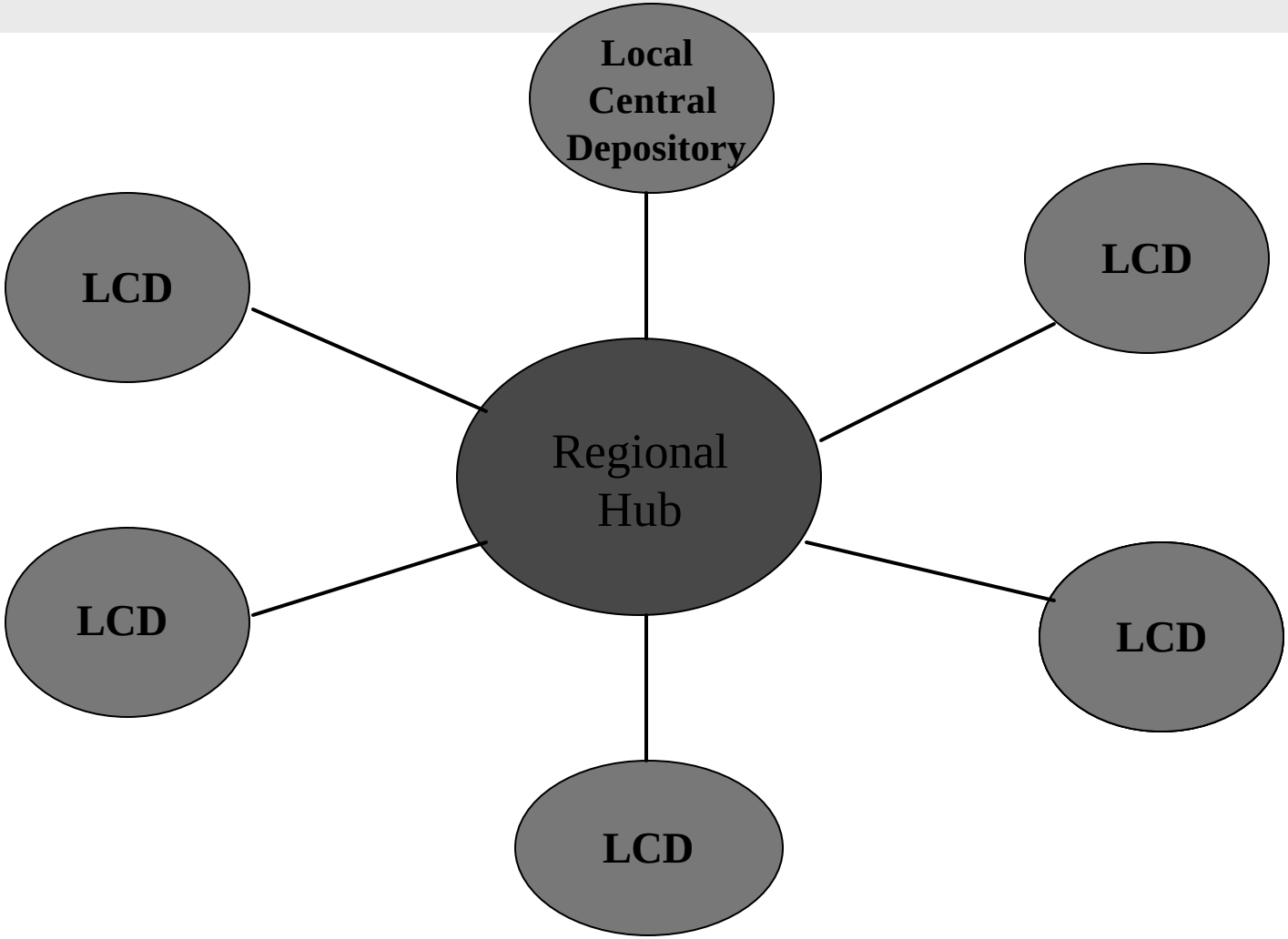
- Competent institution
- Have resources
- The surest going-concern

Disadvantages:

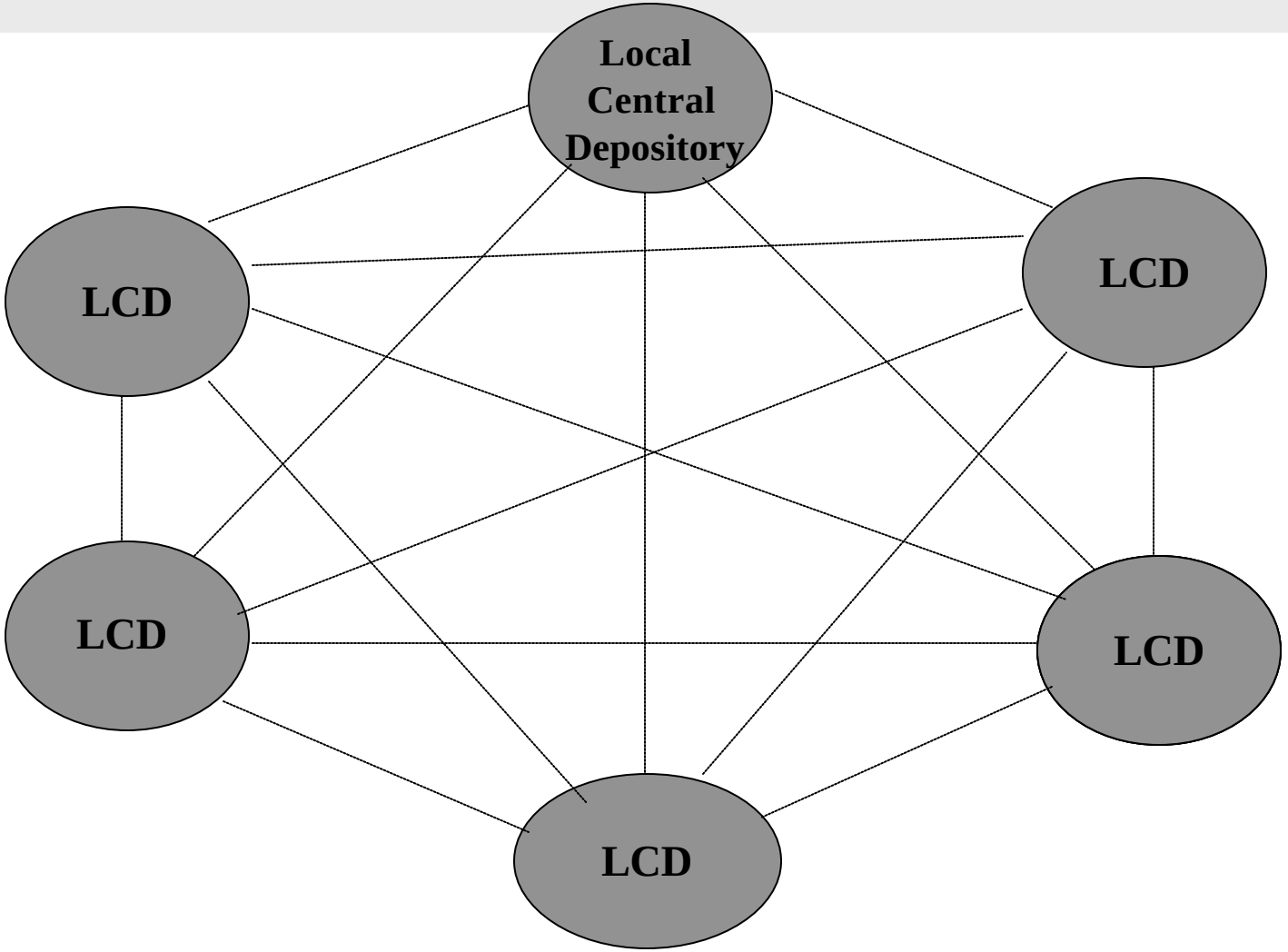
- Not central to its mission as Monetary Authority
- Absence of governance by participants
- Creation of a regional hub will not be possible.

Regional Custody Architecture – 1

With a Regional Hub



Regional Custody Architecture – 2
With a Network



Outsourcing

- A *good* idea to avoid duplication of system investments and operating expenses.
- A *great* idea if it can facilitate minimization of prudential requirements without increasing risks.
- A *terrific* idea if role sharing can be arranged to take advantage of different strengths of different providers of C&S services to create the best of all possible world.

Governance, Access ….

- Appropriate governance is a “key” to successful implementation of all institutional reforms of C&S.
- Who owns, governs and/or controls CSD / Clearing House / CCP?
- Who uses (has access to) them and, therefore, pays for their services?
- Whose interest do they represent?
  - How are *custodians* represented on the board of CSD???

Relationship with Custodians

- A delicate relationship because custodians are important members / users of a clearing house / central depository while at the same time they are providers of similar services.
  - ? A need to manage conflict of interest.
  - ? Standardized service for “core clearing” by a central depository/clearing house while more tailor-made services for individual institutional clients by custodians.
- What if custodians do not have “proper” representation on the Board of the central depository??
  - ? A concern about the “monopoly”.

Summary

- Efficient C&S is critical for GS market while GSs are a critical instrument for efficient C&S.
- Sound settlement system is a pre-requisite for creating an efficient trading market.
- Choice between RTGS vs. net settlement is important.
- There are a variety of possible institutional arrangements for C&S, but unnecessary cost should be avoided.
- Governance and access are an important policy issue.
- Choice between central bank vs. private CSD requires.

Thank you!

Biography of Mr. NORITAKA AKAMATSU

Mr. Akamatsu is a Lead Financial Economist of Financial Sector Operations and Policy Department and a Task Team Leader of the World Bank's Public Debt Reform Program. He joined the Bank in January 1993 as a Financial Economist. He specializes in the area of financial market development and has been working on numerous lending operations, technical assistance projects and the Financial Sector Assessment Program (FSAP) of the World Bank and IMF to support the development of emerging financial markets around the world. He has worked on Indonesia, China, Thailand, South Korea, the Philippines, Vietnam, India, Russia, Romania, Turkey, Croatia, Latvia, Kazakhstan, Armenia, Georgia and Peru among other countries. He is one of the primary contributors to the Bank's publication of Handbook of Government Bond Market Development. Prior to joining the World Bank, Mr. Akamatsu worked for Nomura Research Institute in Tokyo and London where he was responsible for advising governments on financial market development in Asia and privatization in Central and Eastern Europe while supporting international bond underwriting operations of Nomura Securities. Mr. Akamatsu holds an MBA from the University of Chicago and an MSc in Economics from London School of Economics.

Session 9

General Introduction to Regional Bond Market Initiatives: Asian Bond

Asian Bond Market: An Emerging Regional Bond Market

APEC Finance and Development Program

Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies

Bali, Indonesia
Dec 11-12, 2003

Ismail Dalla, CFA

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World Economic Prospects

World Real GDP Growth (in %)

	Current Estimate		Current Forecast	
	2002	**2003**	**2004-05**	**2006-15**
World	**1.9**	**2**	**2.9**	**3.2**
High-Income Countries	**1.6**	**1.5**	**2.5**	**2.7**
Industrial countries	**1.6**	**1.5**	**2.4**	**2.6**
United States	2.4	n/a	n/a	n/a
Japan	0.2	n/a	n/a	n/a
Euro Area	0.9	0.7	1.9	2.2
Other high income	**2.4**	**2.1**	**4.3**	**4.5**
Asian NIEs	3.0	2.2	4.6	n/a
Developing Countries				
East Asia and Pacific	**6.7**	**6.1**	**6.6**	**6.2**
Europe and Central Asia	**4.6**	**4.3**	**4.3**	**3.4**
Latin America and Caribbean	**-0.8**	**1.8**	**3.8**	**3.8**
Middle East and North Africa	**3.1**	**3.3**	**3.7**	**4.3**
Sub-Saharan Africa	**2.8**	**2.8**	**3.7**	**3.5**

Source: The World Bank, *Global Economic Prospects 2004.*

Key Economic Indicators: East Asia and Pacific

Key Economic Indicators (in %)

	1991-2000	2001	2002	2003 Proj.	2004 Proj.	2005 Proj.	2006-15 Proj.
Real GDP growth	7.7	5.5	6.7	6.1	6.7	6.6	6.2
Consumption per capita	5.5	4.1	6.1	5.3	6.5	6.5	5.8
GDP per capita	6.4	4.5	5.8	5.2	5.8	5.7	5.4
population	1.2	0.9	0.9	0.9	0.9	0.8	0.8
Gross domestic investment/GDP[1]	28.8	30.5	33.0	33.7	34.4	35.2	30.4
Inflation[2]	6.8	2.6	3.3	3.7	4.6	2.8	n/a
Central gvt. budget balance/GDP	-0.9	-3.3	-3.4	-3.4	-3.2	-2.9	n/a
Export market growth[3]	8.3	-2.2	3.9	6.9	8.3	8.1	n/a
Export volume[4]	11.5	2.7	15.7	14.6	13.7	11.3	n/a
Terms of trade/GDP[5]	-0.1	0.1	-0.1	0.6	-0.7	-1.1	n/a
Current account/GDP	0.4	2.7	3.2	1.9	2.1	1.2	n/a
GDP growth: East Asia excluding China	4.6	2.3	4.4	1.9	5.0	5.4	4.9

Notes: 1. Fixed investment, measured in real terms; 2. Local currency GDP deflator, median; 3. Weighted average growth of import demand in export markets; 4. Goods and nonfactor services; 5. Change in terms of trade, measured as a proportion to GDP (percentage)

Source: The World Bank, *Global Economic Prospects 2004.*

East Asian Economies

Real GDP growth rate (% p.a.)

	1997	1998	1999	2000	2001	2002	2003 Proj.
China, People's Rep. of	8.8	7.8	7.1	8.0	7.3	8.0	7.8
Hong Kong, China	5.1	-5.0	3.4	10.2	0.5	2.3	2.1
Korea, Rep.of	5.0	-6.7	10.9	9.3	3.1	6.3	3.1
Indonesia	4.7	-13.1	0.8	4.9	3.4	3.7	3.4
Malaysia	7.3	-7.4	6.1	8.5	0.3	4.1	4.1
Philippines	5.2	-0.6	3.4	4.4	3.0	4.4	4.0
Singapore	8.5	-0.1	6.4	9.4	-2.4	2.2	2.3
Thailand	-1.4	-10.5	4.4	4.6	1.9	5.3	6.0

Source: Asian Development Bank, *Asian Development Outlook 2003 Update.*

East Asian Savings

Gross Domestic Savings as % of GDP

	1997	1998	1999	2000	2001	2002	2003 Proj.
China, People's Rep. of	41.5	39.8	39.4	38.0	38.6	38.7	38.2
Hong Kong, China	31.6	30.5	30.9	32.9	31.6	33.9	34.0
Korea, Rep. of	33.7	34.4	32.9	32.4	30.2	29.2	28.0
Indonesia	31.5	26.5	19.5	25.1	24.9	21.1	20.1
Malaysia	43.9	48.7	47.4	47.1	42.2	41.8	42.1
Philippines	18.7	21.6	26.5	24.8	17.0	17.3	19.5
Singapore	50.5	51.7	48.8	47.9	43.6	44.2	47.1
Thailand	33.6	36.1	32.8	31.0	30.0	30.5	28.7

Source: Asian Development Bank, *Asian Development Outlook 2003.*

East Asian International Reserves

Gross International Reserves (in US$ Billion)

	1997	1998	1999	2000	2001	2002	as of June 2003[1]
China, People's Rep. of	139.9	145.0	154.7	165.6	212.2	286.4	355.4
Hong Kong, China	92.8	89.6	96.3	107.6	111.2	111.9	114.4
Korea, Rep. of	20.4	52.0	74.0	96.1	102.8	121.3	131.7
Indonesia	17.4	23.8	27.1	29.4	28.0	31.6	34.1
Malaysia	21.0	23.0	30.9	29.9	30.8	34.6	36.8
Philippines	8.8	10.8	15.1	15.0	15.7	16.2	15.9
Singapore	71.3	74.9	76.8	80.1	75.4	79.7	86.7
Thailand	27.0	29.5	34.8	32.7	33.0	38.9	39.3
Total (excludes Japan)	**398.5**	**448.6**	**509.6**	**556.4**	**609.0**	**720.6**	**814.2**
Japan[1]	219.6	215.5	286.9	354.9	395.2	461.2	538.3
Total	**618.2**	**664.1**	**796.5**	**911.3**	**1004.2**	**1181.8**	**1352.5**

Sources: Dalla, Ismail. 2003. *Harmonization of Bond Market Rules and Regulations in Selected APEC Economies.* Asian Development Bank; 1. International Financial Statistics (IFS) CD-ROM, September 2003.

Financial Sector Profile 2002

	Bonds		Equities		Banks	
	US$ Billion	%GDP	US$ billion	%GDP	US$ billion	%GDP
China, People's Rep. of	412.4	33.3	463.1	37.4	2073.3	167.6
Hong Kong, China	44.6	27.4	463.1	284.1	677.9	415.9
Indonesia	56.0	32.3	30.1	17.4	114.4	66.0
Korea, Rep. of	380.9	82.5	215.7	46.7	608.6	131.9
Malaysia	82.7	86.9	122.9	129.1	135.0	141.8
Philippines	21.9	28.4	18.2	23.6	46.0	59.7
Singapore	57.6	63.8	101.6	112.5	209.6	232.2
Thailand	47.3	37.4	45.4	35.9	136.8	108.2
Total	**1103.4**	**45.5**	**1460.1**	**60.2**	**4001.6**	**165.0**
Germany	1743.9	87.6	686.0	34.5	3859.3	193.9
Japan	6748.0	169.0	2069.3	51.8	6685.9	167.5
United Kingdom	1064.0	68.3	1800.7	115.6	5001.4	321.2
United States	16272.6	155.8	11009.8	105.4	6979.5	66.8

Sources: Bank for International Settlements (BIS); Deutsche Bank; IFS; World Bank; World Federation of Stock Markets.

Global Bond Market

Size and Structure of the Global Bond Market in 2002 (in US$ Billion)

	Total Bonds Outstanding		Domestic						International[1]	
			Government		Financial Institutions		Corporate			
	US$ Bil.	% of Total	US$ Bil.	% of Total	US$ Bil.	% of Total	US$ Bil.	% of Total	US$ Bil.	% of Tota
United States	19,014.7	43.9	4,529.5	28.9	9,323.9	66.3	2,419.2	54.5	2,742.1	29.8
Euro Area[2]	10,042.1	23.2	3,828.1	24.5	2,162.4	15.4	492.2	11.1	3,559.4	38.7
Japan	7,005.1	16.2	4,837.5	30.9	1,157.8	8.2	752.7	17.0	257.1	2.8
Other Mature Markets	4,273.4	9.9	1,307.1	8.4	941.1	6.7	471.7	10.6	1,553.5	16.9
Subtotal	**40,336.4**	**93.0**	**14,502.2**	**92.7**	**13,585.2**	**96.6**	**4,135.8**	**93.2**	**8,113.2**	**88.1**
Emerging Markets	**2,863.9**	**6.6**	**1,065.0**	**6.8**	**461.4**	**3.3**	**245.8**	**5.5**	**1,091.7**	**11.9**
Asia	1,331.5	3.1	555.5	3.5	400.9	2.9	219.0	4.9	156.1	1.7
Latin America	592.0	1.4	260.0	1.7	47.8	0.3	18.8	0.4	265.4	2.9
Eastern Europe, Middle East, and Africa	392.5	0.9	249.5	1.6	12.7	0.1	8.0	0.2	122.3	1.3
Offshore Centers and International	547.9	1.3	n/a	n/a	n/a	n/a	n/a	n/a	547.9	6.0
Total Size	**43,357.6**	**100.0**	**15,652.4**	**100.0**	**14,061.3**	**100.0**	**4,439.0**	**100.0**	**9,204.9**	**100.0**

Notes: 1.Includes bonds issued by governments, financial institutions, and corporates in international markets; 2.Euro area includes a total of 11 members of the euro zone, excluding Luxembourg.

Source: BIS.

The Size of Debt Securities in 2002

(in US$ Billion)

	Debt Securities			
	Public	**Private**	**Total**	**% of World Total**
European Union	4,941.3	7,662.0	12,603.3	29.1
Euro area	4,235.3	5,836.2	10,071.5	23.2
France	790.8	998.5	1,789.3	4.1
Germany	860.0	2,344.6	3,204.6	7.4
Italy	1,208.3	818.3	2,026.6	4.7
United Kingdom	474.1	1,384.3	1,858.4	4.3
North America	5,043.6	14,786.0	19,829.6	45.7
Canada	499.1	315.8	814.9	1.9
United States	4,544.5	14,470.2	19,014.7	43.9
Japan	4,841.9	2,163.2	7,005.1	16.2
Emerging market countries	1,467.0	1,057.1	2,524.1	5.8
Asia	657.8	814.9	1,472.7	3.4
Latin America	472.5	179.6	652.1	1.5
Middle East	5.4	13.5	18.9	0.0
Africa	47.7	20.8	68.5	0.2
Europe	283.6	28.3	311.9	0.7
World	**16,531.2**	**26,826.4**	**43,357.6**	**100.0**

Source: International Monetary Fund, *Global Financial Stability Report 2003* .

East Asian Bond Markets

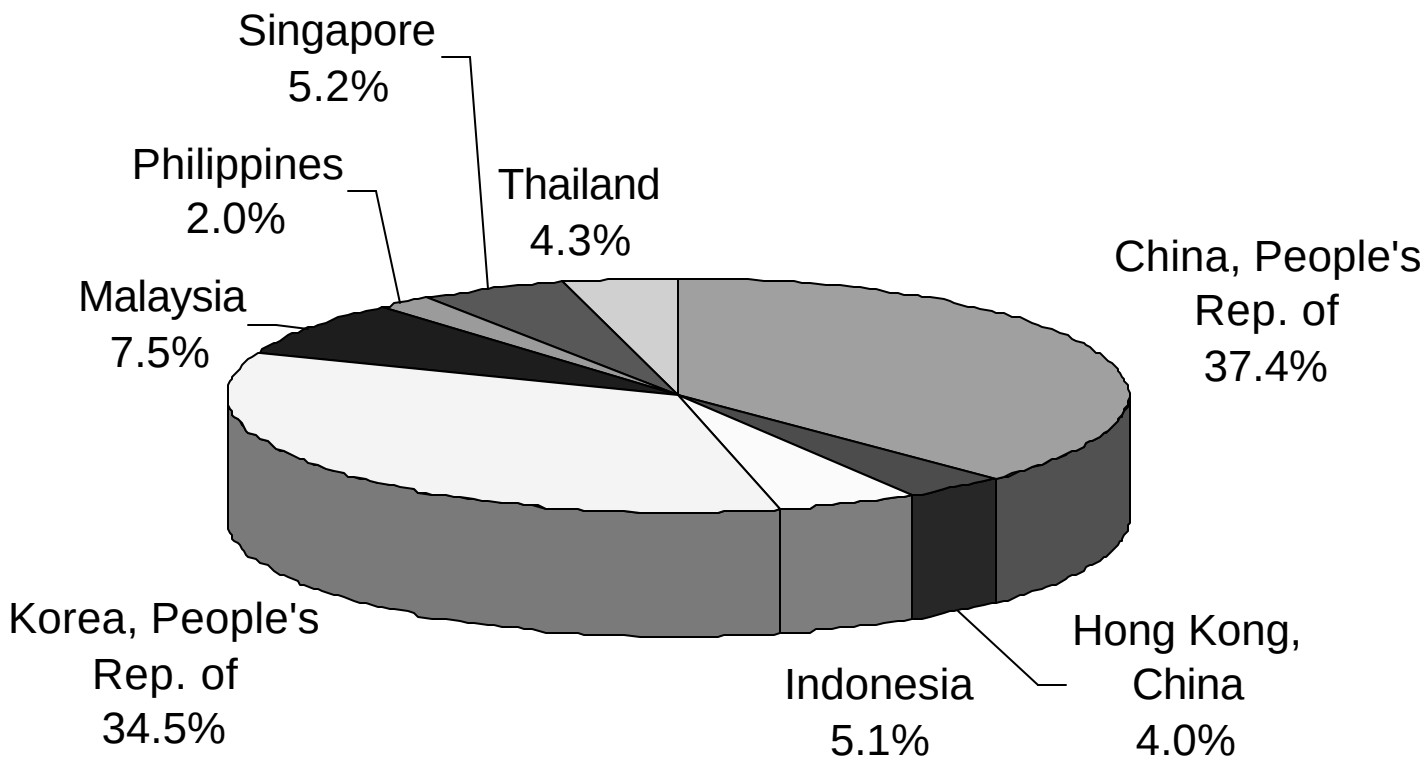
Outstanding Domestic Bonds (in US$ Billion)

	1998		1999		2000		2001		2002	
	US$ billion	%	US$ billion	%	US$ billion	%	US$ billion	%	US$ billion	%
China, People's Rep. of	143.9	26.6	195.3	27.5	253.4	29.0	208.3	24.3	412.4	37.4
Hong Kong, China	50.3	9.3	57.1	8.1	60.9	7.0	63.3	7.4	44.6	4.0
Indonesia	5.7	1.1	10.1	1.4	9.8	1.1	7.5	0.9	56	5.1
Korea, Rep. of	238.3	44.0	306.4	43.2	375.4	43.0	381.4	44.5	380.9	34.5
Malaysia	36.0	6.6	41.5	5.9	63.9	7.3	72.5	8.5	82.7	7.5
Philippines	15.8	2.9	25.0	3.5	24.2	2.8	24.5	2.9	21.9	2.0
Singapore	29.0	5.4	36.8	5.2	44.8	5.1	56.8	6.6	57.6	5.2
Thailand	22.8	4.2	36.8	5.2	40.8	4.7	42.7	5.0	47.3	4.3
East Asia	**541.7**	**100.0**	**709.0**	**100.0**	**873.1**	**100.0**	**856.9**	**100.0**	**1103.4**	**100.0**

Source: Dalla, I. 2003. *Harmonization of Bond Market Rules and Regulations in Selected APEC Economies,* Asian Development Bank.

Size and Composition of Asian Bond Market

Size 2002: US$ 1,103.4 billion



Source: Dalla, I. 2003. *Harmonization of Bond Market Rules and Regulations in Selected APEC Economies,* Asian Development Bank.

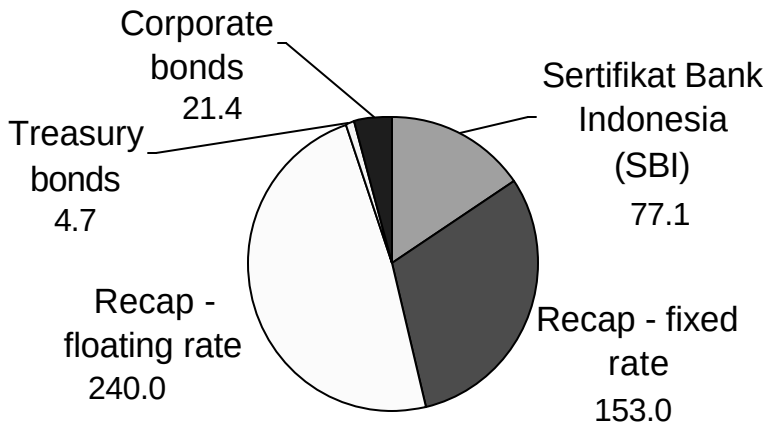
Key Economic Indicators: Indonesia

	1999	2000	2001	2002 List.	2003 Proj.
GNI (current US$)[1]	590	570	680	710	n/a
GDP (US$ billion)	140	150	141	173	207
Real GDP growth (% change)	0.8	4.9	3.4	3.7	3.5
Domestic demand	-2.1	4.0	5.1	1.9	4.2
of which:					
Private Consumption	4.6	1.6	4.4	4.7	4.1
Gross fixed investment	-18.2	16.7	7.7	-0.2	2.5
Net Exports	2.9	1.0	-1.5	1.8	-0.5
Savings and Investment (in percent of GDP)					
Gross fixed capital investment	20.1	21.8	21.8	20.2	21.6
Gross national savings	23.7	27.2	26.7	24.5	24.2
Foreign savings	-3.6	-5.3	-4.9	-4.3	-2.6
Public finances (in percent of GDP)					
Central government revenue	16.8	20.0	20.8	18.6	18.7
Central government expenditure	18.3	21.1	24.5	20.4	20.7
Central government balance	-1.5	-1.1	-3.7	-1.8	-1.9
Central government debt	88.6	100.3	90.9	80.6	67.0
Money					
M2 (in percent of GDP)[2]	58.8	58.3	56.6	54.9	n/a
One-month SBI rate	35.5	22.8	2.1	8.3	8.9
(% change; period average)					
Gross reserves (US$ billion)	24.3	29.4	28.0	32.0	34.8
External debt (medium- and long-term)					
(US$ billion)	148.7	141.7	131.2	129.8	126.8
(in percent of GDP)	94.9	94.3	92.7	74.9	61.4
Real effective exchange rate	63.9	62.6	59.6	72.5	76.2

Sources: International Monetary Fund, Country Report, Nov. 2003; 1. *World Development Indicators* database; 2. *IFS CD-ROM September 2003* .

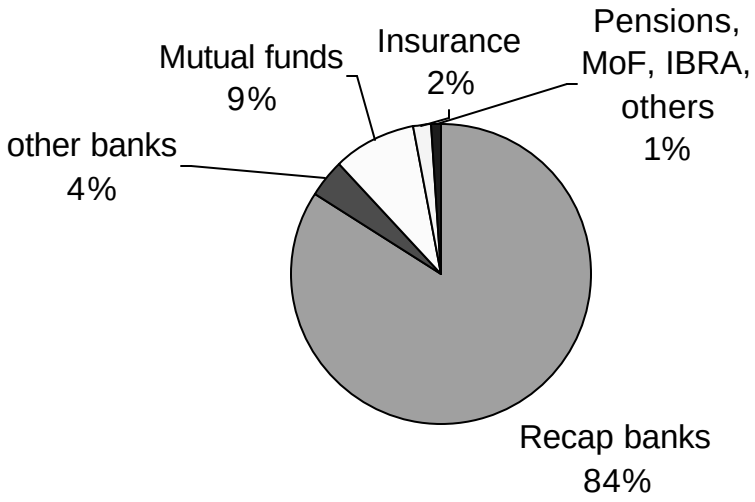
Indonesian Bond Market Profile
(as of Dec 2002)

Issuers (Rp trillion)

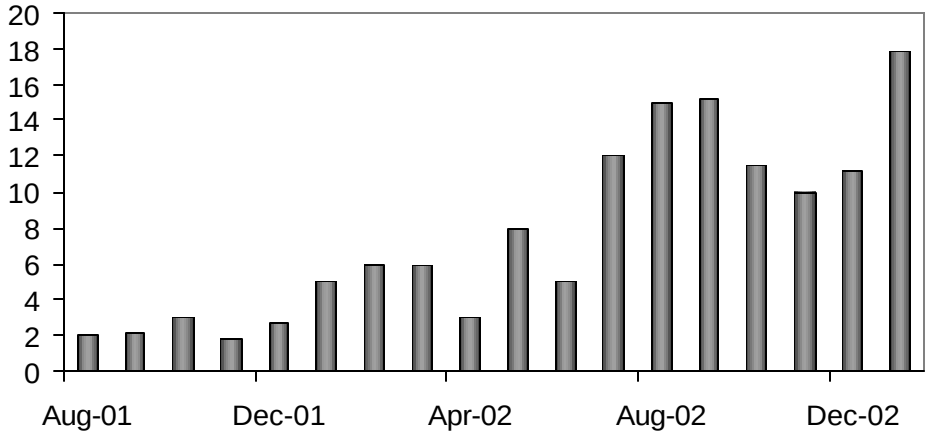


Total of Rp496.2 trillion

Investors (%)



Secondary Market Trading (Rp trillion)



Source: *DB Global Markets Research*.

Asian Bond Market Initiatives

The Asian bond market is diverse and can be divided into three groups.

- Financial Centers, Hong Kong and Singapore
- Korea, Rep. of , Malaysia, and Thailand
- People's Republic of China (PRC), Indonesia and Philippines

Asian Bond Market Initiatives

Objectives:

To create a unified bond market overtime.

Why?

- Mobilize Capital in the Region to Accelerate Growth
- Lower Funding Cost for Asian Compani
- Reduce Volatility Caused by the Fluctuations in the Global Financial Markets
- Support Trade, Investment and Economic Development

Asian Bond Market Initiatives

Areas that need to be harmonized:

- Legal and regulatory framework
- Taxation
- Trading platforms
- Clearing and settlement
- Accounting and auditing standards
- Rating agencies
- Foreign exchange regulations

Source: Dalla, I. 2003. *Harmonization of Bond Market Rules and Regulations in Selected APEC Economies.* Asian Development Bank.

Asian Bond Market Initiatives

Recommendations:

- Uniform Bond Registration Requirement Across Economies based on IOSCO
- Study of existing regional trading platform to Integrate Existing and New Trading Platforms Across Economies
- Adoption of Consistent and Mutually Supportive Bond Taxation Regimes Across Economies

Asian Bond Market Initiatives

- Task force on Clearing and Settlement to Implement Integrated Cross-Border Clearing and Settlement Systems
- Establishment of a Regional Credit Rating Agency and/or Other Ways to Strengthen Local Rating Agencies
- Encouragement and Management of Freer Cross-Border Capital Flows Associated with Regional Bond Issues and Trading
- Carry out a comprehensive study of Institutional Investors

Asian Bond Market Initiatives

Recent Development:

First Asian Bond Fund ($1 billion)

- Eleven regional central banks launched the Fund in June 2003 to boost the region's financial resilience and reduce borrowing costs for Asian governments.
- The Fund was managed by the Bank for International Settlements.
- The Fund Invests in dollar-denominated debt issued by sovereign and quasi-sovereign issuers in China, Hong Kong, Indonesia, South Korea, Malaysia, the Philippines, Singapore and Thailand.
- Japan and Singapore invested $100m and Australia $50m, while Hong Kong, China and Thailand committed $100m.

Asian Bond Market Initiatives

Second Asian Bond Fund ($2 billions)

- The second bond fund would focus on investments in local-currency denominated debt.
- The new bond fund would include other countries such as India in addition to 11 original members.
- Active private sector participation is expected
- Second Asian Bond Fund is expected to be launched at the end of the year.

Asian Bond Market Initiatives

ASEAN+3 Initiatives:

- Clearing Settlement – Technical Assistance for AsiaSettle
- Guarantee – A Study of Regional Guarantee Cooperation
- Rating – Possible Creation of Regional Credit Rating Agency
- Information – New Website
- Foreign Exchange Transactions

Moving Toward Regional Financial Integration

- Substantial regional trade integration has taken place
- China has emerged as the major trading partner for the East Asian countries.
- Regional Financial Integration is the Next Step

Projected Size of Bond Market[1]

	GDP (current in US$ billion)					Size of Bond Market, 2002		GDP 2010 projected[2] (in US$ billion)	Estimated Bond Market Size[3] (in US$ billion)	Estimated Market Share (%)
	1999	2000	2001	2002	2003 Proj.[2]	US$ billion	%GDP			
China, People's Rep. of	991.4	1,080.4	1,159.0	1,237.1	1,348.5	412.4	33.3	2,465.1	1,972.1	56.3
Hong Kong, China	160.6	165.4	162.8	161.5	169.6	44.6	27.4	238.7	190.9	5.5
Indonesia	140.0	150.2	141.3	172.9	185.0	56.0	32.3	297.1	237.7	6.8
Korea, Rep. of	406.1	461.5	427.2	476.7	500.5	380.9	82.5	704.3	563.4	16.1
Malaysia	79.1	90.0	88.0	95.2	102.8	82.7	86.9	176.1	140.9	4.0
Philippines	76.2	74.9	71.4	77.1	81.7	21.9	28.4	122.8	98.3	2.8
Singapore	81.4	91.5	84.9	87.0	92.2	57.6	63.8	138.6	110.9	3.2
Thailand	122.3	121.0	115.3	126.4	136.5	47.3	37.4	234.0	187.2	5.3
Total	**2,057.1**	**2,234.8**	**2,250.0**	**2,433.9**	**2,616.8**	**1,103.4**	**45.5**	**4,376.7**	**3,501.4**	**100.0**
Japan	4,493.5	4,765.3	4,141.4	3,978.8	4,137.9	6,748.0	169.0	5,445.2		
United States	8,720.2	9,206.9	9,810.2	10,065.3	10,833.5	16,272.6	155.8	14,256.1		

Disclosures: 1.The views of the presenter do not necessarily reflect the views or policies of the ADB, or its Boards of Directors or the governments they represent. 2. Estimated using real GDP growth rate and 2% inflation rate (where nominal growth rate = 7% for PRC; 6% for Thailand; 5% for Hong Kong and Indonesia; 4% for Japan, Philippines and United States; and 3% for Korea); The projected growth is for illustrative purpose only.

Source: World Development Indicators; BIS;

Thank you

Biography of Mr. ISMAIL DALLA

Ismail Dalla, **CFA**, is the Principal Financial Sector Specialist at the Asian Development Bank. Mr. Dalla is a capital market specialist and has extensive experience in financial markets, including over 20 years with the World Bank Group dealing with both the public and private sectors in Asia. His latest publication: ***Harmonization of Bond Market Rules and Regulations for Selected APEC Economies, ADB,*** was published in September 2003. He is the co-author of the book: ***Korean Bond Market-Post Asian Crisis and Beyond***, published by the Korea Stock Exchange in June 2003. In June 2002 he completed a study, ***Asset-Backed Securities Market in East Asian Countries,*** for the World Bank. Mr. Dalla is also the author of ***Asia's Emerging Bond Markets***, published by Financial Times Publishing in July 1997. This book was a follow-up to his landmark ***Emerging Asian Bond Market*** study published in 1995. His work experience includes most Asian countries, Turkey, Kenya, Panama and all English speaking Caribbean countries and Panama. Mr. Dalla is a graduate of Columbia Business School (New York) and is a frequent speaker at international financial market conferences.

CONCLUDING SPEECH

By Mr Aslim Tadjuddin

Closing Remarks by
Dr. Aslim Tadjuddin
At the Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies
Jimbaran-Bali, 11 – 12 December 2003

Distinguished Participants, Speakers,
Ladies and Gentlemen,

On behalf of Bank Indonesia, let me congratulate all of you for completing a very extensive and valuable *Workshop on Developing Government Bond as Monetary Policy Instruments in APEC Economies*. I am sure that these two days must be very tiring after conducting many sessions and discussions, but I am sure it is definitely worth it in providing all of us the knowledge and understanding of many aspects in using government bond as a monetary instrument. I would like to take this opportunity to once again express my deep appreciation to the APEC Finance Developing Program (AFDP), especially to Dr. Li Kouqing, Deputy Secretary General, and the World Bank, especially to Mr. Noritaka Akamatsu for their effort in sponsoring this conference in collaboration with Bank Indonesia.
Also, I would like to express my gratitude to all of the speakers who have shared their experiences and views related to topic of this workshop. Furthermore, I would like to thank all of the participants for their attendance and active participation in all the sessions during this workshop. The great combination of sponsors, speakers, participants and organizing committee has made this a successful workshop.

Ladies and Gentlemen,
Although, I have not had the time to follow the workshop and the discussion you have had, my colleagues have informed me that the objective of this workshop

have been fulfilled. From this two-day workshop, we have learned that one of the main issue for the effectiveness of using government bond as monetary instrument is the coordination amongst all of the related institution, in particular between the Securities Exchange Commission, the Fiscal Authority and the Monetary Authority. Furthermore, this forum also highlights the importance of Repo transactions, and the need to establish an efficient market infrastructure that includes an efficient clearing and settlement mechanism, as well as giving us an overview of current issues in the Asian Bond Market initiative.

Ladies and Gentlemen,

Since there is no one single scheme fit for all countries, a better understanding of a country's specific circumstances is required to create the necessary supportive condition for the use of government bonds as monetary instrument, and simultaneously developing the necessary deep and liquid bond market. It is through a forum like this we can all learn from the experience of others, so we can discover the most proper solution for each of our economies.

However, this workshop is not an end to our learning process. There are still many aspects that need to be explored to gain more knowledge, for the successful use of government bond as a monetary instrument. In my opinion, further forum similar to this one is needed. It is very important that economies learn from each others' experiences.

Ladies and Gentlemen,

This workshop has now come to its conclusion. Once again I thank you all for coming and making this a successful workshop. Have a safe trip back home.

Thank you,

Bali, 12 December 2003
Deputy Governor of Bank Indonesia
Dr. Aslim Tadjuddin

SUPPORTING PAPERS

Securities Settlement Priorities Review

September 1998

Securities Settlement Priorities Review

September 1998

SUMMARY OF KEY RECOMMENDATIONS

Merger between CGO and CREST

We recommend that CGO and CREST should merge. The merged system should be operated by CRESTCo, with the public interest reflected through representation on the CRESTCo board. We also recommend that full merger between the two systems should be preceded by CRESTCo assuming responsibility for operating CGO once the necessary legal, regulatory and contractual framework is in place.

Money market instruments: the future of CMO

We endorse the view that money market settlement arrangements should be further developed, and that this should as far as possible be achieved by integrating money market instruments more fully into gilt/equity settlement arrangements. We recommend that detailed discussions commence with practitioners, issuers and service providers to assess the statutory, contractual and technical changes which might facilitate this integration, and the implications of any such changes for the operation of the money markets. These discussions should go beyond consideration of the settlement arrangements for instruments currently traded in the money markets, and consider how the issuance, trading and settlement needs of money market practitioners, both now and in the foreseeable future, might best be met.

We also recommend that CRESTCo assumes responsibility for the operation of CMO at the same time as it assumes responsibility for CGO. This move would minimise any increase in CMO's operating costs following the transfer of responsibility for CGO to CRESTCo. It should also facilitate the integration of money market instruments and gilt/equity settlement arrangements, once the discussions referred to above are complete, because a single body would be responsible for managing the integration process.

Delivery versus Payment arrangements

We endorse the view that the introduction of full-scale DvP, with payment effected in real time in central bank money, is a desirable and important development, but that its implementation will require further extensive preparatory work. We recommend that work should recommence on defining the preferred 'model' of full-scale DvP and identifying the range of options for handling collateral efficiently. We expect that, at least in the early stages, the work will be largely analytical and could take place in parallel with work on other projects. In practice, the necessary technical design work could commence only once development and design resources are freed from existing and prospective projects, including merger. On the 'delivery' side of DvP, the question of whether statutory change should be made to confer some form of register status on CREST, in order to eliminate the gap between settlement and registration, is under active consideration with HM Treasury.

The way forward

We hope the recommendations in this document will be widely accepted. If they are, then at a *high level* the next steps are:

- a number of detailed changes will need to be made to the legal, regulatory and contractual framework to permit CRESTCo to assume responsibility for the settlement of gilts and money market instruments;

- CRESTCo can then assume responsibility for operating CGO and CMO;

- further discussions will take place with practitioners about changes to existing CREST and CGO systems considered essential ahead of merger;

- practitioners and issuers will be consulted in more detail about current settlement arrangements in relation to the wider needs of the money markets, including about the scope for integration of money market instruments into CREST;

- various functional changes will need to made to CREST before full merger of the CREST and CGO systems, including:

    - changes to reflect differing gilt and equity market practices;

    - changes to existing systems deemed essential ahead of merger;

- full merger of CGO and CREST can then take place;

- the analysis of full-scale DvP models would be progressed, and an assessment made of necessary changes to the technical and legal framework;

- the technical design of the preferred model of full-scale DvP will need to be completed and implemented in CREST;

- in parallel, CRESTCo will develop its links with overseas systems.

SECTION A: INTRODUCTION

1 On 20 March, the Bank initiated the Securities Settlement Priorities Review, issuing a consultative paper seeking market participants' views about the development of securities settlement systems in the UK. The consultation period ended on 30 April. The Bank is grateful to all those who responded to the paper.

2 All responses were shared with a Steering Group chaired by Alastair Clark, an Executive Director of the Bank of England, and comprising representatives of CGO, CRESTCo (including Iain Saville, the Chief Executive), HM Treasury, the Debt Management Office and the Financial Services Authority. Whilst the recommendations in this report represent the views of the representatives of the Bank of England and CRESTCo, the report also reflects comments from the other members of the Steering Group.

3 The report summarises the views expressed by respondents, indicating where there was broad consensus, and where views diverged. It then assesses the desirability and priority of each possible area of development, and recommends how to proceed. Finally, it identifies at a high level a development pathway by which the various objectives might best be achieved, and a general indication of the time by which some of the elements of the pathway might be complete.

4 The structure of the document broadly follows that of the earlier consultative paper.

SECTION B: CONTEXT

5 The consultative paper described a 'vision' of the UK securities settlement infrastructure in the medium to longer term. Respondents broadly endorsed this vision, although views differed on the priority of elements of the vision.

6 Improvement in settlement **efficiency** (and reduction in cost) through consolidation of settlement within a single system encompassing the full range of financial instruments was a key objective for most respondents. There was near-unanimous support for merger of CGO and CREST. Those active in the money markets also agreed with the need to enhance money market settlement arrangements, ideally by permitting the settlement of money market instruments within the single gilts/equity system. And, whilst generally seen as a lower order issue, CRESTCo's plans to incorporate unitised products into CREST were also welcomed.

7 Reduction in **risk** through enhancement of the Delivery versus Payment (DvP) mechanisms to introduce full-scale DvP, with payment effected in real time in central bank money[1], was also seen as a key priority, particularly in CMO, which does not currently offer any form of DvP. The importance of introducing DvP in central bank money was stressed particularly strongly by the settlement bank community, which currently bears the intra-day interbank credit risk inherent in the assured payment mechanism. Other responses indicated, however, that market participants are becoming increasingly aware that there could be serious implications for market liquidity should the settlement banks seek to limit the risks they incur by reducing the amount of credit available. There was also widespread support for eliminating the gap between settlement and registration in CGO and CREST to enhance finality of delivery, perhaps by conferring some form of sub-register status on the settlement systems.

8 These developments were seen not simply as desirable goals from a risk point of view, but as important elements in maintaining the UK's competitive position. Many noted the increasingly competitive environment in which the UK's settlement systems operate, and the likelihood that competition will intensify following the introduction of the euro. Respondents expected to see the development of an increasingly pan-European market in (particularly government) securities in the coming years. Settlement is both an important source of revenue and one determinant of location of financial activity, and technological advance and legal development have given issuers and investors increasing freedom to determine the location of settlement, as the range of non-domestic securities which can safely be held and transferred in settlement systems has widened.

9 It was suggested that, in such a context, Europe currently has too many settlement systems, and some rationalisation is inevitable. This presents threats, but also opportunities, to the current UK settlement systems. Most European settlement systems are in the process of enhancing the services they provide, and respondents strongly endorsed the importance of ensuring that UK systems keep pace, and that the standard of excellence in the UK is maintained. Most agreed that

1 Where settlement of the stock leg in the settlement system would be simultaneous with final settlement of the cash leg between settlement banks'accounts at the Bank of England. CGO and CREST currently offer members real time DvP, but with payment being in commercial bank money. Settlement in central bank money takes place between settlement banks net at close of business.

the issue arose not just in relation to Europe but extended also to other G10 systems, particularly those in the US.

10 At the same time, there was recognition that closer integration between European settlement systems is inevitable and, for investors (and also for the more competitive systems), likely to be beneficial. The development of *euro* settlement functionality in CGO, CREST and CMO was welcomed. Whilst not all respondents viewed CRESTCo's plans to develop **links** with other systems as a high priority in the short term, smaller firms did welcome CRESTCo's decision to work towards such links.

11 A number of respondents noted that the needs of the **retail** and **wholesale** markets are different, and that the vision ought to recognise the possibility of different development paths for the two sectors. This issue was raised in four specific contexts.

12 First, it was suggested that, if there were significant delay before the merger of CGO and CREST, there might be benefit in investigating how **certificated gilt holders** might use CREST facilities to buy and sell gilts. Second, it was noted that **continuous gross settlement** is of greater importance to the wholesale than to the retail market, and that settlement efficiency in the wholesale market might be enhanced by carving out lower value trades from the continuous settlement process. Third, some argued that the lack of **full-scale DvP in central bank money** is of lesser importance to the low value retail sector, and that once again the efficiency of the process might be enhanced by excluding lower value transactions. Fourth, some suggested that it might not be either feasible or necessary to apply reductions in **standard settlement cycles** to certificated holders.

13 A view expressed particularly strongly (but not exclusively) by the settlement banks was that the ability to maximise the efficiency with which **credit and collateral are allocated and utilised** is critical. Whilst achievement of other elements (merger between systems, full-scale DvP) might contribute to the efficient use of credit and collateral, the vision needed to recognise this objective explicitly.

14 A number of respondents, particularly from the retail sector, suggested that the continued existence of a substantial volume of certificated trades implied higher costs and risks across the market as a whole than would be the case in a fully dematerialised market. Some looked forward to the day when full dematerialisation had been achieved.

15 Finally, some respondents suggested that the vision should state explicitly the importance of the settlement infrastructure having a sound legal foundation, given the changes which are likely to be needed to the law if some elements of the overall programme of development are to be implemented.

16 In short, the objectives set out in the consultative paper were largely endorsed, subject to a few additions and caveats. We believe that most respondents would broadly endorse the following as a description of the 'vision':

- a single UK settlement system offering reliable and affordable settlement services and risk management to both wholesale and retail sectors;

- a system in which ownership rights to securities held in the system are clear and well-founded in law, and in which the scope for disruption arising from conflicting claims is therefore minimised;

- a system encompassing the full range of securities - equities, bonds, gilts, money market instruments and unitised products - and capable of adaptation to handle new instruments;

- a system in which settlement of large value, and possibly all, trades takes place on a full Delivery versus Payment basis in a wide range of currencies; cash and stock legs settle simultaneously and with legal finality; for registered securities of any value, delivery within the system is simultaneous with transfer of full legal title; and delivery of cash in the central settlement process takes place in central bank money;

- a system, whose design allows participants to minimise their need for credit and which maximises the efficiency with which collateral is made available and utilised;

- a system in which, at least for large value (and possibly for all) trades, settlement is continuous rather than taking place within a batch[2] process;

- a system in which all instruments are dematerialised; and

- a system linked to others overseas, particularly in Europe or elsewhere to enable members to settle foreign as well as domestic securities and to settle directly with members of other systems, ultimately on a full DvP basis.

Other elements which were generally seen as lower priority included:

- a system in which cash securities settlement is more fully integrated with the clearing of transactions in derivatives, allowing possible benefits not only in systems costs but also in margin and collateral requirements;

- a system, whose architecture is compatible with a high degree of automation of links between users' internal systems and between market participants, permitting further reductions in the period between trade date and settlement date.

17 Whilst confirming the existence of quite severe resource constraints at present, most responses stressed that initial planning should commence soon if the 'vision' is to be achieved in the reasonably near future. It was noted that many industry wide projects - EMU and Year 2000 in particular - are now largely in their implementation phase, and that design and development resources will increasingly be released from those projects in the coming months. Many felt that a lead is required from operators and representative bodies to give impetus to these developments. Most common, however, was the view that a coherent and realistic development strategy should be developed as soon as possible, in order to ensure that objectives set are achievable and that resource costs are minimised.

2 The distinction here is between systems which settle each trade on a *real time* basis as soon as all system conditions have been met for settlement and those which store individual trades up for settlement as part of a *batch* some time after system settlement conditions have been met; not between *gross* (trade by trade) and *net* settlement. Trades settling in batch processes can settle either on a gross or a net basis. Real time settlement takes place by definition on a gross basis.

SECTION C: MERGER BETWEEN CGO AND CREST

Respondents' views

18 All respondents who expressed a view endorsed merger between CGO and CREST. Moreover, for those primarily involved in the gilt and equity market, merger was almost unanimously given the highest priority amongst all the possible developments discussed in the consultative paper.

19 The key benefits of merger were thought likely to be:

- reduced ***development costs***, both in the centre and within firms' own operations;
- reduced ***credit requirements*** and greater ***control over credit exposures***;
- simpler ***collateral and liquidity management***, particularly following the introduction of DvP, and consequent funding benefits;
- ***wider participation*** in each settlement arena; and
- the ability to ***compete on an equal footing*** with overseas settlement systems.

20 No respondents were able to estimate with any accuracy the likely size of these savings. But the general view was that they would be significant.

21 Other possible benefits - ***reduced operating costs*** and reduced ***legal and administrative costs*** - were thought likely to be of a lower order. Many thought that the scope for further operating cost reductions was limited, although some expected to be able to make more flexible use of staff post-merger. It was suggested, however, that creation of a single legal and contractual environment would reduce risk and improve transparency. Respondents broadly endorsed the consultative paper's view that central savings, feeding through to reductions in the tariff, would be desirable, but are not the primary driver for merger.

22 Some respondents noted that the impact of merger will depend in part, at least in the short term, on the extent to which harmonisation of practice occurs between the two markets. Indeed, the consultative paper raised the question of whether harmonisation should actively be encouraged, both to simplify the merger process and to improve the efficiency of settlement post-merger. It listed a relatively small number of areas where practice currently diverges between the two markets.

23 Most respondents took the view that harmonisation of market practice would be beneficial over the longer term, and would probably be inevitable in any event, but that the process need not be forced at this stage. This was for two reasons. First, because agreement of a common approach in all areas of divergence would probably be time-consuming, and should not be allowed to delay merger. Second, because it would be less costly if the costs associated with

bringing together divergent practices were incurred at the centre (with the development of dual functionality in the merged system), rather than spread across the market as a whole.

24 This view was not shared by all. It was noted that harmonisation would reduce the technical complexity of merger, at least from the perspective of the central system. Some respondents argued that the opportunity should be taken to eliminate divergent practices by focusing on the 'highest common factor' between the two markets and systems. Others argued that it would be wasteful to undertake a range of central system changes to reflect divergent practice now, only for those changes to be discarded once harmonisation occurred.

25 In both cases, however, it was recognised that too little was yet known of the changes required to central and back office systems to reach a conclusive view on how far harmonisation of practice would be needed. Discussions would be needed with the two memberships once more information was available on where change to one or other set of practices might be needed. In practice, a combination of the two approaches would probably be necessary.

26 The Bank and CRESTCo have undertaken further analysis of those areas of divergence between the two systems which reflect different practices in the two markets. They still appear to be relatively few in number. Some are potentially capable of resolution quite quickly, and many of the remainder could be resolved by building dual functionality into CREST. One key difference arises from the smaller number of benchmark securities in the gilts market, and the higher volumes in them, and the consequent reliance on rapid "circles" processing. Another is the registration of DBVs[3] (although the possibility of CREST becoming the sub-register for uncertificated securities would make non-registration of gilt DBVs difficult to sustain[4]). And operational timetables would probably need to be brought into line: a common assumption amongst respondents was that the merged system would adopt current CREST opening and CGO closing times.

27 Effective ownership and governance would be central to the success of a merged system. The consultative paper sought views on whether CRESTCo's current arrangements provide the structure to allow different market interests to be properly reflected. The strong consensus was that essentially they do. Most respondents took the view that divergent interests between the gilts and equity markets are capable of resolution within as much as between firms, and where they are not, that CRESTCo's current constitution, designed to ensure that all interests are represented amongst the shareholders and on the board, would ensure that a balance was maintained between the interests of the two markets. A number noted however that CRESTCo's structure of representative committees would need to reflect 'gilts market' interests. Respondents from the retail markets also stressed the importance of allowing the retail sector a full say in the enlarged system.

28 Most (although not all) agreed that there would be a clear public interest in a private monopoly supplier of an important infrastructure service in the financial markets. The general view was that this interest could be met by allowing the public authorities a direct role in the governance of the merged institution, through board representation and possibly also through

3 Gilt DBVs are not registered at present,in order to avoid misallocation of dividends,and consequent administrative costs and counterparty risks.

4 CRESTCo has proposed that statutory changes should be undertaken to confer sub-register status on CREST. Settlement in CREST would then confer **legal** title on the transferee. At present,transferees obtain a statutory equitable interest in securities received until the register is updated.

representation on key board committees, such as the Audit, Nominating and Strategy Review Committees.

29 Of greater concern to many respondents, particularly those active in the money markets, was the continued effectiveness of the procedures which govern the co-ordination of action where operational problems are experienced which affect the daily timetables of CGO, CMO, CREST or CHAPS[5]. These would need to be adapted to reflect CRESTCo's role as operator of the gilts settlement system. And respondents were more generally concerned to ensure co-operation between the Bank of England and CRESTCo in the event of operational difficulties with wider systemic implications. One proposed solution was a detailed Memorandum of Understanding agreed between the interested parties, setting out clearly the responsibilities of the various parties, and procedures in the event of operational problems.

30 Almost all respondents agreed that development work relating to the introduction of Stage Three of EMU and the Year 2000 problem should take precedence over any significant system work related to merger. Whilst a few smaller participants argued that merger could and should take place in the very near future, the prevailing view was that the resources needed to undertake the implementation (including trialling) of the merged system would not become free until the first half of 1999, and that full merger would therefore not be feasible until later in 1999 at the earliest; most thought that 2000 would be more realistic. A number of responses suggested, however, that the design and development phases of the EMU and Year 2000 work are almost complete, and that these resources might become available rather more quickly. There will of course be other demands on these resources, and further EMU and Year 2000-related demands cannot be ruled out. In principle, however, work might begin soon on identifying the extent and range of changes needed to the CREST system.

31 Certain respondents from the retail sector (who were generally more concerned to make very rapid progress towards full merger) suggested that, in the event that merger was to be significantly delayed, alternative means of allowing those active in the retail market access to gilts through CREST should be investigated.

32 There was general endorsement of the suggestion that a move to common ownership and management would be a sensible interim step, which might reduce the risks associated with transition to full merger by partially internalising the transition process, and which could be achieved relatively quickly. None suggested that such a structure should be anything more than a staging post to full system merger. Whilst there was no consensus on the detail of such a structure, a number stressed the importance of maintaining an effective control framework, and that responsibility and liability arrangements would need to be carefully considered and agreed in advance. The need for adequate contingency arrangements for what would in effect become a single point of failure once full merger had taken place was also stressed.

Cost-benefit analysis

33 The consultative paper indicated that, to assess the prospective costs and cost savings associated with merger, the Bank and CRESTCo intended to commission an independent study

5 In Stage Three of EMU, such problems might conceivably arise because of problems with payment and settlement systems located outside the United Kingdom.

looking both at the centre and as far as possible at members' own operations. That study, which was conducted by Price Waterhouse, has now been completed.

34 The study's findings in relation to *central costs* are subject to a number of important caveats. The scope of the study was deliberately narrowly defined:

- The study focused primarily on the likely impact of merger on aggregate **operating** costs. Current aggregate operating costs were compared with CRESTCo's estimated operating costs post-merger, and the forecast savings set against estimated transitional costs (mainly the cost of developing new functionality in CREST)[6]; and

- A rather rough and ready approach was used in estimating possible savings in **development** costs. For example, no attempt was made to anticipate or estimate the cost of major developments such as full-scale DvP. A number of crucial assumptions had to be made, for example in relation to the extent and cost of development work needed to the CREST system (itself partly dependent on the extent to which convergence between the two markets' practices is achieved); and in relation to the incremental costs CRESTCo would incur in operating a service which incorporates gilts.

35 The study's findings were therefore seen only as a guide to the direction and order of magnitude of the impact on costs, not as a detailed quantification of any such change.

36 Bearing those caveats in mind, the study indicated that, as expected, **merger would permit a reduction in aggregate operating costs for the two systems**, and that this reduction would quite quickly outweigh any central transitional costs incurred. Development cost savings would be likely to reduce still further the 'pay back' period.

37 The study also attempted to estimate the impact of merger on users. Again, its findings need to be treated with caution. The main features of the exercise were as follows:

- Views were derived from discussions with a representative but small group of firms drawn from the key sectors of the market;

- Discussions were based on a questionnaire drawn up in discussion with the Bank and CRESTCo summarising the areas in which changes 'visible' to users would be likely to be needed to the central system;

- The discussions focused on the immediate impact of merger on firms' operations - essentially on the cost firms would incur making the bare minimum of changes needed to allow them to communicate with a single system rather than two separate ones - and any easily quantifiable savings achieved as a direct result of merger;

- Assumptions had to be made regarding the extent to which changes made to the central system would require firms to amend their in-house systems;

6 The net present value of ongoing operating cost savings was calculated to permit comparison with one-off transitional costs.

- The outcome was therefore somewhat biased towards the short-term costs of merger, rather than towards longer-term benefits, which are difficult to quantify; and

- No attempt was made to extrapolate individual firms' findings across the whole industry.

38 The study's findings suggest that **firms would be unlikely to incur significant costs** amending their operations to communicate with one system rather than two - estimates ranged from nothing at all to just over £100k, with an average expectation of around £30k. Equally, firms would be unlikely to realise significant savings in the short term. In the longer term, all firms expected to realise more significant savings – primarily from reduced development costs - but these were very difficult to quantify.

39 In short, therefore, the independent study supported the view that merger between CREST and CGO would be likely to allow central cost savings to be realised; that it would cause firms to incur limited additional costs in the short term but that, again in the short term, benefits would also be limited; but that longer term worthwhile savings should be available.

Assessment and recommendation

40 Responses demonstrated a high degree of consensus in favour of merger between CGO and CREST. For those active in the gilts and equity markets, merger assumes a high - in most cases the highest - priority, subject only to the proviso that it should not distract from EMU and Year 2000 work. System participants are prepared to incur reasonable transitional costs in return for longer term savings, and would endorse an early move to an intermediate form of merger, such as common ownership and management, which might facilitate the transition to a fully merged system. CRESTCo's current governance arrangements can make provision to allow different market interests to be properly reflected.

41 In the light of these views and our own analysis, we recommend that the two systems should be merged, once the necessary technical, legal and contractual framework is in place. The merged system should be operated by CRESTCo, with the public interest reflected through representation on the CRESTCo board. We also recommend that full merger between the two systems should be preceded by CRESTCo assuming responsibility for operating CGO once the necessary legal, regulatory and contractual framework is in place. The central design work required for full merger could begin quite quickly. Progress could also be made in agreeing, at a business level and possibly through existing channels of communication, any functional changes needed to facilitate the transition to the new system; and any revision to the existing responsibility and liability arrangements.

42 A number of legislative changes would also be needed (or would be desirable) ahead of merger. Discussions on these changes are taking place between the Bank, CRESTCo and HM Treasury.

SECTION D: MONEY MARKET INSTRUMENTS - THE FUTURE OF CMO

Respondents' views

43 The future of CMO, and the instruments currently settled in that system, was an issue on which respondents active in the money markets held strong views.

44 There was considerable support for the idea that current money market settlement arrangements are in need of enhancement. The most common concern was the absence of any form of DvP in CMO. Others noted the difficulty of enhancing the system in line with developments in the markets it services, and the prospect of dematerialising the instruments it settles. These respondents argued that developing settlement arrangements for money market instruments should be accorded at least as high a priority as merger between CGO and CREST. Some suggested it should be the first priority, there being greater synergies between money markets instruments and gilts than between gilts and equities. It was stressed that, whatever development path was chosen, the priority of improving money market settlement arrangements should be recognised.

45 Most respondents believed, however, that upgrading CMO in isolation was not the answer. The opportunity now arises to integrate gilts and money market settlement more closely, which many believe will allow operational efficiencies to be realised alongside reductions in settlement risk, given the similar characteristics of the two types of instrument. Gilts and money market instruments could be held within a single pool of collateral, subject to a single debit cap, and potentially interchangeable on a Delivery versus Delivery (DvD) basis. Efficiencies would also be available, although to a lesser extent, from closer integration with equity settlement. Moreover, integration would facilitate inclusion of money market instruments within the assured payments arrangements and in due course the full-scale DvP mechanism (although the basis on which these instruments would be valued would need to be agreed between members and settlement banks). It was acknowledged, however, that for the full benefits of such integration to be achieved, money market instruments would need to have essentially the same legal characteristics as gilts and equities: in other words, it could only be achieved for money market instruments issued into CREST or CGO in dematerialised, fungible form.

46 Concern was expressed at the implications of merger between CGO and CREST for money market settlement costs if integration of money market instruments into the combined system were *not* to take place. If some or all money market instruments were to remain within a separate system operated by the Bank, settlement charges would almost certainly rise because of the loss of operating economies following the transfer of CGO. Many felt that a significant increase in settlement charges would have an adverse impact on activity in the money markets. It was also suggested that the creation of a division between 'CREST' and 'non-CREST' instruments could be detrimental to market liquidity.

47 Some respondents expressed this concern particularly strongly in relation to eligible bills, which, as the earlier paper explained, would be difficult to integrate within a wider settlement infrastructure: they would remain non-fungible because of the way they are accepted and endorsed by holders; and whilst incorporating bills into either CGO or the merged system as

separately identifiable instruments would be possible, it would be technically quite complex, could require a significant expansion of system capacity, and would be unlikely to eliminate rises in settlement costs for those instruments. Concern was expressed at the impact on the London money markets of what might be a significant increase in settlement charges in the bill market, given its continuing importance to the money markets. Equally, some argued that distinct sectors of the financial markets should be essentially self-financing, and that cross-subsidisation should be avoided as far as possible.

Cost-benefit analysis

48 The independent review commissioned by the Bank and CRESTCo looked at the likely impact on CMO's operating costs if operating economies of scale were to be lost following the transfer of CGO to CRESTCo. It assessed the likely impact on CMO's costs of CGO's share of the Bank's fixed overhead costs being reallocated amongst remaining Bank systems. It suggested that the increase in CMO's operating costs would be of the order of 20%. The review drew no conclusions regarding the impact of this increase on the CMO tariff.

49 The consultation document noted that operating cost increases might, in principle, be mitigated by CRESTCo assuming responsibility for the operation of CMO on the same basis (ie sharing costs wherever possible with other systems) as does the Bank at present. The document also noted that CRESTCo has indicated that it would, in principle, be willing to accept responsibility for the operation of a settlement system for money market instruments in parallel to that for gilts. It was not possible in the time available, however, to assess the extent to which the current cost sharing arrangements could be precisely reproduced at CREST. Nor was it possible to assess the transitional costs likely to be incurred in transferring the operation of the system to CRESTCo.

Assessment and recommendation

50 There is a clear consensus that development is needed in money market settlement arrangements. Most agree that it is not enough to upgrade CMO in isolation; fuller integration of money market instruments in gilt/equity settlement arrangements is needed. Some of those active in the money markets believe that, to the extent that the two areas of development compete for resources, CMO should have a higher priority than merger between CGO and CREST.

51 We endorse the view that money market settlement arrangements should be further developed, and that this should as far as possible be achieved by more fully integrating money market instruments and gilt/equity settlement arrangements. We recommend that detailed discussions commence with practitioners, issuers and service providers to assess the statutory, regulatory, contractual and technical changes which might facilitate such integration, and the implications of any such changes for the operation of the money markets. Such discussions should go beyond consideration of the settlement arrangements for instruments currently traded in the money markets, and consider how the issuance, trading and settlement needs of money market practitioners, both now and in the foreseeable future, might best be met.

52 We also recommend that CRESTCo assumes responsibility for the operation of CMO at the same time that it assumes responsibility for CGO. This is partly in order to minimise any increase in CMO's operating costs following the transfer of responsibility for CGO to CRESTCo.

It should also facilitate the integration of money market instruments and gilt/equity settlement arrangements, once the discussions referred to above are complete, if a single body is responsible for managing the integration process.

SECTION E: DELIVERY VERSUS PAYMENT ARRANGEMENTS

Respondents' views

53 Most respondents acknowledged that the absence of a full-scale Delivery versus Payment (DvP) mechanism with payment effected in real time in **central bank money**[7], in CGO and CREST, and the absence of any form of DvP in CMO, represents both a potential source of systemic risk and increasingly a competitive disadvantage in relation to systems (including certain continental European systems) which do possess such a mechanism. One respondent observed that values passing through settlement systems now are such that any serious problems affecting a settlement bank could cause systemic disturbance. Most respondents therefore accepted in principle the benefits of further enhancement of the DvP mechanism.

54 The importance of introducing DvP in central bank money in CGO and CREST was stressed particularly strongly by the settlement banks. Responses from this community stressed not only the banks' increasing concern at the quantum of intra-day risk they and their customers bear, but also the increasing likelihood that the banks will individually or collectively wish to take action better to control, and possibly to limit, that risk. Such action might well include reductions in customer credit lines, although a number also mooted the possibility of introducing multilateral netting and/or loss-sharing arrangements, and/or perhaps limits on the maximum intra-day debit position of each settlement bank.

55 Other responses indicated, however, that other users of those systems also understand that problems in a settlement bank could have serious consequences for both settlement banks and members of the system and for the system as a whole. Users are, moreover, becoming increasingly aware that any reduction in the amount of credit available to market participants would have a major impact on market liquidity. A number also acknowledged that the increasing volume of cross-border settlement serves to emphasise the importance of fully effective DvP mechanisms for both cross-border and domestic trades, if finality risks are to be mitigated.

56 Not all respondents accepted this. A number, predominantly from the retail sector, argued that the form of DvP currently available in CREST and CGO is perfectly adequate for users, and that the risks DvP in central bank money is designed to address have too small a probability of materialising to warrant the major development work involved, or to justify the application of an additional constraint on market liquidity. It was also noted that DvP in central bank money is of less importance in the retail sector, where trades tend to be for lower values and are therefore less risky. A number suggested that applying a threshold, below which full-scale DvP would not be applied, would both ensure the continued liquidity of the retail market and improve the system's processing efficiency, without a material increase in either counterparty or systemic risk.

57 The broad consensus, however, was that the enhancement of DvP in CGO and CREST is, at least for large value trades, both necessary and inevitable, and that the focus should be on

7 With simultaneous and irreversible delivery of securities (between settlement accounts) and cash (across the books of the Bank of England) taking place as soon as the necessary securities and cash resources are available. Both CGO and CREST currently offer members real time DvP, but with payment being in commercial bank money. Settlement in central bank money takes place between settlement banks net at close of business.

ensuring that it is constructed in such a way as to maximise the efficiency with which credit can be utilised, scarce collateral mobilised and thus market liquidity enhanced.

58 The importance and urgency of introducing DvP into CMO was stressed by banks and most users alike: users, as a means of eliminating the intra-day credit risk to which sellers are currently exposed; banks, as a means of improving the payment arrangements in CMO other than through the introduction of an assured payment mechanism which would increase their exposure to one another. Those respondents who viewed the development of CMO as the first priority argued that the introduction of DvP should be a key aspect of any such development.

59 A number of respondents commented on the issue of how best to **structure** full-scale DvP. It was generally acknowledged that a careful balance will need to be struck between risk reduction and settlement efficiency. The aim should be to achieve a reduction in systemic and counterparty risk without reducing participants' access to credit, or to the collateral needed to access that credit. The chosen 'model' of DvP should therefore have three key objectives.

60 First, it should minimise the number of 'pots' in which the cash liquidity needs to be held. This was one reason why enhancement of DvP was seen as a lower priority than system merger: the latter would itself reduce the number of 'pots'.

61 Second, it should maximise the ease with which *cash* liquidity can be transferred between different 'pots' - for example with unused credit in the payment system used to generate liquidity in the securities settlement system.

62 Third, it is generally accepted that the availability of *collateral* will be the single most significant limiting factor on the effective operation of settlement systems in a full-scale DvP environment, and that the chosen model should therefore maximise the efficiency with which scarce collateral is used. One means of achieving this would be by 'self-collateralisation'. This is the ability of a settlement bank to use the stock, for which it is paying on the buyer's behalf, as collateral at the Bank of England to generate the necessary credit with which to make the payment. Self-collateralisation raises, however, both technical and legal issues. Arguably the most effective means of achieving it is for the securities to be repo'd by the settlement bank to the Bank of England. This would require significant system redevelopment. Moreover, if this had to be done for each purchase inside the settlement system, there could be a very significant system overhead. It is, however, technically possible to achieve - other real time DvP systems operate on this basis.

63 In addition, the settlement bank must have the legal power to provide the purchased securities as collateral to the Bank of England, otherwise the Bank could not rely on being able to sell those securities in the event that the settlement bank failed to repay the credit granted by the Bank. Where the stock being purchased belonged to a **customer** of the settlement bank, the bank would require the customer's express permission to repo the securities to the Bank of England. The situation would be further complicated where the beneficial owner was an underlying **client** of the settlement bank's customer, not all of whom would be willing, or even able, to grant the settlement bank any rights over the stock. The inability of the settlement bank to repo underlying clients' securities would reduce quite significantly the availability of collateral within the system.

64 A number of respondents suggested that an alternative might be to change the law to give the provider of credit some form of transitory, proprietary interest in the stock being purchased until the credit is redeemed. This, however, would raise a host of wider policy issues relating to the ownership of bought securities. One respondent suggested that allowing members of the system to hold cash accounts direct with the Bank of England would simplify the situation. The respondent acknowledged, however, that this alone would not allow the Bank access to members' customers' securities as collateral; disintermediation could moreover reduce the availability, and raise the cost, of credit to participants.

65 A number of settlement banks suggested that DBV functionality might be enhanced to allow holders of securities portfolios to refinance their holdings over a period of time, **without the securities being returned each morning**. Proponents argued that by reducing both the amount of credit required each morning to repurchase DBV'd stock and the amount of daily traffic through the system, this proposal would offer savings to users, and would reduce collateral requirements across the system as a whole. It was recognised, however, that the enhancements to the DBV process would need to be carefully designed so as to allow users to retain all the current advantages - for example substitutability and repricing - available within the current process; and that user 'buy-in' would be required.

66 A number of respondents commented on the suggestion in the consultative paper that a possible third alternative would be to allow settlement banks some control over the sequencing of the settlement of their customers' purchases and sales. The suggestion was endorsed by the settlement bank community, but gave rise to concern in other sectors at the prospect of losing control over the timing of settlement.

67 It was also suggested that credit (and so collateral) requirements might be reduced by settling trades as part of some sort of *batch* process rather than in 'real time'. 'Batching' would, however, only affect collateral requirements if it involved *netting* of trades (which most would see as a retrograde step at a time when trade by trade settlement is increasingly becoming the norm) or if it involved some form of *circles process* capable of identifying circles or chains of dependent trades, settlement of which could be effected without leaving any participant (including the relevant settlement bank) with a negative balance of either stock or cash[8]. The impact of either form of 'batch' would depend on the pattern of trades queued for settlement at the relevant times of day.

68 The legal and technical complexity of DvP, and the manifest benefit of introducing it into one system rather than two or three, led most respondents to conclude that the enhancement of DvP should follow consolidation of the securities transfer side of settlement. However, a number stressed the importance of doing as much as possible to prepare for its introduction in advance. One area in which the settlement bank community argued that more could be done in the interim was in the ease of access of settlement banks and their customers to real-time information on credit utilisation. It was thought likely that more credit was currently granted to members of CGO and CREST than was strictly necessary, in part because information on actual usage of credit was currently difficult to access. Better (automated) provision of information by the systems would allow customers and banks better to gauge actual credit requirements, and banks

8 Circles settlement takes place on a 'gross, simultaneous'basis. Settlement is legally effected on a trade by trade basis, but in system terms settlement is effectively net. As noted above, however, the precondition for settlement is that it can take place without leaving any party to settlement with a negative balance in either cash or stock.

better to identify possible set-offs between credit usage across different (settlement and payment) systems.

69 On the 'delivery' side of DvP, there was also widespread support for eliminating the gap between settlement and registration in CGO and CREST to enhance finality of delivery, by conferring some form of sub-register status on the settlement systems, such that transferees receive legal title without delay (see also footnote 4 above). Again, many felt that this was an area where progress could be made sooner rather than later.

Assessment and recommendation

70 The clear message from respondents was that the introduction of full-scale DvP, with payment effected in real time in central bank money, is an important development, at least for large value trades, but cannot be achieved immediately. Nevertheless planning should commence as soon as possible, and certain steps could be taken even before agreement is reached on a suitable model. If the enhancement of DvP were to be delayed for a significant time, however, then action should be taken in relation to CMO as a matter of higher priority.

71 We endorse all of these conclusions and recommend that work should recommence on defining the preferred 'model' of full-scale DvP and identifying the range of options for ensuring that sufficient collateral is available. However, we expect that, at least in the early stages, work will be largely analytical and could take place in parallel with work on other projects. In practice, technical design work could commence once further development and design resources were freed up from existing and prospective projects, including merger.

72 A considerable amount of work was undertaken on full-scale DvP in 1996. That work greatly enhanced the understanding of both the benefits and limitations of DvP in central bank money. APACS has created a DvP Working Group to pick up where the 1996 initiative left off. The Bank and CRESTCo welcome this and are participating in this group. In parallel, the Bank intends to consider how the issues outstanding from that earlier initiative might be resolved. In due course (possibly later this year), the two processes will need to converge, and to feed into a wider market debate, involving practitioners, representative bodies, regulators, the Bank and CRESTCo. Discussion is needed with representative organisations on how that exercise might proceed.

73 The question of whether statutory change should be undertaken to confer some form of sub-register status on CREST is under active consideration with HM Treasury.

SECTION F: LINKS TO OVERSEAS SYSTEMS; SETTLEMENT FACILITIES FOR FOREIGN SECURITIES

Respondents' views

74 There was recognition amongst respondents that closer integration between European settlement systems is inevitable and that this will be beneficial to investors and represents an opportunity which the more efficient systems might exploit; and that EMU may well encourage the development of an increasingly pan-European market in (particularly government) securities and so further growth in cross-border investment. Any mechanism, such as links between national settlement systems, which reduces the costs and risks of such investment should therefore be encouraged.

75 Not all respondents, however, viewed the construction of links between CREST and other European CSDs, which are currently being undertaken under the auspices of the European Central Securities Depositories Association (ECSDA), as a high priority. On balance, larger participants felt that investors were already adequately served by existing mechanisms, including the ability to access foreign settlement systems directly and the through the use of local or global custodians. Some respondents argued that establishing such links ahead of further enhancements to domestic systems could lead to the **loss** of business to overseas systems.

76 However, there was support from smaller members of the two systems, and from some broker dealers, for the introduction of soundly based, competitively priced services offering full functionality to support corporate actions and ideally DvP. This would appear to endorse CRESTCo's earlier conclusion that there are a number of firms who have an interest in increasing their international activities, but who are prevented from doing so by the cost and complexity of the currently available alternatives.

77 Respondents generally agreed that the development of links with other European systems should be the first priority, but that linkage with other G10, Eastern European and Pacific Rim systems (in broad order of priority) would be important in the longer term.

78 The development of links with overseas settlement systems within the ECSDA framework remains a key objective of CRESTCo. Much work has been done to identify and resolve the legal, technical and business issues raised by ECSDA's proposals, and CRESTCo plans to have its first bilateral links operational by mid-1999.

Assessment and recommendation

79 The trend towards greater integration between national infrastructures is clear, and is evident in a variety of areas of the financial markets. Links between securities settlement systems are only one example. Another is the recently announced proposal to develop links between the London Stock Exchange and the Deutsche Börse (which has in turn focused attention on CRESTCo's discussions with Deutsche Börse Clearing, the settlement arm of the Deutsche Börse Group, regarding the development of a bilateral link between the two systems). Still others are the various proposals to develop clearing arrangements for European OTC derivatives, securities and repo markets. Such integration seems likely to bring efficiencies and opportunities for

investors and other market participants. The strategic implications of such integration for the UK's financial markets and the best way to take advantage of these developments will be studied carefully in coming months.

80 In terms of priorities, though, the general view of respondents was that, however desirable the development of links to overseas systems might be, it should not be allowed to distract operators or users from implementation of merger. CRESTCo is confident that this should not happen, and that no competition for resources should arise. Moreover, the development of duplicate links across two or three systems would represent a wasteful use of resources and could threaten the achievement of other objectives. The most sensible approach would therefore seem to be to integrate gilts and money market instruments into CREST and for deliveries of those instruments to take place over CREST's links, rather than to build separate links to CGO and CMO.

SECTION G: INTEGRATION WITH DERIVATIVES CLEARING

Respondents' views

81 Few respondents commented in any detail on the scope for further integration between securities settlement and the clearing and settlement of derivatives contracts. Some welcomed the possibility that closer integration would permit margin offsets (although it was noted that existing arrangements might be used to achieve the same end). Others noted the existence of combined cash/derivatives clearing and settlement entities elsewhere in Europe (eg in Germany). The general view, however, was that whilst there **might** be synergies, it was not immediately apparent where these arose. Most felt that this was not in any event a high priority on which significant resources should be expended now, but rather a possible development which could be studied in more detail at a later stage.

Assessment and recommendation

82 At a practical level, we endorse the market's view. We recommend that the Bank should continue to consider internally where synergies might arise, drawing where possible on experience in other countries. The recently announced proposal to develop links between the London Stock Exchange and the Deutsche Börse brings into focus a practical example of where such synergies might arise: the Deutsche Börse is one part of a wider group which includes a derivatives exchange, a securities settlement system and a derivatives clearing and settlement mechanism. As mentioned in Section F above, there is, moreover, a prospect of clearing mechanisms emerging in the future for OTC derivatives and cash securities trades (possibly including repo). This may also influence the synergies between settlement and clearing functions.

SECTION H: OTHER PRIORITIES

83 The consultative document looked at a number of other possible areas of development. It touched first on the development of **Straight Through Processing**. Most respondents viewed this as a worthwhile development for all the reasons set out in the consultation document, but one which was unlikely to divert resources away from other infrastructural developments (although see paragraph 86 below dealing with developments in CGO and CREST).

84 The paper also touched on the possibility of **shortening the standard settlement cycle**. Whilst the majority of respondents viewed this as a useful development in principle (and some thought it a high priority), it was accepted that it would require changes in market practice at least as much as changes to the settlement infrastructure. The latter might include the development of an automated lending facility to reduce the incidence of settlement fails. A number of respondents expressed the view that reductions in the settlement cycle would benefit the wholesale sector more than the retail sector, for whom pre-settlement counterparty risk was of less importance. The retail sector might therefore reasonably be excepted from any reduction in the market standard.

85 **Elimination of the period in CREST and CGO between settlement and registration** is covered in Section E. Briefly, most respondents thought this an important development, and a key aspect of real time Delivery versus Payment.

86 Two partially conflicting views emerged in relation to the **further development of facilities in the CGO and CREST systems**. A number of respondents highlighted areas where they believe further development is needed. As noted in Section E above, the settlement bank community drew particular attention to the ease of access to real-time information on customers' credit utilisation, in order to permit settlement banks to assess customers' credit requirements across (and possibly to transfer spare resources between) a range of payment and settlement systems. They and others also suggested that more could be done to facilitate development of straight through processing, including the development of specific repo functionality; the development of confirmation functionality; the removal of optional matching fields; and the introduction of some form of automated stock lending facility. And they were not alone in arguing that settlement efficiency might be enhanced by the automated provision of more detailed exception reports where trades failed to settle because of lack of stock or cash.

87 On the other hand, a number of proponents of merger argued equally strongly that further development of CGO (once the EMU and Year 2000 related work had finished) should be limited to essential changes, in order to minimise the development work associated with merger. It was even suggested that **no** further development should be undertaken to CGO.

88 The two views are not wholly at odds. Essential development work might be undertaken on CREST. The extent to which such work is necessary will primarily be a matter for CRESTCo to determine through its usual process of consultation. But the decision could be taken not to undertake any further significant development of CGO ahead of merger. That will primarily a matter for the Bank (or CRESTCo, once it assumes responsibility for the operation of the system)

to determine in discussion with CGO members. Once merger has taken place, the ongoing development of the combined system will be for CRESTCo to determine, on the basis of consultation with users of the system.

89 All those who expressed a view endorsed the possibility that CRESTCo might offer **settlement facilities to unit trusts and Open Ended Investment Companies**.

SECTION I: SUMMARY AND THE WAY FORWARD

90 The principal purpose of the Priorities Review was to seek views on some of the key issues which need to be resolved if a strategic plan for the development of the UK securities settlement infrastructure is to be drawn up, and in particular (as the name might suggest) on what market practitioners consider to be the key **priorities** amongst the various possible areas of development.

91 The responses to the consultative document give a good insight into areas where there is already market consensus and where disagreement remains. There is near unanimous support for **merger between CREST and CGO**. There is also broad agreement on what the merged system should look like. It should be operated by CRESTCo. The CREST system will need further development in a relatively small number of important areas to reflect differing practices in the two markets. No significant changes were thought necessary in CRESTCo's current *governance* structure. Public sector representation on the CRESTCo board and probably in senior board committees would, however, ensure that any identifiable public interests are properly reflected. And a rebalancing exercise might be needed to ensure that the composition of the CREST Board continues to reflect the interests of all of the markets for which it provides services.

92 Views differ, however, on the **timing of merger**. Almost all agree that work relating to the introduction of EMU and to the Year 2000 problem should take precedence over other developments. Most believe that this means that 2000 is the earliest date that merger of the systems themselves could take place, although some believe it might be possible in the second half of 1999. On the other hand, IT and business design resources may begin to come free from current projects, and these resources might be available to enable work to begin soon on identifying the extent and range of changes needed to the CREST system. In any event, most believe that preparatory design and legal work should commence as soon as possible, and the suggestion that, as a first step, the two systems might be brought together under a single ownership and management structure was also widely approved.

93 A number of responses suggested, however, that the *design* and *development* phases of the EMU and Year 2000 work are almost complete, and that these resources might become available rather more quickly, although there will of course be other demands on these resources, and further EMU and Year 2000-related demands cannot be ruled out.

94 We endorse these conclusions, and recommend that CGO and CREST should merge. The merged system should be operated by CRESTCo, with the public interest reflected through representation on the CRESTCo board. We also recommend that full merger between the two systems should be preceded by the assumption by CRESTCo of responsibility for operating CGO once the necessary legal and contractual framework is in place.

95 We also recommend that further discussions should be held with practitioners to establish a clearer consensus on the extent to which merger-related work should take precedence over **enhancements to the existing systems**. Both systems have existing development programs, and there are a number of areas in which practitioners (for example the settlement bank community) have indicated that they would like further enhancements to be introduced. It is clearly possible

that merger will divert the system operators from undertaking any further significant development of the existing systems, and there needs to be a clear understanding both between operators and users and between different groups of users on which changes might reasonably be delayed beyond the merger of the two systems.

96 There is a strong consensus that **money market settlement arrangements** are in need of further development (and that the introduction of DvP is a particular priority), that the opportunity should be taken more fully to integrate money market and gilts settlement infrastructures and that, for the full benefits of such integration to be achieved, money market instruments would probably need to have legal characteristics more similar to those of gilts and equities. However, there remains some disagreement over the priority for further development of CMO vis a vis merger between CGO and CREST. Further analysis is needed of the extent to which there is in fact a trade-off between the two.

97 We endorse the view that money market settlement arrangements should be further developed, and that this should as far as possible be achieved by more fully integrating money market instruments and gilt/equity settlement arrangements. As a first step, it would be necessary to discuss with practitioners, issuers and service providers the statutory, regulatory, contractual and technical changes which might facilitate such integration, and the implications of any such development for the operation of the money markets. Such discussions should go beyond consideration of the settlement arrangements for instruments currently traded in the money markets, and consider how the issuance, trading and settlement needs of money market practitioners, both now and in the foreseeable future, might best be met.

98 We also believe that CRESTCo should assume responsibility for the operation of CMO at the same time it assumes responsibility for CGO. This is partly in order to minimise any increase in CMO's operating costs following the transfer of responsibility for CGO to CRESTCo. It should also facilitate the integration of money market instruments and gilt/equity settlement arrangements, once the discussions referred to above are complete, if a single body is responsible for managing the integration process.

99 Whilst there is less unanimity about the specific benefits of **full-scale DvP**, with payment effected in real time in **central bank money**, it is generally thought to be inevitable, at least for high value payments. But it is also widely accepted that the complexity of the legal and technical issues which need to be resolved, and the potential savings from introducing full-scale DvP into one system rather than two or three, argue for doing so after integration of gilts, equity and money market settlement rather than before. There remains uncertainty over the preferred model of DvP in central bank money, and how to ensure the adequacy of liquidity in a full-scale DvP environment. Elimination of the gap between settlement and registration will be an important element of any enhancement to DvP arrangements.

100 We endorse these conclusions and recommend that work should recommence on defining the preferred 'model' of full-scale DvP and identifying the range of options for ensuring that sufficient collateral is available. However, we expect that, at least in the early stages, that work will be largely analytical, and could take place in parallel to work on other projects.

101 The consensus was that other possible developments are either lower priority **(integration with derivatives clearing)** or are unlikely to divert resources from these more major

developments **(Straight Through Processing, shortening the standard settlement cycle, provideing settlement arrangements for unit trusts and OEICs)**. We endorse these views. The development of **links to overseas systems** remains a key strategic objective of CRESTCo.

102 One concern came through very clearly from responses. Careful planning will be needed in agreeing the development schedule for the coming years, if wasteful duplication of effort is to be avoided; and there should ideally be a clear development 'pathway' indicating as far as possible the order and timing of the different elements, which accurately reflects the complexity and importance of each one, and the likely impact on system providers and users.

103 We do not currently have sufficient information to draw up such a pathway in detail, but this strategy review exercise has brought together some of the components. We hope the recommendations in this document will be widely accepted. If they are, then at a *high level* the next steps are:

- a number of detailed changes will need to be made to the legal, regulatory and contractual framework to permit CRESTCo to assume responsibility for the settlement of gilts and money market instruments;
- CRESTCo can then assume responsibility for operating CGO and CMO;
- further discussions will take place with practitioners about changes to existing CREST and CGO systems considered essential ahead of merger;
- practitioners and issuers will be consulted in more detail about current settlement arrangements in relation to the wider needs of the money markets, including about the scope for integration of money market instruments into CREST;
- various functional changes will need to made to CREST before full merger of the CREST and CGO systems, including:
    - ✧ changes to reflect differing gilt and equity market practices;
    - ✧ changes to existing systems deemed essential ahead of merger;
- full merger of CGO and CREST can then take place;
- the analysis of full-scale DvP models would be progressed, and an assessment made of necessary changes to the technical and legal framework;
- the technical design of the preferred model of full-scale DvP will need to be completed and implemented in CREST;
- in parallel, CRESTCo will develop its links with overseas systems.

104 The overall objective is to ensure that the UK's settlement infrastructure matches or exceeds international best practice and supports London's role as the preeminent international financial centre. If the objectives set out in this report are endorsed, implementation will need to involve all interested parties, including the operators and members of the various systems, market representative organisations and regulatory bodies.

A TALE OF TWO BOND MARKETS:

HONG KONG AND SINGAPORE

Lixia Loh*

Abstract

After the Asian Financial Crisis, Hong Kong and Singapore have actively encouraged the development of the domestic currency corporate bond market. Both markets have shown tremendous growth with a diversify array of issuers from domestic and foreign entities. Through the issuance of domestic currency bond by foreign entities, both countries have shown partial redemption from the "original sin" problem. Cross-country data of 42 countries shows that original sin problem does have an adverse impact on the domestic currency bond market development. And whether Hong Kong and Singapore are able to fully redeem themselves from the problem depends on the attractiveness of Hong Kong dollar and Singapore dollar bonds to foreign investors. Both markets will complement each other, as a collective growth of the regional bond market will provide an attractive investment opportunity for international investors.

I. Introduction

In the Asia, bank lending and equity issuing have been the dominant sources of financing for corporations, while debt issuance has played a minor role. However, after 1997 Asian Crisis, the role of the debt market has change and it has become an alternative source of funding for corporations. In the year 2003, the first Asian Bond Fund was launched to show the governments' support for the regional bond markets. Post crisis, governments of Hong Kong and Singapore have pushed very hard for the domestic currency bond market development by liberalizing their financial markets and providing various incentives to attract both issuers and investors. These two markets have made tremendous progress in their market development and their

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development can be use as a case study for countries which are also pushing for their domestic currency bond market development.

The Hong Kong bond market is made up of two major markets, the government Exchange Funds Bills (EFBs) and Notes (EFNs) market and the corporate bond market. Hong Kong corporate bond market includes Hong Kong Dollar Bond (HKDCB) and foreign currency bond. There is a lack of information on Hong Kong foreign currency bond and most of the bond is placed outside of Hong Kong. The Singapore bond market is made up of three markets, the Singapore Government Securities (SGS), the Singapore Dollar Corporate Bond (SDCB) and the Asian Dollar Bond (ADB). The focus of this paper will be on the Hong Kong Dollar Corporate Bond (HKDCB) and Singapore Dollar Corporate Bond (SDCB) markets. Governments bond markets will be discuss briefly to give a clearer picture of the Hong Kong Dollar and Singapore Dollar Bond markets.

This paper is organized as follows: Section II looks at the growth and structure of Hong Kong dollar bond market and Singapore dollar bond market. Section III provides the rationale for developing domestic currency bond market. Section IV analyses the factors hindering the growth of these markets. Section V discusses the various measures taken by both countries to develop the bond markets. Section VI addresses the challenge face by Hong Kong bond market and Singapore bonds market. Section VII will discuss whether original sin problem has an impact on the domestic bond market development. What are the possible redemption and how Hong Kong and Singapore have fared? Section VIII gives the conclusion and lessons learnt from these markets.

II. Growth and the Structure of the Markets

Post crisis period, the bond markets in Hong Kong and Singapore have exhibited strong and robust growth with the governments playing an important role in developing the markets. The focus of the debt markets development after the financial crisis has been on the domestic currency bond markets. In the year 2001, Hong Kong dollar bond issuance was US$49 billion (US$30 billion for EFBs and EFNs issue and US$19 billion for HKDCB issue). While the total gross issuance for Singapore dollar bond was US$44 billion (US$31.7 billion for SGS and US$11.9 for SDCB). See Table 1. In both Hong Kong and Singapore bond markets, the governments have played an active and important role in the development of the markets. However, the results of the markets developments are mixed. In 2001, the outstanding Exchange Fund paper was only 9 percent (US$14.6 billion) of Hong Kong GDP while the outstanding HKDCB stand at 30 percent (US$48.7 billion) of the GDP. In Singapore's case, outstanding SGS was 35 percent (US$29.2 billion) of Singapore GDP and outstanding SDCB was 31 percent (US$25.9 billion) of the GDP. In Hong Kong the HKDCB market has played a dominant role in Hong Kong dollar debt market while in Singapore the SGS market has played a dominant role in the Singapore Dollar Bond market.

INSERT TABLE 1

(a) Structure of the Government Bonds Markets

Hong Kong

The Hong Kong government issued two types of securities, the Exchange Fund Bills and Exchange Fund Notes with Hong Kong Monetary Authority (HKMA) acting as its agent for the issuance. The first government bond issued by the Government of

Hong Kong was a five-year bond, HK$250 million in 1975 to cover its budget deficit. Before 1990, the government bond issuances were on an irregular basis and the bonds were not actively traded. In 1990, the Hong Kong government began to implement the Exchange Fund bills program to issue government bond on a regular basis. This was to achieve the following aims: (1) to provide a money market instrument to facilitate monetary management in Hong Kong, (2) provide a benchmark yield curve for Hong Kong dollar debt and (3) to enhance the development of the Hong Kong dollar debt market. The importance of establishing a benchmark yield curve may not be as significant in Hong Kong as compared to Singapore. The Hong Kong dollar operates on a currency board arrangement and the US dollar debt could be used as benchmark for Hong Kong dollar debts.

The EFBs have maturities of 91, 182 and 364 days while the EFNs have maturities of two, three, five, seven and ten years. Hong Kong's EFBs are issued on a discount basis and the EFNs are offered at tender with a stated coupon rate like United States treasury notes. In the primary market, the Exchange Fund papers are issued through competitive tender bids, and tenders are open to all recognized dealers or market makers appointed by the HKMA. Minimum denomination of bills is HK$500,000 while notes are HK$50,000. Both the bills and notes are computerized book-entry securities. Market markers are allowed to short selling of bills and notes provided the net market value of the market-marker's holdings is positive.

Most of the Exchange Fund papers are held by the financial institutions until maturity, banks hold Exchange Fund papers to use them as collaterals to acquire liquidity through repos with HKMA. In 1998, to strengthen the currency board, one of the measures undertaken by HKMA stipulates that new Exchange Fund papers can only be issued when foreign currency reserves grow, since then HKMA has reduced

the Exchange Fund paper issuance. In August 1999, HKMA listed all outstanding issues of the EFNs on the Stock Exchange of Hong Kong (SEHK). Trading in the secondary market begins to pick up after EFNs were listed on the SEHK, average daily turnover of EFNs increased to about HK$2.5 billion in 2001 from HK$1.2 billion in 2000[1].

Singapore

The Singapore government issues two types of securities, the Singapore Government Securities Bills and Singapore Government Securities bonds with Monetary Authority of Singapore (MAS) acting as its agent. The government of Singapore began issuing SGS in the 1970s. It was until 1987 that the government started to issue a larger amount of SGS on a regular basis. The objectives were (1) to establish a benchmark yield curve for Singapore dollar debt, (2) to develop skills in the fixed income market in order to develop Singapore into an international financial hub and (3) to provide investors with a relatively risk-less investment. .

The SGS bills have maturities of 91, 182 and 364 days and SGS bonds have maturities of two, five, seven, ten and fifteen years. Minimum denomination for bills and bonds are S$1,000. The SGS bills and bonds are computerized book entry securities. The SGS auctions are held under a Dutch auction process, although bidders at bond auctions may also tender non-competitive bids. All bids must be placed through the primary dealers appointed by the MAS. Beside these tradable bonds, government of Singapore also issued a non-tradable bond bought by the Central Provident Fund (CPF). At the end of 2001, the non-tradable bond held by CPF was S$89,410.3 million[2].

The SGS was traded in the OTC market and the trading in the secondary market is inactive. Most the SGS was held by financial institution until maturities. In the year 2001, 75.5 percent of the total SGS outstanding was held by commercial banks. To encourage retail participation, the minimum denomination for SGS was reduced to S$1,000, average daily turnover increased from S$616 million in 2000 to S$1,635 million in 2001[3].

(b) Structure of the Corporate Bonds Markets

Hong Kong

The Mass Transit Railway Corporation issued the first HKDCB in 1976. Due to Hong Kong dollar non-internationalization policy, it was until 1988 that the government of Hong Kong allowed foreign entities to issue Hong Kong dollar bond. The issuer of the HKDCB comprises of local statutory board, local private corporations, overseas corporation, and authorized institution (AIs[4]) and multilateral development banks (MDB[5]). In 1992, the government of Hong Kong granted a tax-exempt status to multilateral banks issuing Hong Kong dollar denominated debts, thus attracting issuers such as International Finance Corporations, Asian Development Bank, Nordic Investment Bank and etc. The government effort in promoting its HKDCB market has tremendous success, gross issuance in the year 2001 was HK$152 billion (US$19 billion) and the outstanding amount of HKDCB in 2001 was HK$380 billion (US$49 billion).

The local private corporations are less active in the HKDCB market and the local corporation frequently borrowed in overseas markets. In the year 2001, the local corporation issued 4 percent of the HKDCB; they prefer to borrow in the international market. 42 percent of the bond issuances in 2001 were foreign entities (5 percent

MDBs and 37 percent Non-MDBs overseas Borrowers) and the second largest issuers were Authorized Institutions, 38 pe rcent. See Figure 1.

Though some of the HKDCB are listed on the SEHK, most of the trading takes place in the OTC market and the market for HKDCB is a captive market with Authorized Institutions and private pension funds as the major investors.

Singapore

The first SDCB was issues in 1976 by Orient Leasing Singapore. Due to Singapore currency non-internationalized policy, SDCB market was only opened to foreign entities in 1998. Therefore, it is hardly surprising that SDCB market development lag behind HKDCB which has a 10 years head start in attracting foreign issuers. In 1998, MAS actively promote the SDCB market, and the result has been encouraging. In the year 2001, gross issuance of SDCB was S$22 billion (US$11.9 billion) and the SDCB outstanding was S$48 billion (US$25.9 billion)[6]. The issuers of SDCB are made up of statutory boards, financial institutions, property companies; Singapore based corporation and foreign entities.

The Singapore based corporations are the major issuers in SDCB market. In the year 2001, 52 percent of the issuance was Singapore based corporation. See figure 1. The second largest issuers were property companies. Since the Notice 757 in August 1998, SCDB market has been able to attract supranational such as International Finance Corporation, African Development Bank, Nordic Investment Bank, etc.

INSERT FIGURE 1

To facilitate a more liquid secondary market for bonds, Singapore Exchange introduced an automatic order matching system for bond trading in October 1995. Under the system entitled Bond Quotation System (BQS), orders are keyed into the SGX's CLOB trading system for matching. The BQS is confined to bonds issued by Asian Sovereigns or corporations denominated in a G7 currency. Though most of the SDCBs issued after 1998 are listed on the Singapore Exchange, most of the bond trading takes place in the OTC market. And in the year 2001, 96 percent of the SDCB issued are private placement. SDCBs are not actively traded in the secondary market due to captive seconda ry market. Most of the bonds are held by financial institutions and insurance companies till maturity.

III. Rationale for Developing the Domestic Currency Corporate Bond Markets

The Asian financial crisis highlighted the need to develop a mature debt market to diversify funding sources to reduce double mismatches (currency mismatch and maturities mismatch). It had been widely argued that the crisis could have been avoided if a well-developed bond market had existed in the region. However, the rationale for de veloping the debt market in the region does not seem to be relevant to Hong Kong and Singapore. First, the governments and many of the corporations in Hong Kong and Singapore do not need to borrow, as they are generally cash rich. Secondly, Hong Kong and Singapore have sophisticated bank-lending network. Third, Hong Kong and Singapore banking sector are unlikely to face the problem of over exposure of foreign currencies.

Hong Kong government and Singapore government want to develop their countries into an international financial hub. They are laying the foundation for

developing the regional bond market. Both countries strongly encourage well-established foreign entities to issue and purchase the countries domestic currency bonds. Another reason is the enlarging liability base of banks, insurance management industries and the countries growing retirement savings. These growing funds need to be channeled to efficient investment.

IV. Factors Hindering Development of the Bond Markets

Although Hong Kong has a well developed Exchange Funds market, trading of HKDCB is still inactive. The supply of HKDCB by local corporations is still relatively low. Most of the local corporations prefer to borrow in the international market because the current tax system discriminates against the issuance of HKDCB. Trading and interest income earned by institutions from holding HKDCB which are non-QDSs are subject to profit tax in Hong Kong, while profit tax are exempted on income earned from holding overseas assets denominated in foreign currency. This has deterred the Hong Kong institutions from holding HKDCB and hence discouraged the issuance of HKDCB. Another obstacle is that corporations have less incentive to issue bond in domestic currency as Hong Kong dollar is pegged to US dollar, these corporations may prefer to issue in US dollar as the exchange rate is stable and US dollar bond are more marketable. In 1998, the HKMA decided to increase the outstanding issuance of Exchange Fund papers only when there is an inflow of funds to provide directly corresponding foreign currency backing. This has seen a reduction in EFNs being issued and a shift from short term bills to more long-term notes.

Other supply side factors include prominence of banking system and stock market. It is easier for corporations to obtain a bank loan than to issue bond and to raise fund from the stock exchange. Another constraint facing the Hong Kong local

corporations is the credit rating requirement. Most local corporations do not seek credit ratings enthusiastically because of the strict financial disclosure requirements and high costs associated with hiring lawyers and auditors. In addition, the listing of bonds on the SEHK and the issuance of bonds with denominations of HK$50,000 or above are subject to the registration and prospectus requirements stipulated in the Companies Ordinance and the Protection of Investors Ordinance. This process is considered time consuming and cumbersome by some issuers.

On the demand side, investors prefer investing in the property and stock markets that have higher capital gain and dividend income is not subject to tax, while income from some of the HKDCB are subject to profit tax. Also the returns on HKDCB are not attractive to investor particularly due to the high inflation rate before the Asian Crisis. Hong Kong has a high inflation rate for many years; therefore the real return for bonds is relatively low. Refer figure 2. Retail investors also kept away from the bond market because of lack of transparency in bond trading and the minimum transaction amount is high (often HK$500,000). Some pension funds and mutual funds are only allowed to buy bonds of high credit rating as part of the credit risk control mechanism. This restrictive credit rating requirement has dampened the demand of HKDCB. Another reason that kept investors away from HKDCB is an illiquid secondary market; most of the investors hold the bond till maturity. Institutional investors do not have currency restrictions in their investment decisions, so they prefer to invest in US papers that are more liquid. US dollar bonds are competitors to HKDCB as exchange rate risk does not exist and interest rates move on synchrony on both sides.

INSERT FIGURE 2

For Singapore, the small domestic market limited the amount of funds that the government and corporations would need. And it is relatively easy for the corporations to raise fund from banks and stock market. Singapore faces the same problem of captive market as Hong Kong; most of the investors of bond hold the bonds till maturities. In Singapore the problem is further exacerbated due to a high proportion of SGS being held by commercial banks and financial companies to fulfil the minimum liquid asset (MLA) requirement.[7]

Most of the Singapore investors also have strong preference for equities and properties over bonds. The yields on bonds, particularly SGS, are low and unattractive. Another reason that bonds are unattractive to investors because they have to pay tax on interest income whiles they are exempted from tax on capital gains obtained from investing in equities and properties. Most of the bonds are traded in the OTC market, therefore there is a lack of transparency and the captive market rendered the secondary market illiquid. As a result, most of the bond investors tend to buy and hold their bond till maturities rather than trading them actively.

Foreign individuals are exempted from withholding tax on interest income earned in Singapore but it seems that the tax incentive is not sufficient to attract them to invest in the SDCB market. This could be because of the low yield on bonds (see Figure 3), the lack of liquidity and transparency in the bond market and finally the depreciating Singapore dollar since the Asian Financial Crisis.

INSERT FIGURE 3

Other than the demand and supply factors cited above, another important factor to look at is the original sin problem, the country inability to issue debt in its own currency. Theoretically, the presence of original sin would hinder the development of domestic bond market. A country suffering from original sin would

have problem attracting issuers and investors to the domestic bond market. This problem will be examined in greater detail in the later section.

V. Measures Adopted to Further Develop the Markets

(a) Hong Kong Monetary Authority

Starting from September 1994, corporate bonds which are lodged with the Central Moneymarkets Unit (CMU)[8] and meet the requirements set by HKMA are accepted as eligible securities for Repo under Liquid Adjustment Facility[9] (LAF). In October 1996, 10 year EFNs was launched and was more than 13 times oversubscribed. To facilitate the participation of retail investors and to enhance the secondary market liquidity of EFNs, all outstanding EFNs were listed on the Stock Exchange of Hong Kong (SEHK) and trading commenced in the second half of 1999. To promote the Hong Kong debt market further, in 2000 the following reforms were implemented. First, comprehensive system has been set up to review the performance of market makers regularly. Secondly, the mix of issuance is shift to longer dated paper. Third, the HKMA starts to publish an advance quarterly issuance schedule for Exchange Fund paper. In the year 2001, Hong Kong Exchanges and Clearing Limited launched the 3 year Exchange Fund Notes futures contracts to providing hedging instrument for debt securities.

The Hong Kong Mortgage Corporation Limited (HKMC) was incorporated in March 1998 which is wholly owned by the government to develop Hong Kong secondary mortgage market. HKMC issued its first bond in 1998 with the HKMA acting as the agent. HKMC also list its bonds on the Hong Kong Exchange in 1999. In 2001, HKMC launched its debut retail bond issue in Hong Kong in October with a minimum denomination of $50,000, the issue was well received.

(b) Monetary Authority of Singapore

To promote the Singapore dollar bond markets, various reforms were introduced including the liberalization of non-internationalization policy of Singapore dollar. In 1998, the first 10-year government bond was issued to extend the benchmark yield curve and a SGS issuance calendar was provided. In the same year, Notice 757 was introduced to provide opportunities for foreign entities with "good credit standing" to issue SDCB provided their proceeds are converted or swapped into a foreign currency before remitting abroad. MAS also actively encourage statutory boards and government-linked corporations to tap the SDCB market. In November 1999, the Notice was amended to allow the following to tap the SDCB market:

(1) all rated foreign corporations;

(2) all sovereigns, rated or unrated;

(3) Unrated foreign corporations provided the investors' base is restricted to sophisticated investors.[10]

In 1999, following the introduction of Singapore dollar 3-month interest rate futures contract on the Singapore Exchange, MAS also announced that banks no longer need to set aside reserves for Singapore dollars received from swaps with non-banks of more than one year in maturity. This was relaxed further in March 2001 when banks no longer need to set aside reserves even for Singapore dollar swap transactions that are of less than one year maturity with non-bank financial institutions and corporations. In the same year, MAS decided to further open up the market by permitting offshore banks and securities dealers to engage in Singapore dollar swap activities.

(c) Taxation

Tax incentives were also introduce by the government of Hong Kong to further develop the market. There is no withholding tax on debt securities in Hong Kong. In 1992, Hong Kong dollar bond issued by highly rated supranationals were exempted from stamp duty[11] and profits tax. In 1996, trading profit and interest income from Qualifying Debt Securities (QDSs)[12] are subject to a concessionary tax rate equal to 50 percent of the standard profit tax rate[13]. Overall, the tax system in Hong Kong is conducive to developing the debt market, except the profit tax on trading profit and interest income earned by institutions from holding HKDCB which do not qualify as QDSs. All individuals are exempted from tax on trading profits and interest income earned. As mentioned earlier, the tax on HKDCB which did not qualify as QDSs have dampened the supply and demand of HKDCB issued by local corporations. To encourage more domestic issuers, the full tax exemption should be granted to all Hong Kong dollar debts. See Table 2 for Tax on Hong Kong debt securities.

INSERT TABLE 2

Singapore government has also provided very attractive tax incentives to promote the Singapore debt markets. In February 1998 budget, MAS introduced the Qualifying Debt Securities (QDS) which are debt securities substantially arranged by financial institutions in Singapore. Fee income earned by financial institutions which arrange QDS will be exempted from tax. In addition, interest income earned by financial institutions and corporations from holding QDS will enjoy a concessionary tax of 10 percent. In the 1999 budget, MAS introduced the Approved Bond Intermediary (ABI) scheme where ABI status will be given to financial institutions, which have debt origination and capabilities in Singapore. All debt securities

managed by financial institutions with ABI status would be treated as QDS. See Table 3 for tax treatment in Singapore.

INSERT TABLE 3

Comparing the tax treatment of Hong Kong dollar debt and Singapore dollar debt in their respective markets, one can conclude that Hong Kong taxation may be putting constraint on the supply and demand of HKDCB. Strict criteria have to be met by the local corporations before the trading profit and interest income from the bond can be granted tax concession. On the Singapore side, the tax on interest income earned by resident dampens demand on Singapore dollar bond by resident. The main difference on the tax treatment is that individuals in Hong Kong are exempted from tax on trading profit and interest income earned from holding Hong Kong dollar bonds. Whiles individuals in Singapore have to pay tax on interest earned from holding bonds. The tax environment in Hong Kong is more conducive to persuade individual resident to invest in Hong Kong dollar bond compared to Singapore.

VI. Challenges Ahead for the Markets

Both markets have shown strong growth after the Asian financial crisis and the Asian bond market has great potential for further growth. The challenge facing the Hong Kong bond market and Singapore bond market are not only on attracting issuers to their markets and broadening the investor base. Would the Hong Kong bond market and Singapore bond market be facing competition and become a substitute for each other or would they develop and complement each other? The two markets have strong infrastructure and sound legal system to support the development of a regional bond center. See Table 4 for quality of financial system in Asia. Hong Kong has

scored better than Singapore in terms of press freedom, whiles Singapore's bureaucratic quality is higher than Hong Kong. Overall scores for both countries are above the rest of the East Asian economies.

INSERT TABLE 4

Both markets face the challenge of attracting more issuers and attracting investors. The crucial factor in developing a bond market with depth and breadth is to increase the liquidity in secondary market. However, both markets are essentially captive markets with most of the trading taking place in the OTC market. But the HKMA has taken a major step by listing the EFNs in the SEHK. There are also some HKDCB listed on SEHK but most of the trading still takes place in the OTC market. Though there are some Singapore corporate debts listed on the SGX, generally the trading takes place in the OTC market. To extend the investor base to retail investors, liquidity and transparency are needed. But there is a reverse causality, with more retail investors participating in the market, then, a liquid secondary market could be developed. Therefore, the market liquidity and retail participation has become a chicken and egg issue. It may take a long time for the HKDCB market and SDCB market to develop the kind of liquidity that a developed bond market has. But I should say this remains a big challenge for the policy makers and market players.

Some of the tax policies by the government have impediment on the bond market growth. Hong Kong government should consider extending the tax exemption on profit gain from issuing and trading to all Hong Kong dollar bonds to encourage the local corporations to issue HKDCB in Hong Kong rather than using the international market to raise the US dollar. As compared, the Singapore corporations have played a larger role in the SDCB market. But Singapore has a small domestic

market, to counter the problem of limited supply of bond; Singapore has to attract more foreign issuers.

Foreign issuers are free to take the Hong Kong dollar bond proceed out of Hong Kong while the foreign issuers are required to convert or swap their Singapore dollar proceed into another currency before taking the proceed out of Singapore. The MAS has maintained that the Singapore dollar non-internationalization policy will not deter foreign issuer from the SDCB market. Indeed the Singapore dollar non-internationalization policy will not hinder the development of SDCB market if the Singapore derivatives market is able to provide the hedging instruments.

The new Mandatory Provident Fund (MPF) retirement protection scheme introduced in December 2000 will benefit the Hong Kong debt market development. In 2001, the market value of bond held by MPF was HK$999,337,492. Accrued assets of MPF scheme are estimated to total HK$960 billion (US$123 billion) in 30 years time. While the Singapore Central Provident Fund (CPF) has existed for more than a decade and it is the major holder of SGS. Singapore may face stiff competition from Hong Kong in attracting foreign issuers who want to tap the Asia high saving rate as Hong Kong has a bigger fund management industry and the MPF can be used to invest in HKDCB. The fund management industry in Singapore is still at a nascent stage as compared to Hong Kong, though the Singapore fund management industry has seen great improvement after liberalization. Currently, Singapore residents are allowed to put a proportion of their social security savings in mutual funds. The government of Singapore may consider using the CPF fund to invest in good quality SDCB with higher credit rating to increase the demand in the market, instead of investing the bulk of the fund in SGS. Singapore may also consider extending the tax exemption on interest income earned from holding Singapore dollar bond to all

investors. This will encourage Singapore residents to hold bond as a form of investment.

So far, we have not seen many regional issuers taping the HKDCB and SDCB markets. The regional issuers should be encouraged to issues bonds in these markets, in doing so; we encourage the channel of Asian saving back to Asia. China corporations have been strongly encouraged to raise fund in the Hong Kong financial market. Singapore could also encourage the Asian corporations to raise fund in Singapore financial market. Hong Kong and Singapore can play an intermediary role in bringing together the regional issuers and investors. Hong Kong dollar and Singapore dollar have proved to be the least volatile currencies in the region, so they could be an attractive investment to investors. Also, Asian bond markets should encourage cross border transactions, promoting mobility of Asian fund to more efficient investment.

Hong Kong dollar bond and Singapore dollar bond should be considered as different types of investment. Generally, countries with a fixed exchange rate system should experience much of their nominal volatility in the domestic currency interest rate, while countries that float will see larger exchange rate volatility. The volatility of exchange rate is higher than volatility of interest rate in a flexible exchange rate country. On the other hand, volatility of interest rate is higher than volatility of exchange rate in countries with fixed exchange rate. In another word, for an investor holding Hong Kong dollar bond, he is assuming a higher interest rate risk, while investor holding Singapore dollar bond, he is assuming a higher exchange rate risk. Both risks could be hedged if liquid derivatives markets exist for Hong Kong and Singapore. To assume the ability to hedge is equivalent to assume that countries can

borrow abroad in their own currencies but choose not to do so. This will be discussed in depth in the next session.

Hong Kong bond market and Singapore bond market should not be a substitute for each other, rather they should be complements. A collective growth in the Asian debt market provides more benefits than growth in a single market. Asian debt markets as a whole provides a wider variety of debt instruments with varying degree of risk and returns, which could be more attractive to global investors who seek to diversify their portfolio. Also, from the experience of Asian Crisis, we can see that investors generally group the Asian countries as an entity which can easily invoke systemic risk in the region. Thus, a collective grow of the regional bond market strengthen the regional financial system. Due to the countries geographical location, Hong Kong could serve as the financial center for China while Singapore could serve as the financial center for other Asian countries, such as India. There are increasingly more China corporations raising fund in the SEHK, in the near future, we may see the same trend for the bond market. For Singapore, Indian corporations have been encouraged to issue equity in the SGX, the same should be done for the bond market.

We have to be clear that bond market is not a panacea; there are no complete replacement for banks and stock market financing. When developing the bond market, countries have to strike a balance between the developments of various sources of financing. HKMA (2001) [14] argues that financial crisis may be amplified as a result of contagion via the bond market because investors being unable to differentiate between good and bad risks may engage in herding behavior. It could be a challenge for Hong Kong and Singapore to develop theirs bond markets into a cushion for financial crisis instead of a channel for contagion. The bond market has been able to cushion the

credit crunch of the United States in the late 1980s whiles in Russia, Brazil and Turkey, bond markets were the first to collapse in the 1990s crisis.

VII. The Original Sins problem and Domestic Bond Market Development

If Hong Kong and Singapore are to develop their domestic currency bond markets, it is important that they have overcome the problem of "Original Sin". Using the definition of Eichengreen and Hausmann (1999), a country is deem to suffer from original sin if it is not able to borrow long term in domestic currency (even within the domestic market) and the inability to borrow internationally (even short term) in domestic currency. Without the original sin problem, countries should be able to issue its domestic currency bond onshore and offshore.

Does the original sin problem hinder the development of domestic currency bond market? At this point it may be difficult to answer this question, as the development of domestic currency bond is a new phenomenon for the developing countries. Furthermore, the relationship may be reverse causality, it is the underdevelopment of domestic currency bond market that led to original sin problem. A country with high original sin problem will have difficulty borrowing in its domestic currency, hindering the development of its domestic currency bond. At the same time, we could also argue that the underdevelopment of the domestic bond market adds on to the problem of original sin.

I have done a cross-country analysis to examine if the original sin problem has hindered the domestic currency bond market development. The dependent variable is the domestic currency bond market to GDP ratio (DBM), the explanatory variables are the original sin indices (OSIN1 and OSIN3), banking sector to GDP ratio (BANK) and stock market capitalization to GDP ratio (STK). The data for the cross-country

regression has been obtained from World Federation of Exchanges, Merrill Lynch and the various central banks statistical bulletins. The original sin variables are the OSIN1[15] and OSIN3[16] indices computed by Eichengreen et al. (2002). The higher the indices the greater is the problem of original sin. OSIN1 captured the securities issued in domestic currency by domestic issuers whiles OSIN3 captured the securities issued in domestic currency by all issuers. Due to the constraint that domestic currency bond market is a relatively new source of financing for some countries, especially the developing countries, the data available for the study consists of 42 observations only. The result yield may not be robust enough to support the argument, visual analysis is also carried out to identify out-liner case.

Theoretically, we should yield negative relationship between the dependent variable and all the independent variables. The higher the original sin, the lower is the domestic bond market development and the bigger the banking sector and stock market the lower the domestic bond market, as the stock market and banking sector are deem to be alternative sources of finance. Thus the reliance on banking sector and stock market for financing may have an adverse effect on the development of domestic bond market. Prior to the Asia crisis, Asian countries (exclude Japan and Korea) have relied heavily on its banking sector and stock market for financing and did not push hard for its bond market development, hence the underdevelopment of bond market in the region.

To deal with the reverse causality between the domestic bond market and original sin, I have used the techniques proposed by Goldfajn and Rigobon (2000). I have let the original sin the maximum chance to explain the domestic bond market development. Then, I take the residual from this equation and examine how much is explained by banking sector and stock market capitalization. Then the process is

reversed the banking sector and stock market capitalization is given the maximum chance to explain the domestic market development. In both cases, original sin (coefficients are -1.1548 and -1.1007) has high explanatory power on the domestic bond market development and yields the correct sign. Whiles the coefficients of banking sector and stock market capitalization are statistically insignificant and they also yield the wrong sign. Next, the original sin is the endogenous variable, the domestic bond market development does explain the original sin problem though the effect of domestic bond market development on original sin is lower. The banking sector and stock market capitalization have low explanatory power on the original sin problem.

Original sin does have an impact on the domestic bond market development but underdevelopment of domestic bond market also constitutes a bigger original sin problem. The effect of original sin on the development of domestic bond market works through the macroeconomic variables that cause original sin problem. Example, if country A has a high inflation, it could also face an original sin problem. Investors would also be reluctant to hold the domestic currency bonds issued by country A as inflation would erode bond's return.

The effect of domestic bond market development on original sin is lower. This can be attributed to the fact that causes[17] of original sin are wide and diverse, hence, the mystery of original sin. OSIN1 has a higher explanatory power than OSIN3 on the domestic bond market development, as most countries, especially developing countries did not have foreign participation in their domestic bond markets. But when both the original sin indices are used to explain the bond market development, OSIN3 becomes statistically insignificant, leaving the OSIN1 as the only variable with statistically significant coefficient. See Table 5 for regression result.

INSERT TABLE 5

On visual analysis of the data, countries such as Denmark, Hong Kong, New Zealand, Singapore and South Africa have a high domestic bond market to GDP ratio, but a high OSIN1 and a low OSIN3. This indicates that the countries reduce its original sin problem through attracting foreign issuers to the domestic market. The data also reveals that reliance on the banking sector and stock market does not have impediment on the domestic bond market development. The only two countries in the study that displayed contrary view on the negative impact of original sin on the domestic bond market are Korea and Malaysia. Korea and Malaysia have a high domestic bond market to GDP ratio but also a high original sin (both indices OSIN1 and OSIN3). This is because the governments of both countries have a regular bond issuance program and their domestic corporations are active issuers in the domestic market but there is limited foreign participation. And OSIN1 and OSIN3 indices only captured the securities recorded in the Bank of International Settlement, hence resulting in high original sin indices.

Original sin does have explanatory power on the domestic bond market development, and it becomes an obstacle when the market expands and foreign participation is involved. Particularly, a small country having the original sin problem will encounter greater obstacle when developing their domestic bond market, and foreign participation is vital to the market development. Therefore, Hong Kong and Singapore being a small country, the problem of original sin will hinder its domestic bond market development. Whiles, country such as Korea, the impact of the problem is not as significant because the domestic market is big enough to support the domestic bond market development.

Various reasons have been cited as the causes of original sin, Eichengreen et al. (2002) have gone a step further by carrying out test to examine the factors that causes original sin. Result shows that fiscal solvency, contract enforcement, trade openness and narrow investors base has little association with original sin. They only found a strong correlation between original sin and country size and a weak correlation between original sin and past inflation. It seems that most of the large countries have no problem issuing debt in their own currency while the smaller countries have problem issuing debt in their own currency, hence explaining the large currency mismatch of these small countries. However, there are also exceptions, Switzerland is a small country but foreigners go to Switzerland to issue Swiss Francs bonds. Another explanation for Switzerland absence of original sin is attributed to the fact that Switzerland is a financial center. Hence, Hong Kong and Singapore being small countries, the solution to redeem the original sin problem could lie in their ability to develop into international financial centers.

Another solution proposed is to encourage domestic currency debt issuance by nonresidents who then swap the debt service obligation into any currency they choose. Doing so, they allowed the borrowers with dollar liability to eliminate their currency risk. Hong Kong and Singapore central banks have been actively encouraging foreign entities to issue bonds in their domestic market. MAS of Singapore is doing exactly what is being proposed but indirectly through its policy of requiring foreign issuers to swap their Singapore dollar proceed into another currency before taking the fund out of Singapore. This allows the Singapore firms issuing debts in a foreign currency to swap their obligation to Singapore dollar. See table 6, the OSIN3 is lower for both Hong Kong and Singapore, especially the OSIN3 for Hong Kong has improved tremendously from 0.78 to 0.29. Hong Kong has been able to

attract more foreign issuers than Singapore. It is difficult to ascertain if it is through the attempt to build the country into international financial center or due to the increasing foreign issuers in the HKDCB and SDCB market or a combination of both that these countries have been able to lower its original sin problem. See table 6 for original sin indices.

INSERT TABLE 6

Eichengreen et. al. (2002) study also reveals that original sin is negatively correlated with exchange rate flexibility. While they argued that more original sin leads to less exchange rate variability, authors like Burnside, Eichenbaum abd Rebelo (2001) argues that less exchange rate instability leads to more original sin. Though many analysts argued that original sin is caused mainly by fixed exchange rates but Eichengreen et. al. (2002) data shows that developing countries with the most flexible exchange rate regime had a higher original sin. In the case of Hong Kong, the currency board arrangement has not hindered the development of Hong Kong Dollar Bond, dispel the belief that original sin is mainly caused by fixed exchange rate. In fact, Hong Kong dollar bond market and Singapore dollar bond market have shown that a currency with less volatility is a favorable condition to develop domestic bond market.

VIII. Conclusion

The Hong Kong dollar and Singapore dollar bonds markets have shown tremendous growth after 1998, the HKMA and MAS have taken major strikes by opening the market to foreign issuers and investors. Although the development of government bond market is not necessary for the development of domestic bond

market but in the case of Hong Kong and Singapore, the government bond markets have played a significant role in the country's bond market development.

The data has shown that original sin can be used to explain the domestic bond market development and to develop the domestic bond market the redemption of original sin problem is a pre-requisite. The data also shows that banking sector and stock markets dominance in a country is not an obstacle to the bond market development, contrary to the belief that bank loans and equity funding are substitutes for bond finance.

The development of Hong Kong dollar bond and Singapore dollar bond market provide some interesting insights. The origin sin indices have improved for Hong Kong and Singapore after the development of Hong Kong dollar and Singapore dollar bond market, particularly after financial market liberalization. For other small country that is keen to redeem the original sin problem, the possible solution lies in attracting foreign issuers and entities and developing the country into an international financial center. Although, the domestic bond market development in Hong Kong and Singapore is encouraging but base on the current development, we cannot conclude if Hong Kong and Singapore suffer from original sin and the problem has an adverse impact on the domestic bond market development. Firstly, prior to the crisis, the countries did not use the domestic bond market as an alternative source of finance, hence the lack of domestic currency debt. Secondly, Hong Kong and Singapore corporations did not issue domestic currency debts because the cost of issuing US dollar debt is lower. Thirdly, the major holders of these domestic currency bonds are local institutions such as financial institutions, social security fund and insurance companies. Once the demand of these institutions has been satisfied, would the domestic currency bond be attractive to foreign investors. If the country really suffers

from original sin problem, then the foreign investors will not hold the domestic currency bond. Then we can conclude that the country suffers from origin sin problem and the problem has hindered the domestic currency bond market.

Original sin may hinder the domestic bond market development but given the time and the regional government's effort to promote the domestic bond market, the future of the Asian Corporate Bond market is very positive. A collective growth in the regional bond market and the promotion of cross border transactions would make the Asian's saving flow within the region, preventing currency and maturity mismatch.

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TABLE 1
SIZE OF DOMESTIC CURRENCY BOND MARKET (OUTSTANDING)

	Hong Kong		Singapore	
	(In US$ billion)	(In percent of GDP)	(In US$ billion)	(In percent of GDP)
1997	45	27	27	29
1998	51	32	29	36
1999	57	36	37	44
2000	61	37	45	48
2001	63	39	55	66

Source: HKMA (2002b), MAS (2002a) and MAS Financial Database

TABLE 2
Current Tax Treatment for debt Instruments in Hong Kong

Types of Instruments	Income Earned	Tax Treatment		
		Financial Institutions	Non-Financial Institutions	Individual**
Exchange Fund paper, Tax Reserve Certificates and Bond issued under the Loans Ordinance or the Loans (Government Bonds) Ordinance	Trading profits	Exempt	Exempt	Exempt
	Interest income	Exempt	Exempt	Exempt
Hong Kong dollar paper issued by specified multilateral agencies	Trading profits	Exempt	Exempt	Exempt
	Interest income	Exempt	Exempt	Exempt
Paper issued by specified SCGOCs*	Trading profits	50% Concession (8%)	50% Concession (8%)	Exempt
	Interest income	50% Concession (8%)	50% Concession (8%)	Exempt
Paper issued by corporations and financial institutions (including floating rate notes, commercial papers and bonds) meeting the criteria on SCGOCs and have at all relevant times a credit rating acceptable to HKMA (currently BBB – or above from S&P's)	Trading profits	50% Concession (8%)	50% Concession (8%)	Exempt
	Interest income	50% Concession (8%)	50% Concession (8%)	Exempt
CD's issued by authorized institutions in Hong Kong	Trading profits	16%	16%	Exempt
	Interest income	16%	Exempt	Exempt
Corporate paper not eligible for exemption/ concession	Trading profits	16%	16%	Exempt
	Interest income	16%	16%	Exempt
Deposits with authorized institutions in Hong Kong	Trading profits	N.A.	N.A.	N.A.
	Interest income	16%	Exempt	Exempt

* SCGOC refers to statutory corporations and government-owned corporations. The debt securities issued by the SCGOCs should fulfill the following criteria in order to qualify for a 50% tax concession:

(i) cleared by and lodged with the CMU in its entity;
(ii) an original maturity of at least 5 years;
(iii) a minimum denomination of HK$50,000 or its equivalent in a foreign currency;
(iv) issued to the public in Hong Kong

** Individuals are exempted from all interest and dividend income and profit tax. Only those with business registration will be liable to tax on the income. The general principle is an individual will not be double taxed if the corporation paying the dividends or interest is subject to profit tax. There is no capital gains tax in Hong Kong except on profits made on trading property.

Source: HKMA (2001a)

TABLE 3
Current Tax Treatment for Debt Instruments in Singapore

Types of Instrument	Types of Income	Tax Treatment			
		Financial Institution	Resident		Non-Resident
			Corporation	Individual	
SGS issued on or after 28 Feb 1998	Trading Income	Primary Dealer – Exempted Others – Concession 10%	Taxable	Taxable	Taxable
	Interest Income	Concession 10%	Concession 10%	Taxable	Exempted
SGS issued before 28 Feb 1998	Trading Income	Primary Dealer – Exempted Others – Concession 10%	Taxable	Taxable	Taxable
	Interest Income	Taxable	Taxable	Taxable	Taxable
SDCB, (QDS)	Trading Income	Concession 10%	Taxable	Taxable	Taxable
	Fee Income	Exempted	Not Applicable	Not Applicable	Not Applicable
	Interest Income	Concession 10%	Concession 10%	Taxable	Exempted
SDCB, (Non-QDS)	Trading Income	Concession 10%	Taxable	Taxable	Taxable
	Fee Income	Taxable	Not Applicable	Not Applicable	Not Applicable
	Interest Income	Taxable	Taxable	Taxable	Taxable

Source: Ngiam and Loh (2002)

Table 4
Indicators of Quality of Financial Infrastructure

	Total score	Contract realization	Lack of corruption	Rule of Law	Bureaucratic quality	Accounting standard	Press Freedom
Developed East Asian markets	8.27	9.02	8.45	8.94	8.81	7.60	6.80
Australia	9.06	8.71	8.52	10.00	10.00	8.00	9.12
Hong Kong, SAR	7.75	8.82	8.52	8.22	6.90	7.30	6.72
Japan	8.67	9.69	8.52	8.98	9.82	7.10	7.92
Singapore	7.58	8.86	8.22	8.57	8.52	7.90	3.44
Developing East Asian markets	5.84	7.27	4.96	5.60	5.02	6.70	5.47
Indonesia	3.52	6.09	2.15	3.98	2.50	n/a	2.86
Korea	6.73	8.59	5.30	5.35	6.97	6.80	7.36
Malaysia	6.55	7.43	7.38	6.78	5.90	7.90	3.90
Philippines	4.14	4.80	2.92	2.73	2.43	6.40	5.54
Taiwan	7.50	9.16	6.85	8.52	n/a	5.80	7.16
Thailand	6.50	7.57	5.18	6.25	7.32	6.60	6.02
Reference markets	8.96	8.87	8.87	9.29	10.00	8.10	8.25
United Kingdom	9.93	9.10	9.10	8.57	10.00	8.50	7.78
United States	8.99	8.63	8.63	10.00	10.00	7.60	8.72

Source: Herring and Chatusripitak (2002)

Table 5
Regression Result

(a) Regression using OSIN1

	DBM	RESID1	DBM	RESID2	DBM	OSIN1	RESID3	OSIN1	RESID4	OSIN1
Constant	1.4520	-0.0695	0.3399	0.8294	1.3537	1.0241	0.0148	0.9029	0.1746	1.0351
	(0.0000)	(0.3463)	(0.0012)	(0.0000)	(0.0000)	(0.0000)	(0.7328)	(0.0000)	(0.0003)	(0.0000)
OSIN1	-1.1548			-1.1007	-1.2290					
	(0.0000)			(0.0000)	(0.0000)					
BANK		0.0810	0.0686		0.0807		0.0382	0.0108		0.0374
		(0.1503)	(0.3569)		(0.1576)		(0.2469)	(0.8048)		(0.2674)
STK		0.1950	0.1729		0.0237		-0.0637	-0.1329		-0.0656
		(0.8107)	(0.1157)		(0.7849)		(0.1874)	(0.0422)		(0.1943)
DBM						-0.4000			-0.3487	-0.3891
						(0.0000)			(0.0000)	(0.0000)
R-Squared	0.4619	0.0616	0.1038	0.3917	0.4953	0.4619	0.0612	0.1035	0.3915	0.4951

Notes: P-Value in parenthesis
RESID1 is the residuals of DBM after controlling for OSIN1
RESID2 is the residuals of DBM after controlling for BANK and STK.
RESID3 is the residuals of OSIN1 after controlling for DBM
RESID4 is the residuals of OSIN1 after controlling for BANK and STK

(b) Regression using OSIN3

	DBM	RESID5	DBM	RESID6	DBM	OSIN3	RESID7	OSIN3	RESID8	OSIN3
Constant	0.8086	-0.0675	0.3457	0.2940	0.7308	0.9111	0.0520	0.7867	0.2098	0.954924
	(0.0000)	(0.3857)	(0.0004)	(0.0068)	(0.0000)	(0.0000)	(0.5017)	(0.0000)	(0.0125)	(0.0000)
OSIN3	-0.5027			-0.4384	-0.4900					
	(0.0007)			(0.0024)	(0.0016)					
BANK		0.0881	0.0771		0.0879		0.0612	0.0219		0.0594
		90.1386)	(0.2551)		(0.1458)		(0.2985)	(0.7438)		(0.3274)
STK		0.0091	0.1134		0.0118		-0.1496	-0.2074		-0.152249
		(0.9170)	(0.2612)		(0.8993)		(0.0919)	(0.0430)		(0.0959)
DBM						-0.5101			-0.4449	-0.4865
						(0.0000)			90.0021)	(0.0016)
R-Squared	0.2564	0.0629	0.0855	0.2133	0.3033	0.2564	0.0818	0.10441	0.2178	

Notes: P-Value in parenthesis
RESID5 is the residuals of DBM after controlling for OSIN3
RESID6 is the residuals of DBM after controlling for BANK and STK.
RESID7 is the residuals of OSIN3 after controlling for DBM
RESID8 is the residuals of OSIN3 after controlling for BANK and STK

(c) Regression using OSIN1 & OSIN3

	DBM
Constant	1.1867
	(0.0000)
OSIN1	-0.7982
	-0.0131
OSIN3	-0.1560
	(0.4045)
BANK	0.0856
	(0.1284)
STK	-0.0001
	(0.9991)
R-Squared	0.4123

Notes: P-Value in parenthesis

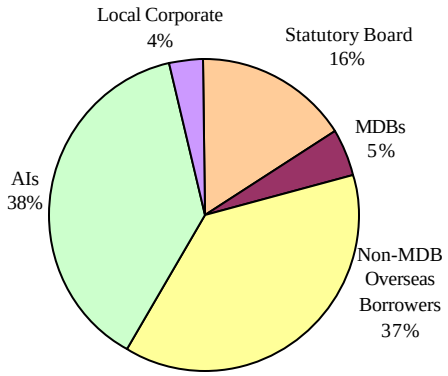
Table 6
Measures of Original sin by country

Country	OSIN1 1993-1998	OSIN1 1998-2001	OSIN2 1993-1998	OSIN2 1998-2001	OSIN3 1993-1998	OSIN3 1998-2001
Australia	0.69	0.82	0.63	0.70	0.55	0.70
China	1.00	1.00	1.00	1.00	1.00	1.00
Hong Kong	0.89	0.81	0.89	0.82	0.72	0.29
India	1.00	1.00	1.00	1.00	1.00	1.00
Indonesia	0.98	0.99	0.94	0.98	0.94	0.98
Japan	0.64	0.53	0.25	0.35	0.00	0.00
Korea	1.00	1.00	1.00	1.00	1.00	1.00
Malaysia	1.00	1.00	0.99	1.00	0.99	1.00
New Zealand	0.93	0.98	0.62	0.56	0.62	0.05
Philippines	0.99	1.00	0.98	0.99	0.98	0.99
Singapore	0.97	0.94	0.96	0.78	0.96	0.70
Taiwan	1.00	0.99	1.00	0.62	1.00	0.54
Thailand	0.99	0.88	0.98	0.87	0.98	0.87

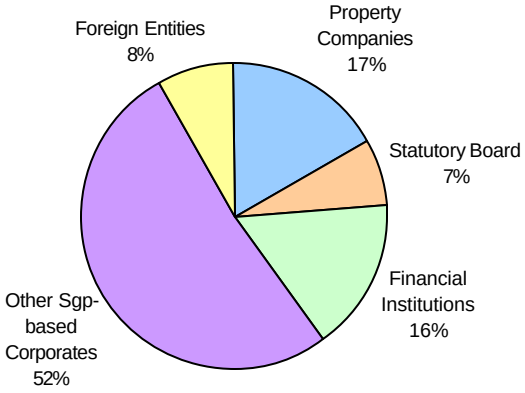
Source: Eichengreen et al. (2002)

FIGURE 1
BREAKDOWN OF BOND ISSUERS BY TYPE (2001)

HK Dollar Corporate Bond

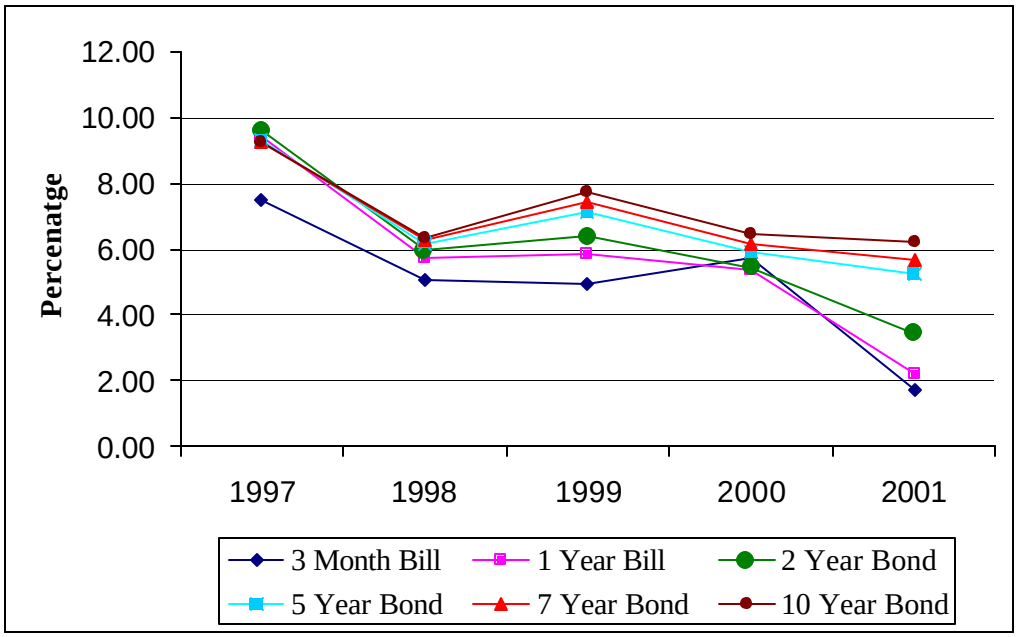


Singapore Dollar Corporate Bond Market



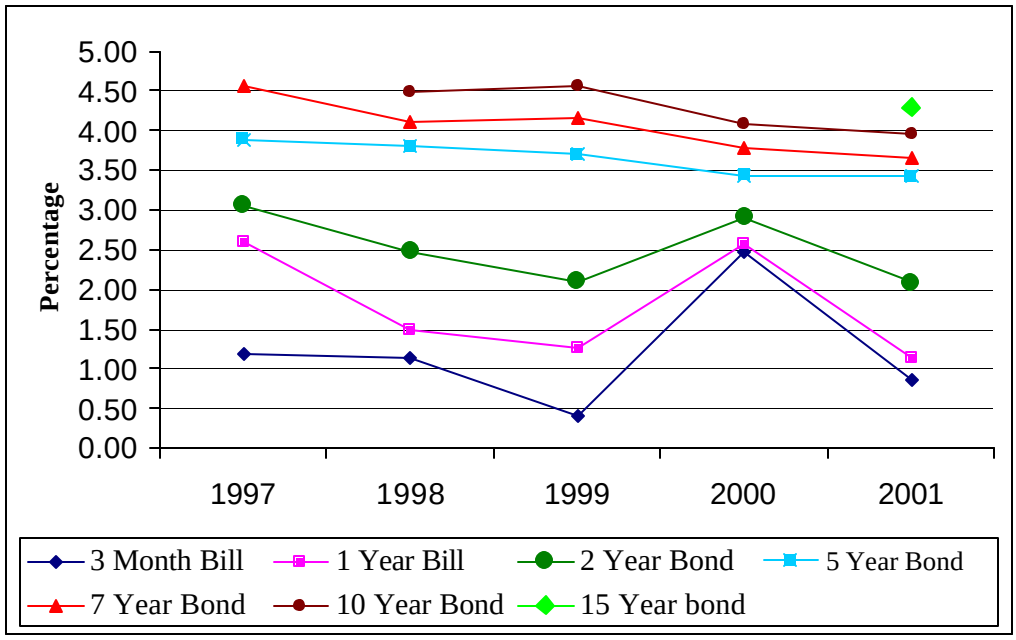
Source: HKMA (2002a), MAS (2002a)

FIGURE 2
YIELD OF EXCHANGE FUNDS BILLS AND NOTES



Source: HKMA (2002b)

FIGURE 3
YIELD OF SINGAPORE GOVERNMENT SECURITIES



Source: MAS Financial Database

[1] See HKMA (2002b) Table 4.1

[2] See MAS (2002b) p97

[3] See MAS financial database

[4] AIs include licensed banks, restricted license banks and deposit taking companies.

[5] MDBs refer to Asian Development Bank, Council of Europe, European Company for the Financing of Railroad Rolling Stock, European Investment Bank, European Bank Reconstruction and Development, Inter-American Bank, World Bank, International Finance Corporation, African Development Bank, and Nordic Investment Bank.

[6] See MAS (2002a)

[7] Currently, MLA stands at 18 percent of banks total liability base. Of this 18 percent, 10 percent must be in outright holdings of SGS while up to 4 percent may be in the form of trade bills.

[8] The CMU was established in 1990 to provide an electronic computer book entry clearing and settlement system for the Exchange Fund papers and settlement for corporate debts began in 1994.

[9] Hong Kong's version of a discount window, the LAF rates set the floor and ceiling within which the overnight interest rate moves.

[10] Defined as individual whose total net personal assets exceed S$1 million or whose annual income is not less than S$200,000; or a corporation whose total net assets exceed S$5 million.

[11] Current stamp duty on shares and marketable securities is 0.225%. In the long term, stamp duty on shares and securities is to be phased out completely.

[12] QDSs are the Hong Kong dollar debt securities issued by the private sector which: (a) have a rating higher than the minimum credit rating set by HKMA (currently at BBB- from S&P's); (b) have an original maturity not less than 5 years; (c) have a denomination not less than HK$50,000; (d) are issued to the public; and (e) are cleared through the CMU. Hong Kong dollar debt securities issued by the statutory board and government-owned corporations will also qualify as QDSs if they can meet the above requirements, except condition (a)

[13] Hong Kong profit tax has been raised from 16% to 17.5% with effect from fiscal year 2003/2004.

[14] See HKMA (2001b)

[15] $$OSIN1 = 1 - \frac{Securities\_issued\_by\_countryi\_in\_currency1}{Securities\_issued\_by\_countryi}$$

[16] $$OSIN3 = \max\left[1 - \frac{Securities\_in\_currencyi}{Securities\_issued\_by\_countryi}, 0\right]$$

[17] See Eichengreen and Hausmann (1999), Hausmann et al. (2001) and Eichengreen et al. (2002) for detail discussion on causes of original sin problem.