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Lessons learned from Asian experiences: Public AMCs and addressing the NPL problems

Cyn-Young Park, *Ph.D.*

Director for Regional Cooperation and Integration
Economic Research and Regional Cooperation Department (ERCD)
Asian Development Bank

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Outline

1. Background
2. Case studies on Asian NPL reduction measures
3. Lessons and Roles of Public AMCs
4. Empirical Analyses
5. Policy Considerations

Background

- In the aftermath of AFC, Asian economies experienced a drastic rise of NPLs; AMC's played a key role in resolving the problem assets.
- While NPLs have come down substantially since the AFC and remain moderate, especially in the crisis-afflicted countries, a recent rise of NPLs in some Asian economies calls for close monitoring.
- Heightened financial interconnectedness also entails some potential risks—such as increased risk of financial contagion and financial market volatilities.
- Effective and early workout and resolution of NPLs are central to avoid loss of confidence in the banking system and ensure bank lending continues to support growth.

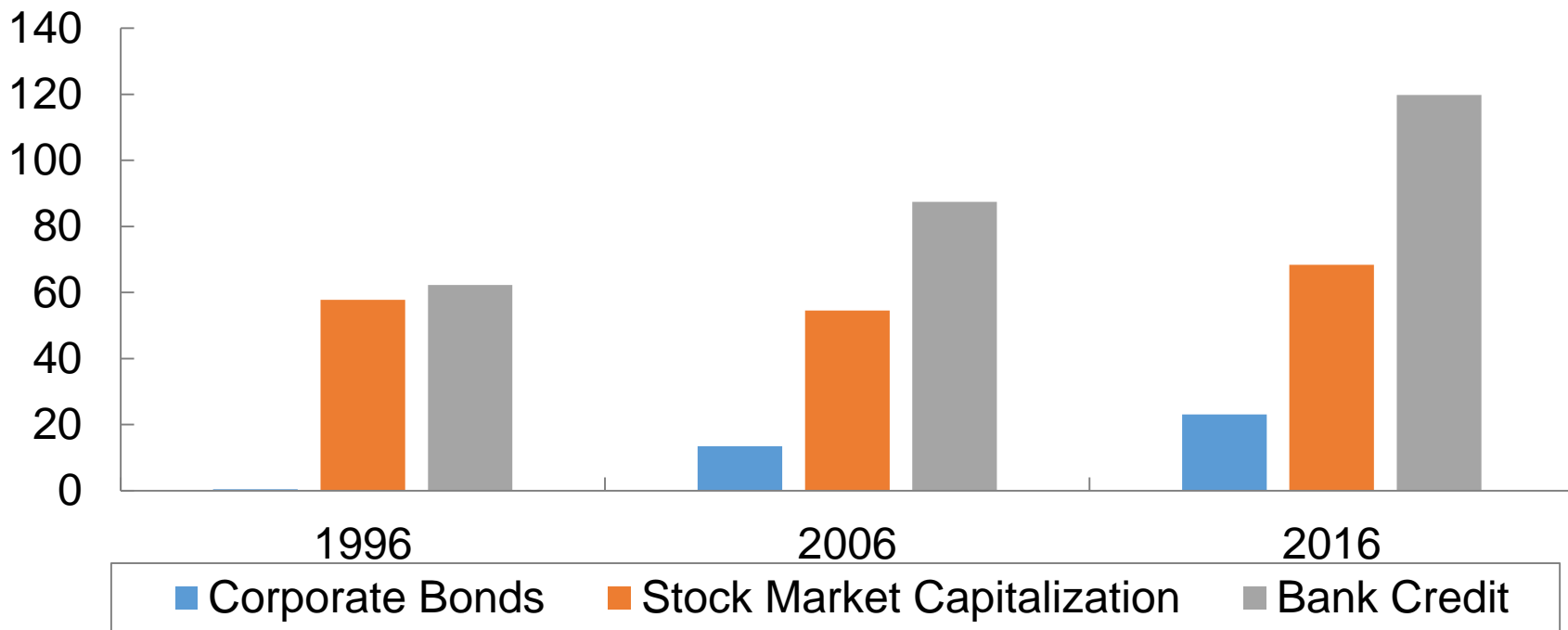
Why do NPLs matter?

- High and rising NPL levels reflect weak economic conditions and the poor health of the banking system.
- If left unaddressed, they would have harmful feedback effects on the overall economy:
 - negatively impact on bank lending
 - lead to a second round of debt default and firm bankruptcy
 - damage market sentiment
 - have negative wealth effects
 - lead to a deterioration in broader economic conditions
 - further increase NPLs
- Macrofinancial impact of NPLs may spill over to other economies, transmitted through various channels
 - Crisis experiences (AFC and GFC) demonstrate how negative effects of bad debt hangover spread beyond the national borders of high-NPL economies

Asia's financial system remains bank-based

Limited capital market-based financing solutions such as long-term local currency bond markets

Corporate Financing as % of GDP—EMEAP (excluding high-income Asian economies)



EMEAP (excluding high-income Asian economies) includes the People's Republic of China; Indonesia; the Republic of Korea; Malaysia; the Philippines; and Thailand.

Source: *AsianBondsOnline*; IMF International Financial Statistics and World Economic Outlook October 2016, and national sources.

Nexus between troubled banking system and distressed debts

1. **Shocks to the banking system** that hamper bank lending may result in the freezing of domestic credit to the private sector and dampen productive economic activities. This may lead to a **sharp fall in economic growth, a surge in unemployment rate, and an increase in poverty incidence**
2. The Asian financial crisis in 1997/98, global financial crisis in 2008/09, and more recently the European sovereign debt crisis are vivid reminders of how financial distress can result in real economic downturns
3. **Banking and financial distress** are characterized by an unusual **surge in nonperforming assets or NPLs**
4. **Systemic dimension of NPLs**—as observed in Europe—calls for efforts at regional level to develop strategies addressing problems of distressed assets/NPLs

Development of NPLs (1997-2018)

Bank Nonperforming Loans (% of gross loans)

Economy	AFC	Post-AFC	Pre-GFC	GFC	Post-GFC	2016	2017	2018
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Central Asia

Afghanistan				49.9	6.9	11.4	12.2	8.9
Armenia	6.0	15.0	2.9	4.1	5.3	6.7	5.5	4.8
Azerbaijan		28.0	13.3	3.5	5.0	5.3		
Kazakhstan		11.9	4.2	15.6	16.0	6.7	9.3	7.4
Kyrgyz Rep	10.1	22.1	7.3	9.4	6.4	8.5	7.4	7.3
Tajikistan			8.1	7.5	13.9			

East Asia

Korea, Rep	6.6	5.8	1.4	0.6	0.5	0.5	0.4	
Mongolia	25.4	21.1	5.0	12.0	5.6	8.5	8.5	10.4
PRC		26.7	11.1	1.7	1.2	1.7	1.7	1.8

South Asia

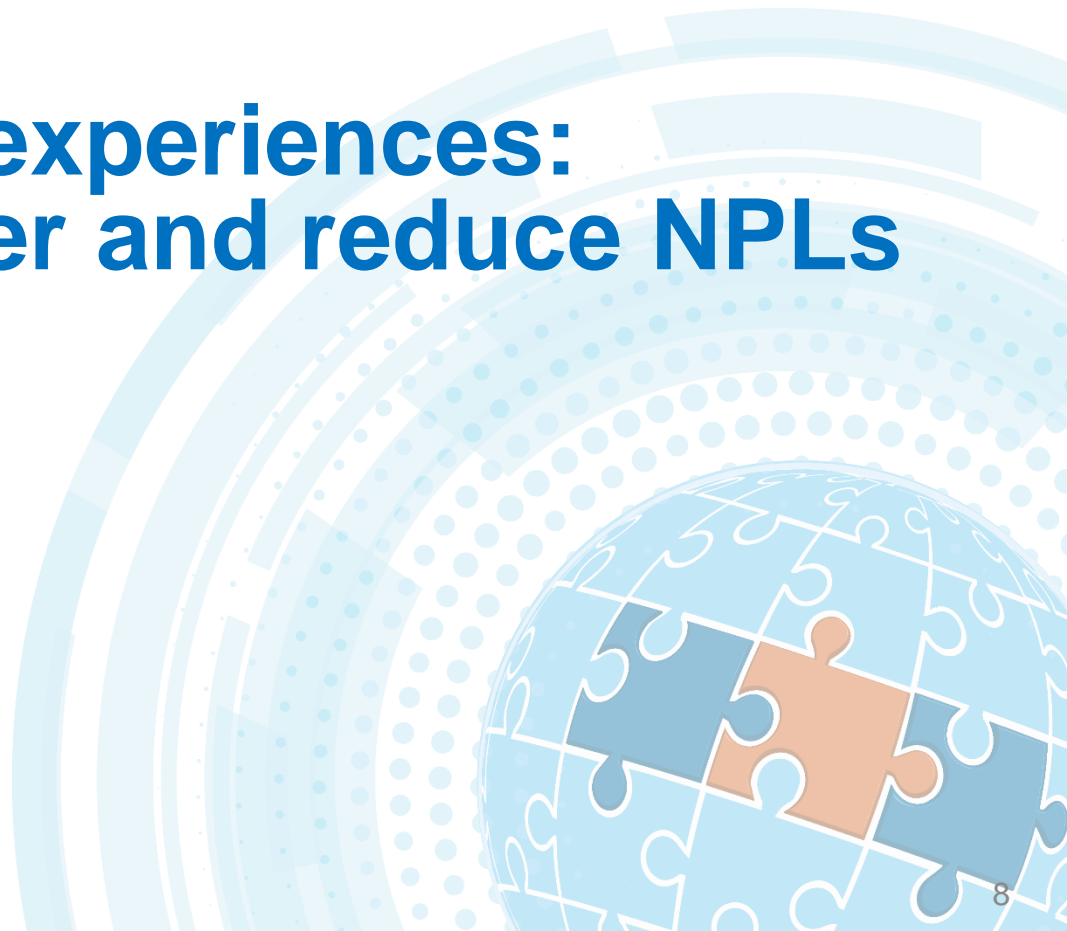
Bangladesh	40.7	33.9	16.0		8.4	8.9	8.9	9.9
India	14.6	10.9	4.0	2.3	4.3	9.3	11.2	
Maldives					17.5	10.6	10.5	8.9
Pakistan	23.5	23.8	10.4	12.6	13.5	10.1	8.4	

Southeast Asia

Indonesia	48.6	30.8	5.7	3.0	2.0	2.9	2.6	2.3
Malaysia	11.4	16.4	10.0	3.9	2.0	1.6	1.5	1.5
Philippines	8.6	20.2	10.8	3.8	2.2	1.7	1.6	1.7
Thailand	42.9	21.1	10.0	4.9	2.5	3.0	3.1	3.1

Notes: AFC (average 1997-1998); Post-AFC (average 1999-2002); Pre-GFC (average 2003-2007); GFC (average 2008-2010); Post-GFC (average 2011-2015). White cells denote nonperforming ratio less than 5%, yellow between 5% and 10%, and orange higher than 10%. Blank cells indicate that no data available.

Asian experiences: How to recover and reduce NPLs



Post-AFC Financial Sector Reforms and NPL Resolution Framework

- Post-AFC financial sector reforms shaped NPL resolution frameworks in developing Asia.
- NPL resolution policy options can be grouped into four areas:
 1. Establishment of AMCs
 2. Insolvency reforms and resolution frameworks
 3. Financial sector restructuring and bailout
 4. Macroprudential tightening, including loan classification and provisioning stringency.

Reponses to AFC

Korea: crisis responses

- **Financial Sector Bailout:**
 - To address the collapse of Korean banks during the Asian Financial Crisis, the Korean government set-up a public bailout package amounting to KRW 160.4 trillion released from November 1997 to June 2003. (Lim and Hahm, 2004)
 - KRW60.3 trillion for recapitalization of financial institutions,
 - KRW17.0 trillion for liquidity support,
 - KRW29.8 trillion for deposit insurance pay-offs,
 - KRW14.3 trillion for purchase of other assets, and
 - KRW 39.1 trillion for purchase of NPLs by KAMCO.

Korea

- **Asset Management Company - KAMCO**
 - Reorganization of Korea Asset Management Corporation (KAMCO) and creation of the NPL resolution fund within KAMCO in November 1997 led Korea's NPL resolution strategy during the Asian Financial Crisis (AFC).
 - From 1997 to 2002, KAMCO acquired KRW111.4 trillion NPLs priced at KRW39.2 trillion. (KAMCO, 2010)
 - By 2012, KAMCO was able to recover 100% of its NPL portfolio, gaining KRW48.1 trillion or 122.7% of its NPL acquisition. (KAMCO, 2013)
 - By the end of its acquisition period in November 2002, KAMCO was able to decrease domestic banking sector NPL by 69.7% from its peak of KRW30.86 trillion in Q4-1999 to KRW9.2 trillion or 2.38% of total loans at Q4-2002.

Korea

- **NPL Market Development**

- The measures taken by the Korean government to improve the legal and institutional environment for NPL resolution and to facilitate acquisition and disposal of NPLs not only facilitated the operations of KAMCO but contributed to developing NPL markets.
- Private AMCs such as UAMCO and Daishin F&I, and Hana F&I have emerged specializing in NPL acquisition and disposal.

Thailand

- **Financial Sector Restructuring**
 - From March 1997 to August 1998, Thailand (Bank of Thailand) closed down 56 weak financial institutions (FI) and took-over 7 failed banks – BMB, SCIB, FBCB, UB, LTB, NTB and BBC (taken-over in 1996).¹
 - By culling weak financial institutions, Thailand, “ensured that only solvent FIs remain to benefit from the government’s capital support scheme”. (Santiprabhob, 2003)
 - FRA (Financial Restructuring Authority) was setup to liquidate THB851 billion assets of the 56 closed FIs, 97% of which were considered as NPLs by the time it was auctioned in December 1998.
 - While AMCorp was established to be the bidder of last resort for these assets, effectively setting a floor price in asset auctions.²
 - To assist financial institutions with voluntary out-of-court restructuring, the Corporate Debt Restructuring Committee (CDRAC) was established in June 1998.
 - CDRAC was in part credited with NPLs falling from 38.5% in 1999 to 17.9% in 2002.

Thailand

- **NPL acquisition**

- Thailand's NPL acquisition measures can be divided into two phases; (1) a decentralized approach implemented during 1998 to early 2001 and (2) a centralized approach established during late 2001 to 2003.
- The early decentralized approach was after the enactment of the Asset Management Company (AMC) Emergency Decree in August 1998.
 - The decree facilitated the establishment of 12 private AMCs and 4 public AMCs.
 - Thailand's private AMC initiative was largely ineffective due to the subsidiarity relationship of 10 AMCs with their parent financial institution.¹
 - The decentralized AMC approach was more effective for state-owned FIs as illustrated in the next slide.

Thailand

- Recapitalization of State-owned FIs
 - Non-privatized acquired banks, BMB, SCIB, FBCB (merged to KTB), UB (merged to BT), and BBC underwent public sector recapitalization from 1998 to 2002.

Institution	Equity Injection	D/E conversion	Reserve reversal	Total
KTB	16,570	185,000	108,000	309,570
BBC	-	10,000	-	10,000
BMB	-	64,190	54,039	118,229
SCIB	-	51,400	45,229	96,629
FBCB	-	32,000	-	32,000
UB	-	86,982	63,519	150,501
Total	16,570	429,572	270,787	716,929

*Source: Table 5.2: Recapitalization of SOB by the authorities (1998-2002) from "Lessons Learned from Thailand's Experience with Financial Sector Restructuring," by Santiprabhob, V, 2003. ch. 5, p. 38.

Thailand

- Centralized NPL acquisition: Thai Asset Management Corporation (TAMC)
 - A regime change and campaign promise prompted the creation of TAMC as an Emergency Decree on June 8, 2001.¹
 - **TAMC will consolidate the management of sub quality assets of financial institutions and AMCs.**
 - During its acquisition period from Q3-2001 to 2003, TAMC acquired a total of THB775.78 billion NPL priced at THB257.17 billion or an average transfer price of 33.15%. (Fung et al)
 - Of the total acquisitions as of June 2002 (THB717.66 billion), 19% were new NPL acquisitions from private institutions and 81% of the NPL transfers were mostly from old AMCs with significant NPL portfolios such as PAM and SAM.²
 - By 2006, TAMC resolved 99.98% of its NPL cases but only managed to retrieve THB150.12 billion or 58.37% recovery of the THB257.17 billion used to acquire its NPL portfolio. (BOT, 2007)
 - After TAMC's closure in 2013, BAM and SAM took over its assets and now dominates Thailand's NPL market with small private AMCs also participating after Thailand passed legislation allowing financial institutions to purchase NPLs in 2012. (Deloitte, 2018)

Thailand

- **Formal insolvency mechanisms**

- 1998 reform of the Thai Bankruptcy Act (*Bankruptcy Act*) introduced business reorganization procedures to rehabilitate financially distressed but viable businesses.
 - Before this reform, Thai Bankruptcy only dealt with liquidation proceedings.
- 1999 reform of *Bankruptcy Act* established the creation of a specialized *Bankruptcy Court* that will have sole jurisdiction over all liquidation and rehabilitation cases and over all civil cases related to the aforementioned cases.

- **Out-of-court Insolvency Mechanisms**

- Despite reforms in formal insolvency mechanisms, creditors relied more on out-of-court workouts due to length of court-mandated reorganization caused by the inexperience and inefficiency of the judiciary. (Broude, 2002)
- The Corporate Debt Restructuring Advisory Committee (CDRAC) was established in June 1998 to facilitate debt restructuring between debtors and creditors.

Indonesia

- Indonesia experienced one of the worst NPL crisis during the AFC with a peak NPL ratio of 48.6% and an estimated NPL of IDR264.87 trillion in 1998.¹
- In response to the crisis, Indonesia enacted a comprehensive bank sector restructuring and recapitalization program from 1997 to 2000.
 - Indonesia closed 67 private banks; nationalized/took-over 12 private banks; and recapitalized 26 banks consisting of 7 state banks, 7 private banks and 12 regional development banks.
 - Banks with Capital Adequacy Ratio (CAR) less than -25% were closed, while banks with CAR between -25% and 4% were recapitalized under necessary conditions. An exemption was given to all seven state-owned banks, which were all recapitalized despite all having CAR of less than -25%. (Sato, 2004)
 - By the end of 2000, Indonesia's financial sector bailout program amounted to **IDR650 trillion**, where IDR431 trillion was used for bank recapitalization, IDR144.5 trillion was used for emergency liquidity assistance, and IDR73.8 trillion was used for a temporary blanket deposit and liability guarantee. (Fung et al., 2004)

Indonesia

- On 26 January 1998, Indonesia established the Indonesia Bank Restructuring Agency (IBRA) to assist in the bank restructuring program.
 - IBRA acquired the NPL of all recapitalized banks and the assets of closed banks that were ineligible for the recapitalization program.
- IBRA acquired **IDR391.87 trillions NPLs** during its NPL acquisition period from 1999 to 2000. (Fung et al., 2004)
 - Transfer price from all transactions was set at zero value, as the payment can be considered as the capital injection of the government.
 - Over its lifetime from 1999 to 2004, IBRA only sold 60% of its NPL portfolio at an average recovery rate of 22% (Cerruti & Neyens, 2016).
- By the end of Indonesia's restructuring and recapitalization program, banking sector NPL decreased to IDR55.65 trillion (18.8% NPL ratio) in end-2000 from its peak of IDR264.87 trillion (48.6%) in 1998.¹

Indonesia

Legal and Regulatory reforms

- Indonesia amended the Bankruptcy Law to promote prompt and fair resolution of commercial dispute and to provide a framework to encourage out-of-court settlements and then introduced a completely new bankruptcy law in 2004.
- Indonesia also established a commercial court rapidly recruiting new judges and allocating fiscal resources for a massive expansion of judicial infrastructure to expedite commercial dispute resolution. The commercial court was intended to cover only bankruptcy and insolvency applications but expanded to other commercial matters later.

Malaysia

- Danamodal Nasional Berhad (Danamodal) was established on 10 August 1998 to recapitalize insolvent but viable financial institutions.
 - During 1998, Danamodal recapitalized ten financial institutions through its purchase of the various financial institution's subordinated capital loans amounting to MYR6.15 billion.
 - Recapitalized institutions were then required to sell all NPLs to Danaharta.
- Corporate Debt Restructuring Committee (CDRC) provided a platform for out-of-court workout mechanisms between debtors and creditors.

Malaysia

- Pengurusan Danaharta Bhd. (Danaharta) was established on 20 June 1998 as Malaysia's national AMC. (Fung et al)
 - During its acquisition period from September 1998 to December 2001, Danaharta was able to acquire MYR19.71 billion from private financial institutions (priced at MYR8.94 billion) and an additional MYR27.96 billion NPL managed in behalf of the government. (Danaharta, 2006)
 - By the end of Danaharta's operations in 2005, it managed to recover MYR30.35 billion or 339% of its NPL acquisition amount. (Danaharta, 2006)
 - For resolution of NPLs it acquired from commercial banks, Danaharta relied much more on corporate restructuring which was facilitated by the CDRC.

Malaysia

- Malaysia also took legal and judicial reforms to enhance efficiency in court-driven insolvency process.
 - Existing modern bankruptcy and foreclosure laws, were amended a few times between 1988 and 2000.
 - Judicial reforms included introduction of a pre-trial case management scheme intended to reduce unnecessary delay in court process by taking control of the progress of a case out of the hands of attorneys and giving it to the court.
 - In addition, new commercial courts and new civil courts were created to reduce backlog of insolvency cases.

Philippines

- The Philippines did not implement financial sector interventions during the AFC due to a strong banking sector with an NPL ratio of 4% and CAR above the 8% international standard in 1997 (Pasadilla, 2005).
- However, the unaddressed banking problem of the AFC led to the steady deterioration of the Philippine economy.
 - By Q1-2002, The Philippine banking sector had one of the worst NPL ratios at 17.64% in Asia.^{1,2}
- In January 2003, the Philippines enacted the SPV Act of 2002, which facilitated the establishment of SPVs as the corporate vehicle to acquire NPLs and other NPAs from the bank's balance sheet.³
 - The SPV Act incentivized NPA transfers by providing taxes and fees reductions on NPA transfers.¹
 - To further accelerate NPA/L disposition, BSP required banks with high NPLs to submit NPL reduction plans, and increase the risk-weight of NPLs from 100% to 125% in 2005 (Guinigundo, 2006).⁴
 - Unlike most of its Asian neighbors, the country's NPL resolution measure was centered on private Special Purpose Vehicles (SPV) due to lack of government funds and the seemingly non-systemic nature of the banking problem (Pasadilla, 2005).

Philippines

- By the end of its implementation period from 2003 to 2008, the SPV Act of 2002 facilitated the transfer of PHP119.98 billion NPLs from the banking system.
 - PHP88.02 billion from its first implementation in 2003 to 2005,
 - PHP31.96 billion from its second implementation in 2006 to 2008.
- From an NPL level of PHP269.62 billion in Q4-2002 (prior to SPV Act implementation) the NPL level decreased to PHP123.37 billion or 4.49% of total loans by the end of the SPV Act's NPL acquisition period in Q2-2008.^{1,2}

Other Asian Countries

PRC

- **Financial Sector Bailout**

- PRC relaxed reserve requirements (from 20 to 8 percent in 1998 and then 8 to 6 percent in 1999) to facilitate the four SOCB's purchase of government papers.
- Proceeds of the government, amounting to RMB270 billion (\$33 billion), were then reinjected as direct capital to the four largest SOCBs. (Bing, 2005)
 - RMB74.2 billion to ICBC;
 - RMB60 billion to CCB;
 - RMB20.5 billion to BOC; and
 - RMB93.3 billion to ABC.

- **After the initial phase of NPL transfers, PRC injected additional direct capital to the SOCBs to enhance the bank's capital. (Luo, 2016)**

- CCB and BOC received \$22.5 billion each in 2003
- ICBC received \$15 billion in 2005
- ABC received RMB130 billion in 2008

PRC

- **Asset Management Companies – Big 4**
 - In 1999, four-state owned AMC's were established to take over and resolve the problem assets for one of each of PRC's four largest banks. (Bihong, 2016)
 - Orient Asset Management – BOC
 - Great Wall Asset Management – ABC
 - Cinda Asset Management – CCB
 - Huarong Asset Management – ICBC
- During the first transfer from 1999 to 2000, the four AMC's acquired RMB1.394 trillion (\$168 billion). (Bing, 2005)

Japan

- Financial Sector Bailout – Deposit Insurance Corporation of Japan (DICJ).
 - Revision of the Deposit Insurance Act, and Enactment of the Financial Revitalization Act and Early Financial Correction Law gave DICJ measures to maintain stability of the financial system during significant turmoil. (Akagami et al)
 - From 1997 to 2006, DICJ deployed JPY12.4 trillion in direct injections, JPY18.9 trillion in monetary grants, and JPY6 trillion in other costs (such as guarantees) for the effective closure of failed institutions and blanket deposit guarantees deployed during the 1990 Japan Banking Crisis and extended until the resolution of the 1997 AFC. (Fuji and Kawai, 2010)

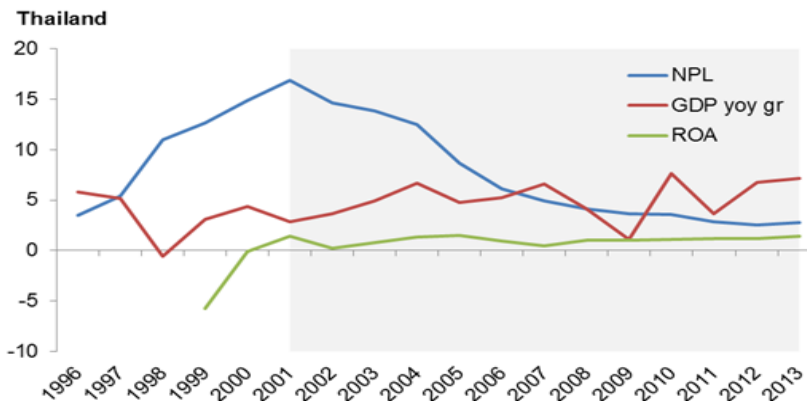
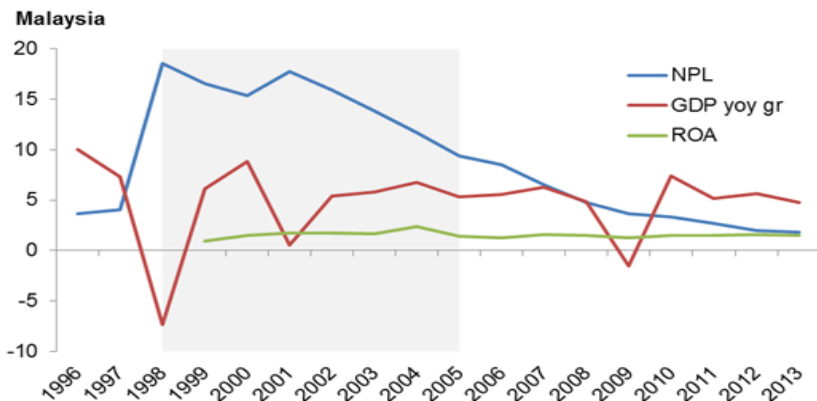
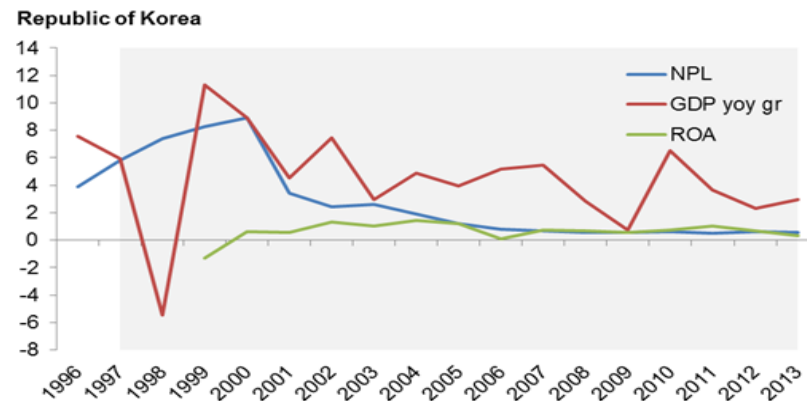
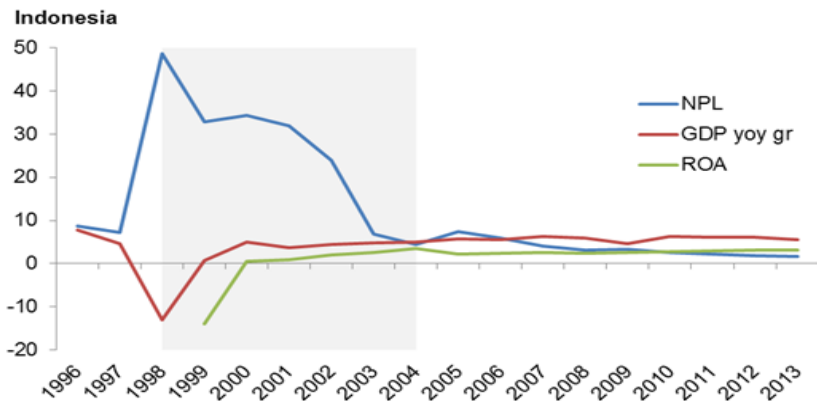
Japan

- Asset Management Company – RCC and IRCJ
 - 1 April 1999: Resolution and Collection Corporation (RCC) was established to purchase NPLs from failed FIs and mortgage lenders, and focused more on smaller non-viable firms.
 - A special assessment of bank loans to large borrowers conducted in 2001 by the FSA, led to a large-scale reclassification of loans to 149 companies leading to a dramatic increase in NPL volume by 25% from JPY33.6 trillion in 2000 to JPY43.2 trillion in 2001.
 - Due to a suddenly larger asset quality problem, Japan established a new AMC, Industrial Revitalization Corporation of Japan (IRCJ), in April 2003 to purchase higher quality NPL extended to larger firms that were out of scope for RCC.^{1,2}

Crisis Lessons and Roles of Public AMCs

Public AMCs were instrumental in recovery of the banking sectors of the crisis-affected economies

Public AMCs, NPL ratio, GDP growth and Banks' Return on Asset

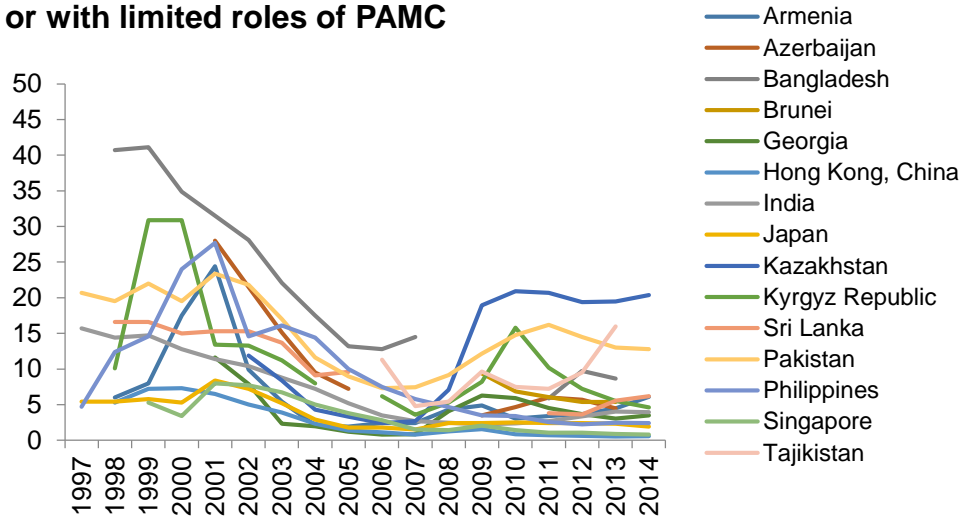


Note: Shaded area refers to the periods when the public AMCs were operating.

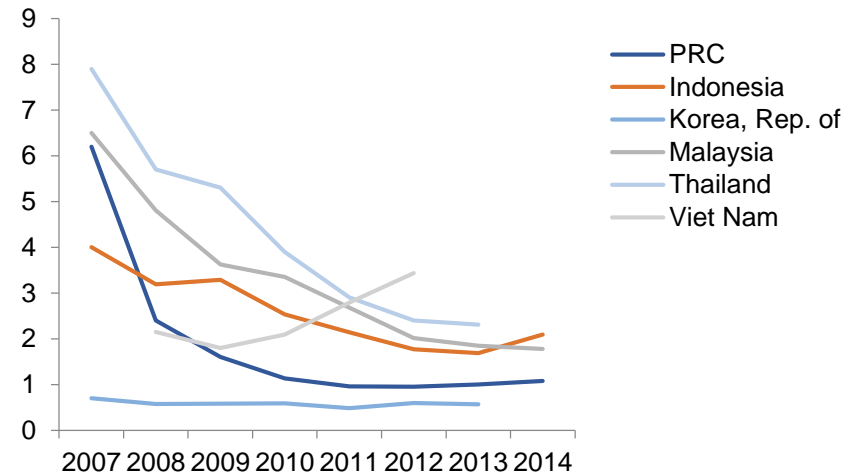
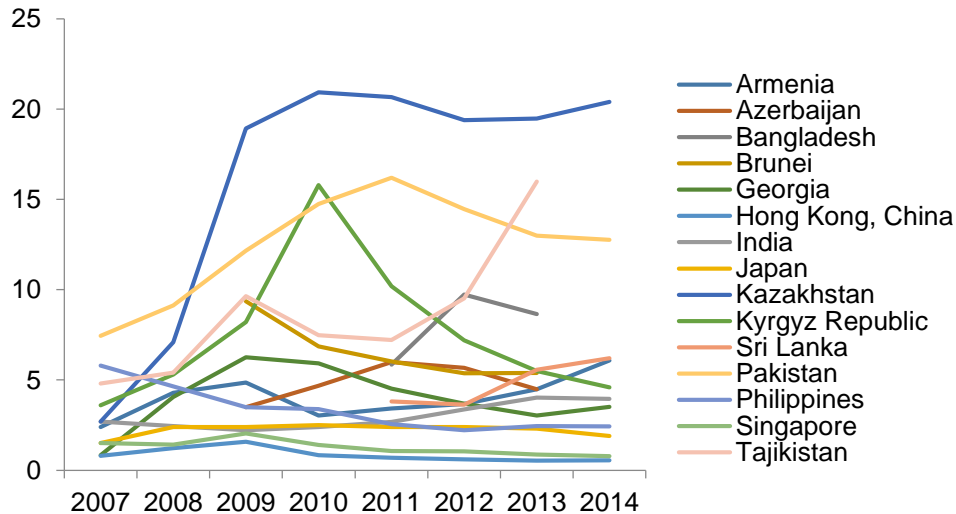
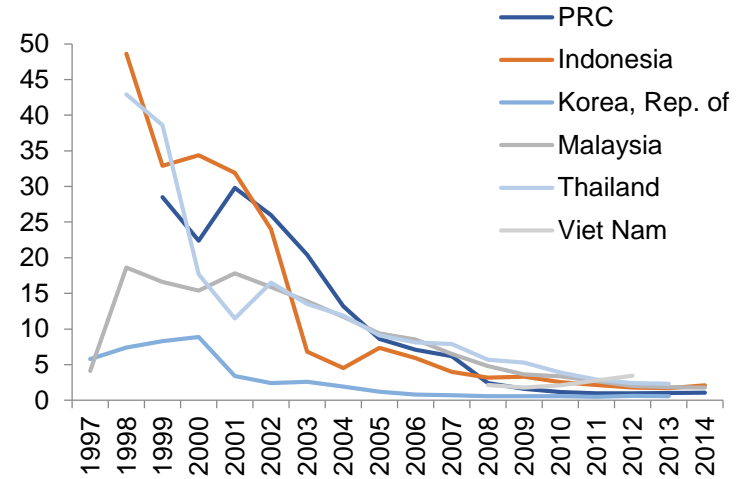
Source: CEIC, *Global Financial Development Database*, World Bank; *Financial Soundness Indicators Database*, IMF; ADB (1999); Kataoka, H. (2000); and national central banks

Evolution of NPL ratios in Asia (with and without public AMCs)

NPL ratio of Asian economies without public AMCs or with limited roles of PAMC



NPL ratio of Asian economies with active roles of public AMCs



Source: World Development Indicators, World Bank

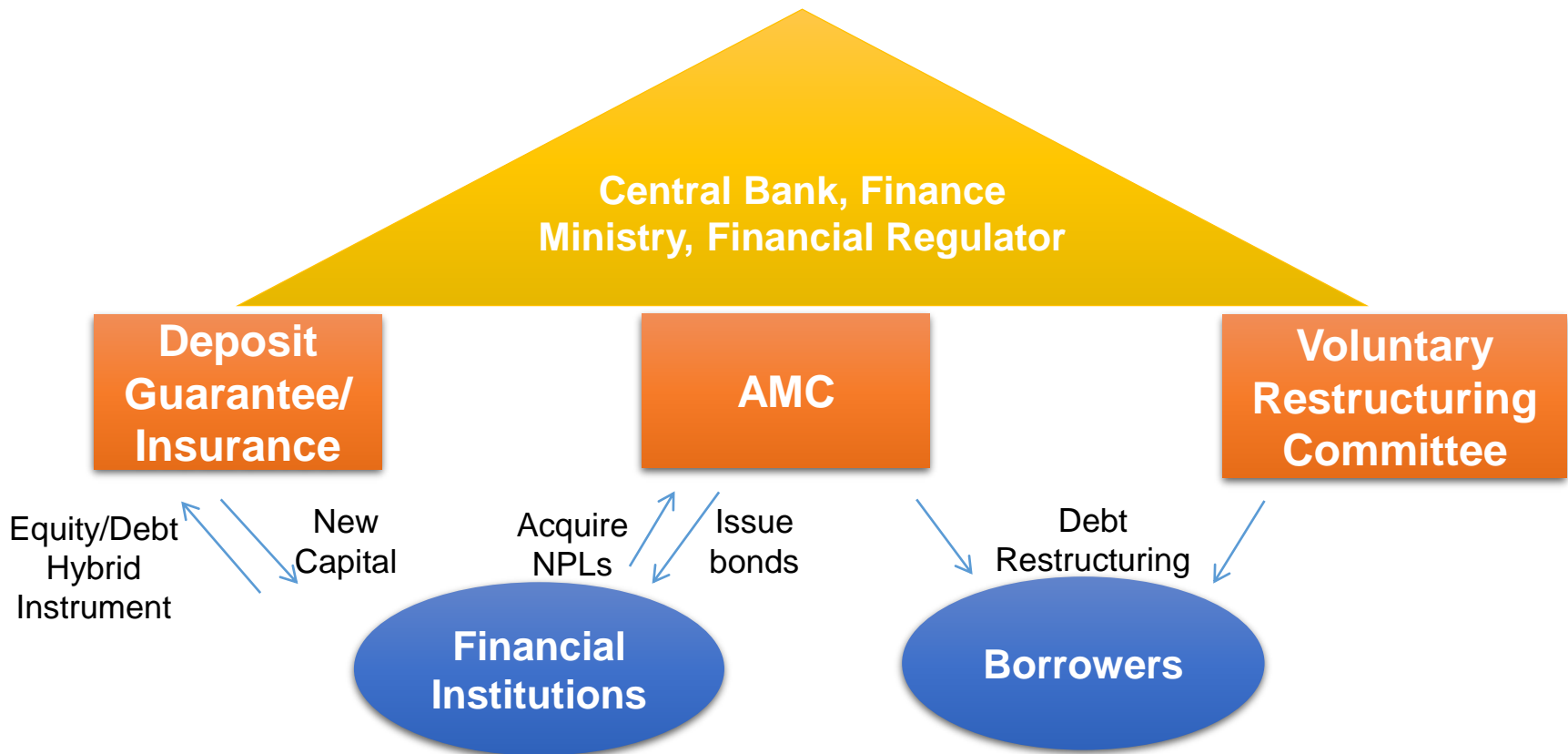
Source: World Development Indicators, World Bank

Legal and Institutional Reforms in Asia

Reforms for financial and corporate restructuring in Asia

- Supervisory and Institutional Framework
- Out of Court Restructuring Schemes
- Institutional Reforms
- Linkage between Institutional and Legal Reforms
- Key Issues for Bank and Corporate Restructuring

Supervisory and Institutional Framework



Supervisory and Institutional Framework

Country	Indonesia	Korea, Rep. of	Malaysia	Thailand
Supervisory/Support Authority	Bank Indonesia	Financial Supervisory Committee/Services	Bank Negara Malaysia	Bank of Thailand, Financial Institutions Development Fund
Agency for Bank Recapitalization	Direct from Bank Indonesia or IBRA	Via Korea Deposit Insurance Corporation	Danamodal	Bank of Thailand via FIDF
AMC	IBRA	KAMCO	Danaharta	Financial Sector Restructuring Authority, TAMC, State-owned/private AMCs
Agency for Voluntary Corporate Restructuring	Jakarta Initiative Task Force (JITF)	Corporate Restructuring Coordination Committee (CRCC)	Corporate Debt Restructuring Committee (CDRC)	Corporate Debt Restructuring Advisory Committee (CDRAC)

Out of Court Restructuring Schemes

Country	Indonesia	Korea, Rep. of	Malaysia	Thailand
Initiative/Coordinator	JITF	CRCC	CDRC	CDRAC
Basic Approach	Forum for negotiations, time-bound mediation procedures	Forum for negotiations	Forum for negotiations	Forum for facilitation, superseded by contractual approach
Resolution of inter-creditor disputes	No special procedure	Possibility to have loan of opposing creditor purchased; arbitration committee consisting of private experts	Nothing special, apart from persuasion by central bank	Three-person panel to attribute differences, but any concerned creditor can opt out
Default structure for failure to reach agreements	Refer uncooperative debtor to government for bankruptcy petition	Foreclosure, liquidation through court receivership	Foreclosure, liquidation or referral to AMC with super-administrative powers	If less than 50% support the proposed workout, debtor-credit agreement obliges creditors to petition court for collection of debts

Public AMCs

- Establishment of public AMCs to deal with NPLs and restructure banks and corporations
- Creation of rapid disposition agencies (i.e. public and private AMCs)
- Establishment of independent facilitating bodies
- Creation of restructuring committee – binding/non-binding out-of-court informal restructuring
- Creation special legislative environment and vehicle to promote investment

Legal and Institutional Frameworks for Structural and Operational Issues of Public AMCs

- Creating an enabling framework for asset recovery and resolution
- Effective legal system
- Sound financial regulatory and supervisory framework

Creating an Enabling Framework for Asset Resolution

- Governments need to provide resources, coordination, and leadership; and their interventions must be efficient, inexpensive, transparent, predictable, and accountable.
- Asset resolution entails redistribution of wealth and control
 - Cost sharing
 - Political trade-offs
 - Consistent application of rules
- Need to recognize the Losses
- Adopt a Neutral Tax Framework

Effective Legal System

- Clearly define the rights of ownership
- Clear legal obligations between debtors and creditors
- Orderly resolution of disputed claims, including debt recovery and realization of collateral for unpaid debt
- Fair balance between the protection of creditors and that of debtors
- Orderly and effective insolvency system
- Clear procedures for transfer of titles
- Removal of legal obstacles to transfer of title (e.g., prior permission of debtor)
- Legal protection for AMC officials and staff

Sound financial regulatory and supervisory framework

- Realistic loan classification and provisioning
- Risk management
- Sound corporate governance in financial institutions
- Group (“consolidated”) supervision
- Credible enforcement mechanisms

Main roles of AMCs

- Resolution of insolvent and nonviable financial institutions
- Restructuring of distressed but viable financial institutions
- Privatization of government-owned banks and government-intervened banks

Centralized or Decentralized?

- Centralized (Indonesia, Korea, Malaysia) - to serve all or some distressed institutions
 - Advantages: economies of scale, enhanced bargaining power
- Decentralized (PRC, Thailand) - separate AMCs for individual distressed institutions.
 - Advantages:
 - Easier to access the knowledge base associated with the transferred loans and assets
 - More flexibility: allows more tailoring of the AMCs to the specific characteristics of assets from different financial institutions

Independence and Lifetime

Independence:

- AMCs should be free from political interference, though still accountable through reporting and disclosure of significant information
- Top officials should be removable only for cause, and reasons should be extremely serious

Lifetime:

“Sunset” provisions:

- Help speed the resolution of NPLs
- Provides a convenient “measuring stick” for AMC progress toward goals

Governance and Transparency

Typical oversight bodies:

- Financial supervisory authority, particularly if located outside Central Bank
- Ministry of Finance
- Central Bank (not as much)

Internal governance:

- Board of Directors (may include outside directors)
- Audit committees are fairly typical
- Publication of annual reports and financial statements

Financing

- Government funding (directly or through sale of tradable government bonds)
- Government guarantees of AMC bonds
- Central bank financing/guarantees

Asset Selection

If AMC has discretion on asset selection:

- Transfer only those assets that can be managed effectively
- Fixed assets (foreclosed properties, loans that require foreclosure/settlement with debtors) are generally good candidates
- Transfer all assets that are linked with each other (same borrower or same collateral)

Loans best kept with banks:

- Long term customers, with good possibility for restructuring
- Small loans that can be handled effectively by bank

Where AMC will support distressed but operating banks:

- Emphasize that transfer is not a routine occurrence
- Insist on proper loan documentation
- Make sure there are no other claims on the assets

Asset Transfer Pricing

- Transfers should be a fair market value
- AMC should not be a vehicle for government bailing out banks by buying NPLs at above market value prices
- Enables AMC asset managers return some of the original equity capital to the government

Framework for Asset Disposition

- Credit team – determines whether to maintain the credit, or seize the asset
- Asset team – deals with asset disposal

Implementing the Asset Resolution Process

Involve the private sector:

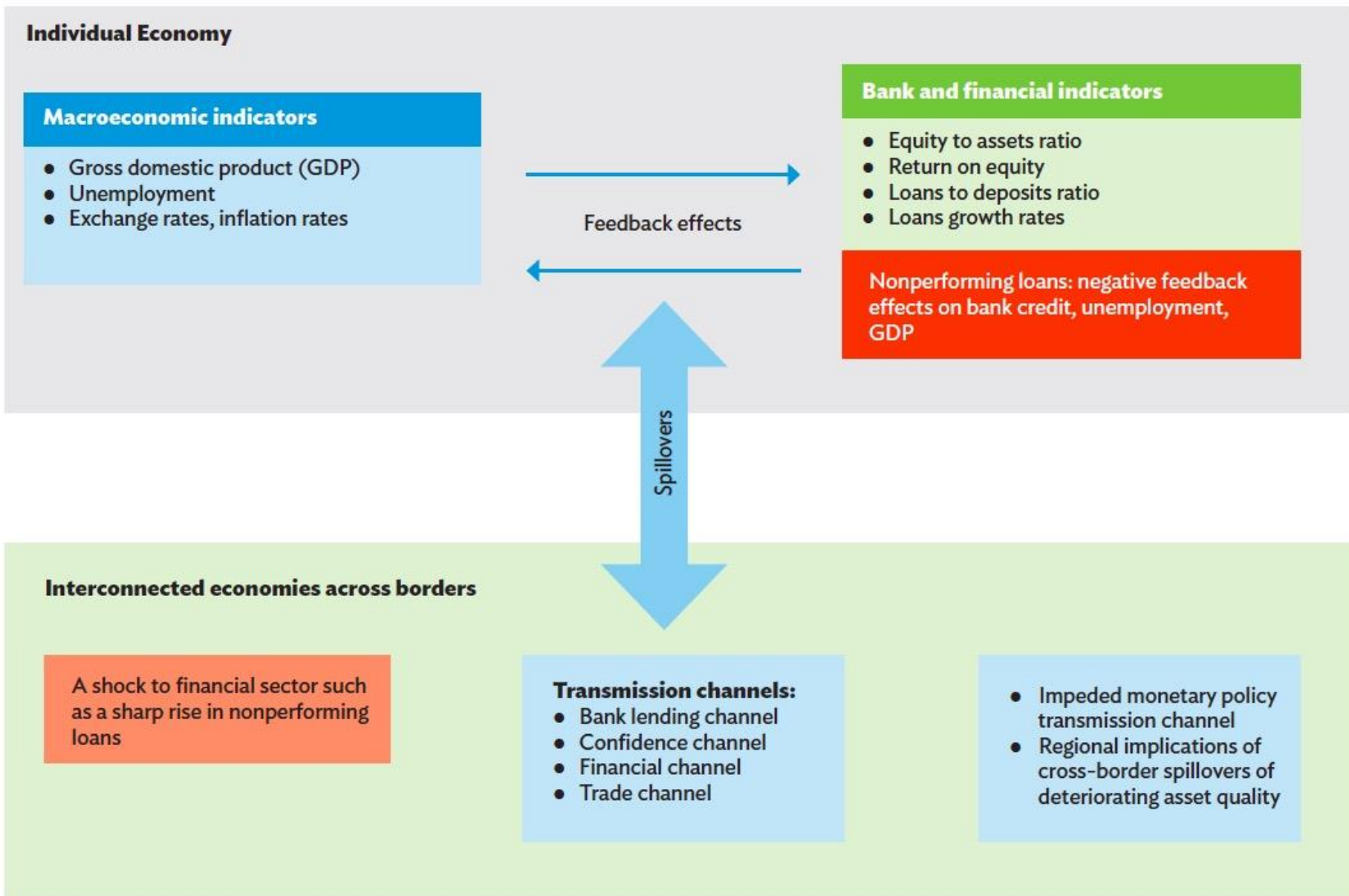
- Return the assets to the private sector as quickly as possible
- Make sure assets are marked-to-market

Asset sales:

- Open and transparent process
- All qualified purchasers should have access to timely, accurate and complete information
- Due diligence periods should be sufficient for the complexity of the transaction

Macrofinancial Feedback Effects of NPLs in Asia: Panel VAR Analysis

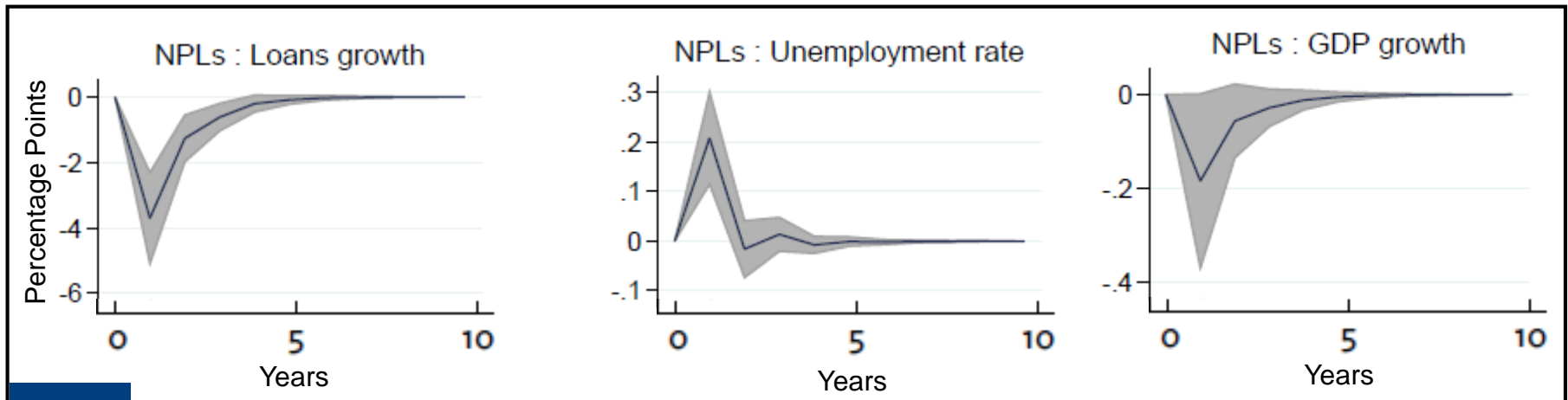
Macrofinancial impacts of nonperforming loans



Buildup of NPLs can affect real sector and spill over through macrofinancial linkages

- **Macrofinancial feedback effects:** Empirical findings show that an increase in NPLs leads to a reduction in credit supply, a rise in unemployment, and slowdown in overall economic activity
- **Systemic implications:** NPL shocks can transmit across borders through macrofinancial linkages

Estimated Impulse Response Functions to a Shock in the NPL Ratio



Macrofinancial feedback impacts of NPLs in Asia

- Results reveal that **both macroeconomic indicators as well as bank-level variables play a key role in explaining the evolution of banks' NPL ratio**. This finding appears to be consistent across all model specifications.
- **High and rising NPL levels reflect weak economic conditions and poor health of the banking system; and they have harmful feedback effects on the overall economy.**
 - A shock to the NPL ratio decreases GDP growth, credit supply, and policy rate, and it increases unemployment.
- The rise of nonperforming loans can generate macrofinancial feedback effects, with **possible spillover effects to other economies in increasingly interconnected financial markets**

Policy Considerations

Public AMCs: Lessons

- **Public AMCs can be an effective tool** to ease credit friction in times of crisis
- Market-friendly resolution approach **with clear roles of centralized PAMCs** has worked particularly well for Asia;
- **Recent experience suggests that real sector recovery is closely tied with financial sector recovery**; fiscal and monetary intervention, even if done at large scale, may not be effective due to the fact that monetary policy transmission can be negatively affected due to negative confidence effects of rising NPLs.
- **Public AMCs can serve as financial safety nets** to avert the massive cost of crisis resolution (“**peace time financial army**”)

Public AMCs: Lessons

- **Developing NPL markets domestically** (and **eventually regionally**) while the conditions are still favorable is crucial. This can greatly benefit some of the Asian economies whose NPL ratios remain relatively elevated.
- Public AMCs can be instrumental in **developing the private NPL market** (e.g. linking buyers and sellers, promoting securitization of NPLs, etc.)
- This can go hand-in-hand with **regional financial cooperation and integration**, including harmonizing standards, definitions, regulations and practices.

NPL market development

- NPL markets remain underdeveloped in Asia. In many countries in Asia, NPL markets do not exist. Even if they exist, they are not liquid enough to be of significant help in resolving NPLs.
- Only a few economies in Asia have NPL markets where financial institutions, private AMCs, and NPL investors trade NPLs and distressed assets. In these economies, diverse tools of NPL resolution are also available. As a result, resolution of distressed assets in these economies rely on global NPL investors who are ready to participate in local NPL markets only at a discount large enough to be regarded as a fire sale.
- No public data is available to show and compare the quantitative size of NPL markets in Asian economies on a coherent basis.

Elements of a strategy to develop NPL markets

Impediments to NPL Market Development

- Demand Factors of Market Failure
- Supply Factors
- Structural Factors: Legal and Institutional Elements
- Sector Specific Factors and Unfavorable Macroeconomic Conditions

Strategy to Develop NPL Markets

- Supervisory Efforts to Strengthen NPL Recognition and Resolution
- Legal System for Efficient Debt Enforcement
- Asset Management Companies
- Securitization
- NPL Trading Platform to Deal with Information Asymmetries

Thank you very much!

Download:

ADB Brief:

*20 Years After the Asian Financial Crisis:
Lessons Learned and Future Challenges*



**Asian Economic Integration
Report 2017 Theme Chapter:**
*The Era of Financial
Interconnectedness:
How Can Asia Strengthen
Financial Resilience?*



ADB Economics Working Paper:
*Nonperforming Loans in Asia:
Determinants and Macrofinancial
Linkages*



Annex

AMCs in Asian economies

Country	AMCs and SPV	Peak NPL ratio [t=0] (YEAR) %	NPL ratio [t+5] (YEAR) %
People's Republic of China	<ul style="list-style-type: none"> In 1999, four state-owned AMCs (Big 4) were established to initially take over asset of PRC's four largest banks. Orient for Bank of China; Great Wall for Agricultural Bank of China; Cinda for China Construction Bank; and Huarong for Industrial and Commercial Bank of China. Big 4 together with 47 local (provincial) AMCs established between 2013-2018 are the major NPL market participants in PRC. 	(1999) 28.5	(2004) 13.2
Indonesia	<ul style="list-style-type: none"> Public AMC Indonesia Bank Restructuring Agency (IBRA) was established in 1998 and closed in 2004. After its closure, there are no centralized public AMCs. Indonesian banks rely on private in-house methods. Foreign banks established Asset Management Units as NPL warehousing entities. 	(1998) 48.6	(2003) 6.8
Japan	<ul style="list-style-type: none"> Public AMCs, Resolution and Collection Corporation (RCC) and Industrial Revitalization Corporation of Japan (IRCJ) were established in 1999 and 2003 respectively. IRCJ was liquidated in 2007 while RCC is still operational. 	(2002) 8.08	(2007) 1.49

AMCs in Asian economies

Country	AMCs and SPV	Peak NPL ratio [t=0] (YEAR) %	NPL ratio [t+5] (YEAR) %
Kazakhstan	<ul style="list-style-type: none"> Public AMC, Fund of Problem Loans (FPL) was established in 2012 by the National Bank of Kazakhstan. Banks can also establish their own private AMCs called OUSA. In 2014, the Resolution 71 of National Bank of Kazakhstan (NBK) allowed commercial banks to establish a subsidiary (OUSA) that is dedicated to NPL resolution. Banks such as Kazkommet Bank and Forte Bank have taken advantage of this law and have transferred KZT 111,059 million and KZT 32,524 million, respectively. 	(2002) 11.9	(2007) 2.7
Malaysia	<ul style="list-style-type: none"> Public AMCs, Danaharta was established in 1998 and closed in 2005. Prokhas was established by the Minister of Finance to acquire and liquidate Danaharta's residual assets at the time of its closure. Resolution of non-viable financial institutions is now handled by either the Central Bank: Bank Negara Malaysia (BNM) or Malaysia Deposit Insurance Corporation: Perbadan Insurans Deposit Malaysia (PIDM). Private AMCs and debt collection agencies are current NPL market players. 	(1998) 18.6	(2003) 13.9
Philippines	<ul style="list-style-type: none"> SPV Act of 2002 facilitated the creation of private Special Purpose Vehicles (SPV) that acquired NPLs from banks. Currently, private SPVs and global (multinational) debt management companies like Collectius are engaged in the NPL market. Collectius acquired \$450 million NPLs in Philippines from 2017-2018. 	(2001) 27.7	(2006) 7.5

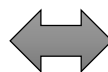
AMCs in Asian economies

Country	AMCs and SPV	Peak NPL ratio [t=0] (YEAR) %	NPL ratio [t+5] (YEAR) %
Republic of Korea	<ul style="list-style-type: none"> Public AMC, Korea Asset Management Corporation (KAMCO) was reorganized in 1997 to handle the Non-performing Asset Resolution Fund (NPARF). KAMCO and private AMCs – UAMCO, Daishin F&I, etc. – that emerged after the GFC in 2009 are major NPL market players. 	(2000) 8.9	(2005) 1.2
Thailand	<ul style="list-style-type: none"> Asset Management Company (AMC) Emergency Decree in 1998 facilitated the establishment of 12 private and 4 public decentralized AMCs. Corporate Debt Restructuring Advisory Committee (CDRAC) was established in 1998 to help with out-of-court restructuring. Public AMC, Thai Asset Management Company (TAMC) was established in 2001. After TAMC's closure in 2013, Public AMCs, Bangkok Commercial Assets Management (BAM) and Sukhumvit Asset Management (SAM), took over its assets and now dominates Thailand's NPL market with small private AMCs. 	(1998) 42.9	(2003) 13.5
Viet Nam	<ul style="list-style-type: none"> Public AMC, Debt and Asset Trading Company (DATC) was established in 2003 under the Ministry of Finance for SOE restructuring. Public AMC, Vietnam Asset Management Company (VAMC) was established in 2013 under the State Bank of Vietnam (SBV) to purchase NPLs from banks but its NPL resolution function is limited. 	(2011) 3.07	(2017) 2.46

Linkage between Institutional and Legal Reforms

Institutional

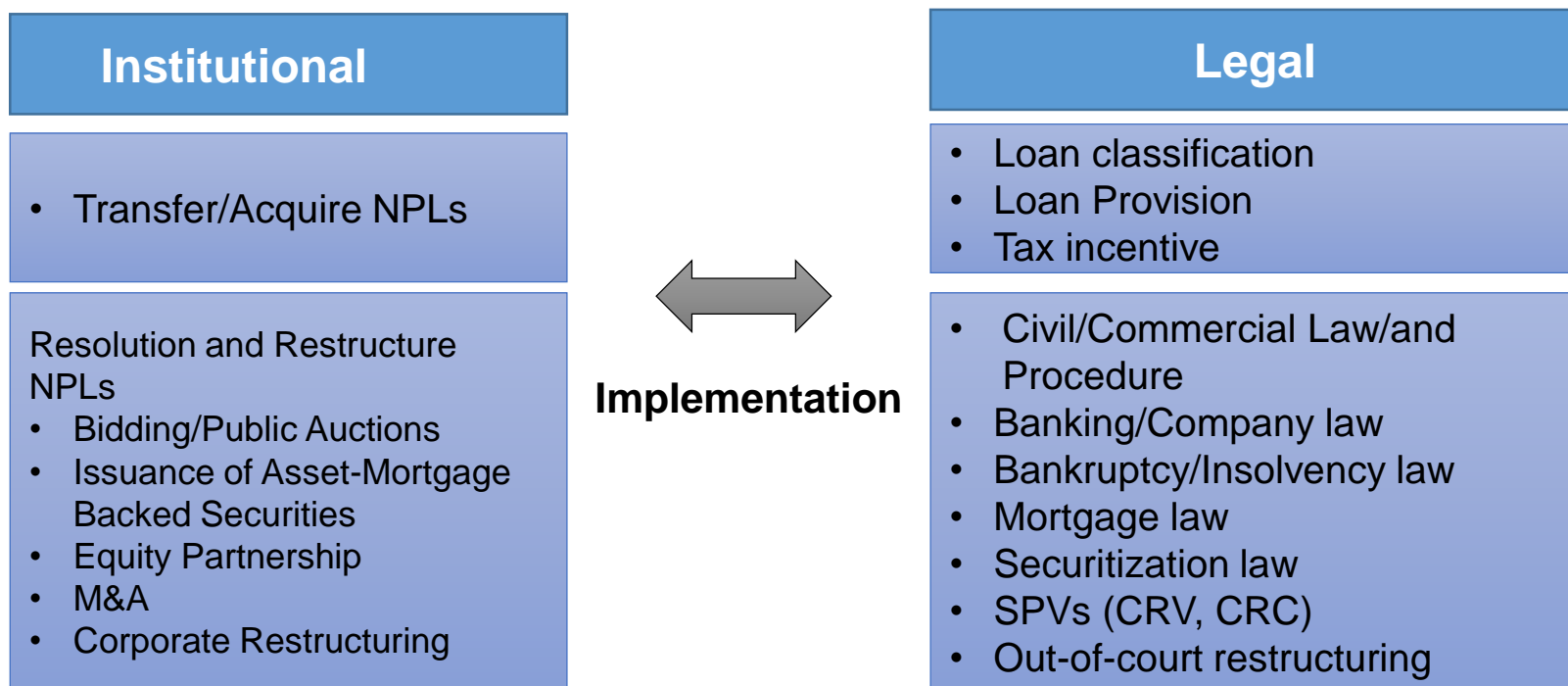
- Specialized agencies for NPL resolution and restructuring
- Rapid disposition agencies
- Independent facilitating bodies
- Restructuring committee – binding/non-binding out-of-court informal restructuring
- Special legislative environment and vehicle to promote investment
- Foreign ownership, tax wavers, and incentives
- Mutual funds, CRC, CRV, REITs



Legal

- Civil/Commercial Law
- Civil Procedure Law/Act
- Court/Judiciary Proceedings
- Banking law
- Company law
- Bankruptcy/Insolvency law
- Securitization law
- Capital market development Act
- SPVs
- Out-of-court workout
- Tax incentives

Linkage between Institutional and Legal Reforms



Key Issues for Bank and Corporate Restructuring

Bank Restructuring	Corporate Restructuring
Establish institutional framework <ul style="list-style-type: none">• Deposit insurance• Liquidity support	Create enabling environment <ul style="list-style-type: none">• Removing obstacles for mergers• Ease of debt equity swaps• Security interests• Tax incentives• Foreign ownership liberalization• Labor market flexibility
Resolve nonviable banks <ul style="list-style-type: none">• Liquidate• Nationalize or absorb into other banks	
Recapitalize nonviable banks <ul style="list-style-type: none">• Capital support• Foreign bank or strategic buyers• Stop-loss, pub-back for strategic buyers• Foreign or domestic equity capital markets	Establish out-of-court mechanisms <ul style="list-style-type: none">• Basic voluntary framework in place• Adequate incentives to participate

Key Issues for Bank and Corporate Restructuring

Bank Restructuring	Corporate Restructuring
<p>Resolve or restructure NPLs</p> <ul style="list-style-type: none"> • Recognize full extent of NPLs • System-wide carve-out of NPLs • Restructuring of viable NPLs • Tax & other incentives for NPL restructuring • Foreclosure of nonviable NPLs • Sale of NPLs in the secondary market 	<p>Strengthen bankruptcy and foreclosure systems</p> <ul style="list-style-type: none"> • Quality of bankruptcy law • Enforcement and judicial capacity in bankruptcy system, • Foreclosure and insolvency procedures
<p>Revamp regulatory frameworks</p> <ul style="list-style-type: none"> • Stronger prudential norms • Effective bank supervision and examination • Enforcement of bank regulation 	<p>Improve corporate governance</p> <ul style="list-style-type: none"> • Effectiveness of ownership oversight and boards of directors • Shareholder rights and protection • International accounting, auditing, and disclosure standards
<p>Strengthen credit cultures and management</p> <ul style="list-style-type: none"> • Bank consolidation • Foreign bank buy-ins • CAMELS rating for banks • Proper NPL definition, interest accrual, provisioning norms • Credit risk rating, scoring and monitoring systems 	

Roles of Public AMCs: Traditional vs recent roles

- The establishment of a public asset management company (AMC) is one of the strategies that national authorities consider in dealing with distressed assets in the financial sector
- **Public AMCs were used as an exit strategy tool** in a number of crisis episodes previously (e.g. savings and loans crisis in the US, Swedish banking crisis, Central Asia banking crisis and Asian financial crisis)
- In response to the GFC, **public AMCs were used as effective tools to support economic activities and credit growth** as well as to recover private sector lending by improving balance sheet health of banks, corporates and households

Important points to remember

- Asset resolution vehicles (AMCs or bank-led) are just tools to facilitate the resolution process
- Strength of the enabling framework is more important than the specific vehicle chosen
- Institutions participating in the process should be:
 - Subject to high governance standards
 - Free from political interference
 - Transparent and accountable, so as to prevent mismanagement, waste, fraud and abuse

Empirical Analyses

- **Determinants of NPLs in Asia: Dynamic Panel Analysis**
- **Determinants of Sharp Drops in NPL Ratio: Probit Model**
- **Macrofinancial Feedback effects of NPLs in Asia: Panel VAR Analysis**

Determinants of NPLs in Asia: Dynamic Panel Analysis

Data

- This paper uses panel data of **individual banks' balance sheets** from *Bankscope* and macroeconomic indicators from CEIC
- The sample covers **annual data for 1995-2014**. Bank-level data consists of **165 commercial banks in 17 economies** in Emerging Asia
- The dataset covers more than 60% of the banking sector's assets in most of the economies in the sample

Number of Banks in Sample and Their Share in Commercial Bank Total Assets

Country	Banks (number)	% of Total Assets
Bangladesh	20	78.32
Georgia	8	91.13
Hong Kong, China	3	58.28
India	14	71.96
Indonesia	12	71.10
Japan	13	56.30
Kazakhstan	8	71.39
Korea, Republic of	12	72.43
Kyrgyz Republic	2	43.15
Malaysia	14	89.66
Pakistan	9	79.16
Philippines	5	67.62
PRC	9	52.42
Singapore	2	53.83
Sri Lanka	9	86.97
Thailand	15	85.70
Viet Nam	10	63.73

PRC = People's Republic of China.

Source: Authors' calculations using data from Bankscope database (accessed February 2016).

Data

Bank-level data

- **NPL ratio** (ratio of impaired loans to gross loans)
- **equity-to-assets ratio**
- **return on equity** (ratio of net income to average equity)
- **loans-to-deposits ratio** (ratio of gross loans to deposits)
- **loans growth rate** (year-on-year growth rate of loans)

Macroeconomic variables

- **real gross domestic product growth rate**
- **unemployment rate**
- **exchange rate** (value of local currency per US dollar; increase indicates depreciation of the local currency)
- **inflation rate**
- **VIX index**, capturing financial volatility

Dynamic Panel Data (DPD) Model

- We estimate the following DPD model:

$$y_{i,t} = \rho y_{i,t-1} + \alpha B_{i,t-1} + \beta C_{i,t} + \gamma G_t + \varepsilon_{i,t},$$
$$\varepsilon_{i,t} = u_i + e_{i,t},$$

where the dependent variable $y_{i,t}$ denotes the **logit transformation of the NPL ratio** for bank i at year t

- The regressors: $B_{i,t-1}$ denotes the vector of **lagged bank-level variables** ($earatio, roe, ldratio, \Delta loans$); C_t denotes the vector of **country-specific macroeconomic indicators** ($\Delta unemprate, inf, exrate, \Delta gdp$); and G_t represents the vector of **global variables** ($vix, dummy_afc$) where $dummy_afc$ is an event dummy variable to control for the **Asian financial crisis in 1998**
- The term $\varepsilon_{i,t}$ denotes the composite error term consisting of bank fixed effects, u_i , and the idiosyncratic term, $e_{i,t}$

Estimation Results (1995-2014)

	Fixed Effects			Difference GMM			System GMM		
<i>npl</i> ₋₁	0.671***	0.689***	0.697***	0.685***	0.708***	0.708***	0.851***	0.804***	0.812***
Macroeconomic variables									
$\Delta unemprate$	0.131***	0.129***	0.129***	0.125***	0.140***	0.135***	0.104***	0.126***	0.122***
<i>inf</i> ₋₁	0.006	0.010**	0.010**	0.006	0.009***	0.008***	0.017***	0.019***	0.018***
<i>exrate</i>	0.00005*	0.000	0.000	0.00002	0.00003**	0.00003**	0.000	0.000	0.000
Δgdp ₋₁	-0.015**	-0.017***	-0.017***	-0.014***	-0.015***	-0.015***	-0.008**	-0.011***	-0.011***
<i>vix</i>	0.008***	0.007***	0.006***	0.006***	0.005***	0.004***	0.006***	0.005***	0.005***
<i>dummy_afc</i>			0.383***			0.266**			0.306***
Bank-level variables									
<i>earatio</i> ₋₁		-0.004*	-0.005		0.005	0.005	-0.011***	-0.011***	-0.011***
<i>roe</i> ₋₁		-0.001*	-0.002*		0.002	0.002	-0.001***	-0.0007**	-0.0007**
<i>ldratio</i> ₋₁		0.001***	0.001***		0.001*	0.001*	0.001***	0.001***	0.001***
$\Delta loans$ ₋₂		0.0005***	0.0004***		0.001***	0.001***	0.0006***	0.0006***	0.0006***
No. of observations	1,996	1,770	1,774	1,831	1,686	1,686	1,996	1,764	1,764
R^2 (within)	0.534	0.540	0.546						
R^2 (between)	0.801	0.967	0.963						
No. of banks	165	165	165	165	165	165	165	165	165
No. of instruments				22	81	81	24	96	96
Hansen test				0.136	0.467	0.467	0.899	0.496	0.496
A-B AR(1) test				0.000	0.000	0.000	0.000	0.000	0.000
A-B AR(2) test				0.398	0.278	0.278	0.401	0.306	0.306

GMM = generalized method of moments.

Notes: *** = significant at 1%, ** = significant at 5%, * = significant at 10%. Empirical results have been derived using Stata 13 software.

Source: Author's calculations using data from Bankscope database (accessed February 2016), CEIC database (accessed October 2017), and Bloomberg (accessed May 2016).

Source: Lee and Rosenkranz (2019)

Determinants of Sharp Drops in NPL Ratio: Probit Model

Determinants of Sharp Drops in NPL Ratio

- Data: country-level panel data of NPL ratios using the bank level data from S&P Global Market Intelligence (hereafter S&P).
- From 76 countries from 2000-2017, this analysis focuses on 41 episodes of NPL reduction. An episode of NPL reduction is defined as the period of consecutive drops in NPL ratio with the cumulative reduction in NPL ratio exceeding 7 percentage points.
- We estimate the following Probit model:

$$P(SDL_{c,t} = 1) = \Phi(\alpha + \beta\Delta NPL_{c,t-1} + \mu X_{c,t} + \gamma Frame_{c,t} + u_{c,t})$$

where the dependent variable $SDL_{c,t}$ is a dummy variable that takes one if a sharp drop in NPL ratio happens during year t in country c and zero otherwise. A sharp drop in NPL ratio is defined as a more than 5% drop in NPL ratio during a year.

The regressors:

- $\Delta NPL_{c,t}$ denotes the change in NPL ratio of country c in year $t-1$;
- X is a vector of control variables which consist of country specific macroeconomic variables (GDP growth rate, inflation rate, etc.) and global macroeconomic variables (VIX).
- $Frame$ is a vector of policy dummy variables which take a value of one if a corresponding NPL resolution framework (AMC or public bailout) was in operation during the current year.

Determinants of Sharp Drops: Estimation Results

	(1)	(2)	(3)	(4)
Δ NPL(t-1)	0.0541** (3.48)	0.1634** (2.78)	0.0446* (1.72)	0.0401 (1.27)
Growth	0.0722** (3.05)	0.1290* (1.72)	0.0848** (2.16)	0.0756* (1.70)
Inflation	-0.0624* (-1.89)			
Exchange Rate	-0.0001 (0.01)	0.0221 (1.12)	0.0018 (0.21)	0.0005 (0.04)
Property		-0.0307 (-0.71)		
Commodity	-0.0059 (-1.04)	-0.0194 (-1.57)		
VIX	-0.0236 (-1.35)	-0.0236 (-0.47)	-0.0463* (-1.70)	-0.0533 (-1.45)
AMC			0.5485* (1.69)	0.9421** (2.03)
Bailout				-0.3499 (-0.59)
Constant	-2.5474 (-8.03)	-2.8953 (-2.49)	-2.0511** (-3.50)	-2.3919** (-2.89)
Sample	983	470	563	503

Note: * and ** denote that the coefficients are different from zero at 5% and 1% significance levels.

Source: Park et al. (2019), Manuscript.

Macrofinancial Feedback effects of NPLs in Asia: Panel VAR Analysis

Data

- Panel data of annual macroeconomic and financial indicators covering 32 EAEs from 1994-2014
- Variables:
 - **Policy rate**
 - **Loan growth rate:** year-on-year growth rate of loans of overall banking system
 - **Unemployment rate**
 - **GDP growth**
 - **NPL ratio:** the ratio of NPLs to total loans of the economy's overall banking system

Estimating macrofinancial implications of NPLs: Methodology and model

- Model:
 - Panel vector autoregression (PVAR) model
 - Impulse response analysis to estimate feedback effects of rising NPLs
- PVAR estimated as follows:

$$Y_{i,t} = \Pi_0 + \sum_{j=1}^n \Pi_j Y_{i,t-j} + \varepsilon_{i,t},$$
$$\varepsilon_{i,t} = u_i + e_{i,t}$$

- Identification: Choleski Decomposition of $\Sigma_e \rightarrow$ recursive ordering

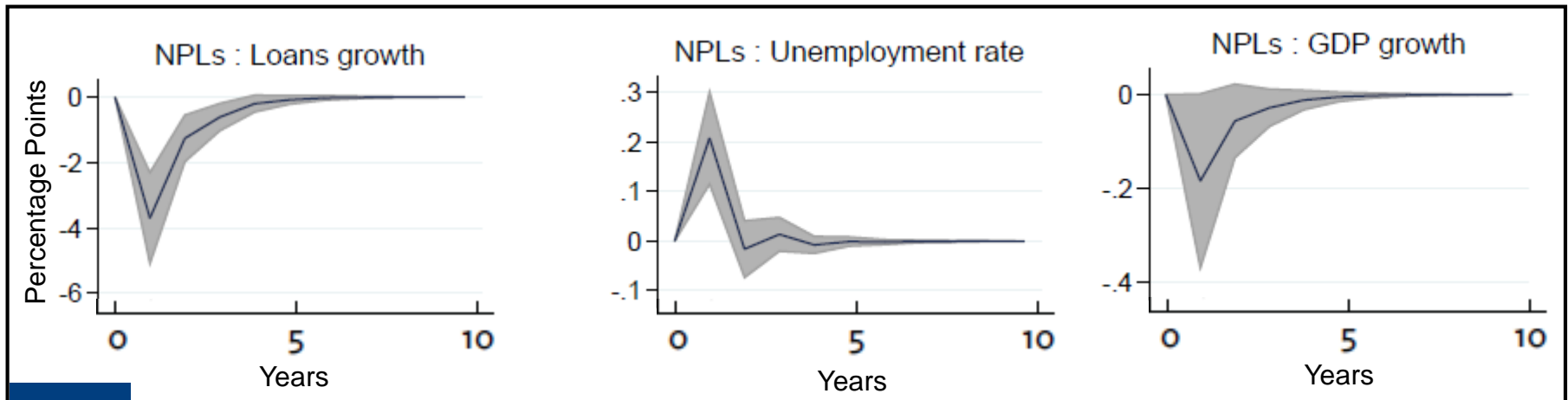
$Y_{i,t}$: vector of endogenous variables

$\varepsilon_{i,t}$: composite error term consisting of economy fixed effects (u_i) and idiosyncratic errors ($e_{i,t}$) In baseline specification, $Y_{i,t}$ consists of four endogenous variables— $nplr_{i,t}$, $\Delta loans_{i,t}$, $unemp_{i,t}$, and $policyrate_{i,t}$

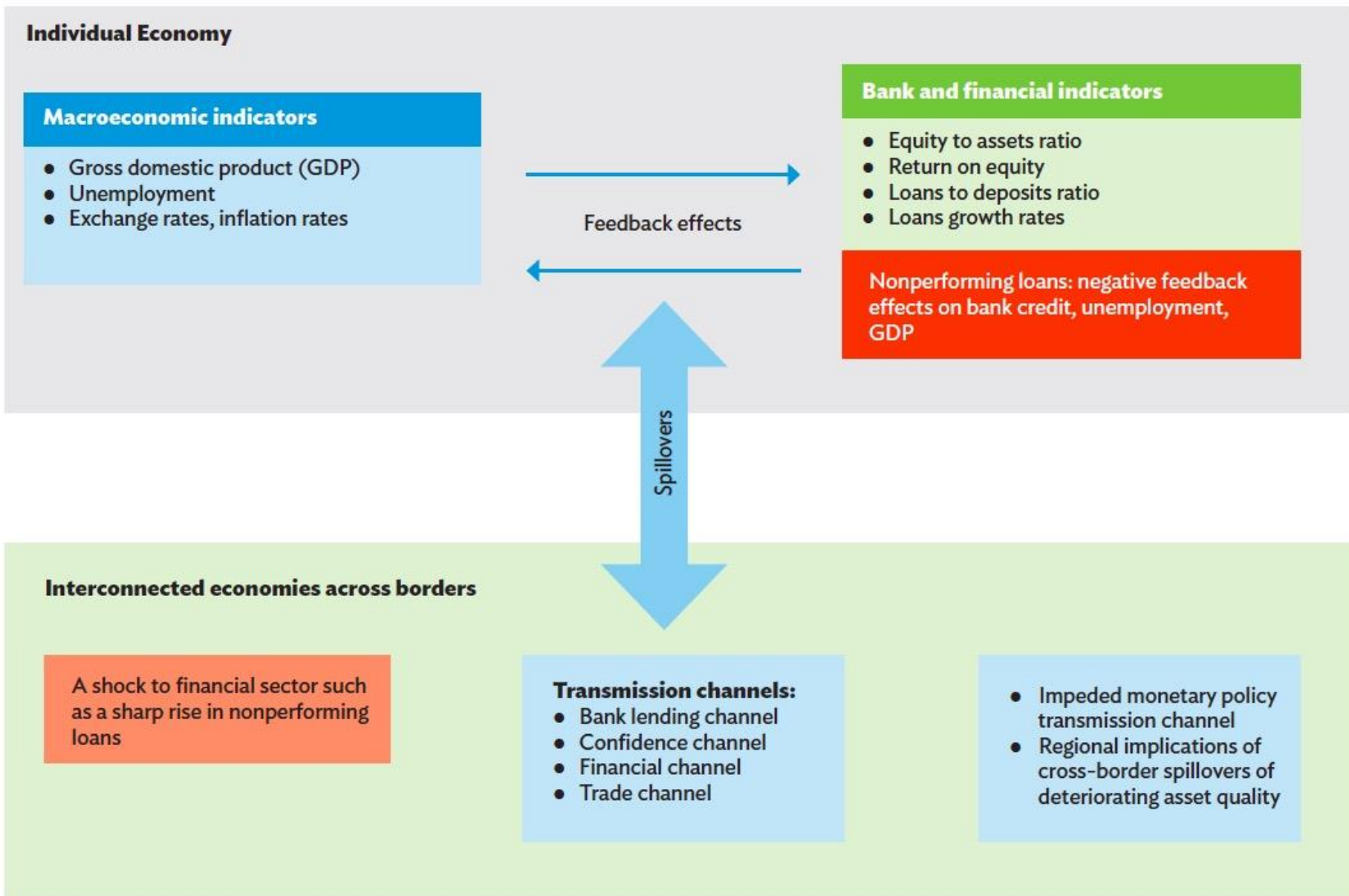
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Estimated Impulse Response Functions to a Shock in the NPL Ratio



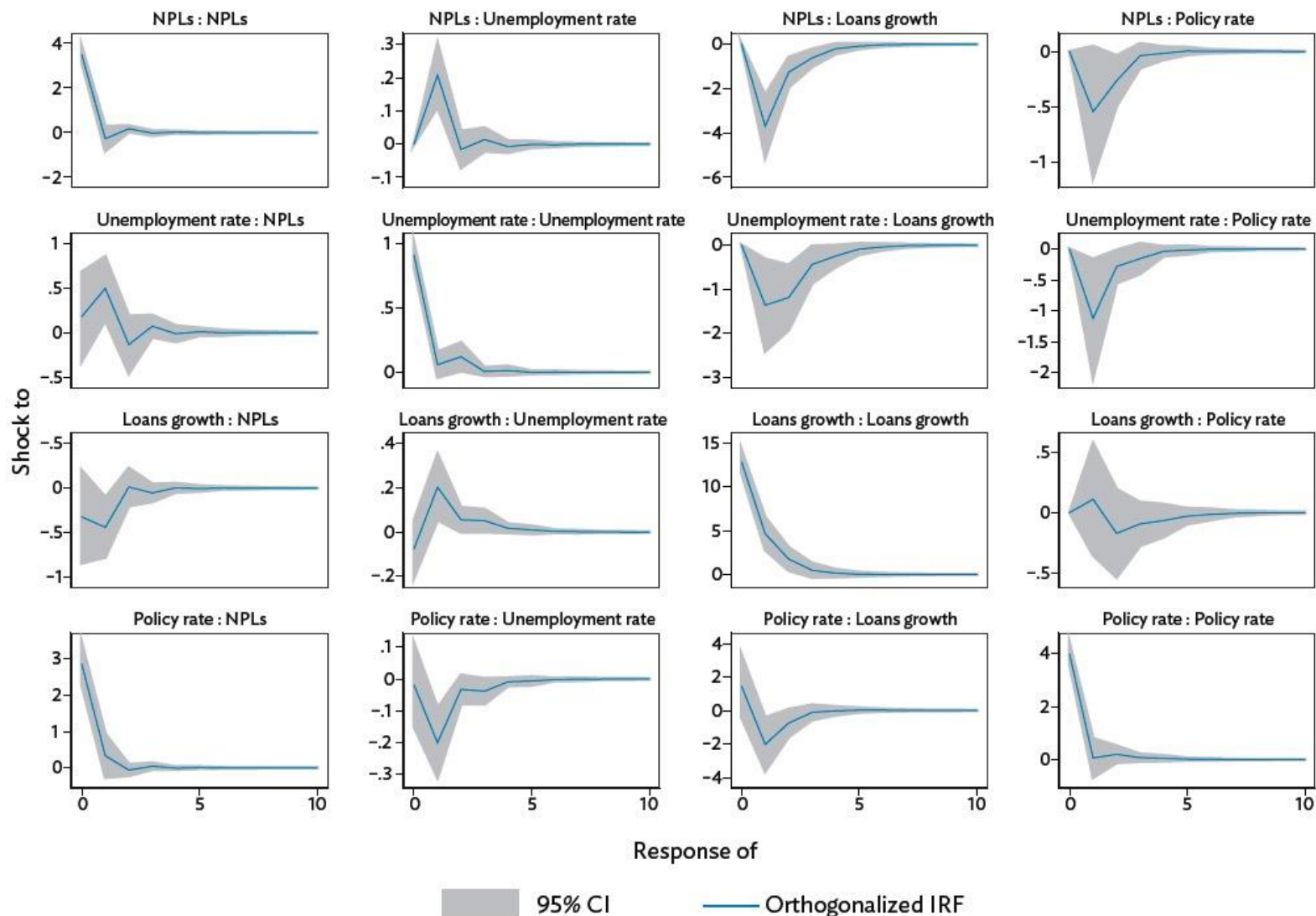
Macrofinancial impacts of nonperforming loans



Macrofinancial feedback impacts of NPLs in Asia

- Results reveal that **both macroeconomic indicators as well as bank-level variables play a key role in explaining the evolution of banks' NPL ratio**. This finding appears to be consistent across all model specifications.
- **Increasing NPL levels reflect weak macroeconomic conditions and excess; and they have harmful feedback effects on the overall economy.**
 - A shock to the NPL ratio decreases GDP growth, credit supply, and policy rate, and it increases unemployment.
- A buildup in nonperforming loans can yield macrofinancial feedback effects, with **possible spillover effects in increasingly interconnected financial markets**

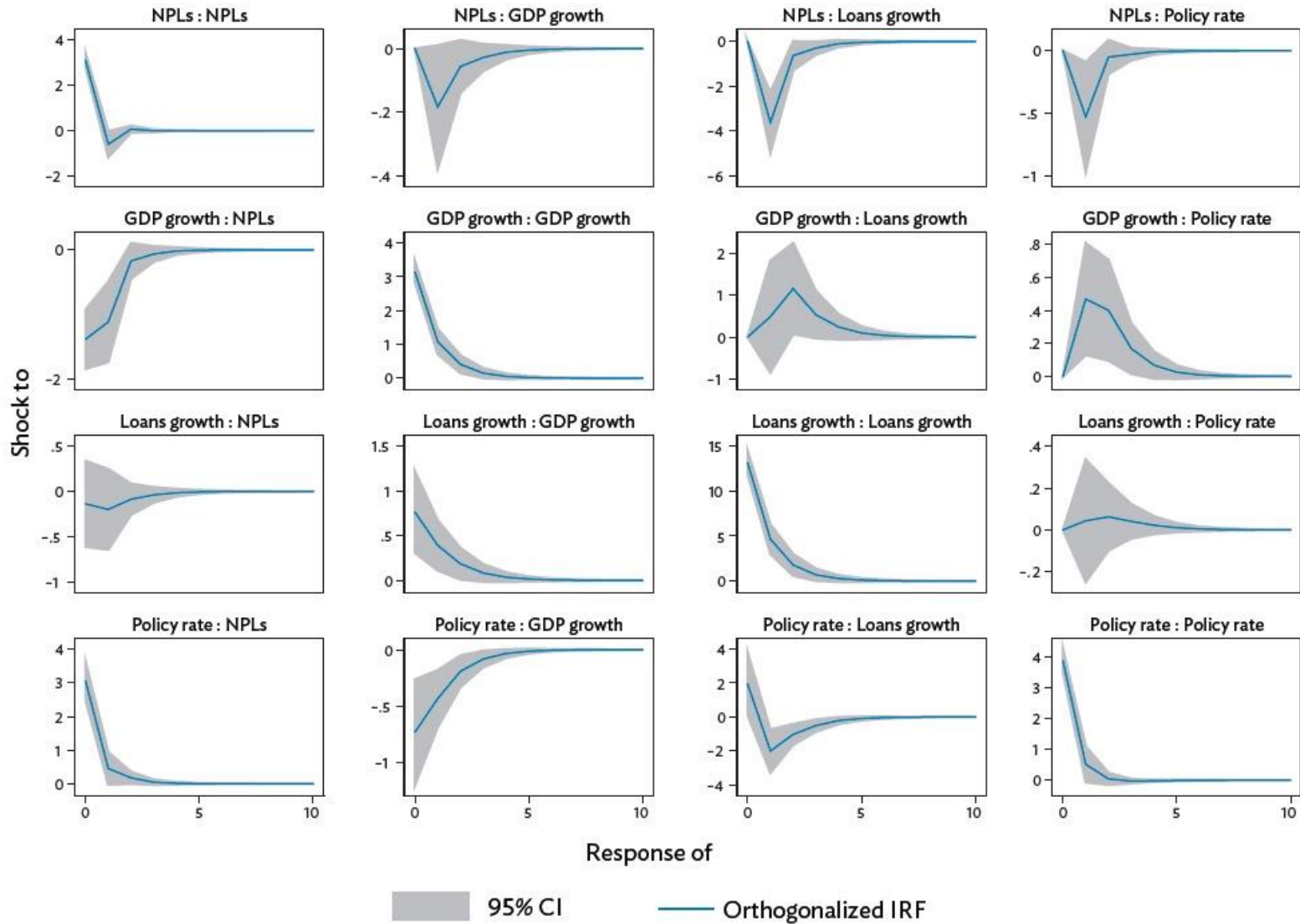
Orthogonalized Impulse Response Functions, Baseline Model



CI = confidence interval, GDP = gross domestic product, IRF = impulse response function, NPL = nonperforming loan.
 Notes: 95% confidence intervals are generated by 5,000 Monte Carlo draws. Empirical results have been derived using Stata 13 software.

Source: Author's calculations using data from Bankscope database (accessed February 2016) and CEIC database (accessed October 2017).

Orthogonalized Impulse Response Functions, Specification 2



CI = confidence interval, GDP = gross domestic product, IRF = impulse response function, NPL = nonperforming loan.

Notes: 95% confidence intervals are generated by 5,000 Monte Carlo draws. Empirical results have been derived using Stata 13 software.

Source: Author's calculations using data from Bankscope database (accessed February 2016) and CEIC database (accessed October 2017).

Asian Financial Crisis: Japan

Table: RCC and IRCJ NPL acquisition

RCC	Principal (JPY billion)	Purchase Price (JPY billion)
2000	991.60	174.30
2001	3,280.10	802.40
2002	2,957.30	740.90
2003	365.80	153.40
2004	36.00	5.10
2005	397.80	56.40
2006	-	-
2007	-	-
2008	67.30	14.90
2009	-	-
2010	-	-
2011	14.30	52.92
2012	8.10	0.06
TOTAL	8,118.30	2,000.39

Source: ABB's calculations based on reports from RCC. www.kaisyukikou.co.jp

IRCJ	Principal/BV (JPY billion)	Financial Assistance (JPY billion)
2003	766.577	462.54
2004	3,211.788	968.594
TOTAL	3,978.365	1,431.134

Source: ADB's calculations based on Okina (2009).