GLOBAL FINANCIAL DEVELOPMENT REPORT 2015 | 2016

Long-Term Finance

WORLD BANK GROUP

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1 2 3 4 18 17 16 15

ISBN (paper): 978-1-4648-0472-4
ISBN (electronic): 978-1-4648-0471-7
ISSN: 2304-957X
DOI: 10.1596/978-1-4648-0472-4

Cover design: Bill Pragluski, Critical Stages, LLC

The report reflects information available up to June 30, 2015.

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Foreword

The third *Global Financial Development Report* contributes to the ongoing debate on the role of long-term finance in sustaining economic development and ensuring shared prosperity. It builds on the first and second reports, which respectively contributed to the debates on the role of the state in finance and on financial inclusion. Like these prior analyses, this report provides a nuanced, practical, and evidence-based approach to financial sector policy.

Its recommendations come at a crucial time, almost seven years after the global financial crisis spread rapidly and broadly across many advanced and developing countries. In recent years, international policy makers, in particular the Group of Twenty (G-20), have voiced growing concerns about the potential detrimental effects of a prolonged decline in the supply of long-term funding by the international banking system. At the same time, raising fixed investment, particularly in infrastructure, is increasingly seen as critical to sustaining the level of economic growth needed to achieve the broader objectives of the post-2015 Sustainable Development Goals. In this context, the G-20 has endorsed various policy initiatives involving international organizations (the Financial Stability Bureau, the International Monetary Fund, the Organisation for Economic Co-operation and Development, and the World Bank Group) in areas such as financial sector regulatory reforms, the development of local currency bond markets, and the role of institutional investors in financing long-term investments.

The *Global Financial Development Report 2015/2016: Long-Term Finance* offers new research and data that help fill gaps in the knowledge on long-term finance and that contribute to the policy discussion on this development issue. It provides stylized facts and examines both new and older evidence on the use and provision of long-term finance and its economic impact.

Extending the maturity structure of finance is often considered to be at the core of sustainable financial development. It would be a challenge to achieve high and sustainable rates of economic growth if countries fail to invest in schools, roads, power generation, electricity distribution, railways and other modes of transport, and communications. Private sector construction of plants and investment in machinery and equipment are also important. Without long-term financial instruments, households would face great hurdles to smoothing or raising income over their life

cycle—for example by investing in housing or education—and may not benefit from higher long-term returns on their savings.

For many years, the World Bank Group has been engaged in activities related to delivering sustainable long-term finance to developing countries. Prior attempts at directly boosting the supply of long-term finance have not been free of controversy and have sometimes led to substantial costs to taxpayers. In response, the World Bank's direct long-term lending was reduced in the 1990s and 2000s, and its other roles became more prominent.

The report provides a careful review and synthesis of recent and new research, identifying those policies that work to promote long-term finance and those that do not; it also notes where more research is needed. It argues that there is no magic bullet to promote long-term finance. Typically, direct interventions have not been successful where underlying problems remained. As a result, governments and international bodies must focus on reforms that help overcome market failures and institutional weaknesses. They must also improve risk and information sharing, and promote financial literacy and consumer protection.

We hope that this year's *Global Financial Development Report* will prove useful to a wide range of stakeholders, including governments, international financial institutions, nongovernmental organizations, think tanks, academics, the private sector, donors, and the broader community.

Jim Yong Kim
President
The World Bank Group

Acknowledgments

Global Financial Development 2015/2016: Long-Term Finance reflects the efforts of a broad and diverse group of experts both inside and outside the World Bank Group. The report was produced by the World Bank Research Department in collaboration with the Finance and Markets Global Practice, the Financial Institutions Group in the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). Moreover, it includes inputs from a wide range of units, including the Development Economics Vice Presidency, the Regional Vice Presidencies, the Macroeconomics and Fiscal Management Global Practice, the Treasury, and the Publishing and Knowledge Division of the External and Corporate Relations Vice Presidency.

Aslı Demirgüç-Kunt was the report's director. Thierry Tressel was the task manager of the project. The main authors in charge of the chapters were María Soledad Martínez Pería (chapter 1); Miriam Bruhn and Claudia Ruiz Ortega (chapter 2); Juan Jose Cortina Lorente and Sergio Schmukler (chapter 3); and Martin Kanz, María Soledad Martínez Pería, Matias Moretti, Alvaro Enrique Pedraza Morales, and Sergio Schmukler (chapter 4). Other authors who provided key contributions to the chapters include Martin Kanz (chapter 1), Colin Xu (chapter 2), and Tatiana Didier (chapter 3). Jeanne Verrier, Nan Zhou, and Amin Mohseni-Cheraghlou completed the core team. Martin Čihák contributed to the concept note. Inputs were received from Deniz Anginer (chapter 2, box 2.7); Gunhild Berg, Bilal Zia, and Haelim Park (chapter 2); Eduardo Engel, Ronald Fischer, and Alexander Galetovic (chapter 3, box 3.2); Eva Hansen (chapter 3, box 3.3); Zamir Iqbal (chapter 3, box 3.5); Catiana Garcia-Kilroy and Anderson Caputo Silva (chapter 3, box 3.6), Julieta Picorelli (chapter 4, box 4.1); Pierre-Laurent Chatain (chapter 4, box 4.2); and Erik Feyen and Subika Farazi (appendixes and Global Financial Development Database).

Kaushik Basu, Chief Economist and Senior Vice President; Mahmoud Mohieldin, Special Envoy of the World Bank President; and Bertrand Badre, Managing Director and World Bank Group Chief Financial Officer, provided overall guidance and valuable advice.

External advisors to the report included Franklin Allen, Professor of Finance and Economics at the Wharton School, University of Pennsylvania; Thorsten Beck, Professor of Banking and Finance, Cass Business School in London; Charles Calomiris, Henry

Kaufman Professor of Financial Institutions, Columbia Business School; Stijn Claessens, Senior Adviser, Federal Reserve Board; Olivier Jeanne, Professor of Economics, Johns Hopkins University and Senior Fellow at the Peterson Institute for International Economics; Ross Levine, Willis H. Booth Chair in Banking and Finance, Haas School of Business; and Vojislav Maksimovic, William A. Longbrake Chair in Finance, Robert H. Smith School of Business at the University of Maryland.

The team received valuable peer review and guidance from other staff members at the World Bank Group including Loic Chiquier, Augusto de la Torre, Alain Ize, Roberto Rocha, Peer Stein, and Ravi Vish. Aart Kraay reviewed the concept note and drafts of the report for consistency and quality multiple times.

Peer Stein and Matthew Gamser were the key contacts at IFC, Gloria M. Grandolini at the Finance and Markets Global Practice, and Ravi Vish at MIGA. The authors benefited from informal discussions and received valuable suggestions and other contributions from Hormoz Aghdaey, Irina Astrakhan, Dilek Aykut, Meghana Ayyagari, Arup Banerji, Patrick Blanchard, Markus K. Brunnermeier, Ana Fiorella Carvajal, Gerardo Corrochano, Mariano Cortes, Shantayanan Devarajan, Shanthi Divakaran, Mark Dorfman, Arnaud Dornel, Aurora Ferrari, Erik Feyen, Havard Halland, Alison Harwood, Martin Hommes, Anushe A. Khan, Anjali Kumar, Rodney Ross Lester, Samuel Maimbo, Yira J. Mascaro, David McKenzie, Martin Melecky, Sebastian Molineus, Cedric Mousset, Michel Noel, Robert Palacios, Jorge Patiño, Harris Selod, Aksinya Sorokina, Fiona Stewart, Francesco Strobbe, Markus Taussig, Anuradha Thakur, Craig Thorburn, Hourn Thy, Marilou Uy, Simon Walley, Ivan Zelenko, and Albert Zeufack. Data contributions were received from Ibrahim Levent, Wendy Ven-dee Huang, and Eung Ju Kim. The report also benefited from informal conversations with colleagues at the International Monetary Fund and at the United Nations Environment Program Inquiry into the Design of a Sustainable Financial System.

In the World Bank–wide review of the concept note and of the report, substantial comments were received from Loic Chiquier, Roberto R. Rocha, Alison Harwood, and other staff of the units in the Finance and Markets Global Practice (in particular, the Financial Systems and Capital Markets and Nonbank Financial Institutions units); Ravi Vish and Franciscus Johannes Linden (all Multilateral Investment Guarantee Agency); Ted Haoquan Chu and William C. Haworth (International Finance Corporation); Augusto de la Torre, Steen Byskov, Alain Ize, and Eduardo Levy-Yeyati (all Latin America and the Carribean Region); Axel van Trotsenburg, Ulle Lohmus, Sudhir Shetty, and Nikola L. Spatafora (all East Asia and Pacific Region); Cesar Calderon, Makhtar Diop, Arnaud Dornel, Cedric Mousset, and Christopher Juan Costain (all Africa Region); Shantayanan Devarajan and Pietro Calice (all Middle East and North Africa Region); Hans Timmer, Davide Salvatore Mare, Anna Bjerde, John Pollner, Natalie Nicolaou, and David Michael Gould (all Europe and Central Asia Region); Philippe Le Houérou, Markus Kitzmuller, Martin Rama, and Niraj Verma (all South Asia Region); Reynaldo F. Pastor, Alejandro Alcala Gerez, Susan Maslen, Vikram Raghavan, Shirmila T. S. Ramasamy, Mariangeles Sabella, Anthony Toft, Vijay Srinivas Tata and Shirmila Ramasamy (all Legal Unit); Samuel K. E. Otoo, Mark Roland Thomas, Pinki Chaudhuri, Jeffrey Lewis, Mick Riordan, and Carlos Cavalcanti (all Macroeconomics and Fiscal Management Global Practice); Jacob Goldston, Carlos Silva-Jauregui, and Tara Vishwanath (all Poverty Global Practice); Joachim von Amsberg and Clara Ana Coutinho de Sousa (all Development Finance Unit); Marianne Fay, Roy Parizat, Eduardo Ferreira, Habiba Gitay, Joshua Gallo, and Julie Rozenberg (all Climate Change Cross-Cutting Solutions Area and Sustainable Development Vice Presidency); Scobey Leonardo Bravo, Mariano Cortes, Jack Glen, Anjali Kumar, and Andrew

Stone (all Independent Evaluation Group); Laurence W. Carter and Xavier Cledan Mandri-Perrott (all Public Private Parternships Cross-Cutting Solutions Area); Myles Brennan, Phillip Anderson, Daniela H. Klingebiel, and Colleen E. Keenan (all Treasury); Jaehyang So and Rahul Gupta (all Trust Funds and Partnerships); Ivan Rossignol (Trade and Competition Global Practice); Caren Grown and Benedicte Leroy De La Briere (all Gender Cross-Cutting Solutions Area).

The individual chapters of the report were presented at the Global Financial Development Report seminars. The seminars were presented by members of the core team and benefited from thorough discussions with Roberto Rocha and Jeff Chelsky (chapter 1), Simon Bell and Andrew Stone (chapter 2), Heinz Rudolph and Catiana Garcia-Kilroy (chapter 3), and Mario Guadamillas and Fiona Stewart (chapter 4).

The report would not be possible without the publishing production team, including Patricia Katayama, Stephen McGroarty, and Janice Tuten, and as well as the external editor, Martha Gottron. Roula Yazigi assisted the team with the website. The communications team included Ryan Douglas Hahn, Phil Hay, Vamsee Kanchi, and Merrell Tuck-Primdahl. Excellent administrative assistance was provided by Michelle Chester, Paulina Sintim-Aboagye, and Tourya Tourougui. Liliana Longo and Eileen Monnin-Kirby provided continuous support on budgetary issues. Azita Amjadi, Colleen Burke, Liu Cui, Shelley Lai Fu, William Prince, and Janice Tuten have been helpful in the preparation of the updated *Little Data Book on Financial Development 2015/2016*, accompanying this report.

The authors would like to thank the many country officials and other experts who participated in the surveys underlying this report, including the Financial Development Barometer.

Financial support from the Knowledge for Change Program's research support budget, the SME Finance Forum, and the U.K. Department for International Development is gratefully acknowledged.

Abbreviations and Glossary

BIS	Bank for International Settlements
G-20	Group of 20
GDP	gross domestic product
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
SME	small and medium enterprise
SWF	sovereign wealth fund

Note: All dollar amounts are U.S. dollars ($) unless otherwise indicated.

GLOSSARY

Country	A territorial entity for which statistical data are maintained and provided internationally on a separate and independent basis (not necessarily a state as understood by international law and practice).
Financial development	Conceptually, financial development is a process of reducing the costs of acquiring information, enforcing contracts, and making transactions. Empirically, measuring financial development directly is challenging. This report focuses on measuring four characteristics (depth, access, efficiency, and stability) for financial institutions and markets ("4x2 framework").
Financial inclusion	The share of individuals and firms that uses financial services.
Financial system	The financial system in a country is defined to include financial institutions (banks, insurance companies, and other nonbank financial institutions) and financial markets (such as those in stocks, bonds, and financial derivatives). It also includes the financial infrastructure (which includes, for example, credit information–sharing systems and payments and settlement systems).

Institutional investors	Institutional investors include public and private pension funds, life insurance companies, non-life insurance companies, and mutual funds.
Long-term finance	Long-term finance comprises all types of financing (including loans, bonds, leasing, and public and private equity) with a maturity exceeding one year. Maturity refers to the length of time between origination of a financial claim (loan, bond, or other financial instrument) and the final payment date, at which point the remaining principal and interest are due to be paid. Equity, which has no final repayment date of a principal, can be seen as an instrument with nonfinite maturity.
Nonbank financial institutions	Institutional investors and other nonbank financial intermediaries (such as leasing companies and investment banks).

Overview

What role does long-term finance play in economic development? Extending the maturity structure of finance is often considered to be at the core of sustainable financial development. Long-term finance—frequently defined as all funding for a time frame exceeding one year—may contribute to faster growth, greater welfare, shared prosperity, and enduring stability in two important ways: by reducing rollover risks for borrowers, thereby lengthening the horizon of investments and improving performance, and by increasing the availability of long-term financial instruments, thereby allowing households and firms to address their life-cycle challenges (Caprio and Demirgüc-Kunt 1998; Demirgüç-Kunt and Maksimovic 1998, 1999; de la Torre, Ize, and Schmukler 2012).

Attempts to actively promote long-term finance have proved both challenging and controversial. The prevalent view is that financial markets in developing economies are imperfect, resulting in a considerable scarcity of long-term finance, which impedes investment and growth. Indeed, a significant part of lending by multilateral development banks (including World Bank Group lending and guarantees) has aimed at compensating for the perceived lack of long-term credit. At the same time, research shows that weak institutions, poor contract enforcement, and macroeconomic instability naturally lead to shorter maturities on financial instruments. Indeed, these shorter maturities are an optimal response to poorly functioning institutions and property rights systems, as well as to instability. From this perspective, the policy focus should be on fixing these fundamentals, not on directly boosting the term structure of credit. Indeed, some argue that attempts to promote long-term credit in developing economies without addressing the fundamental institutional and policy problems have often turned out to be costly for development. For example, efforts to jump-start long-term credit through development financial institutions in the 1970s and 1980s led to substantial costs for taxpayers and, in extreme cases, to failures (Siraj 1983; World Bank 1989). In response, the World Bank reduced this type of long-term lending in the 1990s and the 2000s.

In recent years, long-term finance has attracted heightened interest from policy makers, researchers, and other financial sector stakeholders. It has also become clearer that long-term finance is used to a lesser extent in

emerging markets and developing economies. While emerging markets' share of the global economy has risen from roughly one-third to one-half over the past decade, advanced economies continue to dominate the use of long-term funding. At the same time, new evidence has accumulated on the use and term structure of debt for both firms and households and on the effects of long-term finance and related policies. In particular, evidence shows that long-term finance can, but need not, positively affect firm performance.

The global financial crisis of the late 2000s led to an even greater policy focus on the importance of long-term finance. Academics and policy makers have acknowledged that the inability of financial firms to roll over debt to meet their obligations was one of the main drivers of contagious defaults in the recent crisis (Brunnermeier 2009; Financial Stability Forum 2009a, 2009b). The decreased availability of longer-term funding following the crisis has further heightened existing financial sector vulnerabilities and widened potential long-term financing gaps for infrastructure investment in particular. Although the focus and regulatory response has been on financial firms, the risks associated with short-term finance are not confined to financial firms alone. Inability to roll over short-term debt has exacerbated the operational losses and led to sudden defaults of large corporations such as Penn Central in the United States. Concerns about the detrimental effects of a potentially constrained supply of long-term finance have been voiced in the Group of Twenty (G-20) meetings and by the Group of Thirty. Specifically, these bodies consider long-term financing to be critical for investment and growth, particularly in infrastructure sectors, and necessary to improve welfare and share prosperity and to achieve post-2015 development goals.[1] The G-20 endorsed an action plan to support the development of local currency bond markets, noting that during the global financial crisis domestic bond issuances cushioned the impact of banking stress on the real economy.[2] Institutional investors are also increasingly seen to play a greater role in financing long-term investment (OECD 2014a). The Group of Thirty called for a multifaceted policy approach to lower the barriers that constrain the provision of long-term finance. Ensuring more and better long-term finance is one of the priorities for the Post-2015 Development Agenda (United Nations 2013).

The *Global Financial Development Report 2015/2016: Long-Term Finance* seeks to contribute to this policy discussion on long-term finance. It provides stylized facts on the use and provision of long-term finance and examines both new and older evidence on the use of long-term finance and its economic impact. The report provides a careful review and synthesis of recent and ongoing research, identifying those policies that work to promote long-term finance and those that do not, as well as areas where more evidence is still needed. Box O.1 provides the main messages of this report.

Despite the renewed interest, policy makers and other financial sector practitioners are divided on whether and how policy should promote long-term finance. According to the third Financial Development Barometer—an informal poll of the views of policy makers in developing countries undertaken for this *Global Financial Development Report*—slightly more than 40 percent of the respondents fully agree that a lack of access to long-term finance represents a problem for firms and households in their country (box O.2). While 70 percent of respondents believe the underlying reasons for underuse of long-term finance are supply driven, views differ significantly on which institutions and markets play the most important role in supplying long-term finance, as well as which policies are the most effective for promoting it. The *Global Financial Development Report 2015/2016: Long-Term Finance* brings new data and research and draws on available insights and experience to contribute to the policy discussion.

LONG-TERM FINANCE: MEASUREMENT AND RECENT TRENDS

Use of long-term finance varies across the world, but it is generally more limited in

BOX 0.1 Main Messages of This Report

Use of long-term finance—frequently defined as all financing for a time frame exceeding one year—is more limited in developing countries, particularly among smaller firms and poorer individuals. This is true even after controlling for firm characteristics such as asset and industry composition and profitability and individual attributes such as wealth and education. In developing countries, only 66 percent of small firms and 78 percent of medium-size firms report having any long-term liabilities, compared with 80 percent and 92 percent in high-income countries, respectively. Firms in high-income countries report financing almost 40 percent of their fixed assets externally, whereas this figure is barely 20 percent in low-income countries. Similar differences exist for individuals' use of term finance. For example, the average share of individuals with an outstanding loan to purchase a home is 21 percent in high-income countries, yet barely 2.5 percent in lower-middle- and low-income countries. Other products such as education loans are not widespread in the developing world and, when they are available, are used by wealthier individuals.

Where it exists, the bulk of long-term finance is provided by banks; use of equity, including private equity, is limited for firms of all sizes. As financial systems develop, the maturity of external finance also lengthens. Banks' share of lending that is long term also increases with a country's income and the development of banking, capital markets, and institutional investors. Long-term finance for firms through issuances of equity, bonds, and syndicated loans has also grown significantly over the past decades, but only very few large firms access long-term finance through equity or bond markets. The promotion of nonbank intermediaries (pension funds and mutual funds) in developing countries such as Chile has not always guaranteed an increased demand for long-term assets.

The global financial crisis of 2008 has also led to a reduction in leverage and use of long-term debt for developing-country firms. Small and medium enterprises in lower-middle- and low-income countries were particularly adversely affected, seeing a reduction in both their leverage and use of long-term debt. Large firms in developing countries that are able to access financial markets were affected as well, because they rely on international markets to a greater extent than their high-income counterparts. Such firms were also more vulnerable to the large drop in syndicated lending during the crisis.

Market failures and policy distortions have a disproportionate effect on long-term finance, suggesting an important role for policies that address these failures and distortions. Long-term finance is not always optimal—its use in an economy reflects the risk sharing between users and providers of finance. Shorter maturities shift risk from providers to users because these instruments force users to roll over financing frequently. Also, because firms and individuals tend to match the maturity structure of their assets and liabilities, not every firm or household needs to use long-term financing instruments. Hence, use of long-term finance across countries may vary naturally depending on the asset being financed and on how borrowers and lenders agree to share the risks involved between each other. However, limited use of long-term finance is generally also a symptom of market failures and policy distortions since long-term financing instruments are disproportionately affected by these failures and distortions.

Sustainably extending the maturity structure of finance is a key policy challenge since long-term finance can be an important contributor to economic growth and shared prosperity. If long-term finance is not available for deserving firms, they become exposed to rollover risks and may become reluctant to undertake longer-term fixed investments, with adverse effects on economic growth and welfare. Without long-term financial instruments, households cannot smooth income over their life cycle—for example, by investing in housing or education—and may not benefit from higher long-term returns on their savings. Empirical evidence also suggests use of long-term finance by firms and households is associated with better firm performance and improved household welfare. There is little evidence however, that direct efforts to promote long-term finance by governments and development banks—for example, through directed credit to firms or subsidies for housing—have had sustainable positive effects. These policies have generally not been successful because the underlying institutional problems and market failures that underpin the low

(box continued next page)

BOX 0.1 Main Messages of This Report *(continued)*

use of long-term finance remain and because political capture and poor corporate governance practices undermine the success of direct interventions by governments. Similarly, extending maturity structures by promoting development of institutional investors or by building stock or bond markets has proven difficult unless there is a commitment to address fundamental institutional problems.

There is no magic bullet to promote long-term finance; governments need to focus on fundamental institutional reforms. These include pursuing policies that promote macroeconomic stability, low inflation, and viable investment opportunities; promoting a contestable banking system with healthy entry and exit supported with strong regulation and supervision; putting in place a legal and contractual environment that adequately protects the rights of creditors and borrowers; fostering financial infrastructures that limit information asymmetries; and laying the necessary institutional and incentive frameworks to facilitate long-term development of capital markets and institutional investors. Most of these policies will promote financial development more generally but will disproportionately increase long-term finance, which is more affected by distortions.

Institution building is a long-term process; hence in the short to medium term, market-friendly innovations that overcome market failures and institutional weaknesses and that support financial literacy and consumer protection may help extend maturity. Asset-based lending instruments such as leasing may even help small and nontransparent firms gain access to longer-term finance. For larger firms able to access markets, evidence suggests that foreign investors hold more long-term domestic debt than domestic investors; hence policies that promote foreign investment are also likely to extend the maturity structure of finance, although this will also make firms more vulnerable to external shocks. For households, supporting financial literacy, consumer protection, and disclosure rules to improve information and its use, and providing investment default options to reduce behavioral biases can help increase individuals' understanding of long-term finance instruments.

Well-designed private-public risk-sharing arrangements may also hold promise for mobilizing financing for long-term projects. Through public-private partnerships for large infrastructure projects, governments can mitigate political and regulatory risks and mobilize private investment. Sovereign wealth funds are state-owned investment funds that are seen as a promising source of longer-term finance, given their long investment horizon and mandate to diversify economic risks and manage intergenerational savings, but they are not entirely immune to some of the problems of political capture and poor governance that plagued national development banks. Multinational development banks can promote long-term finance by offering knowledge and policy advice to help shape policy agendas for institutional reform that are essential for promoting long-term finance, as well as by structuring infrastructure or other long-term financing projects that allow private lenders and institutional investors to participate in this financing while reducing project and credit risk.

developing countries. Smaller firms and poorer individuals also tend to use long-term finance less. For example, figure O.1 shows long-term debt-to-asset ratios for firms of different sizes across a large sample of developing and high-income countries over the 2004–11 period. In the median developing country, small firms' long-term debt-to-asset ratios are 1 percent, compared with 7 percent in high-income countries. Similar differences exist for individuals' use of term finance. For example, the average share of individuals with an outstanding loan to purchase a home is 21 percent in high-income countries, yet barely 2.5 percent in lower-middle- and low-income countries. Other products such as education loans are not widespread in the developing world and, when they are available, are used by wealthier individuals.

One common definition of long-term finance, which also corresponds to the definition of fixed investment in national accounts,

BOX 0.2 Practitioners' Views on Long-Term Finance: Global Financial Development Barometer

To examine views on long-term finance among some of the World Bank Group's clients, the Global Financial Development Report team has undertaken a new, 2014 round of the Financial Development Barometer. The barometer is a global informal poll of financial sector practitioners (central bankers, finance ministry officials, market participants, and academics, as well as nongovernmental organization and think-tank representatives focusing on financial sector development issues). This poll examines sentiments, trends, and important policy issues. For results from the last Financial Development Barometer, see *Global Financial Development Report 2014*.

The barometer survey contained questions in two groups: general questions about financial development, and specific questions relating to long-term finance, the topic of the 2015/2016 *Global Financial Development Report*. The poll, carried out in 2014, covered respondents from 21 developed and 49 developing economies. From 70 economies polled, 42 responded (60 percent response rate). According to poll results, 40–43 percent of respondents fully agreed that access to long-term finance is a significant problem for firms and households. Most respondents saw this primarily as a supply problem. Interestingly, more than half of the respondents felt the availability of long-term finance had increased since the financial crisis of 2008. The poll also sought views on the most important institutions and policies for the provision of long-term finance. While 61 percent agreed that private domestic banks were the most important institutions for this purpose, views differed on which other institutions and markets played the most important role. When asked about the most effective policies to promote long-term finance, again views differed on what were the most important policies.

TABLE B0.2.1 Selected Results from the 2014 Financial Development Barometer

Percentage of respondents agreeing with the statements

"Access to long-term finance is a significant problem for households in my country."	43
"Access to long-term finance is a significant problem for firms in my country."	40
"Low use of long-term finance in my country is primarily a supply problem."	75
"Low use of long-term finance in my country is primarily a demand problem."	15
"In my country availability of long-term finance declined or stayed the same since the global financial crisis."	40
"In my country availability of long-term finance increased since the global financial crisis."	60
"Domestic banks play the most important role in promoting long-term finance in my country."	61
"Development banks play the most important role in promoting long-term finance in my country."	22
"Domestic stock markets play the most important role in promoting long-term finance in my country."	13
"Domestic corporate bond markets play the most important role in promoting long-term finance in my country."	11
"Nonbank financial institutions play the most important role in promoting long-term finance in my country."	17
"International capital markets play the most important role in promoting long-term finance in my country."	17

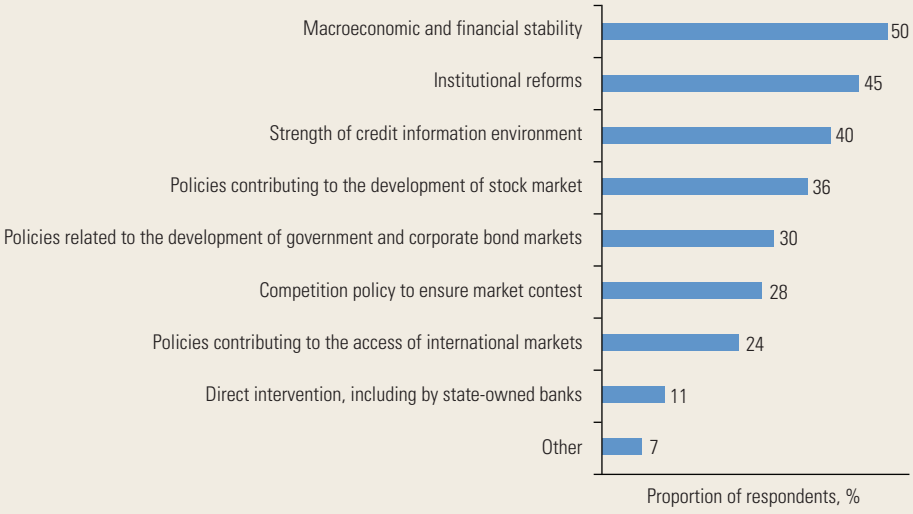
Source: Financial Development Barometer (for full results, see www.worldbank.org/financialdevelopment).

(box continued next page)

BOX 0.2 Practitioners' Views on Financial Inclusion: Global Financial Development Barometer *(continued)*

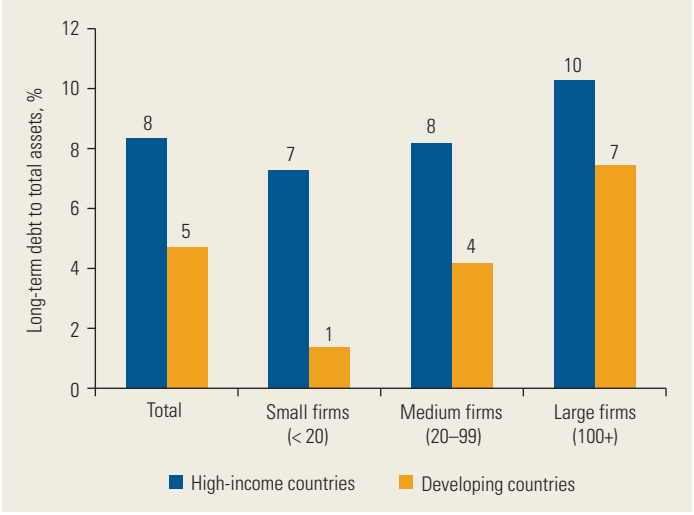
FIGURE BO.2.1 Views on Policies to Promote Long-Term Finance

Percentage of responses to the question "What is the most important policy to promote long-term finance?"



Source: Financial Development Barometer (for full results, see www.worldbank.org/financialdevelopment).

FIGURE O.1 Firms' Median Long-Term Debt-to-Asset Ratios by Country Income Group and Firm Size, 2004–11, Country-Level Median



Source: Calculations for 80 countries, based on ORBIS (database), Bureau van Dijk, Brussels, https://orbis.bvdinfo.com. For a detailed data description, see Demirgüç-Kunt, Martínez Pería, and Tressel 2015a.
Note: Developing countries include low- and middle-income countries. Firm size is defined based on the number of employees. Long-term debt is defined as noncurrent liabilities.

is any source of funding with maturity exceeding one year. The G-20, by comparison, uses a maturity of at least five years to define long-term financing. In this report, long-term finance is frequently defined to cover maturities beyond one year, but more granular maturity buckets and comparisons are also examined when data are available. Equity (public or private) is also often considered to be a form of long-term financing, since it is a financial instrument with no final repayment date.

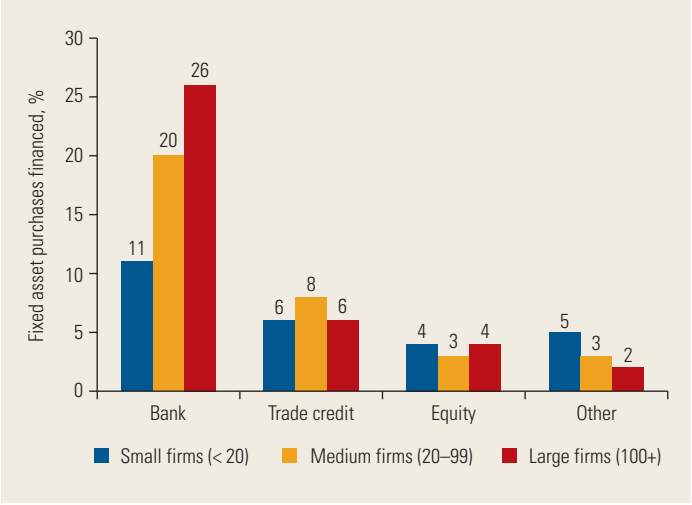
Long-term finance can take the form of either debt or equity financing, but bank finance is the single most common source of external finance. When examining the sources of external finance for purchases of fixed assets, Enterprise Survey data show that bank credit drives differences in the use of long-term finance across firm size. Figure O.2 also shows that use of bank finance varies widely across firm size, with small firms

financing 11 percent of purchases of fixed assets through banks, compared with 26 percent for large firms. In contrast, the use of equity is less than 5 percent for firms of all sizes.

The global financial crisis of 2008 exacerbated these differences in the use and provision of long-term finance. Initially in 2008–09, the crisis led to a reduction in ratios of total debt to total assets, or *deleveraging*—mostly for small and medium enterprises (SMEs) in high-income countries—as shown in the top half of figure O.3. By 2011, however, deleveraging was occurring across the board in all countries and for all firm sizes, and although the impact remained larger in the high-income world, larger firms were even more affected than SMEs. The bottom half of figure O.3 shows a different trend, this time focusing on long-term debt use. Looking only at firms using long-term finance in the precrisis period, the figures reveal that the crisis led to a significant reduction in long-term debt use by SMEs in developing countries. Again, by 2011 firms of all sizes had been affected by declining long-term debt use, but the impact remained significantly greater in developing countries and for small firms.

For large firms that are able to access markets for long-term finance, developments in the bond and syndicated loan markets had an adverse impact. Despite the significant development of equity, bond, and syndicated loan markets before the crisis, particularly in developing countries it is still mostly a few large firms that tap these markets. Although these large firms in developing countries generally do not show a shorter maturity structure than similar size firms in high-income countries, a larger share of their financing takes place in international markets compared with firms in high-income countries. Hence when the crisis led to a significant fall in syndicated lending that originated in the high-income countries, developing-country firms were especially affected. The financing of infrastructure projects, for which syndicated loans are key at the early stages, was severely affected.

FIGURE O.2 Sources of External Finance for Purchases of Fixed Assets by Firm Size, 2006–14



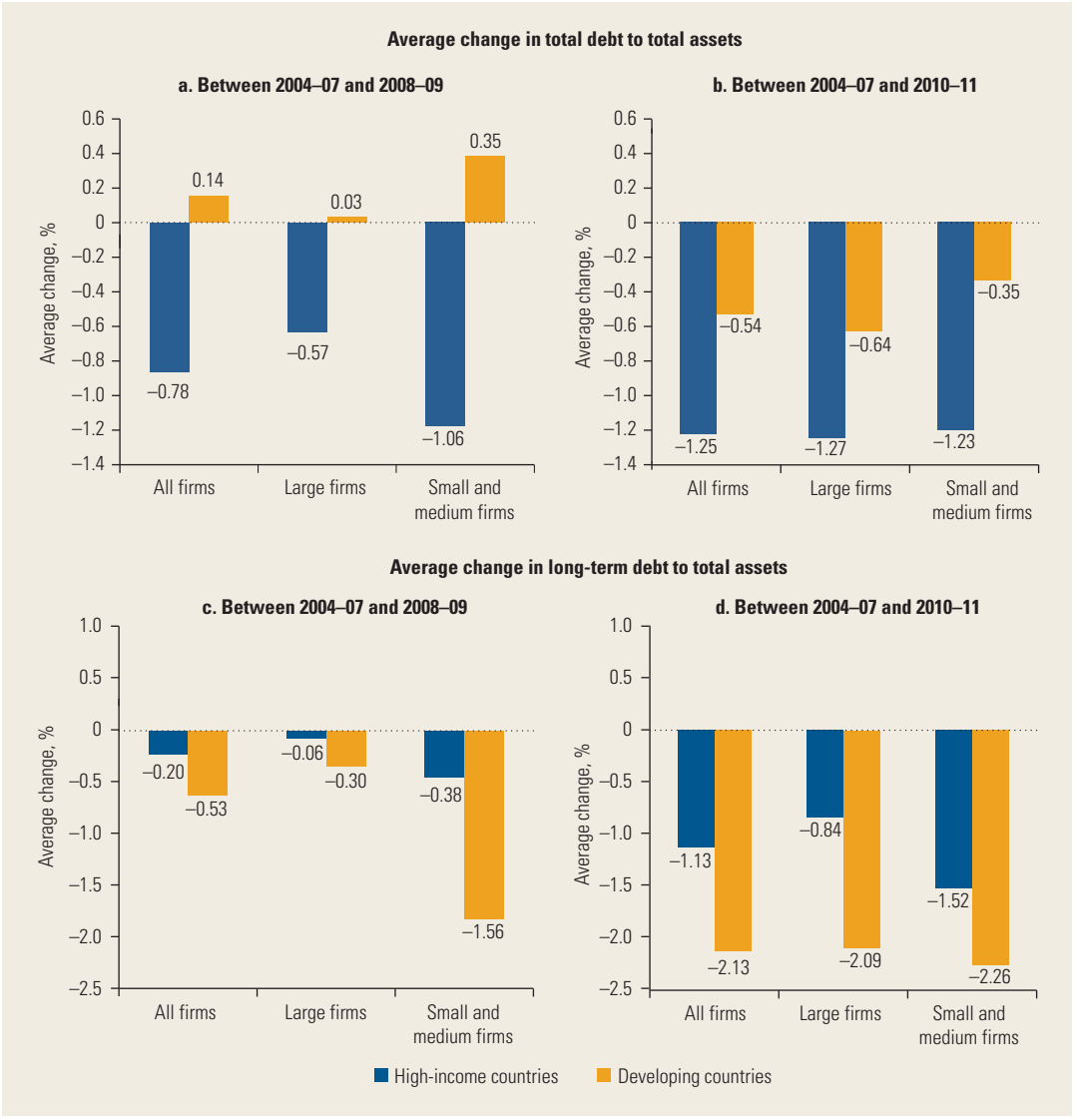
Source: Calculations for 123 countries, based on Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: The figure shows the average percentage of purchases of fixed assets that was financed from specific external sources—banks, trade credit, equity, and other sources—as opposed to internal sources. Equity finance includes owners' contribution or new equity share issues (not retained earnings, which are counted as internal sources of finance). The "other" category of external financing includes issues of new debt, nonbank financial institutions, money lenders, family, and friends. Firm size is defined based on the number of employees. Calculations of the average for each firm size use sampling weights.

WHY DO WE CARE ABOUT LONG-TERM FINANCE? SCARCITY AND IMPACT

The limited use of long-term finance observed in developing countries is not necessarily a problem in itself. To the contrary, this limited use can be optimal since it reflects both demand and supply of contracts with longer-term maturities and involves trade-offs in how risk is shared between users and providers. In well-functioning markets, borrowers and lenders may prefer short-term contracts over longer-term contracts for a number of reasons.

Depending on the kind of asset being financed, short-term finance may be preferred. Firms and households tend to match the maturity structure of their assets and liabilities. Firms, for example, generally prefer short-term loans to finance working capital, such as payroll, and inventory and use longer-term financing to acquire fixed assets, equipment, and the like (Hart and Moore 1995).

FIGURE 0.3 Change in Leverage and Debt Maturity since the Global Financial Crisis by Country Income Group and Firm Size



Source: Calculations for 80 countries covering 2004–11, based on ORBIS (database), Bureau van Dijk, Brussels, https://orbis.bvdinfo.com. For a detailed data description, see Demirgüç-Kunt, Martínez Pería, and Tressel 2015b.
Note: Developing countries include low- and middle-income countries. Firm size is defined based on the number of employees. Leverage and long-term debt values are simple averages for firms within individual countries, averaged across countries in each income group. The differences reported subtract the earlier period values from later period values. In panels c and d, firms with zero long-term debt before the crisis period were excluded from the sample in calculating the averages.

Short-term finance has a stronger disciplinary role, overcoming moral hazard and agency problems in lending. The lender's ability to monitor borrowers is improved with short-term financing contracts because short-term debt needs to be negotiated frequently and creditors can cut financing if they are not satisfied with the borrower's performance (Rajan 1992; Rey and Stiglitz 1993; Diamond and Rajan 2001). Long-term debt may also reduce incentives to invest because firm managers and owners will have to share the returns with the lender well into the future (Myers 1977)—a problem especially for firms

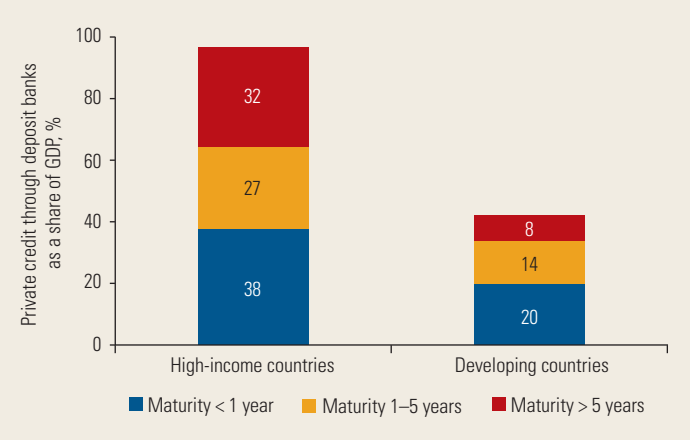
with high-growth opportunities. Hence overall, short-term finance can also reduce waste and improve firm performance.

The term of financing reflects the risk-sharing contract between providers and users of finance. Long-term finance shifts risk to the providers because they have to bear the changing conditions in financial markets, such as interest rate risk, including because of fluctuations in the probability of default. Often providers require a premium as part of the compensation for the higher risk this type of financing implies. On the other hand, short-term finance shifts risk to users as it forces them to roll over financing constantly.

Therefore, the amount of long-term finance that is optimal for the economy as a whole is not clear. In well-functioning markets, borrowers and lenders will enter short- or long-term contracts depending on their financing needs and on how they agree to share the risk involved at different maturities. What matters for the economic efficiency of the financing arrangements is that borrowers have access to financial instruments that allow them to match the time horizons of their investment opportunities with the time horizons of their financing, conditional on economic risks and volatility in the economy (for which long-term financing may provide a partial insurance mechanism). At the same time, savers would need to be compensated for the extra risk they might take.

Nevertheless, even when both users and providers of finance prefer to contract long term, the equilibrium amounts observed in an economy may be lower than optimal because of market failures and policy distortions. Indeed, long-term financial contracts are likely to be disproportionately sensitive to the existence of market failures and policy distortions. Figure O.4 shows how the maturity structure of debt lengthens as a country's financial depth—measured by bank lending to private parties as a proportion of gross domestic product (GDP)—increases. While an average developing country's financial depth is less than half of its high-income counterpart, its ratio of long-term debt to GDP is only a quarter. Therefore, limited use of long-term finance in an economy warrants attention because it is often a symptom of underlying problems, some of which may require policy attention.

FIGURE O.4 The Relationship between Greater Financial Depth and Longer Debt Maturity by Country Income Group, 1999–2012



Source: Bankscope (database), Bureau van Dijk, Brussels, http://www.bvdinfo.com/en-gb/products/company-information/international/bankscope.
Note: The ratio of private credit to gross domestic product (GDP) and the maturity distribution are averaged over those years when information for both is available. Figures are averages.

When long-term finance is undersupplied because of market failures and policy distortions, it is "scarce" and can have adverse implications for development. Scarcity of long-term finance is an important development concern since deserving firms that do not have access to long-term finance become exposed to rollover risks and may become reluctant to undertake longer-term fixed investments, with adverse effects on economic growth and welfare (Diamond 1991, 1993). Without long-term financial instruments, households cannot smooth income over their life cycle—for example, by investing in housing or education—and may not benefit from higher long-term returns on their savings (Yaari 1965; Campbell 2006).

Evidence also suggests that use of long-term finance by firms is associated with better firm performance. Long-term financing is important for firms because it allows them to undertake lumpy and large investments that might be critical for their growth. Evidence suggests that developed financial institutions and markets and their ability to enter into long-term contracts allow firms to grow at

faster rates than they could attain by relying on internal sources of funds and short-term credit alone (Demirgüç-Kunt and Maksimovic 1998, 1999). These results do not hold, however, when long-term finance is subsidized or extended through directed credit. Long-term finance also contributes to higher growth by lowering macroeconomic volatility (Aghion, Howitt, and Mayer 2005), and it is critical for investments in infrastructure, which are found to have a positive and significant impact on long-run growth and a negative impact on income inequality (Calderón and Servén 2014).

Long-term finance can also raise households' welfare. Having access to long-term finance allows households to smooth their consumption over time and facilitates lumpy investments such as housing and education (Case, Quigley, and Shiller 2013). Home ownership provides households with collateral that can help alleviate borrowing constraints and that facilitates consumption risk sharing (Lustig and Van Nieuwerburgh 2004). This collateral can also increase the likelihood of starting a small business, fostering self-employment (Adelino, Schoar, and Severino 2013). On the savings side, long-term investment allows households to address the welfare considerations of various life-cycle challenges and to share in the financial benefits of economic growth.

Hence, governments have an important role to play in addressing market failures and policy distortions when long-term finance is indeed scarce. What are some of these market failures and policy distortions, and what are the best ways to address them? The next section addresses these questions and provides general policy recommendations.

PUBLIC POLICY ON PROMOTING LONG-TERM FINANCE

Market failures, such as information asymmetries and coordination failures, may limit long-term finance much more than short-term finance. Because extending long-term finance implies larger risks for providers, credit rationing, described by Stiglitz and Weiss (1981), is likely to be more severe for long-term finance. Similarly, when the seniority of claims is not well enforced and lenders cannot coordinate their actions, they will protect themselves against dilution by simultaneously shortening the maturity of their claims (Bolton and Jeanne 2009; Brunnermeier and Oehmke 2013). This kind of market failure may trigger a "maturity rat race" in which all lenders shorten the maturity of contracts to protect their claims. Hence, policies that reduce information asymmetries—such as reforms of credit bureaus and collateral registries—are particularly important to promote the availability of long-term finance.

Policy distortions, such as the absence of a stable political and macroeconomic environment, also tend to reduce the amount of long-term finance used in the economy. A stable political and macroeconomic environment is a necessary condition for long-term finance to thrive because it underpins the ability of economic agents to predict the risks and returns associated with that finance. For example, even a history of high inflation is often linked to short-term debt and investments, with Brazil being one such example despite the numerous reforms adopted to promote long-term finance (Park 2012). In the short run, the government can support the market for long-term finance through sound macroeconomic policies that keep inflation in check. Macroeconomic policies that render a sustainable level of economic growth and foster profitable investment opportunities in the economy will also likely promote long-term finance.

Underdeveloped financial systems are often distinguished from more developed ones by their lack of long-term finance. As financial systems develop, they become more market based, and the maturity structure of finance also lengthens. For example, Demirgüç-Kunt and Maksimovic (1999, 2002) show that development of both banking and stock markets improve access to external financing, yet it is the development of stock markets that is more strongly associated with greater use of long-term finance. Well-capitalized, well-regulated, contestable banking systems, where most banks are privately owned, are generally associated with greater provision of long-term

finance. Hence the government can also influence the supply of long-term finance by ensuring the existence of competitive and contestable markets for financing. For example, by facilitating bank competition and by allowing the functioning of other intermediaries such as leasing companies and private equity investors that can also provide long-term finance, the government can shape and potentially play a role in expanding the supply of long-term finance.

Both the absence of a strong legal and institutional framework and weak contract enforcement can also disproportionately limit the supply of long-term finance. When a country's contracting institutions have only very weak protections for lenders against nonpayment of debt, lenders tend to rely on short-term lending agreements for formal debt contracts, which make it easier for the lender to discipline the borrower through the threat of withholding future financing if the borrower does not repay. Similarly, in the absence of contract enforcement, financiers would avoid lending long term and rely on short-term contracts to discipline borrowers and ensure repayment. The government has an important role in establishing a sound legal framework that ensures contract enforcement and that protects creditor rights to promote the development of markets for long-term finance.

There is little evidence, however, that direct efforts to promote long-term finance by governments and development banks—for example through directed credit to firms or subsidies for housing—have had sustainable positive effects. These policies have generally not been successful because the underlying problems remain and because political capture and poor corporate governance practices undermine policy success. Government-backed guarantee schemes are often designed to encourage lending to certain sectors—for example, for SMEs and in mortgage markets—and can allow more risky borrowers to receive loans and also extend maturity structures. In practice, however, it is not clear if these policies lead to additional lending, and they need to be designed carefully and managed effectively to prevent large-scale losses—a need that is particularly challenging in weak institutional environments where good governance is difficult to establish. Similarly, extending maturity structures by promoting development of institutional investors or building stock or bond markets has proven difficult unless there is a commitment to address fundamental institutional problems.

Institution building is a long-term process; hence in the short to medium term, market-friendly innovations that overcome market failures and institutional weaknesses, along with supportive financial literacy and consumer protection, may help extend maturity. Asset-based lending instruments such as leasing may even help small and nontransparent firms access longer-term finance. For larger firms in developing countries that are able to access markets, evidence suggests that foreign investors hold more long-term domestic debt than domestic investors; hence policies that promote foreign investment are also likely to extend the maturity structure of finance, although firms will also become more vulnerable to external shocks. For households, supporting financial literacy, consumer protection, and disclosure rules to improve information and its use, and the provision of investment default options to reduce behavioral biases can have important effects on increasing individuals' understanding of long-term finance instruments.

For governments, well-designed private-public risk-sharing arrangements may also hold promise for mobilizing financing for long-term projects. Through public-private partnerships for large infrastructure projects, governments can mitigate political and regulatory risks and mobilize private investment. Where governments participate in markets for long-term finance as investors, they can delegate investment decisions to separate entities, such as sovereign wealth funds. These state-owned investment funds are seen as a promising source of longer-term finance, given their long investment horizon and mandate to diversify economic risks and manage intergenerational savings. Although they are not entirely immune to some of the problems of political capture and poor governance that

plagued national development banks, when these funds are well managed, their incentives can be better aligned with market incentives and they may be less susceptible to political capture. Similarly, multinational development banks can promote long-term finance by offering knowledge and policy advice to help shape policy agendas for institutional reform that are essential for promoting long-term finance, as well as by structuring infrastructure or other long-term financing projects to allow private lenders and institutional investors to participate in this financing while reducing project and credit risk (box O.3).

Against this broader policy context, this overview concludes with four focus areas that can be important for long-term finance: the importance of information sharing, the role of contract enforcement and protection of investor rights, the importance of financial literacy for a household's use of long-term finance, and the challenges of extending maturity structure by promoting development of markets and institutional investors. The focus on these areas reflects not only the impact they can have on long-term finance but also new evidence to highlight. For help in navigating the rest of the report, see box O.4.

BOX O.3 The Role of Multilateral Development Banks in Mobilizing Long-Term Finance

Available long-term financing falls far short of the investment needs of developing countries. This mismatch has been documented in the context of the discussion of the post-2015 Sustainable Development Goals, which will replace the Millennium Development Goals.[a] It exists even though developing countries have introduced many reforms to develop their domestic financial markets and have enjoyed increased access to international capital markets in the past decade.

The gap is especially significant when it comes to infrastructure finance. A 2014 United Nations report on sustainable development financing[b] estimates financing needs for infrastructure projects—water, agriculture, telecommunications, power, transport, building, industrial, and forestry sectors—at $5–7 trillion annually. The Organisation for Economic Co-operation and Development estimates a global infrastructure requirement by 2030 on the order of $50 trillion.[c]

Multilateral development banks (MDBs) are uniquely placed to assist developing countries in closing the existing long-term financing gap. In broad terms, MDBs can help identify areas of market failures or areas where markets are still underdeveloped and can provide the necessary incentives to bring in the private sector. Mobilizing private long-term finance requires a different approach than direct financing. MDB interventions need to support, and not replace or undermine, the formation of sustainable markets.

MDBs can play a catalytic role in fostering private long-term finance in a number of ways:[d]

1. They can help countries identify weaknesses in the macroeconomic and investment environment that prevent private sector financing from flowing and can act as "an honest broker" between commercial interests and policy makers to bring about the needed macro and business environment reforms.
2. They can support the development of local markets and of domestic institutional investors through technical expertise and by promoting targeted reforms.
3. They can facilitate large investments in areas such as infrastructure and energy by the following:
   a. Supporting project preparation by setting up dedicated project preparation facilities to build up a pipeline of bankable investment-ready projects. These facilities provide the technical expertise to ensure that projects are structured in ways that are familiar and appealing to the private sector.
   b. Providing risk mitigation tools such as guarantees, risk insurance, and blended finance to

(box continued next page)

BOX 0.3 The Role of Multilateral Development Banks in Mobilizing Long-Term Finance *(continued)*

financially and economically viable projects that would not likely be undertaken without protection against noncommercial risks and enabling investors to access funding on more advantageous terms using the MDBs' preferred creditor status. In some cases, such as syndications, MDBs can provide partners with creditor status similar to that of official creditors in the event the borrower runs into payment difficulties.

c. Setting up co-investment platforms or pooled vehicles that help catalyze private capital. A recent example of such a platform is the Global Infrastructure Fund (GIF) launched at the October 2014 Annual Meetings of the World Bank and International Monetary Fund.[e] Sixteen of the world's largest asset management, pension, and insurance funds, along with several commercial banks, have signed agreements to collaborate on the GIF. The governments of Australia, Canada, Japan, and Singapore and MDBs including the Asian Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and the Islamic Development Bank have also signed collaborative arrangements, signifying their willingness to partner with the GIF. The GIF platform aims to integrate the efforts of MDBs, private sector investors and financiers, and governments interested in infrastructure investment in developing countries through its pipeline of projects and programs.

a. For proposed Sustainable Development Goals, see https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals.
b. See http://www.un.org/esa/ffd/wp-content/uploads/2014/12/ICESDF.pdf. See also the Development Committee paper: http://siteresources.worldbank.org/DEVCOMMINT/Documentation/23659446/DC2015-0002(E)Financingfor Development.pdf.
c. OECD 2013a.
d. World Bank Group. 2013. *Financing for Development Post-2015*. http://www.worldbank.org/content/dam/Worldbank/document/Poverty%20documents/WB-PREM%20financing-for-development-pub-10-11-13web.pdf.
e. For more information on the GIF, see http://www.worldbank.org/en/topic/publicprivatepartnerships/brief/global-infrastructure-facility-gif.

BOX 0.4 Navigating This Report

The rest of the report consists of four chapters that cover the importance of long-term finance, some key facts, and general guidelines for the role of government in promoting long-term finance; use of long-term finance by firms and households; provision of long-term finance by markets; and bank and nonbank financial institutions as providers of long-term finance. Within these broader topic areas, the report focuses on policy-relevant areas where new evidence can be provided.

Chapter 1 defines long-term finance and explains why we care about the ability of both firms and households to have access to long-term finance. It discusses market failures and policy distortions that may lead to the scarcity of long-term finance and provides stylized facts on both users and providers of such finance. It discusses the importance of promoting long-term finance sustainably and the role of government in addressing market failures and policy distortions.

(box continued next page)

BOX 0.4 Navigating This Report *(continued)*

Chapter 2 examines long-term finance from the perspective of firms and households. It asks why firms and households would want to use long-term finance and explores what impact long-term finance has on them. The chapter discusses which country and individual characteristics determine the use of long-term finance by firms and households and examines the impact of the 2008–09 global financial crisis on leverage and debt maturity. It also provides policy recommendations based on the latest research findings from the empirical literature on the use of long-term finance.

Chapter 3 turns to providers and focuses on markets, describing the stylized facts and general trends that characterize corporate bonds, syndicated loans, and equity issuances in terms of maturity at issuance and amounts raised through the use of the different markets. It discusses country and firm differences in the use of long-term capital markets and introduces the distinction between domestic and international markets. Finally the chapter analyzes how the global financial crisis affected the provision of long-term finance by markets and concludes with policy recommendations.

Chapter 4 focuses on bank and nonbank financial intermediaries and analyzes which institutions are more likely to extend the maturity structure. The chapter explores the role of bank characteristics and regulations in shaping banks' loan maturity structure. It presents evidence on the extent to which mutual funds, pension funds, and insurance companies hold and bid for long-term instruments and on the factors that affect their choices. In addition, the chapter examines the investment profiles of two other types of nonbank financial institutions that are also expected to have long investment horizons, namely, sovereign wealth funds and private equity investors. The chapter concludes by discussing the potential limitations of these investors in providing long-term funding in underdeveloped institutional settings and the resulting policy implications from this evidence.

The statistical appendix consists of two parts. Part 1 presents basic country-by-country data on financial system characteristics around the world. It also presents averages of the same indicators for peer groups of countries, together with summary maps. It is an update on information from the 2014 *Global Financial Development Report*. Part 2 provides additional country-by-country information on key aspects of long-term finance around the world.

The accompanying website (http://www.worldbank.org/financialdevelopment) contains a wealth of underlying research, additional evidence including country examples, and extensive databases on financial development, providing users with interactive access to information on financial systems. Users can provide feedback on the report, participate in an online version of the Financial Development Barometer, and submit their suggestions for future issues of the report. The website also presents an updated and expanded version of the Global Financial Development Database, a dataset of more than 70 financial system characteristics for 203 economies since 1960.

FOCUS AREA 1: IMPORTANCE OF INFORMATION SHARING FOR LONG-TERM FINANCE

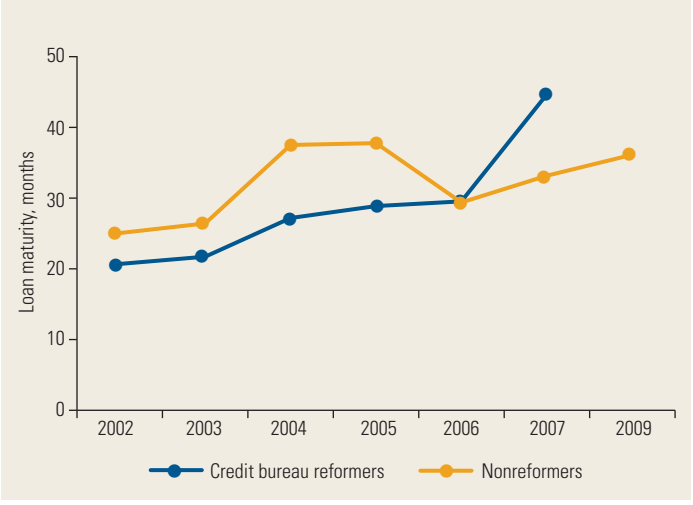
Weaknesses in information sharing help explain why the use of long-term finance is less common in developing countries. In many circumstances, lenders and investors are discouraged from entering into financial contracts with long time horizons because the absence of adequate credit market information makes it difficult to form a reliable risk assessment. Such information problems pose a barrier to financial contracting in general and are especially consequential in the market for long-term finance. The establishment of credit bureaus and collateral registries can improve the quality of information available to lenders and can significantly improve the availability of credit at all maturities. In addition to its direct effect on the availability of credit, high-quality credit information can also have positive spillover effects on other types of long-term financing, given that many types of direct investments are heavily dependent on leverage and cofinancing through local credit markets.

A comprehensive review of the evidence presented in this report suggests that better information availability and sharing are indeed important in lengthening debt maturity. Reducing information asymmetries between firms and lenders also reduces lenders' need to monitor and discipline firm managers through short-term debt contracts. One illustration of the role of credit information on lengthening debt maturity comes from recent research. Martínez Pería and Singh (2014) investigate the impact of introducing credit information–sharing systems on firm access to finance and debt maturity using firm-level survey data for more than 75,000 firms in 63 countries over the period 2002–13. Credit information schemes disseminate knowledge of payment history, total debt exposure, and overall credit worthiness, either through a privately held credit bureau (CB) or publicly regulated credit registry (CR). The study examines countries that introduced a CB or CR between 2002 and 2009 (the "reformers") as well as countries that do not have a CB or CR ("nonreformers"). Figure O.5 displays average loan maturity in CB reformers and nonreformers over time. Most countries that introduced a CB did so in 2004 or 2005, and the data show a steep increase in average loan maturity in CB reformer countries afterward.

To estimate the size of the effects of CB reforms on firm financing and loan maturity, Martínez Pería and Singh compare firms in countries that introduced a CB or CR to firms in countries that did not. The results reveal that, after the introduction of a CB, the likelihood that a firm has access to finance increases and loan maturity lengthens. The effects of CB reforms are more pronounced the greater the coverage of the reforms and the scope and accessibility of the credit information sharing scheme. Credit bureau reforms also have a greater impact on firms' access to finance in countries where contract enforcement is weaker. Importantly, results also indicate that CB reform effects are more pronounced for smaller, less experienced, and more opaque firms.

Interestingly, the analysis finds no robust effect of CR reforms on firm financing. Three reasons explain this lack of a significant effect. First, CRs are often used for supervisory purposes and hence might have high minimum loan limits. Second, they might not provide positive and negative information, which is most useful to financial institutions. Third, to the extent that they are run by the government, in countries with bad bureaucracies CRs might not function effectively and therefore might not be used often.

FIGURE O.5 Average Loan Maturity in Credit Bureau Reformer and Nonreformer Countries, 2002–09



Source: Based on Martínez Pería and Singh 2014.
Note: Credit Bureau (CB) reformer countries include Armenia, Bulgaria, China, Croatia, Czech Republic, Ecuador, Georgia, Kazakhstan, Kenya, Kyrgyz Republic, FYR Macedonia, Moldova, Montenegro, Nicaragua, Romania, Russian Federation, Rwanda, Serbia, Slovak Republic, Slovenia, Uganda, and Ukraine. Data on loan maturity are not available for all countries in all years. CB reformer countries do not have data in 2009. Also, no data are available for 2008.

FOCUS AREA 2: ROLE OF CONTRACT ENFORCEMENT AND PROTECTION OF INVESTOR RIGHTS

A weak contractual environment is an important reason why long-term finance is less common in developing countries. When lenders and investors cannot rely on legal institutions to enforce their claims, they prefer short-term contracts so that the continued need for renegotiation provides borrowers with the right incentives to exert effort and make sound investments. Legal institutions that help investors protect their claims include creditor and

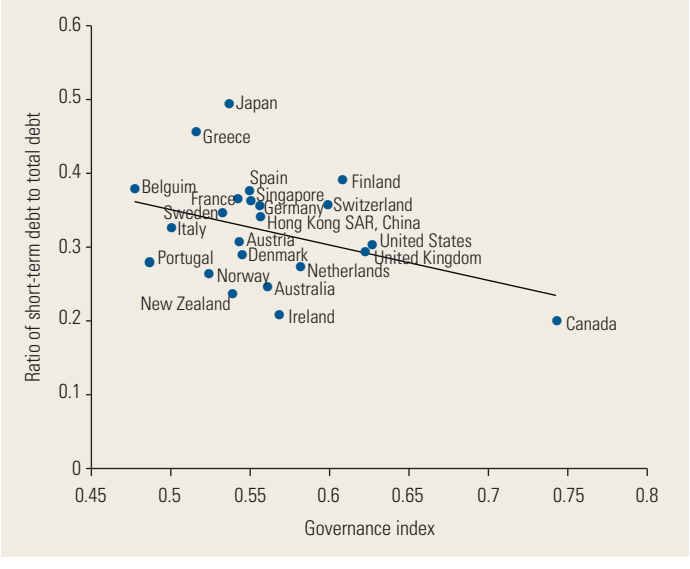
investor rights, bankruptcy laws, firm corporate governance frameworks, and overall contract enforcement and efficiency of the legal system.

Research reviewed in this report shows firms tend to use more long-term financing where the legal system is more efficient and the contracting environment better developed. Indeed, the development of the financial system beyond that predicted by the quality of the contracting environment is not significantly related to the ability of firms to obtain external finance (Demirgüç-Kunt and Maksimovic 1998, 1999). Recent research using a dataset that covers more than 800,000 publicly listed and privately held firms from 80 countries confirms these results; a sound legal environment and enforcement of contracts are positively associated with the use of long-term debt (Demirgüç-Kunt, Martínez Pería, and Tressel 2015b). Importantly, legal efficiency and better contract enforcement tend to disproportionately foster the use of long-term debt by privately held firms relative to publicly listed firms, and by SMEs relative to large firms.

Recent evidence suggests that the positive relationship between contract enforcement and the use of long-term debt is causal. An Indian case study uses the establishment of new specialized courts, debt recovery tribunals (DRTs), which improved contract enforcement in India, to study the impact of this reform on firms' use of long-term finance. Gopalan, Mukherjee, and Singh (2014), using the variation in DRT establishment across states and time and balance sheet data on about 6,000 Indian firms, showed that DRTs led to a significant increase in the ratio of long-term debt to total assets. Within three years of implementation of a DRT, that ratio increased by about 8 percent, whereas short-term debt decreased by a similar amount, suggesting that firms were able to substitute long-term debt for short-term debt with more efficient contract enforcement.

Policies and regulations that improve the quality of firm corporate governance and that strengthen investor protection can also support the development of markets for long-term finance. New research examines whether better corporate governance at the firm level can provide an alternative way of monitoring managers and hence reduce the firm's reliance on short-term debt in dealing with agency problems. Anginer and others (2015) investigated 44 different elements of corporate governance for over 7,000 firms in 22 countries over the period 2003–08. They saw that firms with strong corporate governance, particularly with independent boards with effective size, tend to use less short-term debt (figure O.6). They also confirmed their cross-country results by examining changes around substantial corporate governance reforms implemented over the sample period that strengthen shareholder rights. The results indicate a significant increase in the effect of governance in reducing the use of short-term debt after the implementation of reforms.

FIGURE O.6 Firm Corporate Governance and Use of Short-Term Debt, 2003–08



Source: Based on Anginer and others 2015.
Note: The figure shows the average firm governance index values and short-term debt (ratio of debt due in one year to total debt). The governance index averages across multiple governance attributes, with higher values indicating better governance.

FOCUS AREA 3: ROLE OF FINANCIAL LITERACY FOR HOUSEHOLD USE OF LONG-TERM FINANCE

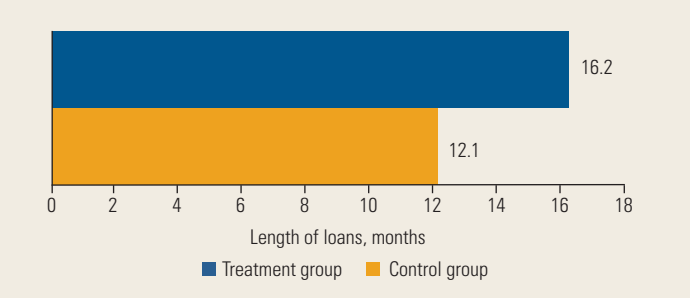
Lack of financial awareness, financial literacy, and product transparency constrain households from using financial products or from

managing them correctly. A comprehensive review of evidence in this report shows that lack of understanding of financial products by individuals can lead to costly mistakes. Empirical evidence shows that vulnerable consumers can be sold financial instruments that they do not understand and that they are unable to service. A key contributing factor to the subprime mortgage crisis in the United States was the overextension of credit to noncreditworthy borrowers and the relaxation in mortgage-underwriting standards.

Recent literature on psychology and finance also highlights the role of behavioral biases in shaping households' financial decisions. On the one hand, people tend to underestimate the future value of their savings given their present value, maturity, and rate of return. On the other hand, borrowers underestimate the interest rate of a loan given a principal, monthly payment, and maturity. These biases are strongly correlated with more borrowing, less saving, and a preference for short-term installment debt and short-term assets, even after conditioning on various demographic and income factors. As the *World Development Report 2015* highlights, understanding these behavioral biases and how they influence financial choices allows for better tailored and more effective policies, such as financial education interventions, automatic enrollment systems, or electronic reminders.

Even though financial education matters, evidence shows that delivering it effectively is challenging. Growing research efforts that randomize the provision of financial education are increasing the ability to identify the most effective mechanisms for improving and delivering financial education. In one recent example, Berg and Zia (2013) evaluated the effectiveness of financial education through a popular television soap opera in South Africa, "Scandal!" The intervention entailed a two-month-long storyline featuring a main character who borrowed excessively through shop credit and gambling, fell into a debt trap, and eventually sought help to find her way out. The analysis focused on borrowing and gambling outcomes and found a significant shift toward more formal and longer-term borrowing for the treatment group that was encouraged to watch the soap opera. Moreover, as figure O.7 shows, while individuals in the treatment group did not alter the amount of money borrowed, they borrowed significantly more from formal sources and through longer-term debt compared with the control group. These results suggest that entertainment media can be an effective tool for influencing key financial decisions and can have lasting implications for long-term financial well-being.

FIGURE O.7 Effects of Financial Education on Long-Term Borrowing



Source: Based on Berg and Zia 2013.
Note: The figure shows the increase in loan maturity in control and treatment groups after an entertainment education intervention using the soap opera "Scandal!" in South Africa.

One reason why Berg and Zia found this financial literacy intervention to be effective while so many other interventions reviewed in this report have failed may be because they used an innovative way to reach their audience. Evaluations consistently agree that financial concepts are best taught at what are known as "teachable moments." Interventions covering multiple topics tend to perform poorly. Instead, interventions that focus on concrete concepts and targeted groups are found to do better. For instance, workshops about retirement plans targeted to workers when they are deciding on their pension plan may effectively help them in making informed decisions.

Alternative interventions, such as default enrollment, or reminders of payments, can be effective measures to prevent behavioral biases that lead households to make financial errors. Default enrollment, for instance, can reduce behavioral problems such as overborrowing or undersaving. Research reviewed in this report suggests that the simple action of enrolling by default workers into pension plans

more than doubles long-term savings through pension participation. Given the significant size of these effects with default enrollment, even high-income countries such as the United States have facilitated the automatic enrollment of workers into pension plans.

FOCUS AREA 4: CHALLENGES OF EXTENDING MATURITY STRUCTURE BY PROMOTING DEVELOPMENT OF DOMESTIC MARKETS AND INSTITUTIONAL INVESTORS

While in theory well-functioning local capital markets could promote long-term finance, in practice government-led reform efforts to develop them have had mixed success. Local capital markets offer benefits to borrowers and investors, including governments. They facilitate better risk sharing and a more efficient allocation of capital. Importantly, development of local bond and equity markets can improve the availability of long-term financing for households and firms as well as governments. These markets can also increase financial integration by attracting foreign capital, which can improve access, lower the cost of capital, and facilitate risk sharing across countries. Hence by broadening access to long-term finance beyond a small group of large firms and by reducing the reliance of those large firms on international markets, developing countries could further develop their domestic markets by addressing market failures and policy shortcomings. However, while capital markets expanded in many countries in the recent decade, many developing countries saw their markets stagnate despite well-intended government interventions (Laeven 2014).

Governments can facilitate the development of capital markets through sound macroeconomic policies, strong institutional and legal settings, and a well-functioning financial infrastructure. De la Torre, Gozzi, and Schmukler (2007), for example, studied the impact of a set of reforms on stock market development in emerging markets, namely, stock market liberalization, enforcement of insider trading laws, and the introduction of electronic trading systems, privatization programs, and institutional reforms. The authors found that these government interventions are associated with significant increases in domestic stock market capitalization and trading volumes.

The government can also directly facilitate the development of domestic corporate bond markets by developing the market for sovereign debt. In particular, sound sovereign debt management with regular issues of benchmark bonds at different maturities is central to building a yield curve, which is necessary to price corporate bonds efficiently (especially in the longer term). However, the possibility of crowding-out effects between government and corporate bond markets through competition for investors' funds must be taken into account.

Even in the absence of institutional, legal, and technological barriers, local markets in many emerging economies often lack the critical mass of investors needed for effective development. Governments can promote development in those cases by opening up to foreign investors, although potential risks of financial integration include greater volatility and vulnerability to international shocks and must be carefully considered. Nevertheless, some economies will simply lack the scale necessary to support a deep local capital market. They may be better served by promoting foreign listings and regional exchanges rather than trying to develop shallow, inefficient markets at home.

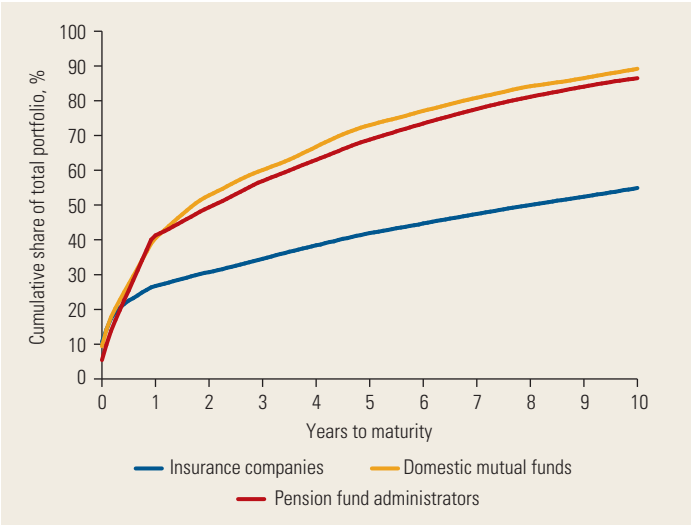
Promoting long-term finance through development of local institutional investors can also be challenging. One popular policy recommendation to promote local markets is through development of institutional investors such as local pension funds. For example, Chile's launch of a funded pension system in 1981 contributed to its local bond market development, making it one of the most developed in Latin America over the next two decades. However, the Chilean case also illustrates that expanding large institutional investors does not necessarily imply more developed long-term markets. Recent research by Opazo, Raddatz, and Schmukler (2015)

analyzed unique data on the actual portfolios and bids of the universe of domestic institutional investors in Chile. The researchers found that despite favorable institutional conditions in Chile, asset managers (mutual and pension funds) are significantly tilted toward the short-term end of the country's maturity structure, with a large portion of their portfolio in assets with maturities less than one year. In contrast, insurance companies invest much more long term, providing clues into what may be behind these differences (figure O.8).

The shorter investment horizon of Chilean mutual and pension funds compared with insurance companies seems to result from agency factors that tilt the managerial incentives. In the case of Chilean open-end funds, like mutual and pension funds, managers are monitored in the short run by the underlying investors, the regulators, and the asset management companies. This short-run monitoring, combined with the risk profile of the available instruments, generates incentives for managers to be averse to investments that are profitable at long horizons (like longer-term bonds) but that can have poor short-term performance. In contrast, insurance companies are not open-end asset managers, receive assets that cannot be withdrawn in the short run, and have long-term liabilities because investors acquire a defined benefit plan when purchasing a policy. Thus, insurance companies are not subject to the same kind of short-run monitoring.

The regulatory scheme seems to be another factor behind the short-term nature of pension funds. The Chilean regulation establishes a lower threshold of returns over the previous 36 months that each pension fund needs to guarantee. This type of short-term monitoring seems to push managers to move their investments into portfolios that try to minimize the probability of triggering the guarantee. Moreover, as this threshold depends on the average return of the market, it may generate herding incentives and suboptimal portfolio allocations. Hence, governments need to ensure that compensation and benchmarking practices followed by institutional investors have a long-run horizon to avoid some of the short-termism that has been observed in the case of Chile. In addition, restrictions on portfolio allocations that limit the long-term instruments funds can invest in should also be removed.

FIGURE O.8 Maturity Structure of Chilean Institutional Investors



Source: Opazo, Raddatz, and Schmukler 2015.

The difficulties of developing local capital markets and institutional investors that invest in long-term assets suggest that there are no quick fixes. Development of markets is a very gradual and interactive process that depends on the country's size and stage of development and that requires significant reform efforts to improve underlying institutions. In an increasingly globalized world, not every country will need or be able to develop a local capital market at home.

NOTES

1. World Bank 2014; World Bank 2013c. For further work in this area, see http://www.g20.org/news/20130228/781245645.html.
2. A diagnostic framework was subsequently prepared by the International Monetary Fund, the World Bank, the European Bank for Reconstruction and Development, and the Organisation for Economic Co-operation and Development (IMF 2013b).

CHAPTER 1: KEY MESSAGES

- Long-term finance—defined here as any source of funding with maturity exceeding at least one year—can contribute to economic growth and shared prosperity in multiple ways. Long-term finance reduces firms' exposure to rollover risks, enabling them to undertake longer-term fixed investments, contributing to economic growth and welfare. Access to long-term financial instruments allows households to smooth income over their life cycle—by investing in housing or education, for example—and to benefit from higher long-term returns on their savings.
- Firm and household data show limited use of long-term finance in developing countries, particularly among poorer households and smaller firms. As financial systems develop, the maturity of external finance lengthens. Banks are the main providers of long-term finance and the share of their lending that is long term increases with countries' income. As countries' income grows, economies have more developed capital markets and institutional investors that can support long-term finance.
- The use of long-term finance reflects both the demand for and supply of contracts with long-term maturities and reveals the allocation of risk between users and providers. Greater use of long-term finance implies that lenders are exposed to greater risk relative to borrowers. Optimal risk sharing between borrowers and lenders may lead to different equilibrium levels of use of long-term finance for different borrowers and lenders, and in different countries and at different points in time.
- Governments have a role to play in promoting long-term finance when it is undersupplied because of market failures and policy distortions. The government can promote long-term finance without introducing distortions by pursuing policies that foster macroeconomic stability, low inflation, and viable investment opportunities; promoting a contestable banking system with healthy entry and exit and supported with strong regulation and supervision; putting in place a legal and contractual environment that adequately protects the rights of creditors and borrowers; fostering financial infrastructures that limit information asymmetries; and promoting the development of capital markets and institutional investors. In contrast, efforts to promote long-term finance through directed credit, subsidies, and government-owned banks have not been successful in general because of political capture and poor corporate governance practices.

1

Conceptual Framework, Stylized Facts, and the Role of the Government

A developed financial sector should offer a wide range of maturities to meet the varying needs of different borrowers. Depending on the circumstances, borrowers might prefer long-term debt contracts, and providers will find it to their advantage to offer such contracts. This chapter begins by laying out a conceptual framework for understanding when firms and households find it beneficial to use long-term finance, when short-term debt will be preferred, and when and why long-term finance might be scarce and government action might be required. Next, the chapter presents basic stylized facts about the users and intermediaries of long-term finance, across developing and high-income countries, as a preview for the discussion and analysis in the rest of the report. Finally, the chapter discusses in very broad terms the role of the government in promoting long-term finance.

A CONCEPTUAL FRAMEWORK FOR UNDERSTANDING THE USE OF LONG-TERM FINANCE

Users—firms, households, and governments—might prefer long-term debt because it allows them to reduce rollover and interest rate risks. The rollover risk is the risk that credit lines are canceled or modified at short notice, and the interest rate risk is the risk that interest rates are changed at short notice. These risks generate economic costs because the mismatch between the time horizon of financing and the time horizon of investment projects can force the premature liquidation of long-term projects, which is socially inefficient. This mismatch can also discourage profitable investments with a longer time horizon from being undertaken in the first place. Moreover, the academic literature has argued that "short-termism" can explain several well-known financial crises in both developing and developed countries (Eichengreen and Hausmann 1999; Rodrik and Velasco 2000; Tirole 2003; Borensztein and others 2005; Alfaro and Kanczuk 2009; Brunnermeier 2009; Jeanne 2009; Raddatz 2010; Broner, Lorenzoni, and Schmukler 2013).

Households might prefer long-term finance because it can raise their welfare by allowing them to smooth their consumption over time and by facilitating lumpy investments such as housing. The fact that long-term finance can facilitate access to housing is important because, as an asset, housing can have large

effects on consumption through wealth effects (that is, increases in value that raise household wealth); these kinds of wealth effects have been found to exceed those of stock ownership (Case, Quigley, and Shiller 2013). Home ownership also provides households with collateral that can help alleviate borrowing constraints and facilitate consumption risk sharing (Lustig and Van Nieuwerburgh 2004). Finally, home equity provides collateral to finance consumption, with potential aggregate effects on demand and the likelihood of starting a small business, and can also foster self-employment (Adelino, Schoar, and Severino 2013).

On the savings side, investing long term allows households to address life-cycle challenges and to ensure that the financial benefits of economic growth are shared within the society. Households require long-term financial vehicles to insure against the challenges of retirement, education needs, health shocks, premature death, or longevity risks, and more generally to smooth consumption over time. Moreover, a financial system's capacity to spread risk effectively across time and agents is crucial to viable funded pension, education, and health systems.

Long-term financing is also important for firms because it allows them to undertake lumpy and large investments that might be critical for their growth. In the absence of long-term financing, firms might have to rely on short-term debt, and their inability to roll over short-term debt might cause a firm to exit or to curtail profitable long-term investments with consequences for their growth potential (Almeida and others 2011).

For the economy as a whole, long-term finance contributes to higher growth by lowering macroeconomic volatility. Because long-term investments take longer to complete, they have a relatively less procyclical return but also face a higher liquidity risk. Under complete financial markets, long-term investments are countercyclical because their opportunity costs are lower during recessions (the return on short-term investments is correlated with the cycle). But when firms face rollover risks, fixed investments turn procyclical because funding shocks are more likely to interrupt them than short-term investments. That, in turn, amplifies volatility and lowers economic growth. Tighter credit for long-term investment therefore leads to both higher aggregate volatility and lower mean growth for a given total investment rate, a prediction consistent with cross-country evidence (Aghion, Howitt, and Mayer 2005).

Long-term finance is also critical for infrastructure projects, which by nature take many years to complete and require lumpy investments. In turn, infrastructure development has been found to have positive and significant impact on long-run growth and to lessen income inequality (box 1.1).

Long-term finance can be defined in many different ways. One common definition considers it to be any source of funding with maturity exceeding one year. This definition corresponds to the definition of fixed investment in national accounts. The Group of 20, by comparison, uses a maturity of five years (G-20 2013). Depending on data availability, the report uses one of these two definitions to characterize the extent of long-term finance. Moreover, because there is no consensus on the precise definition of long-term finance, wherever possible, rather than use a specific definition of long-term finance, the report provides granular data showing as many maturity buckets and comparisons as possible.

Long-term finance encompasses many instruments and intermediaries. Bank loans and bond markets are typically discussed in the literature. To some extent, equity (public or private) can be considered a form of long-term financing, since it is a financial instrument with no final repayment date.

The benefits of long-term finance can accrue not only to borrowers but also to providers (savers in the economy) and financial intermediaries (banks and institutional investors). Savers might engage in long-term financial contracts because returns are higher than short-term contracts and because the maturity of these contracts might match their long-term saving needs. Although different financial intermediaries differ in the composition of their funding structure, some might find it profitable to engage in long-term contracts for similar reasons as savers do.

BOX 1.1 The Role of Infrastructure in Economic Development

A vast theoretical and empirical literature, recently summarized by Calderón and Servén (2014), underscores the importance of infrastructure for economic development. In particular, one strand focuses on the contribution of infrastructure to the level or growth rate of aggregate output or productivity. The output impact of infrastructure is typically modeled by including either the stock of infrastructure assets or the flow of infrastructure services as an input in the economy's aggregate production function and by assuming that infrastructure is a complement to noninfrastructure inputs such as labor and noninfrastructure capital (Arrow and Kurz 1970).

In such a setting, an increase in the volume of infrastructure services raises output not only directly but also indirectly, by "crowding in" other inputs owing to the accompanying rise in their marginal productivity. However, in an endogenous growth model setting, such as Barro (1990), the increasing taxation to finance public infrastructure beyond a certain optimal level can crowd out the use of other inputs, which can offset the crowding-in effect from productivity. The welfare-maximizing level of productive expenditure, which maximizes the economy's growth rate, is achieved when the share of productive government expenditure in the gross domestic product (GDP) equals the elasticity of aggregate output with respect to the same variable—what is often called the Barro rule.

Beyond its potential role as another input in the production function, infrastructure may also enter the production function as a determinant of aggregate total factor productivity. For example, Bougheas, Demetriades, and Mamuneas (2000) and Agénor (2013) argue that transport and telecommunications services facilitate innovation and technological upgrading, which in turn raise output growth, by reducing the fixed cost of producing new varieties of intermediate inputs. Another strand of the literature highlights the role of infrastructure in the accumulation of other inputs. For example, better transport networks may reduce installation costs of new capital (Turnovsky 1996). Similarly, better access to electricity may raise educational attainment and reduce the cost of human capital accumulation, also fostering growth (Agénor 2011).

Empirically, many studies have demonstrated that infrastructure matters for output and productivity growth (Calderón and Servén 2014). For example, employing physical measures of infrastructure assets and using cross-country panel data sets, studies such as Canning (1999), Calderón and Servén (2004), and Calderón, Moral-Benito, and Servén (2015) report a significant GDP (or productivity) contribution of infrastructure.

In addition to its impact on aggregate income, infrastructure can also have an impact on income inequality. In particular, infrastructure development may have a differential effect on the incomes of the poor, over and above its impact on aggregate income, by facilitating the poor's access to productive opportunities and by raising the value of their assets. It can also improve their health and education outcomes, thus enhancing their human capital. Empirically, a number of studies that have examined the inequality impact of infrastructure at the aggregate level, by regressing Gini coefficients and similar inequality measures on indicators of infrastructure development in a cross-country panel data setting find that, all else equal, income inequality is negatively related to their respective measures of infrastructure development (Calderón and Chong 2004; Calderón and Servén 2004, 2010a, 2010b; López 2004).

Because infrastructure can both raise income levels and reduce income inequality, its development has the potential to offer a powerful tool for reducing poverty and boosting shared prosperity. For this reason, infrastructure development has become a priority for the World Bank. To support infrastructure projects, the World Bank has partnered with some of the world's largest asset management and private equity firms, pension and insurance funds, commercial banks, multinational development institutions, and donor nations to set up the Global Infrastructure Facility (GIF). Launched in October 2014, GIF is envisioned as a global open platform that will facilitate the preparation and structuring of complex infrastructure public-private partnerships to mobilize private sector and institutional investor capital. While many development finance institutions and other entities (private and public) already provide similar support to projects, this support is often fragmented, with coordination largely dependent upon coincidental relationships. The aim of the GIF is to coordinate preparation and structuring support more systematically and to provide resources to fill gaps, ensuring a high-quality, comprehensive approach and early consideration of financing options with the potential to attract a wider range of investors. More time is needed to evaluate this novel initiative.

Providers of financing may at times prefer short-term contracts to guard against moral hazard and agency problems in lending. Financing contracts with a short maturity improve the lender's ability to monitor borrowers through the implicit threat of restricted access to credit in the future in case of default (Rajan 1992; Rey and Stiglitz 1993; Diamond and Rajan 2001). In particular, because debtors need to roll over their financing when debt is short term, creditors are able to cut financing if debtors are not taking actions that maximize the repayment probability of the financing obtained. Equity might mitigate some of the monitoring issues that lead to short-term financing because shareholders and, in particular, private equity investors can control the management of an investee firm more directly than a financial institution can.

Users might also prefer short-term finance in some instances. Firms tend to match the maturity of their assets and liabilities; hence, the faster the returns to investment are realized, the shorter the optimal payment structure will be (Hart and Moore 1995). Thus, long-term loans are usually used to acquire fixed assets, equipment, and the like. Short-term loans, on the other hand, tend to be used for working capital, such as payroll, inventory, and seasonal imbalances. In addition, a firm or a household that anticipates improvements in its financial situation might prefer short-term financing rather than being locked in a longer contract that might not reflect the medium- or long-term prospects. For example, research suggests that firms with high credit ratings might prefer short-term debt because it allows them to refinance the terms of their debt when good news arrives (Diamond 1991). Households and firms might also prefer short-term contracts if the payoffs from available investment projects have a similarly short-term horizon or if the cost of long-term finance is too high.

In essence, the use of long-term finance can be better understood as a risk-sharing problem between providers and users of finance. Long-term finance shifts risk to the providers because they have to bear the fluctuations in the probability of default and the loss in the event of default, along with other changing conditions in financial markets, such as interest rate risk. Naturally, providers require a premium as part of the compensation for the higher risk this type of financing implies, the size of which depends on the degree of their risk appetite. In contrast, short-term finance shifts risk to users because it forces them to roll over financing constantly.

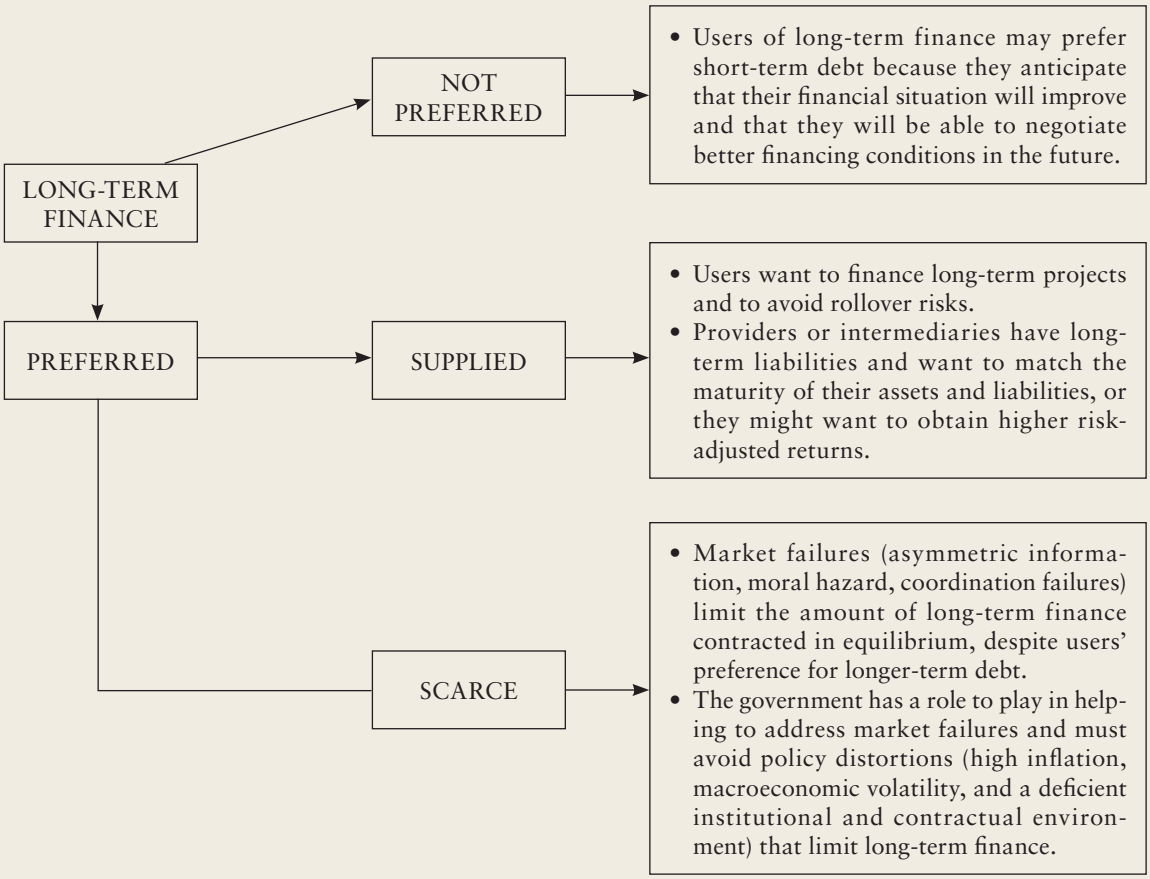
Therefore, long-term finance may not always be optimal for the economy as a whole. Providers and users will decide how they share the risk involved in financing at different maturities, depending on their needs. What matters for the economic efficiency of the financing arrangements is that borrowers have access to financial instruments that allow them to match the time horizons of their investment opportunities with the time horizons of their financing, conditional on economic risks and volatility in the economy (for which long-term financing may provide a partial insurance mechanism). At the same time, savers would need to be compensated for the extra risk they might take. For this reason, it is still important to understand where different economies stand in the allocation of short- and long-term finance, because each one has its pros and cons that imply different responses from policy makers (box 1.2).

Because of information asymmetries and other market failures, the amount contracted in equilibrium could be lower than desired in situations when both users and providers of finance would ideally prefer long-term finance contracts. Because extending long-term finance implies large risks for providers, the same rationale provided by Stiglitz and Weiss (1981) showing rationing in credit markets could be applied. In particular, information asymmetries could prevent the creditor from knowing the true repayment capacity and willingness to pay of the borrower, thus making the creditor reluctant to agree to the amount of long-term finance requested.

Coordination problems are another form of market failure that can shorten debt maturity. When the seniority of claims is not well enforced and lenders cannot coordinate their

BOX 1.2 A Conceptual Framework for Understanding the Use of Long-Term Finance

The use of long-term finance is an equilibrium outcome that reflects both the *demand* and *supply* of financial contracts with longer-term maturities. It involves a trade-off in how risk is allocated between users and providers or their intermediaries. Market failures and policy distortions can affect the interplay between the demand and supply of long-term finance. Hence, depending on the situation, short-term finance may be preferred, or long-term finance may be preferred, and may be either supplied or scarce.



actions, they will protect themselves against dilution by simultaneously shortening the maturity of their claims (Bolton and Jeanne 2009; Brunnermeier and Oehmke 2013). This situation may trigger a "maturity rat race" in which lenders shorten the maturity of contracts to protect their claims and shorten the average maturity of debt contracts available in equilibrium.

Incentive problems can also give rise to short-term bias in financing contracts. Even in economies with a well-developed financial sector, the institutional and managerial incentives of financial intermediaries may lead to an undersupply of long-term financing. Opazo, Raddatz, and Schmukler (2015) looked at the universe of institutional investors in Chile and found that mutual and

pension funds, which manage the long-term assets of individuals and are thus expected to have a fairly long investment horizon, invest predominantly in short-term assets. This preference for short-term investment appears to be driven not by supply-side factors or a lack of availability of long-term instruments, but rather by the practice of evaluating fund managers against short-term performance targets. This finding underscores that financial market development and the expansion of institutional investors alone are not sufficient for the development of long-term markets.

SOME STYLIZED FACTS ABOUT THE USERS AND PROVIDERS OF LONG-TERM FINANCE

The use and availability of long-term finance can be analyzed by looking at data from the point of view of the users, intermediaries, and the markets where transactions occur. Firms and households are the main private sector users of long-term finance.[1] Banks and institutional investors such as mutual funds, pension funds, insurance companies, and private equity investors are the main intermediaries. Corporate bond and equity markets are also key in understanding the use of long-term finance, as is syndicated lending (box 1.3).

Firms

Early literature on corporate debt structures, using data from the 1980s and 1990s, has documented that corporate debt is of shorter maturity in developing countries than in developed economies (Demirgüç-Kunt and Maksimovic 1999; Booth and others 2001). Moreover, in developing countries, firms have lower leverage (defined as the ratio of total debt to total assets). To the extent that external equity is more difficult to raise than debt finance, this finding indicates a more general reduced reliance on external long-term finance in developing economies to finance investment.

More recent research confirms the differences in corporate debt maturity structures across countries at different levels of economic development and across firms of different sizes. In particular, Demirgüç-Kunt, Martínez Pería, and Tressel (2015a) show that the median share of long-term debt (that is, debt of remaining maturity greater than a year) to total debt is smaller in developing countries than in high-income economies across all firm size groups (figure 1.1).[2] The authors based their findings on data for the period 2004–11 from ORBIS, a commercial dataset produced by Bureau van Dijk.

BOX 1.3 Intermediaries and Markets for Long-Term Finance

Various domestic and foreign institutions and markets may have a role to play in the provision of long-term finance. The following taxonomy builds on earlier World Bank work, including regional reports on Latin America and the Caribbean (de la Torre, Ize, and Schmukler 2012), Africa (Beck and others 2011), and the Middle East and North Africa (World Bank 2011).

Commercial banks and nonbank intermediaries. Commercial banks can play a key role in providing long-term finance to the real economy. By pooling savings, banks assume a maturity mismatch and create long-term claims while providing liquid financial instruments to savers subject to idiosyncratic needs. Banks have a comparative advantage in monitoring productive projects and can be significantly leveraged, thus transforming the maturity of financial claims to allow the financing of illiquid investments (Diamond 1984). However, banks that become too dependent on short-term liabilities may shorten the maturity of their loan portfolio to reduce the rollover risk (Paligovora and Santos 2014).

Bond markets. Corporate bond markets offer an alternative to bank financing and could be particu-

(box continued next page)

BOX 1.3 Intermediaries and Markets for Long-Term Finance *(continued)*

larly useful for large firms, for large financing needs that exceed the capacity of the banking system, or where asymmetries of information and agency problems are mitigated in stronger institutional environments. A developed bond market may also enhance the efficiency of bank financing by allowing securitization or by matching the longer-term assets to their liabilities and by enhancing competition.

Stock markets. The presence of a developed and liquid stock market develops and aggregates information through stock prices and underwriting, brokerage, and other activities and is associated with higher borrowing capacity for firms (Demirgüç-Kunt and Maksimovic 1998). More generally, securities markets allow a more efficient allocation of resources and contribute to market discipline through price signals, information production, and takeover activities.

Institutional investors. Life insurance companies, pension funds, endowments funds (such as sovereign wealth funds), and mutual funds are, in principle, suitable providers and intermediaries of long-term funding to the financial system. Long investment horizons, particularly for pension funds, sovereign wealth funds, and insurance companies, may allow these investors to take advantage of long-term risk and illiquidity premiums, and, relative to banks, they are less vulnerable to liquidity runs. Some institutional investors are subject to short-run performance metrics, however, which might bias their holdings toward the short term.

Hedge funds, venture capital funds, and private equity funds. High-risk, low-liquidity funds aim at the next stage of wealth and sophistication. They are starting to appear in the deepest emerging markets, such as Brazil, with an often dominant participation of offshore funds. These types of funds are only very lightly regulated. How much they invest in long-term assets remains difficult to ascertain, given the dearth of data. Their volumes and performance may be particularly sensitive to various country risks and governance arrangements, given their often high illiquidity and the idiosyncratic specificities of the projects financed. Private equity has become a growing part of the financial sector, especially for long-term finance, in many developing economies. Following the financial crisis, the recovery of private fundraising momentum was particularly strong in Sub-Saharan Africa and Latin America.

International capital markets. When domestic savings are not sufficient, individual countries turn to international capital markets for long-term finance. Foreign direct investments, bank loans, and portfolio investments have flowed from advanced economies, where long-term finance is more abundant, to developing countries, where higher returns can be gained when appropriate institutional and policy environments are in place. In particular, private equity funds in advanced economies are increasingly investing in emerging markets. International syndicated loans for project financing have been dominated by advanced economies' banks—in particular, those from European countries. Emerging markets and other developing countries have for many decades borrowed from banks in advanced economies or through foreign currency international bond markets. The presence of foreign investors in domestic capital markets has increased, but evidence is scant on their impact on the maturity of claims, while the recent crisis has heightened the traditional trade-off between access to lower financing costs and the risks from external factors, causing volatility in the availability of foreign long-term finance.

State-owned financial intermediaries. The debate on the rationale for state intervention in the financial sector usually centers on market failures and externalities (World Bank 2013a). Direct state participation is warranted to compensate for market imperfections that leave socially profitable long-term investments underfinanced. State-owned financial institutions, particularly development banks, have returned to the spotlight of the public debate in recent years, partly in response to their role during the global financial crisis. Concerned about the lack of notable progress in increasing access to long-term finance, policy makers are discussing the efficacy of development banks, despite the well-recognized misallocation and efficiency losses stemming from weak governance and politically motivated lending in underdeveloped institutional environments.

FIGURE 1.1 Ratio of Firms' Median Long-Term Debt to Total Debt by Country Income Group and Firm Size, 2004–11

Source: Demirgüç-Kunt, Martínez Pería, Tressel 2015a.

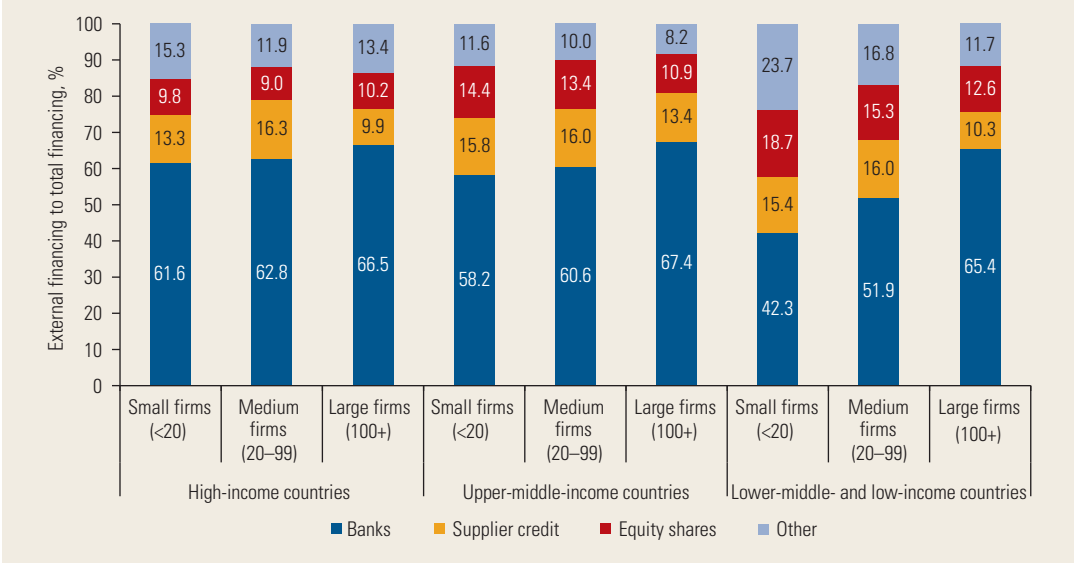
Banks are the main source of external financing for fixed investments, which tend to be long term. Data from the World Bank Enterprise Surveys conducted between 2006 and 2014 show that on average firms finance 50 percent or more of their investments with bank loans (figure 1.2). Small firms in lower-middle- and low-income countries are the exception. Bank finance accounts for 42 percent of financing for fixed investment for these firms; informal sources and family members, which account for 24 percent of external financing for fixed investments, make up a large part of the difference.

Households

Housing finance is arguably the most important type of long-term financing used by households. A house is the largest asset most individuals will acquire during their lifetime. Mortgage loans allow households to spread the cost of the purchase over many years while enjoying the immediate benefit of having housing.

Mortgage market development varies significantly across countries. Mortgage depth is defined as the outstanding mortgage debt relative to gross domestic product (GDP). Badev and others (2014) find that while mortgage depth averages close to 40 percent of GDP in high-income countries, it averages only 7 percent in upper-middle-income countries and 3 percent in lower-middle- and low-income countries (figure 1.3). The figures for

FIGURE 1.2 Sources of External Financing for Fixed Asset Investment by Country Income Group and Firm Size, 2006–14



Source: Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.

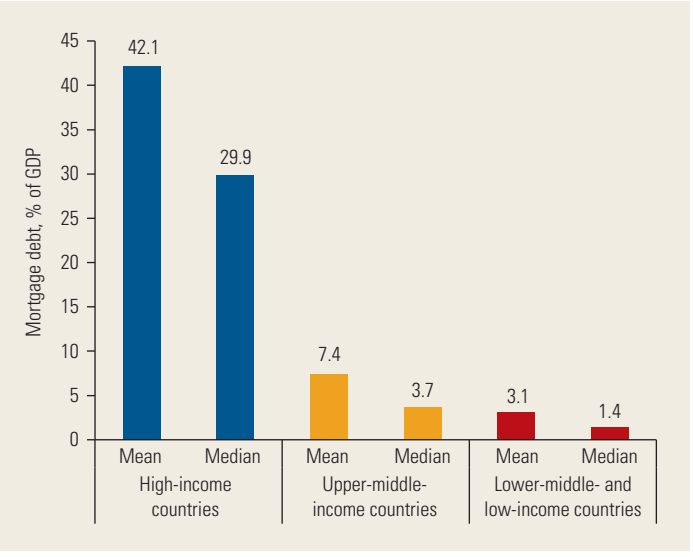
the medians are lower but the patterns are the same.

Survey data suggest that across the world only a small percentage of individuals has outstanding housing loans, but differences across groups are significant. Individual-level Global Findex data suggest that on average across all countries, only 8 percent of adult individuals report having an outstanding loan (formal or informal) to purchase a home (figure 1.4). Comparisons across country groupings and across income categories within country groupings vary substantially. The average share of individuals with an outstanding home loan is 21 percent in high-income economies, while it is 3 percent in developing countries. Within each of these country groupings, the share of individuals with a housing loan among those in the top 60 percent of income is between 1.5 to 2 times larger than that for those in the bottom 40 percent.

The availability of long-term finance for households can also facilitate the accumulation of human capital. The second important category of financing with a maturity of more than one year that is frequently used by households is education loans. Education loans can facilitate investment in human capital, especially in environments where these investments are not subsidized by the governments and they impose significant financial costs on the household, since returns are realized only with a significant delay.

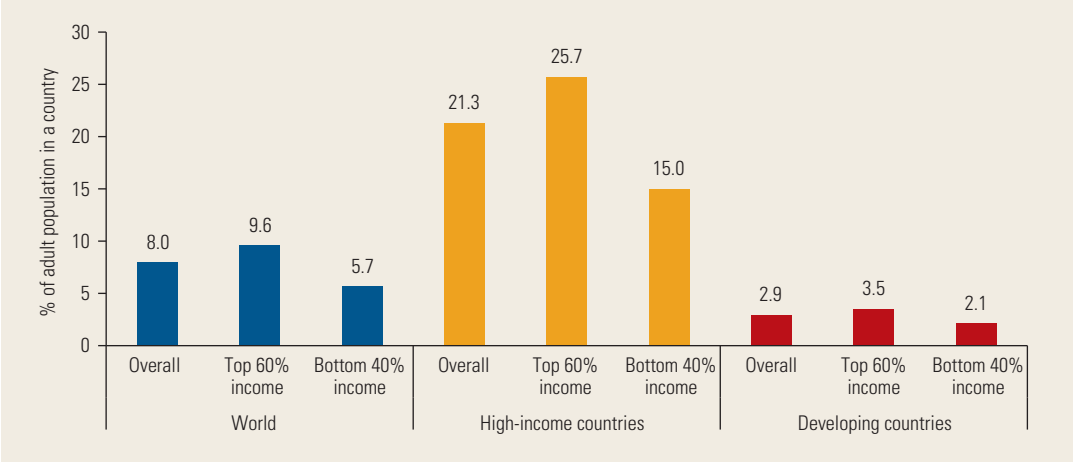
The use of credit to finance investments in education in developing countries is very low and is more pervasive among richer

FIGURE 1.3 Outstanding Mortgage Debt by Country Income Group, 1980–2011



Sources: World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators; Badev and others 2014.

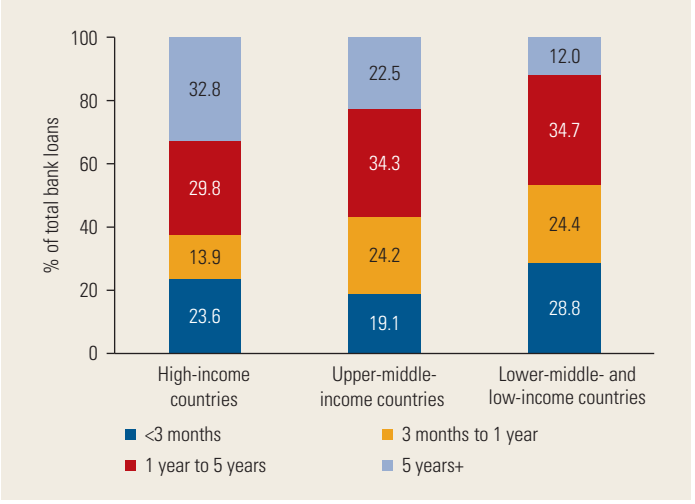
FIGURE 1.4 Share of Population with an Outstanding Mortgage by Income and Country Income Group, 2011



Sources: Global Financial Inclusion (Global Findex) Database, World Bank, Washington, DC, http://www.worldbank.org/globalfindex; and World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators.

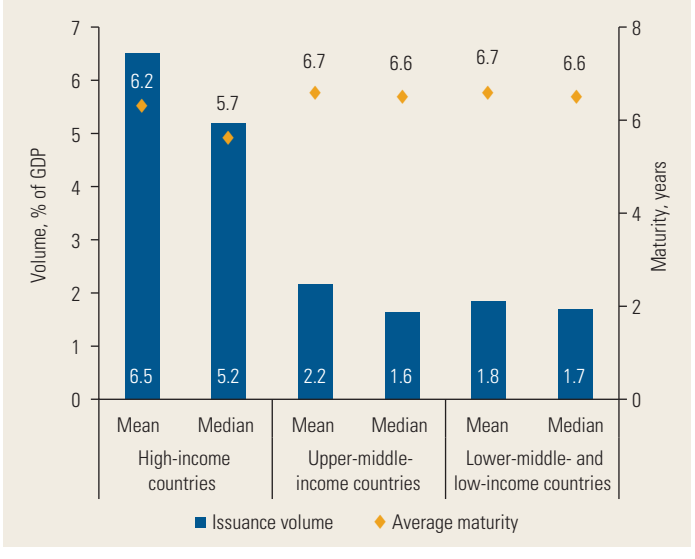
individuals. According to data from the Global Findex, only 5.4 percent of individuals in middle- and low-income countries have an outstanding loan to pay for school fees.[3]

FIGURE 1.5 Maturity Structure of Bank Loans by Country Income Group, 2000–13



Source: Bankscope (database), Bureau van Dijk, Brussels, http://www.bvdinfo.com/en-gb/products/company-information/international/bankscope.

FIGURE 1.6 Annual Issuance of Syndicated Loans and Average Maturity by Country Income Group



Sources: World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators; and SDC Platinum (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-banking-and-advisory/sdc-platinum.html.

Banks

Banks are the most important providers of long-term finance, and long-term financing from banks is particularly important for households and small firms. By pooling savings and transforming short-term deposits into long-term loans, banks take on liquidity risks (arising from the maturity mismatch between their assets and liabilities) and can provide financing for illiquid long-term projects (Diamond and Dybvig 1983). The extent to which banks can perform this intermediary function depends, among other factors, on how well a bank can both assess credit risks to screen prospective borrowers and monitor borrowers once a loan has been issued.

The average share of bank loans with maturity above five years is higher in richer countries. Bank balance sheet data from Bankscope, a commercial dataset produced by Bureau van Dijk, indicates that among high-income economies the share of bank loans with maturities exceeding five years reaches 33 percent on average, compared with about 23 percent for upper-middle-income countries and only 12 percent in lower-middle- and low-income countries (figure 1.5). At the same time, the share of loans with maturity between one and five years is more similar across income groups, accounting for almost 30 percent among high-income economies and 35 percent among developing countries.

Syndicated Lending

Syndicated lending as a percentage of GDP is substantially higher in high-income countries relative to developing countries. The average share of syndicated lending to GDP in high-income countries is 6.5 percent and the median is 5.2 percent (figure 1.6). In contrast, in middle- and low-income countries, both the average and median shares are close to 2 percent.

The maturity of syndicated loans in high-income countries is lower than that for loans in developing countries. The median and average maturity of syndicated loans in high-income countries is close to six years, while in middle- and low-income countries these statistics are

closer to seven years (see figure 1.6). Differences in loan types are the main reason for the differences in maturities. In developing countries, most syndicated loans are for project finance or infrastructure loans, which tend to have longer maturities, while in high-income countries the majority of syndicated loans are general purpose corporate loans with shorter maturities. Chapter 3 offers more granular data and discussion of these patterns.

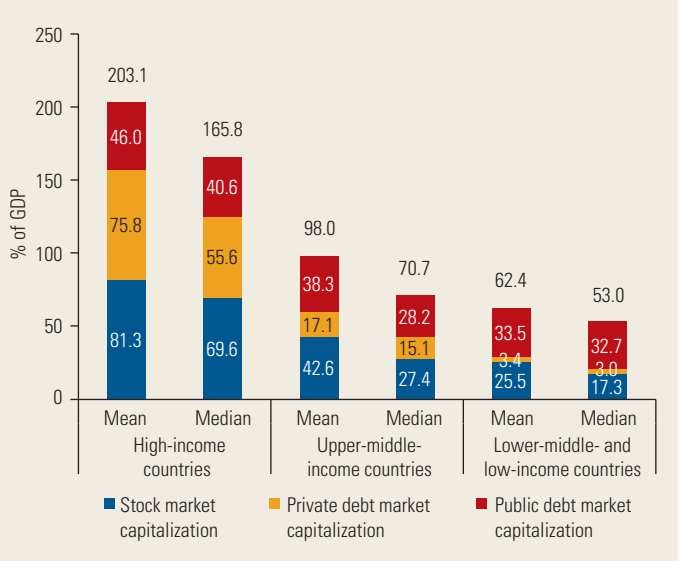
Capital Markets

Capital markets, comprising bond and stock markets, are another potential source of long-term financing for firms. These markets are significantly more developed in high-income countries. From 2000 to 2011, the total capitalization of these markets averaged approximately 203 percent of GDP in high-income countries, almost 98 percent in upper-middle-income countries, and 62 percent in lower-income countries (figure 1.7). Median values are lower (in particular, among high-income countries), showing the influence of outliers within each income category, but the main pattern remains the same—capital market capitalization is positively correlated with income.

The structure of capital markets differs significantly across high-income and developing countries. In high-income economies, stock markets tend to dominate, followed by private bond markets. On average, the two markets account for 157 percent of GDP: stock market capitalization is almost 81 percent of GDP, and private bond market capitalization accounts for close to 76 percent. In developing countries, stock markets are also important, but public instead of private debt markets come second in importance. On average, in upper-middle-income countries stock market capitalization is almost 43 percent of GDP, and public bond market capitalization accounts for 38 percent. In contrast, private bond markets account for 17 percent of market capitalization on average. In the two lower-income groups, private debt markets are very small at 3 percent of GDP.

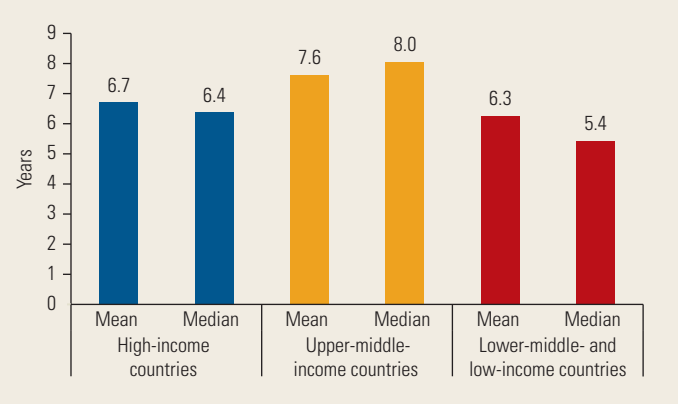
The maturity of corporate bond issues is not clearly tied to country income. While both the mean and median maturity for corporate bond issues by firms in high-income countries exceed the mean and median for firms in lower-middle- and low-income countries, the maturity of corporate bond issues in upper-middle-income countries is the highest (figure 1.8). The average maturity

FIGURE 1.7 Capital Market Sizes by Country Income Group, 2000–11



Sources: World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators; and Global Financial Development Database, World Bank, Washington, DC, http://data.worldbank.org/data-catalog/global-financial-development.

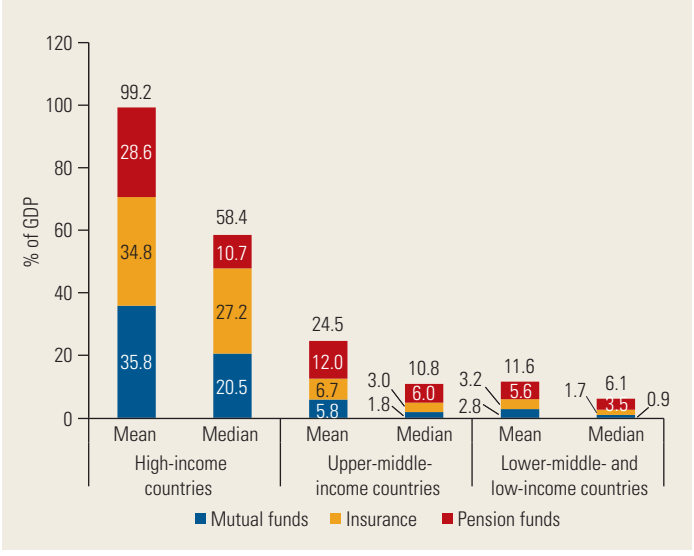
FIGURE 1.8 Maturity of Corporate Bond Issues by Country Income Group, 2000–13



Sources: World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators; and SDC Platinum (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-banking-and-advisory/sdc-platinum.html.

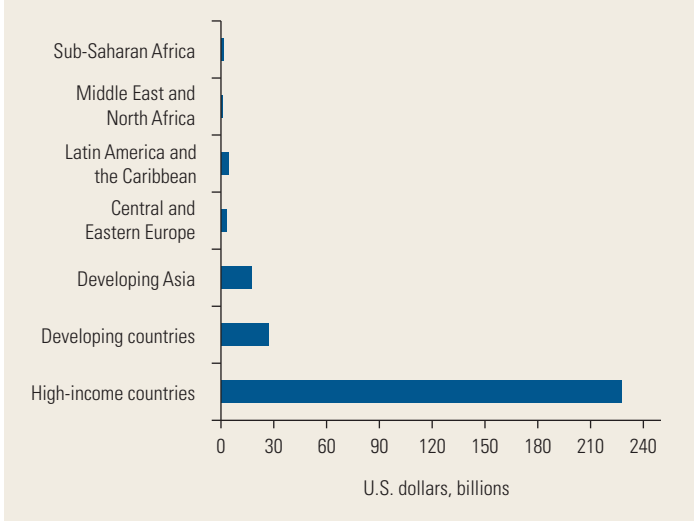
for firms in these countries is 7.6 years and the median is 8 years. One reason driving lower maturities for high-income countries is that a larger percentage of bond issues is by financial firms, and these issues tend to have a shorter maturity. Chapter 3 offers more granular data and in-depth discussion of these patterns.

FIGURE 1.9 Institutional Investor Assets by Country Income Group, 2000–11



Sources: World Development Indicators (database), World Bank, Washington, DC, http://data.worldbank.org/data-catalog/world-development-indicators; and Global Financial Development Database, World Bank, Washington, DC, http://data.worldbank.org/data-catalog/global-financial-development.

FIGURE 1.10 Private Equity across Income Groups, Average over 2008–13



Source: FundLink (database), Emerging Market Private Equity Association, Washington, DC, http://empea.org/research/data-and-statistics/fundlink.

Institutional Investors

Institutional investors are often discussed as an important source of finance with the potential to be long term. During 2000–11, however, their participation in developing economies was still relatively small. The cumulative assets of institutional investors—pension funds, mutual funds, and insurance companies—averaged 99 percent of GDP in high-income economies, with broadly similar shares for the three sets of institutional investors (figure 1.9). In contrast, the assets of these institutions averaged only 25 percent of GDP in upper-middle-income economies, and pension funds dominated. In lower-income countries, the share of assets to GDP was even lower, averaging close to 12 percent, with pension funds accounting for half of the total. Median shares are significantly lower across all income groups, showing that there is quite a bit of heterogeneity in the importance of institutional investors within each income category. That is especially the case in both groups of developing countries, where the medians are close to half or less of the average.

Although private equity is considered a promising source of long-term financing, it is still negligible in developing countries and is concentrated in just a few. Statistics compiled by the Emerging Markets Private Equity Association (EMPEA) for the period 2008–13 show that while private equity financing averaged around $230 billion in high-income countries, in developing countries it averaged $30 billion or 10 percent of the global amount of private equity (figure 1.10). Furthermore, the significance of private equity financing is very unbalanced within the developing world, averaging approximately $17 billion in developing Asian countries, four times more than the average for Latin America, the region with the second-highest presence of private equity financing.

THE ROLE OF THE GOVERNMENT IN PROMOTING LONG-TERM FINANCE

Government intervention to promote long-term finance is clearly justified when market failures that limit its use prevail in financial markets. As discussed, these market failures can arise from asymmetric information, coordination, and incentive problems.

Government policies that reduce information asymmetries are useful for promoting the availability of long-term finance. The existence of credit bureaus and other mechanisms that share information among financial intermediaries improves access to financial services generally and to long-term finance in particular. Using data on the maturity of domestic bank credit to the private sector in 74 countries from 1990 to 2005, Tasić and Valev (2008) found that the presence of a credit bureau or registry is associated with longer debt maturity. This result is confirmed more robustly by Martínez Pería and Singh (2014), using multiyear firm-level surveys for 60 countries covering more than 60,000 firms over the period 2002–11. Among other results, they show that after the introduction of a credit bureau, the maturity of firm loans lengthens.

The other important role for the government is to avoid policy distortions that give rise to an unstable political or macroeconomic environment, which can reduce the amount of long-term finance used in the economy. A stable political and macroeconomic environment is a necessary condition for long-term finance to thrive because it underpins the ability of economic agents to predict the risks and returns associated with that finance. If political risk is significant or the macroeconomic environment is unstable, the market is unlikely to provide long-term finance at a reasonable premium. Instead, short-term finance, often of small amounts, will be the most prevalent form of external financing (Caprio and Demirgüç-Kunt 1998). At the same time, prospective borrowers will be reluctant to invest in their future, and the demand for long-term finance will be low.

Empirical studies confirm that political and macroeconomic instability (in particular, high inflation) are among the leading reasons for the lack of long-term finance and private investment. Demirgüç-Kunt and Maksimovic (1999) showed that inflation is negatively related to the use of long-term debt. Kpodar and Gbenyo (2010) found that the share of long-term credit to total credit in countries that are part of the West African Economic and Monetary Union was higher for countries with lower and less volatile inflation and for countries with stable political regimes. Qian and Strahan (2007) and Bae and Goyal (2009) found that increased country risk is associated with shorter loan maturity. Tasić and Valev (2008) also found that inflation has a negative impact on maturity of domestic bank credit to the private sector in 74 countries. Tasić and Valev (2010) found similar results using a panel dataset for a sample of transition economies.

Not only the current level of inflation but also a history of past inflation can have a negative effect on debt maturity. Using a database on government debt in 19 emerging countries over the period 1980–2002, Jeanne and Guscina (2006) observed substantial cross-country variation in the maturity structure of debt, finding that countries with lower long-term debt are those with a history of high inflation (that is, inflation of over 100 percent in the previous decade). A history of high inflation is often linked to short-term debt and investments in Brazil, despite the many reforms adopted by the country to develop long-term finance (Park 2012).

To ensure an adequate supply of finance, including long-term debt, the government needs to build a strong legal and institutional framework.[4] When a country's contracting institutions offer only very weak protections for lenders against nonpayment of debt, lenders tend to rely on short-term lending agreements for formal debt contracts, which make it easier for the lender to discipline the borrower through the threat of withholding future financing in case of nonrepayment. Consistent with these predictions, Warnock and Warnock (2008) found that countries

with stronger protections for legal rights have deeper housing finance systems. Using firm-level data for 39 countries between 1991 and 2006, Fan, Titman, and Twite (2012) found that firms in countries with a weaker legal environment tend to use more short-term debt. Qian and Strahan (2007) found that creditor rights are positively associated with loan maturity.

A good legal framework for collateral is also needed to foster the availability of long-term finance. Long-term financial contracts lack the disciplining effect of short-term debt on borrowers and therefore require assets to be pledged to alleviate moral hazard. Evidence shows that collateral requirements are often stringent for loans financing fixed assets (which are usually long term) and that the lack of collateral is often a constraint on investment in fixed assets (Beck, Demirgüç-Kunt, and Maksimovic 2005). Using data for transition economies, De Haas, Ferreira, and Taci (2010) found that banks that perceive the legal collateral environment to be good tend to focus more on mortgage lending. Reforms of collateral registries have also been found to have a significant impact on loans to finance fixed assets and on the maturity of these loans (Love, Martínez Pería, and Singh, forthcoming). Further evidence shows that collateral requirements become even more important in environments with corruption and poor property rights, suggesting that reforms reducing the cost of collateral may have stronger impacts in weaker institutional environments (Qian and Strahan 2007).[5]

A strong capability to enforce contracts is also required to promote the use of longer-term financial contracts. In the absence of contract enforcement, financiers would avoid lending long term and rely on short-term contracts to discipline and ensure repayment by borrowers. Using loan- and firm-level data, respectively, Bae and Goyal (2009) and Fan, Titman, and Twite (2012) found that better contract enforcement is associated with longer debt maturity. In fact, Bae and Goyal found that contract enforcement is more significantly and consistently associated with longer maturities than are creditor rights.

The government can also influence the supply of long-term finance by ensuring the existence of competitive and contestable markets for financing. For example, by minimizing entry barriers, ensuring a level playing field, and otherwise facilitating bank competition, and by allowing the functioning of other intermediaries—leasing companies, private equity investors, venture capitalists—that can also provide long-term finance, the government can shape and potentially play a role in expanding the supply of long-term finance. Thus, the presence of a strong supervisory and regulatory framework that promotes contestability among existing and potential providers of long-term finance can be very important for the development of long-term finance.

Policies and regulations that improve the quality of corporate governance and accounting standards can also support the development of markets for long-term finance. In many developing countries, investment constraints stemming from political and macroeconomic risks are compounded by insufficient transparency at the firm level, caused by poor corporate governance and accounting standards. Lack of transparency makes reliable risk assessments difficult, especially over a long time horizon, and reduces the availability of long-term financing. Existing research has consistently found a positive association between corporate governance and the availability of long-term finance.[6]

By providing a legal and regulatory framework that facilitates the development of efficient capital markets, the government can also foster long-term financing. Well-functioning capital markets aggregate information and reduce informational asymmetries between market participants, facilitating the provision of long-term financing (Demirgüç-Kunt and Maksimovic 2002). Governments can pursue several policies to support the development of deep and liquid capital markets. De la Torre, Gozzi, and Schmukler (2007), for example, studied the impact of a set of reforms on stock market development in emerging markets, namely, stock market liberalization, enforcement of insider trading laws, introduction of

electronic trading systems, privatization programs, and institutional reforms. The authors found that these government interventions are associated with significant increases in domestic stock market capitalization and in trading volumes.

The government can directly affect the development of domestic corporate bond markets by developing the market for sovereign debt. In particular, sound sovereign debt management with regular issues of benchmark bonds at different maturities is central to building a yield curve, which can be helpful for pricing corporate bonds efficiently (especially in the longer term). The possibility of crowding-out effects between government and corporate bond markets through competition for investors' funds must also be taken into account, however (Friedman 1986). For example, Graham, Leary, and Roberts (forthcoming) documented a negative association between government borrowing and corporate debt issuance, which is consistent with a crowding-out effect affecting the demand curve for corporate debt.

The government can also promote long-term financing through policies that support the development of institutional investors; these policies include setting the right incentives and removing unnecessary restrictions on their portfolio allocations so that these investors invest long term. Institutional investors can play an important role in the development of markets for long-term finance. The expectation is that they are better able to mobilize assets, diversify risks, and overcome transaction costs and information problems that prevent other market participants from investing long term (Caprio and Demirgüç-Kunt 1998; Corbo and Schmidt-Hebbel 2003; Borensztein and others 2008; Eichengreen 2009). To invest long term, however, investors have to be provided with the right incentives. In particular, governments need to ensure that compensation and benchmarking practices followed by institutional investors have a long-run horizon to avoid some of the short-termism that has been observed in some cases (for example, the holdings of pension funds in Chile, as shown by Opazo, Raddatz, and Schmukler, 2015). Restrictions on portfolio allocations that limit the long-term instruments these funds can invest in should also be removed.

The evidence on the effects of the direct provision of long-term financing by governments is generally not encouraging.[7] It shows that lending by government-owned banks has often been associated with political capture and a misallocation of resources.[8] In particular, cross-country studies show that greater government participation in bank ownership tends to be associated with lower levels of financial development, more politically motivated lending, lower banking-sector outreach, wider intermediation spreads, greater financial instability, and slower economic growth (Barth, Caprio, and Levine 2001, 2004; Caprio and Martínez Pería 2002; La Porta, López-de-Silanes, and Shleifer 2002; Dinç 2005; and Micco, Panizza, and Yañez 2007). Moreover, detailed case studies on government-owned banks in developing and even some developed countries offer more robust evidence that government bank lending is subject to political manipulation and rarely results in improved access for constrained borrowers (see, for example, Sapienza 2004 for evidence on Italy; Khwaja and Mian 2005 for evidence on Pakistan; Cole 2009a, 2009b for evidence on India; and Carvalho 2014 for evidence on Brazil).

Where government-owned banks are involved in the provision of long-term finance, their mandate needs to be clearly defined and, ideally, should not duplicate functions that the private sector can provide. To ensure that the involvement of government-owned financial institutions serves as a remedy rather than a source of market distortions, the purpose, scope, and time horizon of the involvement need to be clearly defined (Rudolph 2009). In practice, public sector interventions should occur only in cases where a market failure is apparent and where no private sector solution is feasible. Moreover, the involvement of government-owned banks should be limited in time. For example, "sunset clauses" that limit the time horizon of public lending programs can prevent such interventions from outliving the purpose for which they were designed and

BOX 1.4 Development Banks and Long-Term Finance: Two Different Approaches

The Brazilian Banco Nacional de Desenvolvimento Econômico e Social (BNDES) and the Colombian Financiera de Desarrollo Nacional (FDN) highlight two very different approaches to supporting long-term finance through government-owned financial institutions.

Brazil's development bank BNDES has historically played a major role in providing long-term finance through directed lending. This approach has advantages and drawbacks. On the one hand, the scale of BNDES's direct lending operations has enabled the bank to provide long-term financing in cases where private credit might not have been available as a substitute. For example, BNDES has provided extensive financing for large-scale investments in physical and social infrastructure whose social returns may not be fully internalized by private investors. Because government banks do not face the same redemption risk as private lenders, it has also been argued that government banks are well suited to provide countercyclical financing during times of economic crisis.

Some evidence suggests that direct lending by BNDES had a stabilizing effect on Brazilian credit markets during the recent global financial crisis (Coleman and Feler 2015). While private sector banks in Brazil and elsewhere contracted lending and loan maturities in the aftermath of the financial crisis, Brazil used its government banks, including BNDES, to play a countercyclical role. The share of credit extended by Brazil's government banks rose from 13 to 18 percent of gross domestic product between September 2008 and 2009. Thanks to a generous capital injection by the government (R$100 billion in 2009), BNDES was able to extend special credit facilities with maturities of more than one year at substantially discounted interest rates and increased lending, from R$160 billion (at 2005 prices) in Q4 2008 to R$277 billion in Q4 2009. The reference interest rate for long-term loans was set at 6 percent, which was 7.5 percentage points below the market rate (Lazzarini and others 2015).

On the other hand, the surge of BNDES lending—while compensating for the contraction of private credit and for the shortening of loan maturities during the crisis—may have come at the cost of significant market distortions in the longer run. The available evidence shows significant political distortions in lending by Brazilian government banks during noncrisis times, with funds being channeled to constituencies in which political incumbents face competition (Carvalho 2014) or to firms that make political donations (Claessens, Feyen, and Laeven 2008). There is, as a consequence, no indication that this additional credit has had any positive effect on employment or firm performance (Carvalho 2014; Lazzarini and others 2015). Moreover, the scale of the intervention is likely to have fiscal effects that are damaging to the market for long-term credit more broadly. The substantial government transfer to BNDES, financed through bond issuance, is likely to crowd out private credit, keep long-term interest rates high, and reduce the overall availability of private credit in the economy.

Colombia's development bank FDN has followed a very different approach, supporting long-term finance through strategic interventions that crowd in private investment and through financial innovations that promote the development of markets for long-term finance. FDN's mandate is to focus specifically on support for long-term infrastructure financing in Colombia. Being both smaller and more specialized than other government banks, FDN aims to increase the impact of its investments by mobilizing co-investments by the private sector.

One of the bank's flagship projects is the construction of 8,000 kilometers of toll road at a cost of about $23 billion. FDN bears the risk of the fixed up-front investment, and private investors are extensively engaged in the operational cycle of the project. To ensure private sector participation in long-term projects of this kind, FDN has established a special public-private partnerships unit that will focus on structuring "bankable" infrastructure projects. So far, FDN's efforts at mobilizing long-term finance has focused on domestic lenders. In the longer term, an important goal is to establish conditions that enable the participation of institutional investors so that FDN can mobilize joint long-term financing from banks and from capital markets.

FDN has also been active in supporting financial innovations that can help mobilize long-term finance. In particular, the bank is developing bonds, partial guarantees, and other innovative instruments

(box continued next page)

BOX 1.4 Development Banks and Long-Term Finance: Two Different Approaches *(continued)*

to support long-term debt financing through capital markets. Together with the Ministry of Finance, FDN is also supporting several regulatory reforms and training programs that are prerequisites for local capital markets to play a more important role in infrastructure financing. FDN is also involved in initiatives to strengthen the corporate governance of long-term projects and to reduce possibilities for political capture; weak governance and political capture have been important sources of inefficiency in the lending activities of government banks. The example of FDN illustrates that development banks can support long-term finance through a range of interventions other than direct lending. In many cases, such innovative approaches are likely to have greater impact and to generate fewer market distortions than the large directed lending programs traditionally pursued by development banks.

from becoming a source of market distortions in the longer run. Box 1.4 provides a discussion of two different approaches to development banking.

To mitigate political interference, the corporate governance and risk management framework of government-owned banks needs to be especially strong. A strong framework entails a number of requirements, as outlined by Scott (2007). First, there has to be an agency within the government that is expressly responsible and accountable for representing the shareholder. Second, board members need to be appointed in a transparent manner for a fixed period of time, and they should be accountable for their actions, as they would be in listed companies. Third, senior management at the bank needs to be qualified and be held accountable by the board of directors.

Governments can share risk and extend maturity structures through providing credit guarantees. Government-backed guarantee schemes are often designed to encourage lending to certain sectors—for example, small and medium enterprises—and can allow more risky borrowers to receive loans and also extend maturity structures (box 1.5). However, in practice, it is not clear if these schemes lead to additional lending, and they may distort incentives for lenders and borrowers, increasing default rates and leading to large-scale losses. Following best practice in design and management of these schemes tends to be difficult in weak institutional environments where good governance is difficult to establish. Catalytic investments that crowd in cofounding by the private sector for projects with high social returns can be structured as public-private partnerships (PPPs). These can improve the incentive environment and reduce the risk that public spending crowds out private investment.

Public-private partnerships are another example of how public institutions can support the provision of long-term finance without distorting market incentives. PPPs are commonly used for large infrastructure projects such as highways, ports, and airports. In a PPP, a consortium of public and private investors finances and manages the construction and then maintains and operates the facilities for a long period of time, often over several decades. In the construction phase, private investment is combined with bank loans and government grants to diversify the risks of a large up-front investment. During the operation phase, the private investor covers operational costs and receives a stream of payments as a return. The PPP contract is appealing to private investors because it allows for the clear assignment and pricing of the risks at each project phase. For the government, long-term finance through PPPs for long-term projects is an attractive alternative to direct public financing for several reasons. First, PPPs reduce the well-known problem of

BOX 1.5 Using Credit Guarantees to Reduce the Risk of Long-Term Lending

Lending long term exposes financial institutions to fluctuations in the probability of borrower default and changing conditions in financial markets. Governments or international organizations can offer credit guarantees to share some of this risk. In fact, many countries have credit guarantee schemes where the guarantor (often the government) pledges to repay a percentage of individual loan amounts or of a loan portfolio to a lender in case of borrower default. A large number of guarantee schemes were established to assist not only small and medium enterprises, but also other target firms in specific geographic areas, sectors such as agriculture, or groups such as women or minority populations (Beck, Klapper, and Mendoza 2010). Some guarantee schemes specifically support loans for capital investment. In addition to credit guarantees for firms, some countries also provide guarantees for housing loans.

In practice, a concern with credit guarantees is that they may not lead to additional lending. Instead, lenders may use guarantees to lower risk on loans that they would have issued even in the absence of the guarantees. Some of the most rigorous studies on this topic examine FOGAPE (Fondo de Garantía para Pequeños Empresarios, Guarantee Fund for Small Businesses), a fund managed by a large public bank (BancoEstado) in Chile that provides guarantees for loans to small firms. Two separate studies suggest that FOGAPE has generated additional loans to firms (Larraín and Quiroz 2006; Cowan, Drexler, and Yañez 2012). However, another study questions whether FOGAPE truly leads to additional lending. It points out that approximately 80 percent of the firms that participate in FOGAPE had bank loans in the past and that many of these firms had previously received guarantees (Benavente, Galetovic, and Sanhueza 2006).

Another potential issue with credit guarantees is that they can distort incentives for lenders and borrowers, thereby increasing default rates and costs for the guarantor. Cowan, Drexler, and Yañez (2012) find that borrowers are less likely to repay guaranteed loans than uninsured loans. The study also shows that the drop in the repayment rate appears to be due to a decrease in collection efforts by lenders. It is thus important to take incentives into account when designing credit guarantee schemes.

Research and practitioner experience suggest that best practices for credit guarantee schemes include leaving credit assessments and decision making to the private sector, capping coverage ratios and delaying the payout of the guarantee until recovery actions are taken by the lender, pricing guarantees to take into account the need for financial sustainability and risk minimization, and encouraging the use of risk management tools.[a] However, many existing schemes do not follow best practices, and designing and operating credit guarantees effectively in poor institutional environments may be difficult.

a. For an in-depth review, see World Bank (2013a).

crowding out private investment by the public sector. Second, PPPs can reduce the cyclicality of public spending by contractually distributing fixed costs and operational expenses over a long-term horizon. Third, PPPs align institutional incentives in large investment projects more closely with those of the private sector, both improving transparency and reducing political distortions in procurement, credit allocation, and financing.

In recent years, governments have increasingly acted as intermediaries of long-term finance through their participation in public investment companies and sovereign wealth funds (SWFs). SWFs have their origins in the need to manage cyclical revenues in a way that reduces macroeconomic volatility and to invest national wealth in a diversified portfolio of investments with a long time horizon. A large and rapidly growing class of institutional investors, SWFs currently have an estimated $6.6 trillion under management—more than twice the amount of funds managed by all hedge funds combined. Because of their long-term horizon and the lack of redemption risk, SWFs are a natural intermediary of long-term finance. In addition, they may be preferable to direct public financing or to government banks

as a vehicle for governments to provide long-term finance for two other reasons. First, SWFs are typically run as separate nongovernment entities whose managers are compensated and evaluated with reference to the market. Second, SWFs can leverage investment expertise in specific asset classes, which improves the allocation of long-term finance.

While their long investment horizon makes sovereign wealth funds natural providers of long-term finance, they are not immune to some of the same problems of political capture and incentive misalignment that plague government banks. That is particularly true where sovereign wealth funds have an explicit mandate to invest in the domestic economy to support strategic industries or broader development goals. Such mandates raise two concerns. First, they can undermine the important macroeconomic stabilization function of sovereign funds. Instead of diversifying cyclical earnings away from the fund's home economy, domestic investments may aggravate economic cycles. Second, domestic investments of sovereign funds are vulnerable to political capture when they are not managed independently; political capture in turn can be damaging to corporate governance, lead to capital misallocation, and ultimately have negative effects on economic growth. Dyck and Morse (2011) showed that SWFs with a development mandate made significantly different asset allocation from those of an investor trying to maximize portfolio returns. Bernstein, Lerner, and Schoar (2013) showed that SWFs where politicians are involved in management are much more likely to make poorly performing investments in the domestic economy.

NOTES

1. The use of long-term debt by governments is not discussed in this report because its focus is on households and firms for whom limited access to long-term finance is likely to be more problematic. Also, data on government debt issuances in domestic markets are not readily available.
2. The analysis covers 711,814 firms operating in 75 countries (37 high-income, 38 developing) during the period 2004–11. For each firm, averages are computed over the period, then the median firm for the country and the median country for the income group are computed.
3. Global Findex did not gather these data for high-income countries.
4. This also refers to the importance of an independent, clean, and fast judiciary.
5. De la Torre, Martínez Pería, and Schmukler (2007) showed how banks in Argentina and Chile adapt their lending by collateralizing and securing their loans.
6. Using data on institutional investments in 23 emerging markets, Aggarwal and others (2011) found that institutional investments are positively associated with corporate governance at the firm level. Anginer and others (2015) showed that firms with stronger shareholder rights and strong corporate governance provisions have less to gain from the use of short-term debt. That is, good governance acts as a substitute to short-term debt in reducing agency problems within a firm.
7. Some cases of successful government-owned banks exist. Rudolph (2009) reviewed the experience of four state financial institutions that have performed relatively well in the past: Canada's Business Development Bank, Chile's Banco del Estado, South Africa's Development Bank of Southern Africa, and Finland's Finnvera plc.
8. This evidence is discussed extensively in World Bank 2013a.

CHAPTER 2: KEY MESSAGES

- From the perspective of the firm, long-term finance offers protection from credit supply shocks and from having to refinance in bad times, facilitating long-term investments and improving performance. Because it also shields firm managers from the frequent monitoring that short-term debt requires as it comes up for renewal, long-term finance can potentially hamper investment and performance.
- Empirical evidence suggests that use of long-term finance tends to be associated with better firm performance: with developed financial institutions and markets and the ability to enter into long-term contracts, firms can grow at faster rates than they could attain by relying on internal sources of funds and short-term credit alone. Consistent with these results, recent research also suggests that differences in corporate debt maturity had important real effects during the financial crisis of 2008–09. Although government subsidies and directed credit can lengthen the maturity structure, there is no evidence that such steps are associated with better firm performance.
- Even after controlling for firm characteristics—size, asset, industry composition, and profitability—long-term finance is more prevalent among firms in high-income countries than in developing countries. Use of long-term finance by firms increases with a stable political and macroeconomic environment, better-developed financial systems, better information sharing, and sound legal institutions, including speedy contract enforcement, strong creditor rights, clear bankruptcy laws, and an effective corporate governance framework.
- Long-term finance allows households to meet different objectives throughout their life cycle. Younger households can accumulate wealth and reap term premiums through products such as bonds. Mortgages and student loans facilitate lumpy purchases of physical or human capital. Instruments such as annuities, insurance, and pensions can enable older households to insure against various life-cycle risks. Borrowing and investing in these markets also entail risks, however, and active government interventions to promote greater household participation may backfire, as in the case of U.S. subprime mortgages.
- All around the world, wealthier and more educated individuals are more likely to use long-term financial instruments as savers or borrowers. But even after accounting for individual characteristics, households' participation in long-term finance is higher in more-developed countries with a stable macroeconomic environment, low inflation, and sound legal systems. Mortgage markets develop only at relatively high levels of GDP per capita and often depend on the availability of long-term funding through the insurance sector or stock markets.
- Government policies to promote long-term finance for firms or households should focus on addressing markets failures; removing policy distortions and maintaining a stable macroeconomic environment; promoting competitive and stable financial institutions and markets through laws; and creating policies that regulate healthy entry, operations, and exit and that provide a strong institutional environment for contract enforcement.
- For firms, an effective corporate governance framework that improves shareholder rights can lessen reliance on short-term debt. Information sharing through credit bureaus can foster long-term finance by reducing information asymmetries between firms and lenders. Collateral registries for movable assets can help firms increase the amount of assets that they can post as collateral to obtain long-term loans. Appropriate contract law or leasing legislation can encourage leasing institutions to provide finance for fixed assets.
- For households, financial literacy, consumer regulation, disclosure rules, and the provision of investment default options can have important effects on increasing understanding of long-term finance instruments and on reducing financial mistakes stemming from lack of proper information and behavioral biases.

2

The Use of Long-Term Finance by Firms and Households: Determinants and Impact

This chapter examines long-term finance from the perspective of firms and households. It asks why firms and households would want to use long-term finance and explores the impact long-term finance has on them. The chapter discusses those country and individual characteristics that determine the use of long-term finance by firms and households. It also provides policy recommendations based on the latest research findings from the empirical literature on the use of long-term finance.

FIRMS' USE OF LONG-TERM FINANCE

Why would a firm want to use long-term, rather than short-term, finance?

Firms tend to match the maturity of their assets and liabilities, and thus they often use long-term debt to make long-term investments, such as purchases of fixed assets or equipment. Theory suggests that the optimal payment structure for debt is one that matches the timing of project returns (Hart and Moore 1995). Empirically, this theory implies that firms use long-term debt to purchase fixed assets or equipment, while they use short-term debt to finance working capital such as payroll and inventory. Studies for developed and developing countries find evidence that firms do match the maturity of their assets and liabilities (Stohs and Mauer 1996 for the United States; Schiantarelli and Sembenelli 1997 for Italy and the United Kingdom; Schiantarelli and Srivastava 1997 for India; and Jaramillo and Schiantarelli 2002 for Ecuador). Additionally, in a 1999 survey, chief financial officers of U.S. companies reported that matching the maturity of their firm's debt with the life of its assets was the most important factor affecting their choice between short- and long-term debt (Graham and Harvey 2001).

Long-term debt also minimizes the risk of having to refinance in bad times. Chief financial officers in the United States list this reason as the second-most important one for choosing long-term over short-term debt (Graham and Harvey 2001). In the theoretical literature, this problem is called "liquidity risk." That is, when debt matures at a time when the firm experiences a negative shock to its earnings or when credit market conditions deteriorate, lenders may be reluctant to refinance (Diamond 1991, 1993). Long-term debt lowers liquidity risk for firms because it does not

have to be refinanced as frequently. At the same time, long-term debt shifts risk to lenders because they have to bear the fluctuations in the probability of default and changing conditions in financial markets, such as interest rate risk. Often lenders require a premium as part of the compensation for the higher risk this type of financing implies.

Not all firms need long-term finance. Whether or not a firm needs long-term finance depends on the types of assets being financed and on their desired degree of risk-sharing with lenders. Firms with good growth opportunities—for example, those that expect to experience mostly positive shocks in the future—may prefer short-term over long-term finance. These firms may want to refinance their debt frequently to obtain better loan terms after they have experienced a positive shock (Diamond 1991; Barclay and Smith 1995; Guedes and Opler 1995). In addition, firms with high growth opportunities may not want to take on long-term debt because firm managers or owners have to share the returns with the lender well into the future and thus may earn less than they could have on their investment (Myers 1977). Empirical evidence from China and the United States shows that firms with fewer growth opportunities are more likely to rely on long-term debt (Barclay and Smith 1995; Liu and Xu 2014).

What are the implications of long-term finance for firm performance?

For firms that need it, long-term finance is likely to have a positive effect on investment and firm performance. Having long-term finance allows firms to invest in projects that bring in returns over a relatively long time horizon, such as purchase of fixed assets. These investments may increase firm productivity and profitability. If only short-term debt is available, firms may forgo these types of investments since they prioritize projects that generate returns in the short run (Hart and Moore 1995). In the presence of contract enforcement problems or asymmetric information, short-term debt can also lead to excessive liquidation of projects by the lender even if the firm expects to receive positive returns in the future (Diamond 1991).

On the other hand, long-term finance can distort managers' incentives, hampering investment and firm performance. Economists have uncovered at least two ways through which long-term debt may distort incentives. First, long-term debt implies that the firm shares not only long-term returns but also long-term losses with the lender, so managers or owners may exert less effort to avoid losses (Rajan 1992). Second, short-term debt has a stronger disciplinary role than long-term debt because it needs to be renegotiated frequently, resulting in less wasteful activity by firm managers or owners (Jensen 1986).

The theoretical literature is thus inconclusive on how the maturity of debt affects investment and firm performance, and empirical evidence is needed to shed light on this question. It is, however, challenging to identify whether having long-term finance *causes* changes in investment or firm performance because third factors could determine both use of long-term finance and investment and firm performance. For example, firms with better managers may obtain more long-term debt and may grow faster. Also, better-performing firms may have an easier time obtaining long-term finance, so that performance may lead to use of long-term finance instead of the other way around (reverse causality). Many existing studies thus report associations that may not be causal, but the authors typically take great care to control for a range of observable third factors or to minimize the risk of reverse causality.[1]

Evidence from cross-country analysis shows a positive relationship between long-term finance and firm performance—unless the finance is provided in the form of directed credit. Demirgüç-Kunt and Maksimovic (1998) used firm-level data for 30 high-income and developing countries to show that firms with more long-term liabilities tend to grow faster than they would if they relied solely on internal resources. This finding is robust to controlling for firm characteristics, as well as for a country's macroeconomic environment, financial development, legal efficiency, and the extent of

government intervention. The authors also examined the role of government subsidies and found that government subsidized or directed credit is negatively correlated with firm growth.

The within-country evidence on the link between long-term debt and firm performance is less clear. Several country studies find a positive relationship between long-term debt and firm productivity, but the positive correlation between the use of long-term debt and firm productivity is reduced or even reversed when the fraction of subsidized credit is high (Schiantarelli and Sembenelli 1997; Schiantarelli and Srivastava 1997; Jaramillo and Schiantarelli 2002). However, research using data on more than 40,000 firms in China showed either no correlation between use of long-term debt and productivity (Li, Yue, and Zhao 2009) or found a negative correlation between the two variables (Liu and Xu 2014).[2] Similarly, Jiraporn and Tong (2010) found a negative relationship between long-term debt and firm value for listed firms in the United States. Unfortunately, these existing studies do not exploit exogenous variation in the availability of long-term debt, so they do not necessarily measure the causal effect of long-term debt on firm performance.

Within-country case studies find a positive effect of long-term debt on firm investment, however. Evidence from Ecuador, Italy, and the United Kingdom shows no robust correlation between use of long-term debt and investment (Schiantarelli and Sembenelli 1997; Jaramillo and Schiantarelli 2002). In contrast, Li, Yue, and Zhao (2009) and Liu and Xu (2014) found that use of long-term debt is positively associated with long-term investment in China. Whether these findings are driven by estimation bias is not clear, however, and the associations may not be causal. Other papers have used the decline in credit availability during the recent financial crisis to assess the causal effect of long-term credit on firm investment (box 2.1). These papers show that the availability of long-term credit has a positive effect on investment in Belgium and the United States in the context of the financial crisis.

Indicators of use of long-term finance by firms

Information on the use of long-term finance by firms across a large number of countries comes primarily from balance sheet data collected from Bureau van Dijk in the ORBIS database and also from the World Bank Enterprise Surveys. ORBIS includes comprehensive balance sheet information that makes it possible to calculate firms' long-term liabilities for 87 countries covering the years 2004 to 2011. One caveat of the ORBIS data is that the coverage of firms varies widely across countries and the data are not necessarily representative of all firms in each country. In addition, the sample is skewed toward higher-income countries.[3] The World Bank Enterprise Surveys, which are available for 123 countries, are representative at the country level and have greater coverage of lower-income countries.[4] The surveys ask firms about the sources of financing for any fixed assets that they purchased over the past year, that is, internal funds or various sources of external funds. Although the survey does not ask about the maturity of the external financing for purchase of fixed assets, it is likely to be long term since firms tend to match the maturity of their assets and liabilities. In a separate question, the Enterprise Surveys ask firms about the duration of their most recently received loan or line of credit. This question thus includes explicit information about debt maturity, but it is only available for a subset of 43 countries.[5]

Firms in developing countries have fewer long-term liabilities than firms in high-income countries, even after controlling for firm characteristics. Figure 2.1 displays balance sheet data from ORBIS showing that the percentage of firms that report having any long-term liabilities is lower in developing than in high-income countries (Demirgüç-Kunt, Martínez Pería, and Tressel 2015a). The difference is particularly prominent for small and medium enterprises (SMEs): in the median developing country, 66 percent of small and 78 percent of medium firms report having long-term debt, compared with 80 percent and 92 percent,

BOX 2.1 Firms' Long-Term Finance and Investment after the Global Financial Crisis

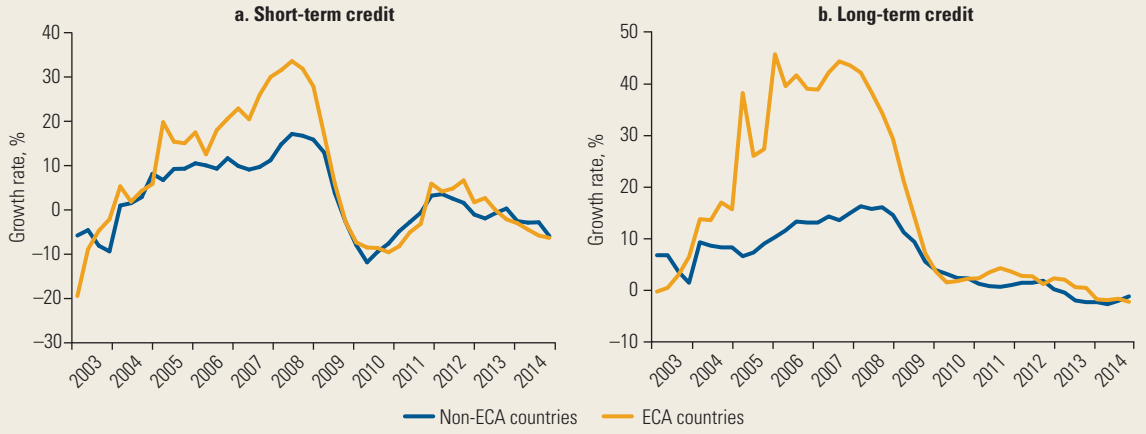
Several researchers have used the decline in credit availability during the recent financial crisis to assess the causal effect of long-term credit on firm investment. The financial crisis made it difficult for firms around the globe to get new credit and put a stop to the growth of long-term credit in some countries. For example, Park, Ruiz-Ortega, and Tressel (2015) looked at panel data from countries in the European Union over the past decade to examine how bank credit of different maturities to nonfinancial corporations evolved before and after the global financial crisis. The authors found that during the precrisis period, long-term credit in the Europe and Central Asia (ECA) region grew substantially more than in other European countries (7.3 percent compared with 2.5 percent) and that this difference was larger than that for the growth rates of short-term credit (4.8 percent in ECA countries compared with 2 percent in non-ECA countries). Once the crisis hit, credit growth rates collapsed to near zero in both regions (figure B2.1.1).

Duchin, Ozbas, and Sensoy (2010) used data on publicly traded firms in the United States to study the effect of the recent financial crisis on investment. Consistent with the liquidity risk problem of short-term debt, they found that firms with higher amounts of net short-term debt (defined as short-term debt minus cash, divided by total assets) outstanding before the crisis saw larger declines in investment after the crisis. Higher amounts of outstanding long-term debt, on the other hand, are not associated with a decline in investment after the crisis.

Almeida and others (2011) followed a similar approach to measure the effect of long-term debt on investment by U.S. firms. They compared firms whose long-term debt matured at the end of 2008 (that is, with more than 20 percent of long-term debt due within a year after the crisis) to other firms whose long-term debt was scheduled to mature in later years. Results show that firms with high amounts of maturing debt cut their investment rate (defined as the ratio of capital expenditures to fixed assets) by 2.5 percentage points more than otherwise similar firms whose debt was scheduled to mature after 2008. This drop in investment is quite large, representing a decline of about one-third of precrisis investment levels.

Vermoesen, Deloof, and Laveren (2013) also compared firms with different long-term debt maturities to estimate the impact of the financial crisis on private small and medium-size enterprises in Belgium. They find that those firms that at the start of the crisis had a larger part of their long-term debt maturing within the next year experienced a significantly larger drop in investment in 2009.

FIGURE B2.1.1 Growth Rate of Credit, 2003–14



Source: Park, Ruiz-Ortega, and Tressel 2015.
Note: Short-term credit is defined as credit with maturity up to one year. Long-term credit is defined as credit with maturity over five years.

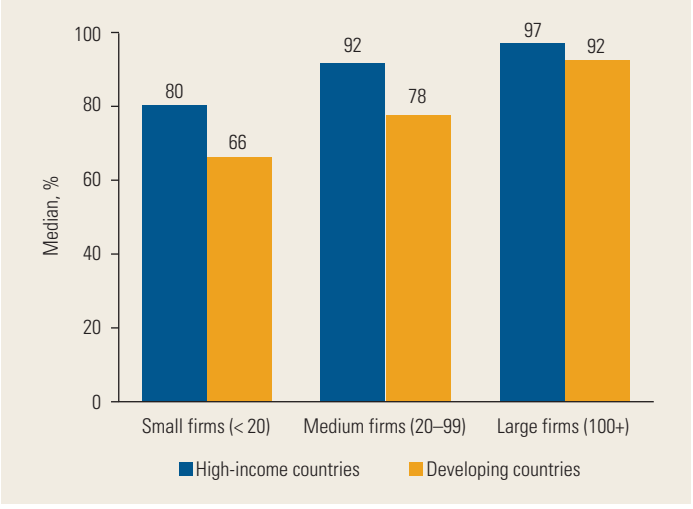
respectively, in the median high-income country. Earlier data on the ratio of long-term liabilities to total assets for 30 countries averaged over 1980 to 1991 shows a similar pattern, and this finding cannot be explained by differences in the maturity of assets across countries (Demirgüç-Kunt and Maksimovic 1999). Fan, Titman, and Twite (2012) also found that high-income economies have higher ratios of long-term debt to total debt after controlling for a number of firm characteristics in a sample of 39 countries covering the period 1991 to 2006. Enterprise Survey data suggest that firms in developing countries use less external finance to finance fixed assets than those in high-income countries (figure 2.2), and that loan durations are shorter in developing countries than in high-income countries (figure 2.3).

Which factors can limit firms' access to long-term finance?

Country characteristics and evidence

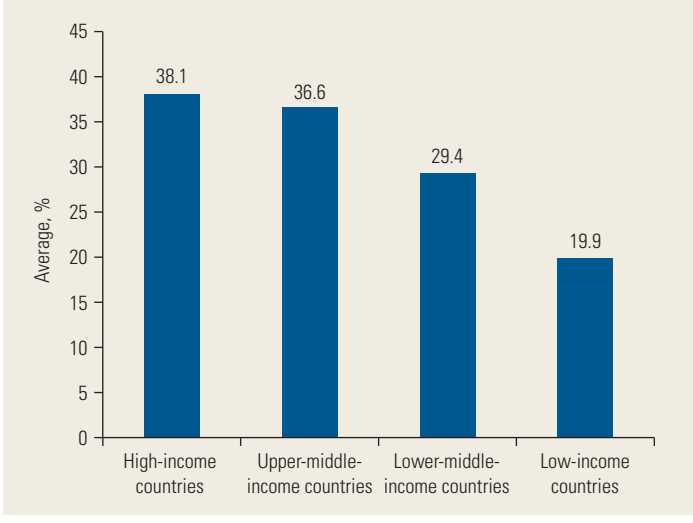
Macroeconomic and political risks in developing countries often lead to uncertainty, which can raise the cost of long-term finance and can make firms reluctant to invest in fixed assets. One reason why firms use less long-term debt in developing countries is that it tends to be particularly expensive in these countries.[6] The higher price of long-term debt likely reflects risk aversion of lenders who require high returns to compensate for country risk (Broner, Lorenzoni, and Schmukler 2013). Country risk includes macroeconomic instability, as well as the risk that government will appropriate some of the returns to project investment through corruption or expropriation. Empirical evidence suggests that firms use less long-term finance in countries with high or volatile inflation, with more government corruption, and with weaker property rights protection (Demirgüç-Kunt and Maksimovic 1999; Beck, Demirgüç-Kunt, and Maksimovic 2008; Fan, Titman, and Twite 2012). Research on the global financial crisis by Demirgüç-Kunt, Martínez Pería, and Tressel (2015b) also illustrates the importance

FIGURE 2.1 Percentage of Firms with Any Long-Term Liabilities by Country Income Group and Firm Size, 2004–11



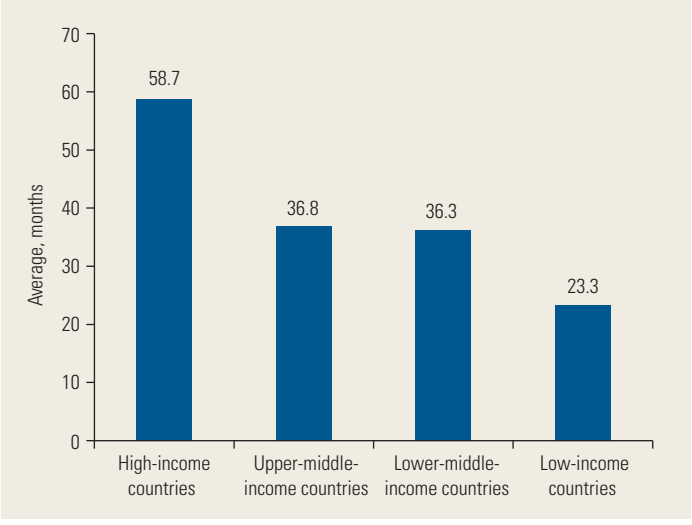
Source: Calculations for 80 countries, based on ORBIS (database), Bureau van Dijk, Brussels, https://orbis.bvdinfo.com. For a detailed data description, see Demirgüç-Kunt, Martínez Pería, and Tressel 2015a.
Note: Developing countries include low- and middle-income countries. Firm size is defined based on the number of employees. The median for each country income group and firm size category is calculated as follows. First, the value of long-term liabilities is averaged over 2004–11 for each firm. Then, the percentage of firms with values above zero is calculated in each country and firm size category. Finally, the median percentage across countries in each country income group and firm size category is calculated. The figure displays median values across countries instead of averages to lessen the importance of outliers.

FIGURE 2.2 Share of Fixed Asset Purchases Financed from External Sources by Country Income Group, 2006–14



Source: Calculations for 123 countries, based on Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: The average for each country income group is calculated as follows. First, numbers are averaged using sampling weights across firms by country and survey year. Second, numbers are averaged across survey years for each country. Finally, numbers are averaged across countries in each income group.

FIGURE 2.3 Maturity of Loan or Line of Credit by Country Income Group, 2006–09



Source: Calculation for 43 countries, based on Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: The average for each country income group is calculated as follows. First, numbers are averaged using sampling weights across firms by country and survey year. Second, numbers are averaged across survey years for each country. Finally, numbers are averaged across countries in each income group.

of macroeconomic and financial stability for the use of long-term debt, in particular, for privately held firms (box 2.2).

Both financial development and the relative development of banks versus capital markets affect firms' use of long-term finance. Demirgüç-Kunt and Maksimovic (2002) show that the proportion of firms that grow at rates that cannot be self-financed is positively related to the development of both the securities markets and the banking system but in different ways, especially at lower levels of financial development. While sustainable development of both—when predicted by the underlying contracting environment—improves access to financing, the development of securities markets is more strongly associated with long-term financing, whereas the development of the banking sector is more strongly associated with the availability of short-term financing. The relationship between stock market development and improved availability of long-term debt may be due to the improved quality and availability of information that accompanies stock market development. Demirgüç-Kunt, Martínez Pería, and Tressel (2015a) update and confirm these findings using a new dataset (box 2.3).

Weakness in the contractual environment is an important underlying reason why long-term debt is less common in developing countries. The disciplinary role of short-term debt is more important in an environment with weaker rule of law (Diamond 2004). When lenders cannot rely on legal institutions to enforce their claims to loan repayment, they may prefer to lend short term so that the continued need for renegotiation provides incentives for borrowers to exert effort and make sound investments. Legal institutions that

BOX 2.2 Did the Global Financial Crisis Affect Firms' Leverage and Debt Maturity?

Evidence is scant so far about the impact of the global financial crisis on the capital structure of firms across countries. Research has focused on the financial stability impact of the crisis, on its real effects, and on its international transmission through banks, capital markets, and international trade (Chudik and Fratzscher 2012; Demirgüç-Kunt, Detragiache, and Merrouche 2013). Several country-specific papers have also looked at the relationship between debt maturity and fixed investment during the crisis (see box 2.1).

Demirgüç-Kunt, Martínez Pería, and Tressel (2015b) explore the impact of the global financial crisis of 2008–09 and its aftermath on the leverage and debt maturity of nonfinancial firms using the ORBIS database. Stylized facts suggest that firms, especially small and medium firms, have experienced a reduction of leverage and a shortening of debt maturity since the crisis.

The empirical analysis shows that the effect of the crisis on firm leverage and debt maturity is widespread but varies across countries and types of firms.

(box continued next page)

BOX 2.2 Did the Global Financial Crisis Affect Firms' Leverage and Debt Maturity? *(continued)*

After controlling for firm characteristics, such as size, profitability, asset composition, and sales turnover, as well as firm fixed effects, small and medium enterprises (those with fewer than 100 employees) in lower-middle- and low-income countries saw a reduction in both their leverage and their debt maturity as a result of the crisis.

In high-income countries, firms that were not listed on a stock exchange reduced their leverage and debt maturity. That was particularly true in those countries in the epicenter of the global financial crisis.

All in all, the evidence shows that periods of macroeconomic and financial instability can result in a deleveraging of firms and can widely disrupt the provision of long-term finance, both in high-income and developing countries. In high-income countries, privately held firms were adversely affected arguably because of their reliance on bank finance. Firms listed on a stock exchange, in contrast, could more easily access alternative sources of long-term debt finance—such as from bond markets that were thriving during the period studied—to offset the supply effect (table B2.2.1)

TABLE B2.2.1 Impact of the Global Financial Crisis on Firm Leverage, 2004–11

a. Dependent variable: Total debt to total assets

Regression sample	All countries	High-income countries	Upper-middle-income countries	Lower-middle-low-income countries
Average effect 2008–09	−0.00422	−0.00771**	0.00280	0.000898
Average effect 2010–11	−0.0152**	−0.0199***	0.000285	−0.0183
Nonlisted firms 2008–09	−0.0195***	−0.0194***	−0.0272***	−0.00325
Nonlisted firms 2010–11	−0.0219***	−0.0184***	−0.0478***	−0.0148
SME 2008–09	0.000399	0.00418	−0.00575	−0.0301***
SME 2010–11	0.00614	0.00896	−0.0159**	−0.0390***
Observations	1,137,311	1,048,368	49,788	39,155
R-squared (within)	0.038	0.037	0.066	0.091

b. Dependent variable: Long-term debt to total assets

Regression sample	All countries	High-income countries	Upper-middle-income countries	Lower-middle-low-income countries
Average effect 2008–09	0.00184	0.00236	−0.00808*	−0.00750
Average effect 2010–11	−0.00836*	−0.00529**	−0.0122*	−0.0567**
Nonlisted firms 2008–09	−0.00894***	−0.0107***	−0.00645	0.00310
Nonlisted firms 2010–11	−0.00642	−0.00886***	−0.0213***	0.0331
SME 2008–09	0.000644	0.00183	0.000181	−0.0180***
SME 2010–11	0.00279	0.00311	0.00108	−0.0229***
Observations	1,137,311	1,048,368	49,788	39,155
R-squared (within)	0.076	0.080	0.070	0.055

Source: Demirgüç-Kunt, Martínez Pería, and Tressel 2015a.
Note: The table shows the average effects, and, for nonlisted firms and SMEs, their specific effects. The estimation is based on a generalized least squares linear model with first order autoregressive process (Prais-Winsten estimator), with robust standard errors clustered by country-year, and includes firm fixed effects. Control variables include firm level controls (return over assets, the ratio of sales to assets, the ratio of fixed assets to total assets, and total assets), and the log of real GDP per capita. The estimation relies upon the Enterprise Survey definition of small and medium enterprise (SMEs)—firms with fewer than 100 employees. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.
a. The crisis classification is from Laeven and Valencia 2013.

help lenders to back up their claims include creditor rights, bankruptcy laws, and overall contract enforcement or efficiency of the legal system. Several researchers confirm that firms tend to have longer debt maturities in countries where these legal institutions are sound (Demirgüç-Kunt and Maksimovic 1999; Qian and Strahan 2007; Bae and Goyal 2009; Fan,

BOX 2.3 What Explains the Variation of Firm Debt Maturity across Countries?

Demirgüç-Kunt, Martínez Pería, and Tressel (2015a) use ORBIS data over the 2004–11 period covering more than 800,000 publicly listed and privately held firms from 80 advanced and developing countries to document differences in firm capital structures and to study their determinants. They show that firm debt maturity is shorter in developing countries, particularly for small firms (see figure 2.1). After controlling for firm characteristics, such as size, sectoral differences, asset composition, and profitability, they investigate the impact of country characteristics such as macroeconomic performance and financial stability, development of financial institutions and markets, contract enforcement, and legal efficiency, as well as creditor rights and investor protection.

The authors generally confirm the empirical regularities found in earlier studies. For instance, after accounting for sectoral differences, firms tend to match the maturity of their assets and liabilities. In addition, larger firms and firms that are less profitable are found to use more long-term debt to finance their activities.

The authors conducted a variance decomposition analysis and found that country factors are more relevant than firm or sector characteristics in accounting for the variance of debt maturity across firms and over time.

At the country level, a strong and stable macroeconomic environment is essential because it allows both lenders and borrowers to invest at longer horizons. Second, a more developed financial system, including both institutions and markets, lengthens debt maturity. Financial intermediaries have a comparative advantage in screening and monitoring borrowers and thus are better placed to facilitate access to long-term finance to worthy borrowers, particularly small firms. Third, a more contestable and well-regulated banking system promotes longer-term lending, while developed stock markets can lengthen debt maturity by improving price discovery and risk monitoring. Next, from the lender's perspective, a good institutional environment where property rights are well defined and contracts are adequately enforced fosters the monitoring of firms and improves the ability to

TABLE B2.3.1 Impact of Firms and Country Characteristics on Debt Maturity

Dependent variable: Long-term debt to total debt	(1)	(2)	(3)	(4)	(5)
Firm characteristics					
Fixed assets to total assets	0.318***	0.341***	0.318***	0.332***	0.319***
Return over assets	−0.0141	−0.0329***	−0.0366***	−0.0252***	−0.0227
Sales to total assets	−0.0125***	−0.0144***	−0.0166***	−0.0132***	−0.0189***
Total assets	0.000762	0.00204***	0.00157**	0.00221***	0.000962**
Log of GDP per capita	0.0425***	0.0655***	0.0690***	0.0869***	0.0301***
Financial development					
Private credit to GDP (%)	0.00161***				0.00218***
Stock market cap. to GDP (%)	0.000677**				0.000577*
Banking regulations					
Index of overall restrictions		−0.0255**			−0.0210*
Institutional factors					
De jure index of legal rights			0.0160***		0.0153***
Enforcing contracts (days)			0.00725***		0.00373***
Creditor rights				0.0265*	0.0433**
Investor protection				−0.0262	−0.0259
Observations	4,027,551	3,932,856	3,973,469	3,433,322	2,772,311
R-squared	0.138	0.124	0.136	0.125	0.188

Source: Demirgüç-Kunt, Martínez Pería, and Tressel 2015b.
Note: GDP = gross domestic product. The dependent variable is the ratio of long-term financial debt at remaining maturity to total financial debt plus trade credit liabilities. The estimation is based on a generalized least squares linear model with first order autoregressive process (Prais-Winsten estimator) with robust standard errors clustered by country-year and sector fixed effects. Regression 5 includes the inflation rate, real GDP growth, bank average regulatory capital to risk-weighted assets, and nonperforming loans ratios as additional control variables. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

(box continued next page)

BOX 2.3 What Explains the Variation of Firm Debt Maturity across Countries? *(continued)*

contract. From the borrower's perspective, a strong environment mitigates the risks of undue expropriation of fixed assets. Strong shareholder rights facilitate access to stock markets and private equity while strong creditor rights also support the rights of long-term debt holders to repossess collateral.

The results of the analysis support these arguments. A deeper financial system, as measured by bank credit to the private sector and a larger stock market, lengthens debt maturity; so do stronger regulations. The quality of legal institutions, such as the efficiency of the legal framework, contract enforcement, and strong creditor rights, are positively associated with the use of long-term debt. Macroeconomic shocks and financial instability do indeed decrease leverage and shorten maturity in some cases (see box 2.2). Importantly, across firms, a sound legal environment, better contract enforcement, and a deeper banking system tend to disproportionately foster the use of long-term debt by privately held (that is, nonlisted) firms relative to publicly listed firms, and by small and medium firms relative to large firms.

The evidence suggests that if a firm were to relocate to a more developed country with a better contracting environment or with a more developed financial sector, it may expect, other things equal, to receive more long-term credit, especially if it were a privately held firm or a small or medium firm. For example, based on the estimates in column (3) of table B2.3.1, an increase of one standard deviation in the log of GDP per capita and an index of legal efficiency are associated with an increase in the ratio of long-term debt to total debt of, respectively, 7 and 9 percentage points. Reforms that sustain long-term growth, that mitigate distortions related to the contracting environment, and that support financial development are critical to promote the use of long-term finance.

Titman, and Twite 2012; Kirch and Terra 2012; Demirgüç-Kunt, Martínez Pería, and Tressel 2015a). Evidence from India suggests that the positive relationship between contract enforcement and the use of long-term debt is indeed causal (box 2.4).

Information sharing through credit bureaus fosters long-term finance. Reliable information from credit bureaus reduces information asymmetries between firms and lenders, thereby reducing lenders' need to monitor and discipline firm managers through short-term debt (Magri 2010). Cross-country research shows a positive relationship between information sharing and the use of long-term finance. Using data on the maturity of credit to private sector firms in 74 countries during the period 1990 to 2005, Tasić and Valev (2008) found that countries with a credit bureau or registry have more long-term credit as a share of total credit. Martínez Pería and Singh (2014) analyzed World Bank Enterprise Survey data for 33 countries over the period 2002 to 2009 to refine this result. They found that firms' average loan maturity lengthens after the introduction of a private credit bureau but not after the introduction of a public credit registry (box 2.5).

Collateral registries for movable assets can help firms obtain long-term loans. Firms often need to post tangible assets as collateral for long-term loans. Movable assets, such as machinery or equipment, typically account for a large share of assets, particularly for micro, small, and medium enterprises. Banks in developing countries may be reluctant to accept movable assets, however, if these are not listed in a registry. Registries for movable assets fulfill two key functions: they notify parties about the existence of a security interest in movable property (that is, existing liens), and they establish the priority of creditors relative to third parties (Alvarez de la Campa 2011). These registries can thus increase the amount of assets that firms can successfully post as collateral. Research using World Bank Enterprise Survey data for 38 countries has shown that the introduction of registries for movable

BOX 2.4 Contract Enforcement and Use of Long-Term Finance: Evidence from Debt Recovery Tribunals in India

India provides an interesting case study for examining the effect of contract enforcement on firms' use of long-term finance. While creditor and investor rights are well established on the books in India, at par with developed countries, contract enforcement has been weak. Corporate bankruptcies take on average six years to resolve, during which time firms enjoy a complete moratorium on all debt payments (Gopalan, Nanda, and Seru 2007). Despite no large improvement in substantive law over the past two decades, financial depth has increased substantially from 40 percent of GDP in the 1980s to 90 percent of GDP in 2012. Inadequate enforcement due to court delays and excessive formalism were cited as the reasons for the low level of lending to the private sector and for widespread default in the early 1990s (Government of India 1991).

In 1993 the government of India passed a law establishing new specialized courts, called debt recovery tribunals (DRTs), to process debt recovery cases. A subsequent study found that cases were processed much more quickly in a DRT than in a civilian court that had no DRT (Visaria 2009). DRTs thus improved contract enforcement for lenders in India. While the DRTs began to be set up soon after the law was passed, with five states receiving tribunals in 1994, this process was halted by a legal challenge to the law until the implementation of DRTs resumed in 1996. During the disruption, existing DRTs continued to function, and by 2000, all Indian states had access to a DRT.

Gopalan, Mukherjee, and Singh (2014) use the variation in DRT establishment across states and time to measure the effect of improved contract enforcement on firms' use of long-term finance. Using balance sheet data on about 6,000 Indian firms, they find that DRTs led to a significant increase in the ratio of long-term debt to total assets. Within three years of implementation of a DRT, that ratio increased by 7.9 percent (going from 0.29 to 0.31). The use of short-term debt decreased by a similar magnitude, suggesting that improvements in contract enforcement cause firms to use more long-term debt instead of short-term debt.

BOX 2.5 The Impact of Credit Information Sharing on Loan Maturity

The disciplinary role of short-term debt is particularly important when lenders have little information on borrowers that can help them assess creditworthiness and predict repayment behavior. In countries where such information is more readily available through credit information–sharing schemes, lenders may thus be more willing to lend long term. Credit information schemes disseminate knowledge of payment history, total debt exposure, and overall creditworthiness, either through a privately held credit bureau (CB) or publicly regulated credit registry (CR).

Using data from the World Bank Enterprise Surveys for 33 countries, Martínez Pería and Singh (2014) analyzed the impact of introducing credit information–sharing schemes on firm financing and loan maturity. Their study sample includes countries that introduced a CB or CR between 2002 and 2009 (the "reformers"), as well as countries that do not have a CB or CR ("nonreformers"). Martínez Pería and Singh used a difference-in-difference approach, comparing firms in countries that introduced a CB or CR to firms in countries that did not, before and after the introduction of the CB or CR; they also controlled for potentially confounding country and firm characteristics.

The results reveal that after the introduction of a CB, the likelihood that a firm has access to finance increases and loan maturity lengthens. These effects are both statistically and economically significant. The introduction of a CB is associated with a 7 percentage point increase in the probability that a firm will use credit and with a seven-month extension

(box continued next page)

BOX 2.5 The Impact of Credit Information Sharing on Loan Maturity *(continued)*

in loan maturity. The findings are robust to a number of empirical checks, including panel estimation with firm fixed effects and an instrumental variables technique where the authors use existence of a CB in other countries in the region to predict the likelihood that a country introduces a CB.

The analysis finds no robust effect of CR reforms on firm financing. A number of reasons explain this lack of a significant effect. First, CRs are often used for supervisory purposes and hence might have high minimum loan limits. Second, they might not provide positive and negative information, which is most useful to financial institutions. Third, to the extent that they are run by the government, in countries with bad bureaucracies CRs might not function effectively and therefore might not be used often.

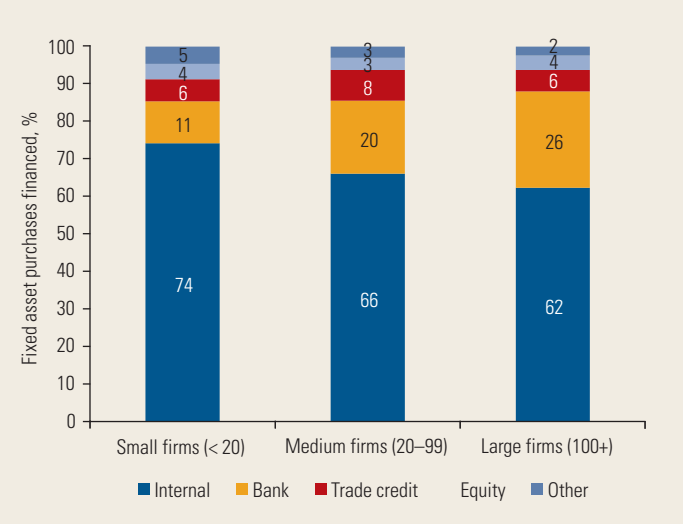
assets is indeed associated with an increase in the maturity of bank loans to firms (Love, Martínez Pería, and Singh, forthcoming).

Leasing institutions can provide financing for fixed assets in countries with strong contractual environments or with specific leasing laws. Leasing is a financial arrangement that allows firms to use and eventually own fixed assets and equipment. In this arrangement, leasing institutions purchase the equipment and provide it to firms for a set period of time. Firms make periodic payments to the leasing institution, covering the cost of the equipment and an interest rate. Leasing thus focuses on the firm's ability to generate cash flow from business operations to service leasing payments rather than on its credit history or ability to pledge collateral. Ownership of the equipment is often transferred to the firm at the end of the lease period. Brown, Chavis, and Klapper (2010) show that close to 34 percent of firms in high-income countries use leasing, compared with only 6 percent in low-income countries. The study also finds that a strong institutional environment is associated with greater use of leasing. In a country that does not have strong contract law provisions, a specific law on leasing can help to fill legislative gaps (IFC 2009).

Firm characteristics and evidence

Small firms use less long-term finance than larger firms. Figure 2.4 displays World Bank Enterprise Survey data to illustrate that small firms (those with fewer than 20 employees) finance a lower percentage of purchase of fixed assets from external sources than do medium firms (firms with 20 to 99 employees) or large firms with more than 100 employees (see also Beck, Demirgüç-Kunt, and Maksimovic 2008 and Knack and Xu 2015). Researchers who examined balance sheet data found a similar pattern across firm size: Demirgüç-Kunt and Maksimovic (1999)

FIGURE 2.4 Share of Fixed Asset Purchases Financed through Internal and External Sources by Firm Size, 2006–14



Source: Calculation for 123 countries, based on Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: The figure shows the average percentage of fixed asset purchases financed from internal sources and specific external sources: banks, trade credit, equity, and other sources. Equity finance includes owners' contribution or new equity share issues (not retained earnings, which are counted as internal rather than external sources of finance). The "other sources" category includes issues of new debt, nonbank financial institutions, moneylenders, family, and friends. Firm size is defined based on the number of employees. Calculations of the average for each firm size use sampling weights.

examined the ratio of long-term liabilities to total assets in 30 countries, and Liu and Xu (2014) and Magri (2010) studied the ratio of long-term debt to total debt in China and Italy, respectively. Figure 2.1 shows that in both developed and developing countries, small firms are less likely than medium or large firms to report holding any long-term liabilities. Long, Xu, and Yang (2014) used survey data on Chinese firms and again found that large firms are more likely to report holding any long-term debt.

Differences in use of long-term finance across firm size are driven by bank credit; the use of equity is limited for firms of all sizes. When examining the sources of external finance for purchases of fixed assets, Enterprise Survey data show that bank finance is the single most common source of external finance (see figure 2.4). Use of bank finance varies widely across firm size, however, with small firms financing 11 percent of fixed asset purchases through bank loans, compared with 20 percent for medium firms and 26 percent for large firms. Firms of all sizes finance less than 5 percent of these investments with equity. The use of equity finance, including private equity and related policy interventions, is discussed in more detail in chapter 3. The Enterprise Survey data does not include comparable data on new debt issues across countries. Corporate debt issuance as a source of long-term finance is also covered in chapter 3.

Lenders typically have less information on smaller firms than on large ones, which makes lenders reluctant to provide long-term debt to small firms. Small firms are less likely to keep adequate records and accounts to document their operations and performance and are thus more opaque than larger firms. Lenders may find it difficult to obtain reliable information on these firms and may thus prefer to lend to them short term as a way to monitor and discipline firm managers (Magri 2010).[7] Recent research by Custódio, Ferreira, and Laureano (2013) on publicly listed firms in the United States suggests that the use of long-term debt among the smallest firms has decreased over time because of increasing information asymmetries between firms and lenders (box 2.6).

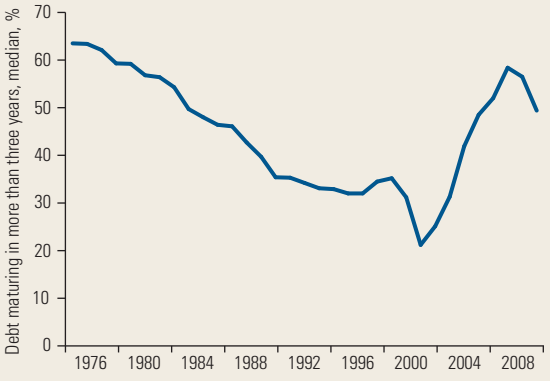
A strong legal environment can substitute for lack of information and can thus particularly facilitate access to long-term finance for small firms. Lenders can use short debt maturity to monitor and discipline small

BOX 2.6 Information Asymmetries and Use of Long-Term Debt in the United States

Custódio, Ferreira, and Laureano (2013) used data from the Compustat Industrial Annual database, covering close to 13,000 publicly listed firms in the United States to study trends in debt maturity from 1976 to 2008. The data show that the use of long-term debt has declined over the period (figure B2.6.1) and that this trend differs across firm types. The median percentage of debt maturing in more than three years decreased from 53 percent in 1976 to 6 percent in 2008 for small firms but remained comparatively constant over time for medium and large firms.

Further investigation reveals that the decrease in debt maturity seems to be due to increasing information asymmetries between firms and lenders. Debt maturity fell significantly more for research and development–intensive firms and for firms with low

FIGURE B2.6.1 Debt Maturity of U.S. Publicly Listed Firms, 1976–2008



Source: Custódio, Ferreira, and Laureano 2013, table 2.

BOX 2.6 Information Asymmetries and Use of Long-Term Debt in the United States *(continued)*

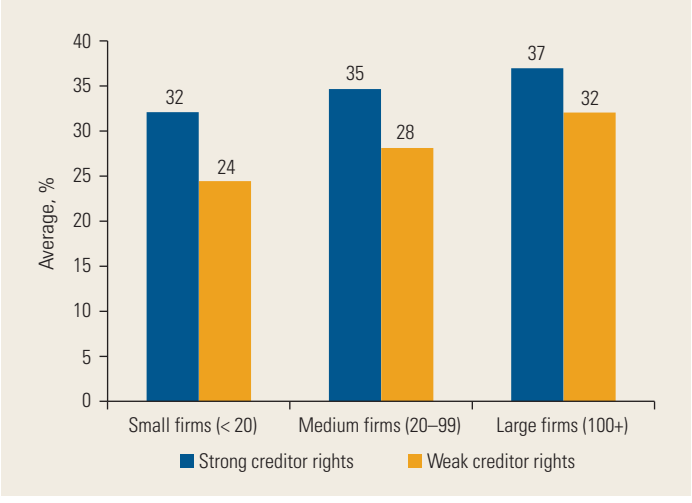
tangibility of assets. The fall in debt maturity is also positively related to other measures of information asymmetries, such as low analyst coverage and high dispersion of analyst forecasts. For example, firms with low analyst coverage saw a drop in the median percentage of debt maturing in more than three years from 59 percent in 1976–79 to 24 percent in 2005–08, while firms with high analyst coverage saw no corresponding drop.

Overall, the increase in information asymmetries seems to be driven by changing characteristics of publicly listed firms. Firms that were listed in the 1980s and 1990s tended to be smaller, with low profitability and strong growth opportunities. The number of small listed firms decreased again in the 2000s, which may explain why median debt maturity for all firms increased again over this period, as shown in figure B2.6.1.

borrowers, but this solution can potentially lower investment and growth for small firms that would like to obtain long-term finance. Alternatively, lenders can rely on detailed contracts and legal institutions to enforce their claims.[8] In fact, stronger creditor rights may help lengthen the maturity of debt more for small and medium enterprises than for large firms (Demirgüç-Kunt, Martínez Pería, and Tressel 2015a). Figure 2.5 shows that the percentage of fixed asset purchases financed from external sources differs more across firm size in countries with weak creditor rights than in countries with strong creditor rights. Within-country research from Italy also shows that firm size displays a stronger relationship with debt maturity in regions with poorer legal enforcement than in regions with strong legal enforcement (Magri 2010).

Firms with more tangible assets are more likely to use long-term debt, especially in countries with stronger creditor rights. Long-term loans often require collateral, which firms provide through tangible (or fixed) assets, such as land and buildings. Empirical studies consistently show that the use of long-term finance is greater for firms with more tangible assets, measured by the ratio of fixed assets to total assets[9] (see Demirgüç-Kunt and Maksimovic 1999 across 30 countries for 1980–91; Giannetti 2003 across European countries; Magri 2010 for Italy; Fan, Titman, and Twite 2012 across 39 countries for 1991–2006; Kirch and Terra 2012 for South America; and Liu and Xu 2014 for China). Use of collateral is particularly effective in countries with strong creditor rights because these rights help creditors seize collateral in case of default. Qian and Strahan (2007) found that tangible assets display a particularly strong correlation with debt maturity in countries with better creditor rights.

FIGURE 2.5 Share of Fixed Asset Purchases Financed from External Sources by Firm Size and Strength of Creditor Rights, 2006–14



Source: Calculation for 122 countries, based on Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: Firm size is defined based on the number of employees. The measure of creditor rights is the "strength of legal rights" index from the World Bank's Doing Business project. It measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12, with higher scores indicating that these laws are better designed to expand access to credit. Countries with weak (strong) creditor rights have a value of the index below (above) the median (5). The average for each bar is calculated as follows. First, numbers are averaged using sampling weights across firms by firm size group, country, and survey year. Second, numbers are averaged across survey years for each firm size group and country. Finally, numbers are averaged across countries in each firm size group and creditor rights category.

Good corporate governance can help to monitor managers and can thus allow firms to use more long-term debt. One advantage of short-term debt is that its frequent need for renegotiation can play a positive role in reducing agency conflicts between managers and shareholders. However, Anginer and others (2015) pointed out that firms have alternative ways of reducing agency problems. These authors examined whether internal monitoring through independent boards and stronger shareholder protections can substitute for external monitoring through the use of short-term debt. Data from 7,000 firms in 23 countries for the 2003–08 period show that firms with better corporate governance use less short-term debt, at least in countries with strong investor protection laws (box 2.7). A related literature has studied the relationship between political connections and firms' use of long-term debt. Empirical evidence from China suggests that political connections have contributed to the use of long-term debt (box 2.8).

Policy recommendations on the use of long-term finance by firms

A stable political and macroeconomic environment is a necessary condition for long-term finance to thrive. Political and macroeconomic stability underpins the ability of economic agents to predict the risks and returns associated with long-term investments. If political risk is high or the macroeconomic environment is unstable (if inflation is high, for example, or volatile), firms may be reluctant to invest in fixed assets, and the demand for long-term finance is likely to be low (see also Caprio and Demirgüç-Kunt 1998).

Financial development matters for firms' access to long-term finance. Firms' ability to obtain long-term financing tends to be greater in countries with a contestable, well-regulated banking system and with developed capital markets (Demirgüç-Kunt and Maksimovic 2002; Demirgüç-Kunt, Martínez Pería, and Tressel 2015a). Governments sometimes try to extend debt maturity artificially, through subsidies, directed credit, and government banks. Evidence suggests, however, that these interventions are likely to backfire (Schiantarelli and Sembenelli 1997; Demirgüç-Kunt and Maksimovic 1998).

Sound legal institutions can increase firms' use of long-term finance. When lenders can rely on legal institutions to enforce their claims to loan repayment, they are less likely to use short-term debt to discipline borrowers (Diamond 2004). Quick contract enforcement through specialized debt recovery courts, in particular, has been shown to increase firms' debt maturity (Gopalan, Mukherjee, and Singh 2014). Other legal institutions that help lenders enforce their claims include creditor rights and bankruptcy laws.

An effective corporate governance framework can lessen firms' reliance on short-term debt. Corporate governance matters for loan maturity because monitoring firm managers through independent boards and stronger shareholder protections can substitute for monitoring through the use of short-term debt. Anginer and others (2015) found that firms with good corporate governance use even less short-term debt after substantial corporate governance reforms to improve shareholder rights that have been implemented in a country.

Information sharing through credit bureaus fosters long-term finance by reducing information asymmetries between firms and lenders. Information from credit bureaus reduces lenders' need to monitor and discipline firm managers through short-term debt. Research shows that firms' average loan maturity lengthens after the introduction of a private credit bureau. However, there is no relationship between the introduction of a public credit registry and firms' loan maturity (Martínez Pería and Singh 2014).

Collateral registries for movable assets can increase the amount of assets that firms can post as collateral, helping them obtain long-term loans. Firms often need to post tangible assets as collateral for long-term loans, and movable assets such as machinery or equipment typically account for a large share of firms' assets. The introduction of registries for movable assets is associated with an increase in the maturity of bank loans to firms (Love, Martínez Pería, and Singh, forthcoming).

BOX 2.7 Short-Term Debt and Good Governance: Are They Substitutes or Complements?

Short-term debt exposes firms to credit supply shocks and to liquidity risk. Academics and policy makers acknowledge that the inability of financial firms to roll over debt to meet their obligations was one of the main drivers of contagious defaults in the 2008 global financial crisis.

At the same time, short-term debt can also reduce potential agency conflicts between managers and shareholders. Short-maturity debt exposes managers to more frequent monitoring by underwriters, investors, and rating agencies before the debt is issued. Because short-term debt comes up for frequent renewal, it can be a powerful tool to monitor management.

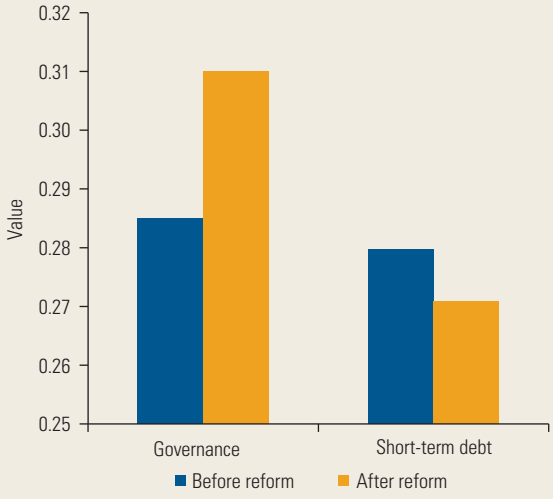
Given both the negative effects of liquidity risk and the positive effects of monitoring associated with the use of short-term debt, a natural empirical question is whether firms that have alternative ways of reducing agency problems use less short-term debt. That is, does good governance act as a substitute for short-term debt in reducing agency problems within a firm?

Anginer and others (2015) used firm level data from 23 countries during 2003–08 to investigate whether internal monitoring through independent boards and stronger shareholder protections can substitute for external monitoring through the use of short-term debt. They found that the relationship between debt maturity and governance depends on the institutional environment that determines the extent of shareholder and creditor rights in a given country.

Their results suggest that firms with strong shareholder rights and strong corporate governance provisions have less to gain from the use of short-term debt. That is, good governance acts as a substitute to short-term debt in reducing agency problems within a firm. But when creditors have substantial rights in bankruptcy, good governance and board independence act as complements to short-term debt. When creditors can impose substantial costs on managers and the firm during distress, boards and shareholders of well-governed firms employ greater amounts of short-term debt to expose managers to external monitoring by these powerful creditors, reducing inefficiency in bankruptcy. From the creditor's perspective, they are also less likely to rely on internal monitoring by boards when they have more power and therefore can more effectively monitor firms themselves. Consistent with this view, Anginer and others find that governance, board independence, and effective board size are negatively related to short-term debt in common-law countries, which tend to have fewer creditor rights and greater investor protection.

Anginer and others (2015) confirmed their cross-country results by examining changes around substantial corporate governance reforms implemented over the sample period that strengthened shareholder rights. They found a significant increase in the effect of governance and board independence in reducing the use of short-term debt after the implementation of reforms (figure B2.7.1).

FIGURE B2.7.1 Firm Corporate Governance Reforms and Short-Term Debt



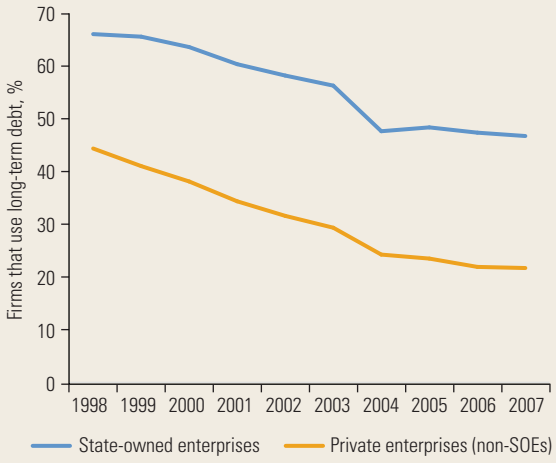
Source: Anginer and others 2015.
Note: The figure shows the average firm governance index values and short-term debt (ratio of debt due in one year to total debt) one year before and one year after the implementation of governance reforms that improve shareholder rights. The governance index is an average across multiple governance attributes, with higher values indicating better governance. The economies that have implemented governance reforms during the study period include Australia; Canada; Finland; Hong Kong SAR, China; Italy; Norway; and Sweden.

BOX 2.8 Political Connections and Firms' Use of Long-Term Debt in China

Results from two different studies suggest that political connections contribute to firm use of long-term finance in China. Li, Yue, and Zhao (2009) used data from the Annual Survey of Industrial Firms (ASIF), covering more than 400,000 Chinese firms for the years 2000–04, to show that state-owned enterprises (SOEs) tend to have more long-term debt, controlling for other firm characteristics.

More recently, Liu and Xu (2014) investigated the role of political connections in China using data from three complimentary data sets: the World Bank Enterprise Surveys for 2000 through 2002, the China Stock Market and Accounting Research (CSMAR) data set of publicly listed firms for 1992 through 2011, and ASIF for 1998 through 2007. Their study showed that SOEs have more long-term debt than non-SOEs and that this difference has persisted over time (figure B2.8.1). Moreover, other measures of political connections, such as having government officials facilitating government loans or being a firm affiliated with the central or provincial government, are also positively associated with the use of long-term loans.

FIGURE B2.8.1 Use of Long-Term Debt by Chinese Enterprises



Source: Liu and Xu 2014.
Note: This figure is based on ASIF data, which covers all firms in China with sales exceeding 5 million yuan and all state-owned enterprises (regardless of size).

Leasing institutions can provide financing for fixed assets. Leasing is a financial arrangement that allows firms to use and eventually own fixed assets and equipment. While leasing tends to be more prevalent in strong institutional environments, countries that do not have strong contract laws can still develop a leasing market if they pass appropriate leasing legislation (IFC 2009).

HOUSEHOLD USE OF LONG-TERM FINANCE

Why would households use long-term financial instruments?

Long-term finance can allow households to achieve their changing objectives throughout their life cycle. As Campbell (2006) observed, households must plan over long but finite horizons, and while they may face constraints on their ability to borrow, they have important nontraded assets such as their human capital, and some hold illiquid assets such as housing. As households age, their uncertainty about the future declines while their probability of death increases. Investment and precautionary motives are the main reasons for young households to accumulate assets (Gourinchas and Parker 2002). At this stage, households may demand financial products such as bonds, mortgages, and student loans that help them to prepare for the future or to pay for lumpy purchases of physical or human capital. At later stages, precautionary motives become less important, but retirement motives begin to gain relevance.[10] Long-term financial instruments such as annuities, insurance, and pensions become relevant products for older households.[11]

Long-term finance and household life-cycle risks

Households face various life-cycle challenges such as those related to longevity, health, and

death—which can be more effectively smoothed by relying on long-term financial instruments. In 1965, Yaari emphasized that when consumers plan for the future, they must do so without knowing how long they will live. He proved that lifetime uncertainty resulted in slower consumption growth throughout the life cycle. Having insurance against lifetime uncertainty allows consumption growth rates to be similar to those reached under lifetime certainty. Instruments such as annuities, pensions, and insurance can protect households from this uncertainty. Annuities and pensions help households prepare for retirement and longevity risks. The simplest annuity contract consists of an agreement between an insurance company and a consumer in which the consumer makes a lump-sum payment to obtain in return periodical allowances so long as he or she lives. Likewise, pensions are in general fixed transfers that begin after retirement and are paid on a regular basis until the death of the beneficiary. Other products, such as life, health, and long-term care insurance, transfer the cost of a potential loss, such as the death or sickness of the breadwinner of the family, to a third party in return for regular payments, known as premiums. Yaari's work demonstrated that for risk-averse households, buying annuities that were actuarially fair was an optimal strategy as protection against the life expectancy risk. Imposing less restrictive assumptions, Davidoff, Brown, and Diamond (2005) reached similar conclusions.

Yet in the data, household use of certain long-term financial products is low. In the United States, for instance, Koijen, Van Nieuwerburgh, and Yogo (2011) used data from the Health and Retirement Study to provide a full overview on how households use financial tools to smooth long-term health, longevity, and death risks. By calibrating a life-cycle model of insurance choice, annuities, and private pensions, they estimated how much it costs for a household to deviate from its predicted optimal plan. Comparing the actual demand for private insurance to the optimal demand estimated in their model, the study showed that for the median household ages 51 to 57, the welfare cost is equivalent to a sizable reduction of 3.2 percent in its lifetime consumption. Deviations from the optimal demand are driven either by market incompleteness, such as private information or borrowing constraints, or by suboptimal choice by households.

Other studies suggest that demand for annuities in particular remains very low among households. The United Kingdom, for example, provides a good laboratory to investigate this issue because it has a large array of annuity market products available to consumers. Using biannual panel survey data on people age 50 and over in the United Kingdom, for example, Inkmann, Lopes, and Michaelides (2011) examined voluntary participation in the annuity market. They found that only 6 percent of households acquired a voluntary annuity. Acquiring an annuity is positively associated with life expectancy, education, financial wealth, and previous participation in the stock market. By calibrating a model of life-cycle savings and quantifying the impact of each of these factors in the demand for annuities, Inkman, Lopes, and Michaelides concluded that the observed low annuity demand is explained by a combination of factors, spanning from access to pension plans to bequest motives of households that make annuities a less attractive instrument. One exception to low levels of annuity demand is Chile, where the annuity market has been increasing during the past decades (box 2.9).

Because annuities, social security, pensions, and insurance can partially substitute for or complement each other, it is important to study these instruments jointly. Take the example of social security and the life insurance market. On the one hand, social security schemes can reduce the demand for life insurance by allowing households to smooth health and longevity risks (Lewis 1989). Using a sample of 25 members of the Organisation for Economic Co-operation and Development to study insurance markets, Li and others (2007) find a negative association between the size of the social security system and the development of the insurance market. They argue that social security may crowd out the development of life insurance. On the other hand, if social

BOX 2.9 The Rise of the Annuity Market in Chile

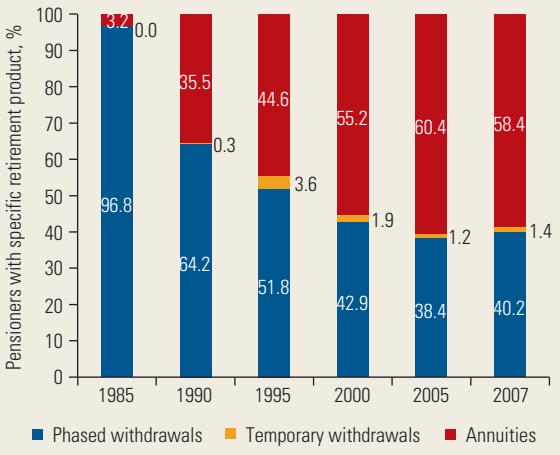
Chile is the first country in the world to require workers to have retirement products. Its retirement products provide for regular income streams over the life of beneficiaries, either in the form of life annuities or phased withdrawals keyed to life expectancy.

Whereas in 1985 only 3 percent of Chilean pensioners opted for annuities, 58 percent of pensioners in 2007 had them, positioning Chile as one of the countries with the highest levels of annuitization in the world (figure B2.9.1). As Rocha and Rudolph (2010) discuss, several factors have helped raise the demand for annuities in the country.

One main driver was the national pension reform that took place in 1981 when Chile replaced its old public pay-as-you-go system with a new private, fully funded system operating on a defined contribution basis. Under the new system, retirement contributions are *mandatory* for all workers and consist of 10 percent of workers' wages, which accumulate in individual accounts. When they retire, workers decide whether to use their accumulated contributions to purchase an annuity from an insurance company for phased withdrawals (PWs) from a pension fund, or temporary withdrawals (TWs) combined with a deferred annuity. Restrictions on lump-sum payments have expanded the demand for all retirement instruments, including annuities.

Each of these retirement products appeals to workers with different needs and risk profiles. While annuities provide protection against various risks such as inflation, investment, and longevity, in general these instruments do not allow for bequests. On the other hand, PWs not only allow bequests but also allow their holders to share capital market gains. However, they do not protect holders against investment and longevity risks. Since PW payments decline over time, they can eventually run out, in which case the holder receives a minimum payment from the government (the PBS level). TWs can offer larger payouts in the early years, combined with longevity insurance when the deferred annuity is received.

FIGURE B2.9.1 Fraction of Pensioners in Chile by Type of Retirement Product Selected



Source: Chilean Superintendency of Pensions, Santiago, http://www.spensiones.cl.

Given the relatively low value of the PBS and the lack of a universal public pension in Chile, medium- and high-income retirees have favored annuitization over the other phased withdrawal instruments. This inclination toward annuities has been reinforced by strong marketing strategies of life insurance companies. Low-income workers with benefits close to the PBS level find PWs more attractive because they can enjoy high returns in the early stages of retirement.

security benefits finish when the wage earner dies and are not replaced by survivorship benefits, social security represents a household asset that increases family consumption only so long as the wage earner survives. In those cases, social security expenditures may be positively correlated with life insurance consumption (Browne and Kim 1993). Although the impact of one market on the other may be ambiguous, these linkages are important to consider when studying these products.

Long-term financial instruments for long-term investments by households

As is the case with firms, households can make use of long-term financial instruments to make lumpy purchases or investments. By spreading out payments over time, long-term finance products, such as mortgages or student loans, can help households afford investments in physical or human capital or the purchase of housing and other durable goods.

Investment in human capital is very sensitive to the development of financial markets. Because returns to human capital are commonly observed over longer periods, long-term financial instruments such as student loans are effective tools to make this investment affordable. Human capital differs substantially from physical capital in that it cannot be sold, its investments are irreversible, and people cannot use it as collateral because it cannot be repossessed. Importantly, investment in human capital generally takes place at a critical age and thus cannot be postponed. Financial instruments that fit all these characteristics are more likely to be found in more-developed financial markets. A cross-country study on a set of Latin American countries found that even after controlling for various factors, there is a very strong correlation between the development of credit markets and school enrollment (Flug, Spilimbergo, and Wachtenheim 1998). However, this finding should be regarded only as a correlation, since other factors may be driving this result.

Even though the positive returns on investment in human capital are constantly documented in the literature, in many countries schooling attainment still lags significantly across family income. As box 2.10 discusses, various studies in developing countries show how underinvestment in children's education and child labor can arise because of imperfect capital markets and the lack of credit markets (Jacoby and Skoufias 1997; Baland and Robinson 2000; Ranjan 2001). Ranjan (1999) theorized that if poor households could borrow sufficiently against the future earnings of children, they would be willing to send their children to school instead of sending them to work. In the absence of credit opportunities, it is too costly for poor households to send children to school.

Even in high-income countries, the gap in schooling attainment across income is large. Using data from the United States, Carneiro and Heckman (2002) explored two factors explaining the gap in college attainment: short-term credit constraints at the time of schooling attainment and credit constraints spanning longer terms. They argue that although short-term credit constraints have an effect, a more relevant determinant of college enrollment is the lack of long-term investments that begin when children are in their formative years and that continue as they age. The authors suggest that most of the family income gap in enrollment is explained by these long-term factors: families with higher levels of resources produce children who are better able to perform in school and to take advantage of higher education. Carneiro and Heckman suggest that policies aimed at subsidizing tuition or supplements to families with adolescent children will not solve these problems. They argue that policies that allow families to invest in their children's education over the years will be a more effective avenue for increasing college enrollment in the long run.

Long-term finance and housing

In high-income countries, housing is often the largest and most important asset in household portfolios. Because most houses are affordable only if payments can be spread out over time, the availability of housing finance is essential.

Besides being a durable good, housing is an investment that can substantially alter households' financial portfolios. Recent work by Chetty and Szeidl (2010) identified the effects of housing on portfolio choice by distinguishing the effect of property value from that of home equity wealth on portfolio choice for a sample of 60,000 households in the United States. Since both financial portfolios and housing are decisions that households make using information that cannot always be observed, such as risk preferences, Chetty and Szeidl used an instrumental variables strategy that isolates variation in both mortgage debt and home equity wealth. This strategy exploits the differences across housing markets in average housing prices and housing supply elasticities. On the one hand, the authors found that, holding wealth fixed, higher mortgage debt causes households to participate less in the stock market, both in the extensive and intensive margins. On the other hand, increases in home equity while holding mortgage debt constant raise households' participation in the stock market through a wealth effect.[12]

BOX 2.10 Sensitivity of Human Capital Investment to the Development of Credit Markets

Since the 1990s a growing literature has examined the role of borrowing constraints on human capital accumulation and child labor in developing countries. Empirical and theoretical evidence suggests that releasing households' credit constraints can have important consequences for investments in children's human capital.

Jacoby (1994) was one of the first to examine empirically how constraints on borrowing altered school attendance; his focus was on children in Peru. He developed a human capital investment model of the household in which credit is rationed. The strongest implication of the model is that the decision to invest in human capital is independent of parental income only for households that are not credit constrained. If households are constrained in their ability to borrow, then this separation between consumption and human capital decisions breaks down, and lower-income households will sacrifice investment in human capital to achieve higher consumption. When testing this prediction in the data, Jacoby found that for the sample of households that had access to credit, higher family income did not increase school progress. In contrast, for the sample of credit-constrained households, higher income increased school attendance.

Jacoby's results suggest that policies such as student loans or stipends may be effective in increasing educational achievement of children from credit-constrained households. Such policies, however, should be carefully targeted because they would only affect the schooling behavior of children from credit-constrained households.

Other work has reached similar conclusions. Jacoby and Skoufias (1997), for instance, studied the relationship between incomplete financial markets and investments in human capital. They focused on how child school attendance in rural India responds to aggregate and idiosyncratic income shocks. Their findings suggest that fluctuating attendance results from household attempts to self-insure against income shocks, but that these fluctuations on average result in very modest losses of human capital.

A similar study by Beegle, Dehejia, and Gatti (2003) examined the relationship between child labor, income shocks, and credit constraints in Tanzania. They hypothesized that rural households in developing countries use child labor as a mechanism to smooth their consumption, a practice that can have a substantial negative impact on the future income of households. They found that crop shocks lead to more child labor and that households that own durable assets are better able to offset such shocks. Their results suggest that child labor is influenced by borrowing constraints and that more developed credit markets can have important implications in the human capital investment undertaken by poor households.

In South Africa, Edmonds (2006) compared schooling attainment and child labor between two groups: families that are currently eligible for a pension and families who know they will be eligible to receive the pension in the next years. He found that children from families who receive the pension experienced large increases in their schooling and declines in total hours worked, while children from the other group did not experience any change. His findings are consistent with the presence of credit constraints and their effects on forcing families to opt for less schooling for children than they would choose absent the constraints.

Housing can also allow households to relax their credit constraints by serving as collateral to access credit markets. As collateral, housing helps households in various ways, from facilitating consumption risk sharing to altering labor and investment decisions of households. Lustig and Van Nieuwerburgh (2004) found that housing collateral relieves household borrowing constraints and thus facilitates consumption risk sharing. They find that in periods when U.S. housing collateral is scarce nationally, regional consumption is about twice as sensitive to income shocks. Higher sensitivity is also present in regions with lower housing collateral. The authors calibrated a general equilibrium model that they then compared to the data trends.

As collateral, housing may also allow households to benefit from better investment opportunities. Adelino, Schoar, and Severino (2013) showed that, separate from these channels and aggregate demand effects, housing

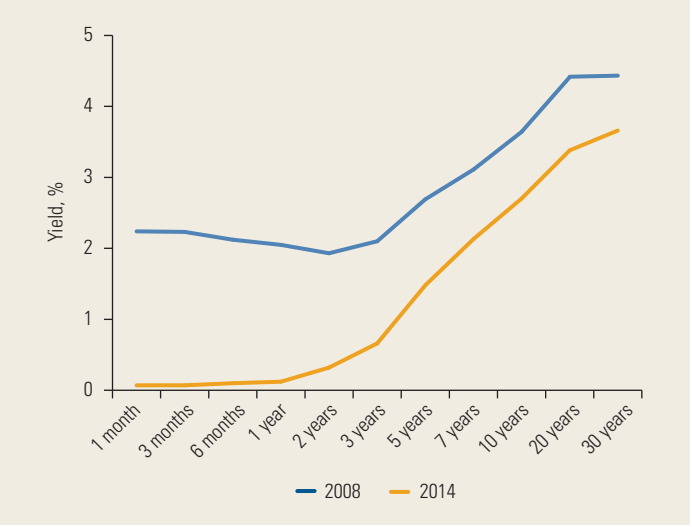
collateral also facilitates business start-ups and self-employment in the United States. They found that during the U.S. housing price boom of 2002–07, areas where housing prices increased experienced a significant increase in small business openings and a rise in the number of people employed in small establishments, compared with areas that did not see changes in their housing prices. Importantly, large establishments in areas with rising housing prices did not change.

Research from other countries supports these latter findings. Studies from high-income and developing countries consistently find that credit constraints at the household level matter for the creation of new businesses (Evans and Jovanovic 1989; Holtz-Eakin, Joulfaian, and Rosen 1994; Gentry and Hubbard 2004; Cagetti and De Nardi 2006). Wang (2012) analyzed the effects of a reform of employer-provided housing in China on labor market decisions. The reform offered state employees who were provided rental housing from their employers the opportunity to purchase their homes at subsidized prices. The empirical findings suggested that the probability that former state-housing residents entered into self-employment increased by 2 to 8 percentage points, representing a doubling of the base rate of self-employment in the treatment group. The data also indicated an increase in the rate of job changes among former residents who now owned their homes, as well as a substantial growth in the amount of business capital that they owned.

Long-term savers and the term premium

Long-term assets also allow households who save to accumulate and reap important term premiums, but at the cost of incurring more risk (Merton 1971, 1973). Because long-term savings typically carry more risk than short-term savings, riskier investments need to offer higher expected returns to attract investors than do safer ones. As the U.S. Treasury yield curve shows (figure 2.6), the yield that investors expect to obtain from bonds of equal quality but different maturities increases with the maturity of the bond. As noted in the figure, the 2014 yield curve reflects a lower premium for saving long term than in 2008.

FIGURE 2.6 U.S. Treasury Yield Curve



Source: U.S. Department of the Treasury, Washington, DC, http://www.treasury.gov.
Note: The curves compare the yields of short-term Treasury bills with long-term Treasury notes and bonds. Treasury bills are issued in terms of 1, 3, and 6 months. Treasury notes are issued in terms of 1 to 10 years. Treasury bonds are issued in terms of 20 and 30 years.

In recent years the term premium has declined, and research suggests that the decline is associated with less volatile macroeconomic conditions. Various studies argue that the term premium mainly reflects uncertainty about future inflation: the higher future uncertainty is, the more investors will need to be compensated when saving long term. Measures that reduce this uncertainty also reduce the risks for long-term investors, as well as the compensation from long-term saving instruments. While most of the existing literature on the estimation of the term premium has focused on the United States, Wright (2011) constructed a panel dataset of nominal zero-coupon government bond yields for 10 high-income countries.[13] He estimated and compared the term premium for each country and found that over the past 20 years, the term premium had declined for all 10 countries. His results are consistent with inflation uncertainty being an important component of the term premium: the largest declines occurred in countries that had made radical changes in their monetary policy frameworks, such as

introducing inflation targeting and increasing the independence of their central banks.

Risks associated with household use of long-term finance

Borrower and saver households can benefit from different long-term finance products, but the use of these products can also entail substantial risks. Empirical evidence shows that vulnerable consumers may buy financial instruments that they do not understand and that they are unable to service. A growing literature on these issues suggests that behavioral biases or low levels of financial education, financial awareness, consumer protection, and product transparency may restrain households from using financial products or from managing them correctly (Hastings and Tejeda-Ashton 2008; Lara-Ibarra 2011; Cull and others 2014a, 2014b).

Financial providers may have incentives to exploit shortcomings in understanding, which can lead to substantial error in financing choices. For example, lack of product transparency in Chile allowed brokers to sell annuities from insurance companies that offered them the highest commissions but that were not necessarily the best product for the retirees. Even though retiring workers were required to obtain at least six annuity quotes from the market before making their selection, brokers were still able to direct customers to insurance companies with the highest commissions. In 2004 the Chilean government introduced an electronic quotation system for annuities to address this problem. The system increased the quality of information available to consumers because it enabled direct access to a full range of annuity quotations. Over the years, it has increased transparency and price competition and has successfully reduced the influence of brokers in the selection of annuities. Latest indicators suggest that the system has helped retiring workers to select annuities based on the best quotes (Rocha and Rudolph 2010).

Government policies to promote greater household participation in long-term finance may backfire, as happened in the U.S. subprime mortgage crisis. As discussed in previous *Global Financial Development Reports* (World Bank 2013a, 2014), a key contributing factor to the subprime mortgage crisis in the United States was the overextension of credit to noncreditworthy borrowers and the relaxation in mortgage-underwriting standards. As a consequence, many homeowners took out mortgages that exceeded their means of repayment. Using a random sample of individual credit files from a national consumer credit bureau agency, Mian and Sufi (2009) examined the credit behavior of 70,000 homeowners in the United States from 1997 to 2008. They found that younger homeowners with high rates of credit card use and low credit scores at the beginning of the sample had the strongest tendency to borrow against increases in their home equity. Mian and Sufi estimated that home-equity-based borrowing from 2002 to 2006 accounted for at least 34 percent of new defaults from 2006 to 2008. Studies in various countries document that if housing prices strongly affect the borrowing behavior of homeowners, drastic movements in the housing market may have real effects on the economy through consumption and mortgage defaults (box 2.11).

Indicators and determinants of the use of long-term finance by households

Over the past 50 years, the development of financial systems around the world has expanded substantially in various ways. That development has not been uniform, however. In middle- and low-income countries, the deepening of the financial system has not been as fast as in upper-income countries (Beck, Demirgüç-Kunt, and Levine 2010). The evidence on long-term household finance shows a similar pattern: its use remains substantially higher among high-income countries (Honohan 2008; Badev and others 2014).

Recent data compilation efforts have led to the development of new indicators that measure the use of long-term finance by households, both within and across countries. Specifically, we present a series of indicators that proxy for the development of insurance and

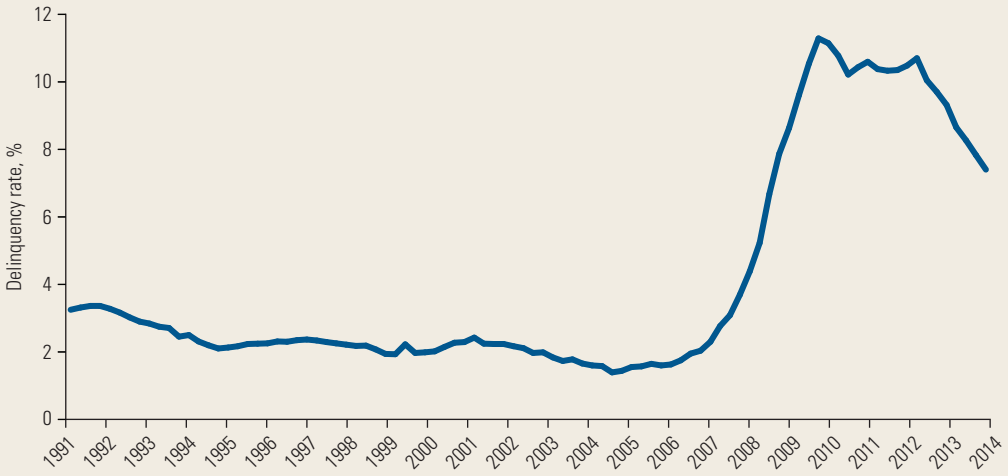
BOX 2.11 Housing Booms and Busts

The steep increase in mortgage default rates in the United States led to one of the most severe financial crises in the country (figure B2.11.1). Mian and Sufi (2009) showed that the rise in mortgage defaults in 2007 was disproportionally higher in counties with large shares of subprime borrowers as of 1996. Interestingly, with the rise in securitization of subprime mortgages (from 2002 to 2005), mortgage credit increased at unusually high rates in subprime ZIP codes.

Their study suggests that to understand the mortgage default crisis, it is crucial to identify the factors that led to the disproportionate expansion of mortgage credit to subprime counties all across the United States. Various studies point to expansionary mortgage credit policies, the weakening of lending standards associated with securitization, and a proliferation of exotic mortgage products as the key triggers of the unusual subprime mortgage growth (Glick and Lansing 2010; Rajan 2010; World Bank 2014).

As Glick and Lansing (2010) noted, various high-income countries (such as Ireland, Spain, and the United Kingdom) experienced a similar housing boom-bust cycle. Data from the Organisation for Economic Co-operation and Development reveals that during the precrisis period, household leverage increased substantially in several European countries. Housing prices in these same countries were also more likely to increase over the same period. In the crisis period, once housing prices began falling, consumption declined significantly. This evidence suggests that the crisis was more severe in countries where prior growth was caused by an unsustainable borrowing trend.

FIGURE B2.11.1 Delinquency Rates on Real Estate Residential Loans at U.S. Commercial Banks, 1991–2014



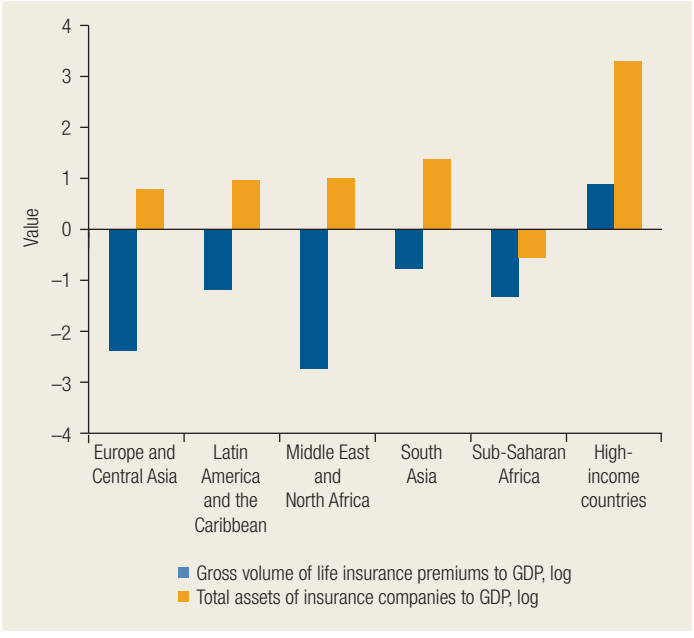
Source: Federal Financial Institutions Examination Council (FFIEC) Consolidated Reports of Condition and Income (1985–2000: FFIEC 031 through 034; 2001–14: FFIEC 031 and 041).
Note: Delinquent loans are those past due 30 days or more and still accruing interest, as well as those in nonaccrual status. They are measured as a percentage of end-of-period loans.

mortgage markets across countries. Making use of information collected by the Global Findex (Demirgüç-Kunt and Klapper 2012), we provide a series of stylized facts that relate the usage of various long-term financial products with household characteristics, such as income and education.[14] Based on several studies, we then discuss what the main drivers of the development of long-term financial markets are.

Indicators of the development of insurance markets show that high-income countries have

larger insurance sectors relative to gross domestic product (GDP) than developing countries. To study the development of the insurance sector, Feyen, Lester, and Rocha (2011) compiled annual data from various sources for 90 countries during the 2000–08 period. They used two indicators that measure the importance of the insurance market in a given country. One corresponds to the gross volume of life insurance premiums of a country relative to its GDP and reflects the penetration of insurance markets in that country. The second indicator is the ratio of total assets of insurance companies to GDP. As figure 2.7 shows, these indicators suggest that insurance markets in developing countries are still substantially underdeveloped. Moreover, regions such as the Middle East and North Africa have the least developed insurance markets.

FIGURE 2.7 Penetration and Size of Insurance Markets across Regions, 2000–08



Source: Feyen, Lester, and Rocha 2011.

FIGURE 2.8 Volume of Life Insurance Premiums and Income

Source: Feyen, Lester, and Rocha 2011.

Stable and sound macroeconomic conditions are associated with more-developed insurance markets. Identifying in a clean way those factors that drive the development of insurance markets is very challenging with cross-country data because omitted variables or reverse causality issues are difficult to account for. Nevertheless, Feyen, Lester, and Rocha (2011) found suggestive evidence that at the macroeconomic level the development of the insurance sector is strongly and positively associated with income and inflation. This association seems intuitive: because insurance is a normal good, higher income levels raise households' demand for life insurance products (as figure 2.8 indicates). Conversely, as inflation increases, the value of insurance policies declines, making insurance products less attractive for households. These findings are also present in related literature (Browne and Kim 1993; Beck and Webb 2003; Li and others 2007).

Population and population density, religion, and the institutional environment also influence the size of insurance markets. Population and population density, which proxy not only for larger markets but also for larger pools to share risks, are important predictors of the size of the insurance sector (Feyen, Lester, and Rocha 2011). Although in theory education levels should also positively influence the demand for insurance, only some empirical studies have found a positive and significant association between education levels and the development of insurance products. Religion is a relevant variable; Muslim countries have weaker insurance sectors, which suggests that the insurance products offered there might not conform to the beliefs of the citizens. Finally, at the institutional level, private competitors, solid legal frameworks, and more-developed credit and bond markets are

positively associated with the development of the insurance sector.

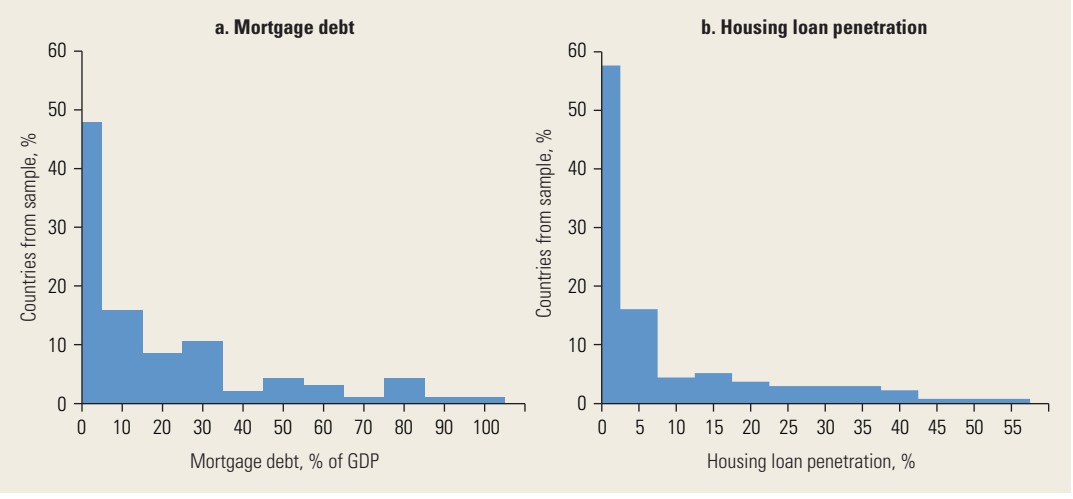
Recent efforts to compile data on housing finance provide new insights on the size and penetration of mortgage markets around the world. The data set, compiled by Badev and others (2014), collected information for up to 148 countries from the World Bank Global Findex, the Housing Finance Information Network (HOFINET), and each country's central bank, financial regulatory or oversight agency, or housing finance agency.[15] With this data, the researchers constructed two indicators for each country in their sample. The first indicator is mortgage depth, defined as the outstanding mortgage debt of a country relative to its GDP. The second indicator is mortgage penetration, or the percentage of the adult population with an outstanding loan to purchase a home.

Similar to the insurance markets, these two indicators show that housing finance markets are severely limited in many countries. Mortgage depth is less than 10 percent of GDP for most countries in the sample, and only a few countries, such as Denmark, the Netherlands, and Switzerland, have mortgage debt higher than 80 percent of GDP. Similarly, in half the countries, less than 4 percent of adults have an outstanding loan to purchase a house (figure 2.9).

Although deeper mortgage markets also reach a larger fraction of the population, loan-to-value (LTV) ratios are not associated with more-developed mortgage markets. The data suggest that, even though some countries may have greater mortgage depth than penetration (or the opposite), the correlation between these two indicators is high. Interestingly, data from HOFINET shows that the typical LTV ratio at origination is not strongly associated with either housing finance penetration or depth (figure 2.10). Countries such as Mexico or Georgia, where both the mortgage depth and penetration indicators are low, have LTV ratios as large as countries with the highest mortgage development indicators. This finding suggests that the barriers of the mortgage market lie in its *extensive* rather than in the *intensive margin*. Conditional on having a mortgage, the intensive margin across countries is relatively similar.

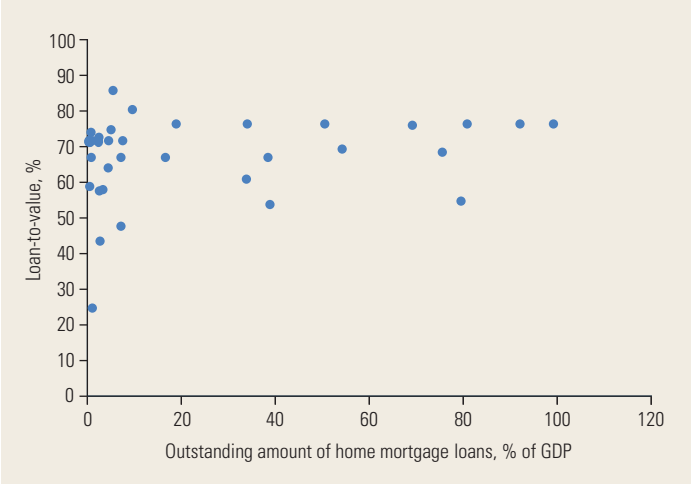
So what are the factors at the macroeconomic level that determine the development of mortgage markets across countries and over time? Mortgage depth increases only at very high levels of income and decreases in the same manner with inflation (figure 2.11). Badev and others (2014) document this finding both for mortgage depth and for housing loan penetration: across low- and middle-income countries, mortgage depth and penetration are low

FIGURE 2.9 Frequency of Depth and Penetration of Mortgage Markets



Source: Badev and others 2014.

FIGURE 2.10 Mortgage Depth and Typical First Mortgage Loan-to-Value Ratios at Origination



Source: Housing Finance Information Network (HOFINET), University of Pennsylvania, Philadelphia, PA, http://www.hofinet.org.

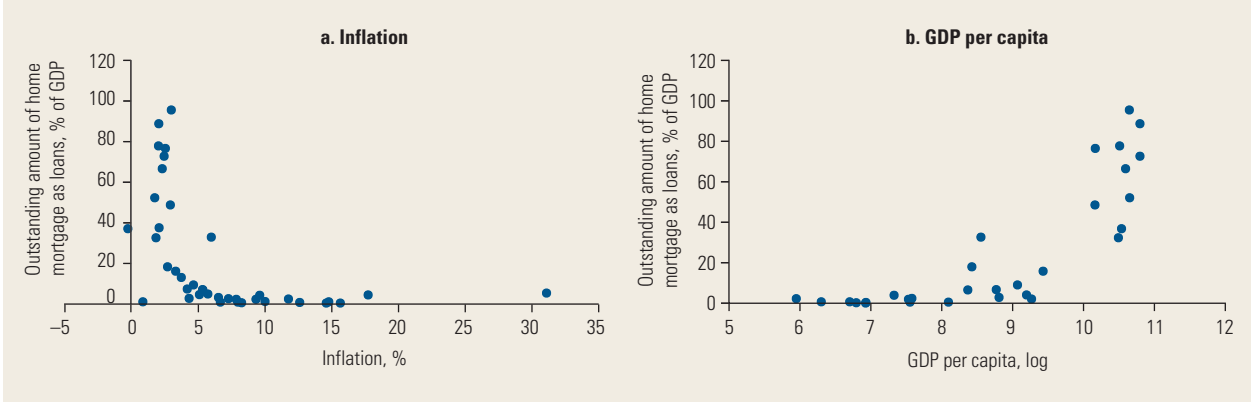
and start increasing in an exponential manner only at very high-income levels.

This pattern suggests that, in contrast to the banking system, the mortgage sector tends to develop only when countries reach higher-income levels. Likewise, at medium and high inflation levels, these indicators remain low and only increase at low inflation levels. As the authors indicate, this relationship is consistent with previous findings suggesting that stable macroeconomic conditions are a critical element for the development of long-term contracts such as mortgages. For a different sample of countries, Warnock and Warnock (2008) have presented evidence suggesting that mortgage terms are less favorable to the borrower in developing countries than in high-income countries. The typical mortgage in developing countries is more likely to mature faster and to have a variable, rather than a fixed, interest rate.

Even after controlling for macroeconomic conditions, other policy factors remain strongly related to the development of mortgage markets. Cross-country regressions conducted by Badev and others (2014) suggest that government-owned banks and regulatory restrictions on banks' real estate activities are negatively associated with the depth and penetration of mortgage systems. In contrast, stronger creditor rights and more effective construction permit procedures have a positive association with mortgage market development. Findings from Warnock and Warnock (2008) coincide with those from Badev and others (2014) in showing a strong positive association between the development of housing finance and legal rights for borrowers and lenders (measured by collateral and bankruptcy laws).[16]

Importantly, a deeper insurance sector and more liquid stock markets are also positively linked to stronger mortgage markets. This finding suggests that housing finance grows as long-term funding sources such as the insurance sector also develop.[17]

FIGURE 2.11 Relation of Mortgage Debt to Income and Inflation



Source: Housing Finance Information Network (HOFINET), University of Pennsylvania, Philadelphia, PA, http://www.hofinet.org.

A further benchmarking exercise identifies whether a country's mortgage market is below or beyond its predicted frontier. Badev and others (2014) used regression analysis to determine how much country factors (such as GDP, population size, and density) can account for the indicators of mortgage depth and penetration of a given country. This exercise, explained in more detail in box 2.12, allows the authors to predict what the constrained optimum for the mortgage market of a country should be.

The development and use of long-term finance varies substantially not only from country to country but also within countries. Among other things, data from Global Findex provide information on the fraction of adults in a given country who have a mortgage, together with other sociodemographic information. These data allow us to highlight the main household characteristics associated with the use of this long-term finance product.

Within a country, income is a major factor behind the variation in the use of mortgages.[18]

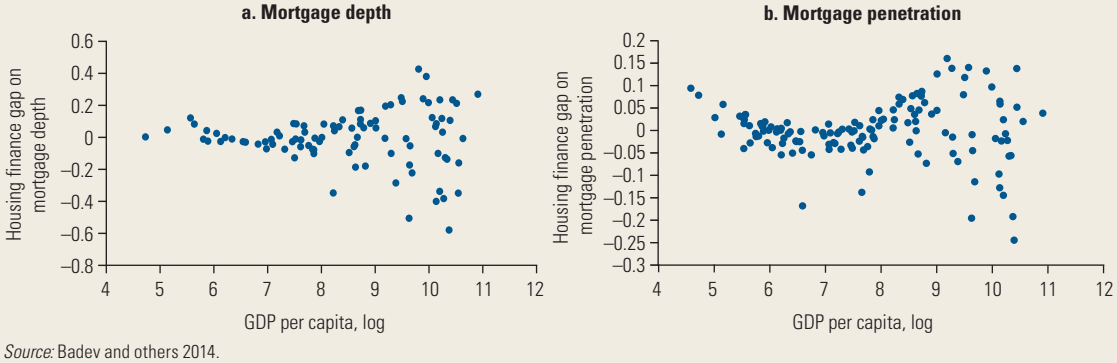
BOX 2.12 Benchmarking Housing Finance

Badev and others (2014) conducted an empirical exercise to benchmark how large a country's mortgage market could be and then compare that to its current size. This benchmarking exercise identified countries where the size of the mortgage market exceeded expectations because of a housing boom, for instance, government subsidies, or some other unusual factor that is not likely to be sustainable. The exercise also identified countries where housing markets were below expectations because of poor competition or regulatory restrictions.

By regressing the indicators of mortgage depth and penetration on country factors such as GDP, population size and density, and other variables proxying country demographic and economic characteristics, Badev and others were able to predict what the constrained optimum for the mortgage market of a country should be. Figure B2.12.1 shows the housing finance gaps, or the difference between the predicted and the current values of mortgage debt penetration and depth. A positive gap corresponds to cases in which the predicted frontier is above the actual size of the mortgage market, whereas a negative gap corresponds to countries whose actual mortgage market overpasses the predicted frontier.

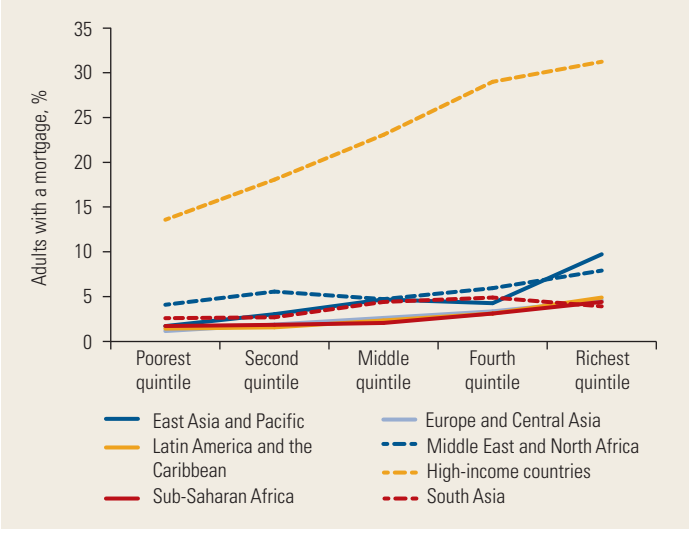
In the East Asia and Pacific and Middle East and North Africa regions, mortgage debt is above its predicted value. Given their country characteristics, Europe and Central Asia, South Asia, and Sub-Saharan Africa have mortgage markets roughly the same size as their predicted frontiers. Mortgage markets in Latin America, on the other hand, lie below their predicted values.

FIGURE B2.12.1 Housing Finance Gaps on Mortgage Penetration and Depth



Source: Badev and others 2014.

FIGURE 2.12 Adults with a Mortgage by Income and Region



Source: Global Financial Inclusion (Global Findex) Database, World Bank, Washington, DC, http://www.worldbank.org/globalfindex.

Higher-income individuals are more likely to have a mortgage. Moreover, cross-region comparisons show that the poorest individuals in high-income countries are more likely to have a mortgage than the richest individuals in low-income countries (figure 2.12). In addition, although income is almost linearly related to the probability of owning a mortgage in high-income countries, in many developing countries the shape of this relationship is more exponential, suggesting that only individuals at relative high levels of income have mortgages.

While detailed information on the usage of long-term savings products across countries is not available, information collected in the Global Findex helps to draw some insights on the saving patterns of households. When asked if they save for the future, either to afford a major purchase or expense or to prepare for an emergency, on average between 28 and 50 percent of adults in developing and high-income countries respectively report doing so. In high-income countries, most adults with tertiary education or higher save regardless of their income level. In contrast, only at the highest education and income levels do more than 50 percent of adults in developing countries save. Box 2.13 presents further details on how poor households in developing countries save.

One reason for lower saving rates among lower-income households is that high yield comes with high risk, and poorer households are less willing to take on the extra risks. Zimmerman and Carter (2003) developed a model of asset portfolio decisions in an environment characterized by low income, risks, and incomplete markets, and they found that the cost and ability to deal with risk differs between rich and poor households. In their model, heterogeneous households select between two types of assets. One corresponds to productive, high-yield assets with variable returns, such as land or livestock. The other includes nonproductive assets with low but stable yields, such as cash, stored grain, or jewelry. Because the threat of approaching the consumption floor is substantially higher for poor households, poorer consumers pursue more conservative but less remunerative investment strategies. Rather than trying to smooth their consumption, poorer households try to smooth their asset holdings. As a result, not only do the poor forgo the returns from high-yield investments, but the differences in types of investment exacerbate inequality between poor and rich households.

In sum, income and education at the individual level, together with income, macroeconomic stability, and legal institutions at the country level, are important determinants of household use of long-term finance. Higher-income and more-educated individuals are more likely to use long-term financial instruments as either savers or borrowers. Even after controlling for individual characteristics, however, higher-income countries with stable macroeconomic environments, low inflation, and sound legal systems have more developed long-term finance markets.

How education and cognitive biases affect the use of long-term finance

Lack of financial awareness, financial literacy, and product transparency constrain households from using financial products or from managing them correctly. Lusardi and Mitchell (2006) included a financial literacy module in the 2004 Health and Retirement Study to better understand how people in the United

BOX 2.13 How do the Poor in Developing Countries Save?

Do the poor in developing countries demand savings products? Several studies have shown that poor households are willing to pay high prices for savings products that entail little risk, reflecting the high value these households place on being able to save (Wright and Mutesasira 2001).

Banerjee and Duflo (2007) analyzed household surveys conducted in 13 developing countries to document the lives of low-income households. Two groups were studied: the extremely poor, comprising households whose consumption per capita is less than $1.08 a day; and the poor, who live on less than $2.16 a day. The authors found that low-income households rarely participated in formal savings and credit markets. For instance, credit activity was high across the surveys, but very few of the poor households got loans from a formal provider. Most borrowed from relatives, shopkeepers, and neighbors, a practice that tends to be more unreliable and expensive. Their savings patterns are no different.

The poor who do save, save informally. In part, this is because the range of products available for savings is limited. In developed countries, even poor households may have access to basic products such as savings accounts or even more complex products such as savings bonds or certificates of deposit. These products are often not available to poor households in developing countries, as Karlan and Morduch (2010) discuss. Those who save therefore often invest in risky assets such as livestock or use informal arrangements such as rotating savings and credit associations or deposit collectors, who charge high fees for holding savings (Rutherford 2000).

As several randomized experiments have shown, households in developing countries would save more if they were given access to more savings products that better fit their needs (Dupas and Robinson 2009; Brune, Goldberg, and Yang 2011; Dupas and others 2014). Like wealthier households, the poor also need to save to prepare for life-cycle challenges, to protect against emergencies, and to accumulate assets. Because their income tends to come in small installments, they need products that allow them to make small deposits and large withdrawals while offering them safe and convenient places to keep their money and structure their many small deposits.

More and more, practitioners are engaging in various innovations that take these principles to the field. In Bangladesh, for example, the Grameen Bank launched a pension product, called the Grameen Pension Savings, that requires clients to make fixed monthly deposits. After five or ten years, clients receive their accumulated savings with interest. Although this product is intended to prepare households for their old age, these accounts are also being used to save for housing improvements and other commitments (Karlan and Morduch 2010). While more evidence is needed, these types of savings products seem to be increasingly popular in Bangladesh. In a recent survey collected among 2,100 garment workers, about one-fifth reported owning a fixed-term savings account with a bank (Breza, Kanz, and Klapper 2015).

States plan for retirement. Financial illiteracy was found to be widespread among respondents who were older, less educated, female, or a minority. The authors found a high correlation between financial knowledge and planning for the future. Some other findings were more surprising: people with low levels of financial literacy thought less about retirement and most of them had not planned for retirement at all. Fewer than one-third of the respondents who were 50 years or older had a retirement plan. Moreover, financial products, particularly long-term ones, are complex and can be difficult to understand. Lack of product transparency makes it more complicated for customers to make informed decisions.

Lack of understanding of financial products can lead to costly mistakes. This is especially true for mortgage contracts, which are among the most important financial contracts that households sign. Several studies find that households, particularly less-educated and lower-income ones, commonly misunderstand mortgage contracts. By comparing lender-reported data with household-reported information, Bucks and Pence (2006) found that households that have adjustable rate

mortgages, which tend to be more complex mortgage contracts, underestimate the amount by which their interest rates could change and in general are not familiar with the terms of their contract. Campbell (2006) also showed that in the United States, many households fail to refinance their mortgages during periods of declining interest rates.

Recent literature on psychology and finance also highlights the role of behavioral biases in shaping households' financial decisions. Stango and Zinman (2009) found that individuals display different biases when saving and borrowing. On the one hand, people tend to underestimate the future value of their savings given their present value, maturity, and rate of return. On the other hand, borrowers underestimate the interest rate of a loan given a principal, monthly payment, and maturity. The authors reported that, even after conditioning for various demographic and income factors, these biases are strongly correlated with more borrowing, less saving, and a preference for short-term installment debt and short-term assets. As the *World Development Report 2015* highlights, understanding these behavioral biases and how they influence financial choices allows for better tailored and more effective policies, such as financial education interventions, automatic enrollment systems, or electronic reminders. Box 2.14 summarizes recent research to convey experiential, rather than conventional, learning.

Even though financial education matters, evidence shows that delivering it effectively is challenging. Growing research efforts that randomize the provision of financial education help to show whether financial education can be improved and to identify the most effective delivery mechanisms for doing so. While these studies vary substantially in terms of the setting, the targeted groups, or the duration of the intervention, there are some lessons to be learned.

For example, Bruhn, Lara-Ibarra, and McKenzie (2013) conducted a randomized experiment providing financial education in Brazilian high schools. School-based interventions offer the opportunity for repeated instructions and exercises that may facilitate sustained learning of concepts. A large number of high schools were randomly selected into either a treatment or a control group. Students from treated high schools received

BOX 2.14 Changing Gambling Behavior through Experiential Learning

Abel, Cole, and Zia (2015) took an innovative approach to delivering the message of probabilities. Instead of adopting instructional messages, they examined how experiential learning affects behavioral biases of people.

To do so, they conducted a randomized experiment in which subjects were asked to roll a six-sided die until they got a six. Once they got a six, they repeated the exercise with two dice until they got two sixes. Very soon most players realized the low odds of getting two sixes in the same roll. They were then told that winning the national lottery in South Africa was equivalent to getting sixes on nine dice in the same roll. Through this basic game, players understood the concept of probability without having to go through any complicated math or statistics course.

The experiment was conducted on a sample of 840 women with relatively little formal education in rural South Africa. The study had two stages of randomization. The first one was that only half of the sample was randomly selected to play the dice game; the other half became the control group. The second one referred to the intensity of treatment and only makes use of the subjects who played the dice. For each player, the number of rolls it took to get two sixes was random, and the longer it took for two sixes to show up, the clearer it was to the player that the chance of winning the lottery was very low.

The results showed that, compared with the control group, players who were "unlucky" (those who took more than the median number of rolls to obtain two sixes) were 40 percent less likely to gamble in a lottery offered soon after the intervention and were 35 percent less likely to have participated in a lottery one year after the intervention.

financial education classes over 17 months. Although the results were modest in magnitude, even 16 months after the intervention ended, students from treated high schools scored higher in financial knowledge and were more likely to save for future purchases rather than using installment loans.

A second example comes from interventions that are increasingly popular among financial institutions and policy makers. These programs generally consist of free financial education courses that convey basic financial knowledge on how to better manage personal finances responsibly. Bruhn, Lara-Ibarra, and McKenzie (2013) conducted an evaluation of this type. The program they studied took place in Mexico City and consisted of half-day courses offered to the general public. Modules on saving, retirement, credit cards, and responsible use of credit were covered in the courses. To evaluate the effect of the intervention, the researchers relied on an encouragement design strategy, which randomly encourages some individuals to participate in the program. Their first finding was that the take-up rate was very low, even among the sample of interested individuals. Six months after attending training, savings outcomes of the treated group improved modestly, but administrative data suggest that the savings impact was relatively short-lived. While the modules contained information on retirement, no impact on awareness of retirement products or saving for retirement was found.

Current studies are now exploring how effective alternative innovative channels such as videos, mass media, and video games are in increasing household financial education. Entertainment media offer a broad outreach because nearly every household nowadays has a TV and is also a captive audience. Furthermore, as emotional connections are established between a show and its audience, the program provides a potentially powerful platform for communicating messages and influencing behavior (World Bank 2014). Considerable evidence, especially in the health and education fields, shows the success of media campaigns in improving social behavior. Berg and Zia (2013) evaluated the effectiveness of financial education through a popular television soap opera in South Africa, "Scandal!" The intervention entailed a two-month-long storyline featuring a main character who borrowed excessively through shop credit and gambling, fell into a debt trap, and eventually sought help to find her way out. The results of the intervention showed that individuals who viewed this storyline shifted their behavior toward more formal and longer-term borrowing.

Several lessons from the literature on financial literacy can help develop more effective interventions. Efforts that target financial education to the masses in broad multitopic financial education sessions, such as the one evaluated in Mexico City, tend to achieve little. One reason may be that having adults in a classroom setting is not the best way to deliver a message. More research on how to better educate broader audiences is needed, but one promising way is entertainment media, as Berg and Zia (2013) confirmed. Also, evaluations consistently agree that financial concepts are best taught at what are known as "teachable moments." Interventions that focus on giving concrete concepts to targeted groups are found to be more effective. For instance, workshops about retirement plans targeted to workers at the time when they are deciding on their pension plan may help them make better-informed decisions.

Alternative interventions, such as default enrollment or reminders of payments, can be effective in preventing households from making financial errors. Default enrollment can help reduce behavioral biases or lack of literacy. Research suggests that the simple action of automatically enrolling workers into pension plans stimulates pension participation and contribution. Madrian and Shea (2001) found that after a company automatically enrolled its new hires in a new 401(k) retirement plan, plan participation increased from 37 percent to 86 percent. Other researchers have also found sizable effects (Thaler and Benartzi 2004). Based on this evidence, the 2006 U.S. Pension Protection Act facilitated the automatic enrollment process of firms' workers into pension plans. Reminders also can be an effective tool. In field experiments conducted in Bolivia, Peru, and the Philippines, a number of clients with savings accounts were randomly

selected to receive monthly text messages or letters reminding them of their savings commitments (Karlan and others 2010). These reminders increased the fraction of clients who reached their savings goal by 3 percent and the amount they saved by 6 percent.

Policy recommendations for the use of long-term finance by households

Summing up, a range of policy recommendations can help foster the development of both firm and household long-term finance. On the one hand, cross-country studies have found that several common factors at the macroeconomic level are associated with strong long-term finance markets. This evidence suggests that both the insurance and the mortgage sectors benefit from a sound and stable macroeconomic framework.

The institutional framework of a country is also related to the development of long-term finance. In the insurance sector, for example, private ownership is found to foster the sector's growth, even though in many countries the state is a major player in the sector. A supportive legal framework and developed credit and bonds markets also enhance the growth and development of the sector. Similarly, government-owned banks and regulatory restrictions on banks' real estate activities are negatively related to both the depth and penetration of mortgage markets. Additionally, studies find a strong positive association between the development of housing finance and stronger creditor and legal rights for borrowers and lenders in the form of collateral and bankruptcy laws.

For households, more tailored instruments that fit the needs of different customers should be explored. While more work is needed to understand the competing relationship between stronger institutions and sound macroeconomic conditions at the country level and behavioral biases and financial literacy issues at the individual level, research suggests that the latter are important constraints on households. For instance, as with other financial products, insurance products need to take cultural and religious beliefs into account. Other innovative ways to reach lower-income households have been piloted in recent years. One example is the microinsurance sector, which has been gradually gaining attention as an instrument for reducing vulnerabilities of the poor (Arun, Bendig, and Arun 2012).

Regulators should also promote product transparency and consumer protection in the financial market. Financial products, particularly long-term ones, can be overwhelmingly complex instruments for users. This complexity, together with incentives for financial providers to direct customers to products that are more profitable for the providers, could lead households to make costly financial mistakes. Product transparency can raise the quality of the information available to consumers.

One way to increase the financial education and awareness of households is through financial education interventions that use more innovative mechanisms to deliver information. New attempts to convey experiential, rather than conventional, learning may provide useful delivery channels; one example is entertainment media interventions that reach large audiences. Interventions that cover too many topics in classroom settings tend to achieve little. Studies agree that financial concepts are best taught at what are known as teachable moments.

Other interventions such as default enrollment and reminders could offer practical remedies to the incidence of financial mistakes. Insights from behavioral economics suggest that these instruments may help reduce behavioral problems such as overborrowing or undersaving. Even high-income countries such as the United States are starting to automatically enroll workers into pension plans.

NOTES

1. Another empirical challenge is that some studies may include both firms that do and that do not need long-term finance whereas measuring the effect of long-term finance on investment and firm performance is most relevant for firms that need long-term finance (but may or may not be able to obtain it).
2. These findings may be driven by subsidized credit to Chinese firms, consistent with other

studies showing that long-term credit is not necessarily associated with better firm performance when it is provided on nonmarket terms (Schiantarelli and Sembenelli 1997; Demirgüç-Kunt and Maksimovic 1998).

3. The ORBIS data used in this chapter include only 1 low-income country and 13 lower-middle-income countries, but 30 upper-middle-income countries and 43 high-income countries.
4. The Enterprise Survey data include 30 low-income countries, 43 lower-middle-income countries, 39 upper-middle-income countries, and 11 high-income countries.
5. Data on long-term finance through stock and bond markets are discussed in chapter 3. The percentage of firms accessing these markets tends to be small in most countries.
6. Broner, Lorenzoni, and Schmukler (2013) constructed a database of sovereign bond prices, returns, and issuances at different maturities for 11 emerging economies from 1990 to 2009 and showed that, on average, these countries paid a higher risk premium on long-term than on short-term bonds.
7. Larger firms may also hold more assets, which may make them more likely to obtain longer-term debt. However, Magri (2010) shows that the number of employees has a strong positive association with debt maturity even after controlling for tangible assets and assets maturity.
8. For example, Bradley and Roberts (2004) found that debt covenants to impose constraints on management's activities are commonly included in loans to U.S. firms and that loans are more likely to include protective covenants when the borrower is small.
9. Another explanation for this finding could be that higher tangibility also means that the firm has assets that are of longer maturity, and it is optimal to match assets of long maturity with liability of long maturity (Hart and Moore 1995).
10. Gourinchas and Parker (2002) estimate a structural life-cycle model with U.S. households to identify the main motives for households to save. Their results suggest that when household members reach 40 years of age, their savings begin switching from precautionary motives to retirement reasons.
11. This chapter focuses on the provision of private products. In countries where public provision is present, demand for private products tends to be lower, as also mentioned throughout the discussion of specific long-term financial instruments.
12. Fougère and Poulhes (2012) replicated this analysis using data on French households and found qualitatively similar results. Quantitatively, however, they found that the wealth effect of holding more home equity dominated the risk effect of owning a more expensive house, as opposed to the U.S. data where, on net, effects of both canceled each other.
13. The 10 countries were Australia, Canada, Germany, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States.
14. Global Findex data come from a World Bank survey conducted in 2011. The survey, which is representative at the national level, collected information on use of financial products as well as other sociodemographic characteristics of adults in 148 countries.
15. HOFINET (Housing Finance Information Network) is a nonprofit organization funded by the Wharton School of the University of Pennsylvania, the World Bank Group, and the Netherlands Development Finance Company (FMO), which consolidates regularly updated international housing finance information.
16. Warnock and Warnock (2008) also find a positive association between credit information systems and housing finance development, an association that is not statistically significant in the study by Badev and others (2014).
17. Conceptually, the development of a real estate market can also be important for the mortgage market, for example, through providing liquidity and facilitating market valuation.
18. Global Findex data also show that women are less likely to have a mortgage than men, but the difference is not as large as differences across income groups. In high-income countries, 20 percent of women have a mortgage on average, compared with 23 percent of men. The corresponding numbers in developing countries are 2.7 and 3.5 percent. The gender differences in the use of mortgages may in part be due to the fact that, in some countries, women face different legal rights for owning property than men do (World Bank 2013b).

CHAPTER 3: KEY MESSAGES

- Long-term finance for firms through issuances of equity, bonds, and syndicated loans has grown significantly since 1991. The aggregate amount raised through these instruments increased 5-fold in high-income countries and 15-fold in developing countries in real terms.
- The growth in long-term markets has been driven mainly by debt markets (syndicated loans and corporate bonds), which account for 80 percent of the total amount raised.
- Not all firms raise long-term finance through equity or bond markets. Only a few very large firms do so, and only the largest and oldest ones issue debt at the long end of the maturity spectrum. Because firms in developing countries tend to be much smaller, a smaller proportion of developing-country firms taps these markets.
- For the set of firms that do access debt markets, those located in developing countries do not issue at shorter maturities than the ones located in high-income ones. This is partially driven by differences between financial and nonfinancial firms and by the type of projects financed.
- International markets seem to play a key role in the provision of long-term finance for firms in developing countries. The larger share of their capital raised at the long end of the maturity spectrum takes place through international issues. Domestic debt markets remain highly underdeveloped in most of the countries.
- The global financial crisis of 2008–09 hit debt markets particularly hard. Because banks from high-income countries were at the center of the crisis, syndicated lending originating in those countries experienced the largest drop, and financial firms experienced a sustained fall in corporate bond issuances. Developing-country firms were especially affected by the crisis because foreign borrowing represented nearly 100 percent of their total debt raised through syndicated loans.
- After the crisis corporate bonds and domestic syndicated loans in developing countries expanded, but these increases remained concentrated in very few countries and, thus, did not typically compensate for the drop in long-term credit provided by international syndicated loan markets.
- To broaden access to long-term finance beyond the small group of large firms and to reduce the reliance of those with access to international markets on those markets, developing countries should further develop their domestic markets by addressing market failures and policy shortcomings. In particular, a stable macroeconomic environment, institutional stability, the development of a domestic financial system, and the development of government bond markets (that do not crowd out the private sector) seem to aid the development of domestic markets.

3

The Use of Markets for Long-Term Finance

The lack of developed markets for long-term finance has become an important and challenging issue in many developing economies. Since the global financial crisis of 2008–09, this issue has become even more prominent in policy discussions. Having access to long-term funds allows governments and firms to finance large investments as well as to reduce rollover risks and the potential for runs that could lead to costly crises. The literature is replete with evidence that short-termism explains several well-known financial crises in both developing and high-income economies (Eichengreen and Hausmann 1999; Rodrik and Velasco 2000; Tirole 2003; Borensztein and others 2005; Brunnermeier 2009; Jeanne 2009; Raddatz 2010). In this context, a number of policy proposals have been put on the table to help economies lengthen debt maturity; these include the introduction of explicit seniority or sovereign debt instruments linked to gross domestic product (GDP) (Borensztein and others 2005).

Although it is not optimal in all situations, short-term debt has its uses. Among other things, it allows creditors to monitor debtors and to cope with moral hazard, agency problems, risk, and inadequate regulations and institutions (Rajan 1992; Rey and Stiglitz 1993; Diamond and Rajan 2001). In particular, because debtors generally need to roll over their financing when the debt is short term, creditors are able to cut financing if debtors are not behaving as expected to guarantee the repayment of the financing obtained. As a consequence, shorter-term debt tends to be more prevalent in economies with less-friendly investor policies (Jeanne 2009). When the cost of long-term debt exceeds the cost of short-term debt, a shorter debt maturity might actually be chosen (Alfaro and Kanczuk 2009; Broner, Lorenzoni, and Schmukler 2013).

Thus, the issue of long-term debt can be better understood as a trade-off between creditors and debtors in the allocation of risk. Long-term debt shifts risk to the creditors because they have to bear the fluctuations in the probability of default and in other changing conditions in financial markets. Naturally, creditors require a premium as part of the compensation for the higher risk this type of debt implies, and the size of this premium depends on the degree of their risk appetite. In contrast, short-term debt shifts risk to debtors because it forces them to roll over debt continually. Because of this trade-off, long-term

debt is not necessarily optimal in all situations. Ideally, creditors and debtors will eventually decide how they share the risk involved in lending at different maturities.

In many economies, however, creditors and debtors do not have ready access to long-term financing. This scarcity of long-term debt instruments can signal underlying problems such as market failures and policy distortions. Lack of long-term financing also has adverse implications for economic growth and development. In particular, firms in these economies would be reluctant to finance long-term projects because of their exposure to the rollover risk associated with short-term financing (Diamond 1991, 1993).

To help understand how firms from different economies access short- and long-term financing, this chapter documents the use of key markets (equity, bonds, and syndicated loans) by firms from all over the world from 1991 to 2013. The chapter analyzes the growth of long-term financial markets, illustrates how many firms benefit from access to these markets, and shows how different these firms are from the ones that do not issue debt at all. The chapter also compares the maturity structure at issuance for high-income and developing economies, distinguishes between domestic and international markets, and illustrates the extent to which the global financial crisis of 2008–09 affected the main trends in these markets. The data used in this chapter come from Cortina, Didier, and Schmukler (2015), where all the series and sources are described in detail.

The evidence discussed in this chapter addresses several questions. In particular, which markets do firms use to obtain long-term funds? How have those markets evolved? Which firms access these markets? How many firms use long-term markets? What firm attributes are related to accessing these markets? Are longer-term issuers different from shorter-term and equity issuers? Are there differences between firms from high-income and developing economies? Are there differences in the provision of long-term finance by domestic and international markets? How did the recent financial crisis affect the main trends in each of these markets?

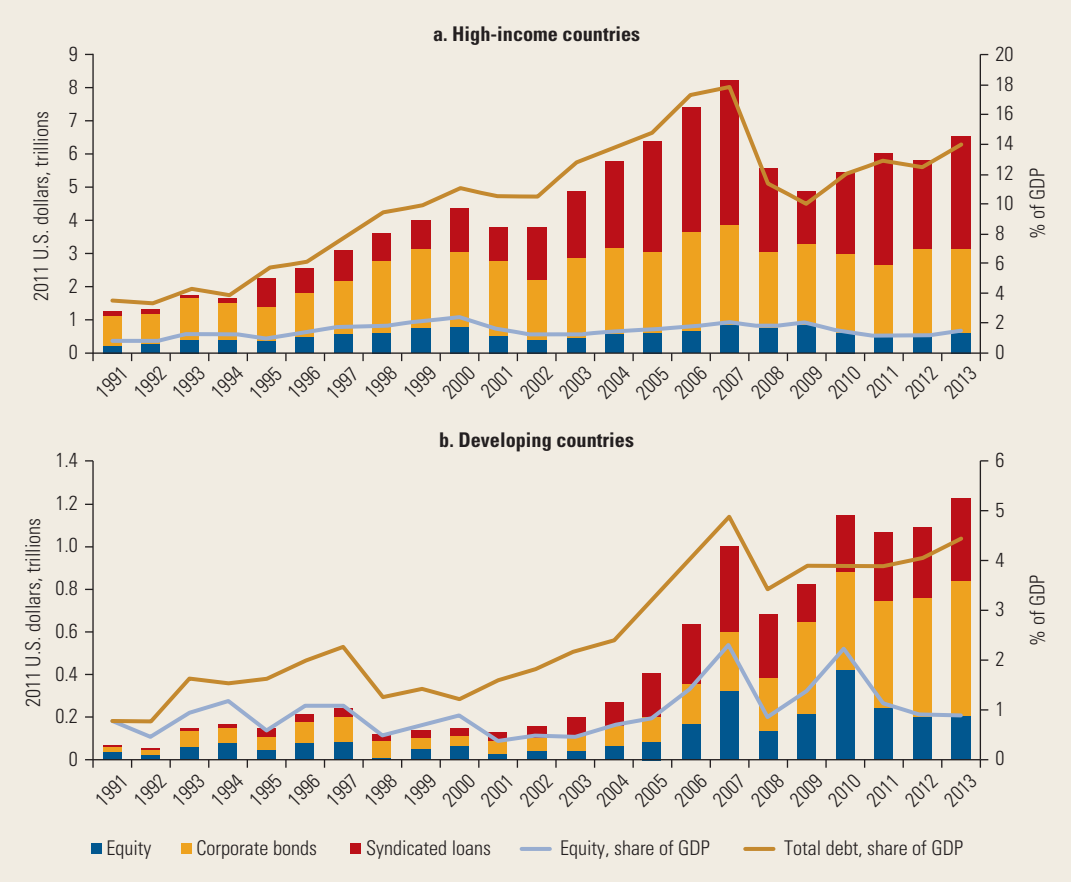
The chapter first describes the general trends that characterize equity, corporate bonds, and syndicated loans issuances. It provides stylized facts on the number and characteristics of firms using these markets and on where high-income and developing economies stand in terms of maturity at issuance. The chapter then introduces the distinction between domestic and international markets, analyzes how the global financial crisis of 2008–09 affected the main trends in domestic and international corporate bonds and syndicated loans markets, and concludes with a policy discussion.

FINANCIAL MARKETS AND LONG-TERM FINANCE

This section provides systematic evidence on how (financial and nonfinancial) firms used equity, bond, and syndicated loan markets during 1991–2013, distinguishing the different maturities of financing within debt markets.[1] It shows how broad the use of capital markets is and discusses the association between the use of capital markets and firm characteristics following de la Torre, Ize, and Schmukler (2012) and Didier, Levine, and Schmukler (2014). Most of the extensive literature on the importance of well-developed financial markets and their links to economic growth focuses on the size of these markets (Levine 2005; Beck, Demirgüç-Kunt, and Levine 2010).[2] The evidence presented here expands on that literature by examining the activity in primary markets and by differentiating between short- and long-term financing.

The total amount raised in equity, bond, and syndicated loan markets has grown rapidly during the past two decades. The total amount firms in high-income economies raised using these markets increased 5-fold between 1991 and 2013; firms in developing economies saw a 15-fold increase. Despite the substantial growth observed in developing economies, the gap between the two groups of economies persists. Although developing-

FIGURE 3.1 Total Amount Raised in Equity, Corporate Bond, and Syndicated Loan Markets, 1991–2013



Source: Cortina, Didier, and Schmukler 2015.

economy firms captured 16 percent of the total amount issued in 2013, compared with 6 percent in 1991, that total equaled about 5 percent of GDP. In high-income economies, the total raised in these markets in 2013 was equivalent to about 15 percent of GDP.

Most of the growth was in the primary corporate bond and syndicated loan markets rather than in the equity markets. The two debt markets accounted for about 86 percent of the total annual financing raised by firms in high-income economies and for about 72 percent of that financing for developing-economy firms.[3] The total amount raised annually through debt markets grew from around $1 trillion in 1991 to $6 trillion in 2013 in high-income economies (figure 3.1). In developing economies, the total amount rose from around $40 billion to $1.2 trillion.[4] In both economy groups, the use of equity rose more slowly. The rapid growth in the use of debt markets by developing economies did not begin in earnest until the early 2000s. As a consequence, the ratio of long-term debt over equity grew from 4 to 10 in high-income economies and from 1 to 5 in developing economies during 1991–2013.

Although debt is the primary source of external financing by firms, equity and debt markets could play complementary roles. In particular, some studies document that a developed and liquid stock market is key in creating and aggregating information about economic activity and firms' fundamentals.

According to this view, which dates back to Hayek (1945), stock prices aggregate information from many market participants—information that, in turn, might be useful for firm managers and other decision makers such as capital providers, consumers, competitors, and regulators. Recent empirical evidence supports the influence of stock price information on firms' investment and other corporate decisions (Bond, Edmans, and Goldstein 2012). Other studies highlight the complementarities between equity and debt markets. For example, Demirgüç-Kunt and Maksimovic (1996) show how large firms in economies with less-developed financial systems become more leveraged as the stock markets develop.

Within debt markets, some studies highlight the importance of syndicated loans as a source of firm financing. Recent studies estimate that syndicated loans account for roughly one-third of total outstanding loans, and their relative importance has increased over time (Huang 2010; Ivashina and Scharfstein 2010; Cerutti, Hale, and Minoiu 2014). Syndicated loans also tend to be larger and to have longer maturities than other types of loans (Cerutti, Hale, and Minoiu 2014). Moreover, because syndicated loans and corporate bonds are similar in deal size and maturity, they constitute two similar sources of financing from a firm's perspective (Altunbas, Kara, and Marques-Ibañez 2010). The development of regulated secondary markets and independently rated loan issuances for syndicated loans have contributed to the convergence of the two debt markets. Other benefits of syndication may also contribute to these trends. Allen (1990) and Altunbas and Gadanecz (2004) found that origination fees are lower for syndicated loan issuances than for bond issuances and that syndicated loans can be arranged more quickly and more discreetly. Furthermore, in developing economies, syndicated loans might be more available than corporate bonds for those firms that need large loans. Syndication is also attractive to lenders, according to Godlewski and Weill (2008). Banks can achieve a more diversified loan portfolio through syndication, decreasing the likelihood of bank failures and contributing to financial stability. Syndication also avoids excessive single-name exposure, which can be prohibited by banking regulation, but still preserve the commercial relationship with the borrower. Moreover, the lead bank (that is, the bank that oversees the arrangement of the syndicated loan) can obtain fee income, thus diversifying its income sources. Last but not least, syndication allows banks suffering from a lack of origination capabilities in certain types of transactions to fund loans. Later in the chapter, the trends in and patterns of syndicated loans are directly compared with those of corporate bonds.[5]

The importance of syndicated loan financing has increased over time. Corporate bonds were the main source of long-term finance during the 1990s, capturing around 65 percent of the total debt issued annually. In the early 2000s, syndicated loans began to expand at a faster pace and by 2004 had surpassed the use of corporate bonds, accounting for about 60 percent of total annual firm debt issued in high-income and developing economies during 2004–08.[6] The global financial crisis slowed the growth of this market (see figure 3.1).

Despite the rapid increase in equity and debt issuances, few firms use these markets and those that do tend to be large. On average, in the median high-income economy, there were only 19 issuing firms a year in equity markets, 22 in corporate bond markers, and 10 in syndicated loan markets. The numbers were smaller for the median developing economy: 8, 6, and 6, respectively (table 3.1a). None of these markets seem to have widened over the years for the typical country in either income group (figure 3.2).

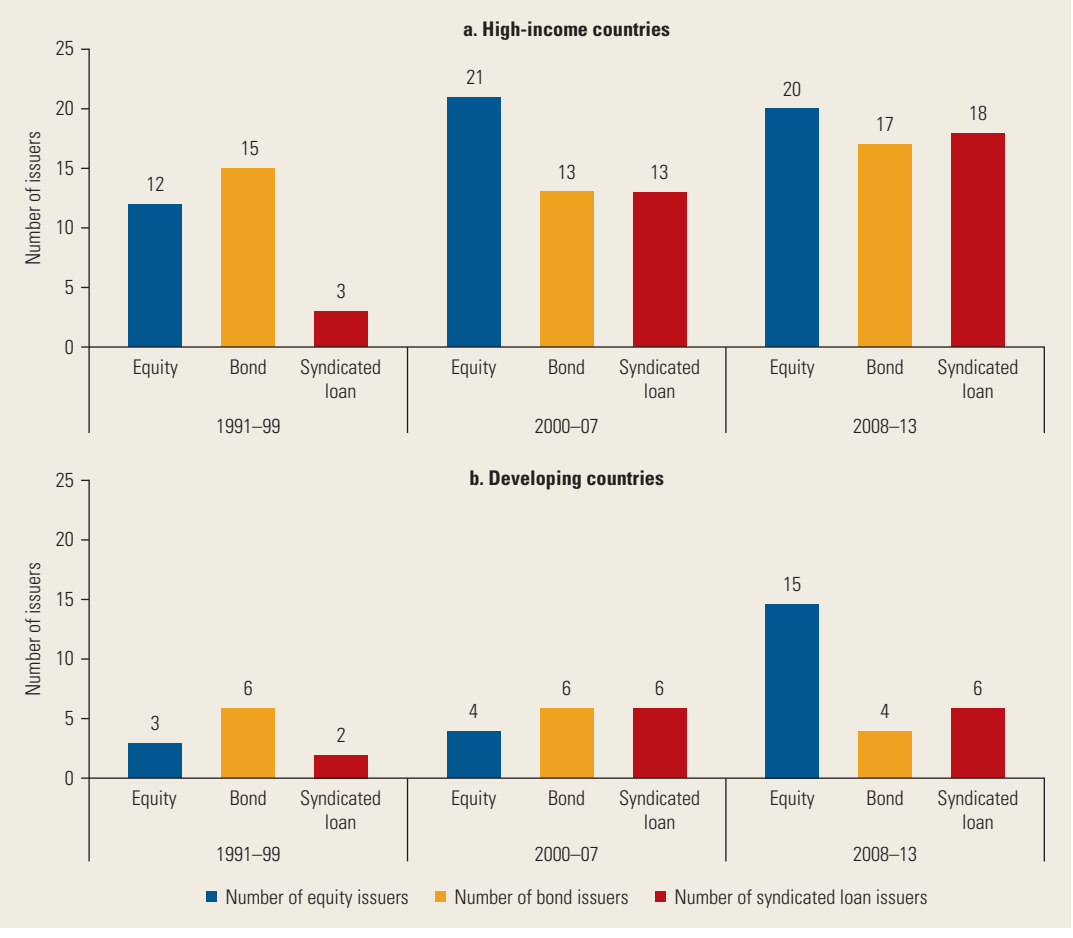
The limited number of firms using these markets is consistent with large size requirements for issues and high fixed costs associated with the issuance process. The median corporate bond issue is $89 million, the median syndicated loan $94 million, and the median equity issuance $15 million, respectively.[7] Issues tend to be for large amounts because small issues are not cost efficient. Fixed costs of issuance include disclosure (indirect costs), investment bank fees (the highest costs, typically), legal fees, taxes, rating agency fees, and marketing and publishing costs (Blackwell

TABLE 3.1 Average Annual Number of Issuing Firms, 1991–2013

Issuing region/country income group	Equity	Bonds	Syndicated loans
a. Median country			
High-income countries	19	22	10
Developing countries	8	6	6
b. Pooled data by country/region			
United States	1,277	1,220	1,916
China	217	127	62
India	319	83	70
Africa	32	8	18
Australia and New Zealand	650	103	102
High-income Asia	681	494	853
Eastern Europe and Central Asia	69	54	89
Developing Asia	247	122	84
Latin America and the Caribbean	110	270	69
Middle East	46	15	40
Western Europe	854	799	627

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the average annual number of firms active in equity, bond, and syndicated loan markets. The figures in panel a are calculated as the average across years and then the median across countries, reported by country income group. Panel b reports the average across years by region.

FIGURE 3.2 Average Number of Issuers per Year by Period



Source: Cortina, Didier, and Schmukler 2015.

and Kidwell 1988; Zervos 2004; Borensztein and others 2008). Because they restrict the ability of smaller firms to issue securities in capital markets, these costs have an impact on the supply side of the issuance activity.[8] Demand forces (such as the investor base) are also important because they drive the characteristics of the securities offered. In some economies, such as Chile and Mexico, institutional investors demand certain types of securities and thus determine the cohort of companies using capital markets. Small and medium enterprises (SMEs), which are particularly dependent on external finance, cannot benefit from the use of these markets and have to rely on banks (through bilateral loans) to finance investments.

The use of capital markets seems to be much wider for some economies and regions than for others. For instance, the average number of issuers per year in the United States is above 1,000 in each type of market (see table 3.1b). Some developing economies also stand out. Brazil in particular experienced a rapid development of capital markets thanks to well-established institutional investors and better governance (de la Torre, Ize, and Schmukler 2012).

Among listed firms (large, mature, and with access to capital markets), those few that recurrently issue equity and bonds are larger, faster growing, and more leveraged than nonissuers (see box 3.1 for the cases of China and India). These differences across firms are

BOX 3.1 Finance and Growth in China and India

China and India are hard to ignore. Over the past 20 years, they have risen as global economic powers at a very fast pace. By 2012 China had become the second-largest world economy (based on nominal gross domestic product [GDP]) and India the tenth. Together, China and India account for about 36 percent of the world's population.[a]

Their financial systems have also developed rapidly and have become much deeper according to several broad-based standard measures, although they still lag behind in many respects. For example, stock market capitalization in China increased from 4 percent of GDP in 1992 to 80 percent in 2010; in India it rose from 22 percent of GDP to 95 percent during the same period. By 2010, 2,063 firms were listed in China's stock markets; 4,987, in India's.

The financial systems of these two countries have not only expanded but have also transitioned from a mostly bank-based model. Equity and bond markets in China and India have expanded from an average of 11 percent and 57 percent, respectively, of the financial system in 1990–94 to an average of 53 percent and 65 percent in 2005–10 (Eichengreen and Luengnaruemitchai 2006; Chan, Fung, and Liu 2007; Neftci and Menager-Xu 2007; Shah, Thomas, and Gorham 2008; Patnaik and Shah 2011).

Importantly, this expansion was not associated with widespread use of capital markets by firms. For example, the number of Chinese firms using equity markets to raise capital increased from an average of 87 a year in 2000–04 to 105 in 2005–10, out of an average of 1,621 listed firms.

At the same time, firms that use equity or bond markets are very different and behave differently from those that do not do so. While nonissuing firms in both China and India grew at about the same rate as the overall economy, issuing firms grew twice as fast in 2004–11. Firms that raise capital through equity or bonds are typically larger than nonissuing firms initially and become even larger after raising capital. Firms grow faster the year before and the year in which they raise capital.

These findings suggest that even in fast-growing China and India, where firms have plenty of growth opportunities and receive large inflows of foreign capital, and where thousands of firms are listed in the stock market, only a few firms directly participate in capital market activity.

a. See Didier and Schmukler (2013) for a more detailed analysis.

TABLE 3.2 Firm Characteristics by Country Income Group, 2003–11

Characteristic	Nonissuers	Equity issuers	Shorter-term bond issuers	Longer-term bond issuers
a. High-income countries				
Total assets (millions, 2011 $)	123.4	246.2**	1,406.7***	6,739.8***
Sales (millions, 2011 $)	114.8	1,140.1**	295.2***	2,569.5***
Number of employees	225	344***	948***	5,521***
Asset growth (%)	3.6	8.5***	8.9**	6.7***
Sales growth (%)	4.2	8.8***	5.7**	5.5**
Employee growth (%)	0.7	4.9***	5.0***	3.2***
Leverage (%)	49.4	52.2***	57.3***	62.5***
Long-term debt/total liabilities (%)	16.7	21.0***	29.7***	39.1***
Return on assets (%)	3.1	2.7**	1.3***	3.9**
Firm age (in 2011)	23	17***	20**	32**
Number of firms	16,857	11,516	1,166	2,587
Share of total firms (%)	56.27	38.44	3.89	8.6
Number of observations for total assets	119,001	81,949	8,984	20,022
b. Developing countries				
Total assets (millions, 2011 $)	66.0	191.2***	866.7***	2,027.3***
Sales (millions, 2011 $)	49.6	111.8**	257.9***	744.1***
Number of employees	498	814**	3,750***	2,777***
Asset growth (%)	4.3	13.1***	12.3***	11.4***
Sales growth (%)	7.6	10.5***	13.9***	11.7***
Employee growth (%)	1.6	4.2**	4.3**	4.5**
Leverage (%)	47.3	51.2**	57.8***	59.1***
Long-term debt/total liabilities (%)	11.8	20.9***	30.7***	42.0***
Return on assets (%)	4.1	4.6**	5.0**	4.8**
Firm age (in 2011)	30	21***	25**	35**
Number of firms	10,328	4,682	558	688
Share of total firms (%)	66.3	30.1	3.6	4.4
Number of observations for total assets	69,650	31,579	4,262	5,150

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the attributes for the median firm. They are calculated as the median across countries of the median firm per country. The firm-level data are averages across time per firm. The table also reports the statistical significance of median tests for each group of issuing firms vs. nonissuers. Nonissuing firms are those that did not issue during this time period. Longer-term bond issuers are defined as firms that issue bonds with maturity beyond five years at least once over the period. Shorter-term bond issuers are the rest of bond issuers in the sample. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

statistically significant (table 3.2). There are also large differences across issuers: firms that issue bonds are larger, more leveraged, and older than firms that issue equity.[9] This result stands in contrast with the pecking-order view of corporate finance which suggests that more opaque firms have a greater tendency to tap bond markets before issuing equity (Myers and Majluf 1984; Fama and French 2002; Frank and Goyal 2003, 2008).

Although large firms have access to securities markets in both high-income and developing economies, there are fewer large firms in the developing world, and so a much smaller proportion of firms uses these markets.[10] The larger proportion of small and medium firms in developing economies also implies that a larger proportion of firms is unable to access external finance through the use of these markets (Tybout 2000; Gollin 2008; Poschke 2011).

Within the maturity spectrum, firms that raise capital at the long end are typically the largest, oldest, and most leveraged. For example, the median equity issuer in high-income economies has assets of about $246 million, the median shorter-term bond issuer (firms issuing bonds with maturity of five years or

TABLE 3.3 Average Maturity of Corporate Bonds, 1991–2013
Years

Issuing region/country income group	All firms	Nonfinancial firms	Financial firms
a. Median country			
High-income countries	6.7	8.6	5.9
Developing countries	7.2	8.2	6.7
b. Pooled data by country/region			
United States	7.8	10.8	5.6
China	7.3	5.9	9.1
India	7.5	8.3	7.2
Africa	7.7	7.9	7.5
Australia and New Zealand	6.1	9.6	5.2
High-income Asia	7.1	7.6	6.3
Eastern Europe and Central Asia	7.2	8.2	6.3
Developing Asia	8.1	8.6	7.6
Latin America and the Caribbean	8.4	9.1	7.3
Middle East	7.6	10.2	6.5
Western Europe	6.7	8.4	6.2

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the weighted average maturity (in years) of newly issued corporate bonds by high-income and developing countries. It distinguishes between nonfinancial and financial firms. Panel a pools all issuances for each country, calculates the weighted average maturity for each country, and then reports the results for the median country by country income group. Panel b pools all issuances for each country or region and then calculates and reports the weighted average maturity by country or region.

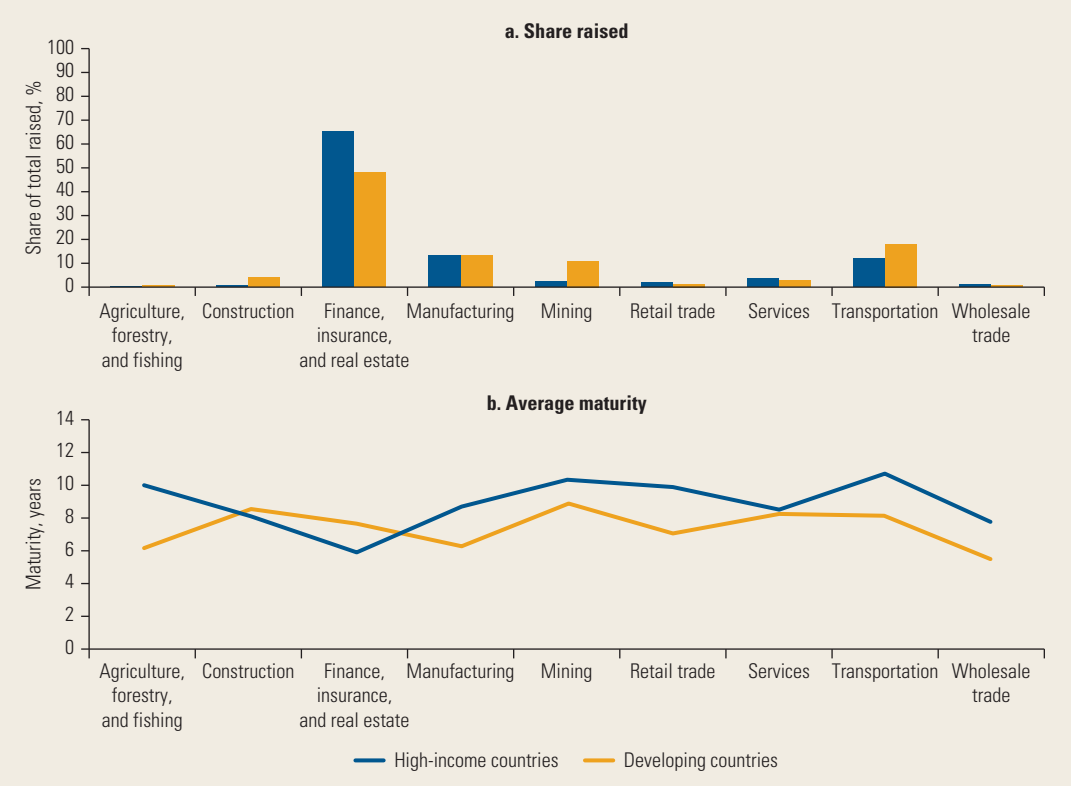
shorter) has assets of about $1.4 billion, while the median longer-term bond issuer (firms issuing bonds with maturity beyond five years) has assets of about $6.7 billion. In developing economies, those numbers are $191 million, $867 million, and $2 billion. These differences in size among different types of issuers are also apparent if the number of employees or sales is considered rather than total assets (see table 3.2). Moreover, longer-term bond issuers are around 12 years older than shorter-term issuers in high-income economies and 10 years older in developing economies. These findings regarding firm size and maturities are consistent with the theory that smaller firms are more likely than larger firms to face agency problems or asymmetric information between corporations and investors and thus issue in relatively shorter terms (Myers 1977; Barnea, Haugen, and Senbet 1980; Titman and Wessels 1988; Barclay and Smith 1995; Custódio, Ferreira, and Laureano 2013).

Conditional on access to debt markets, firms located in developing economies do not issue more short-term debt than firms in high-income economies. The average maturity of newly issued corporate bonds by developing economies is slightly higher than in high-income economies. For instance, the average maturity of corporate bonds is 6.7 years in the median high-income economy and 7.2 years in the median developing economy (table 3.3a).[11] This pattern is consistent across economies and regions (table 3.3b).

Among different sectors, financial firms typically issue shorter maturities than nonfinancial firms and capture a larger share of the total amount issued in bond markets by high-income economies compared with developing ones. In high-income economies, the finance sector captures 65 percent of the total amount raised and the average maturity is 5.9 years; in developing economies, the financial sector accounts for 49 percent of the total with an average maturity of 6.7 years (figure 3.3; table 3.3a). Within the nonfinancial sector, firms located in high-income economies issue bonds at slightly longer maturities (0.4 years longer on average) than those in developing economies.

In syndicated loan markets, the average maturity of loans is shorter for firms in high-income economies than for firms in developing economies. The average maturity is 5.8 years in the median high-income economy

FIGURE 3.3 Share and Maturity of Corporate Bonds Raised by Firm Sector and Country Income Group, 1991–2013



Source: Cortina, Didier, and Schmukler 2015.

TABLE 3.4 Average Maturity of Syndicated Loans, 1991–2013

Years

Issuing region/country income group	All firms	Nonfinancial firms	Financial firms
a. Median country			
High-income countries	5.8	6.1	4.7
Developing countries	6.6	7.6	4.0
b. Pooled data by country/region			
United States	4.2	4.5	3.2
China	9.6	10.5	7.6
India	9.4	10.0	4.8
Africa	6.7	7.4	4.1
Australia and New Zealand	4.6	4.8	4.1
High-income Asia	4.2	4.2	4.4
Eastern Europe and Central Asia	5.3	6.3	2.8
Developing Asia	6.7	7.4	4.3
Latin America and the Caribbean	6.0	6.3	4.1
Middle East	8.3	9.4	4.8
Western Europe	5.5	5.6	4.8

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the weighted average maturity (in years) of newly issued syndicated loans in high-income and developing countries. It distinguishes between nonfinancial and financial firms. Panel a pools all issuances per country, calculates the weighted average maturity per country, and then reports the results for the median country by country income group. Panel b pools all issuances per country or region and then calculates and reports the weighted average maturity by country or region.

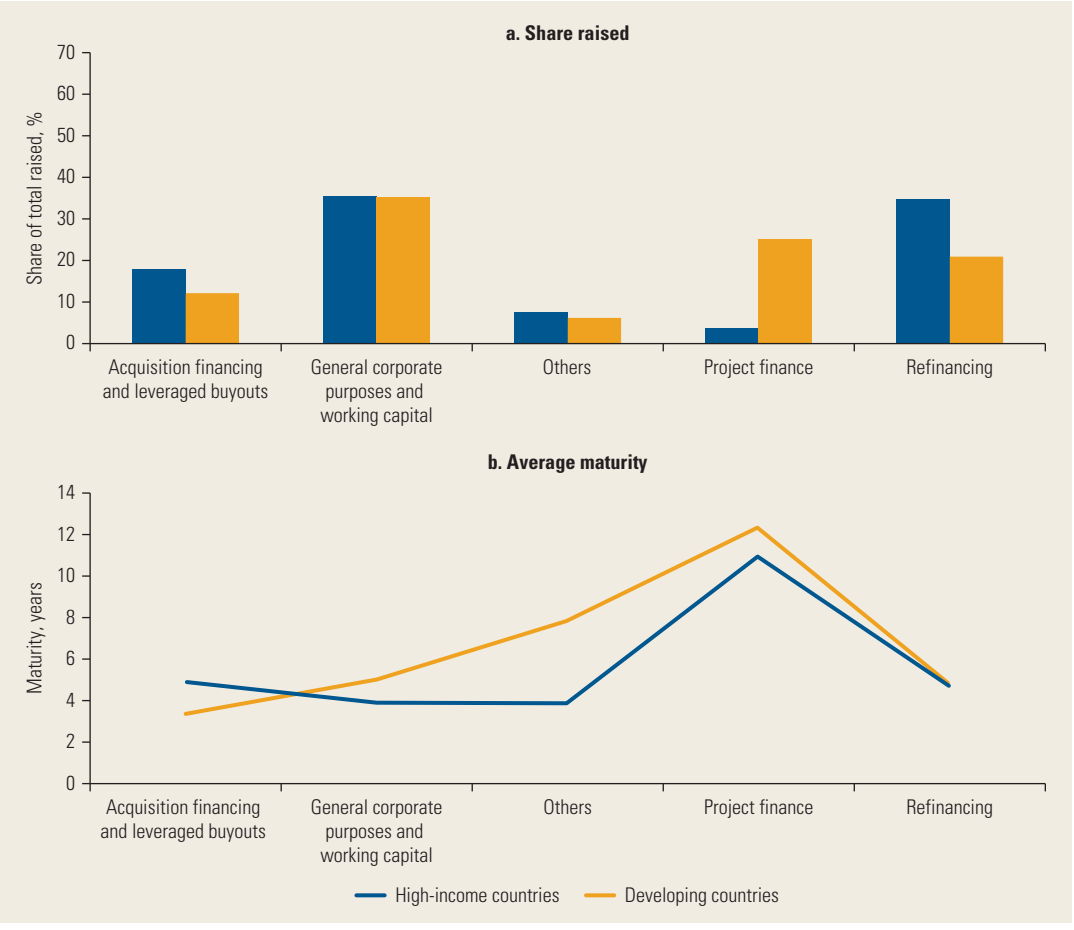
and 6.6 years in the median developing economy (table 3.4a). This pattern is consistent across economies and regions (table 3.4b). Furthermore, as in the case of corporate bond markets, syndicated loans to financial sector firms have shorter maturities on average. However, the share borrowed by financial firms is relatively small—about 15 percent of the total—and similar between the two economy income groups.

The more intensive use of syndicated loans for infrastructure projects in developing economies explains, in part, the relatively longer-term borrowing by firms in these economies. For instance, borrowing by the construction, mining, and transportation sectors is more intensive in developing economies (figure 3.4). Moreover, in developing economies "project finance," a category that consists primarily of infrastructure projects that require very long-term financing, accounts for about 25 percent of all syndicated loans and has an average maturity of about 12 years (figure 3.5).[12] In fact, most finance for infrastructure projects comes from syndicated loans (box 3.2). In high-income economies, general corporate purposes and refinancing each account for about 35 percent of syndicated loans and have maturities of 4 and 5 years, respectively.

FIGURE 3.4 Share and Maturity of Syndicated Loans Raised by Firm Sector and Country Income Group, 1991–2013

Source: Cortina, Didier, and Schmukler 2015.

FIGURE 3.5 Share and Average Maturity of Syndicated Loans Raised by Firm's Primary Use of Proceeds and Country Income Group, 1991–2013



Source: Cortina, Didier, and Schmukler 2015.

BOX 3.2 Infrastructure Finance and Public-Private Partnerships

In recent years, discussions have been increasing about the need to increase infrastructure finance. Public-private partnerships (PPPs), as a way to replace or complement the public provision of infrastructure, have become very common in recent years. Not only domestic institutions but also international ones, such as the International Finance Corporation (IFC), the Inter-American Investment Corporation (IIC), and the Development Bank of Latin America (CAF), have become interested in participating in these partnerships.

A PPP bundles investment and service provision of infrastructure into a single long-term contract through a so-called special purpose vehicle (SPV). A group of private investors, commonly known as the sponsors, finances and manages the construction of the project, then maintains and operates the facilities for a long period, usually 10 to 20 years, and

(box continued next page)

BOX 3.2 Infrastructure Finance and Public-Private Partnerships *(continued)*

at the end of the contract transfers the assets to the government. Until that turnover, the private partners receive a stream of payments to compensate for both the initial investment and operation and maintenance expenses. Depending on the project and type of infrastructure, these revenues are derived from user fees or from payments by the government's procuring authority.

The typical PPP infrastructure project involves a large initial up-front investment that is sunk and relatively smaller operations and maintenance costs paid over the lifetime of the project. Four economic characteristics of most PPP projects are important for understanding the choice of financial arrangements. First, PPP projects are usually large enough to require independent management, especially during construction, and frequently even in the operational phase. Often there are few, if any, synergies to be realized by building or operating two or more PPP projects together. For instance, the projects may be located far apart and far from the place where the service is consumed, and efficient scale is site specific. Project assets are thus illiquid and have little value if the project fails. Second, most of the production processes, both during construction and operation, are subcontracted. Hence, any scale and scope economies are internalized by specialized service providers (construction companies, maintenance contractors, or toll collectors). Third, bundling construction and operation is efficient. Bundling forces investors to internalize operation and maintenance costs and generates incentives to design the project to minimize life-cycle costs. Perhaps even more important, when builders are responsible for enforceable service standards, they have an incentive to consider such standards when designing the project.

The life cycle of PPP finance and the change in financing source are determined by the different incentive problems faced in the construction and operational phases. Construction is subject to substantial uncertainty, including major design changes, and costs depend crucially on the diligence of the sponsor and the building contractor. Thus there is ample scope for moral hazard in this stage. As is well known, banks perform a monitoring role that is well suited to mitigate moral hazard by exercising tight control over changes to the project's contract and the behavior of the SPV and its contractors. To control behavior, banks disburse funds only gradually as project stages are completed. And even when design changes are unforeseen, banks can quickly negotiate restructurings among each other.

After completion of the project, risk falls sharply and is limited only to events that may affect the cash flows from the operation. This phase should be suitable for bond finance because bond holders care only about events that significantly affect the security of the cash flows underpinning repayment and are not directly involved in management or in control of the project.

The popularity of PPPs has nurtured the view in financial markets that infrastructure is a new asset class with distinctive characteristics: high barriers to entry and economies of scale (many projects are natural monopolies), inelastic demand for infrastructure financing services and little fluctuation with the business cycle, high operating margins, and long durations. These economic characteristics seem to have an attractive financial counterpart: returns with low correlation with the country and the returns of other asset classes, long-term and stable cash flows that are often covered against inflation, and low default rates. In principle, these characteristics could be especially attractive to long-term investors like insurance companies, some types of pension funds, and wealth funds.

Most finance for infrastructure comes from syndicated bank loans. In the United States and other high-income countries, the ratio of bond finance to syndicated bank loans is 1:5 to 1:6. The ratio in emerging countries, excluding China, is 1:5. The paucity of bond issues to finance infrastructure projects remains a puzzle. A possible explanation could be that infrastructure projects are riskier and their probability of default is higher. However, whereas the default rate of investment-grade infrastructure bonds tends to be higher than the default rate of other nonfinancial corporate issuers during the first four years, defaults are less frequent from year four onward. Thus, over time infrastructure bonds tend to become safer than other types of bonds. And when default occurs, the recovery rate on infrastructure bonds is higher than the recovery rate on other corporate bonds.

(box continued next page)

BOX 3.2 Infrastructure Finance and Public-Private Partnerships *(continued)*

Ehlers, Packer, and Remolona (2014) argue instead that a lack of a pipeline of properly structured projects often reflects an inadequate legal and regulatory framework. Infrastructure investments entail complex legal and financial arrangements requiring significant expertise. Building up this expertise is costly, and investors will be willing to incur these fixed costs only if there is a sufficient and predictable pipeline of infrastructure investment opportunities. Otherwise, the costs can easily outweigh the potential benefits of investing in infrastructure over other asset classes such as corporate bonds. In other words, because the market for project bonds is small, intermediaries specialized in these securities might not yet have emerged. The authors also argue that the lack of coherent and trusted legal frameworks for infrastructure projects might hamper the development of infrastructure finance. Moreover, a project's economic viability is often dependent on government decisions such as pricing, environmental regulation, or transportation and energy policy, and even if solid legal frameworks exist, best practices or experience with large infrastructure projects can be lacking on the side of the government.

Source: Engel, Fischer, and Galetovic 2014.

DOMESTIC AND INTERNATIONAL DEBT MARKETS

The distinction between domestic and international markets is important. In an era of globalization and market integration, firms have access to both domestic and international markets. Furthermore, these markets could provide different funding options for firms, including different maturities, different amounts, and issues denominated in different currencies (Gozzi and others, forthcoming). This is especially the case for firms from developing economies because international markets, which tend to be located in the world's more developed financial centers, may offer these firms access to financing that is not available domestically. The rest of this chapter focuses on finer partitions of the results reported above using only data for nonfinancial corporations because these firms make up a more homogeneous set.[13]

Most of the proceeds raised annually in corporate bond markets by the median high-income and developing economy are raised abroad. The median developing economy raised slightly more (83 percent) than the median high-income economy (76 percent) in the international corporate bond market from 1991 to 2013 (table 3.5a).[14] Only in six developing economies (Bolivia, China, Malaysia, Pakistan, Thailand, and Vietnam) does the amount raised in domestic markets account for more than 70 of the total.[15]

Domestic bond issues in high-income economies have longer maturities than those in developing economies. In particular, the average maturity of domestic issues by the median high-income economy is 1.6 years longer than that of domestic issues by the median developing economy. The difference is almost 4 years when considering the pooled data (table 3.6a).

A positive relationship exists between domestic financial development and the average maturity of corporate bonds issued in domestic markets, and this relationship is consistent with the relatively shorter-term bonds issued within developing economies. This relationship is shown by plotting the average maturity of domestic corporate bond issuances for each economy in the sample against four different measures of financial market development: private bond market capitalization to GDP, private credit to GDP, stock market capitalization to GDP, and the total number of domestic market issuances (figure 3.6). The four panels in the figure all show a positive

TABLE 3.5 Amount Raised per Year in Corporate Bond Markets by Market Location, 1991–2013

Issuing region/country income group	Domestic market (millions of 2011 $)	International market (millions of 2011 $)	International market as a % of total
a. Median country			
High-income countries	490	1,558	76.1
Developing countries	72	361	83.3
b. Pooled data by country/region			
United States	309,484	78,264	20.2
China	29,373	2,393	7.5
India	3,555	1,786	33.4
Africa	160	1,146	87.8
Australia and New Zealand	2,731	10,077	78.7
High-income Asia	75,511	22,287	22.8
Eastern Europe and Central Asia	4,128	6,512	61.2
Developing Asia	8,350	3,768	31.1
Latin America and the Caribbean	17,296	19,297	52.7
Middle East	266	2,678	91.0
Western Europe	62,195	151,599	70.9

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the average total amount raised annually by firms through the use of domestic and international corporate bond markets. Panel a calculates the average across years by country and then reports the median across countries by country income group. Panel b reports the average across years by country or region.

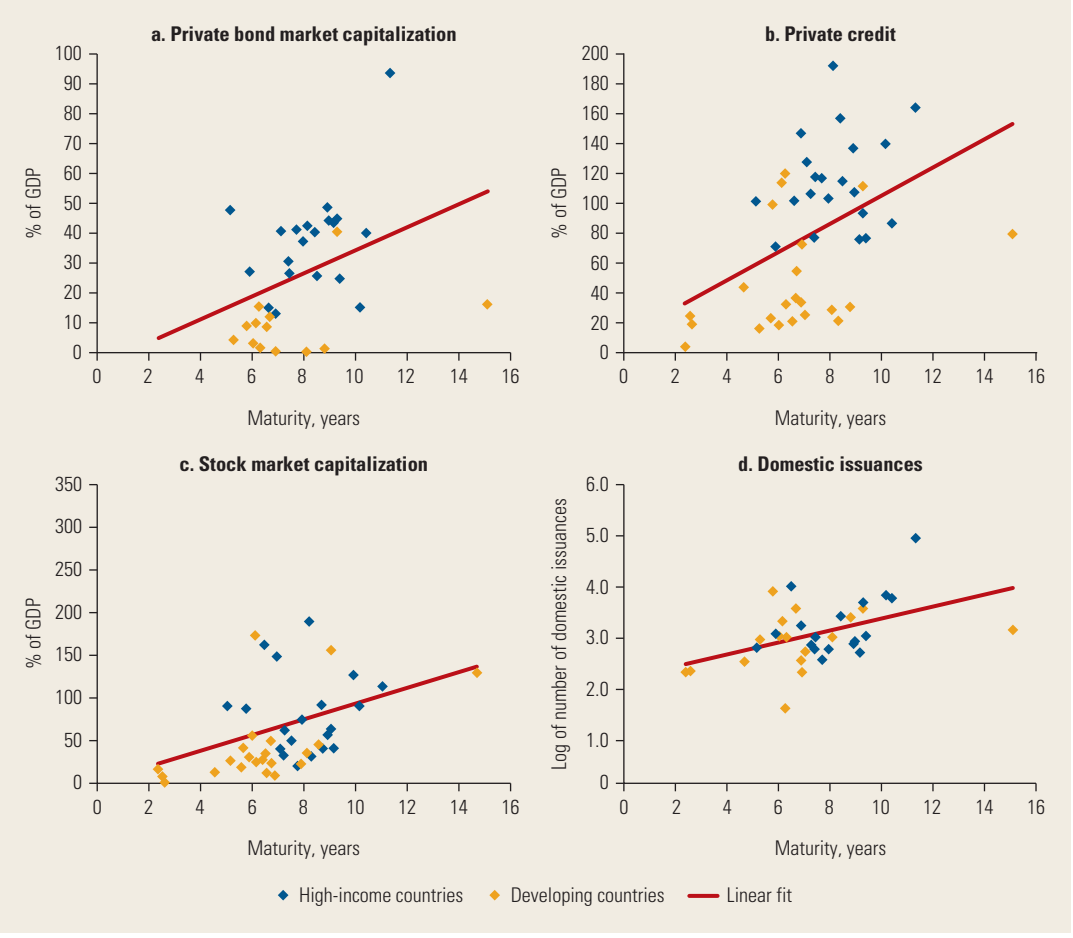
TABLE 3.6 Average Maturity of Domestic and International Corporate Bonds Issuances, 1991–2013
Years

Issuing region/country income group	Domestic market	International market
a. Median country		
High-income countries	8.0	8.6
Developing countries	6.4	10.0
b. Pooled data by country/region		
United States	11.3	8.9
China	5.8	6.9
India	8.8	7.2
Africa	6.3	8.1
Australia and New Zealand	10.0	9.6
High-income Asia	8.0	6.7
Eastern Europe and Central Asia	8.3	8.2
Developing Asia	7.6	10.9
Latin America and the Caribbean	7.5	10.6
Middle East	10.5	10.2
Western Europe	9.2	8.0

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the weighted average maturity (in years) of newly issued corporate bonds by high-income and developing countries. It distinguishes between issuances in domestic and those in international markets. Financial sector issuances are excluded. Panel a pools all issuances per country, calculates the weighted average maturity per country, and then reports the results for the median country by country income group. Panel b pools all issuances per group of countries and then calculates and reports the weighted average maturity by country or region.

correlation between financial development and the average maturity at issuance, which suggests that longer-term markets develop after shorter-term markets, which tend to prevail in economies with more economic uncertainty (Siegfried, Simeonova, and Vespro 2007). In their initial phases of development, securities issued in domestic markets would tend to be comparatively simple ("plain vanilla") and have short maturities. Once the

FIGURE 3.6 Average Maturity in Domestic Markets Compared with Continuous Measures of Domestic Financial Development by Country Income Group, 1991–2013



Source: Cortina, Didier, and Schmukler 2015.

domestic markets become larger and more liquid, securities with more complex structures and longer maturities could be issued (IMF 2013b). These results highlight the importance of domestic financial development, which seems to correlate with firms' access to longer-term financing in domestic markets.

Firms in developing economies tap international markets to issue bonds at the long end of the maturity spectrum. Specifically, domestic bonds issued by firms from the median developing economy have an average maturity of 6.4 years compared with 10 years for those issued abroad (see table 3.6a). Moreover, international issuances by developing-economy firms have longer maturities than domestic ones, independent of the currency denomination. That is, these results hold both for issuances denominated only in domestic currency and for those denominated only in foreign currency. These results also hold for firms that issue corporate bonds both domestically and abroad, suggesting that the differences in maturities are not completely driven by whether firms issue only in domestic or only in international markets.[16] These results suggest that firms from developing economies tap international markets to overcome incompleteness in the domestic markets.

International bond issues are larger than domestic ones, and firms issuing in international markets are larger than firms issuing

in domestic markets. The size distribution of bonds issued in international markets is to the right of the size distribution of domestic bonds, and the size distribution of international issuers is to the right of the size distribution of domestic issuers (Cortina, Didier, and Schmukler 2015). Moreover, the international issuances with the longest maturities are offered by the largest firms. The rightward shift of both international bond and international issuer distributions is more prominent for developing economies. These results are probably a consequence of the higher barriers associated with the use of international markets compared with domestic markets. To meet the liquidity and size requirements of international buyers, the minimum deal size is typically much larger than in domestic markets (Zervos 2004). Moreover, the international issuance of securities includes high legal costs to meet international regulations and international rating fees. In fact, the median corporate bond issuance in domestic markets is $47 million in high-income economies and $118 million in developing economies, whereas in international markets the median is $186 million and $206 million, respectively.

In other words, among the small set of firms accessing capital markets in developing economies, only the largest ones issue abroad, where they issue larger and longer-term bonds than they would at home. These results imply that relatively smaller firms in developing economies are constrained from issuing international bonds because of the high costs, and they therefore have little access to longer maturities. In contrast, in high-income economies, where firms are on average larger than they are in developing economies, firms have greater access to longer-term financing through the use of both their more liquid domestic markets and their international markets.

Similarly, in both the median high-income and the median developing economy, most of the financing raised through syndicated loans is originated abroad (table 3.7a). International lending accounts for between 73 percent and 93 percent of the total in the developing-economy regions (table 3.7b), suggesting that the largest volumes of syndicated lending are originated within a few (high-income) economies, mainly the United States and the economies of Western Europe. India is the only developing economy in which domestic markets capture more than 70 percent of the total syndicated loan market. In most developing economies in the sample, domestic syndicated loan activity is very small or nonexistent.

TABLE 3.7 Amount Raised per Year in Syndicated Loan Markets by Market Place, 1991–2013

Issuing region/country income group	Domestic market (millions of 2011 $)	International market (millions of 2011 $)	International market (% of total)
a. Median country			
High-income countries	593	5,292	89.9
Developing countries	62	1,283	95.4
b. Pooled data by country/region			
United States	543,326	252,902	31.8
China	7,200	4,385	37.8
India	14,837	4,609	23.7
Africa	1,331	5,593	80.8
Australia and New Zealand	14,356	21,889	60.4
High-income Asia	101,275	20,546	16.9
Eastern Europe and Central Asia	2,379	27,972	92.2
Developing Asia	4,048	11,133	73.3
Latin America and the Caribbean	1,600	22,118	93.3
Middle East	5,396	17,773	76.7
Western Europe	135,962	294,006	68.4

Source: Cortina, Didier, and Schmukler 2015.
Note: This table reports the average total annual amount raised by firms through the use of domestic and international syndicated loan markets. Panel a calculates the average across years per country and then reports the median across countries by country income groups. Panel b reports the average across years by country or region.

The reliance of developing-economy firms on international markets for longer-term financing makes these economies prone to external shocks. Close to 100 percent of the total amount of debt that developing-economy firms issue in international markets is denominated in foreign currency. Debt denominated in foreign currency can be risky if not properly hedged because the exchange rate depreciation in the event of capital flight could immediately and severely worsen balance sheets and could greatly increase debt repayment burdens (Goldstein and Turner 2004).[17] The development of local currency corporate bond markets has been a persistent challenge, even as developing-economy governments have seen success in issuing government bonds in the local currency at relatively long maturities (overcoming the "original sin") (box 3.3).[18] The slower pace of growth

BOX 3.3 Supporting Local Currency Market Development

Over the past two decades international organizations (IOs) have gradually increased their focus and efforts to support countries in developing their domestic debt markets to enhance stability of financing and to provide a foundation for broader financial sector development.

BUILDING A CONCEPTUAL FRAMEWORK FOR GOVERNMENT BOND MARKET DEVELOPMENT

Triggered by major global events such as the Asian financial crisis in 1997, local currency bond market development became an increasing priority for developing countries in the late 1990s and early 2000s to help develop local capital markets and reduce financial vulnerability. The broad international attention and increased demand from developing countries for support in building deeper and more effective bond markets caused IOs, such as the World Bank and the International Monetary Fund (IMF), to concentrate on and to scale up efforts to support policy makers in this area. The first initiatives focused on bringing together sound practices and on developing a consistent conceptual framework to guide policy makers in their efforts to build domestic government bond markets. As a result the World Bank, in partnership with the IMF, published in 2001 the handbook *Developing Government Debt Markets* to serve as a reference for policy makers. In complement to these guidelines—and to help countries move from a market assessment stage to reform implementation—the support from IOs moved into actual operational work. For example, a World Bank pilot program supported 12 countries in preparing diagnostic assessments and action plans for developing government bond markets. The lessons learned from this program were later combined in the book *Developing the Domestic Government Debt Market: From Diagnostic to Reform Implementation*.

MOVE FROM REFORM DESIGN TO IMPLEMENTATION

As more developing countries shifted from issuing hard currency external debt to issuing local currency domestic debt, the need for initiatives to increase depth and liquidity of these markets expanded, and IOs moved toward supporting countries in implementing market reform initiatives. As part of this effort, the World Bank launched the Global Emerging Markets Local Currency Bond (Gemloc) market initiative in 2007 to enhance the advisory services provided to countries developing government bond markets. Under this and other programs, the World Bank works with ministries of finance, central banks, and securities regulators to design solutions based on clients' needs and to actively support their implementation. The assistance includes targeted assistance to address specific issues, such as linking local market infrastructure to international settlement, as well as comprehensive assistance to address broader objectives, such as strategies and instruments to build reliable interest rate benchmarks. The World Bank program also provides a virtual forum for in-depth exchange of ideas and experiences among countries through Peer Group Dialogues, where policy makers share experiences and expertise on issues related to debt markets, and through South-South collaborations, which promote in-depth engagement by authorities from many countries and World Bank experts to tackle common reform priorities. Since its launch in 2009, the Peer Group Dialogue has engaged 25 countries in discussions on 14 different topics such as policy challenges

(box continued next page)

BOX 3.3 Supporting Local Currency Market Development *(continued)*

and impacts of global financial crises, primary dealer systems, and use of electronic trading platforms.

DEVELOPING DOMESTIC GOVERNMENT BOND MARKETS—A FEW EXAMPLES

Over the past five years, the World Bank has supported more than 25 countries across six regions in developing their domestic government bond markets. The solutions and advice provided to these countries span from enhancing core elements of market functioning to innovative solutions targeting specific bottlenecks in the market.

In Morocco, the World Bank supported implementation of a comprehensive program to build reliable interest rate benchmarks and to promote increased market liquidity. As part of this effort, a primary market issuance program was constructed to support the benchmark building program, the primary dealer agreement was revised to better enforce price quoting obligations, and an electronic trading platform was established to improve price transparency and to appraise primary dealer activity.

To support diversification of the investor base and to provide access to formal savings instruments for the retail segment in Kenya, an innovative program was launched to design and implement a new distribution channel for government securities via mobile phones. The Treasury Mobile Direct program aims at broadening the access of retail investors to the government securities market by simplifying procedures and by providing low-cost distribution of government securities through mobile phone technology.

An innovative fixed-income exchange traded fund (ETF) model supported by the issuer—to address market liquidity constraints of traditional ETFs and to help broaden the investor base—is being piloted in Brazil, where the World Bank supports the design and launch of the new model. The issuer-driven ETF is a new financial product developed to improve the economic viability of ETFs in developing countries.

JOINT EFFORTS TO PROMOTE LOCAL CORPORATE BOND MARKETS

Since 2008, the World Bank Group and other IOs have supported the Group of 20 in work related to the development of local currency bond markets.[a] As part of this work, a joint action plan was adopted by a broad group of IOs in November 2011 to coordinate and consolidate efforts to promote local corporate bond markets in developing countries. In 2013, a common local corporate bond market diagnostic framework was published to help policy makers and providers of technical assistance assess the state of development and efficiency of these markets and to design strategies for their development. The collaboration between IOs also involves coordination of the technical assistance provided to developing countries for local corporate bond market development, which is supported by a shared project database and by annual meetings between the IOs.

Sources: IMF and World Bank 2001; World Bank 2007; IMF 2013b; www.worldbank.org/capitalmarkets; www.gemloc.org.

a. The organizations involved in the IO working group include the World Bank Group (WBG), International Monetary Fund (IMF), Asian Development Bank (ADB), African Development Bank (AfDB), Inter-American Development Bank (IDB), European Bank for Reconstruction and Development (EBRD), Organisation for Economic Co-operation and Development (OECD), and the Bank for International Settlements (BIS), with active support from the Deutsche Bundesbank.

in corporate bond markets in these economies suggests that private credit markets are more complex to develop than public credit markets and require stronger institutional and regulatory frameworks.

Several studies highlight the benefits and rationale for developing local corporate bond markets. A well-established corporate bond market would improve the availability of long-term financing, facilitate capital inflows, mitigate the impact of external crises or reversals of capital flows, provide a stable source of financing to domestic firms, and, complementarily, constitute a source of investment to channel broad savings bases (Gyntelberg 2007; Laeven 2014; Levinger and Li 2014).[19] Importantly for developing economies, the development of domestic markets would help diversify their financial systems, which, as shown, now typically rely on international markets.

Moreover, having a well-developed corporate bond market allows firms to access alternative sources of long-term funds other than bank finance. That in turn would not only directly lower the cost of capital for these firms but would also increase competitive pressures on the banking system, improving the efficiency of capital allocation in the economy.

The development of domestic bond markets requires macroeconomic and institutional soundness, a well-functioning financial infrastructure, and liquid government bond markets. Burger and Warnock (2006) showed that countries with better historical inflation performance, better institutions, and enforceable creditor rights also have more-developed local corporate bond markets. This research also found that the necessary conditions for corporate bond market development are very similar to those that foster the development of related markets, such as government bond markets. Guscina and Jeanne (2006) found a positive association between the share of domestic government debt, monetary stability, and domestic financial development, suggesting that a large banking sector helps the government to sell its debt domestically. Consistent with these results, Claessens, Klingebiel, and Schmukler (2007) documented that economies with deeper financial systems (larger investor bases) have larger domestic government bond markets. A well-developed government bond market can be considered a cornerstone for domestic corporate bond market development because it acts as a benchmark against which to price bonds and to create the necessary infrastructure for trading (box 3.4).

The services provided by international markets are also important for financial development because they can complement developed domestic debt markets by offering corporations access to a global, well-diversified pool of investors. Foreign markets also could act as a substitute market and could drive liquidity away from less-developed domestic markets, thus hindering their development. Gozzi and others (forthcoming) showed that such substitution is unlikely because firms that are able to issue debt both abroad and at home tap international and domestic markets with different types of bonds, suggesting that international markets act for these very large corporations as complements, not substitutes of domestic markets.

BOX 3.4 Building Blocks for Domestic Corporate Bond Market Development

While a number of developing countries such as Chile and Malaysia have successfully developed deep primary corporate bond markets, achieving the balanced conditions in which a corporate bond market can thrive has been challenging in many other developing countries, where a few buy-and-hold investors often predominate and where there is a lack of market liquidity (Garcia-Kilroy and Caputo Silva 2011).

An active bond market with adequate scale requires sound corporate governance, a robust legal framework, a diversified investor base, and an efficient infrastructure (Laeven 2014). In particular, given the relatively illiquid nature of corporate bonds, the focal efforts to develop the corporate bond market should be placed on enhancing the efficiency of the primary market while ensuring adequate arrangements to provide exit mechanisms in the secondary market.

Regarding the primary market framework, the starting point is to define the financing needs of potential domestic bond issuers. In particular, an assessment of the market should consider the size and type of issuers, as well as possible structural constraints. For example, in some countries the need for capital market financing to the corporate sector is limited because of well-established and effective banking relations with large corporate borrowers. In such countries, stimulating growth of the corporate bond market may be more challenging and may take longer. Moreover, facilitating access to the corporate bond market requires a regulatory framework that is not unduly onerous in its disclosure requirements, approval procedures, duration, and costs.

The sound development of domestic corporate markets also requires the good performance of

(box continued next page)

BOX 3.4 Building Blocks for Domestic Corporate Bond Market Development *(continued)*

related markets (IMF 2013b):

First, well-functioning money markets are a precondition for the development of well-functioning longer-term debt markets because they anchor the short-end pricing of debt instruments. Money markets provide investors with instruments to manage risks and maturities and are also important for secondary market liquidity. In this sense, an effectively functioning money market provides key market pricing at the short end of the yield curve, influencing the rate of longer-term corporate bonds.

Second, government debt markets are the cornerstone of domestic corporate bond markets. Sound sovereign debt management with regular issues of benchmark bonds at different maturities is central to building a yield curve, which is necessary to price corporate bonds efficiently (especially in the longer term). Additionally, the financing needs of the central government determine the scope for corporate bonds, especially in relatively small markets where the government and private entities typically compete for limited long-term funding.

As some studies report, however, it is important to also take into account the possibility of crowding-out effects between government and corporate bond markets through competition for investors' funds (Friedman 1986). For example, Graham, Leary, and Roberts (forthcoming) documented a negative association between government borrowing and corporate debt issuance, which is consistent with a crowding-out effect on the demand curve for corporate debt.

Third, the banking system also plays an important role as a supplier, underwriter, and buyer of corporate bonds (for itself or for its clients). This role will evolve as countries develop, the financial system deepens, and the domestic investor base becomes diversified. At the same time, the banking system provides financial services to households that cannot access securities markets and, as a result, helps enhance market liquidity and lengthens the maturity of financial securities because the banking system can hold securities on behalf of those households.

GLOBAL FINANCIAL CRISIS: EVIDENCE ON BONDS AND SYNDICATED LOANS

The global financial crisis of 2008–09 temporarily halted the fast expansion in debt issuance activity in both high-income and developing economies.[20] The total amounts of corporate bonds and syndicated loans issued by nonfinancial firms grew at an average annual rate of about 10 percent in high-income economies and 23 percent in developing economies during 2000–07. In 2008 total debt issued decreased by 40 percent and 33 percent, respectively.

Corporate bond issues began to grow again in 2009, but the collapse in syndicated loan financing was larger and longer lasting. Corporate bond markets quickly rebounded in 2009 and continued increasing during the postcrisis period, especially in developing economies. In contrast, syndicated loan financing by high-income (developing) economies declined 63 percent (56 percent) between 2007 and 2009. Although the volumes of syndicated loans have since begun to grow, the totals in 2013 were still below those observed in 2007. The faster expansion of syndicated loans during the precrisis period, together with the larger drop during the postcrisis period, shows how syndicated bank lending is a more volatile and procyclical source of finance than corporate bond financing.

As a consequence, corporate bonds have become more important in relative terms since the crisis, especially in developing economies. In 2007, corporate bonds captured around 19 percent and 29 percent of the total long-term debt issued by high-income and developing economies, respectively; in 2009 these shares were about 49 percent and 64 percent. In some regions a rapid expansion of corporate bond issuance completely compensated (in volume) for the fall of syndicated loans. In Latin America and the Caribbean, for example, the total amount raised through corporate bonds

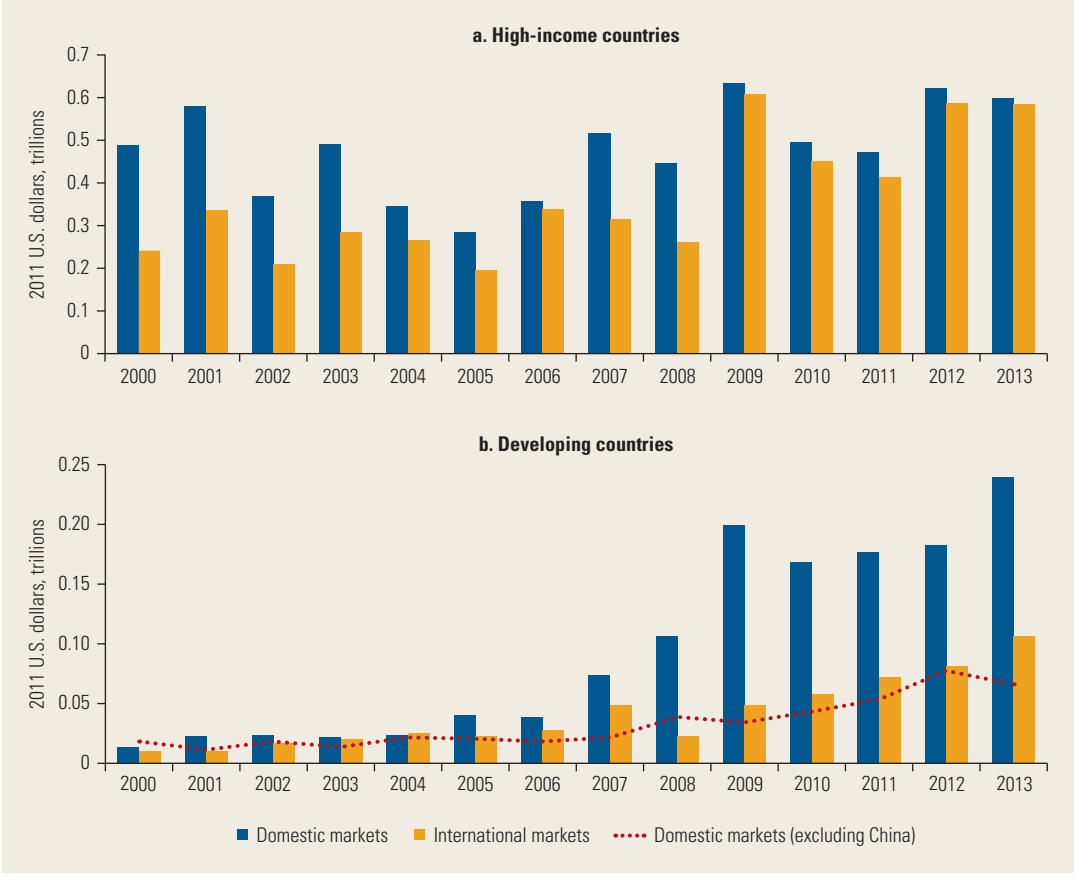
increased 170 percent from 2008 to 2013, whereas syndicated lending declined 42 percent. The acceleration in the corporate bond issuance was partially prompted by global investors searching for higher yields in an overall low interest rate environment driven by low government yields. The shift away from bank financing to bond financing has affected some sectors more than others. The infrastructure sector was hard hit because syndicated loan financing plays a very important role at the early stages of the projects. Moreover, although the data were silent on substitution between markets, it is possible that some of the increase in bond issue could be attributable to the refinancing of bank loans or to using corporate bonds to fund operations previously funded by syndicated loans.

During the crisis, the average maturity of newly issued corporate bonds declined in both economy groupings, while the average maturity of newly issued syndicated loans declined only in high-income economies. More specifically, between 2007 and 2009, the average maturity of corporate bonds declined by almost 3 years in high-income economies and by more than 2 years in developing economies.[21] The average maturity of syndicated loans conceded to high-income economy firms decreased by 1.6 years during the same period, while in developing economies it actually increased by more than 2 years (figure 3.7). This increase

FIGURE 3.7 Average Maturity of Corporate Bond and Syndicated Loan Issuances, 2000–13

Source: Cortina, Didier, and Schmukler 2015.

FIGURE 3.8 Total Amount Raised in Domestic and International Corporate Bond Markets by Nonfinancial Firms, 2000–13



Source: Cortina, Didier, and Schmukler 2015.

was driven by a decline in shorter-term loans, however, rather than by an increase in longer-term financing (longer-term loans also collapsed during the crisis).

A closer look at corporate bond activity during and after the crisis shows that international bond issues rapidly rebounded after the crisis, particularly in developing regions (figure 3.8). For example, the international issuance of bonds in Latin America and the Caribbean increased almost 8-fold between 2008 and 2009 and has remained high since then. The issuance in international markets of some specialized local securities such as Islamic bonds (*sukuk)* has also been on the rise (box 3.5). Because bonds issued in international markets are almost exclusively denominated in foreign currency, some studies have warned about the increasing exposure of developing economies to currency mismatches and to potential changes in international investor sentiment (Chui, Fender, and Sushko 2014; *The Economist* 2014a, 2014c; IDB 2014; Turner 2014).

The volume of domestic corporate bonds issued by developing economies during and after the crisis also accelerated. That expansion was heavily concentrated in a few countries, however. Overall, firms in developing economies more than doubled the domestic issuance of corporate bonds during 2008–13 (see figure 3.8).[22] Chinese firms accounted for 58 percent of that total, followed by Brazil (12 percent), the Russian Federation (8 percent), and India (6 percent).[23] These four economies plus six others captured 99 percent of the total amount raised domestically

BOX 3.5 *Sukuk:* An Alternative Financing Source

The recent growth of Islamic finance, based on the principles of risk sharing and participatory finance, offers potential alternatives for long-term financing. The total size of financial assets under management in this growing industry was estimated to exceed $2 trillion by the end of 2014. For instance, the African region is embracing large-scale Islamic finance to finance large infrastructure programs. Although the banking sector dominates the market, asset-based capital market instruments are a growing source of financing for both Muslim and non-Muslim countries in domestic and international markets.

A *sukuk* is an asset-backed security representing a right of ownership for the holders to the underlying assets and the income they generate. In particular, a sukuk is commonly used as the Islamic equivalent of bonds. In contrast to conventional bonds, however, which merely confer ownership of a debt, sukuk grants the investor a share of an asset, as well as the associated cash flows and risk. Therefore, sukuk securities adhere to Islamic laws that prohibit the charging or payment of interest. The total outstanding amount of sukuk stood close to $300 billion by the end of 2014.

Because of the asset-based nature of the security, sukuk are attractive to a diverse group of borrowers and investors in both Muslim and non-Muslim countries. The utilization of sukuk as a financing vehicle by several leading high-income economies including Hong Kong SAR, China; Luxembourg; South Africa; and the United Kingdom during 2014 is testimony to the wider acceptance of the instrument and emergence of a new asset class. Strong demand for securities with high-quality credit ratings that conform to principles of Islamic finance is evident by the fact that the U.K. issuance was oversubscribed by approximately 12 times. Tapping into this emerging instrument, the World Bank successfully raised $500 million through sukuk issuance in 2014 to help with the funding of an immunization program in Africa. The Islamic Development Bank (IsDB) has been the leading multilateral institution mobilizing financing for development through sukuk. IsDB's latest public offering of sukuk in 2014 raised $1.5 billion for development in its member countries. Malaysia has been the leader in issuing domestic sukuk and represents the largest share of the global market.

Moreover, sukuk has been used successfully for the financing of long-term infrastructure projects. Sadara Company, a joint venture between Saudi Aramco and the Dow Chemical Company, originated a $2-billion sukuk with a maturity of 16 years to finance the construction of a petrochemical plant (planned to cost around $12.5 billion). Tenaga Nasional Berhad from Malaysia issued a $1.09 billion sukuk with a maturity of 27 years to finance construction of a 1,000 megawatt ultra-supercritical coal-fired power plant.

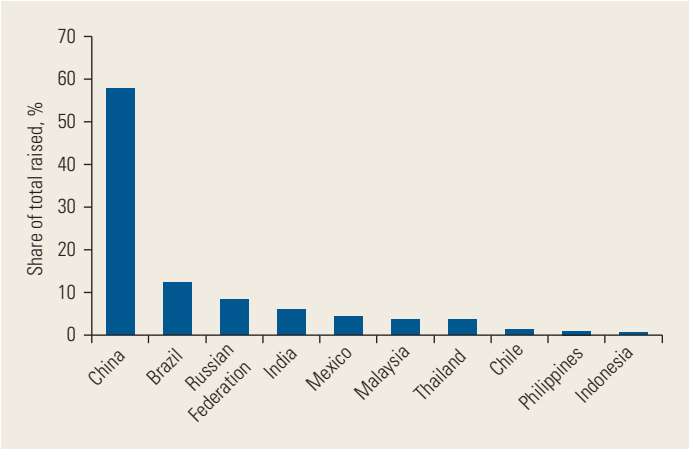
Although still in its infancy, with its asset-based structure and risk-sharing aspects, sukuk bonds seem to have significant potential to be used in infrastructure and financing for small and medium-size firms not just for the Middle East and North Africa region (estimated to need $75 billion–$100 billion infrastructure investments annually over the next 10–15 years), but also for both high-income and developing markets around the globe.

Sources: Bank Negara Malaysia 2014; IIFM 2014; Standard & Poor's 2014; http://www.zawya.com/islamic-finance.

within developing economies during the period (figure 3.9). Although the experience of these 10 countries indicates how these domestic bond markets can play a "spare tire" role (Chan and others 2012), local bond markets did not develop at all for most developing economies. Domestic bond markets remained completely untapped for 14 of the 33 developing economies in the sample. (For a large share of developing economies, government bond markets also expanded during and after the crisis; see box 3.6. As noted, these markets constitute a cornerstone of domestic debt markets and are central to building a yield curve that will allow private bonds to be priced at long maturities.)

The largest decline in corporate bond activity occurred in the financial sector of high-

FIGURE 3.9 Share Raised by the 10 Most Active Developing Countries in Domestic Corporate Bond Markets, 2008–13



Source: Cortina, Didier, and Schmukler 2015.

income economies, which experienced a sharp and sustained fall in issuance volumes after 2007 (financial firms were studied separately from nonfinancial firms). The total amount financial firms raised through corporate bonds in 2013 was about 58 percent the amount raised in 2007 (figure 3.10). In contrast, financial companies in developing economies have quickly recovered the upward trend in corporate bonds activity since 2009. In 2013 the total amount raised doubled that of 2007.

In syndicated loan markets, both domestic and international lending collapsed for high-income economies, while only international lending collapsed for developing economies. The aggregate amount raised by high-income economies in both domestic and international markets decreased 60 percent between 2007

BOX 3.6 Macroeconomic Factors and Government Bond Markets in Developing Countries

The experience of developing countries in the 2000s shows that improvements in macroeconomic fundamentals created a momentum to build local bond markets and helped them weather the global financial crisis.

In the years preceding the crisis, developing countries achieved significant improvement in their macroeconomic environments.

Governments' primary balances, as a percentage of GDP, were overwhelmingly positive or were becoming positive during this period, and overall budget balances, as a percent of GDP, were improving steadily across all regions.

Greater price stability and positive expectations in developing countries were favorable ingredients boosting confidence in longer-term bonds, including government bonds. In many countries, especially those that had been historically plagued by volatile and high inflation levels, this scenario paved the way for interest rate cuts, the development of local currency yield curves, and the lengthening of the average time to maturity of the domestic government debt.

Buoyant growth, together with sounder fiscal policy, contributed to a downward trend in ratios of debt to GDP. Fiscal indicators, interest rates, and GDP growth represent the key determinants in the dynamics of these ratios. Most developing countries enjoyed a long period where this positive combination was in place.

Improvements in developing countries' external accounts provided solid foundations to reduce vulnerability to shocks and to reversals in capital flows. While external accounts improvements were driven by cyclical factors that led to extremely high international liquidity conditions, proactive policies to reduce debt vulnerabilities (buybacks of external debt and a shift to funding in local markets) were highly instrumental in the rapid pace of change witnessed in external debt vulnerability indicators.

On the back of healthier macroeconomic fundamentals, developing countries were able to transform their government debt portfolios and to grow domestic bond markets. The average ratio of external to domestic debt for selected developing countries dropped steadily from 0.75 in 2000 to 0.22 in 2009. Currency composition of the government debt portfolio moved drastically in favor of local currency, reducing the exposure to changes in exchange rates.

(box continued next page)

BOX 3.6 Macroeconomic Factors and Government Bond Markets in Developing Countries *(continued)*

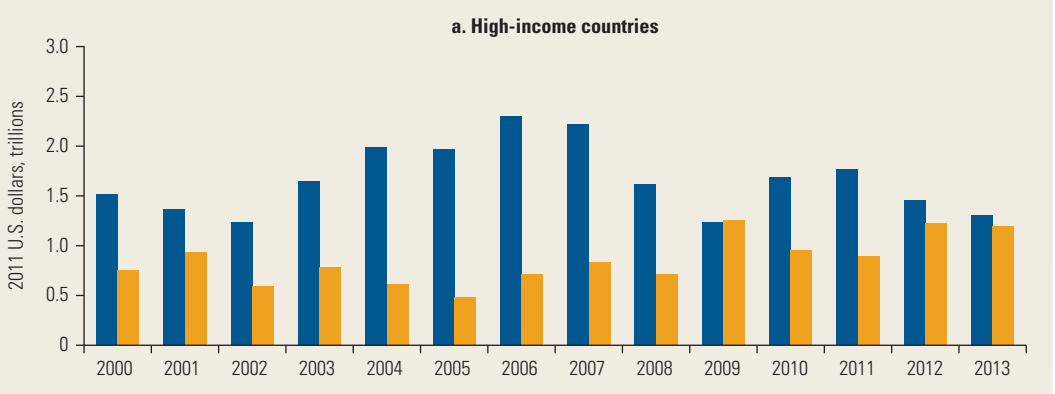
The structure of the domestic debt experienced a significant transformation as debt managers were able to reduce risk exposures through the issue of long-term fixed-rate instruments. The ratio of floating and short-term to fixed-rate debt contracted from 2.0 in 2000 to 0.7 in 2009.

The extension of the average life of debt was supported by increased credibility of monetary policy and diversification of the investor base. More stable and sounder macroeconomic policies, together with reforms in the pension and insurance industries, changed the investor base that previously comprised almost exclusively commercial banks. Holdings of domestic institutional investors (pension and insurance) grew steadily. Foreign investors showed appetite for local currency, long-term fixed-rate instruments in countries like Mexico and Brazil.

Although developing countries were initially hit by the global crisis as much as developed countries, the progress achieved during the precrisis period made developing countries more resilient to the global crisis, allowing them to experience a faster rebound (Didier, Hevia, and Schmukler 2012). That is, sound macroeconomic policies seem to have been critical in creating a buffer and in positioning developing countries for quicker recovery from the crisis. Developing countries arrived at the global financial crisis with government debt portfolios that were more resilient to shifts in the economic cycle and market sentiment. The increase in the share of domestic debt reduced the exposure to exchange rate shocks and the vulnerability to sudden stops in capital flows. The lengthening of maturities in local currency fixed-rate instruments reduced rollover and interest-rate risk in the time of crisis. During the crisis, debt managers had room to maneuver and were able to adapt quickly, absorbing some risk from the market.

Source: Anderson, Caputo Silva, and Velandia-Rubiano 2010.

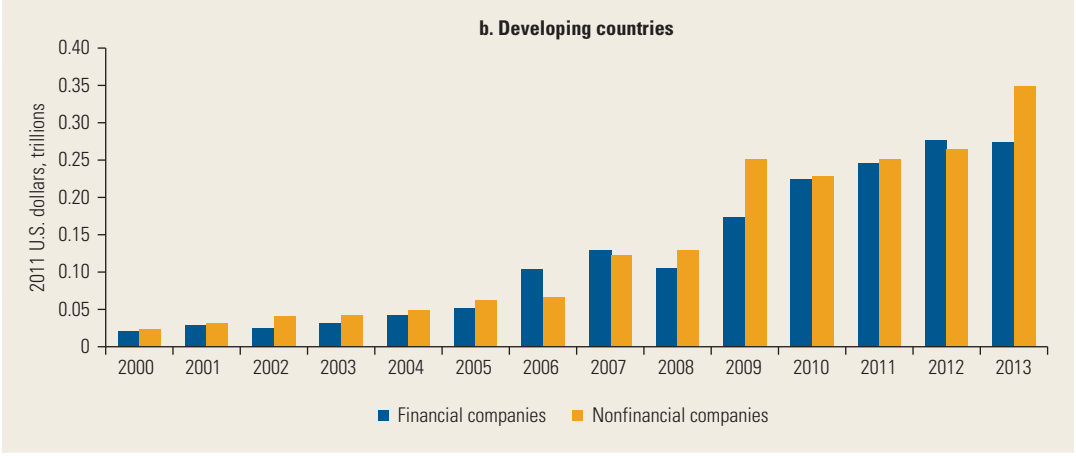
FIGURE 3.10 Total Amount Raised in Corporate Bond Markets by Financial and Nonfinancial Companies, 2000–13



(figure continued next page)

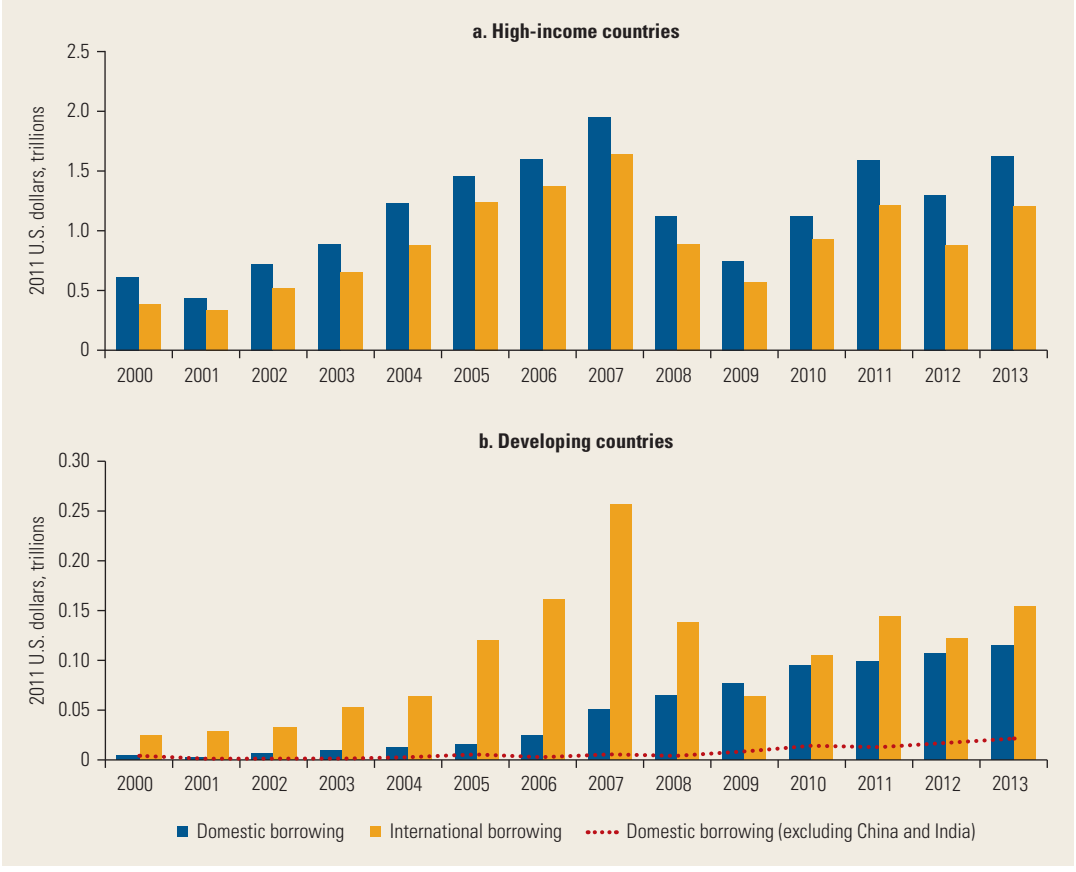
and 2009 (figure 3.11). This collapse was especially hard for developing-economy firms that received most of their syndicated loan financing in the international market. International lending to developing-economy firms declined from $256 billion to $64 billion during the two-year period. The largest fraction of syndicated loans to developing economies

FIGURE 3.10 Total Amount Raised in Corporate Bond Markets by Financial and Nonfinancial Companies, 2000–13 *(continued)*



Source: Cortina, Didier, and Schmukler 2015.

FIGURE 3.11 Total Amount Raised by Nonfinancial Firms in Domestic and International Syndicated Loan Markets, 2000–13



Source: Cortina, Didier, and Schmukler 2015.

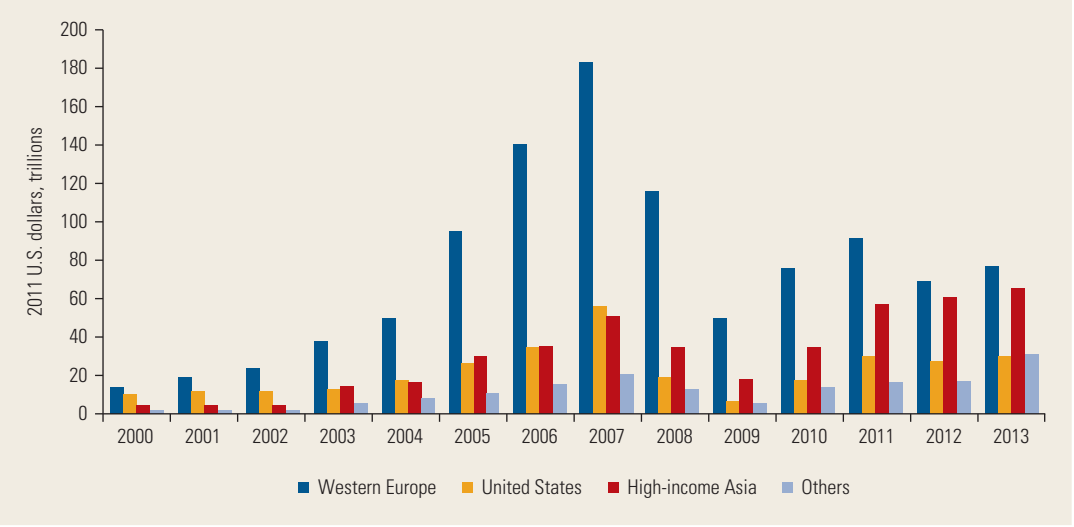
originated in Western European banks, the major source of syndicated funding for firms in the developing world, fell 80 percent between 2007 and 2009, and has remained very weak since then (figure 3.12).[24]

Although the overall volume of domestic syndicated lending in developing economies rapidly increased during and after the crisis years, China and India alone fully absorbed three-quarters of it. More specifically, the aggregate amount raised in domestic markets by developing-economy firms was $51 billion in 2007, $76 billion in 2009, and $116 billion in 2013 (see figure 3.11). Domestic lending in China and in India accounted for 23 percent and 53 percent of the total amount lent, respectively.[25] Most developing economies did not see any increase in domestic syndicated lending during 2008–13. This lack of growth, together with the collapse in international lending, meant that firms from most developing economies have been struggling in recent years to tap long-term funding through the use of syndicated loans.

Because syndicated loans are key at the early stages of infrastructure projects, these projects have been severely affected by the lack of syndicated funding. Bonds and syndicated loans are not perfect substitutes, particularly at the construction phase of these projects. Syndicated loans are most suited to the complexity and higher risks associated with the initial phases of the projects (planning and construction) whereas bonds are more appropriate for more consolidated stages (operational).[26] The bank retrenchment that followed the crisis severely constrained syndicated loans and thus the financing of infrastructure projects in developing countries, which had few alternatives for financing these operations at their initial phases. Lending originated in high-income economies to finance infrastructure in developing ones declined 62 percent between 2007 and 2009, threatening the long-term growth associated with these projects (Calderón and Servén 2014). See figure 3.13.

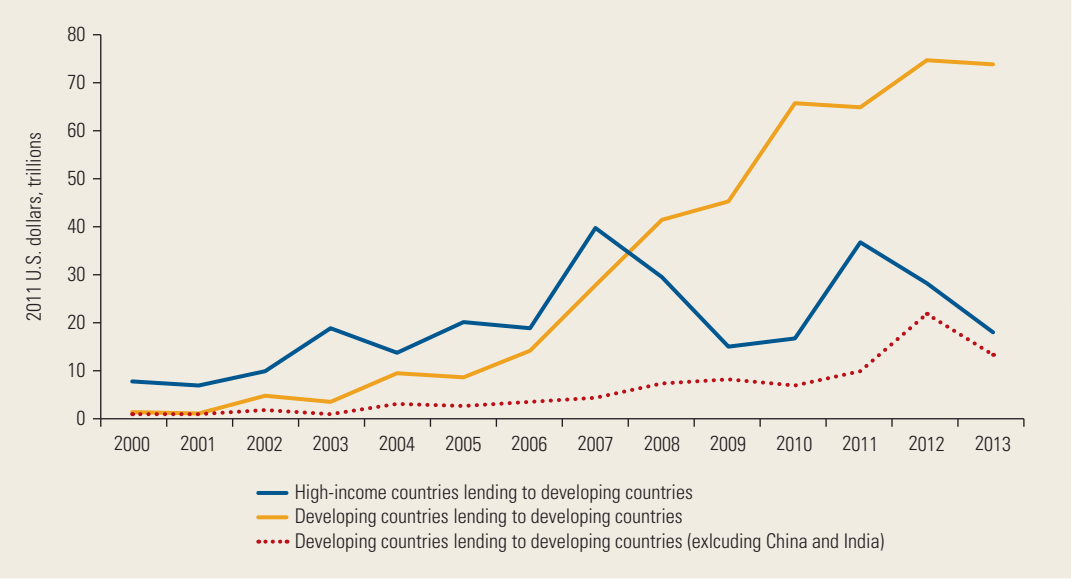
Cyclical and structural reasons seem to be behind the collapse and the weak recovery of syndicated loan financing. Part of this decline may reflect a drop in demand as firms scaled back expansion plans during the recession (Ivashina and Scharfstein 2010). Nevertheless, the fall in syndicated loans was greater than in a typical recession because the demand drop was reinforced by a drop in supply caused largely by deleveraging pressures

FIGURE 3.12 Total Amount Lent to Developing Countries through Syndicated Loan Markets by Lender Region, 2000–13



Source: Cortina, Didier, and Schmukler 2015.

FIGURE 3.13 Syndicated Lending to Developing Countries for Project Finance, 2000–13



Source: Cortina, Didier, and Schmukler 2015.

and tightened banking regulations (Chui and others 2010). The contraction in supply put upward pressure on interest rate spreads and led to a greater fall in lending. Laeven and Giannetti (2012) argued that a "flight home" was another reason for the collapse of the cross-border syndicated loan market; that is, lenders rebalanced their portfolios toward their domestic borrowers. Recent reports have argued that the reduction in cross-border flows may also have been the consequence of the acute financial stress experienced by European banks as a result of the sovereign debt crisis affecting several European countries (Feyen and Gonzalez del Mazo 2013; IMF 2013a; Laeven and Tressel 2014). Other possible factors in decreasing supply included increases in loan maturities, low rates of refinancing, and an increase in drawdowns on existing syndicated credit lines in the years before the crisis (Roberts and Sufi 2009; Cerutti, Hale, and Minoiu 2014).

CONCLUSIONS

Capital and syndicated loan markets have seen significant growth during the past decades. However, only a few very large firms use these financial markets, and only the largest and oldest ones issue at the long end of the maturity spectrum. For the set of firms that do use long-term markets, those in developing economies do not issue at shorter maturities than those in high-income economies.

Because developing-economy firms tend to be smaller in size, a smaller proportion of firms is able to access equity, bond, and syndicated loan markets. Therefore, the larger proportion of SMEs in these countries has fewer alternatives when it needs external finance to realize investment opportunities and has to rely, at least for a while, on other instruments such as bilateral loans. These firms are thus at a disadvantage for several reasons. First, bank lending could sometimes be more volatile (and procyclical) than market-based securities. Second, market-based securities and syndicated loans provide an alternative and perhaps complementary form of financing. And third, firms with access to market-based sources of external finance seem to experience better credit conditions (lower spreads) than those that only access private markets (bank loans), even when controlling for loan- and firm-specific factors, especially during recessions (Santos and Winton 2008).

Broadening the access to long-term capital markets beyond a very select group of large firms is a big challenge. Reducing the transaction costs associated with the issuance process could enlarge the number of firms able to access capital markets, with positive spillover effects on the secondary markets and on the overall economic growth of countries. To the extent that these markets are already competitive in some countries, reducing the costs through government interventions would be difficult. Another way to allow smaller, lower-rated firms to issue securities in capital markets would be to develop innovative instruments (such as minibonds) and securitization (Borensztein and others 2008; Giovannini and others 2015).

A related challenge is to broaden the investor base and to expand the scope of investors' portfolios. In principle, countries with small market sizes and investor bases would gain from promoting foreign investor participation in domestic markets or from gaining more access to foreign markets. In fact, higher competition from a broader set of investors and intermediaries in countries with well-developed financial systems seems to allow for wider access to finance and for easier accessibility to longer terms. Didier, Levine, and Schmukler (2014) have shown how, in high-income economies with the most-developed capital markets, relatively smaller firms are able to issue capital. This suggests that, as financial markets develop, the extensive margin of firms using these markets might expand so that smaller firms could participate more in these markets. Broadening investors' portfolios that currently only include a few firms from a few economies is also important (Didier, Rigobon, and Schmukler 2013). Institutional investors have preferences for (or are restricted to) high-rated bonds issued by few large (creditworthy) companies. In principle, institutional investors would gain from greater diversification, which would help broaden these markets, but some constraints in the intermediation process seem to prevent them from achieving that benefit.

Because developing-economy firms rely on international capital markets to raise funds at the long end of the maturity spectrum, they have to overcome an apparently even larger minimum size requirement than those firms that use domestic markets to obtain longer-term funds. That is, while international markets support larger issuances (which are the ones demanded by global underwriters and investors), only the largest firms can access them. This implies that only a very small proportion of developing-country firms has access to finance at the long end of the maturity spectrum.

Moreover, the reliance on only one type of market to finance long-term projects is risky, and countries can become susceptible to shocks. In particular, the higher reliance of developing-economy firms on international capital markets to access longer-term funds also makes them more vulnerable to currency mismatches and to shocks on international markets.

As a result, developing-economy firms would benefit from further development of their domestic bond markets. More-developed domestic bond markets would reduce the reliance on international markets for those firms that are able to issue in developing economies and would imply a more inclusive, broader use of long-term finance in these countries. To do this, governments must develop the underlying institutions and address policy distortions. In particular, a stable macroeconomic environment, institutional stability, improved financial infrastructure, competitive pressures on the banking system, local credit rating agencies, liquid secondary markets, and the development of government bond markets (that do not crowd out the private sector) could aid in the development of domestic corporate bond markets.

The use of international capital markets also has its benefits. International markets complement domestic markets by allowing firms to access a wider and more diverse set of investors. This could be a way to extend the maturity profile of corporate debt in developing countries. Foreign investors might be willing to take more risk when investing in developing countries, especially when the returns of investing in high-income economies are compressed (by, among other things, lax countercyclical monetary policy).

Finally, the reliance on a single type of instrument to finance long-term projects is risky. The overreliance on international syndicated loans to finance infrastructure projects in developing economies has emphasized the need to design alternative instruments. In principle, these alternative instruments would generate new sources (broader sets of investors) to finance infrastructure projects. The emergence of infrastructure as an asset class and of infrastructure investment funds seem to be promising options to fill the infrastructure finance gap (Ehlers 2014). International financial institutions and initiatives such as the International Finance Corporation or the Global Infrastructure Facility Initiative (a World Bank Group initiative) can help in this regard by fostering public-private partnerships (PPPs), creating the necessary conditions to crowd in private markets, and aiding in the process of financial innovation.

NOTES

1. This section refers only to use of these markets by firms and does not take into account whether the issuances come from the domestic or the international market.
2. More recent research studies the connection between primary capital markets and growth at the microeconomic level (Didier and Schmukler 2013; Didier, Levine, and Schmukler 2014).
3. The value of debt issuances is not directly comparable to that of equity issuances because equity issuances have no maturity, while debt issuances must be repaid. Part of the proceeds from debt issuances is typically used to repay maturing debt, and therefore only a fraction of debt issuances can be considered new financing. Henderson, Jegadeesh, and Weisbach (2006) tried to adjust the data on debt issuance to take this fact into account and concluded that, even with these adjustments, debt issuance constituted a much larger source of new capital than equity issuance at the aggregate level. Furthermore, the evolution in the amount raised by new financing in the different markets is also informative.
4. Despite their rapid growth, corporate bond markets in developing economies are still smaller in size than government bond markers (Didier and Schmukler 2014).
5. Moreover, the data are available in a similar format, making the comparison feasible.
6. The share of syndicated lending in total loan claims has also increased over time (Cerutti, Hale, and Miniou 2014).
7. Around 67 percent of all bonds, 70 percent of all syndicated loans, and 35 percent of equity issued exceeded $40 million.
8. Similarly, banks originate syndicated loans for lending to large corporations (Altunbas, Kara, and Marques-Ibañez 2010; Ivashina and Scharfstein 2010).
9. Consistent with the results on firm size, bond issues are larger than equity issues. In high-income economies, the average bond issue is $238 million, more than twice the size of the average equity issue of $109 million. The spread is not as large in developing economies: bond issues average $111 million, compared with $91 million for the average equity issue.
10. Table 3.2 includes only publicly listed firms.
11. The main difference between the figures showing the median economy and the figures showing pooled data by region (panel b) is that the second method gives more weight to larger economies (because these absorb a larger portion of the total issuance), while the first method weights each economy equally. The chapter provides systematic evidence using the two methods.
12. According to Blanc-Brude and Ismail (2013), 80 percent of all project finance around the world finances infrastructure, and the rest goes to oil and gas projects.
13. Most of this section focuses on corporate bond markets because of the difficulties in performing a similar analysis for syndicated loan markets. A caveat for the syndicated loan analysis in this section: tranches of these loans usually come from different banks located in different countries. Because the analysis presented here assumes that each participant bank in the loan lends the same amount of money to a given firm, the average maturities per loan and market location are not reported.
14. A large number of high-income countries (especially the ones located in Europe) are highly integrated.
15. The level of corporate bond market activity in Bolivia, Pakistan, and Vietnam is very low.

16. Consistent with this result, Schmukler and Vesperoni (2006) document how firms increase their long-term debt and extend their debt maturity after accessing international markets.
17. Multinational firms might sometimes find it desirable to issue in foreign currency to match the currency denomination of their expenditures with their external financing.
18. The "original sin" literature discussed how during the 1990s governments in developing countries could borrow only short term and in foreign currencies (Eichengreen and Hausmann 1999). This inability to borrow long term in domestic currency was associated with a higher frequency of financial and balance-of-payment crises and with higher macroeconomic costs associated with these crises (Rodrik and Velasco 2000).
19. It is also important to take into account the residence of the debtholders. Having a substantial presence of foreign investors in domestic currency debt means that the exchange rate may be subject to considerable and volatile pressures coming from fluctuations in foreign appetite for local currency bonds.
20. As in the previous section, this section focuses mainly on nonfinancial corporate issuances and borrowing.
21. The average maturity of newly issued corporate bonds had previously jumped by almost four years between 2006 and 2007.
22. This increase in domestic bond financing in developing economies was accompanied by an increase of issues denominated in domestic currency.
23. State-owned enterprises issued around 54 percent of the total amount in corporate bond markets in China during 2008–13.
24. Lending from the other largest high-income regions also collapsed.
25. The larger developing economies in terms of capturing domestic syndicated loan activity during 2008–13 are Brazil (4.4 percent of the total), Thailand (3.7 percent), the Russian Federation and Malaysia (3.1 percent each), Turkey (2.9 percent), Indonesia (2.7 percent), South Africa (1.6 percent), and Nigeria (1 percent).
26. Ehlers (2014) reports the key advantages of loans over bonds at the early stages of infrastructure projects: the monitoring role necessary at the initial stages of the project is better served by banks, which have greater expertise; bank loans are more flexible in providing gradual disbursement of funds; and, compared with bond financing, banks can more easily negotiate debt restructurings resulting from unforeseen events.

CHAPTER 4: KEY MESSAGES

- There are significant and informative differences in the maturity holdings across different types of financial intermediaries and across countries. Overall, the evidence suggests that extending maturities through financial institutions in developing countries is more difficult than is usually thought.
- First, despite their advantage due to relationship lending, banks in developing countries do not seem to have compensated for the potential information asymmetries and other market failures prevalent in these countries. Their loans have significantly shorter maturities than those in high-income countries. Even in weak institutional settings, however, establishing a well-regulated, contestable, and private banking system with stable and long-term sources of funding is associated with the provision of longer-term maturity debt.
- Second, the development of large and sophisticated nonbank intermediaries does not guarantee an increased demand for long-term assets. Evidence from Chile shows that domestic mutual and pension funds tend to invest short term, especially when compared with insurance companies. Short-term strategies seem to arise from market and regulatory mechanisms that monitor managers on a short-term basis and give some of them incentives to invest shorter term.
- Third, international evidence on mutual funds suggests that foreign investors hold more long-term domestic debt than domestic investors. Thus, it might be difficult to extend the maturity structure toward the long term by relying only on domestic mutual funds.
- Fourth, although sovereign wealth funds (SWFs) have grown rapidly, their overall investments remain concentrated in liquid-asset classes in high-income countries, while thin capital markets, as well as political and economic risks, still limit the role of SWFs as providers of long-term finance in developing countries.
- Fifth, private equity (PE) investments are an increasingly important source of entrepreneurial finance in developing countries. However, PE investments are relatively small and are heavily dependent on the institutional quality and depth of capital markets in the country of investment. This limits their viability as a source of long-term finance in many economies.

4

Bank and Nonbank Financial Institutions as Providers of Long-Term Finance

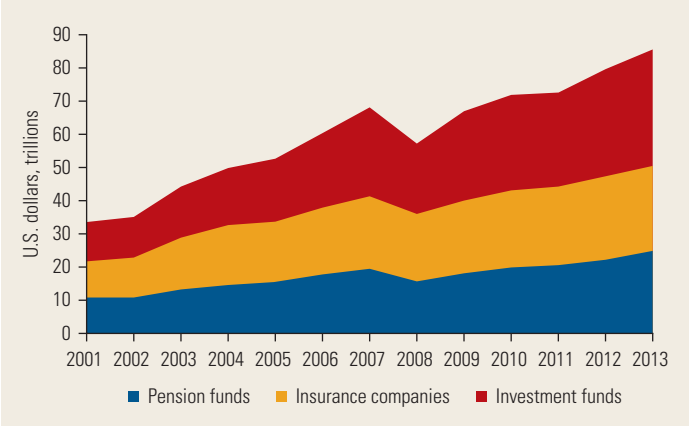
This chapter studies the role of bank and nonbank financial intermediaries in the provision of long-term finance. In particular, based on data from different financial institutions, it reports on the extent to which financial institutions hold long-term securities in their portfolios and which of them are more likely to extend the maturity structure toward the long term.

Banks are the main source of finance for firms and households across countries. Therefore, understanding the degree to which banks lend long term and what drives maturity lengths is of crucial importance. Furthermore, the recent global financial crisis has highlighted the risk that banks' deleveraging could result in a shortening of the maturity of loans. Also, forthcoming changes in international bank regulation could alter the composition of bank loans and could reinforce the need to monitor and understand the degree to which banks lend long term.

Over the past two decades, many countries have also tried to foster long-term lending through the promotion of nonbank domestic institutional investors. The expectation was that these investors would have long investment horizons, which would allow them to take advantage of long-term risk and illiquidity premiums to generate higher returns on their assets. Moreover, they were expected to behave in a patient, countercyclical manner, making the most of cyclically low valuations to seek attractive investment opportunities, thus helping to deepen long-term financial markets and, more generally, increase access to finance. This view has been expressed in several studies and articles (see, for example, Caprio and Demirgüç-Kunt 1998; Davis 1998; Davis and Steil 2001; Corbo and Schmidt-Hebbel 2003; Impavido, Musalem, and Tressel 2003; BIS 2007a; Borensztein and others 2008; Eichengreen 2009; Impavido, Lasagabaster, and Garcia-Huitron 2010; Della Croce, Stewart, and Yermo 2011; *The Economist* 2013, 2014c; OECD 2013a, 2013c, 2014a; and *Financial Times* 2015).

Nonbank institutional investors have, in fact, become increasingly important participants in global financial markets. The proportion of household savings channeled through these institutional investors has grown significantly in recent decades, and their assets under management are rapidly catching up with those of the banking system (BIS 2007b). Data from the Organisation for

FIGURE 4.1 Assets under Management of Nonbank Institutional Investors, 2001–13



Source: OECD 2014b.
Note: Only data for OECD countries are included. Investment funds include both open-end and closed-end funds. Pension funds and insurance companies' assets include assets invested in mutual funds, which may be also counted in investment funds.

Economic Co-operation and Development (OECD) show that in 2013 financial assets under management reached $24.7 trillion for pension funds, $26.1 trillion for insurance companies, and $34.9 trillion for investment funds (figure 4.1).

Little evidence exists, however, on whether these investors actually invest in long-term securities or on how they structure their asset holdings. While macroeconomic factors and strong institutions may contribute to lengthening the maturity structure of these investors, this chapter highlights the role of incentives, market forces, and regulations in shaping investors' maturity structure. Different types of institutions with different objectives are likely to provide funding for financial markets in distinct ways. For example, some institutions might need to match the maturity of their assets to their liabilities, while others might have only fiduciary responsibilities for managing their assets without specific directives to invest short or long term. When savings from the public are delegated to financial institutions, the regulator has to ensure that managers are doing a good job at managing these savings, avoiding excessive risk taking, and minimizing loses. The way these regulations are set up can affect the incentives that managers have and the maturity profile of the portfolios they choose.

This chapter contributes to these discussions by providing empirical evidence on the investment strategies and, more specifically, on the portfolio maturity and composition of different classes of bank and nonbank financial intermediaries. Because gathering evidence on the maturity structure of different financial institutions is difficult, the chapter relies on various types of evidence that are different in nature, and in some cases new. The chapter starts by presenting evidence on loan maturity for banks in different countries. Then it presents country-specific evidence across different nonbank institutional investors and international evidence based on bond funds to study the extent to which mutual funds, pension funds, and insurance companies hold and bid for long-term instruments. In addition, the chapter examines the investment profiles of two growing types of nonbank financial institutions that are also expected to have long investment horizons, namely, sovereign wealth funds (SWFs) and private equity (PE) investors. The analysis is performed across different countries, with special emphasis in developing (low- and middle-income) countries, and discusses the potential limitations of these investors in providing long-term funding. The chapter concludes by discussing some policy implications from this evidence.

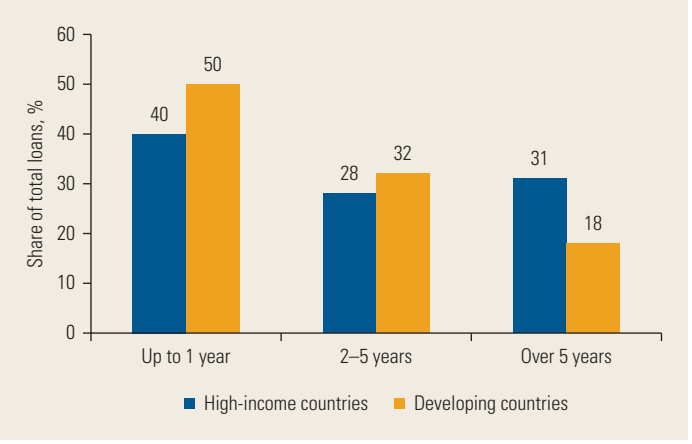
BANKS

Bank-level data across countries reveal that the maturity of bank loans in high-income countries is significantly longer than it is in developing countries.[1] Aside from data on syndicated lending, discussed in chapter 3, the main source of comparable international data on bank lending is Bankscope, a commercial database produced by Bureau van Dijk. Data on the maturity breakdown of bank loans is available for 3,400 banks operating in 49 countries from 2005 to 2012. Figure 4.2 shows the mean share of bank loans across three maturity buckets: up to one year, two to five years, and more than five years. While close to a third of bank loans in high-income

countries have a maturity that exceeds five years, for developing countries the share of loans with maturity longer than five years averages 18 percent. In contrast, while half of bank loans are short term (less than one year) in developing countries, the share of short-term loans in high-income countries averages 40 percent. There are smaller differences between high-income and developing countries in the share of loans with maturity between two and five years: this share averages 28 percent for high-income countries and 32 percent for developing countries.

There are also differences between high-income and developing countries in the recent evolution of the share of bank loans by maturity buckets. In both country groups, however, there is no consistent evidence that the recent crisis led to a significant decline in the share of long-term loans when the overall loan portfolio is considered.[2] For high-income countries, short-term debt declined from an average of 40 percent in the precrisis period to 37 percent in the postcrisis period, while the share of long-term debt rose from 31 percent to 33 percent (table 4.1). It is likely that as short-term debt matured, it was not renewed and, hence, the share of medium- and long-term debt increased. For developing countries, the share of short-term debt remained fairly stable at around 50 percent, while the share of long-term debt increased somewhat. In particular, the average share of bank loans with maturity greater than five years increased by 3 points, from 16 percent to 19 percent, while the median rose from 8 percent to almost 13 percent. Of course, these patterns could hide significant differences in the composition of borrowers—it is possible that, while the share of long-term bank lending remained fairly stable, fewer small or medium firms, for example, might have received long-term financing (see chapter 2).

FIGURE 4.2 Average Share of Bank Loans by Length of Maturity and Country Income Group, 2005–12



Source: Bankscope (database), Bureau van Dijk, Brussels, http://www.bvdinfo.com/en-gb/products/company-information/international/bankscope.

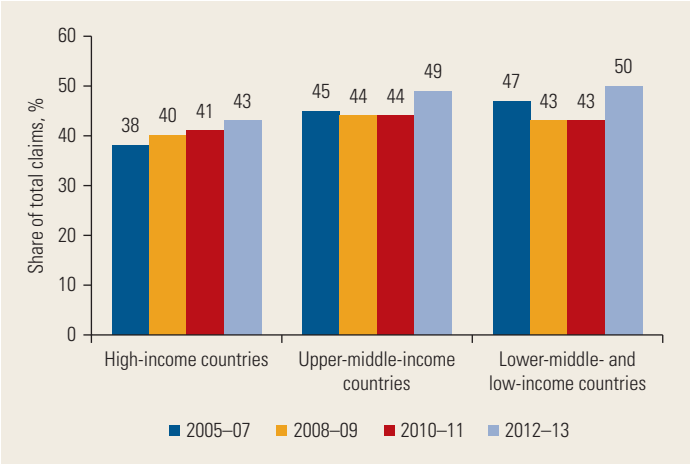
Even when focusing on international bank claims, where deleveraging has been well documented, there is no compelling evidence of a significant and across-the-board shortening of maturities following the financial crisis.[3] The Bank for International Settlements (BIS) reports quarterly data on international claims from banks operating primarily in developed countries vis-à-vis most countries around the world. International claims consist of cross-border claims (that is, claims extended from the home country where the international

TABLE 4.1 Share of Bank Loans across Different Maturity Buckets (percent)

		Precrisis period 2005–07		Crisis period 2008–09		Postcrisis period 2010–12	
Maturity bucket	Country classification	Mean	Median	Mean	Median	Mean	Median
Up to 1 year	High income	40.2	36.4	40.4	33.9	36.8	29.0
	Developing	49.9	52.1	48.4	49.6	49.1	47.9
2 to 5 years	High income	28.6	26.6	26.2	24.8	29.5	29.9
	Developing	32.5	32.3	33.4	31.0	31.6	30.4
More than 5 years	High income	30.6	29.1	33.0	33.6	33.3	30.1
	Developing	16.4	8.0	17.9	13.0	19.0	13.3

Source: Bankscope (database), Bureau van Dijk, Brussels, http://www.bvdinfo.com/en-gb/products/company-information/international/bankscope.

FIGURE 4.3 Share of International Bank Claims with Maturity above Two Years by Period and Country Income Group, 2005–13



Source: Consolidated Banking Statistics (database), Bank for International Settlements, Basel, http://www.bis.org/statistics/consstats.htm.
Note: International claims consist of cross-border claims and local claims denominated in foreign currencies.

bank is headquartered to borrowers in other host countries) and local claims denominated in foreign currencies (that is, claims extended through subsidiaries operating in host countries denominated in a currency other than that of the host country). The BIS reports data on the maturity breakdown of international claims, distinguishing between three maturity buckets: less than one year, between one and two years, and more than two years. Among high-income countries, the share of claims above two years increased steadily throughout the 2005–13 period (figure 4.3). In developing countries, the share of claims above two years decreased slightly during the 2008–09 crisis period but then climbed above its precrisis levels in 2012–13.

Substantial evidence shows that macroeconomic factors such as low inflation and country risk, as well as strong institutions, help lengthen bank maturity. Demirgüç-Kunt and Maksimovic (1999), Tasić and Valev (2008, 2010), and Kpodar and Gbenyo (2010) found that inflation is negatively related to the share of long-term loans banks make. Qian and Strahan (2007) and Bae and Goyal (2009) found that increased country risk is associated with shorter loan maturities. As for the importance of the institutional environment, Fan, Titman, and Twite (2012) found that in countries with weaker laws, firms tend to use more short-term bank debt.

Other country characteristics, such as the degree of development of the financial sector, the ability to effectively enforce financial contracts, the collateral framework, and the credit information environment, are also important determinants of bank loan maturity. First using data on the maturity of domestic bank credit to the private sector in 74 countries and then using a panel dataset for a sample of transition economies, Tasić and Valev (2008, 2010) found that financial sector development, as captured by the ratio of bank credit to gross domestic product (GDP), has a positive impact on bank loan maturity. Bae and Goyal (2009), using loan data, and Fan, Titman, and Twite (2012), using firm-level data, found that better contract enforcement is associated with longer debt maturity. Using a database of credit institutions in 129 countries, Djankov, McLiesh, and Shleifer (2007) showed that legal creditor rights and information-sharing institutions are statistically significant and quantitatively important determinants of private credit development. Qian and Strahan (2007), using a database of syndicated bank loans in 43 countries, found that creditor rights are positively associated with loan maturity. De Haas, Ferreira, and Taci (2010), using data for transition economies specifically, found that banks that perceive the legal collateral environment to be good tend to focus on mortgage lending. The introduction of collateral registries and credit bureaus, which strengthen the collateral and information environment, have been found to result in a lengthening of bank loan maturities (Martínez Pería and Singh 2014; Love, Martínez Pería, and Singh, forthcoming).

The significance of most of these country characteristics was confirmed by a recent analysis using Bankscope data (box 4.1). This analysis also revealed that the presence of fewer restrictions on bank entry is associated with a larger share of long-term loans. Along

BOX 4.1 The Correlates of Long-Term Bank Lending

What factors are correlated with bank long-term lending over the period 2005–12? Bank-level data from Bankscope on the share of loans with maturity greater than one year can be combined with country-level data to answer this question. In particular, these data can help to assess the association between long-term lending and macroeconomic, institutional, and regulatory factors.

The estimations reported in table B4.1.1, based on data for 3,400 banks operating in 49 countries, suggest that macroeconomic, institutional, and regulatory factors all seem to be significantly correlated with a higher share of long-term financing. Among the macroeconomic factors, the estimations show that inflation is negatively and significantly correlated with long-term lending. Stronger legal rights and lower political risk are positively correlated with long-term lending, indicating that institutional factors are important. Finally, banking regulations also matter. In particular, more stringent requirements for bank entry (including limits on foreign bank entry) and higher capital requirements are negatively correlated with bank long-term debt.

TABLE B4.1.1 Estimations for the Share of Bank Loans with Original Maturity Greater than 1 Year

Variables	Dependent variable: Share of bank lending greater than 1 year					
Lag log of assets	5.975***	3.243**	6.085***	6.954***	5.089***	6.444***
	[3.079]	[2.148]	[3.238]	[2.878]	[3.300]	[3.202]
Lag deposits to liabilities	−0.009	−0.023	−0.011	0.001	−0.012	−0.003
	[−0.359]	[−0.994]	[−0.465]	[0.024]	[−0.472]	[−0.129]
Lag equity to assets	0.058	−0.023	0.068	0.075	0.044	0.070
	[0.639]	[−0.257]	[0.764]	[0.781]	[0.522]	[0.734]
Lag liquidity to assets	0.015	0.019	−0.003	0.001	−0.005	0.000
	[0.646]	[0.880]	[−0.133]	[0.038]	[−0.234]	[−0.018]
Lag return on assets	0.108	0.526*	0.114	−0.001	0.247	0.008
	[0.379]	[1.879]	[0.390]	[−0.004]	[0.867]	[0.031]
Inflation	−0.864***					
	[−2.916]					
Strength of legal rights		8.084***				
		[5.092]				
Lack of political risk			1.004**			
			[2.517]			
Limits on foreign entry				−3.879*		
				[−1.738]		
Index of bank entry requirements					−2.901**	
					[−2.489]	
Index of capital regulation						−1.220*
						[−1.918]
Constant	−5.115	−30.545	−92.091*	−4.300	27.012	−5.107
	[−0.188]	[−1.087]	[−1.712]	[−0.112]	[1.390]	[−0.196]
Observations	14,997	14,955	14,933	14,739	14,770	14,671
R-squared	0.093	0.147	0.095	0.076	0.103	0.090
Number of banks	3,415	3,413	3,391	3,362	3,370	3,359

Sources: Calculation based on data from Bankscope (database), Bureau van Dijk, Brussels, http://www.bvdinfo.com/en-gb/products/company-information/international/bankscope; World Bank, Washington, DC.
Note: Estimations include bank fixed effects. Standard errors are clustered at the country-year level. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

with the negative impact of inflation and the positive impact of legal rights and low country risk, this exploratory analysis found that bank entry restrictions and limits on foreign entry are negatively related to bank loan maturity, suggesting an important role for establishing a contestable banking environment in extending debt maturity.

Research has also found that bank characteristics such as size and capitalization can affect the maturity of bank loan portfolios. Other things equal, larger banks are expected to exhibit higher shares of long-term to total loans relative to other banks because they tend to be more diversified, have greater access to funding, and have more resources to develop credit risk management and evaluation systems to monitor their loans. Some empirical evidence confirms this prediction. Using data from 35 commercial banks of six African countries of the Central African Economic and Monetary Community over the period 2001–10, Constant and Ngomsi (2012) found that larger banks tend to make business loans of longer maturity. Chernykh and Theodossiou (2011) found a similar result when they analyzed the determinants of long-term business lending by Russian banks. On the surface, the impact of bank capitalization on loan maturity is ambiguous. On the one hand, banks with larger capital might have a higher capacity to deal with unexpected losses resulting from extending risky long-term loans. On the other hand, high levels of capital can signal that a bank is risk averse and conservative and that it may be reluctant to issue risky long-term loans. Existing empirical evidence supports the notion that better-capitalized banks are more likely to issue long-term loans because they are more capable of dealing with the associated risks (Chernykh and Theodossiou 2011; Constant and Ngomsi 2012).

Evidence suggests that bank ownership also influences bank loan maturity. Despite the conventional wisdom that government ownership of banks is associated with greater long-term lending, existing empirical evidence does not support such an association. For example, using quarterly data on lending by commercial banks to the private sector in 14 transition countries during the period from 1992 to 2007, Tasić and Valev (2010) found that the asset share of state-owned banks has a negative and statistically significant effect on measures of bank loan maturity. In turn, analyzing a cross-section of banks operating in the Russian Federation during 2007, Chernykh and Theodossiou (2011) found that foreign banks are more likely than state-owned banks to extend a larger share of long-term business loans in Russia. Using data from 220 banks operating in 20 transition countries, De Haas, Ferreira, and Taci (2010) found that foreign banks are relatively more strongly involved in mortgage lending than other banks.

Some research also shows that the type of funding banks use to finance the loans they make is significantly correlated with the maturity structure of their debt. In particular, empirical studies of the loan maturity structure of African (Constant and Ngomsi 2012) and Russian (Chernykh and Theodossiou 2011) banks show that banks with a higher share of long-term liabilities exhibit higher shares of long-term loans. That is consistent with the evidence from the corporate finance literature discussed in chapter 2, which shows that firms tend to match the maturity of their assets and liabilities.

Despite the correlation between the maturity structure of bank assets and liabilities, some degree of maturity transformation is inherent in banking and facilitates long-term lending. Banks typically borrow money on demand or sight from depositors and lend most of these funds at longer terms. By virtue of the role they play in maturity transformation, banks are exposed to investor and deposit runs with potential implications for bank liquidity and solvency.

Policies, such as deposit insurance, set up to minimize the risk of depositor runs, can affect the ability of banks to lend long term. By lowering the risk of bank runs, deposit insurance may reduce banks' need to hedge this risk by extending a larger share of short-term loans. Fan, Titman, and Twite (2012) showed that firms located in countries with deposit insurance have more long-term debt. Although policies such as deposit insurance could mitigate such risks, they may also generate moral

hazard problems and higher risk taking by banks in some circumstances (Demirgüç-Kunt and Detragiache 2002).

While some degree of funding risk is expected in banking, evidence from the recent global crisis suggests that excessive maturity transformation risk can be a major source of bank failure and ultimately can be pernicious to long-term lending. Banks' recent increasing reliance on wholesale funding and derivative financing has been identified as one of the major sources of bank instability and failure during the recent banking crisis (Huang and Ratnovski 2010; Shleifer and Vishny 2010; Gorton and Metrick 2012; Brunnermeier and Oehmke 2013). Empirically, Yorulmazer (2008), Vazquez and Federico (2012), and the International Monetary Fund (IMF 2013a) have found that banks with excessive structural funding mismatches (such as higher loan to deposit and short-term to total liabilities ratios) are more vulnerable to banking distress and failure.[4]

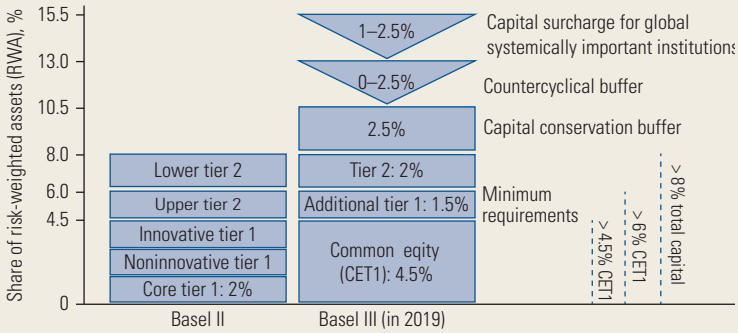
Regulations that affect bank size, capitalization, and funding are likely to affect long-term finance, because these bank characteristics are correlated with the maturity structure of bank loans. Basel III is a comprehensive set of reform measures, developed by the Basel Committee on Banking Supervision, with the objective of strengthening the regulation, supervision, and risk management of the banking sector. Its capital requirements and new minimum liquidity standards do not specifically target long-term bank finance, but they may still affect it, as the Financial Stability Board recognized in a recent report (box 4.2).[5] In particular, the combined effects of

BOX 4.2 The Basel III Framework

The Basel III framework is designed to strengthen the regulation, supervision, and risk management of the banking sector. It includes a comprehensive set of policy measures divided into two categories: capital reforms and liquidity reforms. The capital reforms are primarily directed at improving the quality of capital, while the liquidity reforms are intended to minimize liquidity shortages and stresses, and to reduce the risk of spillover from the financial sector to the real economy.

Under the new Basel III capital regime, Tier 1 capital has to be at least 6 percent of risk-weighted assets (RWA), of which 4.5 percent has to be in the form of common equity (CET1). In addition, the same institutions are subject to an additional conservation buffer of 2.5 percent of RWA and to a countercyclical buffer of 0–2.5 percent of RWA, depending on national circumstances. An additional capital surcharge of 1–2.5 percent of RWA also applies to systemically important banks (that is, those whose failure might trigger a financial crisis) (figure B4.2.1). Moreover, banks will be subject to a leverage ratio of 3 percent, a requirement that aims to contain the buildup of excessive leverage in the banking system.

FIGURE B4.2.1 **Basel III Requirements**



(box continued next page)

BOX 4.2 The Basel III Framework *(continued)*

The liquidity component of Basel III consists of two new ratios: the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR). Under the LCR, banks are required to hold sufficient high-quality liquid assets (HQLA) that can be converted into cash to meet all potential demands for liquidity over a 30-day period under stressed conditions. The numerator contains two categories of easy-to-sell asset classes. Level 1 assets include government bonds, cash, and certain central bank reserves. Level 2 assets include long-term securities such as corporate bonds and covered bonds rated A+ to BBB–, certain equities, and mortgage-backed securities that meet specific conditions. The denominator is the difference between total expected cash outflows minus total expected cash inflows during the 30-day stress scenario. The ratio must be at least 100 percent.

The NSFR aims to promote resilience over a one-year time horizon by ensuring that long-term assets are funded with at least a minimum amount from a stable funding source. In particular, loans with a maturity greater than one year are to be covered by stable funding with a maturity greater than one year (for example, bank equity and liabilities such as deposits and wholesale borrowing).

The Financial Stability Board (FSB) has analyzed the potential consequences of Basel III for long-term financing (Financial Stability Board 2013) and does not anticipate any direct effects on long-term loans from the introduction of the LCR. The board notes, however, that in order to meet the LCR requirement, banks may prefer to hold certain liquid assets that are treated more favorably under the HQLA definition (such as sovereign bonds). The FSB expects that the NSFR allows for considerable maturity transformation since a long-term loan can be fully funded with bank liabilities of one year or greater, but it recognizes that if the long-term loan is funded through short-term deposits or other liabilities (that are regularly rolled over), the maturity mismatch will need to be covered by lengthening the term of funding, by reducing the maturity of loans, or both.

the reforms will be to increase the amount of regulatory capital for such transactions and to dampen the scale of maturity transformation risks. The overall effects will vary depending on several factors—in particular, the alternative funding sources in different markets segments. In this regard, concerns have been raised that the impact on developing countries could be more severe, since these countries have less-developed markets and fewer nonbank financial intermediaries and, therefore, would suffer more if banks cut back on long-term finance as a result of these regulatory changes.

The impact of ongoing regulatory changes should be monitored carefully, but in the meantime government policies that help banks access stable sources of funding might be desirable. These policies may include improving financial inclusion to grow banks' depositor bases, promoting banks' issuance of covered bonds, and having banks improve their financial reporting on liquidity and other risks as well as strengthen accounting and auditing standards so that banks can tap into longer-term funding sources including those from domestic and international capital markets (Gobat, Yanase, and Maloney 2014).

PORTFOLIO MATURITY OF DOMESTIC INSTITUTIONAL INVESTORS: THE CASE OF CHILE

This section describes the differences in the maturity structure of Chilean nonbank institutional investors and analyzes the factors that lie behind them. The analysis is based on Opazo, Raddatz, and Schmukler (2015), which used unique monthly asset-level data on Chilean domestic bond mutual funds, pension funds, and insurance companies during 2002–08. This was a period with stable growth in capital markets and in overall economy and is thus ideal for investigating the extent to which these nonbank financial institutions invest long term as the global crisis did not hit Chile until 2009. In addition, because these investors operate in the same

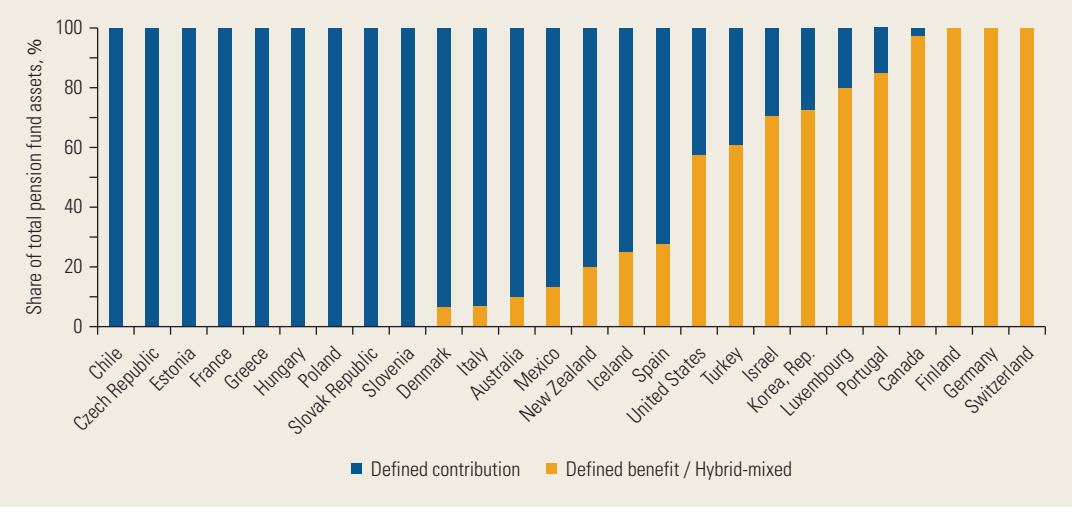
macroeconomic and institutional environment and have access to the same set of instruments, their comparison allows observation of their different behavior. The data on Chilean mutual funds' and insurance companies' holdings came from the Chilean Superintendency of Securities and Insurance. The data on Chilean pension funds came from the Chilean Superintendency of Pensions.

Although the private pension industry in developing countries is typically small—mandatory state-owned pension schemes dominate the landscape—a few economies such as Chile have large pension systems covering most workers. Chile was the first country to adopt, in 1981, a mandatory, privately managed defined contribution (DC) pension fund model by replacing the old public defined benefit (DB) system. Since then, pension funds have become very large, holding most of the population's long-term retirement savings. Chile also has developed other institutional investors and has provided a stable macroeconomic and institutional framework for long-term financing to flourish. On the demand side of funds, Chile introduced several reforms to foster capital market development, leading to a varied range of securities issued, including long-term local currency and inflation-indexed bonds. Many high-income and developing countries have followed the Chilean example and have reformed their pension regimes, shifting away from DB schemes toward privately managed DC plans (Antolín and Tapia 2010; OECD 2013b). Figure 4.4 shows that the DC system is the most-used scheme nowadays in many members of the OECD.

The kind of regulations adopted in the Chilean pension fund system are not Chile-specific and are typical of systems that have DC pension programs, where the regulator wants to ensure the safety of public savings. For example, the Chilean regulation establishes a minimum return band that pension funds must guarantee. This type of guarantee is common in Latin American countries, and it also has been used in Central European countries (Castañeda and Rudolph 2010) and in high-income countries (Antolín and others 2011). Chile, therefore, stands as a benchmark case, and the numerous challenges faced by the Chilean policy makers shed light on the difficulties of developing long-term financial markets.

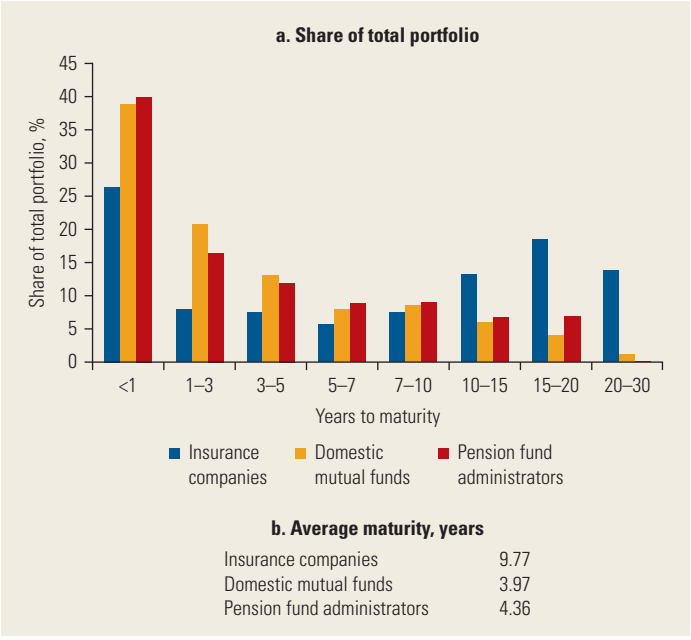
The Chilean evidence challenges the expectation that institutional investors across the

FIGURE 4.4 Relative Shares of Defined Benefit and Defined Contribution Pension Fund Assets in Selected Countries, 2013



Source: OECD 2014b.
Note: Selected countries are members of the OECD. For the United States and Canada, data refer to occupational pension plans only. For Luxembourg, data refer to pension funds under the supervision of the *Commission de Surveillance du Secteur Financier* (CSSF) only.

FIGURE 4.5 Differing Maturity Structures of Chilean Institutional Investors



b. Average maturity, years

Insurance companies	9.77
Domestic mutual funds	3.97
Pension fund administrators	4.36

Source: Opazo, Raddatz, and Schmukler 2015.
Note: The maturity structure is calculated for each mutual fund, insurance company, and pension fund administrator at each moment in time using monthly bins. Then the maturities are averaged across each set of investors and then averaged over time. The sample period is September 2002 to June 2008.

board would help lengthen the maturity structure and raises the question of what lies behind their short-termism. While the presence of these investors has played an important role in improving market depth and in increasing private savings, their contribution to the lengthening of financial contracts seems limited.[6] In particular, the evidence shows that Chilean asset-management institutions (mutual and pension funds) hold a large amount of short-term instruments and overall invest shorter term relative to insurance companies (figure 4.5). Both mutual funds and pension funds invest more than half of their portfolios in maturities of three years or less, whereas insurance companies invest a little more than one-third of their portfolios in these shorter-term maturities. The differences are even starker at the longer maturities. As a result, average maturity for insurance companies (9.77 years) is more than double that of mutual funds (3.97 years) and pension funds (4.36 years). Relative to outstanding bonds, mutual and pension funds also invest shorter term.

The short-termism of pension funds is not constrained by the supply side of instruments. Chilean asset managers choose short-term instruments even when assets for long-term investments are widely available and held by other investors. In particular, pension funds do not exhaust the supply of long-term government and corporate debt instruments. Moreover, individual biddings at government paper auctions suggest that pension funds bid less aggressively for long-term instruments, both relative to other instruments and relative to insurance companies.

The incentives faced by these investors appear to be essential to understanding their different preferences for debt maturity structures. In this sense, the comparison between insurance companies and pension funds is particularly illustrative because, in principle, both should be long-term investors. Insurance companies provide mainly long-term annuities for retirement, while pension funds invest for the retirement of their affiliates. Indeed, upon retirement individuals can choose between buying an annuity or keeping their assets in a pension fund and gradually drawing the principal according to a program that considers expected longevity. Despite the similarity in their implicit operational goals, given their different natures (open- and closed-end) and the monitoring exercised by the underlying investors and the regulator, these intermediaries face very different incentives, which lead to different maturities profiles. These incentives are analyzed in more detail in box 4.3.

The short-termism of pension funds has important consequences for future pensions. In fact, some discussions have started to emerge in Chile and elsewhere (BIS 2007a; *The Economist* 2014a) about their pension system and how to reform it given the lower-than-expected replacement rates. According to some estimates, the amount in the average 65-year-old pensioner's account is $55,000. With an expected remaining life of 15 years, that amount is equivalent to about $310 a month, or one-third of the average salary in Chile.

Chile's experience shows that the development of large and sophisticated intermediaries with deep pockets does not guarantee

BOX 4.3 What Drives Short-Termism in Chilean Mutual and Pension Funds?

Although identifying the ultimate underlying factor is difficult, the shorter investment horizon of Chilean open-end mutual and pension funds compared with insurance companies seems to result from agency factors that tilt managerial incentives.[a] In Chile, managers of open-end funds are monitored in the short run by the underlying investors, the regulator, and the asset-management companies. This short-run monitoring, combined with the risk profile of the available instruments, generates incentives for managers to be averse to investments that are profitable at long horizons (such as longer-term bonds) but that can have poor short-term performance. In contrast, insurance companies are not open-end asset managers, receive assets that cannot be withdrawn in the short run, and have long-term liabilities because investors acquire a defined benefit (DB) plan when purchasing a policy. Thus, insurance companies are not subject to the same kind of short-run monitoring.

In the case of mutual funds, their short-termism is driven mainly by the short-term monitoring exercised by the underlying investors. In particular, Chilean mutual funds are subject to significant redemptions related to short-run performance. For example, during the 2002–08 period, mutual funds in Chile were exposed to much greater outflows than were mutual funds in the United States. This short-run monitoring might explain why these funds avoid investing in long-term bonds, which may have poor short-term performance, and prefer to invest in shorter-term bonds.

Because saving for retirement is mandatory, flows to pension funds tend to be very stable, even during crises. That is, unlike mutual funds, pension funds are not exposed to significant outflows. Nevertheless, within the same pension fund, investors might transfer funds across different fund managers seeking higher performance. Da and others (2014) showed that, in Chile, individuals often reallocate their investments between riskier funds (holding mostly stocks) and funds that hold mostly risk-free government bonds. Pension fund contributors, in an apparent effort to "time the market," frequently switch within funds following the recommendations issued by a popular investment advisory firm. In response to this behavior, pension fund managers have significantly reduced their holdings of stocks and bonds and have replaced them with cash to avoid costly redemptions resulting from frequent portfolio rebalancing.

The regulatory scheme seems to be another factor behind the short-termism of pension funds. The Chilean regulation establishes a lower threshold of returns over the previous 36 months that each pension fund needs to guarantee. This type of short-term monitoring seems to push managers to move their investments into portfolios that try to minimize the probability of triggering the guarantee (Randle and Rudolph 2014). Moreover, because this threshold depends on the average return of the market, it may generate incentives to herd (Raddatz and Schmukler 2013; Pedraza, forthcoming) and to allocate portfolios suboptimally (Castañeda and Rudolph 2010).

The minimum return rate might be driving the equilibrium toward the short term because, even when a manager's portfolio is close to that of peers, small differences in holdings of more volatile longer-term securities may increase the manager's exposure to the peer-based performance penalty. Moreover, to the extent that longer-term bonds are less liquid, these bonds might be harder to rebalance because traders may find it difficult to either enter or exit these positions at their requested price, experience execution delays, or receive a price at execution significantly different from their requested one. Therefore, longer-term bonds might hamper the ability to follow the changes of the market, increasing the exposure to the peer-based penalty.

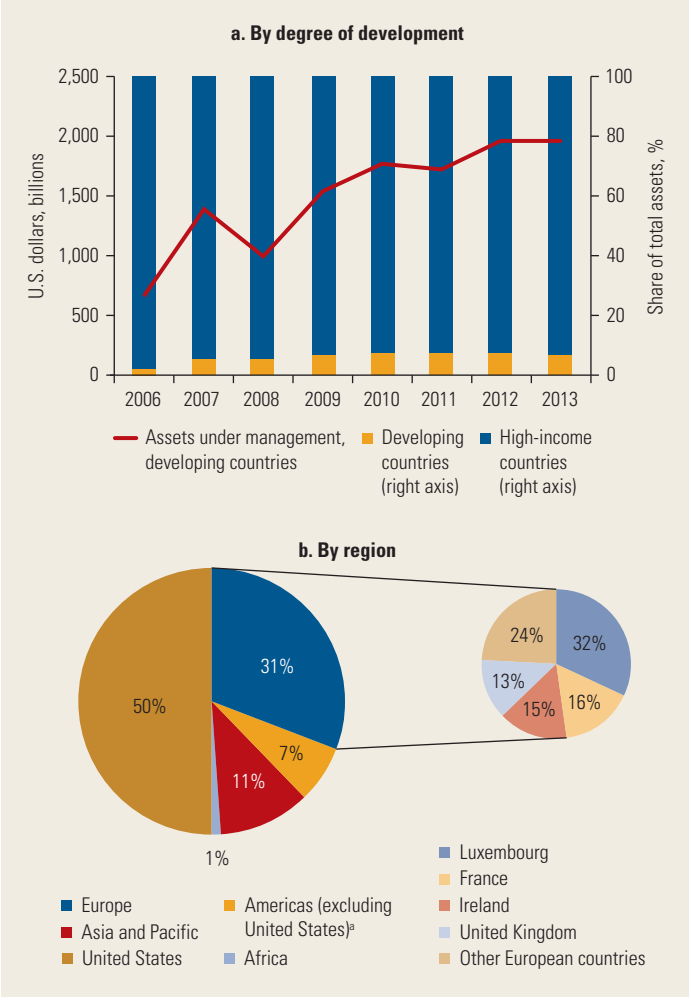
Whereas this type of short-run monitoring can play a role in open-end funds, it is unlikely to affect insurance companies. These companies are not evaluated on a short-term return basis by investors who can redeem their shares on demand, and the companies are not required to be close to the industry at each point in time. Instead, the maturity structure of the insurance companies' assets seems to be determined by that of their liabilities. Insurance companies have long-term liabilities because they mostly provide annuities to pensioners. Thus, the need to meet these liabilities gives them incentives to hold long-term assets. In contrast, mutual funds and pension funds are pure asset managers and have no liabilities beyond their fiduciary responsibility.

In sum, the long-term nature of their liabilities shapes the incentives of the insurance companies toward portfolios with longer maturities. In contrast, given the lack of a liability structure, the incentives of Chilean pension and mutual funds to take maturity risk are determined mainly by the constant monitoring exerted by the underlying investors, their own companies, and the regulator.

a. See Opazo, Raddatz, and Schmukler (2015) for a more detailed analysis.

an increased demand for long-term assets. Merely establishing asset management institutions and assuming that managers will invest long term does not appear to yield the expected outcome, especially if the policy contexts involve a similar type of market and regulatory short-term monitoring to that in Chile. For pension funds, Chilean policy makers have tried unsuccessfully to make the system more conducive to long-term investments. For example, in October 1999 the average real rate of returns for calculating the minimum return that pension funds must guarantee was changed from 12 months to the current 36 months, presumably giving pension funds more flexibility to deviate in the short term from their peers and to invest longer term. The change did not have the expected result, however, and the maturity structure of pension funds did not vary significantly. Alternative performance measures based on risk-adjusted returns, as opposed to peer-based benchmarks, should be more conducive to lengthening the maturity structure of pension funds' portfolios and at the same time should eliminate some of the pervasive incentives that lead to herding among these managers. The regulatory authority needs to focus on aligning the long-term objectives of the fund contributors with the sometimes short-term objectives of fund managers.

FIGURE 4.6 Worldwide Total Net Assets Held by Mutual Funds by Degree of Development and Region



Source: Investment Company Fact Book 2014, Investment Company Institute, Washington, DC, http://www.icifactbook.org.
Note: The sample period for panel b is 2013. The classification between high-income and developing countries is based on the World Bank classification of countries as of 2012.
a. Argentina, Brazil, Canada, Chile, Costa Rica, Mexico, and Trinidad and Tobago.

INTERNATIONAL EVIDENCE ON MUTUAL FUNDS

Although the mutual fund industry has been growing in developing countries during the last decade, it is still dominated by high-income countries. Assets under management of mutual funds domiciled in developing countries more than doubled between 2006 and 2013. However, these still represent a small fraction of mutual funds' assets worldwide: funds in high-income countries controlled over 90 percent of mutual fund assets, with more than $28 trillion under management in 2013 (figure 4.6a). The regional distribution also remains highly uneven, with the United States accounting for half of the total assets worldwide and a couple of European countries accounting for almost one-third (figure 4.6b). Still, in some developing countries, such as Brazil, the mutual fund industry has been growing fast and is rather large.

In recent years, the importance of international mutual funds has been growing.[7] This growth is attributable mainly to investors in high-income countries who have increasingly sought to diversify their portfolios by investing in other countries, including developing ones, often through dedicated emerging markets funds or through increased emerging market participation by globally active funds

(Gelos 2011). This trend coincides with an extended period of low interest rates in high-income countries, which has led investors to look for higher-yielding assets in developing countries. Emerging Portfolio Fund Research (EPFR) data show that assets under management of emerging markets' equity funds increased from $702 billion at the end of 2009 to $1.1 trillion at the end of 2013, and bond funds quadrupled from $88 billion to $340 billion over the same period (Miyajima and Shim 2014).

Given the limited size of the mutual fund industry in developing countries, this section aims to shed some light on the role that international mutual funds from high-income countries might play in lengthening the maturity structure of financial contracts in developing countries. In particular, this section explores the role that international funds from the United States and the United Kingdom might play in lengthening the maturity structure of financial contracts in both developing and other high-income countries. Throughout the section, only fixed-income mutual funds are considered. Although equity funds are also a source of long-term financing and play an important role in stock markets (box 4.4), the analysis focuses exclusively on bond funds to be able to compute the maturity structure of the funds' portfolio and to make comparisons across countries.

BOX 4.4 Institutional Investors in Equity Markets

In both high-income and developing countries, equity financing plays a smaller role in firms' funding than do bond issuances and syndicated loans (chapter 3). Still, a developed and liquid stock market is expected to play a key role by creating and aggregating information about economic activity and firms' fundamentals. According to this view, stock prices aggregate information from many market participants, information that in turn might be useful for firms' managers and other decision makers such as capital providers and regulators (Bond, Edmans, and Goldstein 2012). In this sense, stock markets can facilitate firms' access to credit by reducing information asymmetries between capital providers and firms.

Institutional investors might contribute importantly to information production in stock markets. That is, besides the direct contribution to firms' equity financing, some empirical evidence indicates that institutional activity in equity markets results in better monitoring of corporations and in better corporate governance structures (Gillan and Starks 2000). For example, foreign institutional investors from countries with strong shareholder protection appear to promote good corporate governance practices around the world (Aggarwal and others 2011). Alternatively, the presence of institutional investors in a stock might increase the exposure of the firm to capital providers, thereby improving its ability to raise funds.

The relationships between the share of institutional investors' equity ownership and three measures of stock market development—market capitalization, turnover, and price informativeness (a measure of the information content of stock prices)—are presented in table B4.4.1. According to the table, the presence of domestic and foreign institutional investors is positively correlated with market size and liquidity. Moreover, in both high-income and developing countries, a greater presence of institutional investors is positively associated with more informative prices, consistent with the idea that institutions, as opposed to retail investors, have a greater capability to gather private information and that their presence facilitates information aggregation into stock prices. The table also shows a negative relationship between institutional ownership concentration and the different measures of stock market development. For instance, countries with high levels of concentration in institutional equity ownership exhibit lower trading volumes (figure B4.4.1).

When the concentration of institutional ownership is high, these institutions effectively become corporate insiders, a situation that discourages the participation of other equity investors and that undermines liquidity. Concentration also leads to market power and hence the ability to trade without affecting prices. Additionally, in smaller markets, domestic institutional investors are more likely to have different ties to local publicly traded companies, whether directly or indirectly (they might belong to the same economic group, for example, or the firm might

(box continued next page)

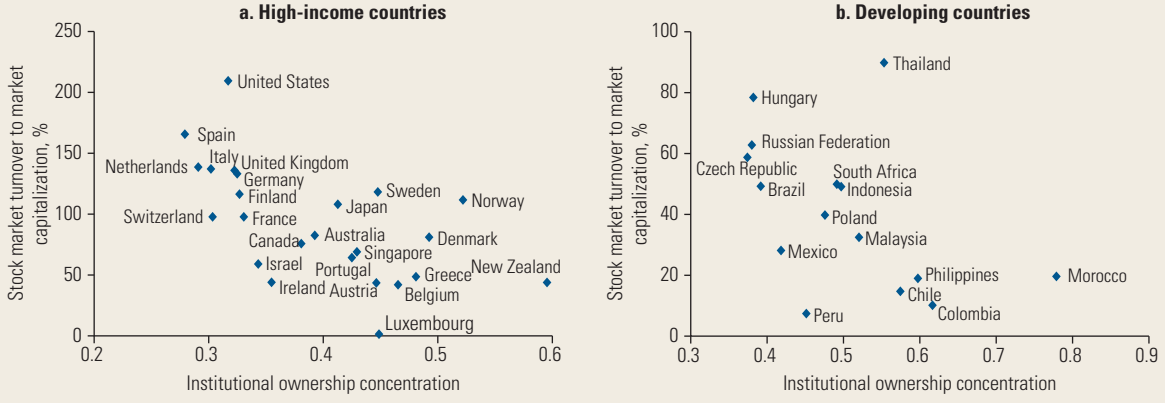
BOX 4.4 Institutional Investors in Equity Markets *(continued)*

TABLE B4.4.1 Stock Market Development and Institutional Investors, 2000–11

	High-income countries		Developing countries	
Countries sorted by	Below median	Above median	Below median	Above median
Foreign institutional ownership				
Turnover/market capitalization	71.8	94.9	41.3	55.7
Market capitalization/GDP	64.4	86.8	42.1	45.5
Price informativeness	65.5	90.1	15.2	39.5
Domestic institutional ownership				
Turnover/market capitalization	46.0	100.1	39.8	60.6
Market capitalization/GDP	56.3	86.3	36.3	67.1
Price informativeness	32.5	96.5	18.2	38.5
Institutional ownership concentration				
Turnover/market capitalization	98.9	67.5	55.6	43.0
Market capitalization/GDP	90.9	58.2	43.4	39.7
Price informativeness	88.1	67.2	45.5	12.5

Sources: Global Financial Development Database, World Bank, Washington, DC, http://data.worldbank.org/data-catalog/global-financial-development; Institutional Ownership Database, FactSet, Norwalk, CT, http://factset.com.
Note: This table reports the averages of three measures of stock market development, sorted by institutional investors' presence.

FIGURE B4.4.1 Trading Volume versus Institutional Concentration, 2000–11



receive lending through a bank member of the same financial conglomerate as the institutional investor). Such relationships can be additional sources of asymmetric information, which would reduce trading in the stock. In all these cases, stock prices might be more opaque and less likely to reflect fundamentals.

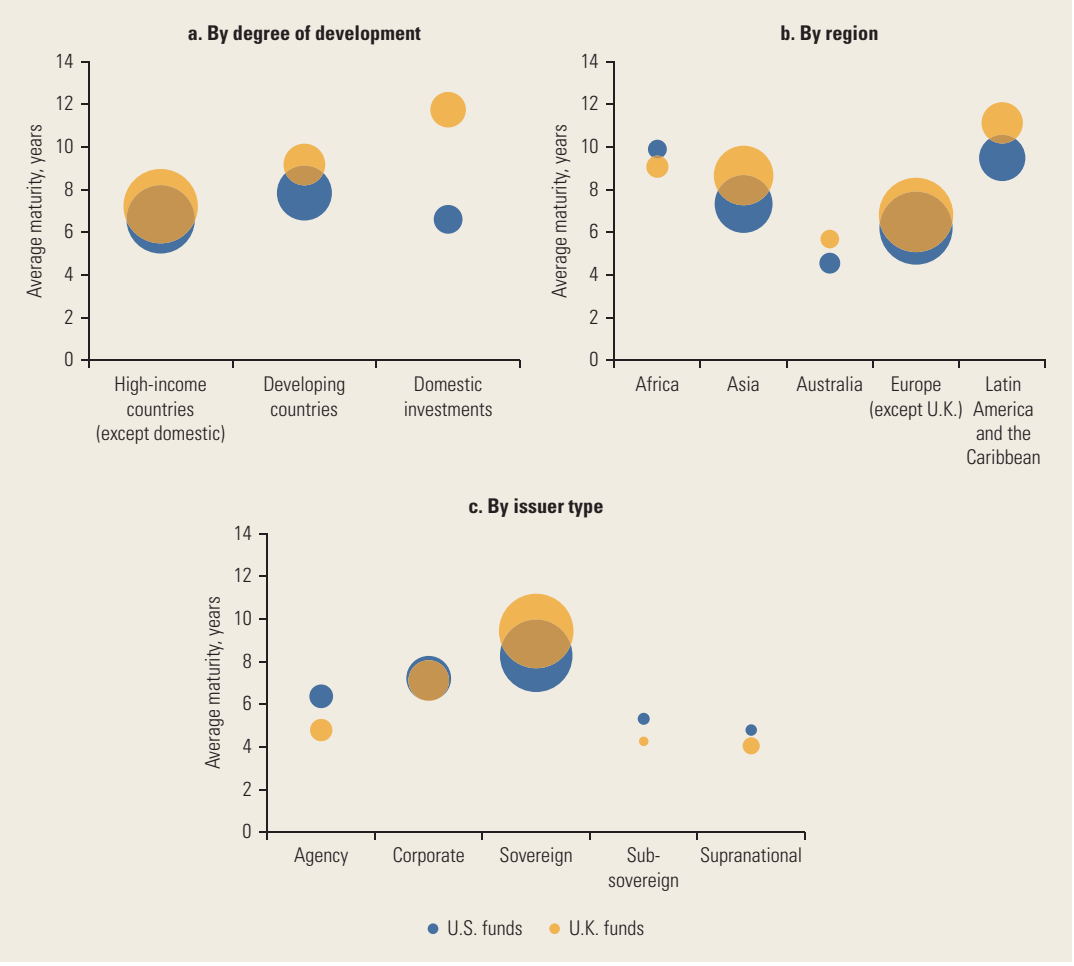
In summary, the extent to which institutional investors produce information in equity markets seems to depend on the market structure. Policy makers could focus not only on strengthening the investors' bases but also on improving the level of competition in their respective markets. For instance, stock markets with large but few dominant institutional investors might end up producing little valuable information about fundamentals. After all, well-functioning and competitive stock markets are expected to benefit long-term finance and economic activity, both directly and indirectly.

Sources: Global Financial Development Database, World Bank, Washington, DC, http://data.worldbank.org/data-catalog/global-financial-development; and Institutional Ownership Database, FactSet, Norwalk, CT, http://factset.com.
Note: This figure shows the relationship between stock trading volume and institutional equity ownership concentration for high-income and developing countries. Concentration is measured as the percentage of domestic equity holdings of the largest five institutional investors.

The data come from various sources. Fund-level data on mutual fund holdings come from Morningstar Direct and include the holdings of international mutual funds (Global Fixed Income and Emerging Markets Fixed Income funds) from the United States and the United Kingdom, as well as holdings of mutual funds set up to invest domestically (Domestic Fixed Income funds) for several developing and high-income countries for 2013.[8] The section also examines information on outstanding corporate and sovereign bonds to benchmark the mutual fund holdings. The data on corporate bonds come from the Thomson Reuters SDC Platinum database.[9] The data on outstanding sovereign bonds come from the BIS.

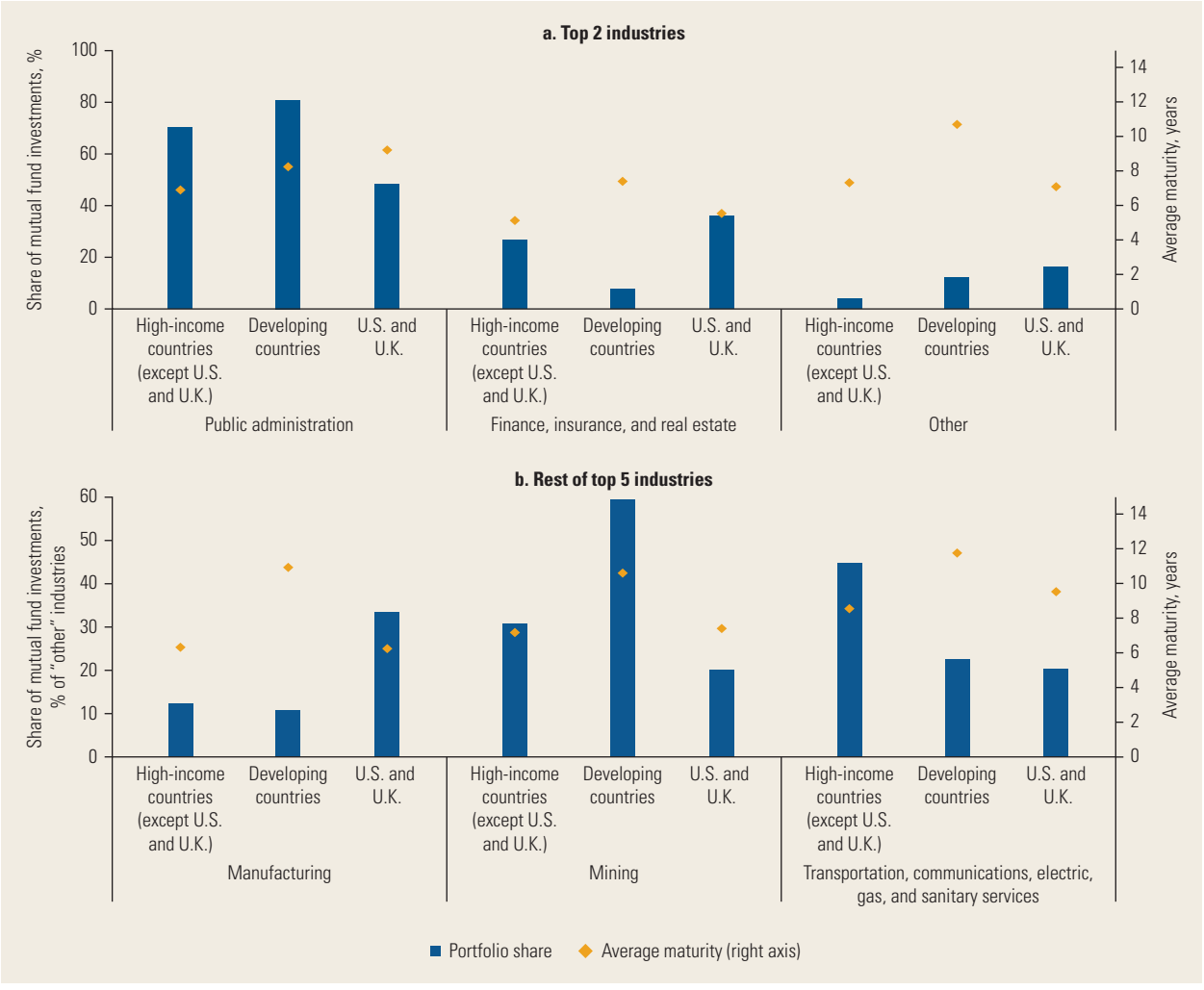
The investments of international mutual funds from the United States and from the United Kingdom are very similar, and thus the following analysis pools the funds from both countries. U.S. mutual funds invest 55 percent in high-income countries outside the United States, 35 percent in developing countries, and the rest in domestic bonds (figure 4.7a). Similarly, U.K. mutual funds invest 65 percent in high-income countries outside the United Kingdom, 20 percent in developing countries, and the rest in domestic bonds. Regionally,

FIGURE 4.7 Shares and Average Maturity of Investments of U.S. and U.K. Mutual Funds, 2013



Sources: Calculations based on data from Morningstar, Chicago, IL, http://www.morningstar.com; and DataStream (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-management/datastream-professional.html.
Note: This figure shows the portfolio shares and average maturities of global and emerging markets fixed income mutual funds from the United States and the United Kingdom in high-income and developing countries. The size of each bubble represents the portfolio share invested in each set of countries (panels a and b) or issuer type (panel c).

FIGURE 4.8 Shares and Average Maturity of U.S. and U.K. Mutual Funds by Industry, 2013



Sources: Calculations based on data from Morningstar, Chicago, IL, http://www.morningstar.com; and DataStream (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-management/datastream-professional.html.
Note: This figure shows the portfolio shares and average maturities of global and emerging markets fixed income mutual funds from the United States and the United Kingdom in high-income and developing countries by the issuer's industry.

U.S. and U.K. mutual funds both invest half of their portfolio in Europe (excluding the United Kingdom), around one-third in Asia, and almost one-fifth in Latin America and the Caribbean (figure 4.7b). Moreover, U.S. and U.K. funds both invest heavily in sovereign bonds (almost 70 percent), followed by corporate bonds from financial and nonfinancial firms (figure 4.7c). The maturity structure of their investments is also similar.[10] Given these similarities, the following analysis pools the funds from both countries.

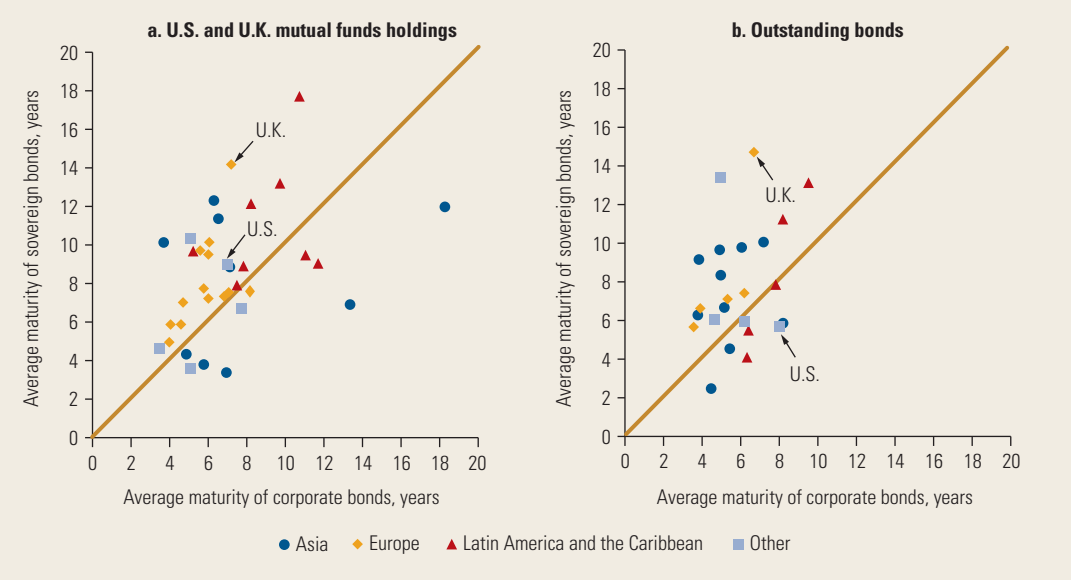
U.S. and U.K. mutual funds invest longer term in developing than in high-income countries. Overall, the average maturity of U.S. and U.K. funds is about 6.4 years in high-income countries and almost 8.0 years in developing countries. These results hold regardless of the industry. The principal industry in which U.S. and U.K. funds invest is, by far, public administration: 80 percent of their assets are invested in this category in developing countries and 70 percent in high-income countries (figure 4.8a). Within this category,

they invest longer term in developing countries (7.7 years) than in high-income ones (6.9 years). Finance, insurance, and real estate is the second industry in which U.S. and U.K. funds invest more, but there are important differences between high-income and developing countries: for high-income countries, they invest more than 25 percent of their holdings in this category, while for developing countries they invest only 7 percent. Given that this industry has a lower average maturity (for both high-income and developing countries), the larger weight assigned to this category in high-income countries also helps explain the longer average maturity of U.S. and U.K. investments in developing countries. Investment patterns in other industries are shown in figure 4.8b. Once again in each of these industries the average maturities of U.S. and U.K. mutual funds' investments are longer in developing than in high-income countries.

In the vast majority of countries analyzed, U.S. and U.K. mutual funds invest longer term in sovereign bonds than in corporate bonds. Overall, for the countries depicted in the scatter plot shown in figure 4.9a, the average maturity of U.S. and U.K. funds is 8.6 years for sovereign bonds and 7.1 years for corporate bonds. This pattern is consistent with the fact that the average maturity of outstanding sovereign bonds is typically longer than that of corporate bonds (figure 4.9b). Given these differences, when comparing the maturity structure across international and domestic funds, the analysis separates between the corporate and sovereign case.

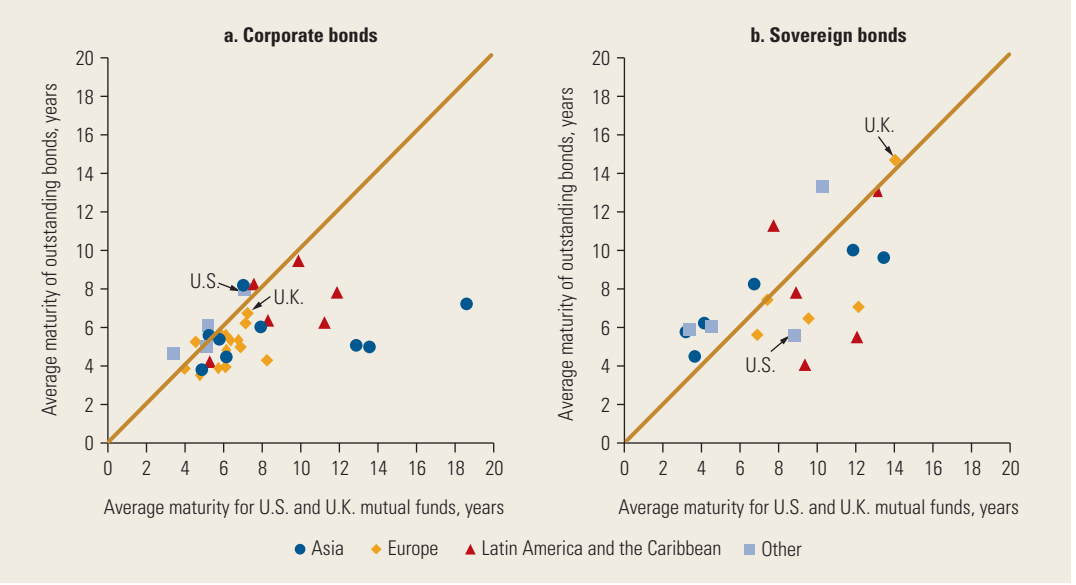
The evidence suggests that international mutual funds help lengthen the maturity structure of corporate bonds in developing and high-income countries. For most of the countries analyzed, U.S. and U.K. funds invest longer term than the average maturities of the outstanding corporate bonds in the countries in which they invest (figure 4.10a).[11] This finding is consistent with evidence that foreign corporate issuances from developing

FIGURE 4.9 Average Maturity by Country and Issuer Type, 2013



Sources: Calculations based on data from SDC Platinum (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-banking-and-advisory/sdc-platinum.html; Debt Security Statistics (database), Bank for International Settlements, Basel, http://www.bis.org/statistics/secstats.htm; Morningstar, Chicago, IL, http://www.morningstar.com; and DataStream (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-management/datastream-professional.html.
Note: Panel a shows the average maturity, by country, of sovereign and corporate bonds held by global and emerging markets fixed income mutual funds from the United States and the United Kingdom. Only countries with more than 30 observations in both the sovereign and corporate category are included. Panel b shows the average maturity of outstanding sovereign and corporate bonds by country.

FIGURE 4.10 Average Maturity of U.S. and U.K. Mutual Funds Compared with Outstanding Bonds by Country, 2013



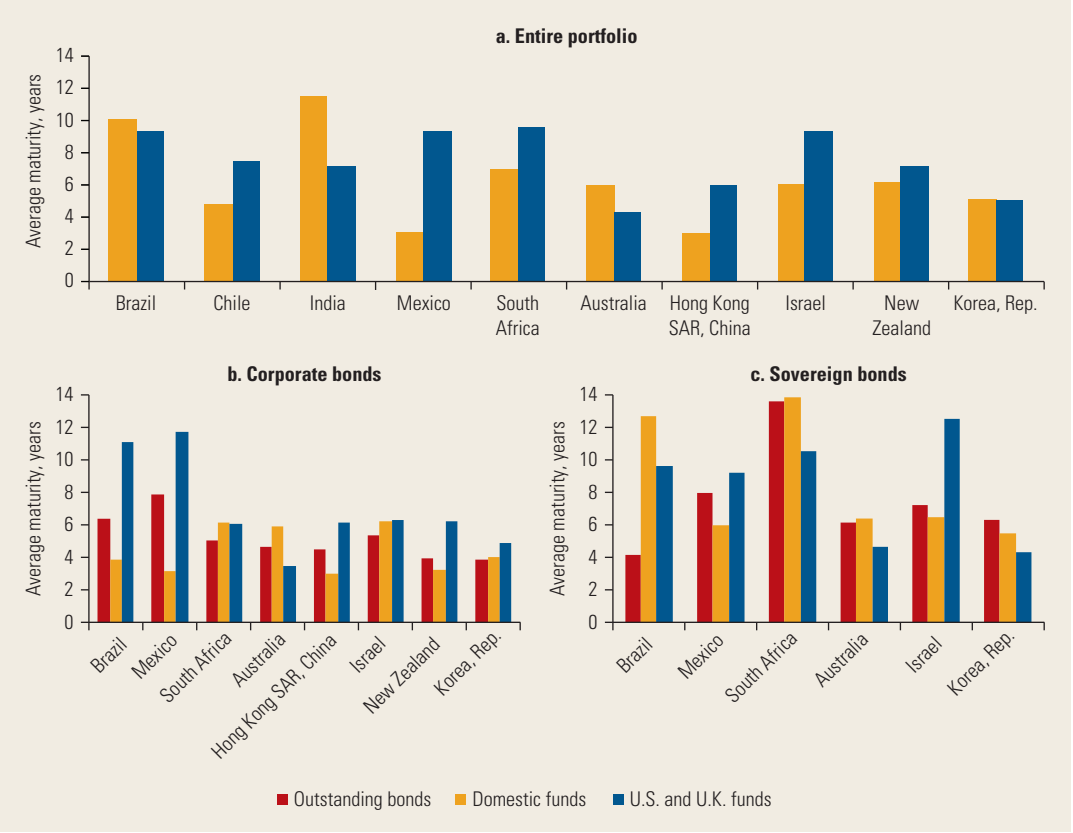
Sources: Calculations based on data from SDC Platinum (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-banking-and-advisory/sdc-platinum.html; Debt Security Statistics (database), Bank for International Settlements, Basel, http://www.bis.org/statistics/secstats.htm; Morningstar, Chicago, IL, http://www.morningstar.com; and DataStream (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-management/datastream-professional.html.
Note: Panel a compares, by country, the average maturity of corporate bonds held by global and emerging markets fixed income mutual funds from the United States and the United Kingdom to the average maturity of the outstanding corporate bonds in the countries in which they invest. Panel b makes the same comparison for sovereign bonds. Only countries with more than 30 observations in both the sovereign and corporate category are included.

countries tend to be longer-term than domestic issuances (chapter 3), signaling that firms in developing countries might find it easier to obtain long-term financing from foreign investors than from domestic ones. Moreover, this finding suggests that international mutual funds could play some role in extending the maturity structure of the countries in which they invest. Unlike the corporate case, however, the evidence is mixed for sovereign bonds. That is, it is not clear whether U.S. and U.K. funds can extend the maturity structure of these bonds (figure 4.10b).[12]

The analysis then compares the maturity structure of U.S. and U.K. international mutual funds with that of domestic mutual funds from developing and high-income countries. It first compares by country the entire portfolio of international mutual funds and domestic funds and then compares separately sovereign and corporate bonds holdings. In the latter case, the average maturities of the portfolios are benchmarked with the maturities of the outstanding bonds.

For developing countries, the comparison suggests that foreign funds invest longer term than domestic ones when investing in the same domestic debt instruments. The results show that U.S. and U.K. mutual funds invest significantly longer than the Chilean, Mexican, and South African domestic mutual funds (figure 4.11a). For example, the average maturity of U.S. and U.K. mutual funds in Chilean (Mexican) bonds is 7.6 (9.4) years, while the average maturity of domestic Chilean (Mexican) funds is 4.8 (3.1) years. In the case of Brazil, the domestic funds invest slightly longer than U.S. and U.K. funds (10.1 and 9.4 years, respectively). However, as discussed later, the higher average maturity of Brazilian funds is explained entirely by their sovereign bonds purchases: if only corporate bonds are considered, U.S. and U.K. mutual funds invest significantly longer than

FIGURE 4.11 Comparison of Average Maturity of U.S. and U.K. Mutual Funds to Domestic Mutual Funds, 2013



Sources: Calculations based on data from SDC Platinum (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-banking-and-advisory/sdc-platinum.html; Debt Security Statistics (database), Bank for International Settlements, Basel, http://www.bis.org/statistics/secstats.htm; Morningstar, Chicago, IL, http://www.morningstar.com; and DataStream (database), Thomson Reuters, New York City, NY, http://thomsonreuters.com/en/products-services/financial/investment-management/datastream-professional.html.
Note: This figure compares, by economy, the average maturity of global and emerging markets fixed income mutual funds from the United States and the United Kingdom with that of domestic mutual funds and outstanding bonds. Only domestic bonds are included in the portfolio of the domestic mutual funds.

Brazilian funds. The only developing country in the sample in which domestic funds invest significantly longer term is India. Similar to Brazil, however, the Indian funds in the sample only purchase sovereign bonds (which are longer term in the Indian case) while the U.S. and U.K. funds invest more heavily in Indian corporate bonds.

The comparison of U.S. and U.K. mutual fund investment with that of local funds in other high-income economies shows similar patterns: U.S. and U.K. funds typically invest longer term there as well. In Hong Kong SAR, China; Israel; and New Zealand, U.S. and U.K. mutual funds invest longer term than the domestic mutual funds (see figure 4.11a). For example, the average maturity of U.S. and U.K. mutual funds in Hong Kong SAR, China (Israeli) bonds is 6.0 (9.4) years, while the average maturity for domestic Hong Kong SAR, China (Israeli) mutual funds is 3.0 (6.0) years. In the case of the Republic of Korea, the average maturity of U.S. and U.K. funds is similar to that of Korean funds. Australia is the only high-income country in the sample in which the domestic funds invest longer term than U.S. and U.K. mutual funds.

When considering only corporate bonds, U.S. and U.K. mutual funds tend to invest longer term than the average maturities of

the domestic funds in the countries in which they invest. With the exception of Australia and South Africa, U.S. and U.K mutual funds' foreign corporate holdings have an average maturity longer than that of the domestic mutual funds (figure 4.11b). In the cases of Brazil; Hong Kong SAR, China; Mexico; and New Zealand, the investments of U.S. and U.K. mutual funds are significantly longer term than those of the domestic funds. Moreover, the domestic funds of these four economies have a shorter average maturity than that of the outstanding corporate bonds, while U.S. and U.K. investments are longer. These patterns suggest that foreign investors might be an avenue through which to extend debt maturities.

For sovereign bonds, U.S. and U.K. mutual funds do not seem to invest longer term than the domestic funds in the countries in which they invest. Unlike the corporate case, the evidence is mixed, and it is not clear whether international funds can be an avenue to extend the maturity structure of sovereign bonds. In this case, U.S. and U.K. funds invest longer term than the domestic funds only in Israel and Mexico. In Australia, Brazil, Korea, and South Africa, they invest shorter term (figure 4.11c).[13] Nevertheless, in Israel and Mexico, where domestic funds invest shorter term than the average maturity of the outstanding sovereign bonds, while U.S. and U.K funds invest longer term, the role of international funds might still be important. In addition, in Brazil, U.S. and U.K. funds still have a longer average maturity than that of the outstanding sovereign bonds, and thus may still contribute to lengthening their average maturity.

Summing up, mutual funds from international financial centers seem to play some role in extending the maturity structure of corporate bonds in developing and other high-income countries. Although the evidence presented here does not imply causality, it does suggest that fostering foreign institutional investors might be one avenue for extending the maturity profile of debt. One potential reason for this behavior is that international mutual funds might be willing to take the higher risk of investing more long-term given their larger size and their ability to diversify this risk by investing in different countries around the world. In addition, according to the Chilean evidence presented earlier, domestic funds in developing countries might be subject to larger outflows related to performance, and so they might have incentives to hold a higher proportion of short-term instruments. At the same time, given that international mutual funds do not seem to invest more long-term in the case of sovereign bonds, the evidence simply might be reflecting differences in the attributes (size or asset tangibility) of the firms in which they invest. For example, because of information asymmetries, the domestic funds might be providing finance to smaller firms that are not able to raise funds in international markets or that are not targeted by foreign investors, and these firms might be raising bonds at shorter maturities.[14] Nevertheless, even if differences in firm characteristics explain part of the results, the evidence presented here, together with the fact that foreign corporate issuances from developing countries are of longer-term nature than domestic issuances (chapter 3), indicates that firms in developing countries find it easier to obtain long-term financing from foreign investors. The analysis presented in this chapter does not explore these potential explanations, and much more work is needed in this regard.

SOVEREIGN WEALTH FUNDS

Sovereign wealth funds (SWFs) are a large and growing class of institutional investors. SWFs are state-owned funds that invest sovereign revenues in real and financial assets, typically with the aim of diversifying economic risks and managing intergenerational savings. Currently, all SWFs combined have an estimated $6.6 trillion under management (Gelb and others 2014)—more than twice the amount managed by all hedge funds combined. The assets managed by SWFs have been growing rapidly and have increased more than 10-fold over the past two decades. Excluding SWF home economies, SWF investments could account for more than 10 percent of GDP in many developing economies of Africa, Eastern Europe, and Latin America, and for up to 1–2

percent of the market capitalization of traded companies in these countries (Curto 2010).

Because SWFs have very low redemption risk (the risk of investors withdrawing funds), they are in principle a natural provider of long-term finance. Many SWFs often have an explicit mandate to manage intergenerational savings, so they typically also have a much longer investment horizon than other investors. As a result, SWFs are better able to invest in illiquid assets with longer maturities, which in turn can reduce the volatility of capital flows to the markets in which they invest. Initially SWF investments were highly concentrated in traditional asset classes and high-income countries, but these funds have been increasingly active in developing economies where they have provided various forms of long-term financing, either through capital markets or in the form of direct equity investments.

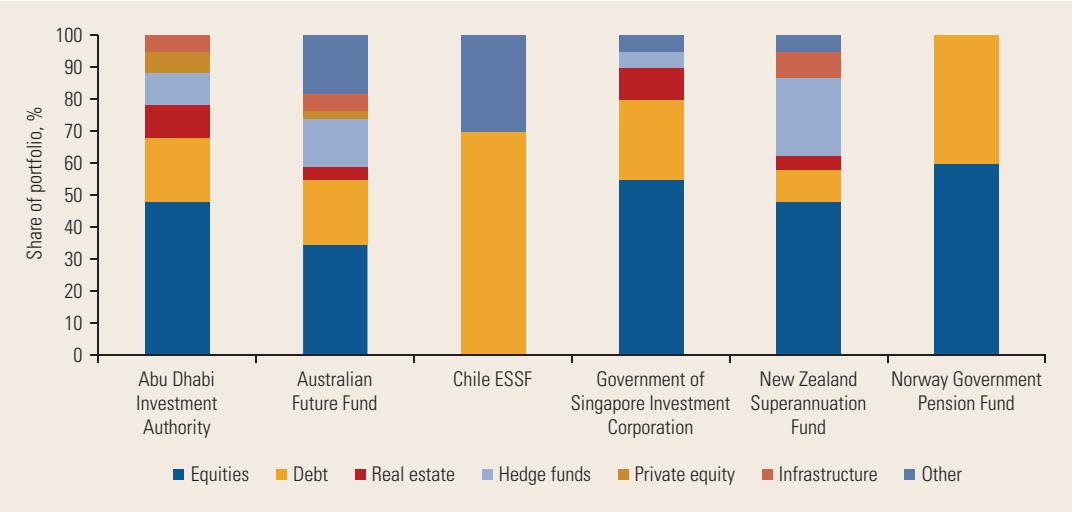
SWFs have their origins in the need to manage cyclical state revenues. In many economies, windfall earnings from the discovery of natural resources increased domestic inflation and short-term government spending in ways that proved inefficient or unsustainable in the long run. To address this problem, sovereign entities as dissimilar as Saudi Arabia and Timor-Leste established state funds to set aside natural resource earnings in a diversified portfolio of investments, whose return would benefit future generations. It is estimated that more than 60 percent of current SWF assets are linked to oil and gas revenues. At the same time, a number of large SWFs are not linked to natural resource earnings. Sovereign funds in China; Hong Kong SAR, China; and Singapore, for example, emerged as a result of persistent trade surpluses and the desire to diversify the resulting foreign currency holdings away from safe but low-yielding U.S. Treasury bonds (see table 4.2 for an overview of the world's largest SWFs). This highlights that not all SWFs are alike: SWFs have different funding sources, which in turn result in different investment mandates and governance structures. Commodity-abundant countries typically establish SWFs to help stabilize government revenue (stabilization funds) and to manage these revenues intertemporally (savings funds). Noncommodity SWFs (mostly coming from East Asia) are funded by transferring assets from international reserves, government budget surpluses, and privatization revenues. Commodity and noncommodity SWFs can take the form of pension reserve funds or of reserve investment corporations. Pension reserve funds accumulate resources in the current period to provide for future liabilities related to pensions and social security (examples include Australia, Chile, New

TABLE 4.2 Sovereign Wealth Funds by Total Assets under Management, 2014

Economy	Name	Assets (billions, $)	Inception year	Origin of funds
Norway	Government Pension Fund	878.0	1990	Oil
United Arab Emirates	Abu Dhabi Investment Authority	773.0	1976	Oil
Saudi Arabia	SAMA Foreign Holdings	737.6	—	Oil
China	China Investment Corporation	575.2	2007	Noncommodity
China	SAFE Investment Company	567.9	1997	Noncommodity
Kuwait	Kuwait Investment Authority	410.0	1953	Oil
Hong Kong SAR, China	Hong Kong Monetary Authority Investment Portfolio	326.7	1993	Noncommodity
Singapore	Government of Singapore Investment Corporation	320.0	1981	Noncommodity
China	National Social Security Fund	181.0	2000	Noncommodity
Singapore	Temasek Holdings	173.3	1974	Noncommodity
Qatar	Qatar Investment Authority	170.0	2005	Oil and gas
Australia	Australian Future Fund	90.2	2006	Noncommodity
United Arab Emirates	Abu Dhabi Investment Council	90.0	2007	Oil
Russian Federation	National Welfare Fund	88.0	2008	Oil
Russian Federation	Reserve Fund	86.4	2008	Oil

Source: Sovereign Wealth Fund Institute, Las Vegas, NV, http://www.swfinstitute.org.
Note: — = not available.

FIGURE 4.12 Targeted Asset Allocation of Selected Sovereign Wealth Funds



Sources: Gelb and others 2014; and Sovereign Wealth Fund Institute, Las Vegas, NV, http://www.swfinstitute.org.
Note: The targeted asset allocation is a benchmark portfolio that maximizes expected investment returns subject to the fund's risk tolerance, taking into account the uncertainty of inflows (outflows) to (from) the fund. The fund's portfolio includes not only debt and public equities but also other asset classes such as real estate, hedge funds, private equity, and infrastructure. Chile ESSF refers to the Chilean Economic and Social Stabilization Fund.

Zealand, and Norway). Reserve investment corporations will maximize returns on funded assets subject to risk considerations (examples include the Singapore Investment Corporation and the Korea Investment Corporation).

Differences in the origins and purposes of SWFs are reflected in the significant variation of investment behavior across SWFs (Gelb and others 2014). This variation, in turn, affects how well-placed different SWFs are to provide long-term financing and how likely they are to invest in new markets and asset classes. The targeted asset allocation of six leading SWFs is compared in figure 4.12. The asset allocations plotted in the figure are benchmark portfolios that maximize expected investment returns subject to the fund's risk tolerance. Reflecting the significant differences in SWF mandates, risk appetites, and investment horizons, the figure shows striking differences in the targeted holdings of debt versus equity instruments, as well as in asset classes with different liquidity and time horizons. Stabilization funds, such as Chile's Economic and Social Stabilization Fund (ESSF), tend to target a relatively high share of high-liquidity, low-risk investments. Strategic investors, such as Singapore's Temasek, in contrast, target a higher share of equity investments that are less liquid and that require greater monitoring and specialized expertise. As a result, strategic SWFs are much more likely to act as active investors through private or public equity holdings.

Traditionally, SWFs have invested primarily in liquid assets. In recent years, however, they have increasingly invested in alternative assets and asset classes with a longer investment time horizon. Dyck and Morse (2011) assembled data on the portfolios of all sovereign funds with more than $10 billion in assets under management and found several striking results in the portfolio allocation of these funds. First, the sovereign funds in the dataset allocate only half of their invested capital to public equities and hold the remainder in asset classes with a longer-term investment horizon, such as private equity limited partner positions (29 percent) and real estate (19 percent). These shares are significantly higher than comparable figures for banks and other institutional investors. Second, the equity holdings of these SWFs are targeted primarily to sectors with significant demand

for long-term finance, including financial institutions, infrastructure development, and telecommunications. Sovereign funds tend to invest actively and often hold equity stakes of 5 percent or more in their investee companies. Third, SWFs also exhibit severe home bias in their public and private equity holdings, which is more pronounced when SWFs are exposed to political influences (Dyck and Morse 2011; Bernstein, Lerner, and Schoar 2013). Bortolotti and others (2009); Chhaochharia and Laeven (2008); and Bernstein, Lerner, and Schoar (2013) examined the timing and performance of SWF investments and found that, on the whole, they tend to be associated with positive abnormal returns but with negative returns in the longer run. This finding suggests that in many cases SWFs engage in procyclical "trend chasing" rather than provide long-term finance that reduces macroeconomic volatility.

As the size and complexity of SWF investment portfolios have grown, one challenge has been to maintain investment expertise and returns. That is particularly true for investments in alternative assets, such as private equity, venture capital, and real estate. SWFs have addressed these diseconomies of scale in two different ways. At one end of the spectrum, some large funds avoid investing in private equity and alternative assets altogether. At the other extreme, some funds have established specialized units with a mandate to make equity investments in specific markets, industries, and asset classes. This latter approach, pioneered by funds such as Singapore's Temasek and several Middle Eastern funds, is a useful approach for investing in new asset classes. Greater specialization is also likely to facilitate direct investments in developing countries, which often require greater monitoring and localized expertise.

Although SWF portfolio investments traditionally have been concentrated in high-income countries (often in asset classes with high liquidity, such as currency and equities), more recently SWFs have increasingly undertaken investments in developing countries either because they want to diversify their portfolios and achieve higher returns or because they are mandated to invest in their home economies for economic development purposes. Such investments have often taken the form of equity stakes with a long-term investment horizon and have been spearheaded by funds with local expertise. Examples include investments by Singapore's Temasek Holdings in the Indian financial sector, the Abu Dhabi Investment Authority's investments in Malaysian land and real estate, and the Dubai Investment Corporation's stakes in the African telecommunications sector. Some emerging SWFs that are headquartered in developing countries have also undertaken substantial investments in their home economies. These investments helped finance physical and social infrastructure, but there are concerns that they may undermine the goal of economic stabilization through a diversification of national assets away from the home economy.

SWF investments have been viewed as a promising source of long-term finance in many developing countries. This is particularly true in the aftermath of the global financial crisis, which led to a reduction in debt maturities and capital flows to developing countries (see chapter 3). In addition to providing a substitute for traditional sources of long-term finance, the emerging market investments of SWFs have often been geared toward areas with significant financing gaps, such as the development of physical and social infrastructure. Moreover, SWF investments in developing country infrastructure, health care, and telecommunications have often been able to mobilize additional long-term finance from the private sector. It is estimated that if sovereign funds invested only 1 percent of their total assets in Sub-Saharan Africa—the world region where the gap between the supply and demand for long-term finance is perhaps most acute—it could mobilize joint investments of about $420 billion over the 2010–20 decade, enough to account for half of the infrastructure investment required to meet the Millennium Development Goals (Turkisch 2011). There are several examples of successful co-investments by sovereign funds and private investors in developing countries. The China-Africa Development Fund (CAD

Fund), for example, is an equity fund that was established by the Chinese government but that also engages in fund-raising from private sector investors. The fund invests in Chinese enterprises with operations in Africa, with investments of more than $1 billion. The investments of this SWF alone are thought to have facilitated additional investments of more than $2 billion by Chinese enterprises, particularly in the agriculture, infrastructure, energy, and manufacturing sectors across Sub-Saharan Africa.

The impact of SWF investments in developing countries should not be overstated, however. Despite the overall increase of sovereign fund investments in developing countries, the total value of these transactions remains extremely small. The geographical distribution of sovereign fund deals, summarized in table 4.3, shows that more than 80 percent of all deals between 2010 and 2013 occurred between high-income countries. Moreover, the geographical distribution of sovereign fund deals in developing countries has been very uneven—more than 77 percent of all SWF investment in developing countries between 2010 and 2013 was located in East Asia and Pacific (58 percent) and South Asia (19 percent). Thus, although SWFs have made many highly visible investments in developing countries, their overall investment patterns are still heavily concentrated in developed markets, so despite their different mandate and risk profile, they do not differ very much from other institutional investors in this respect.

Because SWFs can be susceptible to political influence, transparency and good corporate governance standards can improve the effectiveness of SWF investment strategies—especially in developing economies. SWFs need legitimacy and credibility so that their capital is not depleted by the government or allocated to inefficient investments for political reasons. Some countries have enacted laws and created institutions to set up sound corporate governance and investment policies for their funds. The specific procedures that govern a fund's asset allocation have to be tailored to the SWF's goals. In this context, SWF spending plans should be part of a coherent policy framework that is flexible and that is designed to meet unexpected and large adverse shocks. For instance, Timor-Leste's Petroleum Fund has invested resources in the country's electricity grid. The investment mandate might, at the same time, need to minimize unexpected resource demands from the government. Transparency and accountability are crucial for the effectiveness of SWFs. Some funds submit regular reports to the government or to the public. The Chilean government, for example, has enacted a fiscal responsibility law that strengthens the relationship between the fiscal rule and the use of government savings (Schmidt-Hebbel 2012). Chile has established two SWFs: the Pension Reserve Fund (PRF), created to finance the government's future pension liabilities, and the new Economic and Social Stabilization Fund (ESSF). The law establishes clear procedures for funding these SWFs and specific rules to deploy resources from them—especially the ESSF. Furthermore, it outlines procedures for the international investment of the resources held in these funds. The law has also created an independent committee—the Advisory Financial Committee for Fiscal Responsibility Funds—which provides nonbinding recommendations to the Ministry of Finance on fund investment policies and regulations and publishes an annual report of the financial performance of the SWFs.

Many large SWFs have an explicit mandate to support the long-run development of their home economies. SWFs in resource-rich Middle Eastern economies are prominent examples. To achieve this goal, these funds invest a part of their portfolio in "strategic industries" at home, with the goal of diversifying their economies and of reducing the reliance on

TABLE 4.3 Percentage Share of Sovereign Wealth Fund Transactions by Level of Economic Development, 2010–13

	Target		
Origin	High income	Developing	Total
High income	80.9	14.8	95.7
Developing	0.8	3.3	4.1
Total	81.7	18.1	100.0

Source: Calculations based on data from World Bank.

natural resources. Table 4.4 provides a list of the largest SWFs with an explicit domestic investment mandate (Gelb and others 2014). In recent years, the number of SWFs that invest in their domestic economies, as well as the overall volume of such investments, has been increasing. In many cases, the SWF domestic investments have provided financing in social and physical infrastructure, which are of strategic importance for long-run development. Moreover, in the aftermath of the global financial crisis of 2008–09, many governments have seen these investments as a useful substitute for other sources of long-term finance that mitigated the negative consequences of the global credit crunch.

However, the impact of SWF domestic investments remains highly controversial. There are two main concerns. On the one hand, sovereign funds may have superior information and expertise in the domestic economy, allowing them to provide long-term finance to local firms that are financially constrained and that subsequently perform well. If this view is correct, the domestic investments of sovereign funds would be expected to be anticyclical and directed toward firms that subsequently outperform their peers. On the other hand, SWF domestic investments may be subject to significant political involvement, which can create agency problems and induce distortions in SWF investment decisions. For example, a

TABLE 4.4 Selected Sovereign Wealth Funds with a Domestic Investment Mandate, 2014

Country	Fund	Inception year	Objectives	Assets (billions $)
United Arab Emirates	Investment Council (Abu Dhabi)	2007	• To assist the government of Abu Dhabi in achieving continuous financial success and wealth protection, while sustaining prosperity for the future. • To increasingly participate in and support the sustainable growth of the Abu Dhabi economy.	627.0
Angola	Fundo Soberano de Angola	2012	• To generate sustainable financial returns that benefit Angola's people, economy, and industries.	5.0
Bahrain	Mumtalakat	2006	• To create a thriving economy diversified from oil and gas, focused on securing sustainable returns and generating wealth for future generations.	13.5
Kazakhstan	Samruk-Kazyna	2008	• To develop and ensure implementation of regional, national, and international investment projects. • To support regional development and implementation of social projects. • To support national producers.	47.4
Malaysia	Kazanah	2003	• To promote economic growth and make strategic investments on behalf of the government, contributing to nation building. • To nurture the development of selected strategic industries in Malaysia with the aim of pursuing the nation's long-term economic interests.	34.4
Nigeria	Nigeria Infrastructure Fund	2011	• To invest in projects that contribute to the development of essential infrastructure in Nigeria.	1.0
Russian Federation	Russia Direct Investment Fund	2011	• To make equity investments in strategic sectors within the Russian economy on a commercial basis by co-investing with large international investors in an effort to attract long-term direct investment capital.	10.0

Source: Gelb and others 2014.

sovereign fund subject to political influence may exhibit disproportionate home bias and use domestic equity investments to subsidize or bail out underperforming industries (Dyck and Morse 2011). If this less benevolent view holds, the domestic investments of sovereign funds would be expected to be cyclical and directed toward firms that do not have profitable investment opportunities and that therefore fail to outperform the market.

The existing evidence suggests that SWF equity financing to domestic firms is indeed more likely to cause political distortions rather than solve credit constraints for productive firms in need of long-term financing. Bernstein, Lerner, and Schoar (2013) combined data on the board composition and direct investments of SWFs to test these competing hypotheses. They found that domestic investments are more common among SWFs where politicians are involved in management. Second, they found that the domestic investments of sovereign funds subject to political influence in their decisions are highly cyclical. That is, these SWFs tend to invest in industries with high price-to-earnings ratios that subsequently underperform. This deviation from long-run profit maximization is true overall, but it is especially pronounced for the domestic investments of these funds. These results mirror the evidence on misallocation of capital stemming from state ownership of banks and from mismanagement of state-owned companies and suggest that problems of political capture and corporate governance are among the main obstacles that prevent the domestic investments of sovereign funds from serving as a substitute for other sources of long-term finance that can contribute to sustainable economic growth. These findings thus highlight the special importance of sound corporate governance and transparency in the case of SWFs with a domestic investment mandate.

PRIVATE EQUITY IN DEVELOPING COUNTRIES

Private equity (PE)—an asset class consisting of long-term equity investments, typically lasting several years, in private companies that are not listed on a stock exchange—has become an increasingly important source of long-term finance in developing countries, although it remains relatively small. The capital raised by developing-country PE funds has increased more than 20-fold since 2005 (WEF 2010). It is estimated that at the end of 2014, PE funds had approximately $3.4 trillion under management. Between 2008 and 2014, approximately 10 percent of new PE investments and 15 percent of PE fundraising took place in emerging markets. Although PE investments in developing countries have increased dramatically in recent years, they remain small relative to GDP in both developing and developed economies. The total volume of PE investments remained below 0.5 percent of GDP in Europe between 2007 and 2013 and accounted for less than 1.5 percent of GDP in Brazil, China, India, and Russia, the emerging markets with the highest PE activity globally. PE investments also tend to be concentrated in a relatively small group of industries, such as technology, health care, and telecommunications. The stylized evidence therefore suggests that, to the extent that long-term financing through PE creates value, these benefits remain confined to a small set of industries and economies.

PE investors typically specialize in a particular stage of investee company development, a particular set of industries, or a combination of these two key dimensions, and their investment strategies differ accordingly. However, all PE investors provide comparatively illiquid longer-term equity investments to facilitate growth, innovation, or restructuring of investee companies. The ultimate aim of a PE investor is to realize a return on these activities either through a sale or through a merger or by taking the investee company public, which typically occurs in three to seven years. PE firms generally operate as part of a larger financial corporation or as limited liability partnerships that raise funds independently. Unlike other forms of long-term finance, PE investors provide investee companies with more than capital. Typically PE investors take an active role in company operations by

improving management practices, facilitating knowledge transfer and innovation, or creating economies of scale and scope through the restructuring of investee companies. PE investors thus bring a set of skills that differentiate them from other institutional investors and add value to investee companies in ways that can be especially beneficial to firms in developing countries.

PE funds come in a number of forms, which may differ in their ability to substitute for other sources of long-term finance. Table 4.5 provides a stylized summary of the main classes of PE funds: early-stage or venture capital funds, industry-specific or growth funds, and later-stage or buyout funds. Each class of PE fund can be broken into several subtypes of funds and investment strategies. In addition, some of the larger private equity firms employ multiple PE investment strategies simultaneously. Some types of PE funds that are likely to be a particularly useful source of long-term finance have grown especially rapidly in recent years. PE infrastructure funds, for example, grew from $17 billion in 2004 to $244 billion in 2013.

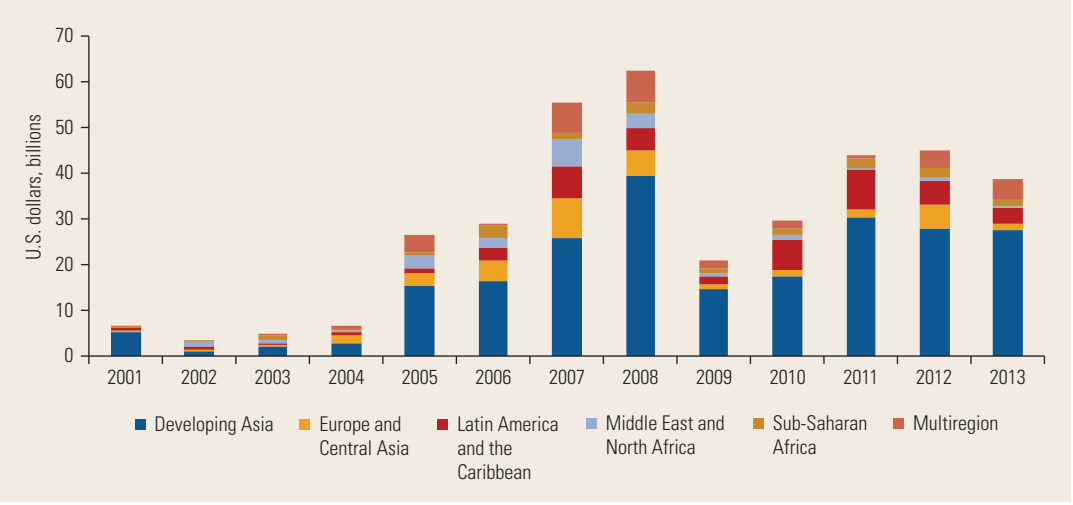
PE investments to developing countries have expanded rapidly in the past two decades (Bottazzi, Da Rin, and Hellmann 2004; Maula 2010). As recently as the early 2000s, the vast majority of PE activity was concentrated in the United States. Since then, both cross-border PE fund-raising and cross-border PE investments have surged, although the United States remains the center of PE activity. Some observers have described this growth as the "globalization of alternative investments" (WEF 2008).

The regional distribution of PE investments, however, remains highly uneven. The regional distribution of PE investments for the years 2001–13 reveals a number of interesting facts (figure 4.13). First, while PE investments remain concentrated in high-income countries, the overall share of PE investments in developing countries rose from 12 percent in 2000 to nearly 33 percent before the global financial crisis. Second, the geographical distribution of PE flows to developing countries remains unbalanced. In 2013 Asian economies accounted for 71 percent of all developing economies' PE flows, whereas Latin America accounted for only 9 percent. This imbalance is similarly pronounced when PE flows are scaled by the receiving region's total GDP. Third, PE flows to developing countries correlate strongly with the business cycle of high-income countries.

TABLE 4.5 Types of Private Equity Funds and Investment Strategies

Private equity (PE) fund type	Definition	Related PE fund types
Early-stage or venture capital (VC) funds	Early-stage/VC funds invest in start-ups and early stage entrepreneurial firms, frequently pairing their capital with an array of other business resources (such as networks for additional hiring and specialized consultants, improving management, identifying alliances and acquisitions, and searching for appropriate market applications).	"Angel investors," seed financing, start-up financing.
Industry-specific funds	Industry-specific funds offer investee companies focused industry knowledge and relationships, making them particularly well equipped to get deeply involved in key strategic decisions and to assist in efforts to grow through acquisitions. Except in the largest economies, an industry focus usually precludes a geographic focus.	Industry focus could range from real estate, infrastructure, biotech, information technology, and media and telecom to agribusiness, climate change, education, health care, microfinance, and forestry, etc.
Late-stage or buyout funds	Buyout funds invest in mature companies, often using substantial debt to simultaneously reduce the capital the fund puts in and increase the return on that capital. These investments frequently aim to improve the profitability of the investee firm through reorganization and replacement of top managers.	Leveraged buyout (LBO) funds, "special situations investing."

FIGURE 4.13 Private Equity Fund-Raising in Developing Countries by Region, 2001–13



Source: FundLink (database), Emerging Market Private Equity Association, Washington, DC, http://empea.org/research/data-and-statistics/fundlink.

This is true even though many large developing countries, including China and India, were relatively resilient during the global financial crisis of 2008–09; PE flows to these markets collapsed to about one-third of their precrisis volume.

A first advantage of financing entrepreneurial firms with PE is that, unlike other forms of long-term finance, PE investments can provide not only capital but also management expertise and incentives for technology transfer and innovation. An extensive body of literature has documented a robust link between PE investments and innovation in developed markets. Kortum and Lerner (2000) showed that venture capital activity in an industry significantly increases innovation as measured by increases in patents. While the ratio of venture capital to research and development averaged less than 3 percent between 1983 and 1992, estimates suggest that venture capital accounted for 8 percent of industrial innovations during the period. PE investments could be increasing innovation through two possible channels. First, venture capital may directly increase resources and incentives for innovation at investee companies. Second, an inflow of PE investments into an industry is likely to increase product market competition, forcing competitors to improve their operations. This point was first made by Jensen (1989) and is supported by empirical evidence in John, Lang, and Netter (1992). While opportunities to invest in the development of new technologies may be less abundant in developing countries, PE investors play an important role in facilitating technology transfer. Indeed, some of the most successful PE deals in developing countries have funded faster adaptations of existing technologies and business models to local markets. Prominent examples include PE investments in generic drug manufacturers and the adaptation of online shopping and e-business platforms to developing countries such as Brazil, China, and India.

Second, PE investments may serve as a signal to other private investors and may attract cofunding from traditional providers of finance. Hellmann, Lindsey, and Puri (2008) showed that banks have increasingly made forays into PE investing in an effort to build lending relationships with the most successful entrepreneurial firms. Firms benefit from this relationship through more favorable loan pricing and access to credit. Thus, one of the key functions of PE investors in developing countries with less-developed credit markets may be to screen entrepreneurial firms to graduate the most promising entrepreneurial ventures to public equity or to bank financing.

Third, PE investments—unlike other forms of long-term finance—may benefit investee companies by strengthening their corporate governance and transparency directly. Bloom, Sadun, and Van Reenen (2009) looked at data from a global survey of management practices (Bloom and Van Reenen 2007) and found that firms controlled by PE investors have significantly better management practices. Entrepreneurial firms funded by PE are significantly better managed than state-owned firms, family firms, or other privately owned firms. Interestingly, they also perform better than publicly traded firms along several human resource management and operational measures. Looking at within-firm variation, the same data suggest that PE investors target poorly managed firms and create value by improving management practices over time.

Fourth, private equity investments can affect real economic activity through their effect on firm ownership. Bernstein and others (2010), for example, found that industries with a high share of PE investment are no more volatile than other industries and in some cases less so. One possible explanation for this finding is that more concentrated ownership makes it easier to undertake efficiency-improving reforms early—often ahead of a crisis—which ultimately improves the investee company's ability to weather negative economic shocks.

The evidence also suggests that increased access to long-term PE financing has had tangible positive effects on industry performance and economic growth (Bernstein and others 2010; Davis and others 2011). Bernstein and others (2010) examined the impact of PE investments in 20 industries across 26 markets over two decades and found that productivity and employment grow more quickly in industries with PE investments than those without such investments. Importantly, the authors showed that this growth is not driven by reverse causality—that is, "trend chasing" by PE investors entering industries that would have had similarly high growth rates in the absence of PE funding. Their findings also hold for economies outside the United States and the United Kingdom. This recent evidence also appears to refute earlier concerns that PE investments may have little effect on real economic activity but may magnify cyclical fluctuations in the economy (see, for example Guo, Hotchkiss, and Song 2011). The evidence does, however, support the conclusion that the economic effects of PE investments depend on the type of investment—with growth funds and venture capital being, in most cases, less likely to sacrifice long-run value for short-term performance than buyout funds.

PE investment effects also depend on the broader economic context in which the investments take place. Bernstein and others (2010), for example, noted that the buyout boom in the United States in the early 2000s "was so massive, and the subsequent crash in activity so dramatic" that, viewed in isolation, its consequences would most likely suggest a more pessimistic view of the link between PE financing and the real economy than later waves of PE activity. Using a large sample of PE investee firms in the United States, Davis and others (2011) showed that PE investments lead to an efficient reallocation of jobs but no significant net job losses at investee firms. Hence, taken together, the available evidence suggests various ways in which PE financing can improve economic efficiency. It is, however, worth noting that much of the existing evidence on the impact of PE comes from developed markets, so more research is needed to assess the extent to which these potential benefits of PE investments carry over to developing economies.

A number of caveats constrain the impact of PE investments in developing countries. First, the distribution of global PE flows is highly uneven. PE flows are highly sensitive to the quality of legal and market institutions in the recipient country (Lerner and Schoar 2005). This implies that, among developing countries, only the most developed markets tend to receive sufficient PE inflows to make these alternative investments an economically meaningful source of long-term finance. Second, PE fund-raising still takes place predominantly in developed markets, and hence PE flows remain cyclical and highly correlated

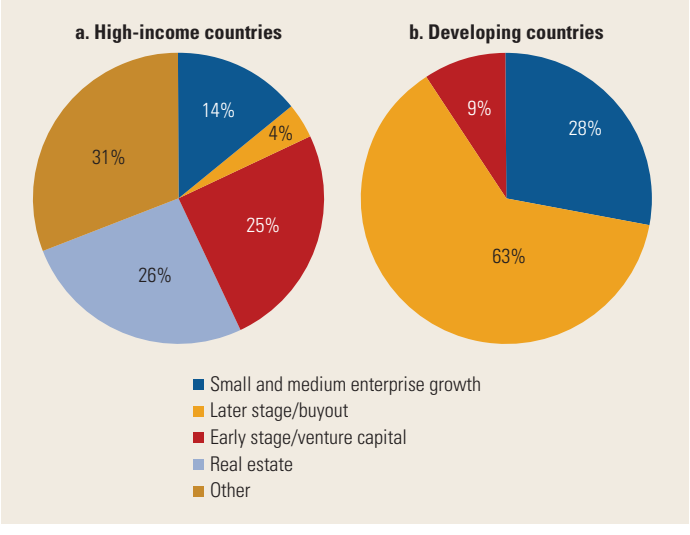
with the business cycle of high-income countries. Even though some categories of PE investments (such as PE infrastructure funds) have been less volatile and remained stable in the aftermath of the 2008–09 financial crisis, the correlation between PE flows and business cycles external to the destination economy suggests significant inefficiencies in the allocation of PE capital. It also highlights that, from a macroeconomic perspective, PE investments are subject to some of the same problems of cyclicality as other forms of foreign direct investment.

PE flows are strongly correlated with the quality of legal and economic institutions in the recipient country. PE investments outside North America and Western Europe go predominantly to developing countries with strong legal and economic institutions and comparatively developed capital markets (Jeng and Wells 2000; Guler and Guillén 2010). There are several reasons for this correlation. First, PE investments are sensitive to the expected level of returns, which in developing countries often need to be high enough to compensate investors for a substantial risk premium. As a result, PE firms are hesitant to invest in economies where poor legal institutions compound the idiosyncratic risk of their investment. Second, PE investments are sensitive to the availability of exit opportunities, which depend crucially on the development of local capital markets. Hence, it is not surprising that the evidence suggests that PE investments primarily complement other forms of financing in relatively developed emerging markets rather than act as a substitute for other forms of long-term finance.

Although political and economic risks place limitations on PE activity in developing countries, private investors have adjusted their investment strategies in ways that partly compensate for these factors and have enabled greater PE investments to developing countries. As figure 4.14 shows, the distribution of PE fund types varies substantially between developing countries and traditional markets in advanced economies. The clearest distinction is the greater tendency of PE funds in developing countries to invest in the growth stage for SMEs and in late-stage deals rather than in seed stages. The focus on growth-stage deals is consistent with strategies aimed at maximizing the opportunities created by improving macroeconomic conditions. The overall preference of PE firms to do this through investments in more mature companies, rather than in early-stage firms, reflects a combination of the benefits of incumbency to potential investees and the aversion of investors to piling company-level risk on top of the already substantial contextual risk that characterizes emerging markets.

The evidence is mixed on whether the current share of PE capital going to developing countries is appropriate and sufficient to serve as a meaningful source of long-term finance. Measured by total investment as a share of GDP, PE industries in developing countries remain substantially less mature than in advanced economies. Such numbers lie behind both the consistent claims of limited partners that they will expand their allocations toward PE in developing countries in coming years, and the arguments for sustained or even increased involvement of development finance

FIGURE 4.14 Private Equity Fund Types by Country Income Group, 2014



Sources: Calculations based on data from International Finance Corporation, Washington, DC; Private Equity (database), Preqin, New York City, NY, https://www.preqin.com.
Note: The figure is based on data covering 7,071 private equity funds in Q1 2014 for which information on investments by region was available.

institutions (DFIs) in promoting PE industries in these countries (Divakaran, McGinnis, and Shariff 2014). Others, however, counter that underdevelopment of other domestic financial markets in most developing countries leads investment-to-GDP numbers to overstate the unmet PE opportunity. This argument rests on the assumption that the ratio of PE investment to GDP would be much lower in advanced economies in the absence of the substantial leveraging applied to most larger-scale deals.

The performance of PE funds in developing countries has improved over the past decade. Although that performance is widely understood to have been relatively poor in its early stages (Fox 1996; Leeds and Sunderland 2003), it has improved since the late 1990s as PE investors have adapted their investment strategies to the economic and institutional challenges they face in emerging markets. There is also significant variation in PE performance across developing countries that relates systematically to the institutional environment in which the investee company is located. Lerner and Schoar (2005) found that PE deals in countries with British colonial origins such as the United States and India performed significantly better than similar deals elsewhere; they argued that this heightened performance shows the central importance of strong contract enforcement for successful implementation of the traditional PE business model. Certainly poor country-level corporate governance structures and inadequate research coverage make the identification and assessment of potential investment targets a major challenge for PE funds—especially funds managed by PE firms with limited country-specific experience.

The poor performance of early PE investments in developing countries can be related to poorly developed legal institutions as well as to other features of the business environment, such as the difficulty of separating ownership from management. PE firms in advanced economies commonly aim to increase the value of their investee companies by, for example, bringing in new managers with greater experience and specialized skills. However, as noted by Yichen Zhang, CEO and chairman of China's CITIC Capital: "there is often a strong connection between management and the asset, and if an investor tries to separate the two, the result could be a great deal of value reduction" (EMPEA 2014). As a result, much like with venture capital in advanced economies, many developing countries' experienced PE investors emphasize that the original decision to invest involves a major bet on the quality of the existing top management team. Hence, the greater difficulty of separating ownership from control adds to the risk of PE investments in developing countries.

The difficulty of separating ownership and management also has implications for the common practice among many PE firms of seeking majority ownership stakes in their investees. PE funds in the Lerner and Schoar (2005) study were actually more likely to take majority equity stakes when operating in countries that do not have British common law origins. The authors hypothesize that this finding reflects a strategy of using ownership control to overcome weaker legal protection against expropriation by other company insiders (that is, fellow owners and managers). However, PE investors who take a majority position can also reduce incentives for insiders who have been crucial to making the company an attractive investment to begin with. Given the context of substantial information asymmetries that characterize most developing countries, such a reduction in incentives can then lead to shirking by these key players and, in turn, lower returns for the PE investor. There can also be a selection issue, whereby many of the most promising firms are unwilling to sell any more than a minority stake.

The performance of PE investments in developing countries is often also constrained by insufficiently developed local capital markets, a situation that reduces exit options and that makes it difficult for PE investors to use local sources of debt to increase their margins. The relationship between weak legal institutions and a country's level of financial and capital market development is well established. It is therefore only natural that leveraging strategies, which are an important component of

many PE deals, are less feasible in developing countries. Similarly, PE investors seek to restructure or grow firms with the objective of an ultimate profitable exit by taking the company public, selling it to a strategic acquirer through a merger or acquisition—known as a "trade sale"—or selling it to another private equity firm. Each of these strategies becomes more difficult (and less profitable in expectation) in markets where debt and equity markets are not well developed. Although there is no doubt that underdeveloped capital markets deter PE investments overall, there are some indications that emerging-market PE investors have partly adjusted their investment strategies to this fact. While globally, 53 percent of all PE exits were trade sales (26 percent were sales to other PE investors and 19 percent were initial public offerings), this share is generally higher in developing countries with poorly developed capital markets.

Despite these challenges, the performance of PE in developing countries looks much better today than it did in the past. Cambridge Associates reports returns of 15 percent for PE in developing countries over the past 5 years, compared with 16 percent in the United States and 13 percent in Western Europe. Over a time horizon of 10 years, these returns are 15 percent, 14 percent, and 16 percent for developing countries, the United States, and Western Europe, respectively. To verify these results, and to examine PE returns in a sample that is more representative of emerging-market PE funds, we compiled a new dataset that combines data from the Preqin database with proprietary data from the International Finance Corporation (IFC). This dataset contains investments and returns for 7,729 PE funds globally over the years 2001–14, representing investments of $350 billion. These data were used to calculate PE returns, which indicated a similar convergence of PE performance across regions, as shown in table 4.6. There is some evidence to suggest that the improvement in developing-country PE performance is driven by learning among PE investors. Taussig and Delios (2014) showed that PE firms that either originate in the investee country or have raised multiple country-specific funds enjoy higher returns in economies with weak contract enforcement. This importance of local expertise in developing-country PE investing parallels the importance of "localness" in early-stage venture capital investing documented in the United States (Sorensen and Stuart 2001).

Overall, the evidence suggests that PE investments in developing countries have become more viable for international investors and are likely to become a more important source of long-term finance in emerging markets in the years ahead. However, given the concentration of PE investments in a small number of industries in firms that are comparatively larger, at later stages of their development, and located in economies with comparatively developed legal and financial institutions, PE investments will likely play only a complementary role to traditional sources of long-term financing in most developing economies. (See box 4.5 for a discussion of how international financial institutions could enhance PE investments in developing countries.)

TABLE 4.6 Private Equity Returns by Region, 2001–14

Region	Number of funds	Mean IRR (%)	Median IRR (%)
OECD	2,893	9.72	8.90
East Asia and Pacific	264	11.72	9.00
Eastern Europe and Central Asia	175	11.31	8.60
Latin America and the Caribbean	70	14.69	7.20
Middle East and North Africa	56	5.54	3.75
South Asia	35	–0.98	0.10
Sub-Saharan Africa	46	5.99	8.46

Sources: Calculations based on data from International Finance Corporation, Washington, DC; and Private Equity (database), Preqin, New York City, NY, https://www.preqin.com.
Note: IRR = internal rate of return. OECD = Organisation for Economic Co-operation and Development.

BOX 4.5 International Financial Institutions and PE Investments in Developing Countries

Because the viability of private equity investments is heavily dependent on host country institutions and expertise, international financial institutions (IFIs), such as the International Finance Corporation (IFC), have often played a pioneering role in two respects: providing technical assistance and aiding the establishment of markets for private equity (PE) in developing countries as active PE investors.

First, in addition to capital, PE investors bring knowledge and expertise to the companies in which they invest. However, in many less-developed markets, PE investors find it difficult to identify and support promising smaller firms. Technical assistance to PE funds investing in emerging markets can improve the ability of investors to identify promising investments in a nontransparent market environment. Technical assistance to firms can help small and medium enterprises (SMEs) raise PE capital. In recent years, numerous technical assistance facilities financed by third parties, such as IFIs or national governments, have emerged to fill the need for technical assistance for PE in emerging markets (Divakaran, McGinnis, and Shariff 2014). These technical assistance facilities have promoted the model of twinning PE capital with advisory services and have been especially successful at helping smaller firms overcome some of the challenges of raising equity capital in markets with poorly developed legal and economic institutions.

Second, IFIs have also supported the development of markets for emerging-market PE by acting as pioneer investors. Early-stage investments in countries with low levels of PE activity can be helpful in several respects. In addition to providing capital and expertise to local SMEs, PE investments by IFIs can also act as an important signal to private investors. The presence of an IFI PE investor can, for example, ensure compliance with corporate governance standards and legal regulations, thus partly compensating for some of the disadvantage that markets with poorly developed legal institutions and capital markets have in attracting PE investments. The IFC has played a key role in catalyzing PE investments in the developing world. It has a track record of having been among the first PE investors in many emerging markets. With PE investments of over $3 billion in more than 180 emerging market funds, the IFC is currently the largest single PE investor in low- and middle-income countries.

The IFC recently launched the SME Ventures Project to provide both risk capital and support to SMEs in low-income countries where political risks and insufficiently developed capital markets still pose obstacles to attracting substantial PE funding by private investors. Under the program, the IFC provides private equity funds that are managed through independent investment managers who are selected on a competitive basis. The program thereby helps develop the capacity of investment managers to invest risk capital successfully in small businesses in these countries. Capacity building is a crucial component of this initiative. The IFC provides financing and technical assistance to fund managers in areas such as partial support for start-up and operational costs, legal structuring and registration, and capacity building among new staff. SME Ventures also offers advisory services to the SME business community. SMEs selected for private equity investments receive tailored business support to prepare them for the investment as well as during the life of the investment. These services include business planning, market research, governance, management information and accounting systems, and upgraded environmental and social standards.

One of the funds created through SME Ventures is the West Africa Fund for Liberia and Sierra Leone. It currently has an approved investment portfolio of 19 projects worth $7.4 million in different sectors, including food processing, transportation, construction, health, and light manufacturing. To help managers identify investment opportunities, the IFC advisory services team conducted market surveys and identified more than 240 high-potential SMEs in Liberia and Sierra Leone. In a first phase, 60 of these SMEs developed business plans, and the 20 best plans were submitted to the West Africa Fund, resulting in five investment appraisals. In a second phase, the remaining high-potential SMEs are also encouraged to develop business plans, which can lead to additional appraisals and investments. An important objective of the initiative is to support a local PE market by identifying high-potential SMEs, improving transparency and corporate governance, and acting as a catalyst for mobilizing institutional capital.

POLICY LESSONS

The evidence in this chapter suggests that the ability of bank and nonbank financial institutions to provide long-term finance is limited. Contrary to the expectations that maturity structures could be lengthened by promoting the development of bank and nonbank financial institutions, the ability of these institutions to provide long-term finance effectively tends to be constrained by market failures and by institutional and policy weaknesses.

Although banks are the most important source of long-term finance for firms in developing countries, banks in developing countries lend at significantly shorter maturities than those in high-income countries and thus are not able to compensate for market failures and policy distortions. Data from both firms and banks confirm this finding. Research on the maturity of bank loans shows that macroeconomic, institutional, and contractual factors are not the only significant determinants of long-term bank lending. The extent of financial development, ownership structure of banking, regulations regarding bank entry, and bank capital all matter as well. Policy makers will find it important to monitor how the Basel III regulatory changes in bank capital and liquidity requirements affect long-term finance in the near future. Furthermore, policies that facilitate long-term funding for banks without distorting their risk-taking incentives are likely to mitigate the risk of deposit runs and to reduce the maturity mismatch between bank assets and liabilities, in turn enabling bank long-term lending.

The Chilean evidence on domestic nonbank institutional investors shows that, given the institutional framework, incentives matter in lengthening the maturity structure. Despite managing long-term savings, domestic pension funds in Chile structure their portfolios with significantly shorter maturities than domestic insurance companies. In fact, the maturity of pension fund portfolios surprisingly resembles that of domestic mutual fund portfolios. The short-termism of Chilean pension funds does not stem from a lack of long-term instruments or from a weak legal framework. In fact, Chile has done well on the demand side of capital: it has introduced several reforms to foster the demand of capital, leading to a wide range of securities issued by both corporations and the government, including long-term local currency and inflation-indexed bonds. Moreover, Chile's stable macroeconomic performance since the early 1990s has also reduced the risk associated with long-term investments. The Chilean evidence thus highlights the importance of aligning fund managers' incentives with those of the investors by reducing the focus on regulations based on short-term performance.

To reduce the focus on short-term performance, some studies have recommended the introduction of long-term benchmarks for defined contribution (DC) pension funds (Hinz and others 2010; Berstein, Fuentes, and Villatoro 2013; Stewart, 2014). According to Stewart (2014), regulatory authorities could set long-term benchmarks derived from portfolio optimization exercises based on delivering target pension outcomes. Stewart argues that long-term benchmarks would encourage managers to invest with the long-term goal of delivering adequate retirement income as opposed to focusing on short-term volatility management and short-term performance. To the extent that other market conditions make the current short-term equilibrium stable, however, it is not clear that such benchmarks would necessarily shift the investment strategies toward longer maturities. For instance, in some countries, DC pension funds have market power because of their size relative to their domestic markets; that is, they affect security prices when they trade.[15] Under these circumstances, managers of these funds might avoid securities with lower liquidity (which is the case for many long-term corporate bonds) to limit the price effect of their trades. Additionally, even if pension funds hold long-term securities until maturity, mark-to-market valuation implies that low returns in the short run are possible. Since pensioners and pension fund contributors are often reluctant to see the value of their assets

decline, underlying investors might still focus on short-term performance, disregarding long-term benchmarks.

There is also an important trade-off between monitoring managers according to their short-term performance (which leads to short-term investments) and seeking higher returns by investing long term (at the cost of higher risks). On the one hand, under asymmetric information, giving fund managers leeway to make long-run bets exposes investors and regulators to the possibility of realizing too late that managers did not collect sufficient information and that long-run investments thought to be good were really unprofitable risky bets, even from an ex ante perspective. On the other hand, subjecting managers to continuous short-run monitoring might reduce their willingness to undertake long-run investments, might lead them to rely excessively on short-term assets, and might reduce returns for underlying investors. Policy makers and regulators need to decide where to draw the line in this trade-off according to the individual market characteristics of their countries. For instance, countries with a strong guarantee of a minimum replacement rate could allow pension funds more leeway in choosing long-term investments. This design has important social consequences given the large retirement savings managed by these institutional investors. However, the socially optimal design to balance this trade-off is not obvious (Acemoglu, Kremer, and Mian 2008) and requires further work.

As an alternative to DC pension systems based on individual retirement accounts, several high-income countries have focused recently on strengthening or on creating new public pension funds.[16] Most of these reforms rely on centrally managed plans funded by compulsory contributions with total or partial guarantees of the benefits.[17] The long-term nature of the liabilities of these funds and the absence of redemption risks are expected to result in investments with longer horizons. In countries with weak financial oversight, however, these funds might exhibit weak governance structure, have low levels of transparency and public accountability, and be more prone to political capture.

In the aftermath of financial crises, some countries have reduced or eliminated DC pension schemes while using these contributions to meet other fiscal obligations. However, pension funds and other savings for retirement are likely to continue to grow in most countries. In fact, based on behavioral incentives, recent experiences in pension reform have focused on increasing private savings by promoting voluntary contributions through default or automatic enrollment options (Rudolph 2014). As highlighted in this chapter, even if these reforms lead to higher savings, agency frictions from delegating these savings to asset management institutions might still constitute a challenge for the promotion of long-term finance.

The evidence on international mutual funds indicates that foreign investors might be an avenue for extending corporate debt maturities because they hold more long-term domestic debt than domestic investors. However, given that international mutual funds do not seem to invest more long-term in the case of sovereign bonds, the evidence might be simply reflecting differences in the attributes of the firms in which they invest. For example, Kang and Stulz (1997), Dahlquist and Robertsson (2001), Edison and Warnock (2004), and Ferreira and Matos (2008) show that, because of information asymmetries, foreign investors prefer to invest in large firms with a presence in international markets (cross-listed firms). Therefore, it is possible that domestic institutional investors are providing finance to smaller firms that are not able to raise funds in international markets or are not targeted by foreign investors, and these firms might be issuing bonds at shorter maturities. Whether that results from supply or demand considerations requires further investigation.

Attempts to extend debt maturities through the promotion of foreign institutional investors, however, entail an important trade-off because economies become more susceptible to foreign shocks. The financial crisis

of 2008–09 provided clear evidence on the potential destabilizing role that some institutional investors can exert in financial markets. For instance, institutional investors facing the possibility of massive withdrawals following poor performance would have to meet the redemption claims by liquidating some of their assets. Under these circumstances, investors can either sell the assets that are directly affected by the crisis and book losses at fire sale prices (exacerbating the initial shock) or sell other more liquid assets, thereby transmitting the crisis across securities and markets (Scholes 2000).[18] Furthermore, the portfolio allocation of these institutional investors is affected by principal-agent considerations and by other trading restrictions based on risk measures, typically used by banks and other leveraged players. As such, some institutional investors might exhibit the same type of procyclical risk taking that banks are known for and might not conform to the textbook picture of long-term investors but instead have much in common with banks in amplifying shocks (Shin 2013). An extensive body of evidence documents procyclical and other destabilizing behavior of institutional investors in both domestic and international markets.[19] In this context, while the presence of foreign institutional investors does seem to be correlated with longer-term financing, regulatory authorities need to be mindful of the consequences for financial stability, given the transmission mechanism through portfolio rebalancing of these market players. However, relying on domestic mutual funds (as on pension funds) to extend maturity structures might not yield expected results either, and their behavior in crises is understudied.

Given the problems of promoting long-term financing through mutual or pension funds, governments can generate incentives to facilitate long-term investments by alternative institutional investors—for instance, SWFs. Unlike mutual or DC pension funds, SWFs face no redemption risk, and so they are in principle a natural provider of long-term finance. Moreover, SWFs have increasingly engaged in direct equity investments with significant social returns—for example, in infrastructure financing, health care, and telecommunications. The governments of host countries can set the framework for such investments to occur in the first place. Host governments can also take steps to minimize the risk of misusing those public funds. Participation of SWFs could be encouraged in sectors with monopolistic or quasi-monopolistic structures (OECD 2008), as is the case in a growing number of infrastructure projects in developing countries. Investments that require large long-term commitments by SWFs can also be structured similarly to public-private partnerships, in which some of the initial investment risks are guaranteed by the host state. Finally, to harness the multiplier effect of large SWF investments in physical or social infrastructure and to align incentives, host governments can create the legal and regulatory conditions that allow for cofinancing and participation by the private sector.

The promotion of other institutional investors, such as private equity, as providers of long-term finance might require further strengthening of the legal and institutional frameworks in host countries. For PE investors, corporate governance standards and legal institutions of the investee country play a crucial role. The available evidence suggests that globally, as well as within developing countries, PE investments go predominantly to countries with better investor protection, legal institutions, and corporate governance standards. The reason is straightforward: evaluating the risk and return profile of nonlisted companies in developing countries is difficult, which explains why local investors enjoy an especially large advantage over foreign investors in these markets (Taussig and Delios, 2014). If idiosyncratic risks in these markets are compounded by additional aggregate uncertainty arising from weak contract enforcement and poor corporate governance, expected returns are further reduced and equity investments can be discouraged altogether. Hence, improvements in market transparency, auditing standards, and corporate governance are a set of policies that can significantly improve the viability of PE investments in developing countries. Moreover,

although difficult to achieve, any policies that help develop capital markets would give PE investors a viable exit strategy and thus more incentives to enter in the first place. Nevertheless, given the limited size of PE flows, policies are unlikely to be geared toward PE investments in the short term.

In the presence of market failures, the government can play a catalytic role so that institutional investors may finance long-term projects. For instance, recent efforts through public-private partnerships have sought to attract institutional investors to infrastructure financing. Beyond strengthening the institutional framework, such efforts have been accompanied by the introduction of new financial instruments tailored to institutional investors. Because the success of these investments is heavily dependent on host country institutions and expertise, the presence of international development institutions may further encourage the participation of institutional investors. By bringing sound practices, enhanced transparency, and internationally accepted standards, international development institutions may ameliorate some of the information asymmetries and other market failures faced by investors (especially in developing countries), reducing risks and attracting institutional investors.

Besides some of the challenges for policy makers presented in this section, additional work is needed to understand the interactions between different financial institutions and their implications for long-term financing. For example, given the relationship between institutional investors and banks through ownership, deposits, and other debt contracts, institutional investors might facilitate long-term bank lending indirectly. Additionally, changes in regulation, such as in the capital requirements for banks, might limit the ability of financial institutions to lend long term. Whether nonbank financial institutions can substitute for changes in the provision of bank lending remains an open question.

Perhaps one of the major obstacles to studying the role of financial intermediaries in the provision of long-term finance is the shortage of international and domestic data on portfolios and institutional ownership of debt securities and bank loans. Although most national authorities collect this information, a joint effort is needed to consolidate it and to make it comparable across countries. Such efforts should highlight further steps to foster long-term financing via financial institutions.

NOTES

1. The stylized fact that the maturity of bank loans in developing countries is lower than that for developed countries is based on aggregate bank data where it is not possible to separate retail, mortgage, and corporate loan portfolios; nor is it possible to control for other characteristics of the loan or the borrower.
2. This is not to say that total bank lending and long-term bank lending did not decline. Such a decline, in particular for European banks, has been documented in the literature (for example, Feyen and Gonzalez del Mazo 2013). Furthermore, as discussed in chapter 2, debt financing for some firms was more affected than for others. In particular, debt financing for SMEs and nonlisted firms was particularly impacted.
3. See G-20 (2013) for example.
4. At the same time, limited wholesale funding could not only signal better risk management on the part of banks but, in certain countries, could also indicate the absence of a shadow banking sector or of institutions that could facilitate wholesale funding.
5. See Financial Stability Board (2013) at http://www.financialstabilityboard.org/wp-content/uploads/r_130216a.pdf.
6. For example, Schmidt-Hebbel (1998) estimated that 10–40 percent of the increase in national savings in Chile in the 1990s was attributable to the pension reform. Lopez Murphy and Musalem (2004) presented cross-country evidence that pension reforms introducing mandatory second pillars lead to increased private savings.
7. By definition, international funds invest only in foreign markets, whereas global funds may invest both domestically and abroad. The analysis in this section, however, does not differentiate between these two categories and simply calls both of these types "international funds."

8. Money market funds are excluded from the analysis because their inclusion would create a bias when comparing international funds and funds that invest domestically (by lowering the maturity of domestic funds). Nevertheless, the predominance of money market funds in many developing countries is informative and could indicate the failure of the mutual fund sector to mobilize long-term financing. The economies covered in the sample are Australia; Brazil; Chile; Hong Kong SAR, China; India; Israel; the Republic of Korea; Mexico; New Zealand; South Africa; the United Kingdom; and the United States. The sample contains 2,709 mutual funds with a total of 133,997 holdings. Additional information on these holdings, such as redemption date, issuer's country, issuer's type (sovereign, corporate, agency, and so forth), and issuer's industry was retrieved from DataStream.
9. This database has information on the redemption date of corporate bond issuances since 1990. To compute the average maturity of the outstanding bonds by country in 2013, the estimates had to be aggregated over time and by country. The procedure employed is as follows. First, for the initial month of the sample, using as a weight the amount raised in each issuance, the average maturity was computed for each country. For the following periods, the maturity at origin of new issuances was computed, and the maturity of the previous issuances was updated. With this information, the average maturity of the outstanding bonds was computed, using as a weight the amount raised in each issuance (as a proportion of the total amount outstanding). Given a lack of information, a shortcoming of this procedure is that it does not take into account the repurchases of outstanding shares by a company (buybacks).
10. The main difference between U.S. and U.K. funds is given by the average maturity of their domestic holdings: 6.6 years for U.S. mutual funds and 11.8 years for U.K. funds. This difference seems to be explained by the fact that the average maturity of outstanding sovereign bonds from the United Kingdom is more than double the average maturity of U.S. outstanding sovereign bonds (14.7 and 5.6 years, respectively) and U.S. and U.K. funds both invest heavily in these bonds.
11. The economies included in the sample are Argentina; Australia; Austria; Belgium; Brazil; Canada; Chile; China; Colombia; Denmark; France; Germany; Hong Kong SAR, China; India; Indonesia; Ireland; Israel; Italy; the Republic of Korea; Luxembourg; Malaysia; Mexico; the Netherlands; Norway; Peru; Singapore; South Africa; Spain; Sweden; Thailand; the United Arab Emirates; the United Kingdom; and the United States.
12. There are fewer observations in this case because there are fewer countries in the BIS database. The countries considered are Australia, Belgium, Brazil, Canada, Chile, Colombia, Germany, Indonesia, Israel, the Republic of Korea, Malaysia, Mexico, Peru, the Philippines, Singapore, South Africa, Spain, Thailand, the United Kingdom, and the United States.
13. India and Hong Kong SAR, China, are omitted from the analysis because there are few observations for U.S. and U.K. funds. Chile is excluded because the sample does not provide information regarding the issuer type for the domestic mutual funds' holdings. New Zealand is also excluded because the BIS database does not provide information about the average maturity of its outstanding sovereign bonds.
14. Kang and Stulz (1997), Dahlquist and Robertsson (2001), and Edison and Warnock (2004) have shown that information asymmetries do play a role and that foreign investors prefer to invest in large firms with a presence in international markets (cross-listed firms). Similarly, Ferreira and Matos (2008) showed that foreign and domestic institutional investors diverge in some stock preferences. Foreign institutional investors have a strong bias for firms listed in the MSCI World Index, firms that are cross-listed on a U.S. exchange, and firms that have external visibility through high foreign sales and analyst coverage. In contrast, domestic institutions underweight these same stocks. Nevertheless, even in this scenario, small firms might benefit from foreign investments through a freeing up of domestic capital (Knill 2013).
15. See Larrain, Muñoz, and Tessada (2014) for Chilean pension funds and Acharya and Pedraza (2015) for Colombian pension funds.
16. Vittas, Impavido, and O'Connor (2008) discuss the cases of Norway, Canada, and Ireland. Rohde and Dengsoe (2010) describe recent changes in Denmark's labor market supplementary pension plan.

17. For example, Denmark's labor market supplementary plan is managed by a single independent institution and provides a partial guarantee model, whereby 80 percent of members' contributions are converted into a defined benefit promise. The remaining 20 percent is invested in a nonguaranteed investment portfolio.
18. Manconi, Massa, and Yasuda (2012) present U.S. evidence of the transmission mechanism between securitized bonds and corporate bonds in the 2008–09 financial crisis. For international evidence on the portfolio channel of contagion, see Broner, Gelos, and Reinhart (2006).
19. See, for example, Raddatz and Schmukler (2012) for international mutual funds; Bernstein, Lerner, and Schoar (2013) for SWFs; Jotikasthira, Lundblad, and Ramadorai (2012) for global investment managers in emerging markets; and Kaminsky, Lyons, and Schmukler (2004), Hau and Rey (2008), and Raddatz, Schmukler, and Williams (2014) for international equity funds, among many others.

Statistical Appendixes

This section consists of two appendixes.

Appendix A presents basic country-by-country data on financial system characteristics around the world. It also presents averages of the same indicators for peer groups of countries, together with summary maps. It is an update on information from the 2014 *Global Financial Development Report*.

Appendix B provides additional country-by-country information on key aspects of long-term finance around the world. It is specific to the 2015/2016 *Global Financial Development Report*.

These appendixes present only a small part of the Global Financial Development Database (GFDD), available at http://www.worldbank.org/financialdevelopment. *Global Financial Development Report 2015/2016* is also accompanied by *The Little Data Book on Financial Development 2015/2016*, which is a pocket edition of the GFDD. It presents country-by-country and also regional figures of a larger set of variables than what is shown here.

APPENDIX A
BASIC DATA ON FINANCIAL SYSTEM CHARACTERISTICS, 2011–13

TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Afghanistan	7.9	9.0		7.4				
Albania	38.5	28.3	5.9	29.2				
Algeria	14.0	33.3	6.3	22.0				
Andorra				14.3				
Angola	20.7	39.2	12.7	15.9				
Antigua and Barbuda	73.4		7.1					
Argentina	14.9	33.1	2.6	3.4	11.8	29.1	4.3	27.4
Armenia	36.0	17.5	7.3	15.9	3.8		0.6	
Aruba	59.7		7.6	23.5				
Australia	121.5	98.1	3.1	11.3	165.5	53.2	83.7	15.4
Austria	116.7	97.1		13.7	70.3	37.0	61.1	24.9
Azerbaijan	18.9	14.9	8.2	9.6				
Bahamas, The	81.0		2.7	16.5				
Bahrain	66.6	64.5	5.2	15.2	64.0		1.6	8.2
Bangladesh	45.2	39.6	2.3	8.3	13.0		97.5	
Barbados			6.1	16.9	103.2		0.4	
Belarus	29.8	58.6	1.8	7.6				
Belgium	92.1	96.3		37.6	106.6		41.5	18.4
Belize	56.7		7.6	14.4				
Benin	23.3	10.5		15.6				
Bermuda				14.2				
Bhutan	44.3		8.7	37.1				
Bolivia	35.8	28.0	9.4	9.0	15.8		0.4	
Bosnia and Herzegovina	52.2	56.2	4.1	14.6				10.5
Botswana	28.0	30.3	6.8	13.1	29.0		3.2	7.5
Brazil	61.7	55.9	15.8	6.5	88.1	47.8	67.5	22.7
Brunei Darussalam	32.4		5.2	8.3				
Bulgaria		52.8	6.8	15.7	14.1		4.8	15.1
Burkina Faso	20.0	13.4		9.5				
Burundi	16.4	7.2		18.3				
Cambodia	33.3	3.7		10.5				
Cameroon	12.9	14.8		14.1				
Canada		95.8	2.5	12.0	144.2	68.9	67.2	14.7
Cabo Verde	62.5		6.3	27.6				

(appendix continued next page)

TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13 *(continued)*

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Cayman Islands				12.2				
Central African Republic	11.8	3.7		14.7				
Chad	7.9	9.0		12.5				
Chile	69.0	42.2	4.0	16.4	159.6	55.1	17.7	15.6
China	124.4	63.8	3.0	21.2	93.0	74.7	141.3	19.7
Colombia	35.0	30.4	7.0	13.2	63.5	20.4	12.2	16.7
Comoros	20.3	21.7	8.8					
Congo, Dem. Rep.	7.9	3.7	15.4	12.6				
Congo, Rep.	8.7	9.0		3.3				
Costa Rica	46.3	50.4	12.3	22.7	3.9		2.4	
Côte d'Ivoire	17.8			14.5	26.1		2.1	
Croatia	69.6	88.4	7.8	23.5	40.6		3.5	13.2
Cuba				11.3				
Curacao				12.8				
Cyprus	163.5	85.2		8.9	18.5	14.3	11.0	
Czech Republic		80.7	4.4	37.6	32.6		31.2	19.6
Denmark		98.1		8.5	196.1		64.8	18.9
Djibouti	29.2	12.3	9.1	13.0				
Dominica	56.2		5.9	8.1				
Dominican Republic	21.8	38.2	7.7	29.4				
Ecuador	25.0	36.7		2.3	6.9		2.1	8.8
Egypt, Arab Rep.	28.3	9.7	4.4	35.4	29.1	51.9	38.2	27.6
El Salvador	39.1	13.8		23.0	25.2		1.0	
Equatorial Guinea	8.5			19.4				
Estonia	79.5	96.8	5.0	7.4	9.9		11.6	18.6
Ethiopia				16.3				
Fiji	66.0		4.1		12.3		1.4	
Finland	97.4	98.1		2.6	71.6		105.2	23.3
France	114.3	97.0		9.3	121.4		75.9	23.9
Gabon	9.7	18.9		10.4				
Gambia, The	15.5		15.4	5.6				
Georgia	33.0	33.0	3.8	9.6	6.6		0.4	
Germany	100.5	98.1		33.5	63.7	54.2	110.4	21.9
Ghana	13.7	29.4		12.4	8.4		3.1	9.3
Greece	124.7	77.9		2.3	48.9	31.1	51.1	28.5
Grenada	81.6		7.0	12.3				

TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13 *(continued)*

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Guatemala	26.4	22.3	8.2	17.2				
Guinea	7.9	3.7		5.7				
Guinea-Bissau	11.6			5.0				
Guyana	31.0		12.4	18.9	15.8			
Haiti	15.1	22.0	9.3	21.5				
Honduras	48.3	20.5	9.4	32.4				
Hong Kong SAR, China	163.5	88.7	5.0	18.4	196.1	63.7	135.4	20.5
Hungary		72.7	3.2	18.0	32.9	7.8	77.6	24.0
Iceland	97.0			2.3	82.2		22.0	
India	47.9	35.2		34.1	74.6	70.0	63.4	17.8
Indonesia	28.4	19.6	5.6	19.0	46.6	56.2	35.7	19.7
Iran, Islamic Rep.	12.1	73.7			19.5		21.1	
Iraq	7.9	10.6		25.2				
Ireland	163.5	93.9		32.8	152.3	11.7	19.3	20.7
Israel	87.2	90.5	3.4	24.8	103.3	47.0	56.4	17.7
Italy	123.4	71.0		15.5	55.7		141.3	27.4
Jamaica	26.9	71.0	14.6	26.3	47.5		3.1	8.9
Japan	106.9	96.4	1.8	35.5	139.8	71.9	104.5	20.3
Jordan	69.6	25.5	4.8	37.6	101.7	29.7	18.2	8.4
Kazakhstan	34.9	42.1		7.5	28.3	19.0	3.1	24.5
Kenya	30.2	42.3	8.7	10.5	28.2		8.0	10.8
Korea, Rep.	98.0	93.0	1.8	4.6	154.9	63.6	140.8	19.3
Kosovo	32.7	44.3						
Kuwait	56.8	86.8	3.0	16.6	73.5		27.4	9.2
Kyrgyz Republic		3.8	11.6	22.8	3.8		6.2	
Lao PDR		26.8		6.1				19.5
Latvia		89.7	5.6	5.7	4.8		3.0	17.1
Lebanon	84.6	37.0	1.8	37.6	29.3		7.8	9.7
Lesotho	16.1	18.5	7.4	15.4				
Liberia	15.3	18.8	10.1	2.3				
Libya	14.1		3.5	37.6				
Lithuania		73.8		2.3	11.5		5.1	15.6
Luxembourg	162.9	94.6		31.6	156.5	7.8	0.4	
Macao SAR, China	52.8		5.2	36.7				
Macedonia, FYR	46.2	73.7	3.3	12.8	6.7		6.1	14.1
Madagascar	10.9	5.5	15.8	13.2				

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TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13 *(continued)*

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Malawi	13.5	16.5	15.8	11.0	22.6		2.5	
Malaysia	111.7	66.2	1.9	14.7	196.1	63.3	28.6	9.4
Maldives	46.2		6.7	6.4				
Mali	20.0	8.2		16.9				
Malta	123.1	95.3		2.3	40.1	7.8	1.4	
Mauritania	26.0	17.5	10.1	26.3				
Mauritius	93.9	80.1	2.0	15.0	65.4	41.8	5.5	7.8
Mexico	19.4	27.4	3.5	15.5	54.0	39.9	26.1	15.8
Micronesia, Fed. Sts.			14.0	26.5				
Moldova	34.1	18.1	5.9	5.9				
Mongolia	46.5	77.7	6.5	23.9	14.1		4.1	23.8
Montenegro	57.0	50.4		7.3	86.3		1.4	17.1
Morocco	70.0	39.1		21.0	65.1	29.6	10.8	11.4
Mozambique	23.9	39.9	6.0	2.4				
Myanmar			5.0	3.1				
Namibia	45.4		4.4	5.3	9.4		1.6	19.5
Nepal	51.8	25.3		6.8	26.3		1.6	
Netherlands	163.5	98.1		5.1	145.8		86.1	19.2
New Zealand		98.1	1.8	15.9	48.0	53.8	28.1	8.9
Nicaragua	24.2	14.2	11.2	2.4				
Niger	13.1	3.7		18.9				
Nigeria	12.1	29.7	9.2	2.4	10.9		10.2	14.0
Norway				18.8	85.9	24.4	77.2	22.5
Oman	39.4	73.6	3.1	12.5	28.7	60.2	14.8	9.8
Pakistan	16.7	10.3	5.5	11.4	17.8		32.3	14.2
Panama	74.4	24.9	4.6	23.3	29.3		1.3	7.5
Papua New Guinea	25.1		10.0	15.5	89.7		0.5	
Paraguay	38.1	21.7	13.9	12.2	3.8		4.3	
Peru	26.2	20.5	15.8	16.6	61.7	36.2	5.2	23.1
Philippines	31.5	26.6	3.3	19.1	75.0	59.7	19.3	17.7
Poland		70.2		14.0	34.4	46.0	49.4	20.7
Portugal	163.5	81.2		7.1	98.1		42.4	19.9
Qatar	36.2	65.9	3.7	26.8	74.7	24.3	16.0	11.7
Romania	37.2	44.6	5.9	12.3	14.7		9.8	21.1
Russian Federation	44.3	48.2	3.8	3.1	56.6	38.0	98.6	23.4

TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13 *(continued)*

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Rwanda		32.8		11.1				
Samoa	38.9		7.5	21.4				
San Marino				7.0				
São Tomé and Príncipe	35.0		13.9					
Saudi Arabia	34.8	46.4		21.4	54.9	43.5	95.1	15.9
Senegal	28.3	5.8		37.6				
Serbia	49.7	62.2	8.1	9.8	21.1		3.3	16.1
Seychelles	20.8		9.0	9.7				
Sierra Leone	7.9	15.3	11.0	4.7				
Singapore	109.5	98.1	5.2	19.2	145.9	73.7	64.7	14.3
Slovak Republic	49.3	79.6		14.7	9.9		4.5	17.3
Slovenia	85.6	97.1		4.1	24.1	16.8	5.1	16.5
Solomon Islands	17.7		10.7					
Somalia		31.0						
South Africa	67.5	53.6	3.3	19.4	172.7	74.8	56.1	15.8
Spain	163.5	93.3		19.0	133.9	58.1	116.8	27.5
Sri Lanka	28.1	68.5	3.3	16.3	30.2	58.0	19.4	15.5
St. Kitts and Nevis	65.1		4.8	20.6	85.4		0.8	
St. Lucia	108.1		6.4	4.2				
St. Vincent and the Grenadines	53.0		6.5					
Sudan	10.2	6.9		22.8				
Suriname	23.4		5.1	33.8				
Swaziland	23.4	28.6	6.3	15.5				
Sweden		98.1		32.2	152.8		83.4	22.0
Switzerland	161.9		2.7	37.6	181.0	32.4	72.4	16.1
Syrian Arab Republic		23.3		16.0				
Tajikistan	12.5	3.7	14.5	8.2				
Tanzania	16.0	17.3	6.7	10.7	5.8		2.1	7.8
Thailand	108.8	72.7	4.3	8.0	131.1	56.2	85.0	18.8
Timor-Leste	11.1		11.0					
Togo	27.8	10.2		3.9				
Tonga	31.6		7.2					
Trinidad and Tobago	30.5	75.9	6.2	10.9	59.7		1.0	
Tunisia	68.4	32.2		3.8	21.1		14.3	10.8
Turkey	50.3	57.6		4.2	33.8	53.9	141.3	23.7

(appendix continued next page)

TABLE A.1 Economies and Their Financial System Characteristics, Averages, 2011–13 *(continued)*

	Financial institutions				Financial markets			
Economy	Private credit by deposit money banks to GDP (%)	Account at a formal financial institution (%, age 15+)	Bank lending-deposit spread (%)	Bank Z-score	Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Market capitalization excluding top 10 companies to total market capitalization (%)	Stock market turnover ratio (%)	Stock price volatility
Turkmenistan		3.7		2.5				
Uganda	15.6	20.5	10.1	19.4	27.6		0.4	
Ukraine	54.5	41.3	6.5	12.0	17.9		8.9	28.5
United Arab Emirates	61.2	59.7		21.3	22.4	24.3	27.4	10.6
United Kingdom	161.7	97.2		23.1	130.8	67.0	94.7	17.1
United States	49.4	88.0		28.9	196.1	73.2	135.4	17.8
Uruguay	22.9	23.5	6.6	2.8	3.8		1.4	
Uzbekistan		22.5		5.5				
Vanuatu	66.9		4.2	10.9				
Venezuela, RB	19.3	44.1	2.1	8.5	3.8		0.8	20.0
Vietnam	93.7	21.4	3.1	29.7	15.8		43.2	21.3
West Bank and Gaza		19.4		17.9				8.5
Yemen, Rep.	7.9	3.7	5.6	25.9				
Zambia		21.4	6.7	13.3	14.2		4.3	
Zimbabwe		39.7		2.6				

Source: Data from and calculations based on the Global Financial Development Database. For more information, see Čihák and others 2013.
Note: Empty cells indicate lack of data.

NOTES

Table layout: The layout of the table follows the 4x2 matrix of financial system characteristics introduced in the 2013 *Global Financial Development Report,* with four variables approximating depth, access, efficiency, and stability of financial institutions and financial markets, respectively.

Additional data: Table A.1 presents a small fraction of observations in the Global Financial Development Database accompanying this report. For additional variables, historical data, and detailed metadata, see the full data set at http://www.worldbank.org/financialdevelopment.

Period covered: The table shows averages for 2011–13, except for "Stock market capitalization + outstanding domestic private debt securities to GDP (%)" and "Stock market turnover ratio (%)" where averages for 2010–12 are reported.

Averaging: Each observation is an arithmetic average of the corresponding variable over 2011–13. When a variable is not reported or is not available for a part of this period, the average is calculated for the period for which observations are available.

Visualization: To illustrate where a country's observation is in relation to the global distribution of the variable, the table includes four bars on the left of each observation. The four-bar scale is based on the location of the country or economy in the statistical distribution of the variable in the Global Financial Development Database: values below the 25th percentile show only one full bar, values equal to or greater than the 25th and less than the 50th percentile show two full bars, values equal to or greater than the 50th and less than the

75th percentile show three full bars, and values greater than the 75th percentile show four full bars. The bars are calculated using "winsorized" and "rescaled" variables, as described in the 2013 *Global Financial Development Report*. To prepare for this, the 95th and 5th percentiles for each variable for the entire pooled country-year data set are calculated, and the top and bottom 5 percent of observations are truncated. Specifically, all observations from the 5th percentile to the minimum are replaced by the value corresponding to the 5th percentile, and all observations from the 95th percentile to the maximum are replaced by the value corresponding to the 95th percentile. To convert all the variables to a 0–100 scale, each score is rescaled by the maximum and the minimum for each indicator. The rescaled indicator can be interpreted as the percent distance between the worst (0) and the best (100) financial development outcome, defined by the 5th and 95th percentiles of the original distribution (for further information see the 2013 *Global Financial Development Report*). The four bars on the left of the country name show the unweighted arithmetic average of the "winsorized" and rescaled variables (dimensions) for each country. This average is reported only for those countries where data for the relevant periods are available for at least four variables (dimensions).

Private credit by deposit money banks to GDP (%) measures the domestic private credit to the real sector by deposit money banks as a percentage of local currency gross domestic product (GDP). Data on domestic private credit to the real sector by deposit money banks are from the International Financial Statistics (IFS), line 22D, published by the International Monetary Fund (IMF). Local currency GDP is also from IFS.

Account at a formal financial institution (%, age 15+) measures the percentage of adults with an account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable), including adults who report having a debit card. The data are from the Global Financial Inclusion (Global Findex) Database (Demirgüç-Kunt and Klapper 2012).

Bank lending–deposit spread (%) is lending rate minus deposit interest rate. Lending rate is the rate charged by banks on loans to the private sector and deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The lending and deposit interest rates are from IFS lines 60P and 60L, respectively.

Bank Z-score is calculated as [ROA + (equity / assets)] / (standard deviation of ROA). To approximate the probability that a country's banking system defaults, the indicator compares the system's buffers (returns and capitalization) with the system's riskiness (volatility of returns). Return of Assets (ROA), equity, and assets are country-level aggregate figures (calculated from underlying bank-by-bank unconsolidated data from Bankscope).

Stock market capitalization + outstanding domestic private debt securities to GDP (%) measures the market capitalization plus the amount of outstanding domestic private debt securities as a percentage of GDP. Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. Data are from Standard & Poor's Global Stock Markets Factbook and supplemental Standard & Poor's data, and are compiled and reported by the World Development Indicators. The amount of outstanding domestic private debt securities is from table 16A (domestic debt amount) of the Securities Statistics by the Bank for International Settlements. The amount includes all issuers except governments.

Market capitalization excluding top 10 companies to total market capitalization (%) measures the ratio of market capitalization outside of the top 10 largest companies to total market capitalization. The World Federation of Exchanges (WFE) provides data on the exchange level. This variable is aggregated up to the country level by taking a simple average over exchanges.

Stock market turnover ratio (%) is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period. Data are from Standard & Poor's Global Stock Markets Factbook and supplemental Standard & Poor's data, and are compiled and reported by the World Development Indicators.

Stock price volatility is the 360-day standard deviation of the return on the national stock market index. The data are from Bloomberg. To visualize a country in the distribution, the ranking of price volatility is reversed to show higher stability as more bars.

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Čihak, Martin, Aslı Demirgüç-Kunt, Erik Feyen, and Ross Levine. 2013. "Financial Development in 205 Economies, 1960 to 2010." *Journal of Financial Perspectives* 1 (2): 17–36. (Earlier version issued as Policy Research Working Paper 6175, World Bank, Washington, DC).

Demirgüç-Kunt, Aslı, and Leora Klapper. 2012. "Measuring Financial Inclusion: The Global Findex." Policy Research Working Paper 6025, World Bank, Washington, DC.

World Bank. 2014. *Global Financial Development Report 2014: Financial Inclusion*. Washington, DC: World Bank. doi:10.1596/978-0-8213-9985-9.

MAP A.1 DEPTH—FINANCIAL INSTITUTIONS

To approximate financial institutions' depth, this map uses domestic private credit to the real sector by deposit money banks as a percentage of local currency gross domestic product (GDP). Data on domestic private credit to the real sector by deposit money banks are from the International Financial Statistics (IFS), line 22D, published by the International Monetary Fund (IMF). Local currency GDP is also from IFS. The four shades of blue in the map are based on the average value of the variable in 2011–13: the darker the blue, the higher the quartile of the statistical distribution of the variable.

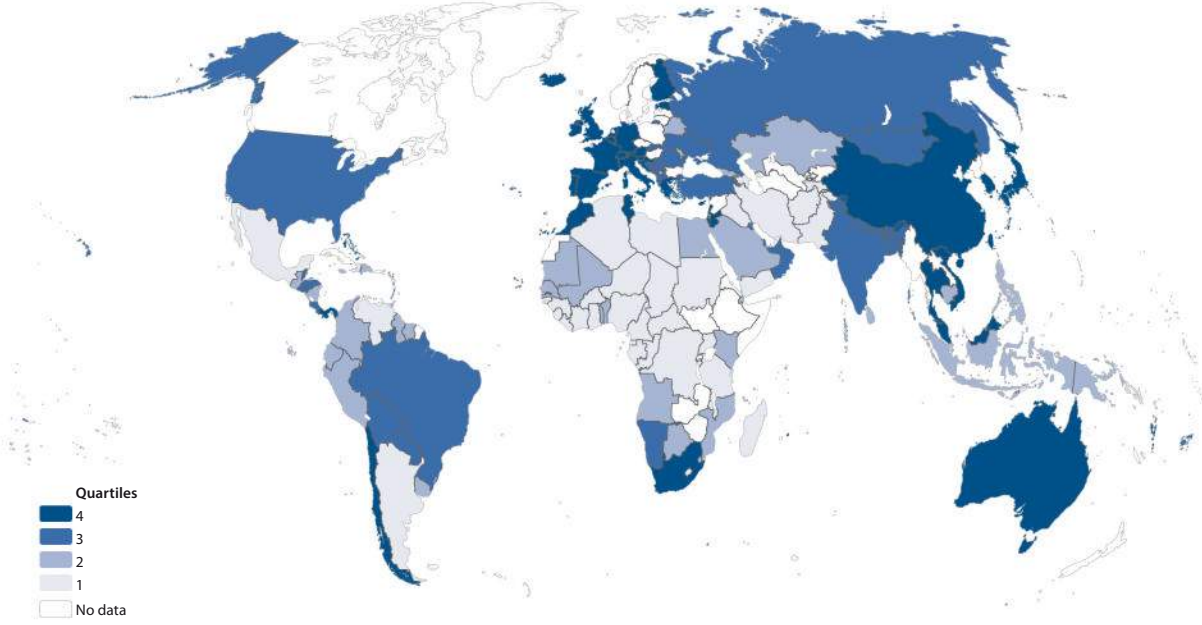

TABLE A.1.1 Depth—Financial Institutions

Private credit by deposit money banks to GDP (%)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	160	51.2	36.1	41.2	7.9	163.5	83.7
By developed/developing economies							
Developed economies	41	96.1	97	46	8.5	163.5	91.9
Developing economies	119	35.8	28.3	25.1	7.9	124.4	69.3
By income level							
High income	41	96.1	97	46	8.5	163.5	91.9
Upper-middle income	46	48.2	45.8	29.8	9.7	124.4	79
Lower-middle income	46	33.3	31.2	18.6	7.9	93.7	36.1
Low income	27	18.6	15.5	11	7.9	51.8	27.7
By region							
High income: OECD	24	114.5	110.6	37.3	49.3	163.5	93.3
High income: non-OECD	17	70	59.7	45.2	8.5	163.5	68.1
East Asia and Pacific	15	55.7	38.9	37.3	11.1	124.4	112.3
Europe and Central Asia	17	38.9	37.2	12.2	12.5	57	44.4
Latin America and the Caribbean	28	41.9	35.4	23.5	14.9	108.1	40.6
Middle East and North Africa	11	36.9	28.3	29.8	7.9	84.6	23.7
South Asia	8	36	44.7	16.4	7.9	51.8	43.9
Sub-Saharan Africa	40	22.2	16.2	17.6	7.9	93.9	29.9

Source: Global Financial Development Database, 2011–13 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by current GDP.

MAP A.2 ACCESS—FINANCIAL INSTITUTIONS

To approximate access to financial institutions, this map uses the percentage of adults (age 15+) who reported having an account at a formal financial institution. The data are taken from the Global Financial Inclusion (Global Findex) Database. The four shades of blue in the map are based on the value of the variable in 2011: the darker the blue, the higher the quartile of the statistical distribution of the variable.

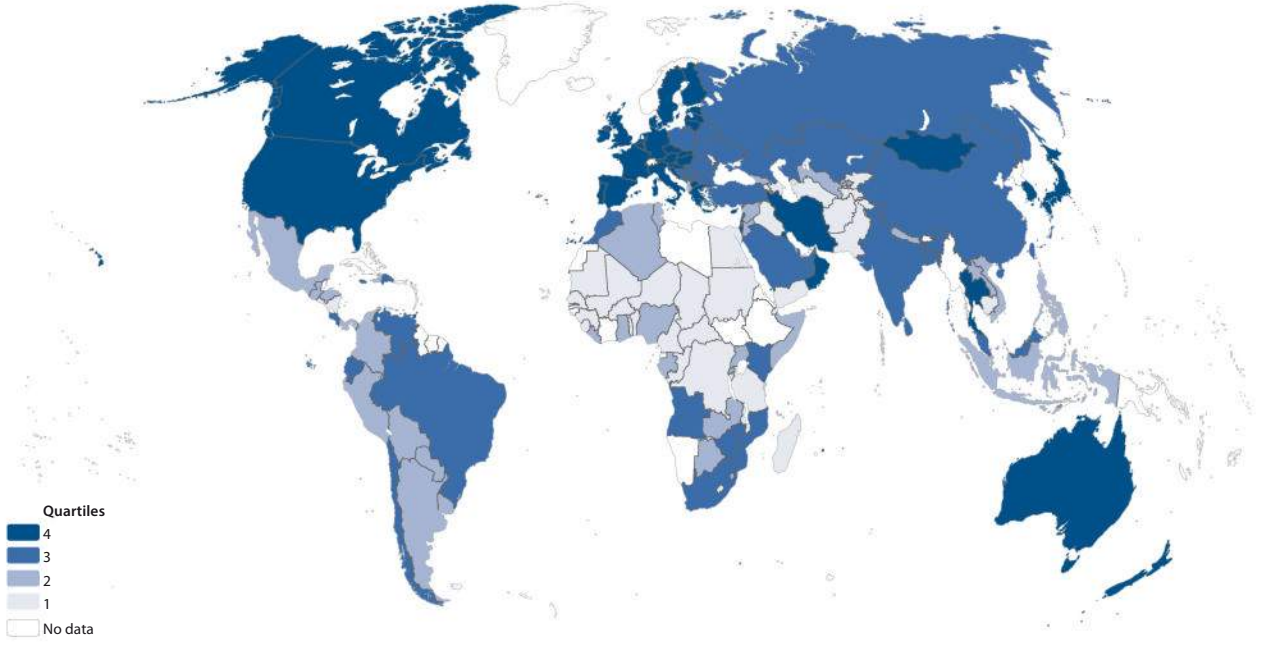

TABLE A.1.2 Access—Financial Institutions

Account at a formal financial institution (%, age 15+)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	147	45.7	38.2	31.6	3.7	98.1	48.1
By developed/developing economies							
Developed economies	40	86.9	93.2	13	46.4	98.1	89
Developing economies	107	30.3	25.5	20.8	3.7	89.7	40.1
By income level							
High income	40	86.9	93.2	13	46.4	98.1	89
Upper-middle income	40	46.3	44.4	19.9	3.7	89.7	56.6
Lower-middle income	38	24	21.4	15.3	3.7	77.7	28.1
Low income	29	16.6	13.4	12.7	3.7	42.3	22.4
By region							
High income: OECD	28	91	96.1	9.3	70.2	98.1	90.5
High income: non-OECD	12	77.4	80.6	15.8	46.4	98.1	65.4
East Asia and Pacific	9	42	26.8	27.7	3.7	77.7	54
Europe and Central Asia	23	40.9	44.3	23.9	3.7	89.7	44.4
Latin America and the Caribbean	20	32	27.7	14.7	13.8	71	38.8
Middle East and North Africa	12	26.6	24.4	18.8	3.7	73.7	32.1
South Asia	6	31.3	30.3	22.1	9	68.5	32.7
Sub-Saharan Africa	37	21	17.5	16.3	3.7	80.1	23.2

Source: Global Financial Development Database, 2011 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by total adult population in 2011.

MAP A.3 EFFICIENCY—FINANCIAL INSTITUTIONS

To approximate efficiency of financial institutions, this map uses the spread (difference) between lending rate and deposit interest rate. Lending rate is the rate charged by banks on loans to the private sector, and deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The lending and deposit rates are from IFS, lines 60P and 60L, respectively. The four shades of blue in the map are based on the average value of the variable in 2011–13: the darker the blue, the higher the quartile of the statistical distribution of the variable.

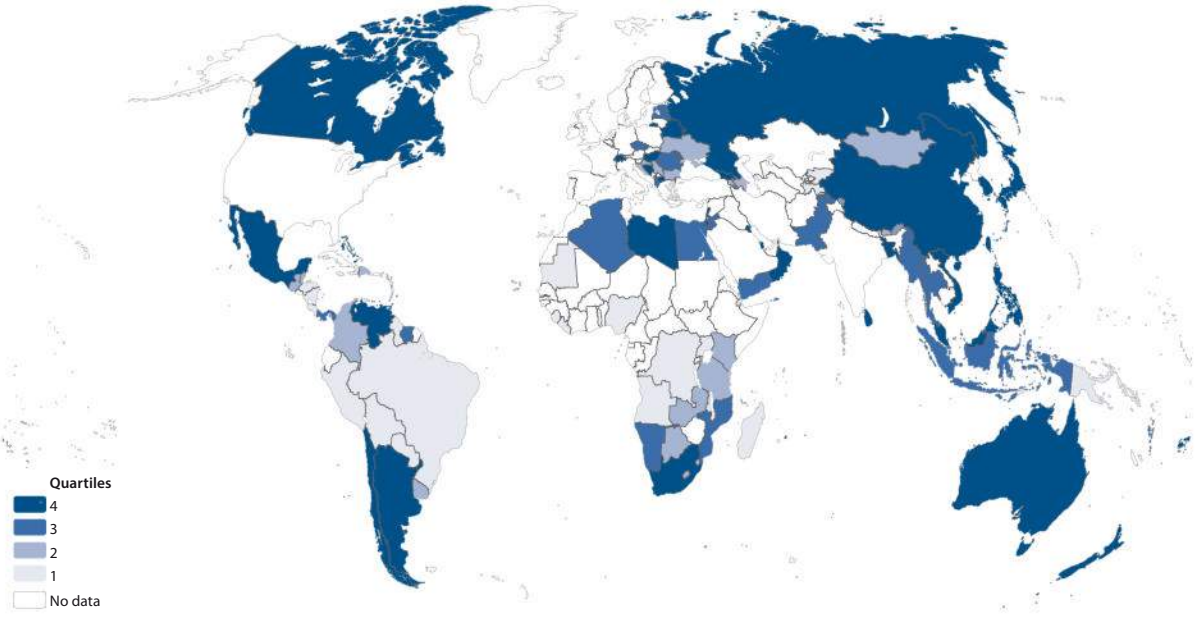

TABLE A.1.3 Efficiency—Financial Institutions

Bank lending-deposit spread (%)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	118	6.8	6.2	3.7	1.8	15.8	5.7
By developed/developing economies							
Developed economies	24	4.2	4.1	1.7	1.8	7.8	4.1
Developing economies	94	7.5	6.7	3.8	1.8	15.8	6.4
By income level							
High income	24	4.2	4.1	1.7	1.8	7.8	4.1
Upper-middle income	41	6.2	5.9	3.6	1.8	15.8	5.6
Lower-middle income	37	7.7	7.3	3	3.1	14	7
Low income	16	10.4	10.1	4.2	2.3	15.8	9.2
By region							
High income: OECD	11	3.1	3.1	1.2	1.8	5	3
High income: non-OECD	13	5.1	5.2	1.6	2.7	7.8	5
East Asia and Pacific	16	6.3	5.3	3.5	1.9	14	4.4
Europe and Central Asia	16	6.4	5.9	3.2	1.8	14.5	5.5
Latin America and the Caribbean	26	8.3	7.4	3.9	2.1	15.8	8.3
Middle East & North Africa	7	5.1	4.8	2.3	1.8	9.1	4.1
South Asia	5	5.3	5.5	2.6	2.3	8.7	5.3
Sub-Saharan Africa	24	9.2	8.9	4	2	15.8	7.6

Source: Global Financial Development Database, 2011–13 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by total banking assets.

MAP A.4 STABILITY—FINANCIAL INSTITUTIONS

To approximate stability of financial institutions, this map uses the Z-score for commercial banks. The indicator is estimated as follows: [ROA + (equity / assets)] / (standard deviation of ROA). Return on assets (ROA), equity, and assets are country-level aggregate figures (calculated from underlying bank-by-bank unconsolidated data from Bankscope). The indicator compares the banking system's buffers (returns and capital) with its riskiness (volatility of returns). The four shades of blue in the map are based on the average value of the variable in 2011–13: the darker the blue, the higher the quartile of the statistical distribution of the variable.

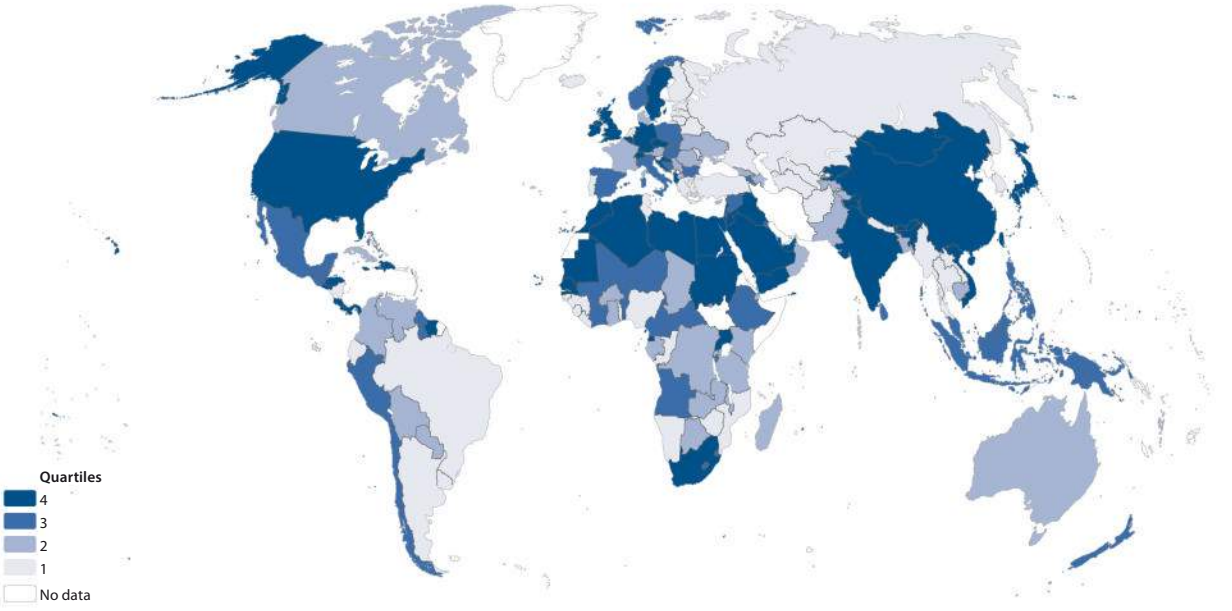

TABLE A.1.4 Stability—Financial Institutions

Bank Z-score	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	180	15.4	14.3	9.5	2.3	37.6	17
By developed/developing economies							
Developed economies	55	17.5	15.9	10.1	2.3	37.6	17.6
Developing economies	125	14.6	13.1	9.2	2.3	37.6	16.3
By income level							
High income	55	17.5	15.9	10.1	2.3	37.6	17.6
Upper-middle income	48	13.5	11.8	9.7	2.3	37.6	15.1
Lower-middle income	46	18.2	16.1	9.2	2.4	37.6	20.7
Low income	31	10.7	10.5	5.9	2.3	22.8	9.8
By region							
High income: OECD	32	18.2	15.7	11.8	2.3	37.6	18.5
High income: non-OECD	23	16.5	16.5	7.3	2.3	36.7	15.9
East Asia and Pacific	14	16.4	17.2	7.9	3.1	29.7	17.7
Europe and Central Asia	22	10.2	8.9	6.6	2.3	29.2	11
Latin America and the Caribbean	27	15.1	14.4	9.2	2.3	33.8	14.6
Middle East and North Africa	12	24.4	23.6	11	3.8	37.6	28.1
South Asia	8	16	9.9	12.6	6.4	37.1	16.9
Sub-Saharan Africa	42	12.8	12.9	7.4	2.3	37.6	14.3

Source: Global Financial Development Database, 2011–13 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by total banking assets.

MAP A.5 DEPTH—FINANCIAL MARKETS

To approximate depth of financial markets, this map uses market capitalization plus the amount of outstanding domestic private debt securities as a percentage of GDP. Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. Data are from Standard & Poor's Global Stock Markets Factbook and supplemental S&P data, and are compiled and reported by the World Development Indicators. The amount of outstanding domestic private debt securities is from table 16A (domestic debt amount) of the Securities Statistics by the Bank for International Settlements. The amount includes all issuers except governments. The four shades of blue in the map are based on the average value of the variable in 2010–12: the darker the blue, the higher the quartile of the statistical distribution of the variable.

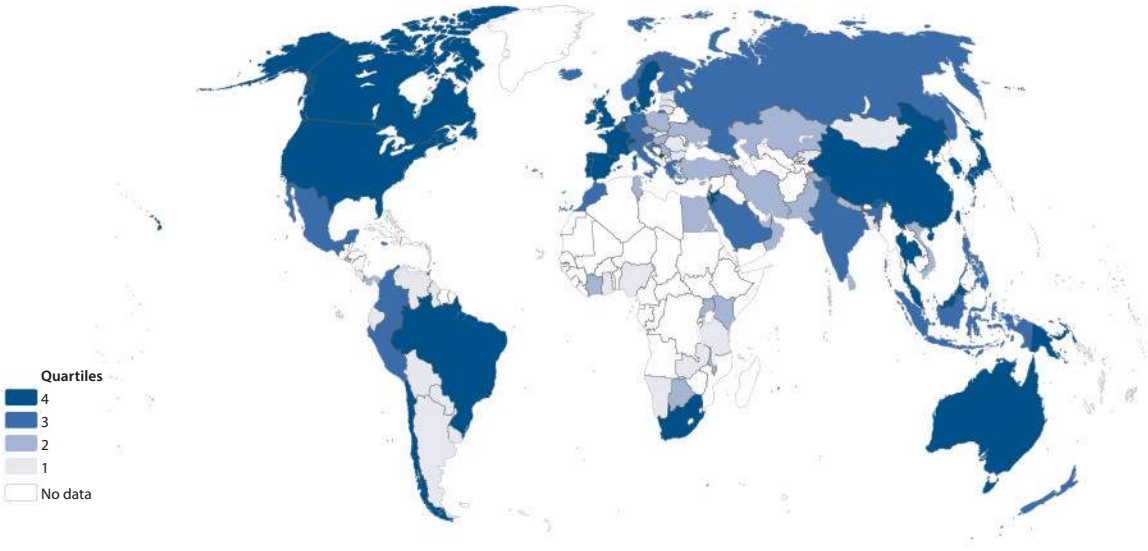

TABLE A.1.5 Depth—Financial Markets

Stock market capitalization + outstanding domestic private debt securities to GDP (%)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	107	61.5	40.6	55	3.8	196.1	119.1
By developed/developing economies							
Developed economies	45	92.4	82.2	55.5	9.9	196.1	141.6
Developing economies	62	39.1	23.9	42.7	3.8	196.1	71.4
By income level							
High income	45	92.4	82.2	55.5	9.9	196.1	141.6
Upper-middle income	33	50.9	29.3	52.1	3.8	196.1	77.4
Lower-middle income	22	28.1	16.8	25.4	3.8	89.7	50.9
Low income	7	18.2	22.6	10.5	3.8	28.2	17
By region							
High income: OECD	32	101.1	100.7	55.5	9.9	196.1	144.4
High income: non-OECD	13	70.9	59.7	51.3	18.5	196.1	80.2
East Asia and Pacific	9	74.9	75	61.5	12.3	196.1	91.7
Europe and Central Asia	14	22.1	14.4	23.5	3.8	86.3	43
Latin America and the Caribbean	16	37.2	20.5	42	3.8	159.6	64.4
Middle East and North Africa	6	44.3	29.2	32.7	19.5	101.7	29.7
South Asia	5	32.4	26.3	24.6	13	74.6	64.4
Sub-Saharan Africa	12	35	24.3	46.2	5.8	172.7	74.3

Source: Global Financial Development Database, 2010–12 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by current GDP.

MAP A.6 ACCESS—FINANCIAL MARKETS

To approximate access to financial markets, this map uses the ratio of market capitalization excluding the top 10 largest companies to total market capitalization. The World Federation of Exchanges (WFE) provides data on the exchange level. This variable is aggregated up to the country level by taking a simple average over exchanges. The four shades of blue in the map are based on the average value of the variable in 2011–13: the darker the blue, the higher the quartile of the statistical distribution of the variable.

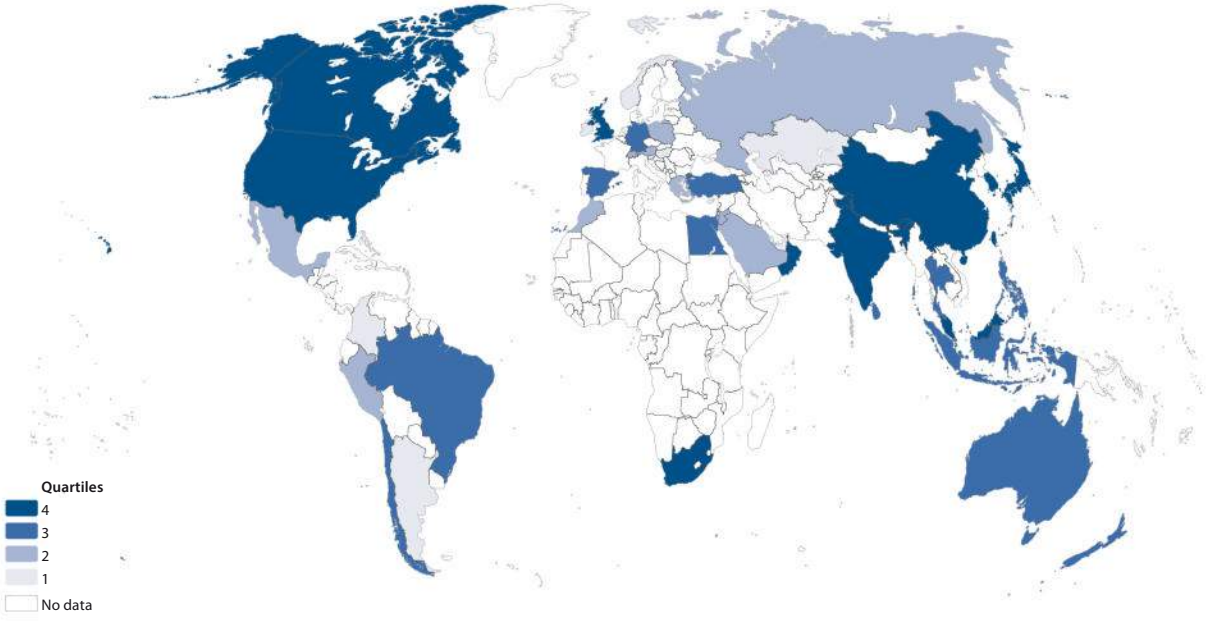

TABLE A.1.6 Access—Financial Markets

Market capitalization excluding top 10 companies to total market capitalization (%)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	48	44.6	47.4	20.2	7.8	74.8	51
By developed/developing economies							
Developed economies	27	42.1	46	22.5	7.8	73.7	50.5
Developing economies	21	47.9	51.9	16.7	19	74.8	51.8
By income level							
High income	27	42.1	46	22.5	7.8	73.7	50.5
Upper-middle income	15	45.3	41.8	17.6	19	74.8	50.9
Lower-middle income	6	54.2	57.1	13.5	29.6	70	54.5
Low income	0						
By region							
High income: OECD	19	43.5	47	22.1	7.8	73.2	47.7
High income: non-OECD	8	39	33.9	24.8	7.8	73.7	55.4
East Asia and Pacific	5	62	59.7	7.7	56.2	74.7	61.8
Europe and Central Asia	3	37	38	17.5	19	53.9	38.7
Latin America and the Caribbean	6	38.1	38	12.5	20.4	55.1	42.1
Middle East and North Africa	3	37.1	29.7	12.8	29.6	51.9	32.6
South Asia	2	64	64	8.5	58	70	66.1
Sub-Saharan Africa	2	58.3	58.3	23.3	41.8	74.8	64

Source: Global Financial Development Database, 2011–13 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by stock market capitalization.

MAP A.7 EFFICIENCY—FINANCIAL MARKETS

To approximate efficiency of financial markets, this map uses the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period. Data are from Standard & Poor's Global Stock Markets Factbook and supplemental S&P data, and are compiled and reported by the World Development Indicators. The four shades of blue in the map are based on the average value of the variable in 2010–12: the darker the blue, the higher the quartile of the statistical distribution of the variable.

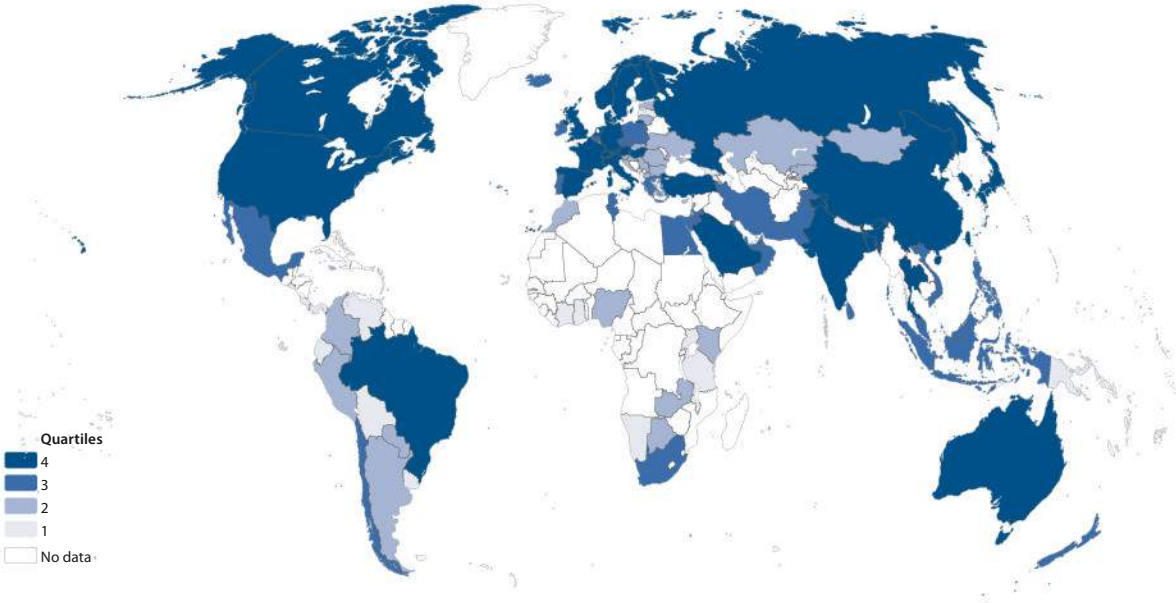

TABLE A.1.7 Efficiency—Financial Markets

Stock market turnover ratio (%)	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	106	34.8	14.6	41.4	0.4	141.3	53.2
By developed/developing economies							
Developed economies	45	54.7	51.1	44	0.4	141.3	69.5
Developing economies	61	20.1	5.2	32.6	0.4	141.3	29.8
By income level							
High income	45	54.7	51.1	44	0.4	141.3	69.5
Upper-middle income	33	24.3	5.5	38.9	0.8	141.3	35.5
Lower-middle income	21	14.5	4.3	17.9	0.4	63.4	19.7
Low income	7	16.9	2.5	35.6	0.4	97.5	13
By region							
High income: OECD	32	64.5	66	41.5	0.4	141.3	71.4
High income: non-OECD	13	30.8	14.8	42.2	0.4	135.4	66.2
East Asia and Pacific	9	39.9	28.6	46.4	0.5	141.3	43.9
Europe and Central Asia	14	20.9	4.9	42.9	0.4	141.3	34.9
Latin America and the Caribbean	15	10	3.1	17.5	0.4	67.5	17.7
Middle East and North Africa	6	18.4	16.2	10.8	7.8	38.2	17.4
South Asia	5	42.9	32.3	38	1.6	97.5	43.9
Sub-Saharan Africa	12	8.2	3.1	15.3	0.4	56.1	24.7

Source: Global Financial Development Database, 2010–12 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by stock market capitalization.

MAP A.8 STABILITY—FINANCIAL MARKETS

To approximate stability of financial markets, this map uses the 360-day standard deviation of the return on the national stock market index. Data are from Bloomberg. To visualize a country in the distribution, the ranking of stock market index volatility during 2011–13 is reversed to show higher stability as darker colors.

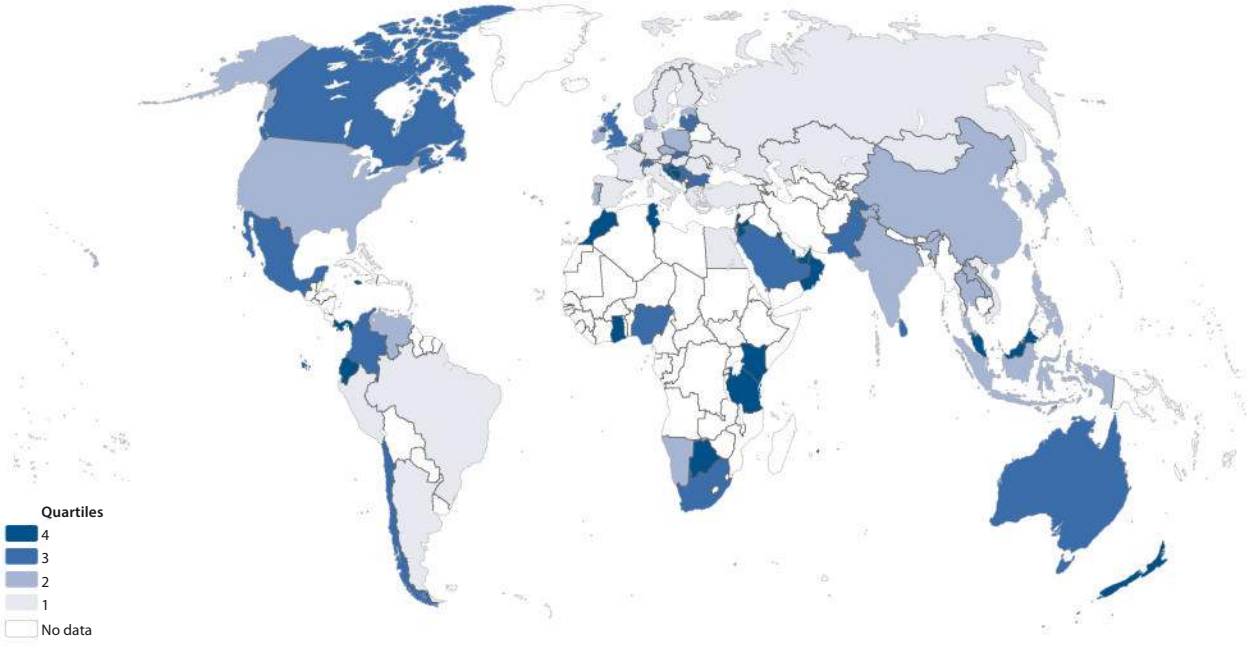

TABLE A.1.8 Stability—Financial Markets

Stock price volatility	Number of countries	Average	Median	Standard deviation	Minimum	Maximum	Weighted average[a]
World	85	17.1	17.3	5.7	7.5	28.5	19.1
By developed/developing economies							
Developed economies	38	18.3	18.8	5.2	8.2	28.5	19.4
Developing economies	47	16.2	15.8	6	7.5	28.5	18.2
By income level							
High income	38	18.3	18.8	5.2	8.2	28.5	19.4
Upper-middle income	31	15.9	15.8	5.8	7.5	27.4	18.2
Lower-middle income	14	17.8	17.7	6.2	8.5	28.5	18.6
Low income	2	9.3	9.3	2.2	7.8	10.8	10.7
By region							
High income: OECD	29	20.1	19.6	4.2	8.9	28.5	19.6
High income: non-OECD	9	12.6	11.7	3.9	8.2	20.5	19
East Asia and Pacific	8	18.8	19.6	4.2	9.4	23.8	17.7
Europe and Central Asia	12	18.9	17.1	5.2	10.5	28.5	23.3
Latin America and the Caribbean	10	16.6	16.2	6.8	7.5	27.4	19.2
Middle East and North Africa	6	12.7	10.2	7.4	8.4	27.6	14.2
South Asia	3	15.8	15.5	1.8	14.2	17.8	17.1
Sub-Saharan Africa	8	11.6	10.1	4.4	7.5	19.5	15.2

Source: Global Financial Development Database, 2011–13 data.
Note: OECD = Organisation for Economic Co-operation and Development.
a. Weighted average by total value of stocks traded.

APPENDIX B
KEY ASPECTS OF LONG-TERM FINANCE

TABLE B.1 Economies and Their Maturity Structure of Finance, 2013

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Afghanistan	8.9			8.2	0.7			0.00	
Albania	16.2	58.5	58.9	2.2	2.1			2.0	
Algeria	15.2			6.0	2.1			0.1	
Andorra								7.0	
Angola	7.0	38.1	41.0	3.6	17.7			0.1	
Antigua and Barbuda	33.5							0	94.6
Argentina	18.1	34.6	35.1	0.4	1.4	0.6	4.6	2.5	
Armenia	49.6			1.0	3.8			1.6	
Aruba								55.0	
Australia				37.2		2.2	8.6	34.7	
Austria				25.3		1.3	9.4	86.0	78.3
Azerbaijan	24.0			0.3	5.3	1.4	10.0	1.3	78.4
Bahamas, The	13.9					2.8	23.1	62.4	91.1
Bahrain				4.0	12.8	2.0	7.0	6.6	
Bangladesh	18.4			2.4	1.8			0.1	
Barbados	13.6					4.7	4.6	59.1	90.3
Belarus	26.1			9.6	2.4	0.04	3.0	1.8	
Belgium				33.3		3.0	9.1	56.9	66.8
Belize	23.2							14.9	
Benin	2.3			0.4	7.0			0.1	18.5
Bermuda						22.5	8.3		
Bhutan	44.3							0	
Bolivia	24.5	67.1	50.3	4.0	5.8			0.8	
Bosnia and Herzegovina	41.6			3.5	3.3			2.1	58.1
Botswana	28.2	59.8	62.4	1.4	2.3	0.1	1.5	0.2	
Brazil	34.1			1.3	1.5	1.9	7.5	11.1	40.8
Brunei Darussalam								0.1	
Bulgaria	27.6	38.9	32.7	1.9	1.8	1.0	5.0	5.2	69.7
Burkina Faso	18.0			0.4	11.6			0	9.8
Burundi	15.5	43.5	29.0	0.5	10.6			3.6	
Cambodia	6.1			1.7	5.0			1.5	

(appendix continued next page)

TABLE B.1 Economies and Their Maturity Structure of Finance, 2013 *(continued)*

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Cameroon	16.5			1.5	15.2			0.04	36.8
Canada				28.5		3.7	12.1	34.3	72.5
Cabo Verde	37.8							0	
Central African Republic	13.0			0.7	6.5			0	28.1
Chad	4.8			7.4	10.0			0.00	25.6
Chile	33.8	29.4	54.9	3.5	4.1	3.2	16.1	9.1	64.6
China	7.7			5.0	3.6	4.1	4.7	0.7	
Colombia	23.8	23.2	22.6	2.6	6.2	2.2	11.0	6.1	
Comoros				0.7	12.1			0	
Congo, Dem. Rep.	2.6	22.0	63.3	0.4	7.2			1.3	
Congo, Rep.	5.2	6.0	15.5	0.3	7.8			2.2	50.6
Costa Rica	21.0	62.0	39.8	3.2	2.5	1.0	30.0	2.4	
Côte d'Ivoire	3.7	15.6	17.8					6.5	19.8
Croatia	42.1			4.3	2.8	2.9	6.6	15.4	78.9
Cuba								0.4	
Cyprus				23.4		2.4	7.3	26.8	77.5
Czech Republic	19.2			8.1	1.2	1.3	8.7	15.8	70.3
Denmark				47.2		1.3	9.6	41.0	
Djibouti				5.1	6.9			0	
Dominica	25.8							0.8	93.2
Dominican Republic	25.8			1.6	7.1	0.9	7.0	5.3	
Ecuador	24.2	23.1	27.2	2.0	4.8			0.5	
Egypt, Arab Rep.	6.0			1.8	4.9	0.3	4.9	0.8	
El Salvador	23.1	71.8	56.4	1.6	3.3	1.3	10.0	9.3	
Equatorial Guinea								0	
Eritrea	2.4							0	
Estonia	26.3			16.2	5.9	0.6	5.4	4.0	92.2
Ethiopia	13.0							0	
Faeroe Islands								38.5	
Fiji	38.5							4.1	
Finland				29.7		2.6	6.6	63.5	86.6
France				26.7		3.5	7.2	63.4	80.9
Gabon	3.6	36.0	19.0	0.5	9.3			1.8	25.6
Gambia, The	10.0	3.9	6.5					0.02	

TABLE B.1 Economies and Their Maturity Structure of Finance, 2013 *(continued)*

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Georgia	37.1			0.6	1.2	4.7	8.4	8.9	76.1
Germany	31.9			20.8		2.7	6.8	52.3	84.5
Ghana	10.2	11.6	31.6	2.5	7.8			6.6	
Greece	19.4			6.2	1.4	2.4	5.8	14.5	62.9
Grenada	31.7							0.4	92.8
Guatemala	24.1	60.8	68.8	1.5	4.0	0.8	9.7	0.8	
Guinea	0.5	10.0	102.0	0.5	10.8			0	20.3
Guinea-Bissau	0.8	26.9						0	26.4
Guyana								0.1	
Haiti				2.4	28.6			0	
Honduras	15.1	57.1	28.4	1.5	4.3			1.6	
Hong Kong SAR, China				11.2		4.6	7.5	11.7	
Hungary	37.8			12.6	1.6	0.2	7.0	44.3	70.4
Iceland						1.6	7.0	50.8	
India	28.8			2.3	5.5	1.3	8.2	1.7	63.7
Indonesia	9.0			0.7	10.7	0.9	8.3	5.5	
Iran, Islamic Rep.				15.1		0.7	4.0	0.01	
Iraq	2.5			14.8	12.9			0.7	
Ireland	28.9			32.4		3.3	8.9	244.7	67.7
Isle of Man								33.0	
Israel				15.3	9.8	0.7	8.2	8.6	
Italy				10.2		1.8	12.9	45.5	62.6
Jamaica	22.9			3.2	3.1	12.6	7.8	2.4	
Japan				16.0		1.6	6.9	7.0	
Jordan	15.1			2.7	5.6	0.8	3.5	1.4	
Kazakhstan	23.9			4.5	3.1	1.9	18.9	4.7	
Kenya	15.6			0.9	8.5	1.0	10.7	0.7	
Kiribati								0	
Korea, Rep.	28.1			20.2		3.8	5.9	10.9	
Kosovo	14.8			1.6	1.4			0	
Kuwait				21.6	19.1	0.1	5.0	0.4	
Kyrgyz Republic	35.3			0.4	1.1	0.03	2.0	1.9	
Lao PDR	13.2			1.2	8.1			0.5	
Latvia	33.1			8.1	3.8	0.03	3.3	12.4	77.9

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TABLE B.1 Economies and Their Maturity Structure of Finance, 2013 *(continued)*

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Lebanon	42.6			5.9	16.6	0.9	5.0	4.1	
Lesotho	29.9			1.0	11.3			0	
Liberia	9.5	4.5	4.6	3.6	15.4			128.0	
Libya								0	
Liechtenstein						5.5	7.6	2.4	
Lithuania	46.7			5.6	2.0	0.6	5.1	25.7	77.6
Luxembourg				34.1		9.6	9.4	994.5	61.5
Macao SAR, China						3.8	7.5	0.3	
Macedonia, FYR	34.0			3.9	5.2			2.0	65.7
Madagascar	8.1	9.3	30.6	0.8	5.4			0.00	
Malawi	16.3			5.3	9.0			0.04	
Malaysia	36.0			12.7	5.5	5.5	7.6	17.6	96.4
Maldives								0	
Mali	15.0	24.6	24.0	0.6	8.1			0.03	16.9
Malta				18.4				5.6	77.4
Mauritania	7.3	20.8	106.3	5.3	16.5			0.01	
Mauritius	30.8	43.2	22.9	4.5	3.2			6.4	
Mexico	17.3	18.0	40.8	2.7	8.6	3.0	10.8	12.1	71.7
Micronesia, Fed. Sts.	5.8							0	
Moldova	32.6			0.6	4.8			0.5	
Monaco								0.03	
Mongolia	21.8			3.0	7.0	0.2	5.0	13.9	
Montenegro	65.2			4.5	8.5			4.9	
Morocco	13.3			4.8	3.7			2.1	
Mozambique	4.9	7.7	20.9	0.9	8.3			0.3	
Namibia	15.7	62.7	86.7					5.5	
Nepal	16.3			5.1	12.5			0	
Netherlands				40.1		3.6	11.4	177.8	68.5
New Zealand				35.3		1.3	5.9	17.6	
Nicaragua	17.2	34.2	218.9	0.4	1.8			1.6	
Niger	8.8			1.5	5.8			0.01	30.1
Nigeria	1.4			0.6	4.7	0.1	5.0	0.8	
Norway						4.2	9.8	37.2	
Oman				14.5		0.4	5.0	0.1	

TABLE B.1 Economies and Their Maturity Structure of Finance, 2013 *(continued)*

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Pakistan	9.1			1.8	3.0	0.01	3.6	0.3	
Panama	6.4	50.2	41.6	11.5	13.3	1.6	15.6	23.0	
Papua New Guinea								2.0	
Paraguay	23.3	18.4	18.9	1.3	9.1	1.2	10.0	1.2	
Peru	40.1	19.6	32.2	1.1	5.5	2.1	10.1	8.7	
Philippines	15.0			3.6	20.7	1.8	9.4	8.7	
Poland	30.0			2.7	0.5	0.4	6.7	19.6	69.7
Portugal	15.3			23.2		3.3	5.7	43.7	73.4
Qatar				18.5		1.1	12.7	3.8	
Romania	34.1			3.7	0.8	0	2.0	7.2	62.9
Russian Federation	9.1			1.4	0.8	2.8	8.5	2.0	72.7
Rwanda	18.0	23.6	82.2	1.9	10.1			1.6	
Samoa	41.7							0	
São Tomé and Príncipe								0.05	
Saudi Arabia				12.3	10.0	1.1	11.5	0.1	46.2
Senegal	15.0	20.8	48.3	0.1	2.6			3.0	34.3
Serbia	37.8			1.4	2.6	1.5	7.0	8.2	56.9
Seychelles								4.1	
Sierra Leone	8.9	5.6	12.8	0.4	10.6			1.8	
Singapore				18.9	5.7	2.9	5.2	16.6	72.0
Slovak Republic	25.8			7.5	1.3	3.7	16.1	23.4	62.1
Slovenia	37.6			10.3		1.1	6.6	37.1	71.5
Solomon Islands								0.01	
South Africa	25.8	31.6	39.0	4.3	6.0	1.6	6.8	11.4	
Spain	23.7			31.6		2.4	8.2	47.8	81.5
Sri Lanka	37.1			3.6	2.2	0.5	5.0	8.6	
St. Kitts and Nevis	38.1							15.4	93.1
St. Lucia	22.7							1.4	94.0
St. Vincent and the Grenadines	34.6							2.5	96.0
Sudan				6.2	22.9			0	
Suriname	33.0							0.05	
Swaziland	12.0	57.3	25.8	6.0	15.2			0.3	
Sweden				53.5		3.2	5.5	61.6	24.2
Switzerland						3.5	7.7	10.0	

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TABLE B.1 Economies and Their Maturity Structure of Finance, 2013 *(continued)*

	Firms			Households		Providers			
Economy	Proportion of fixed investment financed by banks, equity, or stock sales (%)	Average duration of the last bank loan by small firms (months)	Average duration of the last bank loan by large firms (months)	Adults with loans for home purchase (%)	Adults with loans for school fees (%)	Issuance volume of corporate bonds by private nonfinancial firms to GDP (%)	Average maturity of issued corporate bonds by private nonfinancial firms (years)	Nonresident holding of long-term debt securities to GDP (%)	Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%)
Syrian Arab Republic				5.3	3.6			0.05	
Tajikistan	29.6			0.4	4.1			1.1	
Tanzania	8.0	19.4	26.9	4.4	11.6			1.0	
Thailand	62.7			5.1	11.2	3.8	6.6	5.0	
Timor-Leste	0.8							0	
Togo	14.9			2.1	11.4			0.04	27.1
Tonga	36.5							0	
Trinidad and Tobago	21.3			1.5	3.3	4.4	10.0	6.7	
Tunisia				2.4	4.3			4.0	67.5
Turkey	42.0			1.4	3.1	0.4	7.3	11.6	
Turkmenistan				0.7	0.6				
Tuvalu								0	
Uganda	13.2	14.6	41.0	1.0	11.5			0.7	
Ukraine	31.0			1.0	1.3	1.6	5.5	7.5	48.1
United Arab Emirates				17.9	20.2	1.7	10.8	6.8	
United Kingdom				31.0		4.2	12.9	55.8	70.0
United States				31.2		4.6	11.1	29.3	3.7
Uruguay	15.8	32.0	33.8	1.9	1.3	0.2	6.1	17.5	
Uzbekistan	8.0			0	0.5	0.02	2.7	0	
Vanuatu	37.7							0	
Venezuela, RB				0.5	3.6	1.0	13.0	5.8	
Vietnam	15.8			3.0	10.1	0.1	4.5	1.3	
West Bank and Gaza	6.2			5.3	19.8			0.00	
Yemen, Rep.	2.5			1.0	1.5			0	4.4
Zambia	6.2	22.7	27.5	1.2	2.8			2.4	
Zimbabwe	9.0			0.8	9.9			0.4	

NOTES

Additional data: The above table presents information from various databases, including the World Bank Global Financial Inclusion (Global Findex) Database, World Bank Enterprise Surveys, World Bank Global Syndicated Loans and Bonds Database (FinDebt), IMF Coordinated Portfolio Investment Survey (CPIS), as well as from central banks of individual member countries. More information can be found at

Global Findex: http://www.worldbank.org/globalfindex
Enterprise Surveys: http://www.enterprisesurveys.org/
IMF CPIS: http://cpis.imf.org/Default.aspx

Period covered: The table shows 2013 or the most recent data for individuals, formal firms, and providers.

Proportion of fixed investment financed by banks, equity, or stock sales (%): Estimated proportion of total purchases of fixed assets financed from bank loans, owners' contribution, or issuance of new equity shares. The data are from Enterprise Surveys, World Bank.

Average duration of the last bank loan by small firms (months): Original term to maturity of the most recent outstanding loan or line of credit, averaged over small firms (with employee size less than 20). The data are from Enterprise Surveys, World Bank.

Average duration of the last bank loan by large firms (months): Original term to maturity of the most recent outstanding loan or line of credit, averaged over large firms (with employee size equal to or above 100). The data are from Enterprise Surveys, World Bank.

Adults with loans for home purchase (%): Percentage of adult respondents (age 15+) who report having an outstanding loan to purchase their home or apartment. The data are from Global Findex (Demirgüç-Kunt and Klapper 2012).

Adults with loans for school fees (%): Percentage of adult respondents (age 15+) who report having an outstanding loan to pay for school fees. The data are from Global Findex (Demirgüç-Kunt and Klapper 2012).

Issuance volume of corporate bonds by private nonfinancial firms to GDP (%): Ratio of newly issued corporate bonds by nonpublic sector in industries other than finance, holding companies, and insurance to gross domestic product (GDP). The data are from the World Bank FinDebt Database with underlying information from DCM Analytics, Dealogic.

Average maturity of issued corporate bonds by private nonfinancial firms (years): Volume weighted average of corporate bond maturity for all issuances by the nonpublic sector in industries other than finance, holding companies, and insurance. The data are from the World Bank FinDebt Database with underlying information from DCM Analytics, Dealogic.

Nonresident holding of long-term debt securities to GDP (%): Bonds, debentures, and notes with original terms to maturity of more than one year, held by nonresidents. The data are based on the IMF Coordinated Portfolio Investment Survey, table 16.2.A, on long-term debt securities. Strictly positive amounts smaller than 0.005 percent of GDP are reported as 0.00. Countries covered in the database but with no issuances in 2013 are reported as 0.

Bank loans to nonfinancial firms with maturity at origination equal to or above 1 year (%): Percentage of bank loans to nonfinancial firms with original maturity equal to or above one year. The data are available from national central banks and supervisory authorities.

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ISBN 978-1-4648-0472-4

SKU 210472

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