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.
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). 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. 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. 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.

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,
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.
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. 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](image)


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](image)


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

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**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.
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 2.2 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.

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

<table>
<thead>
<tr>
<th>Regression sample</th>
<th>All countries</th>
<th>High-income countries</th>
<th>Upper-middle-income countries</th>
<th>Lower-middle-low-income countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a. Dependent variable: Total debt to total assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average effect 2008–09</td>
<td>0.00422</td>
<td>0.00771**</td>
<td>0.00280</td>
<td>0.000898</td>
</tr>
<tr>
<td>Average effect 2010–11</td>
<td>0.0152**</td>
<td>0.0199***</td>
<td>0.00285</td>
<td>0.00183</td>
</tr>
<tr>
<td>Nonlisted firms 2008–09</td>
<td>0.0195***</td>
<td>0.0194***</td>
<td>0.00272***</td>
<td>0.00325</td>
</tr>
<tr>
<td>Nonlisted firms 2010–11</td>
<td>0.0219***</td>
<td>0.0184***</td>
<td>0.00478***</td>
<td>0.00148</td>
</tr>
<tr>
<td>SME 2008–09</td>
<td>0.000399</td>
<td>0.00418</td>
<td>0.00575</td>
<td>0.00301***</td>
</tr>
<tr>
<td>SME 2010–11</td>
<td>0.00614</td>
<td>0.00896</td>
<td>0.00159**</td>
<td>0.00390***</td>
</tr>
<tr>
<td>Observations</td>
<td>1,137,311</td>
<td>1,048,368</td>
<td>49,788</td>
<td>39,155</td>
</tr>
<tr>
<td>R-squared (within)</td>
<td>0.038</td>
<td>0.037</td>
<td>0.066</td>
<td>0.091</td>
</tr>
</tbody>
</table>

<p>| <strong>b. Dependent variable: Long-term debt to total assets</strong> | | | |</p>
<table>
<thead>
<tr>
<th>Regression sample</th>
<th>All countries</th>
<th>High-income countries</th>
<th>Upper-middle-income countries</th>
<th>Lower-middle-low-income countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average effect 2008–09</td>
<td>0.00184</td>
<td>0.00236</td>
<td>0.00808*</td>
<td>0.00750</td>
</tr>
<tr>
<td>Average effect 2010–11</td>
<td>0.00836*</td>
<td>0.00529**</td>
<td>0.00122*</td>
<td>0.00567**</td>
</tr>
<tr>
<td>Nonlisted firms 2008–09</td>
<td>0.00894***</td>
<td>0.00170***</td>
<td>0.00645</td>
<td>0.00310</td>
</tr>
<tr>
<td>Nonlisted firms 2010–11</td>
<td>0.000642</td>
<td>0.00886***</td>
<td>0.00213***</td>
<td>0.00331</td>
</tr>
<tr>
<td>SME 2008–09</td>
<td>0.000644</td>
<td>0.00183</td>
<td>0.000181</td>
<td>0.00110**</td>
</tr>
<tr>
<td>SME 2010–11</td>
<td>0.00279</td>
<td>0.00111</td>
<td>0.000108</td>
<td>0.00229***</td>
</tr>
<tr>
<td>Observations</td>
<td>1,137,311</td>
<td>1,048,368</td>
<td>49,788</td>
<td>39,155</td>
</tr>
<tr>
<td>R-squared (within)</td>
<td>0.076</td>
<td>0.080</td>
<td>0.070</td>
<td>0.055</td>
</tr>
</tbody>
</table>

Source: Demirgüç-Kunt, Martinez Peria, 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.
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*** | 0.0669*** | 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 2016b.

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.
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 assets fosters long-term finance.
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 civil 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
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)
The use of long-term finance by firms and households 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). 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
the use of long-term finance by firms and households

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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.

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. 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).

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.

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 (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.

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

(continued)

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

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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.
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**

**Why would households use long-term financial instruments?**

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).

### 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).
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 lifetime uncertainty 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, Kojien, 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, Inkmann, 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
The use of long-term finance by firms and 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.

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.

**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.

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.

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

![Graph showing the fraction of pensioners in Chile by type of retirement product selected from 1985 to 2007.](source: Chilean Superintendency of Pensions, Santiago, http://www.spensiones.cl.)
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 Wachtemheim 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.\footnote{12}
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.

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. 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. sub-prime 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
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 disproportionately 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.

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. 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.

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

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

[Graph showing penetration and size of insurance markets across regions]

**FIGURE 2.8**  Volume of Life Insurance Premiums and Income

[Graph showing volume of life insurance premiums and income]

Source: Feyen, Lester, and Rocha 2011.
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. 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**

- **a. Mortgage debt**
- **b. Housing loan penetration**

Source: Badev and others 2014.
the use of long-term finance by firms and households

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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

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

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


FIGURE 2.11 Relation of Mortgage Debt to Income and Inflation

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 Fin-index 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.  

**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**

![Figure B2.12.1 Housing Finance Gaps on Mortgage Penetration and Depth](source: Badev and others 2014).
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
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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 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.
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 Pouhles (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).