Research on the Structural Factors in Representative Financial Crises

Zhihao Zhang
Ohio State University
zhang.9095@buckeyemail.osu.edu

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Abstract: A financial crisis is the touchstone for the structural resilience of a country. Therefore, analyzing the structural defects exposed in crisis will shed important lights on the design of policy tools for structural reforms. This paper performs research on four major financial crises, including the East Asian financial crisis, the Latin American Financial Crisis, the US subprime crisis, and the European sovereign debt crisis. The aim is to reveal structural factors responsible for these financial crises, discover their similarities and differences, document productive structural reforms and provide reference for the refinement of the existing benchmark structural of policy reform. Regarding the extension of the policy framework on structural reform are in threefold, three key suggestions are put forward. The first is to enhance prudential regulations over nonbank financial institutions and cross-border capital flows. The second is to improve the ability of managing the balance of International payments so as to avoid the buildup of external debt and destructive rebalancing movement. The third is to improve the coordination among countries for crisis prevention and response, especially in terms of better regional or global financial safety net, more efficient International bond market, adequate bilateral/multilateral local currency swap and Free Trade Agreement.

Introduction

The sources of a financial crisis root deep in a country's structural design and economic institutions. While triggers for different crises can be diversified, common structural factors can be identified in the economic structure, financial institution and policy design of countries in distress. Reflection on **previous** financial crises shed important lights on the deepening of structural reforms. The East Asian financial crisis aroused heated policy discussions related to the mismatches in the balance sheet, weak corporate governance, the necessity for stronger banking supervision, etc. (Brownbridge and Kirkpatrick, 2000; IMF, 1999). IMF started the financial stability assessment program in 1999 (IMF, 2000). The global financial crisis of 2008-2009 changed the mainstream perspective of capital controls. Prior to 2008, capital controls were considered largely ineffective and harmful (Forbes, 2004; Forbes, 2007). After the outbreak of the global financial crisis, appropriately designed of prudent capital controls gained more popularity (Forbes, Fratzscher and Straub 2015; IMF 2012, 2015).

Building on these academic and policy research, International organizations such as the G20 and the International Monetary Fund (IMF) have put forward several important documents on the policy framework of structural reform, aiming to facilitate countries to build up structural resilience against financial crises. We summarize the structural factors mentioned in three key documents. The first document is the Proposal for a G20 Quantitative Framework to Evaluate Structural Reform, which contains G20's priority areas for structural reform. The second document is the policy assessment of IMF's structural reform. The third document is the terms of conditionality for IMF programs. The fourth document is the enhanced EPRD Matrix for the AMRO Regional Tracker and New Surveillance Database.

This paper attempts to rethink the causes of financial crises and related policy reforms by focusing on the structural factors. We aim to investigate structural problems in representative financial crises, identify the common factors and draw policy implications on how to improve the current policy framework on structural reform suggested by the G20 and the IMF. Specifically, we perform case studies on four representative crises, including the East Asian financial crisis, the Latin American financial crisis, the US subprime crisis, and the European sovereign debt crisis. The first two crises concern emerging market and developing economies (EMEDs) and the last two are in developed economies (AEs).

The paper is consisted of three sections. The first section analyzes structural factors revealed in four major financial crises, which are divided into the group of emerging market and developing economies (EMEDs) and that of advanced economies (AEs). The second section complements the benchmark structural framework by drawing insights from the structural factors exposed during the crises. The third section summarizes the structural reforms and policy instruments by concerned countries after financial crises.

1 Structural Factors in Four Representative Financial Crises

1.1 Representative Financial Crises in Emeds

1.1.1 The East Asian Financial Crisis

The outbreak of the East Asian financial crisis in the 1990s was closely related to the internal and external vulnerabilities in the economy and policy mistakes made by related countries. Major countries such as South Korea, Thailand, Indonesia, Malaysia, and the Philippines all experienced bank crises, bursting asset price bubbles, and currency depreciation. A few countries (such as Indonesia) also experienced malignant inflation and corporate debt defaults.

In the aspect of the real economy, there were three major structural problems. First, the export-oriented strategy of economic growth was flawed, making economic development vulnerable to fluctuations in external demand. The vigorous development of export-oriented industries enabled most Asian countries to achieve rapid economic development. However, this development model did not only require external funding and technical support, but also resulted in strong reliance on external markets. Second, the economic structure was insufficiently diversified, with homogeneous products causing vicious competition and overcapacity. East Asian economies failed to implement effective export diversification and did not move up to the upper end of the value chain by improving technology and productivity. As a result, they fell into the dilemma of suppression of Japanese products by the higher end and the competition of Chinese product by the lower end. The homogenization of products in various countries created vicious competition and overcapacity in certain industries. Third, the unsustainable economic growth model provided weak foundation for long-term economic growth. The economic growth of countries in East Asia were mainly driven by capital accumulation and intensive labor participation, yet lacking knowledge progress and technological innovation. Since the input of capital and labor could not increase indefinitely, a growth model without improving total factor productivity would inevitably result in diminishing returns.

In the aspect of the financial system, East Asian countries also faced three major structural problems. The first problem is the inappropriate exchange rate regime. In the 1990s, Asian countries maintained high interest rates and fixed exchange rate regime to encourage capital inflows, leading lenders and borrowers to underestimate exchange rate risks. Although a large amount of foreign capital could be attracted in the short term, these foreign capitals were short-term speculative funds with high flight risk. The continuous appreciation of the US dollars led to rapid and large capital outflow, which forced the Southeast Asian countries to sacrifice their foreign exchange reserves to stabilize the exchange rate of its local currency. What was worse, these countries were also attacked by International speculators who initiated exchange rate wars, thus putting additional pressure on the local currency. Second, many countries liberalized their financial systems or opened up their capital accounts in the absence of a sound prudential regulation system. Although the fixed exchange rate system provided institutional guarantees for export growth and economic development, it also promoted excessive capital inflows that fed the asset bubble. East Asian countries hastily opened their capital projects without any testing and protection, putting the country in danger of sudden and catastrophic capital outflows. Third, high debt level contributes to the vulnerability of the country, especially for countries with large external debt and private debt. With the outbreak of the Asian crisis in 1997, the external debt to GDP ratio for emerging and developing Asian countries grow up to its 5 year peak of 37.9%. High external debt level puts heavy burden on a country because they are usually denominated in foreign currencies and held by external creditors who are more likely to withdraw funds during stressed times. Also, to repay external debt, a country has to maintain a relatively stable inflow of foreign reserves. While a country can solve its domestic debt problem by monetization and pay the price of hyper-inflation, external debt problem often leads to sovereign default and malicious depreciation. On the other hand, private debt proves to be a bigger problem than public debt, and the decrease of private debt often comes at the cost of rising public debt. The reason behind this phenomenon is that when the private sector defaults, the government often takes over the debt by bailing out the bank or state-owned enterprises. Take Thailand as an example, the total credit to private non-financial sector as percentage of GDP was as high as 180% in the fourth quarter of 1997, which experienced a prolonged growth period since 1980 and an upsurge of 20% in the first 2 quarters in 1997. After 1997, the private debt gradually comes down at the cost of rising public debt. During 1996-1997, the central government debt to GDP ratio was below 5%. However, to deal with private and external debt problem, it doubled in 1998 and grew up to nearly 30% in 2002. Fourth, there were little International coordination and rescue plans for the crisis. On the one hand, East Asian countries did not put concerted efforts to counter the crisis. Instead, they suffered from competitive devaluation of local currencies, which were exacerbated by more aggressive attacks from International speculators. On the other hand, the IMF failed to act as the lender of last resort, by misjudging of the causes of the crisis and including inappropriate terms in its bail-out package.

1.1.2 The Latin American Financial Crisis

While crises in East Asian countries mainly took the form of banking crises, Latin American countries witnessed more sovereign debt crises and suffered from a longer depression. Brazil, Argentina, Mexico and other countries had become textbook cases for countries in the "middle-income trap". Among them, Argentina, the third largest economy in Latin America, even experienced eight currency crises since 1970. During 2019, Argentina suffered again from high volatility in the equity, bond and foreign exchange market.

Apart from those common structural factors exposed in East Asian crises, there are three structural factors that require special attentions when dissecting the Latin America crises. First, the failure of industrial upgrading caused the decline of international competitiveness. The failure of the import substitution strategy is one important cause for the crisis. The essence of the strategy is to restrict the import of industrial products in order to substitute domestic products for imported industrial products. Specific measures include trade barriers, foreign exchange control, and subsidies to domestic manufacturing enterprises. These measures resulted in high import tariffs, monopoly of state-owned enterprises, and overvalued local currency, rather than accelerating the industrialization process. One side effect is the decline of the competitiveness of its manufacturing companies in the international market. The other side effect is to slow down the growth in the agricultural sector, which created demand for the import of agricultural product. These two side effects pushed the country into the dilemma of "increasing import and decreasing export". Despite years of reforms, the import tariffs of Latin American countries were reduced but are still at a high level. In addition, Latin American countries also lag far behind Europe, America, and other emerging market countries in Asia in terms of property rights protection and business governance.

Second, improper fiscal management strategy resulted in huge deficits and large amount of debts. Facing the challenge of deteriorating balance of payments, Latin American countries did not carry out structural reforms. Instead, they attempted to sustain high level of government expenditure and the overvaluation of domestic currency by borrowing from western countries, which inevitably led to the accumulation of large amounts of public debt. To resolve debt problems, the government adopted measures to monetize the deficit, which led to hyperinflation, sharp depreciation and larger trade deficit. To deal with the resulted deficit, the government had to borrow more foreign debt, which thus constituted the vicious cycle of sharper devaluation and larger debt.

Third, populism started to prevail and the country suffered from political unrest. As the third largest economy in Latin America, Argentina experienced frequent financial crises in recent years. Despite the improvement of liquidity in the International financial market, it still witnessed several malignant events such as sharp currency depreciation, severe inflation and large volatility in the stock market. Most responsibilities for these events went to the recurrent political turmoil in this country. While Latin American countries are still in recession, populism has begun to prevail. This resulted in inflated social welfare that distorted the labor market and caused heavy burden on public spending. Without compatible economic growth, such social welfare policy could not actual improve the actual welfare of its people. What's worse, the failure to promote economic growth widened the gap between the rich and the poor, sinking Latin American countries deeper into economic recession.

Fourth, the exchange rate regime is inappropriate. In order to control inflation and restore confidence in local currency, Argentina started the "Exchange Plan" since 1991, implementing a currency bureau system that pegged peso to the US dollar by 1: 1 and allowed unrestricted exchange transactions between the two currencies. However, due to the lack of foreign exchange reserves, the inflexible labor market, and the lack of strict fiscal discipline, Argentina fell into the dilemma of rising government deficits and severe overvaluation of domestic currency. During 1991-2001, Argentina experienced several deposit runs and flights to US dollars, which led to the outbreak of the 2002 sovereign debt crisis. The currency bureau system was thus abandoned in 2002. Although the Argentine government tried to re-enforce the use of peso and switch to a floating exchange rate regime, the public's confidence in local currency was damaged by years of currency crises, which made de-dollarization an incomplete and challenging task. In addition, due to persistently high government deficits and domestic political unrest, investors were extremely sensitive to Argentine currency risks, which resulted in multiple events of severe depreciation of peso in 2014, 2015, 2018, 2019.

1.2 Representational Financial Crisis in Aes

1.2.1The US Subprime Crisis

Structural factors also played an important role in the US subprime crisis which began in 2007 and then evolved into a global financial crisis in 2008. Among all structural factors, problems in the financial system are the most critical.

First, against the background of financial deregulation and financial innovation, multifarious financial derivative instruments were invented, which are too complex for investors to identify financial risks. Before the crisis, various complex financial derivative instruments were designed based on mortgage-backed securities (MBS). The complexity of these derivatives made it impossible for investors to identify the underlying assets and evaluate associated risks. As a result, investors relied excessively on external rating agencies, which brought about moral hazard problems and adverse selections that distorted the financial market.

Second, financial institutions were excessively reliant on wholesale funding that exposed them to high liquidity risks. Before the crisis, shadow banking institutions including hedge funds, leveraged buyout funds, and off-balance-sheet operations by commercial banks, relied heavily on short-term wholesale funding instruments such as asset-backed commercial paper. Such funding mode reduced the financing costs for these institutions, but it also exacerbated the maturity mismatch problem and enlarged their exposures to liquidity risks. Therefore, after the bankruptcy of Lehman Brothers, the wholesale funding market shrank rapidly, causing liquidity drain for the aforementioned financial institutions, resulting in fire sales and rapid asset devaluation that exacerbated the crisis.

Third, there were a number of loopholes in the regulatory system. The prudential system in the US can be characterized as "double line, multiple-heads, and separated". "Double line" refers to the double level of supervision by both the federal government and the state governments; "multiple heads" indicates that there were multiple regulatory institutions at both the central government level and the local government level; "separated" refers to the separate supervision based on the scope of financial services. Such system bore several shortcomings. For instance, no supervisory institution had the full authority and complete information of the market. Also, the poor coordination among supervisory institutions provided commercial banks chances to take high risk activities off-balance sheet through asset securitization for the purpose of avoiding supervision. In addition, there were too much connections across different market while there were too few fire walls to stop contagions, which paved the path for individual distress to become systemic risks.

Fourth, deeper structural problems responsible for the crisis lie in the rising inequality in American society and the decision of the government to encourage low-income households to purchase houses by taking on mortgages. The bursting of the real estate bubble was the direct cause of the subprime mortgage crisis in the United States. Since 1980s, the gap between the rich and the poor in the United States has continued to widen. In order to alleviate the social conflicts between the rich and the poor and save public spending, the US government encouraged low-income families to take on debt to buy houses. With mortgages becoming convenient and low-cost financing tools, advanced consumption by ordinary people accelerated, which supported rising demand in housing market, drove up housing prices and increased the debt burden of households. At the initial stage of the housing bubble, the US federal funds rate was at a low level. However, the federal funds rate went up during 2004-2006, causing a rise in the mortgage costs. On the other hand, as the income gap between the rich and the poor in the United States continued to widen, the repayment ability of low and middle-income families did not rise but declined instead. Eventually, households began to default on their mortgages, causing real estate prices to fall, which triggered liquidity drains and bankruptcies among financial institutions.

A major difference between the crises in EMEDs and the US subprime crisis is the role of large current deficit. Despite holding a large and widening current account deficit, the United States is much less vulnerable to international capital movements. There are two reasons. One is that US dollar serves as the dominant currency used in International transactions. The other is that the US government implements a float exchange rate regime.

1.2.2 The European Sovereign Debt Crisis

The European sovereign debt crisis started in 2010. Portugal, Italy, Ireland, Greece and Spain were struck the most during this crisis. At the level of each country, key structural problems seemed to be the lack of fiscal discipline and poor public debt management. However, more fundamental causes lied in the united monetary system of Euros and the consistently widening of trade imbalances among Euro area countries. Five structural problems were of special concern for the European sovereign debt crisis.

First, under the Euro system, individual country could not have independent monetary policy, which made it impossible to resort to monetization as the less expensive ways to solve their sovereign debt problems. As a result, sovereign debt in these countries were no longer risk-free assets but became vulnerable to market liquidity shocks. On the other hand, due to inadequate financial alliance among EU countries, the European Central Bank (ECB) could not act as the lender of last resort for sovereign states.

Second, there exists large and continuous current account imbalances among member countries, with "core countries" running large surpluses and "peripheral countries" running constantly high deficits. Because of the common currency regime, "peripheral countries" could neither stimulate exports through currency depreciation nor implement expansionary monetary policies to stimulate economic growth. Instead, they could only rely on external financing provided by "core countries" to maintain trade deficits.

Third, European countries generally provide generous welfare for its people, and have great difficulty in reducing welfare benefits under democratic systems. This results in huge burdens for public expenditures and difficulties in fiscal consolidations. In addition, the political challenge was amplified by social benefits such as unemployment protection and powerful labor unions responsible for the rigidity of labor price.

Fourth, European banks were excessively reliant on short-term US dollar funding and thus were vulnerable to liquidity drains in the US interbank market. Prior to the US subprime crisis, European banks were deeply involved in risky financial activities in the United States and relied heavily on the US interbank market for dollar funding. Therefore, when the US interbank market fell into a liquidity trap during the subprime crisis, European banks had little resources to obtain US dollar liquidity. Also, because these banks did not have enough collateral, they could hardly get help from the Fed or the ECB.

Fifth, European banks had a large exposure to sovereign debts of peripheral countries, resulting in a “doom cycle” in the financial fragility between banks and sovereign countries. Since banks held relatively large amounts of government bonds, they were susceptible to sovereign debt defaults. When this turned into a banking crisis, it added to the fiscal burden because of the government’s responsibility of public bail-out. This thus created a vicious circle of "liquidity shock - bank crisis - sovereign debt crisis".

1.3 Summary of the Structural Factors Exposed in Financial Crises

Based on the above analysis, this section summarizes the common structural factors exposed in the concerned financial crises, as shown in Table 1. The first column summarizes the main structural factors, and columns 2-5 refer to the characteristics of these structural factors. The second column indicates whether the structural factor lies in the real sector, the financial system, or other sectors. The third column indicates whether the factor is external or internal. The fourth column indicates whether the factor is a common or specific factor among countries. The fifth column evaluates the importance of this factor. The important factors will be listed as important, otherwise they will be blank.

In summary, the analysis of the structural factors of the crisis in EMEDs shows that there are mainly 13 structural factors that are responsible for the outbreak of crises in these economies, of which 7 are important factors (including 2 real factors and 5 financial factors; 2 internal factors, 4 external factors, and 1 other factor; 4 specific factors, and 3 common factors). Analysis of the structural factors of the outbreak of crisis in AEs shows that there are mainly 8 structural factors responsible for their crises. Among them, 4 are important factors, all of which are financial factors (3 internal factors and 1 external factor; 2 Specific factors and 2 common factors).

Table 1. Summary of structural factors in concerned crises

1	2	3	4	5
Structural Factors	Real/Financial/ Others	Internal /External	Common /Specific	Importance
Structural factors of crisis in EMEDs				
Large current account deficit	Real	External	Common	Important
Fixed exchange rate regime	Financial	External	Specific	Important
Untimely financial liberalization	Financial	Internal	Common	Important
Untimely open-up of the capital account	Financial	External	Specific	Important
Improper economic growth strategy	Real	Both	Specific	Important
Weak fiscal discipline	Financial	Internal	Common	Important
High External Debt	Financial	External	Specific	Important
Loose financial regulation	Financial	Internal	Common	
Inadequate development of the financial market	Financial	Internal	Specific	
Domestic political unrest	Others	Internal	Specific	
Inadequate resources for bailouts and regional coordination mechanisms	Financial	External	Common	
Poor corporate governance	Real	Internal	Specific	
Weak business environment	Real	Internal	Specific	
Structural factors of crisis in AEs				

Loose financial regulation	Financial	Internal	Common	Important
Accumulation of financial vulnerabilities	Financial	Internal	Specific	Important
Weak fiscal discipline	Financial	Internal	Common	Important
Common currency system	Others	External	Specific	Important
Large exposure of banks to sovereign debts	Financial	Internal	Specific	
Imbalance in the International payments	Real	External	Common	
Rising income inequality	Real	Internal	Specific	
Inadequate resources for bailouts and regional coordination mechanisms	Financial	External	Specific	

2 Expanded Structural Framework for Policy Reform

Based on the analysis of the structural factors of the four representative crises in the previous section, this section provides complementary structural factors to the existing IMF and G20 structural frameworks. Table 2 displays the expanded structural framework including both the existing and complementary structural factors. Key information in Table 2 are listed as follows.

First, the table has 4 columns. The first column is the content of structural reform areas and related factors. The second and third columns respectively display the relevance of a certain factor to the crises in EMDEs and those in AEs. Column 4 shows the source of concerned structural factors in Column 1.

Second, the benchmarks structural framework are based on three key documents on structural reforms. The first document is the Proposal for a G-20 Quantitative Framework to Evaluate Structural Reform, which contains G20's priority areas for structural reform (source in Column 4 of Table 2 is listed as G20). The second document is the policy assessment of IMF's structural reform (abbreviated as IMFSR). The third document is the terms of conditionality for IMF programs (abbreviated as IMFSC). The fourth document is the enhanced EPRD Matrix for the AMRO Regional Tracker and New Surveillance Database (abbreviated as EPRD). Overlapping contents among the four documents are integrated.

After the integration, the structural framework includes 13 areas, which are public finance, central banking, financial sector, pension and civil service reform, state-owned enterprise reform, social, trade and investment, institutional reform, infrastructure, market deregulation, labor market, innovation and development. In each area, there are 1-9 different structural factors. These factors are shown in the non-bold form in the first column of Table 2.

The existing benchmark framework includes several structural factors that are responsible for aforementioned crises. These factors are shown in non-bold underlined form in Column 1 of Table 2. Among these factors, reforms in the area of public finance can improve the efficiency of the use of public debt and mitigate the risk of sovereign debt crises. Reforms in the area of central banking can enhance price stability, suppress exchange rate fluctuations and prevent from sudden and large cross-border capital flows. Reforms in the financial sector are conducive for preventing the accumulation of financial vulnerabilities and improve the resilience of the financial system. Reforms related to the development of financial markets can enhance the resilience of EMEDs to external liquidity shocks. Reforms related to the pension system, labor market and other social areas will help alleviate income inequality problem. Reforms in areas of trade and investment, infrastructure, innovation and development will improve productivity, achieve sustainable economic growth and establish diversified economic structure. Market deregulation and reforms in legal systems and intellectual property will help improve business efficiency and the business environment.

Nonetheless, several structural factors exposed in the concerned crises are not listed in the existing framework. We add these factors in Table 2, marking them in bold and leaving the source in column 4 to be blank. These additional structural factors complement the existing framework in addressing the following structural problems.

The first problem is the insufficient attentions on the prudential regulations for non-bank financial institutions and cross-border capital flows. In the US subprime crisis and the European sovereign debt crisis, the misuse of complex financial instruments and risky investment behaviors of non-bank financial institutes stand out as key causes for financial vulnerabilities and the accumulation of asset price bubble. Moreover, the banks' involvement in cross-border business are important channels for the transmission of financial risks across different countries. The existing framework only considers policies and measures to strengthen the resilience of the banking system, but puts little emphases on the regulation of the non-bank financial institutions and cross-border financial activities.

The second problem is neglecting the importance of re-balancing the International payments. Countries with large deficit in the International payments inevitably develop excessive reliance on the external funding from surplus countries. Such balance can be easily disturbed, which forces both the surplus and the deficit countries into the re-balancing process. In this process, surpluses countries face reduction in external demand that lead to the slowdown of economic growth. Deficit countries go into debt crises and are forced to reduce consumption. The root for the European sovereign debt crisis lies in the long lasting imbalance among EU countries that results in unsustainable fiscal deficits of peripheral countries. The outbreak of the Latin American financial crisis is also closely linked to the expansion of trade deficits and the withdrawal of external financing. Furthermore, a country's ability to adjust its balance of payments is closely related to its external debt level and exchange rate regime.

The third problem is the lack of an efficient regional or global coordination mechanism and institutions to restore the economy after the crisis. The lack of International coordination among East Asian countries during the East Asian financial crisis led to competitive devaluation of local currencies and caused more aggressive attacks by speculators. Similarly, it took years for the creditor countries in the Paris Club to come up with a resolution for the sovereign debt defaults in Latin American countries, which prolonged the recovery process in these countries. More recently, it is revealed again by the outburst of coronavirus crisis that the interruption of global value chain and International trade would assert unfavorable negative impact on every country, which could be the cause and accelerator of concurrent economic depression. Therefore, establishing a functional economic and financial coordination mechanism should be a key part of post-crisis structural reforms at the regional and International level. More specifically, this includes an interconnected Asian bond market, financial safety net, bilateral or multilateral local currency swap, free trade agreement and etc.

Table 2. The expanded structural framework

1	2	3	4
Structural Reform Areas / Structural Indicators	Relevance to crisis in EMDCs(High/ Mid/ Low)	Relevance to crisis in AMs(High/ Mid/ Low)	Sources
Public finance	high	high	IMFSC/IMFSR/G20/EPRD
Revenue administration (incl. customs)	high	high	IMFSC core
Expenditure measures (incl. arrears			IMFSC core
clearance)	high	high	
Debt management			IMFSC core
Revenue measures	high	high	IMFSC core
Budget preparations	high	low	IMFSC core
Expenditure auditing	mid	mid	IMFSC core
Fiscal transparency	high	mid	IMFSC core
Inter-governmental relations	high	mid	IMFSC core
Strengthening fiscal sustainability	low	low	G20
Limiting external debt	high	high	
Income distribution policy	high	low	
	mid	mid	

Central banking	high	mid	IMFSC
Central bank operations, auditing, transparency, and financial controls	low	low	IMFSC core
Exchange systems and restrictions	mid	low	IMFSC core
Low and stable inflation	high	mid	EPRD
Foreign exchange reserves position	high	mid	EPRD
Cross-border capital flow control	high	mid	
Lender of last resort guarantee	high	high	
Resources for Bailout and International Coordination	high	high	
Financial system	high	high	IMFSC/IMFSR/G20/EPRD
Financial sector legal reforms, regulation, and supervision	high	high	IMFSC core/IMFSR/ EPRD
Restructuring and privatization of financial institutions	high	high	IMFSC core/IMFSR
Banking system reform(Interest/Credit controls	high	low	IMFSR
Capital market development	high	low	
Deepening Financial Reform	high	high	IMFSR/EPRD/G20
Financial account position dominated by private sector	high	high	EPRD
Micro and macro prudential regulations for banks	mid	high	
Macro prudential regulations for cross-border capital flows	high	high	
Pension and civil service reform	mid	mid	IMFSC
Pension reform	mid	high	IMFSC shared
Health and education sector reforms	mid	mid	IMFSC shared
Civil service and public employment reforms (incl. wages)	mid	mid	IMFSC shared
PRSP development and implementation	high	low	IMFSC non-core
SOE reform	low	low	IMFSC
Public enterprise reform (excl. financial sector)	low	low	IMFSC shared
Public enterprise pricing and subsidies	low	low	IMFSC shared
Privatization	low	low	IMFSC shared
Social reform	mid	mid	IMFSC
Other social sector reforms	mid	mid	IMFSC shared
Trade and investment	high	mid	IMFSC/IMFSR/G20
Tariff Reduction	high	high	IMFSR
Other international trade policy (excl. customs)	high	mid	IMFSC non-core
Policy environment for foreign investment	high	mid	IMFSR
Reduce global/regional imbalance to obtain sustainable external position	high	high	ERPD
Institutional Reform	mid	low	IMFSR
Legal system and property rights	mid	low	IMFSR
Statistics	mid	low	IMFSC non-core
Governance (incl. anti-corruption)	mid	low	IMFSC non-core
Natural resource and agricultural policies (excl. public enterprises and pricing)	low	low	IMFSC non-core
Improving infrastructure	high	low	IMFSR/G20
Market Deregulation	mid	mid	IMFSR/G20
Agriculture	mid	mid	IMFSR
Promoting competition	high	mid	IMFSR/G20
Energy/Transport/Communications	mid	mid	IMFSR
Labor market	mid	mid	IMFSR/G20
Labor Market	high	high	IMFSR/G20

Reform(hiring/firing/bargaining)			
Education and Training	mid	mid	IMFSR
Innovation	mid	mid	IMFSR/G20
R&D spending	mid	mid	IMFSR
Development	high	mid	G20
Enhancing Environmental Sustainability	low	low	G20
Promoting Inclusive Growth	mid	mid	G20
Achieving Sustainable Economic Growth	high	low	
Regional and Global economic and financial coordination mechanism	high	high	
International Bond Market	high	high	
Cross-country Financial Safety Net	mid	mid	
Bilateral/Multilateral Local Currency Swap	high	high	
Free Trade Agreement	mid	mid	

3 Productive Structural Reforms in the Concerned Crises

After the financial crises in EMDEs, structural reforms were conducted in five key areas. The first reform is to improve the management of foreign exchange and monetary policies, such as increasing the level of foreign exchange reserves, shifting to the inflation target monetary policy, and adopting a regulated floating exchange rate regime. The second reform area is the financial system, including improving relevant laws and regulations on security trading and corporate bankruptcy, implementing a higher standard for prudential regulation, and modifying market supervision policies to improve corporate governance. The third is to draw lessons from the premature opening of the capital account. Instead of advocating imprudent financial liberalization, more policy makers are now in favor of prudent supervision of cross-border capital flows and step-by-step opening up of the capital account. The fourth is to improve the ability to manage fiscal deficits and public debt. Related measures include limiting the size of external debt, conducting debt relief and reconstruction, and improving debt sustainability. The fifth is to strengthen regional or international financial cooperation, so as to join efforts in addressing challenges such as insufficient infrastructure, high reliance on external demand by European and American countries, and the lack of international financial safety nets.

For AEs, one common feature of the US subprime crisis and the European sovereign debt crisis is the accumulation of financial vulnerabilities against the backdrop of financial deregulation and rapid financial innovation. Therefore, emphases of structural reforms were put on the strengthening of financial regulations after these crises. Not only the standard of macro prudential regulations were raised, but also new prudential instruments were invented and the concepts of macro prudential regulation and systemic risk were emphasized. Specific macro prudential instruments include countercyclical capital buffers, capital surcharges for systemically important banks and strengthened supervision over cross-border capital flows. Due to the enhanced supervision and the reversal of banks' risk preference, both American and European banks cut down cross-border businesses and enhanced their balance sheet resilience by increasing capital buffers, reducing maturity mismatches and exposures to currency risks. In addition, due to the peculiarities of the financial system in the Euro area, other structural reforms were implemented. For example, deeper financial and fiscal integration among member countries were stressed. Heavily indebted countries such as Greece started debt restructuring and fiscal consolidation with the financial support by the ECB and the IMF. In 2012, the supervision of most European banks was transferred to the European level and acoordinated settlement mechanism were adopted to avoid reliance on domestic fiscal resources for bank bailouts. In addition, the ECB allowed conditional purchases of designated government bonds. Although these actions have not yet been fully agreed upon, the European Banking Union and the Outright Monetary Transactions schemes have already made progress in fixing the loopholes revealed by the crisis.

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