Online Annex 3: Strengthening Growth through Financial Development

A. Economic Policies and Financial Development

This section summarizes the relationship between countries policies and their level of financial development.

Literature

There is extensive literature on what factors drive financial development, with literature reviews such as Beck (2018) available for reference. The table below reports key factors highlighted in the literature, outlines their theoretical link to financial development, and references some representative papers on the channel discussed.

| *Variable*	*Theoretical link to financial development*	*Papers*
Macroeconomic Stability	Due to the intertemporal nature of many financial transactions a degree of economic stability is thought to be critical for financial development.	Burger and Warnock (2006), Parks (2012)
Creditor and Property rights	The financial system is highly reliant on enforcement of contracts and reliability of property rights, as these are the basis of financial transactions.	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997), Levine, Loayza and Beck (2000) and Djankov, McLiesh and Shleifer (2007)
State ownership of banks	State-owned banks might have their lending influenced by political considerations, thereby lowering their efficiency. They may also have less pressure to keep their operational costs controlled.	Farazi, Feyen, and Rocha (2013), Williams and Nguyen (2005), Micco et al. (2007) and Cornett et al. (2010)
Public crowding out of credit	If public demand for private credit is high and the banking system is uncompetitive, this may reduce incentives for banks to lend to the private sector – maintaining captive profit by lending to the public sector.	Hauner (2009)
Competition in the banking sector	Competition in the banking system might affect financial development in multiple ways. A more competitive system might encourage development through increased efficiency and outreach. However, banks and other financial institutions may require a certain level of monopoly rents to invest in the necessary private information gathering required for financial intermediation.	Cetorelli and Gambera (2001), Love and Martinez Peria (2014)
Use of credit controls	In theory, credit controls, such as caps on lending rates or credit quotas, might overcome market failures. In practice, they are likely to create inefficiencies and allocative distortions.	Shaw (1973), McKinnon (1973) and Fry (1998)

| Structure of the economy | A sizable share of GDP reliant on the oil sector could also undermine financial development in some countries as profits are more likely to be invested abroad and in resource-intensive sectors, potentially crowding out investment in other sectors. | Beck (2011), Bhattacharya and Hodler (2014), Beck and Poelhekke (2017) |

Some factors highlighted in the literature were not examined due to a lack of cross-country data, including the role of credit information institutions, such as public and private credit bureaus, and the role of financial regulation beyond the use of credit controls.

Data

Before modelling the full relationship between policies and financial development, the charts below display the raw correlations between the variables of interest and financial development – as measured by the IMF's financial development index.
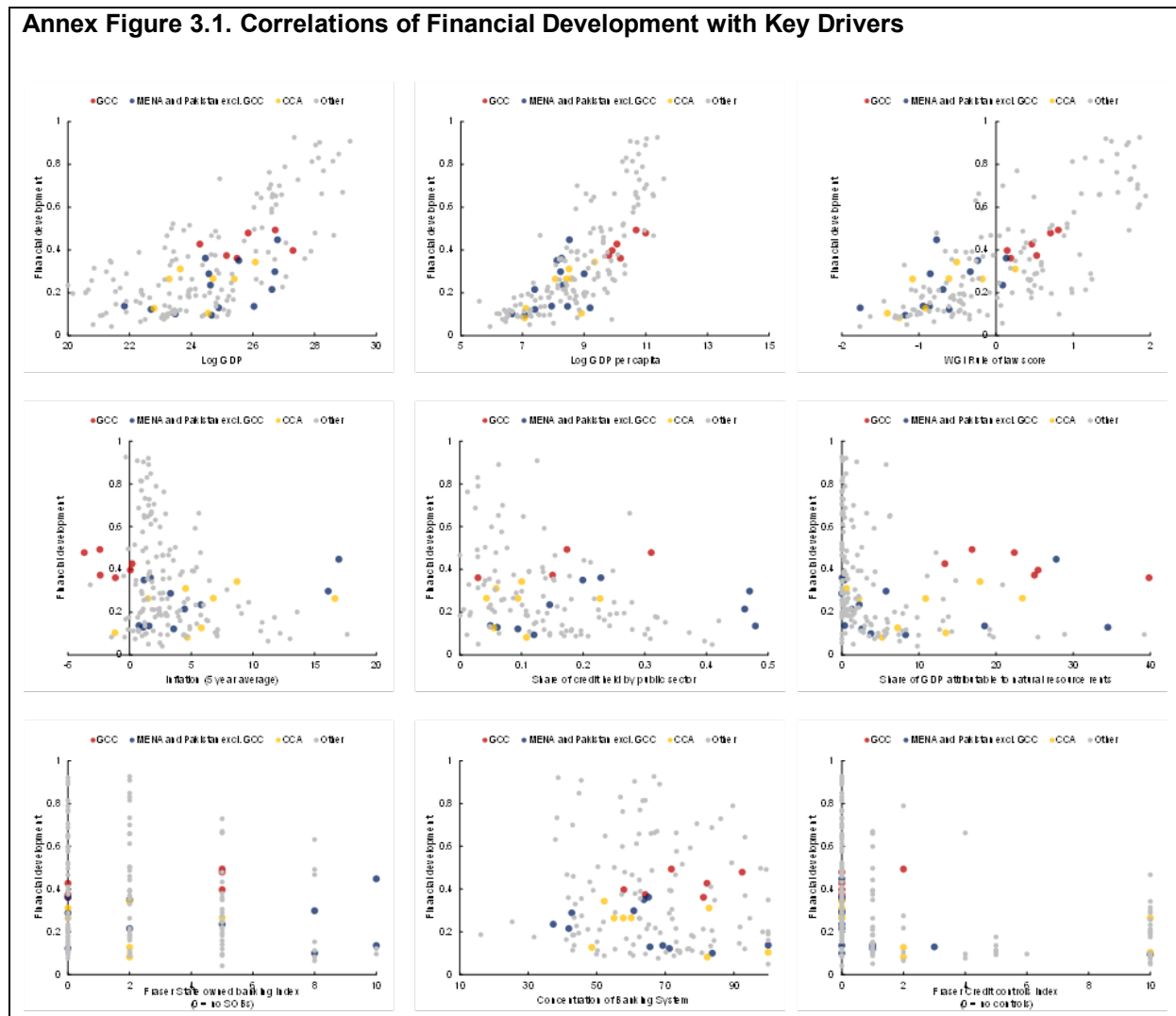
Annex Figure 3.1. Correlations of Financial Development with Key Drivers

A clear positive correlation can be seen between financial development and the following variables: GDP, GDP per capita and the World Governance Indicator's Rule of Law Index. A negative relationship can be seen between financial development and inflation, the share of credit held by the public sector, the share of GDP attributable to natural resource rents, State Owned Banking Index and Credit Controls Index. No correlation can be seen between financial development and banking system concentration.

Regression model

To investigate the relationship between the economic policies examined in the literature and financial development, the chapter uses a panel version of the Djankov, McLeish and Shleifer (2007) model. The panel regression with time and country fixed effects is estimated using annual data from 2004-2021:

$$FD_{i,t} = a + \beta_1 GDP_{i,t} + \beta_2 GDP\ per\ capita_{i,t} + \beta_3 Rule\ of\ Law_{i,t} + \beta_4 Monetary\ Stability_{i,t}$$
$$+ \beta_5 Share\ of\ credit\ to\ the\ Public\ Sector_{i,t} + \beta_6 \%\ of\ GDP\ from\ natural\ resources_{i,t}$$
$$+ \beta_7 State\ owned\ Banking\ Size_{i,t} + \beta_8 Concentration\ of\ Banking\ Sector_{i,t}$$
$$+ \beta_9 Credit\ Controls_{i,t}$$

i and t are country and time subscripts. FD is the IMF's Financial Development index. GDP and GDP per capita, both sourced from the World Bank Development Indicators, are included as controls for both economic development (GDP per capita) and economies of scale (GDP). The rule of law, proxying for creditor rights and contract enforceability, uses the World Justice Project's index. Monetary stability, state-owned banking and credit controls are measured by their associated index in the Fraser Economic Freedom Indices. Finally, banking system concentration is measured by the share of domestic private credit held by the sectors three largest banks, also sourced from the World Development Indicators.

The empirical results are reported below for all countries and for MENA and CCA countries separately. In the full regression, all variables have the expected sign and, except for banking concentration and use of credit controls, are statistically significant. The statistical insignificance of the last two variables is not surprising as the literature finds mixed results on the impact of banking concentration on financial development, while in the dataset for the covered period, very few countries have meaningful credit controls.

Annex Table 3.1. Regression Model 1 – Financial Development and Policies

	Dependent variable:	
	Financial Development	
	Full Sample	MENA and CCA Sample
	(1)	(2)
GDP	0.441***	0.885***
	p = 0.00004	p = 0.0005
GDP per capita	0.333***	0.21
	p = 0.0003	p = 0.194
Rule of Law	0.067***	0.387***
	p = 0.006	p = 0.00000
Monetary Stability	0.021***	0.077***
	p = 0.008	p = 0.0004
Public Share of Credit	-0.053***	-0.180***
	p = 0.000	p = 0.000
Share of GDP from Natural Resources	-0.030***	-0.028
	p = 0.007	p = 0.181
State Owned Banking Size	-0.023**	-0.108**
	p = 0.032	p = 0.025
Concentration of Banking Sector	-0.006	0.006
	p = 0.396	p = 0.747
Credit Controls	-0.006	0.005
	p = 0.361	p = 0.785
Observations	1,453	248
R^2	0.232	0.443
Adjusted R^2	0.165	0.377
F Statistic	44.871***	19.497***
	(df = 9; 1336)	(df = 9; 221)

Sources: Fraser Institute, Economic Freedom Indices; World Bank, World Development Indicators, World Justice Project; IMF, World Economic Outlook; and IMF staff calculations.
Note: *p<0.1; **p<0.05; ***p<0.01

B. Financial Sector Reforms

1. Description and Stylized Facts

This section briefly describes indicators used from the Financial Reforms Database from Abiad et al.[1] (2010) and updated by Omori (2022). The updated version is used throughout this chapter. The databases record financial sector policy changes over seven dimensions: credit controls, interest rate controls, barriers to entry, privatization, financial account restrictions and securities markets reforms. From 91 countries over the period 1973-2005 in the initial database, coverage has been expanded to 100 countries between 1973

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[1] An earlier version of the database was used in Abiad and Mody (2005) to study the economic and political determinants of financial liberalization reforms. It covered slightly different dimensions of reforms and included 35 countries over the period 1973-1996.

and 2013 by Omori (2022), including 14 countries[2] in the MENA, Pakistan and CCA regions. Annex Table 3.2 briefly describes the factors used to guide the coding for each dimension.

Annex Table 3.2. Description of Coding Rules for the Financial Reform Database

Dimension	Description (based on Abiad et al, 2010 and Omori, 2022)
Credit controls and excessively high reserve requirements	Controls include: - Minimum amount of bank credit to priority sectors (e.g., small-scale enterprises) or to the government. - Credit required at subsidized rates. - Aggregate credit ceilings. - Excessively high reserve requirements.
Interest rate controls	Deposit and/or lending rates set by the government (ceilings/floors could be binding, and rates could also be allowed to fluctuate within a band).
Entry barriers	Barriers include: - Restrictions to entry of domestic banks/other financial institutions. - Restrictions to entry of foreign banks and limits on equity ownership of domestic banks by non-residents. - Restrictions to the scope of banks' activities. - Restrictions to branching (geographic area of operation).
State ownership in the banking sector	The share of state-owned banks and the share of public banking sector assets determine the extent of repression and liberalization.
Financial account restrictions	Controls include: - Multiple exchange rates for capital or current account transactions. - Restrictions (taxes or outright) to capital inflows and/or outflows.
Prudential regulations and supervision of the banking sector	Regulations include: - Adoption of a capital adequacy ratio based on Basel accords. - Independence of the banking supervisory agency from political interference. - Effective supervision of the supervisory agency through on-site and off-site bank examinations. - No financial institutions exempted from supervisory oversight. Updated by Omori (2022) to better distinguish between the notions of institutional and operational (supervisory) independence
Securities market policy	Policies include: - Measures to develop securities markets (e.g., treasury bills auctions, introduction of MT/LT government bonds to build a yield curve, tax incentives, introduction of a primary dealer system). - Openness of the equity market to foreign investors.

Each financial sector policy dimension is given a score from zero to three for each country per year depending on the coding rules described in Annex Table 3.2 (see Appendix in Abiad et al. (2010) and Omori

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[2] There are 8 countries from the MENA and Pakistan region (Algeria, Egypt, Jordan, Morocco, Pakistan, Saudi Arabia, Tunisia, and United Arab Emirates) and 6 countries from the CCA region (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, and Uzbekistan). Data is only available for CCA from 1991 onwards.

(2022) for further details), where a higher score represents a higher degree of financial liberalization[3]. Changes in a country's score in one of the seven dimensions between two years are thus a proxy of reforms in that dimension. Changes can be negative, denoting reversals, and higher than one unit in a dimension if major reforms took place (for instance if both restrictions to financial inflows and outflows are removed in a year).

The main body of the chapter focuses on reforms fostering competition and reducing restrictions to financial account transactions. Reforms fostering competition are proxied by the sum of policy changes in (i) the privatization of state-owned banks dimension and (ii) the banking sector entry dimension. Reforms easing capital account restrictions are proxied by changes in the financial account transactions index. The reform package is constructed as the sum of policy changes in the privatization, banking entry and financial account transactions dimensions.

Section B.3 of the annex also looks at reforms reducing credit controls and interest rate controls.

Annex Figure 3.2. Financial Sector Reforms: Stylized Facts, 1974-2013
(Number)

Sources: Financial Reforms Database (Omori 2022); and IMF staff calculations.
Note: A reform is defined as a change between two years in the financial sector policy index for each dimension.

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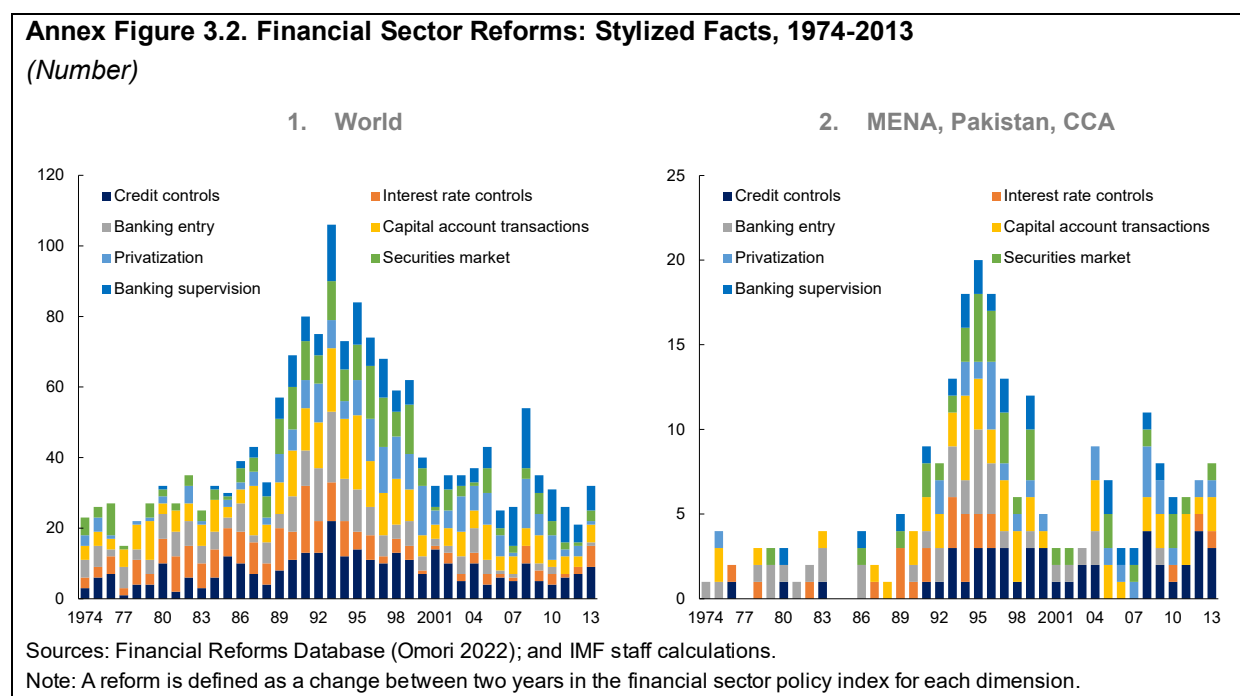
2. Empirical Specification

The impact of financial sector reforms on per-capita GDP and real private sector credit is estimated through a local projection approach (Jordà, 2005) using the following specification:

$$y_{i,t+h} - y_{i,t-1} = \beta_{1,h}\,\Delta financial\ sector\ policy_{i,t} + \beta_{2,k,h}\sum_{k=1}^{2}\Delta financial\ sector\ policy_{i,t-k}$$

$$+\ \alpha_{1,k}\sum_{k=1}^{2}\Delta y_{i,t-k}\ +\ \gamma^{h}X_{i,t}\ +\ \delta_i^h\ +\ \delta_t^h\ +\ \varepsilon_{i,t,h}$$

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[3] Except for the prudential regulations and banking supervision dimension, where a higher score denotes a higher degree of regulation.

h represents the horizon of the impulse responses, up to 5 years. $\Delta financial\ sector\ policy_{i,t}$ is the financial sector reform variable and captures changes to financial sector policies in each dimension considered. $y_{i,t+h} - y_{i,t-1}$ is the difference between the log values of the dependent variable (per-capita real GDP or real private sector credit) at time t+h and t-1. The regressions are estimated using annual data from 1974 to 2018.

Controls include contemporaneous and one-year lagged values of: trade openness, measured as the share of exports and imports to GDP, government consumption to GDP as a proxy for the fiscal stance, inflation, the external debt to GDP ratio, FX reserves as a percentage of GDP to account for a potential different response of countries to increased international financial flows depending on their external buffers, and a dummy for banking crises using the Banking Crisis database (Laeven and Valencia (2020)), which contains information on banking crises episodes between 1970 and 2017. When the dependent variable is private sector credit, regressions include contemporaneous and lagged real per-capita GDP growth as an additional control.

δ_i^h and δ_t^h represent country and year fixed-effects, respectively, and standard errors are clustered at the country level to account for within-country autocorrelation of error terms. Macroeconomic variables on real per-capita GDP, trade flows, government consumption, inflation come from the IMF April 2024 World Economic Outlook (WEO), while data on external debt to GDP and FX reserves comes from the External Wealth of Nations database (Brookings, 2024 and Lane and Milesi-Ferretti, 2018). Private sector credit data comes from the IMF International Financial Statistics (IFS) and is available from 2001 onwards, and real private sector credit is constructed with the CPI.

This approach is then augmented to study the differential impact of financial sector reforms in MENA, Pakistan and CCA countries as follows:

$$
\begin{aligned}
y_{i,t+h} - y_{i,t-1} = {} & MECA \times [\ \beta_{1,MECA,h}\ \Delta financial\ sector\ policy_{i,t} \\
& + \beta_{2,MECA,k,h} \sum_{k=1}^{2} \Delta financial\ sector\ policy_{i,t-k} + \alpha_{1,MECA,k} \sum_{k=1}^{2} \Delta y_{i,t-k}\ ] \\
& + (1 - MECA) \times [\ \beta_{1,RoW,h}\ \Delta financial\ sector\ policy_{i,t} \\
& + \beta_{2,RoW,k,h} \sum_{k=1}^{2} \Delta financial\ sector\ policy_{i,t-k} + \alpha_{1,RoWk} \sum_{k=1}^{2} \Delta y_{i,t-k}\ ] + \gamma^h X_{i,t} + \delta_I^h + \delta_t^h \\
& + \varepsilon_{i,t,h}
\end{aligned}
$$

MECA is a dummy variable equal to 1 for countries in MENA, Pakistan and CCA countries, and 0 otherwise.

2.1 GDP

Annex Figure 3.3 shows impulse responses of the reform package (Figure 3.5.2 of the main text), reforms fostering competition in the banking sector and easing capital account restrictions on GDP, whose 5-year response is shown in Figure 3.6 of the main text. Throughout section B, the worldwide average response is depicted in gray, while coefficients for MENA, Pakistan and CCA are depicted in blue.

Annex Figure 3.3. Impact of Competition and Capital Account Reforms on Real Per-Capita GDP
(Percent)

| 1. Competition | 2. Capital Account | 3. Reform Package |

▬ MENA, Pakistan, CCA: 90 percent confidence interval   ▬ World: 90 percent confidence interval   ——MENA, Pakistan, CCA   ——World

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Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

2.2 Private Sector Credit

Annex Figure 3.4 shows impulse responses of the reform package (Figure 3.5.1 of the main text), reforms fostering competition in the banking sector and easing capital account restrictions on private sector credit, whose 5-year response is shown in Figure 3.6 of the main text.

Annex Figure 3.4. Impact of Competition and Capital Account Reforms on Real Private Sector Credit
(Percent)

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Notes: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial

Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking sector entry indices. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3. Robustness Exercises

3.1 Credit and Interest Rate Controls: Financial Repression

This section examines whether removing credit controls and interest rate controls in countries of the region can help incentivize the provision of credit to its most productive uses, using the same specifications as in section B.2. In addition, the easing of financial repression is proxied by the sum of change in the credit and interest rate controls dimensions. Annex Figures 3.5 and 3.6 show the response of per-capita real GDP and private sector credit, respectively[4].

3.1.1 GDP

Annex Figure 3.5 shows that reforms easing credit and interest rate controls were not associated with any tangible gains to GDP per capita over a five-year horizon compared to baseline, either globally or in MENA and CCA countries.

Annex Figure 3.5. Impact of Credit and Interest Rate Controls Reforms on Real Per-Capita GDP

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.
Notes: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A reform easing financial repression is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) credit controls, and (ii) interest rate controls, based on the Financial Reforms Database. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.1.2. Private Sector Credit

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[4] The measure of reforms easing financial repression can also be extended to account for the removal of restrictions to capital flows (adding changes to the financial transactions index to the financial repression measure) that could alter savings decisions, without qualitatively altering our findings in figures CC and DD

On the other hand, Annex Figure 3.6 shows that easing credit controls was associated with an almost 10 percent increase in private sector credit in the region, and almost 5 percent globally, 5 years later. Interest rate controls reforms were not associated with any increase in the provision of private credit over baseline globally, but were associated on average with larger gains across MENA and CCA countries.

Annex Figure 3.6. Impact of Credit and Interest Rate Controls Reforms on Real Private Sector Credit

    1.   Credit Controls   **2.   Interest Rate Controls**   **3.   Financial Repression**

■ MENA, Pakistan, CCA: 90 percent confidence interval   ■ World: 90 percent confidence interval   — MENA, Pakistan, CCA   — World

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

The shock is a financial reform and occurs at year 1. Note: A local projections approach is used to assess the impact of financial reforms. A reform easing financial repression is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) credit controls, and (ii) interest rate controls, based on the Financial Reforms Database. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.2 Governance Reforms

This section follows the IMF Middle East and Central Asia Regional Economic Outlook Chapter 2 of October 2023 to examine whether improvements in governance and better institutions could foster the provision of credit.

The governance index is constructed as the average of five components of the World Bank World Governance Indicators database, which is available at annual frequency between 2002 and 2022: (i) voice and accountability, (ii) political stability and absence of violence, (iii) government effectiveness, (iv) rule of law and (v) control of corruption. Governance reforms are then proxied by the annual change in the governance index value and replace financial sector policy changes in the specifications of section B.2.

Annex Figure 3.7 hints at modest per-capita real GDP gains associated with governance reforms five years later compared to baseline (around or under 1 percent), however it also shows that governance reforms were associated with a boost in the provision of private sector credit by around 6.5 percent worldwide and in MENA and CCA countries.

Annex Figure 3.7. Impact of Governance Reforms on Real Per-Capita GDP and Real Private Sector Credit

| 1. Per Capita GDP | 2. Private Sector Credit |

MENA, Pakistan, CCA: 90 percent confidence interval ▢ World: 90 percent confidence interval ▢ ── MENA, Pakistan, CCA ── World

Sources: World Bank, Worldwide Governance Indicators; Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. A governance reform is defined as a two standard deviation change between two years in the governance index, as defined in the text of Annex B.3.2. The shock occurs at year 1.CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.3 Reforms Over the Projection Horizon

Teulings and Zubanov (2014) show the existence of a bias to local projection estimates because of shocks occurring over the forecast horizon. The specification below aims to control for this bias by including financial sector reforms happening during the local projection horizon for h>0[5]:

$$y_{i,t+h} - y_{i,t-1} = \beta_{1,h} \, \Delta financial \; sector \; policy_{i,t} + \beta_{2,k,h} \sum_{k=1}^{2} \Delta financial \; sector \; policy_{i,t-k}$$

$$+ \beta_{3,k,h} \sum_{k=1}^{h} \Delta financial \; sector \; policy_{i,t+k} + \alpha_{1,k} \sum_{k=1}^{2} \Delta y_{i,t-k} + \gamma^h X_{i,t} + \delta_i^h + \delta_t^h + \varepsilon_{i,t,h}$$

Annex Figures 3.8 and 3.9[6] show the response of per-capita GDP and private sector credit. Our findings when the dependent variable is real per-capita GDP remain qualitatively robust to the inclusion of financial

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[5] The local projection specification with MECA and RoW-specific coefficients is modified accordingly, with region-specific coefficients for reforms happening between t+1 and t+h.

[6] The results on private sector credit should be interpreted with the following caveat : accounting for reforms happening between t+1 and t+h effectively reduces the number of observations available to estimate coefficients of the horizon h regression (given that the Financial Reform Database updated by Omori (2022) ends in 2013), leaving us with a short panel when the dependent variable is private sector credit, which is only available from 2001 onwards.

sector reforms taking place between time t+1 and t+h, while the average response tends to be higher when the dependent variable is real private sector credit.

3.3.1 GDP

Annex Figure 3.8. Impact of Competition and Capital Account Reforms on Real Per-Capita GDP

| 1. Competition | 2. Capital Account | 3. Reform Package |

MENA, Pakistan, CCA: 90 percent confidence interval   World: 90 percent confidence interval   —— MENA, Pakistan, CCA   —— World

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking sector entry indices. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.3.2 Private Sector Credit

Annex Figure 3.9. Impact of Competition and Capital Account Reforms on Real Private Sector Credit

| 1. Competition | 2. Capital Account | 3. Reform Package |

MENA, Pakistan, CCA: 90 percent confidence interval   World: 90 percent confidence interval   —— MENA, Pakistan, CCA   —— World

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking sector entry indices. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.4 Simultaneous Implementation of Reforms: Spillovers from other Financial Reforms

This section tries to investigate whether the response of GDP and credit to financial sector reforms fostering competition or easing capital account restrictions is not affected by the simultaneous implementation of other financial sector reforms, which could affect local projections coefficient estimates. The specifications in section B.2 are augmented by the inclusion of contemporaneous and lagged financial sector reforms in all other dimensions than the one considered in the regression[7]:
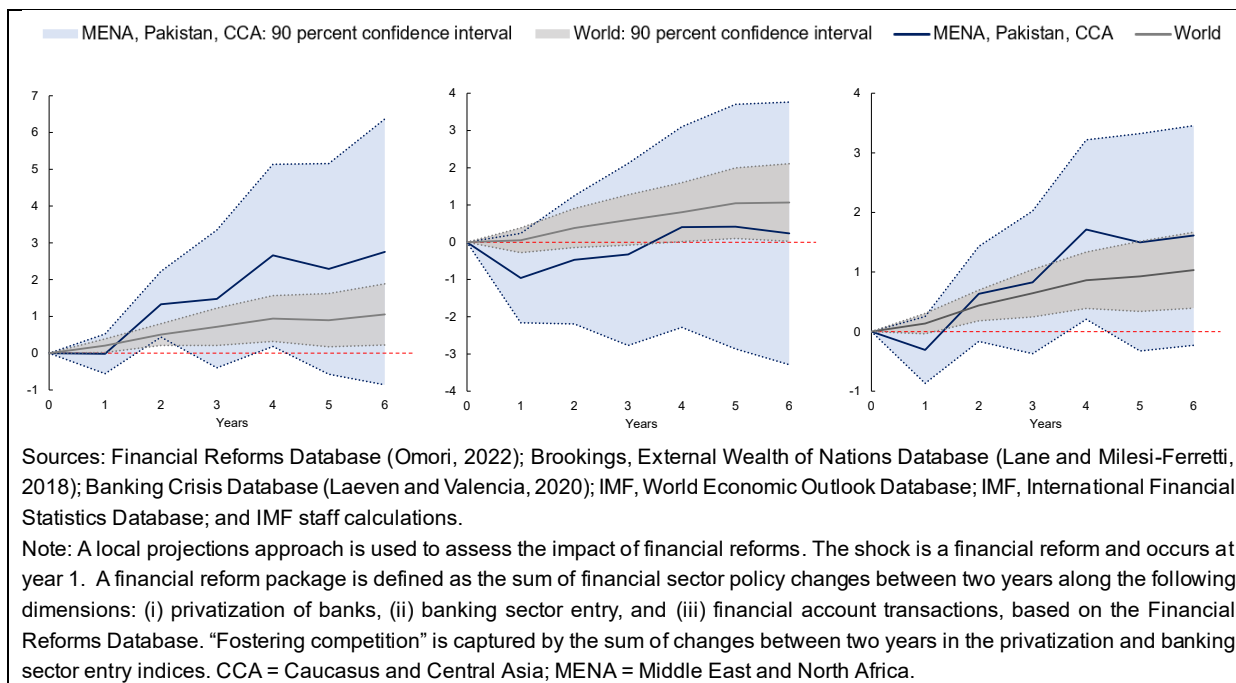
$$y_{i,t+h} - y_{i,t-1} = \beta_{1,h} \Delta financial\ sector\ policy_{i,t} + \beta_{2,k,h} \sum_{k=1}^{2} \Delta financial\ sector\ policy_{i,t-k}$$

$$+ \beta_{3,k,h} \sum_{k=0}^{2} \Delta other\ financial\ sector\ policy_{i,t-k} + \alpha_{1,k} \sum_{k=1}^{2} \Delta y_{i,t-k} + \gamma^h X_{i,t} + \delta_i^h + \delta_t^h$$

$$+ \varepsilon_{i,t,h}$$

Annex Figures 3.10 and 3.11 show the results, which are very similar to baseline results, and consistent with Abiad et al. (2010) and Omori (2022), who show that the timing of financial sector policy changes tends to be independent across the seven dimensions.
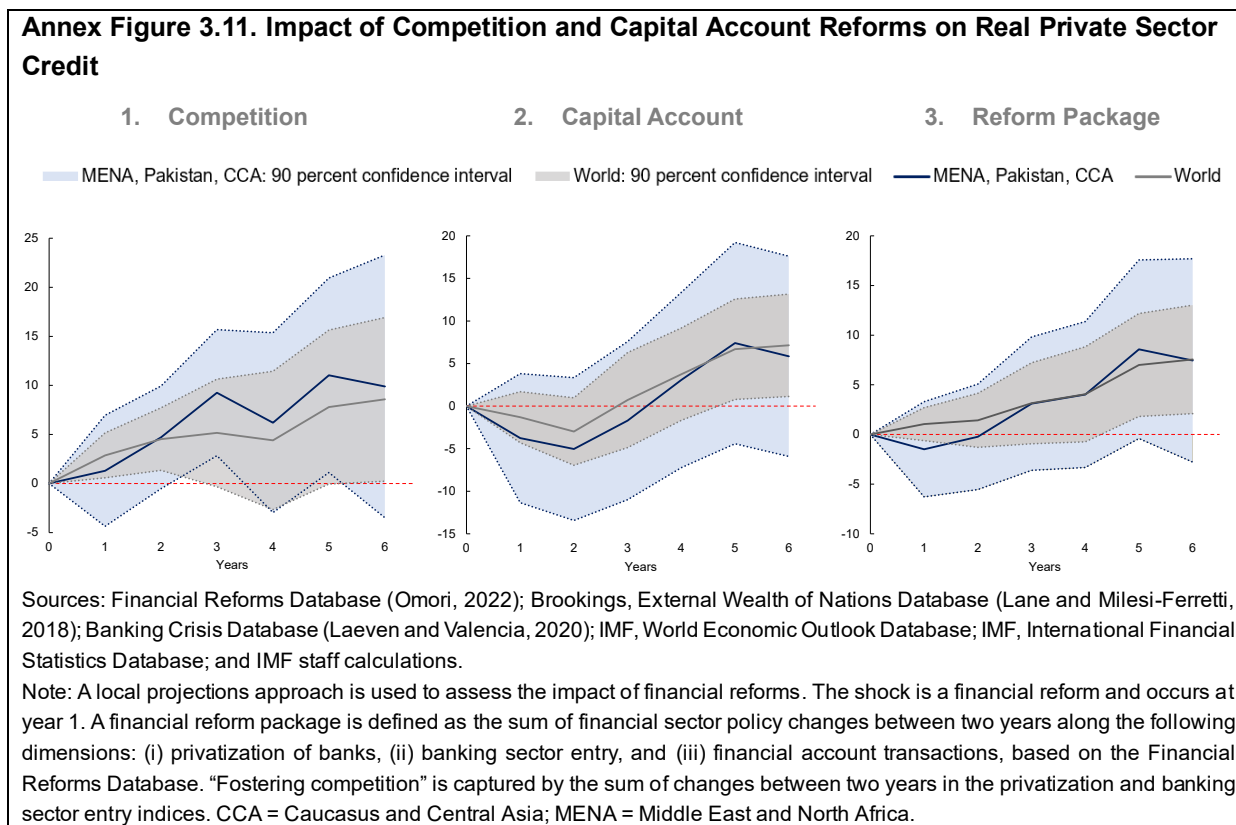
3.4.1   GDP

Annex Figure 3.10. Impact of Competition and Capital Account Reforms on Real Per-Capita GDP

| 1.   Competition | 2.   Capital Account | 3.   Reform Package |

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[7] The local projection specification with MECA and RoW-specific coefficients is modified accordingly, with region-specific coefficients for reforms in other dimensions than the one considered in the regression.

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking sector entry indices. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

3.4.2 Private Sector Credit

Annex Figure 3.11. Impact of Competition and Capital Account Reforms on Real Private Sector Credit

Sources: Financial Reforms Database (Omori, 2022); Brookings, External Wealth of Nations Database (Lane and Milesi-Ferretti, 2018); Banking Crisis Database (Laeven and Valencia, 2020); IMF, World Economic Outlook Database; IMF, International Financial Statistics Database; and IMF staff calculations.

Note: A local projections approach is used to assess the impact of financial reforms. The shock is a financial reform and occurs at year 1. A financial reform package is defined as the sum of financial sector policy changes between two years along the following dimensions: (i) privatization of banks, (ii) banking sector entry, and (iii) financial account transactions, based on the Financial Reforms Database. "Fostering competition" is captured by the sum of changes between two years in the privatization and banking sector entry indices. CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.

C. Inequality and Financial Development

1. Methodology and Empirical Specification

In order to analyze the impact of financial development on inequality, it is important to take into account other economic indicators that could potentially be associated with both variables. The regression equation takes the following form:

$$Inequality_{it} = \beta_i + \beta_1 \times FD_{it} + \beta_2 \times FD_{it} \times MECA + \beta_3 \times ln(GDPpc_{it}) + \beta_4 \times ln(Trade\ Openness_{it}) + \beta_5 \times ln(CPI_{it}) + u_{it}$$

For inequality, the post-tax income Gini index from the World Inequality Database (WID) is used. Financial development variables are sourced from the IMF's Financial Development Index database. Controls include trade openness, measured as the sum of exports and imports as a percentage of GDP, per-capita GDP, and CPI inflation (IMF, World Economic Outlook). MECA is a binary dummy variable indicating whether a country is a MENA&CCA country or not. The sample consists of annual data of country observations between 1980 and 2021.

Due to endogeneity concerns, the second lag of FD as an instrumental variable is used. To control for extreme values of GDP per capita, trade openness, and the CPI inflation, we used their logarithmic values to normalize the distribution. Country fixed effects were controlled for in the model, and standard errors were clustered at the country level.

The direction of the effects of financial development for the MENA&CCA region is the sum of these two coefficients ($\beta_1 + \beta_2$). GDP per capita is expected to reduce inequality, while inflation is expected to increase it. The effect of trade openness could be mixed and complicated, potentially both decreasing and increasing inequality.

2. Inequality and Financial Development in ME&CA

Financial development can influence inequality by expanding access to financial services, enabling a larger number of people to invest and increase economic growth. However, the effects of financial development can be mixed: it can reduce inequality by supporting the poor, but it may also exacerbate disparities if the benefits are concentrated among the wealthy. Annex Figure 3.12 shows the findings related to the impact of the additional variables of financial institutions (FI) and financial institutions access (FIA) on inequality not shown in the Box 1 of the main text.

Annex Figure 3.12. Impact of Financial Development on Income Inequality

Sources: World Inequality Database; IMF, World Economic Outlook; IMF, Financial Development Index; and IMF staff calculations.
Note: CCA = Caucasus and Central Asia; MENA = Middle East and North Africa.
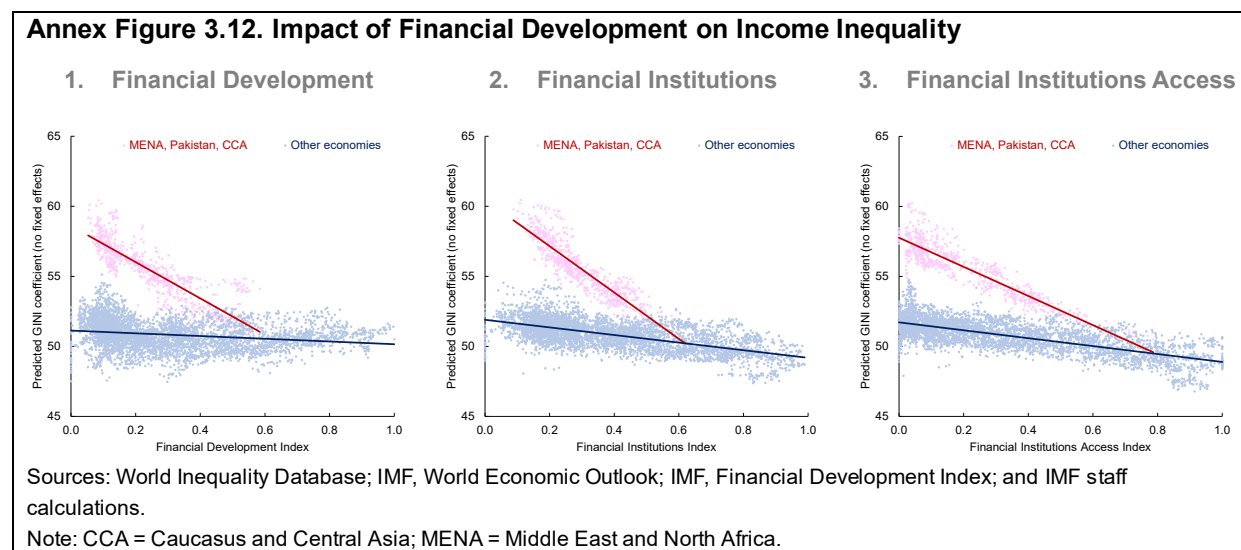
The analysis finds a clear downward trend for MENA&CCA countries across the three financial development indicators, financial development – FD, financial institutions – FI, and financial institutions access – FIA. The steeper decline in inequality as financial development increases for MENA&CCA countries indicates that financial development might have a more pronounced impact on reducing inequality across MENA&CCA countries compared to non-MENA&CCA countries.

References

Abiad, A. d., Detragiache, E., & Tressel, T. (2010). "A New Database of Financial Reforms". *IMF Staff Papers*, 2010(002), A001.

Abiad, Abdul, and Ashoka Mody. 2005. "Financial Reform: What Shakes It? What Shapes It?" *American Economic Review*, 95 (1): 66–88**.**

Beck, T. 2011. "Finance and oil: Is there a natural resource curse in financi al development?". In R. Arezki, T. Gylfason and A. Sy (eds), Beyond the Curse: Policies to Harness the Power of Natural Resources (pp. 81–106). Washington, DC: IMF.

B Beck, T., & Poelhekke, S. (2017). Follow the Money: Does the Financial Sector Intermediate Natural Resource Windfalls? *Journal of Development Economics, 127*, 95-111.

Brookings. The external wealth of nations database (brookings.edu)

Burger, J. D., & Warnock, F. E. (2006). Local Currency Bond Markets. *IMF Staff Papers, 53*(Special Issue), 133-146.

Cetorelli, N. and Gambera, M. 2001. "Banking market structure, financial dependence and growth: International evidence from industry data", Journal of Finance, 56, pp. 617–648.

Cornett, M.M., Guo, L., Khaksari, S. and Tehranian, H. 2010. "The impact of state ownership on performance differences in privately-owned versus state-owned banks: An international comparison", Journal of Financial Intermediation, 19(1), pp. 74–94.

Djankov, S., McLiesh, C. and Shleifer, A. 2007. "Private credit in 129 countries", Journal of Financial Economics, 84, pp. 299–329.

Farazi, S., Feyen, E., & Rocha, R. (2013). Bank Ownership and Performance in the Middle East and North Africa Region: What Explains the Low Intermediation Efficiency? *World Bank Policy Research Working Paper, No. 5620*.

Fry, M.J. 1998. "Savings, investment, growth and financial distortions in Pacific Asia and other developing areas", International Economic Journal, 12, pp. 1–24.

Hauner, D. (2009). Public Debt and Financial Development. *Journal of Development Economics, 88*(1), 171-183.

IMF October 2023 Regional Economic Outlook – Middle East and Central Asia, Chapter 2 : "From Setbacks to Comebacks: Reforms to Build Resilience and Prosperity"

Jordà, Òscar. 2005. "Estimation and Inference of Impulse Responses by Local Projections." *American Economic Review* 95 (1): 161–82.

La Porta, R., Lopez-de -Silanes, F., Shleifer, A. and Vishny, R.W. 1997. "Legal determinants of external finance", Journal of Finance, 52, pp. 1131–1150.

Laeven, L., Valencia, F. "Systemic Banking Crises Database II". *IMF Econ Rev* **68**, 307–361 (2020).

Lane, Philip R. and Gian Maria Milesi-Ferretti, 2018, "The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis," *IMF Economic Review* 66, 189-222.

Levine, R., Loayza, N. and Beck, R. 2000. "Financial intermediation and growth: Causality and causes", Journal of Monetary Economics, 46, pp. 31–77.

Love, I., Martinez Peria, M.S. and Singh, S. 2016. "Collateral registries for movable assets: Does their introduction spur firms' access to bank finance?", Journal of Financial Services Research, 49, pp.

McKinnon, R.I. 1973. Money and Cap ital in Economic Development. Washington, DC: Brookings Institution.

Micco, A., Panizza, U., & Yañez, M. (2007). Bank Ownership and Performance: Does Politics Matter? *Journal of Banking & Finance, 31*(1), 219-241.

Omori, Sawa. 2022. "Introducing the Revised and Updated Financial Reform Database." *Journal of Financial Regulation* 8 (2): 230–40.

Park, J. 2012. "Brazil's capital market: Current status and issues for further development". IMF Working Paper No. 12/224.

Shaw, E.S. 1973. Financial Deepening in Economic Development. New York: Oxford University Press

Teulings, C.N. and Zubanov, N. (2014), "IS ECONOMIC RECOVERY A MYTH? ROBUST ESTIMATION OF IMPULSE RESPONSES". *J. Appl. Econ.*, 29: 497-514.

Williams, J., & Nguyen, N. (2005). Financial Liberalization, Crisis, and Restructuring: A Comparative Study of Bank Performance and Bank Governance in South East Asia. *Journal of Banking & Finance, 29*(8-9), 2119-2150.