

Benchmarking Costs of Financial Intermediation around the World

Pietro Calice

Nan Zhou



WORLD BANK GROUP

Finance, Competitiveness and Innovation Global Practice

June 2018

Abstract

The costs of financial intermediation have important consequences for financial development. Using bank-level data for 160 countries during 2005–14, this paper analyzes the composition and sources of bank net interest margins. First, it uses an accounting decomposition framework to provide summary statistics on the size of net interest margins and highlight the cost and profit components in countries, regions, and income groups. Second,

it uses regression analysis to examine the underlying bank-level, structural, macroeconomic, and institutional determinants of net interest margins. Finally, the paper uses the results of the econometric analysis to construct country-level bar charts of relative contributing factors to financial intermediation costs. The results provide evidence-based guidance on key areas of structural reforms to reduce the costs of financial intermediation.

This paper is a product of the Finance, Competitiveness and Innovation Global Practice. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/research>. The authors may be contacted at pcalice@worldbank.org and nzhou@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Benchmarking Costs of Financial Intermediation around the World

Pietro Calice and Nan Zhou[†]

JEL Classification Numbers: G21, G28

Keywords: Net Interest Margins, Costs of Financial Intermediation, Banks

Authors email addresses: pcalice@worldbank.org; nzhou@worldbank.org

[†] World Bank Group. We are indebted to Augusto de la Torre, Erik Feyen, Alfonso Garcia Mora, Davide Mare, Zafer Mustafaoglu and Martin Raiser for their comments on earlier versions of this paper. We would also like to thank all participants to the seminar held on May 1st, 2018 at the World Bank for their valuable suggestions. Errors and omissions are only ours.

Benchmarking Costs of Financial Intermediation around the World

1. Introduction

Bank financial intermediation, that is, channeling funds from units in surplus to units in deficit, plays a critical role in sustainable and inclusive growth. There is a considerable body of evidence showing that the extent to which an economy is making use of banking intermediation is not only associated with economic growth (Figure 1) and broader access to financial services (Figure 2) but it is a causal factor in explaining overall economic performance (see, for example, Levine, 2005), poverty reduction (e.g., Beck et al., 2007) and reduced inequality (e.g., Demirgüç-Kunt and Levine, 2009).

The costs associated with financial intermediation have an important bearing on the depth and breadth of the banking system. High costs of financial intermediation are associated with credit rationing and thus a lower level of credit channeled to borrowers (Stiglitz and Weiss, 1981). The interest spread, i.e., the difference between the lending rate and the deposit rate, is a commonly accepted measure of how costly financial intermediation is for a society. Countries with lower intermediation spreads experience higher levels of financial development (Figure 3) and higher penetration in the use of financial services (Figure 4). Understanding the determinants of intermediation spreads is, therefore, important to inform policy for improving overall bank efficiency of intermediation and achieving financial deepening and inclusion, especially for those countries that in the absence of developed capital markets heavily rely on bank financing as a source of external funding.

The starting point for analyzing the determinants of banks' intermediation spreads is the seminal work by Ho and Sanders (1981). In their pioneering study, Ho and Sanders (1981) model banks as mere intermediaries between lenders and borrowers where intermediation spreads depend on four basic components: (i) the degree of bank risk aversion; (ii) the degree of competition in the banking market; (iii) the average size of bank transactions; and (iv) interest rate risk. This model has been subsequently extended to incorporate additional factors explaining net interest margins. McShane and Sharpe (1985) incorporated money market rates. Allen (1988) considered loan heterogeneity in the model (banks offer different types of loans and deposits) and showed that margins can be reduced as a result of diversification of banking services. Angbazo (1997) introduced credit risk (and its interaction with interest rate risk). Maudos and Fernandez de Guevara (2004) considered the importance of operating costs as a determinant of banks' margins. More recently, Carbó Valverde and Rodriguez (2007) included both traditional and nontraditional activities in order to study the effect of specialization on net interest margins.

While the model by Ho and Sanders (1981) and its subsequent extensions remains the workhorse of the theoretical literature, its empirical verification is challenging due to the influence of macroeconomic and institutional variables which are difficult to capture in the theoretical model. To circumvent this problem, some authors (see, for example, Ho and Saunders, 1981; Saunders and Schumacher, 2000) use a two-stage estimation procedure. In the first stage, the effect of the explanatory variables of the interest margin not explicitly introduced in the theoretical model is controlled for in order to estimate a "pure" margin. In the second stage, the relationship between the "pure" spread and the factors posited by the theoretical model is analyzed. The application of a two-stage approach has the advantage that it allows a "pure" net interest margin to be estimated, although it requires long time series. On the other hand, other authors (see, for example, McShane and Sharpe, 1985; Angbazo, 1997; Maudos and Fernandez de Guevara, 2004; Carbó Valverde and Rodriguez, 2007) employ a single-stage estimation procedure, where all the variables of the theoretical model along with the other additional variables used to estimate the "pure" spread are included in the explanation of the net interest margin.

The empirical literature using cross-country samples or focusing on a single developed or developing country broadly confirms the predictions of the theory. Spreads are found to be positively related to banks' operating costs, suggesting that banks pass on to their customers their higher transformation costs (see, for example, Maudos and Fernandez de Guevara, 2004; Carbó Valverde and Rodriguez, 2007; Williams, 2007; Beck and Hesse, 2009). There is also a consensus that intermediation spreads tend to increase with market power and low competition (see, for example, Angbazo, 1997; Saunders and Schumacher, 2000; Dabla-Norris and Floerkemeier, 2007; Williams, 2007; Almarzoqi and Ben Naceur, 2015). Finally, research shows a consistently positive relationship between bank margins and interest rate risk (see Maudos and Fernandez de Guevara, 2004; and Maudos and Solis, 2009, among others), indicating that banks facing uncertainty and volatility require a higher premium to compensate for reinvestment risk and refinancing risk.

With regard to other determinants of interest margins, findings are more mixed. For example, some studies (Ho and Saunders, 1981; and Maudos and Solis, 2009, among others) find a positive association between net interest margins and the size of the operations (proxied by the log of total assets or total loans), suggesting that the larger the transaction the larger the expected loss, while others (for example, Angbazo, 1997; and Maudos and de Guevara, 2004) report a negative relationship, pointing to the presence of economies of scale in financial intermediation. Similarly, while most of the papers find that credit risk exerts a positive effect on margins (see, for example, Angbazo, 1997; Maudos and Fernandez de Guevara, 2004), suggesting that banks charge a risk premium to compensate for credit risk, others (for example, Williams, 2007; Fungáčová and Poghosyan, 2011) find a negative relationship between credit risk and interest margins, interpreting this result as evidence that banks are unable to accurately price risk or that depositors require a higher risk premium for putting their money in riskier banks. Finally, Saunders and Schumacher (2000) and Brook and Rojas (2000), among others, find that risk aversion, proxied by the capitalization ratio, positively determines interest margins, implying that those banks that are more risk averse demand a higher premium to compensate for the higher costs of equity financing compared to external financing. However, for example, Dabla-Norris and Floerkemeier (2007) and Horvath (2009), find a negative association between capitalization and net interest margins, suggesting that less capitalized banks have to take on more risks (translating into higher margins) to receive higher returns and internally boost their reserves.

In recent years, studies have begun exploring the potential impact of bank ownership on net interest margins. Micco et al. (2007) and Fungáčová and Poghosyan (2011) find that the form of bank ownership has a strong impact on bank margins in developing countries and the Russian Federation, respectively. Martinez and Mody (2004) find that in Latin America foreign banks can charge lower spreads relative to local banks, while the opposite conclusion is obtained by Schwaiger and Liebig (2008) for a sample of CEE economies. No effect of foreign ownership is found by Dabla-Norris and Floerkemeier (2007) in Armenia, and by Beck and Hesse (2009) in Uganda.

Few papers examine the role of macroeconomic conditions and the regulatory framework in explaining banks' intermediation spreads. For example, Demirgüç-Kunt et al. (2004) and Claeys and Van der Vennet (2008) find a positive relationship between inflation and bank margins, while Brock and Rojas (2000), Saunders and Schumacher (2000) and Gelos (2006) show that higher reserve requirements are associated with higher spreads. Others (for example, Demirgüç-Kunt et al., 2004, Gelos, 2006, and Poghosyan, 2012) control for the quality of the institutional and legal setup and find that in general less supportive environments are associated with higher margins.

This paper adds to existing studies on two main fronts. First, using bank-level panel data on more than 14,000 commercial banks in 160 countries for the period 2005-2014, and controlling for country-level

structural, macroeconomic and institutional data, this paper provides an empirical analysis of the determinants of intermediation spreads in all countries in the world for which data are available, representing to the best of our knowledge the most comprehensive attempt to study net interest margin determinants in a large sample of countries since the seminal contribution by Demirgüç-Kunt and Huizinga (1999). Second, and most importantly, this paper uses the results of the empirical analysis to benchmark country-level costs of financial intermediation with a view to highlight the factors that most affect bank intermediation spreads. Our main concern is not to uncover new findings about the drivers of intermediation spreads but rather to provide an easy-to-interpret tool to highlight the most important factors by country. To this end, empirical results are used to decompose the difference between each country's net interest margins and those of the average banking system in the world as well as of the average banking system of the regional grouping to which the country belongs. Simple bar charts of relative contributing factors are then constructed to sharpen the intuition behind the estimates to show "what determines a country's net interest margin."

Benchmarking costs of financial intermediation around the world is a useful exercise in detecting deficiencies at the country level; it can also help policy makers identify areas to prioritize through reform. For example, if high intermediation costs are especially driven by high operating costs in the banking system, efforts to reduce the opportunity cost of holding reserves are unlikely to bring down spreads. Improving productivity by, for example, incentivizing an increased use of technology and automation in the production and distribution of banking services would be a more effective strategy. On the other hand, if macroeconomic volatility creates uncertainty that banks need to compensate for by charging higher risk premia, reducing information asymmetries through the promotion of credit bureaus or improving contract enforcement through more effective liquidation procedures will do little to eliminate the underlying drivers of high spreads.

Understanding the main determinants of intermediation costs is also relevant to the agenda of many international financial institutions, especially multilateral development banks, which are increasingly concerned with maximizing the additionality of development finance by crowding in private capital. High costs of financial intermediation represent an important obstacle to leveraging private sector investments for growth and sustainable development. Therefore, understanding the factors driving bank spreads is important for the implementation of this agenda. Along the same lines, analysis of bank intermediation efficiency is an increasingly common component of IMF/World Bank-led Financial Sector Assessment Programs (FSAPs) and other country-level diagnostics, hence developing an international benchmark in this area can help focus the analysis.

The remainder of this paper is organized as follows. The next section presents the methodology and the data used to analyze the drivers of bank intermediation costs around the world. Section 3 presents an accounting decomposition of the intermediation spread in its constituent parts, i.e., cost and profit components. Section 4 presents the results of the econometric model and evaluates the importance of bank-specific, structural, macroeconomic and institutional factors affecting spreads. Section 5 introduces the methodology used to decompose econometric results to build bar-charts of relative contributing factors of financial intermediation costs. The last section concludes.

2. Methodology and data

Bank intermediation costs can be measured using both ex-ante and ex-post spreads. The ex-ante spread is the difference between contractual rates charged on borrowers and those paid on depositors. The ex-post spread is the difference between banks' actual interest revenue and their actual interest expense, usually divided by earning assets or total assets. The ex-post spread differs from the ex-ante spread by

the amount of loan defaults. Therefore, ex-post spreads allow for a broader examination of the costs of financial intermediation. Moreover, ex-post spreads allow for an analysis of the driving factors of efficiency in a general equilibrium setting, taking into account all operations of a bank. For example, banks may compensate high taxation of a certain form of intermediation by charging lower rates on other forms. This effect would not be captured by ex-ante spreads. Finally, ex-post spreads are easy to calculate from banks' financial statements and, though accounting principles may still differ across countries, recent convergence towards intentional standards makes comparability a relatively minor issue. Ex-ante spreads are typically calculated at the aggregate level and put together from a variety of sources, which may be different from country to country. For all these reasons, this paper uses ex-post spreads as a measure of bank intermediation costs.

We begin our analysis of the drivers of bank intermediation costs by providing an accounting decomposition of ex-post spreads around the world. The decomposition of net interest margins can be a useful exercise to get to the factors that drive intermediation costs in a banking market. An accounting decomposition of bank net interest margins can be derived from a straightforward accounting identity:

$$BTP/TA = ATP/TA + TX/TA. \quad (1)$$

where BTP/TA is before-tax profits to assets, ATP/TA is after-tax profits to assets, and TX/TA is taxes to assets.

From a bank's income statement, before-tax profits must satisfy the following accounting identity:

$$BTP/TA = NI/TA + NII/TA - OV/TA - LLP/TA \quad (2)$$

where NI is net interest income, NII refers to noninterest income, OV stands for overhead costs, and LLP refers to loan loss provisioning, all scaled by total assets, TA . The identities above allow for a decomposition of net interest margins, NI/TA , into its components:

$$NI/TA = ATP/TA + TX/TA - NII/TA + OV/TA + LLP/TA \quad (3)$$

The above accounting identity suggests a useful breakdown of the realized spreads in its constituent parts, providing initial indications of differences across countries. However, comparing accounting ratios without controlling for differences in the structure of the banking market as well as in the macroeconomic and institutional environments in which banks operate may be misleading. The next step of the paper is therefore to provide an econometric analysis of the determinants of net interest margins, contributing to shed light on the main drivers of intermediation costs.

Based on the framework developed by Ho and Saunders (1981) and its subsequent extensions, we employ a single-stage estimation procedure and estimate the following basic model:

$$NIM_{i,j,t} = \alpha + \beta' \mathbf{B}_{i,j,t} + \gamma' \mathbf{S}_{j,t} + \eta' \mathbf{I}_{j,t} + \theta g_{j,t} + \varepsilon_{i,j,t} \quad (4)$$

where NIM is the net interest margin for bank i in country j at time t ; \mathbf{B} is a vector of bank-level variables; \mathbf{S} and \mathbf{I} are a set of country-level macroeconomic and structural variables, and institutional variables, respectively; $g_{j,t}$ is the per capita income, and $\varepsilon_{i,j,t}$ the error term. NIM , \mathbf{B} , \mathbf{S} , and \mathbf{I} are standardized at country level to generate sensitivities of the net interest margin with respect to the main dependent variables. The empirical specification (4) is estimated with country fixed effects and time fixed effects, allowing for heteroscedasticity by applying robust standard errors. To correct for the fact that the number of banks varies considerably across countries, we use the weighted least square

technique, with the weight given by the inverse of the number of banks for the country in each year. Finally, as an extension, the paper also estimates a model to explore potential variations in how bank, macroeconomic and structural, and institutional variables affect net interest margin at different levels of economic development:

$$NIM_{i,j,t} = \alpha + \beta_1' \mathbf{B}_{i,j,t} + \gamma_1' \mathbf{S}_{j,t} + \eta_1' \mathbf{I}_{j,t} + \beta_2' g_{j,t} \mathbf{B}_{i,j,t} + \gamma_2' g_{j,t} \mathbf{S}_{j,t} + \eta_2' g_{j,t} \mathbf{I}_{j,t} + \theta g_{j,t} + \varepsilon_{i,j,t} \quad (5)$$

The sample is formed by an unbalanced panel of more than 14,000 banks in 160 countries for the period 2005-2014. Bank-level data are taken from the Bankscope database. We focus on depository financial institutions, including commercial banks, savings banks, and cooperative banks. To address issues of redundant financial statements in Bankscope, we adjust for mergers and acquisitions among banks and retain unconsolidated statements only for those with concurrent consolidated reports, using the procedure discussed in Duprey and Lé (2016). Structural, macroeconomic and institutional variables are drawn from the World Bank Global Financial Development Database, World Development Indicators, and Ease of Doing Business Indicators, respectively.

Our dependent variable, the net interest margin, is calculated as the ratio of total interest revenue minus total interest cost divided by average earning assets. In line with previous studies, this is our baseline measure of cost of financial intermediation. As a robustness check, however, we use the ratio of total interest revenue minus total interest cost divided by total assets.

We use a variety of control variables to explain variations in net interest margins. Specifically, we use the following set of bank-level variables:

- **Size of operations:** this variable is proxied by the log of gross loans. While ideally we would like to measure this variable by the average lending transaction size, data are not available for our sample so, in line with the previous studies, we resort to the whole loan book taken in log. The benchmark theoretical model posits a positive relationship between the size of bank operations and margins since, for a given credit and market risk, the larger the operation the larger the potential loss and hence the higher the margin the bank will demand. However, the presence of economies of scale stemming from size or diversification would suggest that the fixed costs associated with the transaction are spread over a larger base, enabling the bank to achieve a smaller margin. Therefore, we do not have a particular prior on the expected sign of this covariate.
- **Risk aversion:** as imperfect as it is, we proxy the bank's degree of risk aversion by the ratio of equity to total assets, again, in line with similar studies. As equity is more costly than other sources of funding, a higher proportion of equity in the bank's capital structure indicates greater risk aversion and is expected to be reflected in higher margins. Hence, the estimated coefficient is expected to be positive.
- **Opportunity cost of bank reserves:** this represents a regulatory and opportunity cost for the bank and is proxied by the ratio of cash and balances held at the central bank over total assets. The opportunity cost arises from the foregone interest the bank can earn from investing in higher-yielding assets the money it keeps in cash reserves. A positive association is therefore expected between this variable and net interest margins because banks must compensate for the missing interest.

- **Overhead:** this variable captures cross-bank differences in the organization and operation of the bank. Banks incurring higher staff and administrative costs are likely to pass on to their clients these costs by increasing margins. Therefore, a positive sign is expected for this variable. We proxy operating costs by the ratio of operating expenses to total assets.
- **Credit risk:** the risk of default on a credit requires the bank to apply a risk premium to the interest charged to clients. In the absence of better alternatives for our sample and in line with previous studies, we proxy credit risk by a stock measure: the ratio of loan loss reserves to loans. Higher provisions are expected to be associated with higher credit risk and therefore higher margins; hence, we anticipate a positive relationship between this covariate and our dependent variable.
- **Income diversification:** a diversified bank is able to attract new customers and offer a wider array of products and services, benefiting from fee-based income. By doing so, the bank is expected to provide interest-dealing services with lower margins as these will be compensated for by higher fees and commissions due to cross-selling and cross-subsidization. We proxy bank product diversification by the ratio of noninterest income to total revenue and expect a negative sign for its coefficient.

Bank-level variables are complemented by the following country-level macroeconomic and structural variables:

- **Inflation:** like with interest rates, macroeconomic instability introduces uncertainty that needs to be compensated by higher spreads. We measure macroeconomic instability by the inflation rate proxied by the CPI variable, which is expected to have a positive relationship with net interest margins.
- **Interest rate risk:** uncertainty in market rates is expected to translate into higher margins as banks will try to hedge interest rate risk by applying a risk premium. We use the standard deviation of the monthly money market rate (or policy rate when the latter is not available) as a proxy for interest rate risk. A positive sign for this variable is expected.
- **Competition:** according to our benchmark theoretical model (Ho and Saunders, 1981), a competitive market structure is expected to put pressure on margins and therefore a negative relationship is expected between competition and net interest margins. In line with recent studies that use behavioral measures of competition, we measure the degree of competition in the banking market by the country-level Lerner index. The latter is the difference between the price and the total marginal costs as a proportion of the price. A lower Lerner index indicates a strong degree of competition in the banking sector, which results in lower margins; therefore, a positive relationship between the Lerner index and the interest margins is expected: banks with greater market power can charge higher spreads than they could in a more competitive market.¹

We also include the following country-level institutional variables:

- **Creditor rights:** the degree to which collateral and bankruptcy laws protect the rights of lenders is expected to facilitate lending and ultimately reduce bank margins. We measure this by the

¹ As a robustness check, we use the concentration ratio and show that the latter is not a significant predictor of competition, in line with recent studies (see, for example Beck and Hesse, 2009). Results are available upon request.

Doing Business Indicator strength of legal rights index, which tracks changes related to secured transactions and insolvency every year. The index ranges from 0 to 12 for the period 2013-14 and from 0 to 10 during 2005-12, with higher scores indicating that collateral and bankruptcy laws are better designed to expand access to credit. In order to mitigate the differences in the Doing Business methodology, we use a factor of 1.2 to scale the 2005-12 raw data values. A negative sign is expected as stronger creditor rights are expected to translate into lower spreads.

- **Information environment:** more credit information sharing on borrowers lowers the cost of screening and monitoring, reduces adverse selection and reduces loan losses, thus contributing to lower bank spreads. We proxy the quality of the information environment by the Doing Business Indicator depth of credit information index, which measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a credit bureau or a credit registry. The index ranges from 0 to 8 during 2013-14 and from 0 to 6 during 2005-12. For similar reasons discussed above for creditor rights, we scale the 2005-12 value by a factor of 4/3. Higher values indicate the availability of more credit information, from either a credit bureau or a credit registry, to facilitate lending decisions. A negative sign is expected on the coefficient of this variable.
- **Contract enforcement:** the enforceability of creditor rights is important in determining the premium that banks will demand on their intermediation activity. We proxy contract enforcement by the Doing Business Indicator recovery rate, which is recorded as cents on the dollar recovered by secured creditors through judicial reorganization, liquidation or debt enforcement (foreclosure or receivership) proceedings. Higher recovery rates are expected to reduce bank margins; hence, we expect a negative coefficient for this variable.

Lastly, we include one broad measure of economic development in our analysis:

- **GDP per capita:** real per capita income measured in thousands of constant 2010 US dollars. More advanced economic development tends to associate with deeper and more efficient financial systems, which are conducive to lower net interest margins. A negative sign for this variable is therefore expected. In a modeling extension, this variable is also used as a simple proxy for testing heterogeneous effects of bank-level, macroeconomic, structural, and institutional variables along different stages of economic and financial development.

Bank-level variables are trimmed at the 1 percent level while macroeconomic variables are winsorized at 0.5 percent to eliminate multiple outliers, implausible negative values and extreme outliers. Table 1 presents descriptive statistics while Table 2 summarizes the correlation matrix.

3. Accounting decomposition of intermediation spreads

We begin our analysis by presenting a breakdown of the net interest margin into its components: operating costs minus noninterest income, loan loss provisions, taxes and net profit. The average net interest margins (weighted by total assets) for the period 2005-14 by country are presented in Table 3, column 2. Columns 3-6 report its components as a share of the net interest margin while columns 7-11 present accounting ratios as in equation (3) above, i.e., components scaled by total assets. Figure 5

presents similar statistics on net interest margins for groupings by region and income, while Figures 6-7 show trends in net interest margins by region and income group.²

Several countries, especially advanced European economies hit hard by the global financial crisis, display very low net interest margins (below 1 percent), signaling the prevalence of difficult operating conditions since 2007, characterized by a combination of low interest rates and low demand, which inevitably impacted bank margins. At the other end of the distribution (top decile), we mostly find emerging markets and developing economies from Sub-Saharan Africa and Latin America, where average spreads are between 4 percent and 5 percent (Table 3, column 2). This is confirmed by data at the aggregate level: the net interest margin is the highest for banks operating in the Latin America region and for banks in low income countries (Figure 5).

Unsurprisingly, operating costs represent a significant component of the net interest margin in many jurisdictions (Table 3, column 8). Commercial and retail banking involve the establishment of a large number of branches, equipment and personnel to serve and monitor clients. Inefficient organizational structures and a low level of automation of loan and deposit production can exacerbate the importance of overhead in contributing to intermediation costs. In this context, we observe significant variation in operating costs across jurisdictions, with overhead as a share of total assets ranging from 0.8 percent in Japan to 16.4 percent in Russia. Interestingly, we find that in the top quartile (i.e., the most virtuous countries in terms of cost efficiency) of the distribution, along with many advanced economies, characterized by a relatively high degree of technological adoption offsetting high wages and high density branch network, there are also several, small, densely populated emerging economies such as Bahrain, Lebanon and Mauritius, which may be able to exploit economies of scale from a geographically concentrated distribution network. The economies of Sub-Saharan Africa stand out with high shares of overhead, followed by countries in Europe & Central Asia and Latin America (Figure 6a). This is the case also for low income countries (Figure 6b).

Table 3, column 4, shows the share of taxation absorbed by the net interest margin. Bank taxation includes several forms of explicit and implicit taxes. The former includes mostly corporate income taxes while the latter refers to reserve and liquidity requirements and other restrictions on credit. Only explicit taxes are reflected in column 4, as implicit taxes lower directly the net interest income of the bank. We can observe significant cross-country variation in the extent to which banks are explicitly taxed. This reflects not only differences in corporate income tax rates but also the treatment of bad and doubtful loans and the non-application in many cases of thin capitalization rules (i.e., interest deductions) to the financial sector. In this regard, the very low if not zero taxation observed in the countries of the Gulf Cooperation Council (GCC) reflects the absence of significant income taxation in those economies, whereas the low tax share found in Portugal, Serbia or Spain is presumably explained by the tax deductibility of nonperforming loans.

Loan loss provisions are also part of the intermediation spread as banks have to take into account historic losses when contracting new loans. The share of provisioning over the net interest margin can be interpreted as a crude measure of asset quality (Table 3, column 5); however, the data are heavily influenced by the different accounting and regulatory treatments of provisioning and nonperforming loans in various jurisdictions. Unsurprisingly, the top quartile is dominated by European countries,

² Regional groups exclude OECD high-income economies: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Rep., Latvia, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and United States.

which have experienced a significant rise in nonperforming loans in the aftermath of the global financial crisis (Figure 6a). Countries such as Cyprus, Greece and Iceland all present high levels of loan loss provisions as a percentage of net interest margins. Other countries such as Kazakhstan and Tunisia, where problems in the banking sector emerged recently, also show a relatively high level of provisioning.

Table 3 also presents statistics on the share of noninterest income over total assets, as in accounting identity (3) above. Though not a direct component of spreads, the relative importance of fee-based services reveals the extent to which banks are able to diversify their income sources away from the lending business, which can allow banks to operate with low margins while maintaining adequate levels of profitability (Table 3, column 7). Banks in some Latin American countries such as Colombia and Peru, and banks operating in Europe & Central Asia such as Croatia and Slovak Republic seem to rely heavily on fee-based activities. At the regional level, this pattern seems to be strongest in Sub-Saharan Africa (Figure 5). In contexts characterized by low traditional intermediation activity, noninterest sources of income may provide a boost to bank profitability.

As a residual, Table 3, column 6 presents the extent to which net interest margins translate into bottom line profitability, i.e., the profit margin of the lending business. Again, there are large differences across countries. Disproportionately high profit margins may signal competitiveness issues in the banking system. Entry barriers, competition from other financial institutions, the ownership structure of the banking sector, market segmentation, the presence of switching costs and the competition law system can all have a significant impact on the ability of banks to exploit market power and achieve high profits. From this perspective, the fact that, for example, GCC countries populate the top quartile is in line with recent research that highlights low competition in these banking systems (see, for example, Calice et al., 2016; and Anzoategui et al., 2010). On the other hand, large profits may also indicate high country risk, with especially foreign banks insisting on large returns to compensate for a high degree of country-level economic and political uncertainty. This may contribute to explain the high profit margins of countries such as Iraq or Republic of Congo. At a regional level, banks operating in Sub-Saharan Africa and Latin America have the highest ratio of profits to total assets, while the lowest is found in high income economies, probably reflecting higher levels of competition.

A final breakdown, presented in Figure 7, is by bank size. Larger banks tend to be more profitable and efficient, facing lower overhead. However, they tend to pay more taxes and need to account more for bad loans.

4. Econometric estimates of intermediation spreads

The accounting decomposition framework presented in the previous section allows us to identify the items in the banks' income statement that make up the net interest margin. However, this rather mechanical exercise is only the first step towards ascertaining the main drivers behind the costs of financial intermediation since it does not incorporate how banks respond to country-level structural, macroeconomic and institutional features. Therefore, we complement our analysis with standard econometric techniques. Specifically, we use cross-country averages and standard deviations to standardize the dependent and control variables discussed in Section 2 (see Table 1 for summary

statistics), and estimate the sensitivities of net interest margins with respect to dependent variables, as specified in equation (4).³

Let $x_{i,j,t}$ denote a variable for bank i in country j and year t . At the country-level, this variable is represented as x_j , the average generated for j over i and t . Then, we use the mean m_x and standard deviation s_x of x_j to measure the cross-country central tendency and dispersion of x . The dependent variable, as well as bank-level, macroeconomic, structural, and institutional variables are standardized as $(x_{i,j,t} - m_x) / s_x$ for the regressions. This procedure allows the estimated coefficients to be interpreted as the standard deviation change in the net interest margin per one standard deviation change in the independent variable.

We first consider bank-level variables: size of operations, risk aversion, opportunity cost of bank reserves, operating costs, credit risk, and income diversification (Table 4a, column 1). The results show that banks with larger operations charge a higher margin, suggesting that any potential benefit arising from economies of scale is offset by higher risk, since for a given value of credit and market risk larger operations are expected to translate into a higher potential loss, for which banks demand a risk premium. We also find that more risk averse and better capitalized banks require higher margins, consistently with theory and previous empirical evidence. This can be explained by the reluctance of risk-averse banks to engage in more profitable but riskier lending activities. Our results also show that reserve requirements are a monetary or regulatory policy tool that could affect the cost of intermediation. Its proxy, the opportunity cost of bank reserves variable, is positively and significantly associated with spreads. Higher reserve requirements are translated into higher interest spreads to compensate for the missing incomes resulting from zero or low return on reserves.

Next, we turn to operating costs. As expected, less efficient banks operating with higher costs charge higher margins, passing onto depositors and borrowers their higher overhead. As expected, higher credit risk is also associated with higher margins, as banks require higher profits to compensate for risk, and this effect is stronger in wealthier countries. Finally, as predicted by theoretical models, the noninterest income variable has a negative and significant effect, showing that banks engaging more in non-lending activities have lower intermediation spreads. This may reflect a strategy of cross-subsidization with traditional activities (see Carbó Valverde and Rodriguez, 2007; and Lepetit et al., 2008). For example, banks may reduce lending rates to borrowers who also use other bank services, generating fees and commissions such as payment services or underwriting of securities.

Table 4a, column 2, evaluates the impact of macroeconomic and structural variables. The results show that macroeconomic and competitive conditions do affect net interest margins. Bank net interest margins increase with inflation, suggesting that macroeconomic instability creates uncertainty to which banks respond by lifting margins upward. We also find that the volatility in the money market rate is positive and significant: banks respond to increased uncertainty in benchmark rates by raising spreads. However, interest rate risk is not significant at standard confidence intervals. We finally find that the Lerner index, our measure of market competition, enters positively and significantly, suggesting that banks commanding market power can charge higher lending rates and offer lower deposit rates, resulting in higher costs of financial intermediation.

Table 4a, columns 3-4, evaluates the impact of institutional variables when controlling for bank-level and country-level macroeconomic and structural variables. Though the coefficients for the institutional

³ The estimations are based on a sample of 128 countries on which all specifications can be implemented to arrive at fully comparable coefficient estimates.

variables come with the expected negative sign, including that of GDP per capita, signaling that a less developed credit and institutional infrastructure is associated with higher margins, the results show that these variables have no distinct significant impact on net interest margins though they are jointly significant (estimated with the standard F-test). The lack of individual significance of these regressors may suggest that the bulk of their variability is absorbed by country fixed effects in our relatively short panel.

Considering the evidence that the effect of changes in covariates on the net interest margin differs between rich and poor countries (see, for example, Demirgüç-Kunt and Huizinga, 1999; Pogosyan, 2012), we next address this potential heterogeneity by interacting our independent variables with GDP per capita, measured in thousands of constant 2010 US dollars, as specified in equation (5). The purpose of this exercise is to further explore whether our main results hold using different models. Table 4a, columns 5-8, presents the results. Overall, our results are confirmed, and as expected we find that the impact of our variables is generally stronger in less wealthy economies. There are nonetheless two notable exceptions: first, the impact of our credit risk measure becomes greater as income level increases, suggesting better risk-pricing capabilities by banks in higher income economies. Second, the impact of income diversification decreases at higher income levels, suggesting reduced opportunities for product bundling and tying in more effective competition law systems.

To further validate our results and explore systematically potential influence by institutional variables on bank intermediation costs, we estimate groups of additional equations that introduce fixed effects incrementally, as presented in Table 4b: columns 1–2 present results for weighted cross-sectional models; columns 3–4 present results with additional time fixed effects, columns 5–6 show results with country fixed effects, and, finally, columns 7–8 show results with bank fixed effects. Each group contains a main and income-interactive model, with columns 5–6 being our benchmarks discussed previously.

We find that bank-level and macroeconomic and structural variables broadly behave similarly across specifications, with the exception that the sign on size of operations changes from negative to positive when country or bank fixed effects are introduced. We conjecture that although there are overall economies of scale in lending operations in the cross-section, risks arising from large exposures contribute positively to the net interest margin once differences in average bank sizes across countries are considered. With respect to institutional variables, the effects are more mixed. In the cross-section, there is evidence that depth of credit information and enforceability of contracts are conducive to improving bank intermediation efficiency. The strength of collateral and bankruptcy laws seems positively correlated with higher net interest margins, but the effect becomes diminished and reverses direction once country and bank level fixed effects are introduced. Finally, as a further robustness test, Tables 5a and 5b use the ratio of net interest income to total assets as an alternative dependent variable to replicate the regression exercise, and arrive at largely similar conclusions.

5. Bar-charts of relative contributing factors of financial intermediation costs

The final step of our empirical exercise is to use the results from our econometric estimates to illustrate relative contributing factors to financial intermediation costs. To this end, we use parameters from our benchmark estimated model to decompose the differences between each country's net interest margin and that of the average banking system in the world to highlight the relative contribution of bank-level, macroeconomic, structural, and institutional variables.

Specifically, we summarize the covariates for each country by computing the pooled averages for each bank-level, macroeconomic, structural, and institutional variable x , then subtracting from it the cross-country mean m_x and dividing the result by the cross-country standard deviation s_x (as shown in Table 1). This produces a standardized score $(x_j - m_x)/s_x$ that can be multiplied directly with the corresponding coefficient estimate c_x from the equation. The contribution from a particular variable on the net interest margin, compared to the average banking system, can then be generated by multiplying its standard score with the cross-country standard deviation of the dependent variable, s_y . Formally, for country j , the contribution of variable x toward the country's difference from the net interest margin in the average country is:

$$d_{xj} = s_y c_x (x_j - m_x) / s_x \quad (6)$$

For the current exercise, we opt for the model in Table 4, column 4, for its parsimony, although the approach can be easily adapted to incorporate additional variables and alternative specifications deemed proper.

Visualization for within- and between-country comparison is presented in Table 6a. Values in the cell represent $d_{x,j}$, the percentage contributions from variables to the difference in net interest margin against the average banking system. The dashed line across each column indicates the level of the cross-country mean, representing the corresponding value in Table 1 and hereby normalized to 0. A conducive, below-average contribution from a variable is indicated with a blue bar, and an unfavorable, above-average contribution in red. The left and right ends of a cell represent respectively the most and least favorable contributions across countries. Table 6b presents results at the region level by aggregating average contributions for each variable across economies belonging to regional groups. Building on the same regression results, Tables 7a-g replicate the exercise by benchmarking each country's variables against the averages of its regional group.

Figure 8 compares the relative explanatory powers of covariates implied by our model. Overall, most of variation in net interest margin is captured by bank-level variables, with income diversification and overhead in the lead, followed by cash reserves of banks. We also identify size of operations, bank capitalization, as well as macroeconomic conditions including inflation and interest rate level to be influential correlates of bank financial intermediation costs. The impact of institutional variables is somewhat muted from our analysis.

To illustrate how to use the bar-charts presented in Tables 6-7, we take the decomposition results for Saudi Arabia. Saudi banks in our sample of 2005-14 have an average ratio of net interest income to total assets of 2.63 percent, and a net interest margin (i.e. net interest income to average earning assets) of 2.86 percent. These values compare favorably against world-wide averages (3.61 percent and 4.54 percent, respectively) yet they stand above averages in high income economies (2.03 percent and 2.30 percent, respectively).

The accounting decomposition exercise in Table 3 shows that Saudi banks, although not highly diversified in terms of non-lending income-generating business, benefit from relatively low overhead costs, smaller than average levels of loan loss provisions, zero corporate tax, and are able to convert most of net interest margin into profit.

Comparing the Saudi Arabian banking system against the average system in the world, the econometric exercise confirms the patterns above by attributing a large difference (-64 basis points, bps hereafter) to lower noninterest expenses, as well as smaller amounts to lower provisions for loan impairments (-2bps)

and cash reserve holdings (-9bps) by banks. It also points out that stable macroeconomic conditions have been conducive to reducing costs of bank financial intermediation through inflation (-5bps) and interest rate (-3bps) channels.

Our empirical exercise also highlights that high credit concentration (as indicated by size of operations, +51bps), relatively low price competition (as measured by Lerner index, +12bps), and relatively weak environment of contract enforcement (as proxied by recovery rate, +11bps) can be areas worthwhile of consideration when policies to improve banking intermediation efficiency are designed.

6. Conclusions

The costs of financial intermediation have important consequences for financial development, including financial deepening and financial inclusion. Based on a comprehensive cross-country data set with bank-level data, this paper analyzed net interest margin determinants around the world. First, we use an accounting decomposition framework to provide summary statistics on the size of net interest margins and to highlight its cost and profit components in countries, regions and income groups. Second, we use regression analysis to examine underlying bank-level, structural, macroeconomic and institutional determinants of net interest margins. Finally, we use the results of our econometric analysis to illustrate the relative contribution of each variable, so as to provide guidance on key areas of structural reforms to reduce the costs of financial intermediation.

We broadly confirm findings of previous research. The analysis provides evidence that the costs of financial intermediation are negatively associated with income levels: net interest margins are significantly higher in lower income countries. On the other hand, a regional focus shows that costs of financial intermediation are especially high in Latin America and Sub-Saharan Africa. Accounting decomposition of intermediation spreads indicates that higher margins in low income economies, Latin America and Sub-Saharan Africa are mostly explained by higher overhead (probably reflecting low economies of scale and low productivity), higher credit risk (which may reflect a weaker environment) and greater bank profitability (which may be due to low market competition).

The econometric analysis highlights that all variables have the expected impact on net interest margins, with magnitude conditional upon levels of economic development. Higher intermediation spreads are significantly associated with larger operations, higher risk aversion, higher opportunity costs arising from reserve requirements, higher overhead, higher credit risk, lower competition, higher interest rate risk and higher inflation. In general, the impact of these variables is stronger in less wealthy economies. Finally, we find suggestive evidence that a relatively underdeveloped credit infrastructure negatively affects net interest margins across countries: deficiencies in the contractual and information frameworks are associated with higher intermediation spreads.

The bar-charts of relative contributing factors to financial intermediation costs, which are constructed using a decomposition of the difference between each country's net interest margin and the average banking system in the world, help visualize deficiencies and focus policy makers' attention. While the usefulness of the bar-charts is to highlight country-level areas of focus, some interesting patterns emerge. Market-developing policies aimed at addressing deficiencies in the contractual and information frameworks and at maintaining macroeconomic stability can have important repercussions for the costs of financial intermediation in lower income economies and should be the main concern of policy makers in these countries. These policies should be complemented by market-enabling policies aimed at increasing contestability in the banking system, and by policies aimed at promoting technological innovation in the production and distribution of banking services to reduce overhead and increase

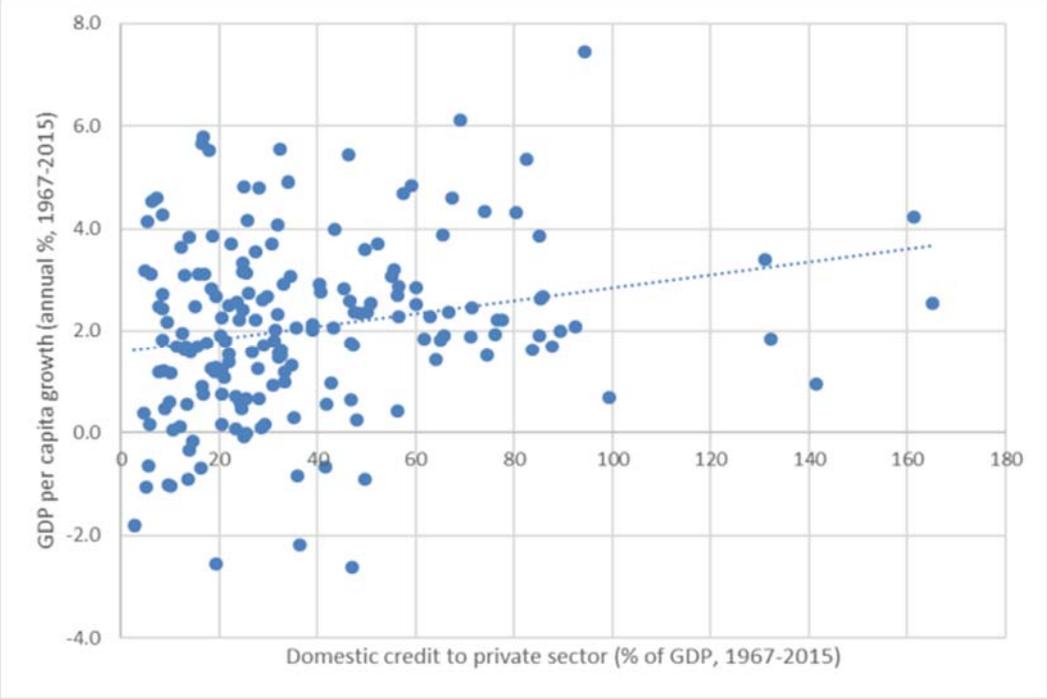
efficiency. On the other hand, further promoting income diversification and reducing credit concentration in the system should be the key focus of policy makers in higher income economies concerned with lowering the costs of financial intermediation.

References

- Allen, L. (1988). The determinants of bank interest margins: A note. *Journal of Financial and Quantitative Analysis*, 23(2), pp. 231–235.
- Almarzoqi, R. and S. Ben Naceur (2015). Determinants of bank interest margins in the Caucasus and Central Asia. IMF Working Paper 15/87. Washington DC.
- Angbazo. L. (1997). Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking. *Journal of Banking & Finance*, 21(1), pp. 55-87.
- Anzoategui, D., M. Martinez and R. Rocha (2010). Bank competition in the Middle East and Northern Africa Region. *Review of Middle East Economics and Finance*, 6(2), Article 2.
- Beck, T. and H. Hesse (2009). Why are interest spreads so high in Uganda? *Journal of Development Economics*, 88(2), pp. 192-204.
- Beck, T., A. Demirgüç-Kunt, and R. Levine (2007). Finance, Inequality and the Poor. *Journal of Economic Growth*, 12(1), pp. 27-49.
- Brock, P. L. and L. Rojas (2000). Understanding the behavior of bank spreads in Latin America. *Journal of Development Economics*, 63(1), pp. 113-134.
- Calice, P., P. Buccirossi, and R. Cervone (2016). Competition in the GCC SME lending markets: An initial assessment. *GCC Knowledge Series*. Washington, DC: World Bank Group.
- Carbó, S. and F. Rodriguez (2007). The determinants of banks' margins in European banking. *Journal of Banking & Finance*, 31, pp. 2043–2063.
- Claeys, S. and R. Vander Vennet (2008). Determinants of bank interest margins in Central and Eastern Europe: A comparison with the West. *Economic Systems*, 32(2), pp. 197-216.
- Dabla-Norris, E. and H. Floerkemeier (2007). Bank efficiency and market structure: what determines banking spreads in Armenia?, IMF Working Paper 07/134. Washington, DC.
- Demirgüç-Kunt, A. and H. Huizinga (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *World Bank Economic Review*, 13(2), pp. 379-408.
- Demirgüç-Kunt, A., L. Laeven, and R. Levine (2004). Regulations, market structure, institutions, and the cost of financial intermediation. *Journal of Money, Credit, and Banking*, 36(3), pp. 593–622.
- Demirgüç-Kunt, and R. Levine (2009). Finance and inequality: theory and evidence. World Bank Policy Research Working Paper 4967.
- Duprey, T. and M. Lé (2016). Bankscope dataset: getting started. Available at SSRN: <https://ssrn.com/abstract=2191449>.
- Fungáčová, Z. and T. Poghosyan (2011). Determinants of bank interest margins in Russia: Does bank ownership matter?. *Economic Systems*, 35(4), pp. 481-495.
- Gelos, M. G. (2006). “Banking Spreads in Latin America”. IMF Working Paper 06/44. Washington DC.
- Ho, T. S. and A. Saunders (1981). The determinants of bank interest margins: theory and empirical evidence. *Journal of Financial and Quantitative analysis*, 16(4), pp. 581-600.

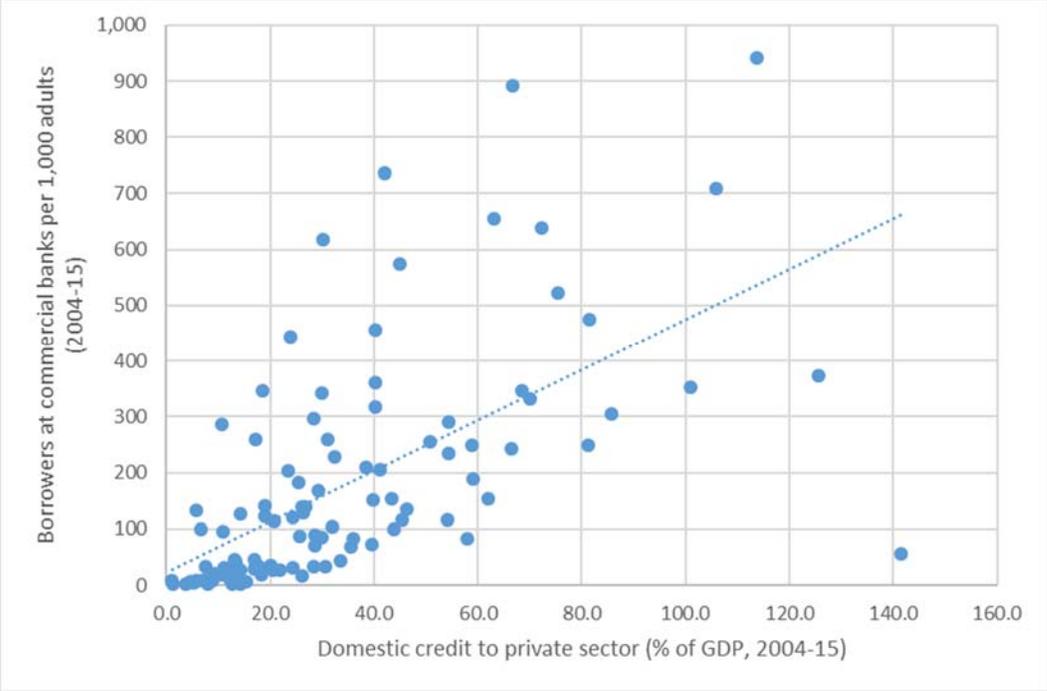
- Horvath, R. (2009). Interest margins determinants of Czech banks. Institute of Economic Studies, Faculty of Social Sciences, Charles University, WP 11/09 (Prague).
- Lepetit, L., E. Nys, P. Rous, and A. Tarazi (2008). Bank income structure and risk: An empirical analysis of European banks. *Journal of Banking & Finance*, 32(8), pp. 1452-1467.
- Levine, R. (2005). Finance and growth: theory and evidence. *Handbook of Economic Growth*, 1, pp. 865-934.
- Martinez Peria, M. S. and A. Mody (2004). How foreign participation and market concentration impact bank spreads: evidence from Latin America. *Journal of Money, Credit and Banking*, 36(3), pp. 511-537.
- Maudos, J. and F. Fernandez De Guevara. (2004). Factors explaining the interest margin in the banking sectors of the European Union. *Journal of Banking & Finance*, 28(9), pp. 2259-2281.
- Maudos, J. and L. Solís (2009). The determinants of net interest income in the Mexican banking system: An integrated model. *Journal of Banking & Finance*, 33(10), pp. 1920-1931.
- McShane, R. W., and I. G. Sharpe (1985). A time series/cross section analysis of the determinants of Australian Trading bank loan/deposit interest margins: 1962–1981. *Journal of Banking & Finance*, 9, pp. 115–136.
- Micco, A., U. Panizza, and M. Yanez (2007). Bank ownership and performance. Does politics matter? *Journal of Banking & Finance*, 31(1), pp. 219-241.
- Poghosyan, T. (2013). Financial intermediation costs in low income countries: The role of regulatory, institutional, and macroeconomic factors. *Economic systems*, 37(1), pp. 92-110.
- Saunders, A. and L. Schumacher (2000). The determinants of bank interest rate margins: an international study. *Journal of International Money and Finance*, 19(6), pp 813-832
- Schwaiger, M.S. and D. Liebeg (2008). Determinants of bank interest margins in Central and Eastern Europe. Financial Stability Report 14, pp. 68-84, Österreichische Nationalbank (Vienna).
- Stiglitz, J. E. and A. Weiss (1981). Credit Rationing in Markets with Imperfect Information. *American Economic Review*, 71(3), pp. 393-410.
- Williams, B. (2007). Factors determining net interest margins in Australia: domestic and foreign banks. *Financial Markets, Institutions and Instruments*, 16, pp. 145–165.

Figure 1: Financial depth and economic growth



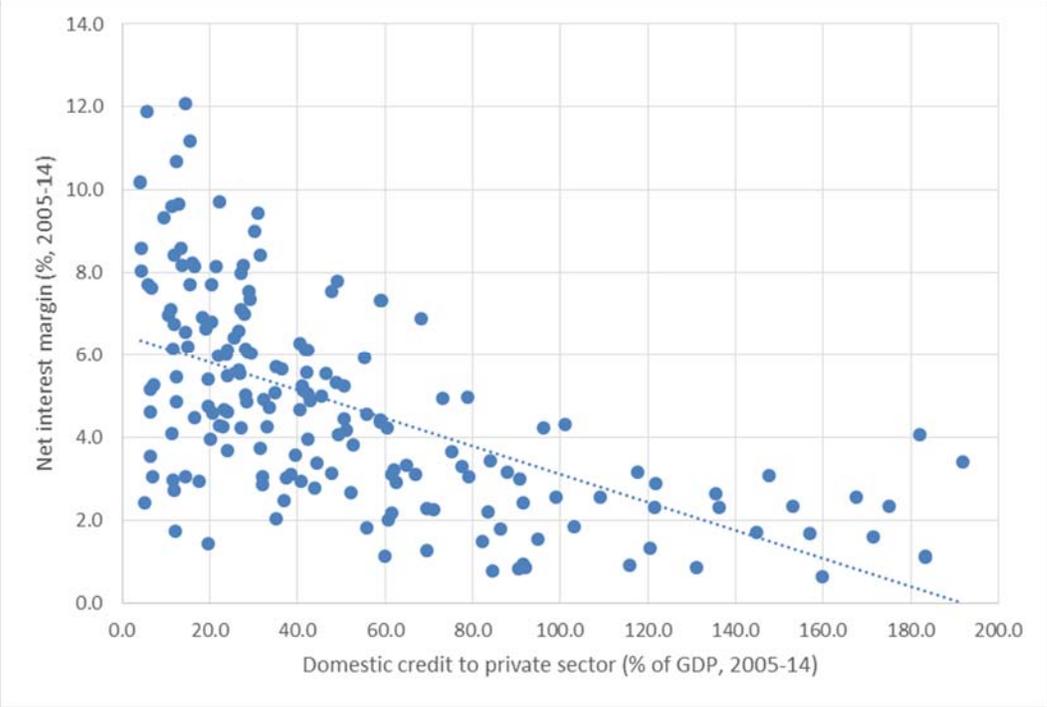
Source: World Development Indicators.

Figure 2: Financial depth and financial inclusion



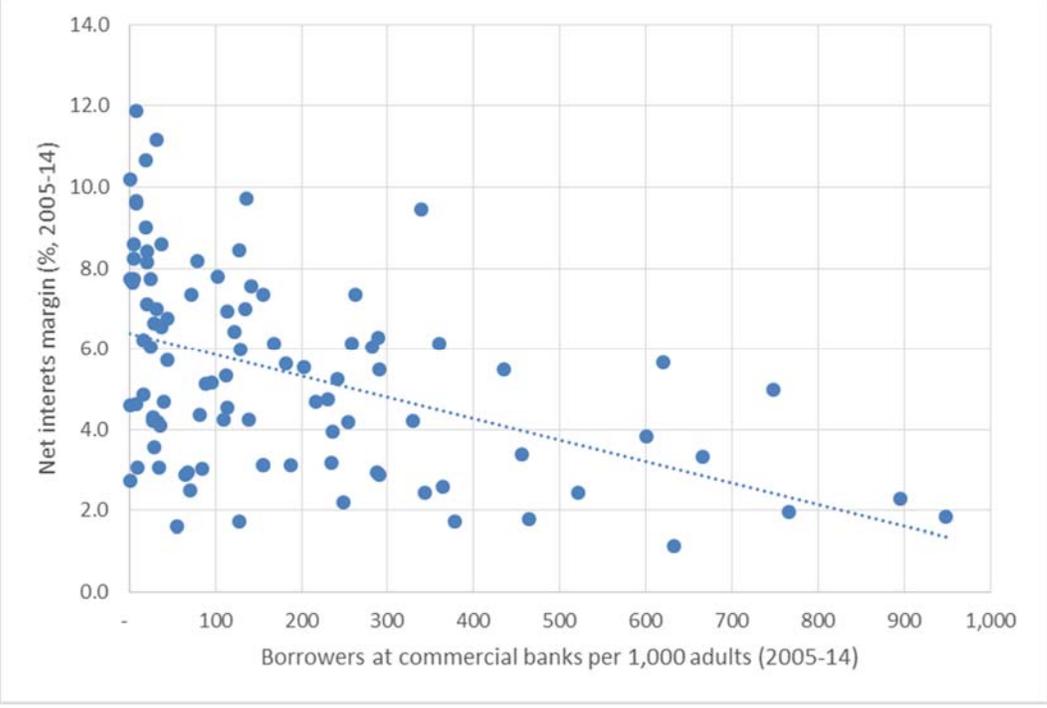
Source: World Development Indicators; Financial Access Survey.

Figure 3: Costs of financial intermediation and financial depth



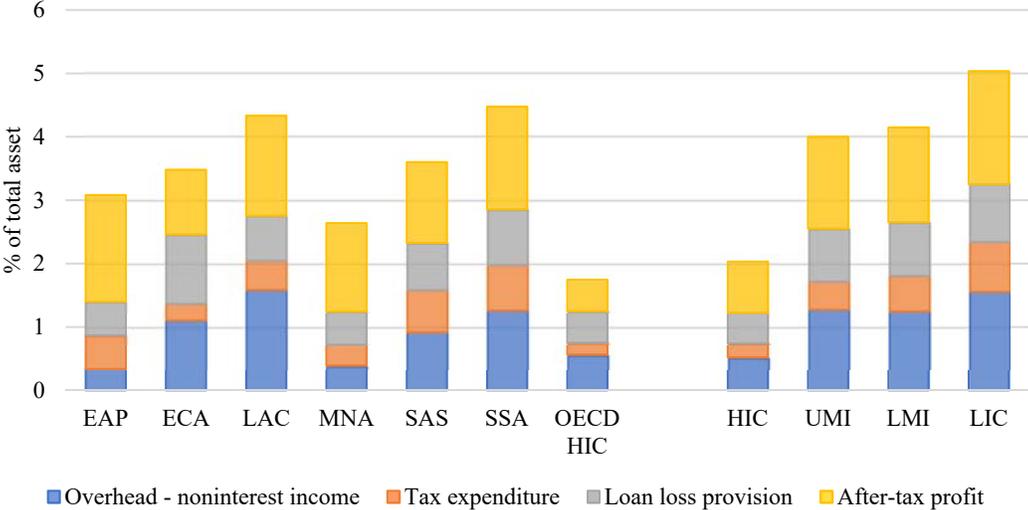
Source: Global Financial Development Database.

Figure 4: Costs of financial intermediation and financial inclusion



Source: World Development Indicators; Financial Access Survey.

Figure 5: Accounting decomposition of net interest margins by region and income level, 2005-14 average



Note: EAP: East Asia and Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MNA: Middle East and North Africa; SAS: South Asia; SSA: Sub-Saharan Africa. HIC: High-income countries; UMI: Upper-middle-income countries; LMI: Lower-middle-income countries; LIC: Low-income countries. Regional groups exclude high-income OECD countries.

Figure 6a: Accounting decomposition of net interest margins by region, 2005-14

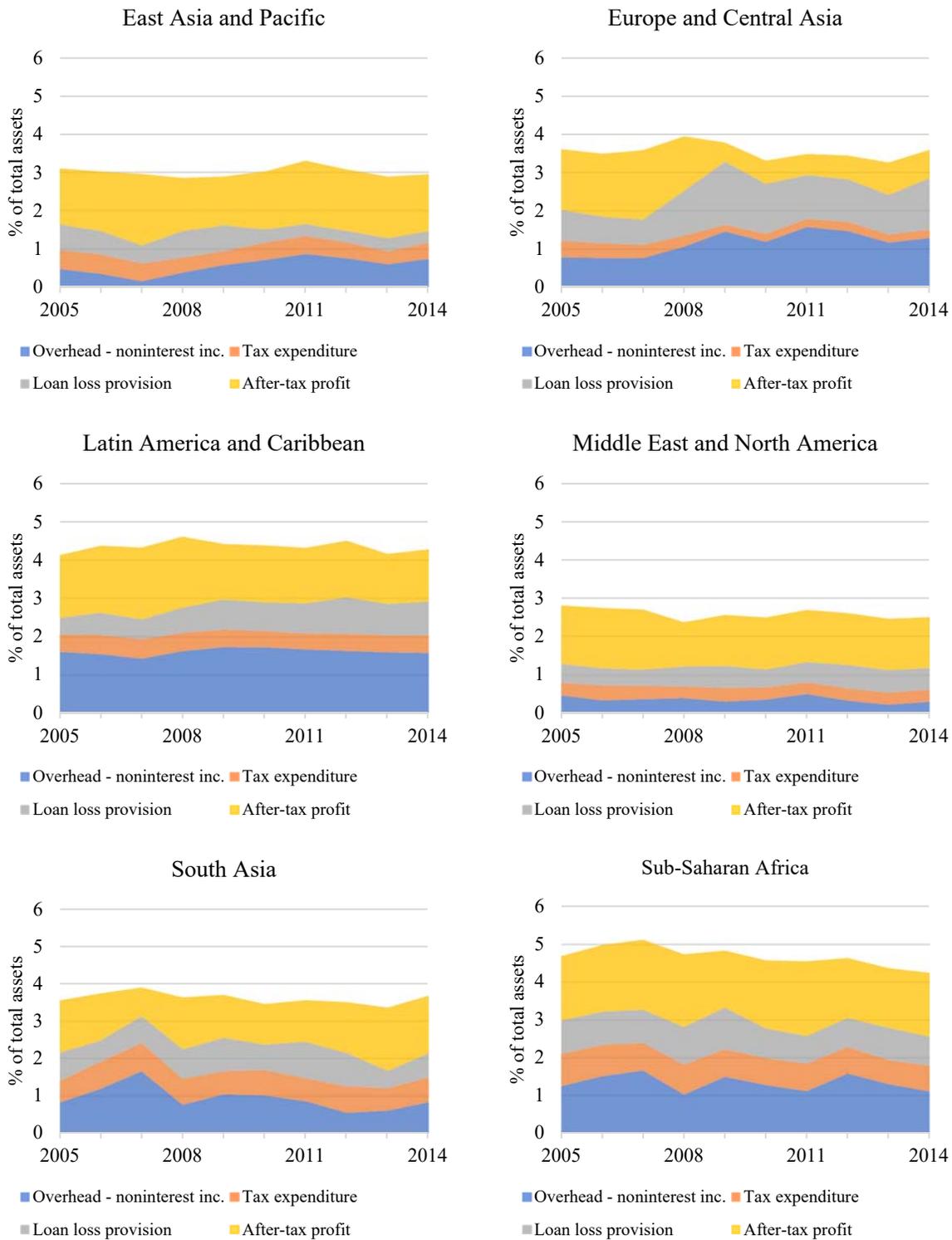


Figure 6a: Accounting decomposition of net interest margins by region, 2005-14, continued

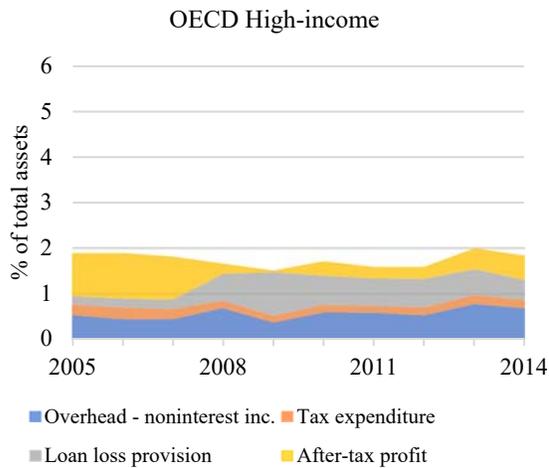


Figure 6b: Accounting decomposition of net interest margins by income level, 2005-14

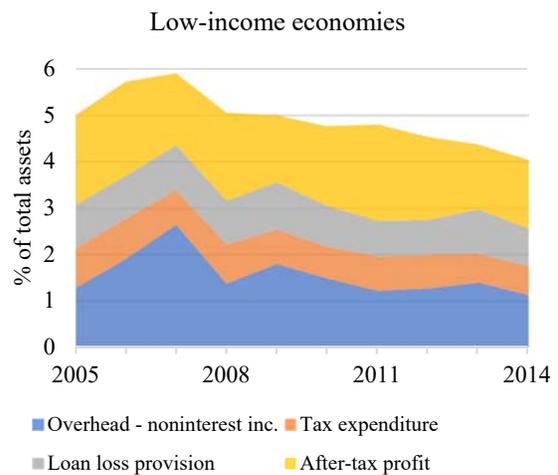
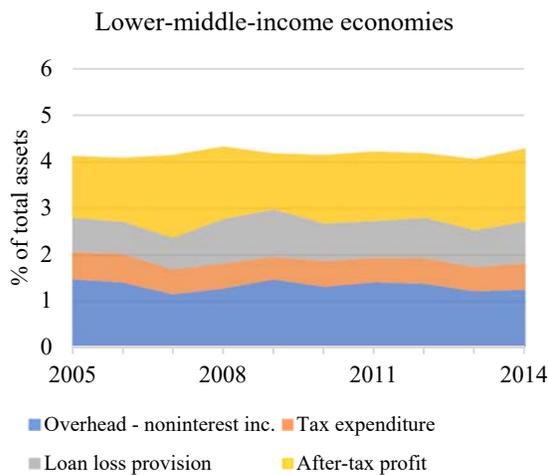
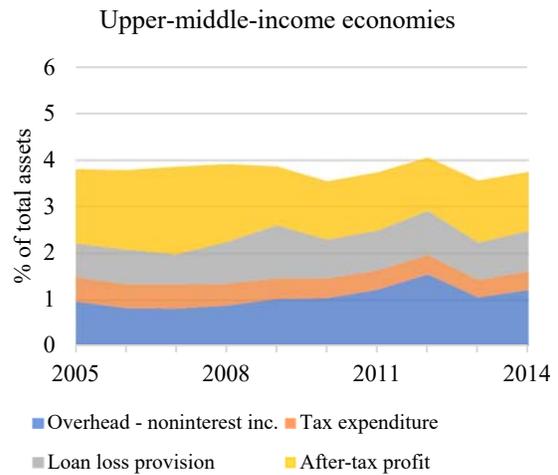
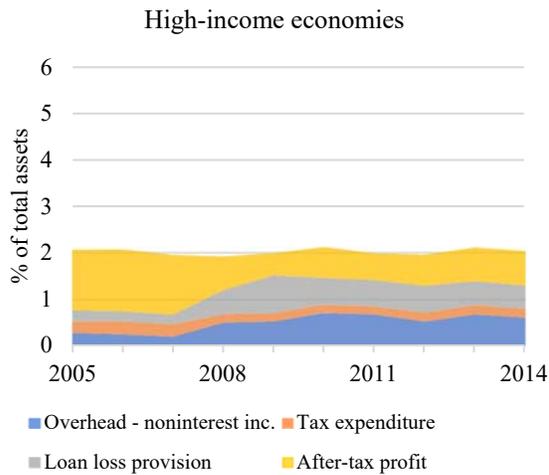


Figure 7: Composition of net interest margins by decile of bank asset size, 2005-14

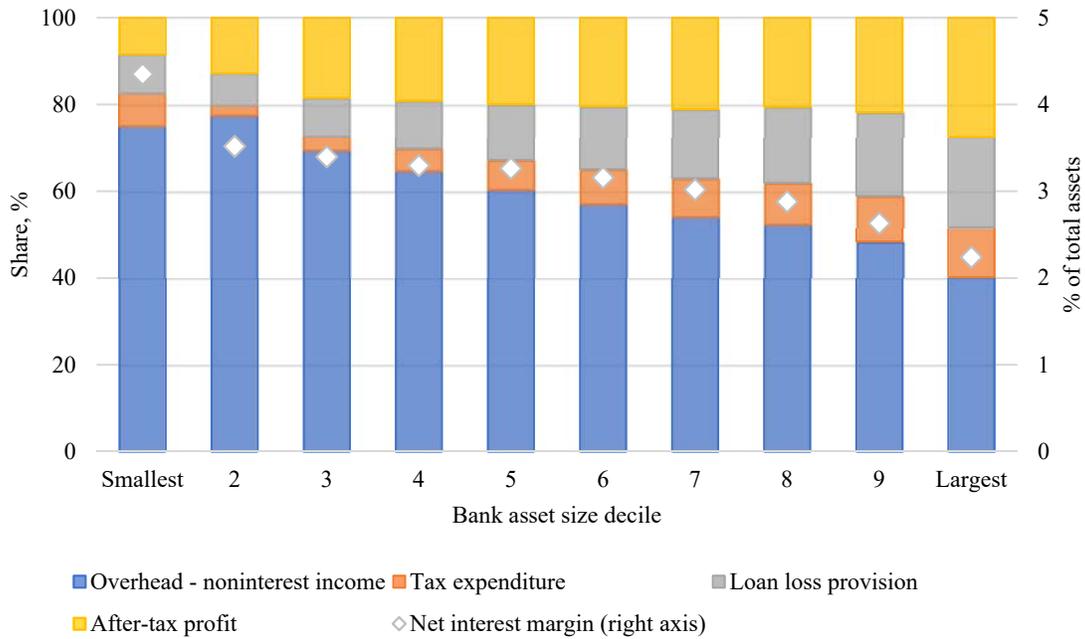
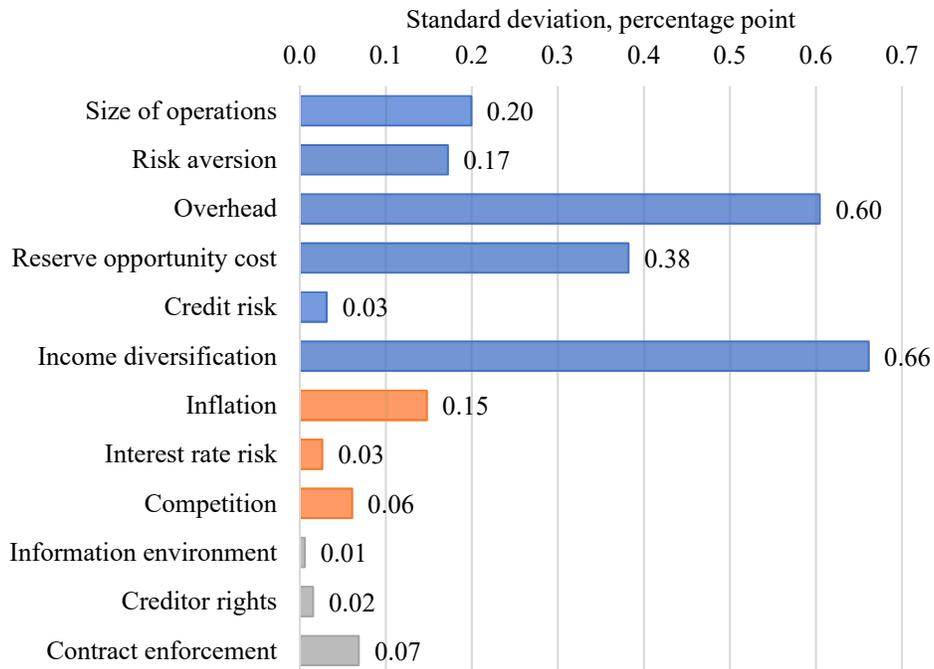


Figure 8: Cross-country variations in net interest margin attributions, 2005-14



Note: Results are based on equation in Table 4a, column 4. The standard deviation of aggregate contribution from real GDP per capita, country and time fixed effects, and regression residual is 1.83 percentage point.

Table 1: Summary statistics

Variable	Obs	Mean	Std Dev	Min	Max	Mean	Std Dev	Source
	At observation level					At country level		
Net interest margin, %	147,761	3.662	1.891	0.310	14.100	4.729	2.242	Bankscope
Net interest income to total assets, %	152,997	3.137	1.556	0.000	11.146	3.459	1.486	Bankscope
log(gross loans, million USD)	150,345	5.316	1.812	1.142	10.934	5.688	1.417	Bankscope
Equity / total assets, %	152,641	11.743	8.620	1.606	77.778	13.470	4.717	Bankscope
Noninterest expense / total assets, %	154,624	4.267	6.821	0.000	50.000	4.313	2.670	Bankscope
Cash / total assets, %	154,460	5.948	7.670	0.000	42.857	11.991	8.347	Bankscope
Loan loss provisions / gross loans, %	127,296	2.346	3.011	0.000	23.140	4.394	2.680	Bankscope
Noninterest income / revenue, %	152,770	24.171	23.122	0.000	100.000	38.888	13.481	Bankscope
Inflation, %	155,175	3.040	2.898	-1.674	23.642	5.304	3.188	WDI
Money market rate, %, monthly average	153,381	2.523	2.868	0.001	13.560	5.446	3.602	WDI
Country Lerner Index	152,164	0.217	0.235	-1.750	0.480	0.272	0.101	GFDD
Depth of credit information	155,171	7.071	1.884	0.000	8.000	3.521	3.083	Doing Business
Legal right index	155,171	8.693	2.669	0.000	12.000	6.200	2.705	Doing Business
Recovery rate, %	154,994	68.431	20.842	0.000	92.900	33.916	24.369	Doing Business
GDP per capita (thousand, USD)	155,028	40.040	18.324	0.219	141.165	13.887	20.983	WDI

Note: The mean and standard deviation at country level are based on pooled bank-level averages for each country, for the stable sample of 128 countries reflected in the regression analysis.

Table 2: Correlation matrix

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
[1] Net interest margin	1.00														
[2] Net interest income / TA	0.88	1.00													
[3] log(gross loans)	-0.26	-0.27	1.00												
[4] Equity / TA	0.32	0.22	-0.32	1.00											
[5] Noninterest expense / TA	0.34	0.27	-0.21	0.41	1.00										
[6] Cash / TA	0.19	0.08	-0.18	0.13	0.10	1.00									
[7] Loan loss provisions / gross loans	0.26	0.22	0.08	0.18	0.42	0.07	1.00								
[8] Noninterest income / revenue	0.06	-0.08	0.12	0.24	0.56	0.11	0.39	1.00							
[9] Inflation	0.50	0.38	-0.10	0.26	0.37	0.13	0.31	0.34	1.00						
[10] Money market rate volatility	0.35	0.27	-0.07	0.20	0.33	0.01	0.26	0.28	0.67	1.00					
[11] Country Lerner Index	0.09	0.08	-0.06	0.03	-0.03	0.13	-0.04	-0.10	0.05	-0.01	1.00				
[12] Depth of credit information	-0.16	-0.07	-0.10	-0.12	-0.06	-0.11	-0.30	-0.29	-0.44	-0.28	-0.07	1.00			
[13] Legal right index	-0.03	0.04	-0.26	-0.08	-0.15	0.04	-0.40	-0.34	-0.28	-0.22	0.17	0.45	1.00		
[14] Recovery rate	-0.38	-0.25	-0.07	-0.24	-0.25	-0.19	-0.41	-0.38	-0.60	-0.49	-0.02	0.60	0.54	1.00	
[15] GDP per capita	-0.41	-0.29	-0.08	-0.22	-0.29	-0.19	-0.47	-0.36	-0.60	-0.44	-0.01	0.45	0.52	0.75	1.00

Table 3: Accounting decomposition of net interest income to total assets, 2005-14

[1] Economy	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
Afghanistan	3.917	63.9	5.4	18.4	12.3	1.860	4.364	0.210	0.720	0.482
Albania	3.501	38.7	6.6	20.5	34.2	0.652	2.006	0.231	0.719	1.196
Algeria	2.098	4.5	17.9	29.4	48.2	0.971	1.066	0.375	0.617	1.011
Angola	4.161	6.0	10.1	24.9	59.0	3.320	3.570	0.420	1.038	2.453
Antigua and Barbuda	3.150	55.8	0.7	50.1	-6.6	1.936	3.693	0.023	1.579	-0.209
Argentina	4.013	9.4	25.6	14.8	50.2	5.559	5.936	1.025	0.596	2.014
Armenia	4.782	33.9	11.7	14.0	40.3	2.587	4.208	0.561	0.672	1.928
Australia	1.765	25.3	14.5	11.5	48.7	0.676	1.122	0.256	0.204	0.860
Austria	1.869	43.0	6.9	26.3	23.8	1.100	1.903	0.130	0.491	0.445
Azerbaijan	4.585	22.0	10.3	37.4	30.2	2.660	3.671	0.472	1.716	1.386
Bahrain	1.532	14.2	5.6	22.1	58.1	0.879	1.096	0.086	0.338	0.890
Bangladesh	2.756	8.9	31.3	34.9	24.9	2.296	2.541	0.862	0.963	0.686
Barbados	3.597	36.7	10.2	9.7	43.5	1.647	2.965	0.366	0.350	1.563
Belarus	3.155	32.7	17.9	25.6	23.8	4.810	5.842	0.566	0.806	0.752
Belgium	0.919	63.5	5.8	11.2	19.4	0.356	0.940	0.053	0.103	0.179
Belize	5.974	30.9	17.0	11.4	40.7	2.812	4.658	1.017	0.681	2.430
Benin	3.514	34.6	8.4	30.0	27.0	2.721	3.937	0.296	1.054	0.948
Bhutan	3.215	10.8	22.7	13.7	52.7	0.818	1.166	0.731	0.441	1.696
Bolivia	4.217	44.0	7.0	14.5	34.5	2.754	4.608	0.297	0.611	1.455
Bosnia and Herzegovina	3.347	46.7	3.2	32.2	17.8	1.915	3.479	0.108	1.078	0.596
Botswana	5.234	19.0	13.7	11.4	55.9	2.721	3.714	0.716	0.598	2.928
Brazil	5.338	41.7	6.3	25.9	26.0	2.025	4.252	0.339	1.385	1.387
Bulgaria	3.691	30.4	4.8	30.2	34.6	1.486	2.608	0.178	1.115	1.276
Burkina Faso	3.454	17.2	13.8	38.2	30.8	4.190	4.786	0.475	1.321	1.063
Burundi	5.845	25.9	19.3	17.6	37.2	4.568	6.080	1.129	1.028	2.175
Cabo Verde	3.386	50.8	5.2	20.5	23.4	1.353	3.074	0.178	0.695	0.792
Cambodia	4.529	32.4	12.0	11.8	43.8	1.420	2.888	0.542	0.536	1.983
Cameroon	3.643	26.7	23.9	17.1	32.3	3.119	4.091	0.872	0.623	1.176
Canada	1.679	33.3	11.9	11.1	43.7	1.494	2.053	0.199	0.186	0.734
Central African Republic	5.729	36.0	17.9	23.9	22.1	5.100	7.164	1.026	1.370	1.269
Chad	4.434	13.9	23.9	12.3	49.9	4.344	4.960	1.061	0.547	2.210
Chile	3.474	28.9	8.2	23.4	39.4	1.435	2.440	0.286	0.814	1.370

Table 3: Accounting decomposition of net interest income to total assets, 2005-14, continued

[1] Economy	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
China	2.288	29.2	18.5	15.4	36.9	0.409	1.077	0.423	0.353	0.843
Colombia	5.161	20.5	12.3	28.7	38.5	4.313	5.372	0.634	1.482	1.987
Congo, Dem. Rep.	6.252	53.3	10.6	16.7	19.4	6.394	9.725	0.665	1.045	1.212
Congo, Rep.	2.945	-1.8	26.0	8.8	66.9	4.299	4.247	0.766	0.260	1.970
Costa Rica	4.928	56.8	7.1	10.2	25.9	1.659	4.456	0.350	0.503	1.277
Croatia	2.860	35.9	8.3	25.1	30.7	1.261	2.287	0.238	0.719	0.877
Cyprus	2.168	38.9	8.0	54.8	-1.7	1.091	1.933	0.174	1.188	-0.036
Czech Republic	2.639	23.0	11.1	12.9	53.0	1.296	1.904	0.292	0.341	1.398
Côte d'Ivoire	3.860	31.5	11.1	24.7	32.7	4.368	5.584	0.429	0.953	1.261
Denmark	1.572	39.5	8.0	30.0	22.6	0.777	1.397	0.125	0.471	0.355
Djibouti	3.737	41.6	11.5	10.6	36.3	1.327	2.883	0.430	0.395	1.356
Dominican Republic	7.206	56.8	6.2	11.6	25.4	2.859	6.951	0.445	0.836	1.832
Ecuador	4.904	48.5	6.4	18.3	26.8	3.160	5.539	0.312	0.898	1.315
Egypt, Arab Rep.	2.392	10.1	19.4	33.7	36.8	1.318	1.560	0.464	0.805	0.880
El Salvador	4.473	26.1	10.9	31.4	31.6	1.969	3.137	0.485	1.405	1.415
Estonia	2.288	0.6	7.1	29.2	63.1	1.574	1.587	0.163	0.668	1.445
Ethiopia	3.262	-34.2	34.6	14.3	85.4	3.118	2.002	1.127	0.466	2.786
Finland	0.993	16.2	16.9	8.1	58.9	0.965	1.125	0.168	0.080	0.584
France	1.000	43.8	11.5	13.8	30.8	0.776	1.214	0.115	0.138	0.308
Gabon	2.762	-15.5	32.7	19.0	63.8	4.959	4.530	0.903	0.525	1.763
Gambia, The	6.228	25.7	22.0	9.9	42.4	5.972	7.572	1.368	0.619	2.641
Georgia	5.929	42.0	6.5	25.6	25.9	3.304	5.791	0.387	1.516	1.538
Germany	1.462	60.7	10.3	16.4	12.5	0.756	1.643	0.151	0.240	0.183
Ghana	7.676	37.3	13.9	14.7	34.0	4.266	7.131	1.070	1.129	2.612
Greece	2.240	52.8	5.3	68.4	-26.4	0.503	1.685	0.118	1.532	-0.592
Grenada	4.414	73.1	2.5	8.9	15.5	0.963	4.188	0.111	0.394	0.684
Guatemala	7.885	38.7	4.8	37.0	19.6	0.932	3.980	0.379	2.916	1.542
Guinea	5.033	16.0	24.9	25.9	33.2	6.721	7.524	1.254	1.304	1.673
Guyana	4.196	26.4	22.1	6.3	45.3	1.720	2.826	0.926	0.264	1.900
Haiti	4.495	55.8	7.7	5.6	30.9	3.048	5.556	0.344	0.254	1.388
Honduras	6.421	52.5	9.2	16.4	21.9	1.964	5.335	0.589	1.055	1.406
Hungary	2.931	38.7	7.8	42.8	10.7	3.002	4.135	0.227	1.256	0.314

Table 3: Accounting decomposition of net interest income to total assets, 2005-14, continued

[1] Economy	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
Iceland	3.108	-9.4	14.6	38.9	55.8	2.845	2.553	0.455	1.210	1.736
India	2.409	27.1	15.7	20.2	37.0	1.088	1.740	0.379	0.488	0.890
Indonesia	5.088	36.2	12.8	14.7	36.3	1.400	3.241	0.652	0.747	1.848
Iraq	2.531	-60.2	22.4	29.5	108.3	3.529	2.004	0.568	0.747	2.741
Ireland	0.480	10.6	38.6	151.3	-100.5	0.820	0.872	0.185	0.726	-0.482
Israel	2.248	45.8	12.6	13.1	28.6	1.247	2.275	0.283	0.294	0.642
Italy	1.957	45.3	10.9	34.0	9.8	1.204	2.091	0.213	0.666	0.191
Jamaica	6.916	49.9	10.7	7.7	31.6	2.560	6.013	0.743	0.536	2.184
Japan	1.042	53.2	12.4	12.1	22.2	0.252	0.807	0.130	0.126	0.232
Jordan	2.891	25.0	16.5	11.6	46.9	1.119	1.843	0.476	0.335	1.356
Kazakhstan	3.670	12.0	9.0	60.2	18.8	2.233	2.673	0.329	2.210	0.689
Kenya	6.515	28.0	17.1	10.1	44.8	3.732	5.559	1.111	0.657	2.920
Korea, Rep.	2.256	37.7	9.9	22.0	30.4	0.789	1.640	0.223	0.496	0.686
Kosovo	5.747	47.6	5.9	19.5	27.0	1.436	4.174	0.338	1.118	1.554
Kuwait	2.495	-3.1	4.3	35.8	63.1	1.152	1.073	0.107	0.893	1.573
Kyrgyz Republic	6.213	37.8	5.3	10.0	46.8	3.173	5.523	0.331	0.623	2.909
Lao PDR	2.637	17.7	15.9	10.7	55.8	1.820	2.285	0.418	0.282	1.471
Latvia	1.982	11.5	9.5	50.9	28.2	1.820	2.048	0.187	1.009	0.558
Lebanon	1.882	29.7	10.9	7.6	51.8	0.838	1.398	0.205	0.143	0.974
Lesotho	5.261	20.5	20.7	6.4	52.3	3.672	4.752	1.091	0.336	2.753
Liberia	4.414	12.8	18.6	36.2	32.4	7.153	7.717	0.821	1.599	1.431
Libya	1.461	3.5	27.6	28.9	40.0	0.793	0.844	0.403	0.422	0.584
Lithuania	1.876	24.6	8.6	36.9	29.9	1.259	1.722	0.161	0.692	0.561
Luxembourg	0.876	4.5	15.1	10.7	69.7	0.944	0.984	0.132	0.094	0.611
Macedonia, FYR	3.573	36.1	2.4	30.6	30.9	1.839	3.130	0.085	1.094	1.104
Madagascar	5.613	27.3	15.4	12.4	44.9	2.543	4.077	0.863	0.698	2.518
Malawi	5.296	11.8	22.0	10.4	55.8	7.833	8.459	1.167	0.549	2.954
Malaysia	2.189	17.3	17.1	13.2	52.5	0.897	1.274	0.373	0.288	1.149
Mali	4.257	33.6	11.3	29.6	25.5	3.435	4.864	0.480	1.261	1.087
Malta	2.385	29.9	21.7	6.7	41.7	0.758	1.472	0.517	0.160	0.994
Mauritania	3.852	11.9	8.4	53.3	26.4	3.480	3.938	0.324	2.053	1.016
Mauritius	2.459	9.7	9.4	14.3	66.5	1.223	1.463	0.232	0.352	1.636

Table 3: Accounting decomposition of net interest income to total assets, 2005-14, continued

[1] Economy	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
Mexico	5.748	34.5	9.6	27.2	28.7	2.341	4.327	0.554	1.562	1.647
Moldova	3.878	16.0	6.4	23.7	53.9	3.609	4.229	0.247	0.919	2.092
Mongolia	2.879	33.8	10.8	20.3	35.1	1.178	2.150	0.312	0.585	1.010
Montenegro	3.150	55.8	0.7	50.1	-6.6	1.936	3.693	0.023	1.579	-0.209
Morocco	2.881	30.5	19.2	14.4	35.9	1.257	2.137	0.553	0.414	1.035
Mozambique	5.926	32.8	10.1	11.4	45.7	3.900	5.846	0.600	0.674	2.706
Myanmar	-0.689	143.0	-33.0	0.0	-10.1	1.828	0.843	0.227	0.000	0.069
Namibia	4.387	30.3	19.8	6.0	43.8	2.940	4.271	0.871	0.263	1.922
Nepal	3.836	28.5	17.8	8.1	45.6	1.079	2.172	0.685	0.311	1.748
Netherlands	1.157	47.4	6.1	22.8	23.8	0.337	0.886	0.070	0.264	0.275
New Zealand	1.854	28.0	17.7	10.2	44.2	0.854	1.373	0.328	0.189	0.819
Nicaragua	6.323	36.0	14.0	18.5	31.4	2.601	4.879	0.888	1.169	1.988
Niger	4.362	25.0	16.4	24.6	34.0	3.714	4.804	0.717	1.074	1.482
Nigeria	5.621	48.1	7.0	18.1	26.9	3.069	5.771	0.391	1.015	1.513
Norway	1.526	25.8	17.0	7.7	49.5	0.734	1.128	0.259	0.118	0.756
Oman	3.006	21.0	8.9	9.5	60.6	1.208	1.838	0.268	0.286	1.822
Pakistan	4.036	32.1	17.5	17.9	32.5	1.218	2.515	0.705	0.723	1.312
Panama	3.500	33.6	9.7	16.3	40.3	1.596	2.772	0.341	0.572	1.412
Papua New Guinea	4.454	-19.9	32.5	5.6	81.8	4.690	3.803	1.446	0.250	3.645
Paraguay	5.758	38.3	5.2	12.1	44.5	4.684	6.889	0.298	0.694	2.560
Peru	5.208	27.3	14.9	16.8	40.9	2.387	3.811	0.776	0.876	2.132
Philippines	3.127	41.7	7.6	13.2	37.5	1.575	2.879	0.237	0.414	1.172
Poland	3.074	24.8	10.7	18.6	45.9	1.979	2.741	0.328	0.572	1.412
Portugal	1.595	56.4	3.6	39.7	0.3	0.817	1.717	0.057	0.633	0.004
Qatar	2.463	-8.1	1.2	8.0	99.0	1.159	0.959	0.029	0.196	2.437
Romania	3.765	31.0	5.3	41.8	21.9	2.444	3.611	0.199	1.576	0.823
Russian Federation	4.144	29.4	13.7	22.9	34.0	15.224	16.443	0.568	0.949	1.409
Rwanda	7.299	49.3	12.0	14.4	24.4	4.216	7.811	0.876	1.048	1.779
Saudi Arabia	2.629	-0.4	0.0	13.2	87.1	1.353	1.343	0.000	0.348	2.291
Senegal	4.549	41.4	9.0	18.9	30.6	2.907	4.792	0.408	0.861	1.393
Serbia	4.405	40.8	2.4	35.6	21.2	7.253	9.049	0.104	1.570	0.936
Seychelles	2.946	-13.1	32.9	7.1	73.2	2.438	2.050	0.969	0.209	2.155

Table 3: Accounting decomposition of net interest income to total assets, 2005-14, continued

[1] Economy	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
Sierra Leone	7.440	45.2	12.9	16.9	25.1	5.978	9.337	0.959	1.255	1.866
Singapore	1.487	2.6	11.7	11.3	74.5	0.840	0.879	0.173	0.168	1.107
Slovak Republic	2.962	40.4	9.4	16.5	33.7	1.180	2.377	0.277	0.489	0.999
Slovenia	1.872	42.6	8.3	69.5	-20.4	1.239	2.037	0.156	1.302	-0.383
South Africa	2.678	18.8	13.5	26.0	41.7	2.438	2.940	0.362	0.696	1.117
Spain	1.523	34.1	4.5	45.4	16.0	0.686	1.206	0.068	0.691	0.244
Sri Lanka	3.909	42.8	20.3	8.8	28.1	1.289	2.962	0.794	0.342	1.100
Sudan	3.394	35.5	6.4	29.8	28.4	4.240	5.444	0.216	1.011	0.963
Suriname	3.895	33.4	18.1	10.3	38.2	1.962	3.263	0.704	0.402	1.488
Swaziland	5.440	22.9	22.8	10.2	44.1	4.875	6.119	1.242	0.555	2.399
Sweden	1.382	33.5	13.6	6.6	46.3	0.822	1.285	0.188	0.091	0.640
Switzerland	0.753	61.0	9.4	13.6	16.0	1.391	1.850	0.071	0.102	0.121
Syrian Arab Republic	1.758	-13.6	24.1	59.6	29.9	1.799	1.560	0.423	1.048	0.526
Tajikistan	4.169	31.6	14.9	32.6	20.8	5.058	6.377	0.621	1.361	0.867
Tanzania	5.451	36.9	14.9	13.0	35.3	2.970	4.982	0.812	0.706	1.921
Thailand	2.870	32.9	11.3	19.5	36.3	0.911	1.856	0.324	0.561	1.041
Togo	2.952	15.3	16.8	23.2	44.7	4.800	5.251	0.496	0.685	1.320
Trinidad and Tobago	4.142	40.0	10.1	9.2	40.7	1.852	3.508	0.417	0.381	1.687
Tunisia	2.620	30.6	7.7	39.9	21.7	1.405	2.208	0.202	1.046	0.568
Turkey	4.097	22.1	13.2	17.5	47.2	1.713	2.618	0.540	0.718	1.934
Uganda	7.265	33.2	12.9	15.6	38.3	3.627	6.037	0.939	1.135	2.781
Ukraine	4.536	39.8	6.3	53.5	0.4	2.802	4.606	0.288	2.427	0.018
United Arab Emirates	2.465	-6.0	0.8	28.6	76.6	1.344	1.196	0.020	0.706	1.887
United Kingdom	0.973	22.4	13.4	40.8	23.4	1.261	1.479	0.131	0.397	0.227
United States	2.796	39.1	12.8	21.4	26.7	1.653	2.747	0.358	0.599	0.746
Uruguay	3.797	55.5	10.9	9.0	24.7	2.205	4.311	0.413	0.341	0.938
Uzbekistan	2.775	21.2	8.5	26.8	43.5	4.013	4.600	0.237	0.744	1.207
Venezuela, RB	6.041	42.3	3.1	11.9	42.6	2.271	4.829	0.190	0.721	2.572
Vietnam	2.854	33.1	9.7	25.8	31.3	0.752	1.698	0.278	0.736	0.894
West Bank and Gaza	3.411	27.7	14.5	4.0	53.8	1.688	2.634	0.493	0.138	1.834
Yemen, Rep.	4.181	31.4	13.5	24.3	30.7	1.248	2.562	0.565	1.016	1.285
Zambia	6.760	41.9	17.9	12.0	28.2	4.652	7.481	1.213	0.811	1.907

Table 3: Accounting decomposition of net interest income to total assets, 2005-14, continued

[1] Group	[2] Net interest income to total assets	As a percentage of net interest income				As a percentage of total assets				
		[3] Overhead - noninterest income	[4] Tax expenditure	[5] Loan loss provisions	[6] After-tax profit	[7] Noninterest income	[8] Overhead	[9] Tax expenditure	[10] Loan loss provisions	[11] After-tax profit
East Asia & Pacific	3.081	11.0	17.3	17.3	54.5	2.475	2.813	0.532	0.532	1.678
Europe & Central Asia	3.478	32.0	7.6	31.2	29.3	2.868	3.980	0.263	1.084	1.019
Latin America & Caribbean	4.333	36.8	10.6	16.2	36.4	2.342	3.936	0.461	0.703	1.575
Middle East & North Africa	2.640	14.9	12.4	19.9	52.8	1.314	1.707	0.327	0.524	1.395
South Asia	3.601	25.8	18.4	20.4	35.3	1.605	2.533	0.664	0.736	1.273
Sub-Saharan Africa	4.475	28.4	16.0	19.4	36.2	4.319	5.591	0.718	0.867	1.619
OECD high income	1.745	32.4	10.7	28.6	28.4	1.101	1.666	0.186	0.498	0.495
High income	2.031	25.7	10.8	23.7	39.8	1.285	1.808	0.219	0.481	0.807
Upper middle income	4.000	32.1	11.1	20.6	36.2	2.705	3.991	0.443	0.825	1.446
Lower middle income	4.148	30.3	13.4	20.2	36.0	2.493	3.751	0.557	0.838	1.495
Low income	5.034	31.1	15.5	17.9	35.5	4.258	5.826	0.782	0.899	1.785

Note: The component variables, as percentages of total assets, are pooled weighted averages over the 2005-14 period. Net interest income to total assets is reported as the country-level sum of overhead, tax expenditure, loan loss provision, after-tax profit, less noninterest income, all in percentage of total assets. Region and income level aggregates are based on simple averages of relevant countries.

Table 4a: Regression results: determinants of net interest margins

<i>Net interest margin</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Size of operations	0.0847*** (12.23)	0.0853*** (12.33)	0.0854*** (12.33)	0.0855*** (12.34)	0.122*** (11.65)	0.125*** (11.94)	0.126*** (11.93)	0.126*** (11.93)
... x GDP per capita					-0.00260*** (-8.62)	-0.00273*** (-9.02)	-0.00274*** (-9.04)	-0.00274*** (-9.03)
Risk aversion	0.0866*** (15.31)	0.0871*** (15.43)	0.0871*** (15.45)	0.0872*** (15.46)	0.0883*** (12.47)	0.0899*** (12.73)	0.0899*** (12.72)	0.0899*** (12.72)
... x GDP per capita					-0.0000668 (-0.24)	-0.000181 (-0.65)	-0.000180 (-0.65)	-0.000178 (-0.64)
Overhead	0.281*** (21.20)	0.280*** (21.06)	0.280*** (20.99)	0.280*** (20.99)	0.329*** (16.82)	0.328*** (16.76)	0.329*** (16.72)	0.329*** (16.71)
... x GDP per capita					-0.00435*** (-4.53)	-0.00430*** (-4.48)	-0.00430*** (-4.47)	-0.00432*** (-4.47)
Reserve opportunity cost	0.224*** (22.03)	0.223*** (22.01)	0.223*** (22.00)	0.224*** (22.00)	0.268*** (20.32)	0.271*** (20.58)	0.271*** (20.58)	0.271*** (20.57)
... x GDP per capita					-0.00380*** (-7.15)	-0.00407*** (-7.70)	-0.00410*** (-7.73)	-0.00410*** (-7.75)
Credit risk	0.0168** (2.82)	0.0180** (3.01)	0.0180** (3.00)	0.0178** (2.97)	-0.00451 (-0.56)	-0.00263 (-0.33)	-0.00217 (-0.27)	-0.00211 (-0.26)
... x GDP per capita					0.00212*** (5.06)	0.00200*** (4.64)	0.00201*** (4.75)	0.00199*** (4.71)
Income diversification	-0.360*** (-45.07)	-0.359*** (-45.01)	-0.359*** (-45.02)	-0.359*** (-45.03)	-0.445*** (-40.05)	-0.443*** (-39.88)	-0.443*** (-39.88)	-0.443*** (-39.86)
... x GDP per capita					0.00622*** (18.12)	0.00617*** (17.89)	0.00616*** (17.85)	0.00617*** (17.83)
Inflation		0.0658*** (5.90)	0.0650*** (5.72)	0.0649*** (5.71)		0.0739*** (5.84)	0.0726*** (5.64)	0.0725*** (5.62)
... x GDP per capita						-0.00155*** (-3.92)	-0.00162*** (-3.69)	-0.00161*** (-3.66)
Interest rate risk		0.0111 (1.42)	0.0114 (1.45)	0.0116 (1.48)		0.0219* (2.30)	0.0235* (2.43)	0.0234* (2.42)
... x GDP per capita						-0.00158** (-2.61)	-0.00178** (-2.90)	-0.00174** (-2.80)
Competition (Lerner)		0.0248*** (4.90)	0.0251*** (4.92)	0.0251*** (4.93)		0.0403*** (4.25)	0.0404*** (4.25)	0.0405*** (4.25)
... x GDP per capita						-0.000810*** (-3.77)	-0.000821*** (-3.80)	-0.000824*** (-3.81)
Information environment			-0.00404 (-0.22)	-0.00273 (-0.15)			-0.0161 (-0.70)	-0.0167 (-0.72)
... x GDP per capita							-0.000710 (-0.68)	-0.000550 (-0.51)
Creditor rights			-0.00626 (-0.28)	-0.00690 (-0.31)			-0.00888 (-0.36)	-0.00877 (-0.36)
... x GDP per capita							-0.000621 (-0.99)	-0.000634 (-1.01)
Contract enforcement			-0.0322 (-0.89)	-0.0308 (-0.85)			0.0102 (0.19)	0.00905 (0.17)
... x GDP per capita							-0.00303 (-1.46)	-0.00289 (-1.40)
GDP per capita				-0.00735 (-1.42)				-0.00327 (-0.65)
Constant	-0.431*** (-15.13)	-0.369*** (-11.89)	-0.299*** (-3.57)	0.0542 (0.21)	-0.146*** (-4.21)	-0.204*** (-5.54)	0.171 (1.18)	0.310 (1.13)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	114284	114284	114284	114284	114284	114284	114284	114284
adj. R-sq	0.720	0.722	0.722	0.722	0.731	0.734	0.734	0.734

Note: t-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Variables in deep blue rows are standardized at country-level (see Table 1 country-level statistics).

Table 4b: Regression results: alternative specifications

<i>Net interest margin</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Size of operations	-0.0667*** (-9.75)	-0.0623*** (-5.63)	-0.0593*** (-8.73)	-0.0526*** (-4.71)	0.0855*** (12.34)	0.126*** (11.93)	0.146*** (3.71)	0.123** (2.79)
... x GDP per capita		0.000486 (1.46)		0.000338 (0.99)		-0.00274*** (-9.03)		0.00206 (1.64)
Risk aversion	0.0751*** (13.01)	0.0614*** (8.39)	0.0772*** (13.45)	0.0639*** (8.79)	0.0872*** (15.46)	0.0899*** (12.72)	0.129*** (11.15)	0.133*** (8.62)
... x GDP per capita		0.00131*** (4.45)		0.00130*** (4.41)		-0.000178 (-0.64)		-0.000995 (-1.87)
Overhead	0.380*** (26.02)	0.497*** (21.83)	0.384*** (26.03)	0.501*** (21.63)	0.280*** (20.99)	0.329*** (16.71)	0.130*** (11.22)	0.169*** (6.99)
... x GDP per capita		-0.0116*** (-10.63)		-0.0116*** (-10.59)		-0.00432*** (-4.47)		-0.00347* (-2.40)
Reserve opportunity cost	0.234*** (22.71)	0.276*** (20.65)	0.244*** (23.39)	0.287*** (21.38)	0.224*** (22.00)	0.271*** (20.57)	0.164*** (12.31)	0.189*** (10.77)
... x GDP per capita		-0.00480*** (-8.14)		-0.00485*** (-8.26)		-0.00410*** (-7.75)		-0.00233*** (-4.08)
Credit risk	-0.00368 (-0.58)	-0.00971 (-1.15)	-0.00153 (-0.24)	-0.00903 (-1.08)	0.0178** (2.97)	-0.00211 (-0.26)	-0.00859 (-1.04)	-0.0153 (-1.42)
... x GDP per capita		0.00132*** (4.05)		0.00147*** (4.51)		0.00199*** (4.71)		0.000829 (1.83)
Income diversification	-0.345*** (-46.94)	-0.427*** (-38.59)	-0.348*** (-47.20)	-0.427*** (-38.37)	-0.359*** (-45.03)	-0.443*** (-39.86)	-0.303*** (-23.34)	-0.385*** (-21.97)
... x GDP per capita		0.00632*** (18.97)		0.00621*** (18.43)		0.00617*** (17.83)		0.00605*** (11.96)
Inflation	0.138*** (14.36)	0.145*** (13.25)	0.149*** (14.52)	0.153*** (13.55)	0.0649*** (5.71)	0.0725*** (5.62)	0.0699*** (8.08)	0.0762*** (8.20)
... x GDP per capita		-0.00104* (-2.30)		-0.00100* (-2.17)		-0.00161*** (-3.66)		-0.00153*** (-5.66)
Interest rate risk	0.0525*** (6.62)	0.0507*** (5.33)	0.0481*** (5.88)	0.0492*** (5.14)	0.0116 (1.48)	0.0234* (2.42)	0.0172** (2.81)	0.0254** (3.10)
... x GDP per capita		-0.000324 (-0.54)		-0.000797 (-1.28)		-0.00174** (-2.80)		-0.00129* (-2.43)
Competition (Lerner)	0.0213*** (4.26)	0.0459*** (4.60)	0.0208*** (4.21)	0.0469*** (4.75)	0.0251*** (4.93)	0.0405*** (4.25)	0.0219*** (5.49)	0.0319*** (4.28)
... x GDP per capita		-0.000839*** (-3.61)		-0.000900*** (-3.90)		-0.000824*** (-3.81)		-0.000594*** (-3.59)
Information environment	-0.124*** (-12.38)	-0.111*** (-9.30)	-0.113*** (-11.30)	-0.0984*** (-8.29)	-0.00273 (-0.15)	-0.0167 (-0.72)	0.0285 (1.62)	0.0245 (1.09)
... x GDP per capita		0.00172** (3.27)		0.00160** (3.02)		-0.000550 (-0.51)		-0.000423 (-0.41)
Creditor rights	0.0196* (2.50)	0.0108 (1.02)	0.0218** (2.66)	0.0145 (1.36)	-0.00690 (-0.31)	-0.00877 (-0.36)	-0.0552** (-2.77)	-0.0538* (-2.34)
... x GDP per capita		0.000646 (1.70)		0.000485 (1.28)		-0.000634 (-1.01)		0.000273 (0.55)
Contract enforcement	-0.176*** (-13.64)	-0.229*** (-12.14)	-0.173*** (-13.34)	-0.226*** (-11.97)	-0.0308 (-0.85)	0.00905 (0.17)	-0.0438 (-1.19)	-0.0147 (-0.25)
... x GDP per capita		0.00441*** (8.98)		0.00435*** (8.80)		-0.00289 (-1.40)		-0.00218 (-1.05)
GDP per capita	-0.00923*** (-19.18)	-0.0226*** (-22.51)	-0.00907*** (-18.61)	-0.0225*** (-22.25)	-0.00735 (-1.42)	-0.00327 (-0.65)	-0.00741 (-1.11)	-0.00504 (-0.77)
Constant	0.278*** (22.30)	0.301*** (22.50)	0.385*** (13.30)	0.407*** (14.12)	0.0542 (0.21)	0.310 (1.13)	0.361*** (4.06)	0.307*** (3.55)
Time FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	Yes	-	-
Bank FE	No	No	No	No	No	No	Yes	Yes
N	114284	114284	114284	114284	114284	114284	114284	114284
adj. R-sq	0.566	0.592	0.570	0.596	0.722	0.734	0.308	0.333

Note: t-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Variables in deep blue rows are standardized at country-level (see Table 1 country-level statistics).

Table 5a: Robustness test: alternative dependent variable

<i>Net interest income / TA</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Size of operations	0.131*** (16.73)	0.132*** (16.80)	0.131*** (16.77)	0.131*** (16.78)	0.201*** (17.08)	0.203*** (17.32)	0.203*** (17.27)	0.203*** (17.28)
... x GDP per capita					-0.00442*** (-12.29)	-0.00454*** (-12.58)	-0.00452*** (-12.50)	-0.00453*** (-12.54)
Risk aversion	0.103*** (16.35)	0.104*** (16.50)	0.104*** (16.54)	0.104*** (16.53)	0.105*** (13.35)	0.107*** (13.62)	0.107*** (13.64)	0.107*** (13.64)
... x GDP per capita					0.000225 (0.70)	0.000109 (0.34)	0.000114 (0.36)	0.000111 (0.34)
Overhead	0.321*** (18.24)	0.318*** (18.09)	0.318*** (18.00)	0.318*** (18.00)	0.372*** (14.41)	0.369*** (14.28)	0.369*** (14.24)	0.369*** (14.20)
... x GDP per capita					-0.00441** (-2.86)	-0.00433** (-2.81)	-0.00433** (-2.80)	-0.00430** (-2.76)
Reserve opportunity cost	0.0140 (1.33)	0.0126 (1.20)	0.0124 (1.18)	0.0123 (1.18)	0.0192 (1.42)	0.0205 (1.52)	0.0202 (1.50)	0.0198 (1.47)
... x GDP per capita					-0.000384 (-0.78)	-0.000619 (-1.27)	-0.000603 (-1.23)	-0.000590 (-1.20)
Credit risk	0.0538*** (7.18)	0.0553*** (7.35)	0.0547*** (7.26)	0.0547*** (7.27)	0.0356*** (3.76)	0.0377*** (3.96)	0.0369*** (3.89)	0.0367*** (3.87)
... x GDP per capita					0.00180*** (3.82)	0.00168*** (3.49)	0.00176*** (3.74)	0.00180*** (3.83)
Income diversification	-0.458*** (-51.09)	-0.456*** (-51.02)	-0.456*** (-51.01)	-0.456*** (-51.01)	-0.558*** (-45.45)	-0.555*** (-45.20)	-0.555*** (-45.14)	-0.555*** (-45.09)
... x GDP per capita					0.00741*** (18.26)	0.00734*** (18.04)	0.00732*** (18.03)	0.00731*** (17.90)
Inflation		0.0747*** (6.16)	0.0743*** (6.06)	0.0744*** (6.06)		0.0806*** (5.97)	0.0803*** (5.87)	0.0806*** (5.90)
... x GDP per capita						-0.00173*** (-3.77)	-0.00198*** (-4.01)	-0.00202*** (-4.12)
Interest rate risk		0.0265** (3.24)	0.0265** (3.24)	0.0265** (3.23)		0.0376*** (3.84)	0.0390*** (3.93)	0.0393*** (3.96)
... x GDP per capita						-0.00154* (-2.32)	-0.00169* (-2.49)	-0.00181** (-2.63)
Competition (Lerner)		0.0281*** (4.67)	0.0294*** (4.84)	0.0293*** (4.84)		0.0450*** (3.98)	0.0468*** (4.11)	0.0466*** (4.09)
... x GDP per capita						-0.000895*** (-3.49)	-0.000911*** (-3.53)	-0.000901*** (-3.49)
Information environment			0.0197 (0.94)	0.0195 (0.93)			0.0136 (0.54)	0.0154 (0.60)
... x GDP per capita							-0.00161 (-1.37)	-0.00208 (-1.69)
Creditor rights			-0.00658 (-0.27)	-0.00651 (-0.27)			-0.0181 (-0.67)	-0.0183 (-0.67)
... x GDP per capita							0.000757 (1.06)	0.000777 (1.09)
Contract enforcement			-0.0831 (-1.95)	-0.0833 (-1.96)			-0.0885 (-1.43)	-0.0847 (-1.37)
... x GDP per capita							0.000592 (0.26)	0.000142 (0.06)
GDP per capita				0.000715 (0.12)				0.00932 (1.52)
Constant	-0.249*** (-7.69)	-0.173*** (-5.03)	-0.0403 (-0.43)	-0.0747 (-0.25)	0.160*** (3.90)	0.106* (2.38)	0.257 (1.60)	-0.134 (-0.42)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	116326	116326	116326	116326	116326	116326	116326	116326
adj. R-sq	0.675	0.677	0.677	0.677	0.689	0.692	0.692	0.692

Note: t-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Variables in deep blue rows are standardized at country-level (see Table 1 country-level statistics).

Table 5b: Robustness test: alternative dependent variable, alternative specifications

<i>Net interest income / TA</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Size of operations	-0.0475*** (-5.75)	-0.0296* (-2.32)	-0.0429*** (-5.20)	-0.0241 (-1.86)	0.131*** (16.78)	0.203*** (17.28)	0.290*** (7.18)	0.315*** (7.01)
... x GDP per capita		-0.000632 (-1.63)		-0.000700 (-1.78)		-0.00453*** (-12.54)		-0.00307* (-2.32)
Risk aversion	0.0865*** (13.60)	0.0682*** (8.56)	0.0873*** (13.83)	0.0693*** (8.76)	0.104*** (16.53)	0.107*** (13.64)	0.166*** (13.79)	0.166*** (10.86)
... x GDP per capita		0.00192*** (5.73)		0.00192*** (5.71)		0.000111 (0.34)		-0.000576 (-1.02)
Overhead	0.435*** (23.03)	0.558*** (20.34)	0.436*** (22.96)	0.560*** (20.21)	0.318*** (18.00)	0.369*** (14.20)	0.191*** (11.24)	0.242*** (6.63)
... x GDP per capita		-0.0116*** (-9.03)		-0.0116*** (-9.04)		-0.00430** (-2.76)		-0.00470* (-2.17)
Reserve opportunity cost	0.00737 (0.73)	0.00911 (0.70)	0.0124 (1.21)	0.0159 (1.22)	0.0123 (1.18)	0.0198 (1.47)	-0.0117 (-1.01)	-0.0189 (-1.30)
... x GDP per capita		-0.000639 (-1.23)		-0.000746 (-1.44)		-0.000590 (-1.20)		0.000741 (1.46)
Credit risk	0.0347*** (4.65)	0.0317** (3.28)	0.0357*** (4.80)	0.0319*** (3.31)	0.0547*** (7.27)	0.0367*** (3.87)	0.0377*** (4.18)	0.0341** (2.88)
... x GDP per capita		0.000821* (2.17)		0.000914* (2.41)		0.00180*** (3.83)		0.000460 (0.87)
Income diversification	-0.431*** (-52.54)	-0.524*** (-42.81)	-0.433*** (-52.49)	-0.523*** (-42.55)	-0.456*** (-51.01)	-0.555*** (-45.09)	-0.389*** (-27.28)	-0.487*** (-24.96)
... x GDP per capita		0.00693*** (18.90)		0.00679*** (18.44)		0.00731*** (17.90)		0.00734*** (13.58)
Inflation	0.149*** (14.08)	0.155*** (12.38)	0.167*** (14.54)	0.167*** (12.88)	0.0744*** (6.06)	0.0806*** (5.90)	0.0723*** (7.71)	0.0770*** (7.53)
... x GDP per capita		-0.00149** (-2.80)		-0.00129* (-2.40)		-0.00202*** (-4.12)		-0.00189*** (-5.99)
Interest rate risk	0.0494*** (5.64)	0.0475*** (4.46)	0.0452*** (5.01)	0.0454*** (4.25)	0.0265** (3.23)	0.0393*** (3.96)	0.0263*** (4.35)	0.0316*** (4.16)
... x GDP per capita		-0.000149 (-0.22)		-0.000463 (-0.68)		-0.00181** (-2.63)		-0.000658 (-1.18)
Competition (Lerner)	0.0211*** (3.66)	0.0435*** (3.87)	0.0213*** (3.73)	0.0449*** (4.04)	0.0293*** (4.84)	0.0466*** (4.09)	0.0243*** (5.36)	0.0337*** (3.86)
... x GDP per capita		-0.000854** (-3.24)		-0.000911*** (-3.48)		-0.000901*** (-3.49)		-0.000578** (-2.97)
Information environment	-0.0916*** (-8.46)	-0.0876*** (-6.73)	-0.0829*** (-7.63)	-0.0784*** (-5.99)	0.0195 (0.93)	0.0154 (0.60)	0.0388* (2.19)	0.0350 (1.57)
... x GDP per capita		0.00132* (2.29)		0.00124* (2.13)		-0.00208 (-1.69)		-0.000491 (-0.45)
Creditor rights	0.0360*** (4.17)	0.0204 (1.74)	0.0429*** (4.76)	0.0266* (2.24)	-0.00651 (-0.27)	-0.0183 (-0.67)	-0.0318 (-1.59)	-0.0381 (-1.64)
... x GDP per capita		0.00102* (2.37)		0.000994* (2.32)		0.000777 (1.09)		0.000987 (1.81)
Contract enforcement	-0.180*** (-12.21)	-0.222*** (-10.45)	-0.179*** (-12.02)	-0.219*** (-10.26)	-0.0833 (-1.96)	-0.0847 (-1.37)	-0.116** (-3.21)	-0.145* (-2.57)
... x GDP per capita		0.00366*** (6.69)		0.00351*** (6.38)		0.000142 (0.06)		0.00235 (1.17)
GDP per capita	-0.0110*** (-19.61)	-0.0190*** (-18.66)	-0.0107*** (-18.90)	-0.0187*** (-18.26)	0.000715 (0.12)	0.00932 (1.52)	0.0000393 (0.01)	0.00941 (1.43)
Constant	0.304*** (23.24)	0.300*** (21.60)	0.409*** (12.30)	0.403*** (12.08)	-0.0747 (-0.25)	-0.134 (-0.42)	0.283*** (3.38)	0.144 (1.74)
Time FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	Yes	-	-
Bank FE	No	No	No	No	No	No	Yes	Yes
N	116326	116326	116326	116326	116326	116326	116326	116326
adj. R-sq	0.513	0.535	0.515	0.537	0.677	0.692	0.338	0.364

Note: t-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Variables in deep blue rows are standardized at country-level (see Table 1 country-level statistics).

Table 6a: Contributing factors to net interest margin, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
4.01	Afghanistan	-0.248	-0.021	0.061	1.119	-0.025	0.659	0.096	0.038	0.007	0.009	-0.004	0.039	2.279
-0.76	Albania	-0.110	-0.014	-0.318	0.246	0.016	0.793	-0.121	-0.012	-0.007	-0.002	-0.021	0.001	-1.209
0.98	Algeria	0.031	0.375	-0.230	0.785	-0.007	-0.685	-0.019	-0.004	0.107	0.009	0.021	-0.031	0.630
1.64	Angola	-0.054	0.039	0.169	0.584	0.011	-0.839	0.318	0.049	0.076	0.009	0.020	0.112	1.150
1.14	Argentina	-0.047	0.130	0.921	0.256	-0.012	-1.629	0.255	0.030	0.009	-0.007	0.014	0.027	1.199
2.51	Armenia	-0.243	0.466	0.112	0.472	-0.032	0.305	-0.003	0.015	0.013	-0.005	-0.001	0.010	1.396
-2.52	Australia	0.279	-0.157	-0.436	-0.399	-0.054	0.238	-0.111	-0.012	-0.071	-0.005	-0.023	-0.113	-1.652
-3.14	Austria	0.233	-0.203	-0.489	-0.304	-0.019	0.076	-0.150	-0.020	0.005	-0.005	-0.004	-0.104	-2.156
3.04	Azerbaijan	-0.141	0.198	0.159	0.291	0.033	0.194	0.045	-0.014	0.052	-0.001	0.009	0.002	2.212
-1.26	Bahamas, The	-0.065	0.190	-0.352	0.191	-0.029	0.237	-0.141	-0.020	0.044	0.009	-0.018	-0.065	-1.236
-1.90	Bahrain	0.196	0.157	-0.534	-0.254	0.011	0.244	-0.132	-0.015	0.019	-0.001	0.022	-0.001	-1.610
-0.86	Bangladesh	0.041	-0.112	-0.369	-0.178	-0.002	-0.555	0.108	0.068	-0.022	0.009	0.000	0.042	0.105
3.04	Belarus	-0.066	0.295	0.893	0.305	0.006	-0.876	0.312	0.047	-0.011	-0.001	0.022	0.061	2.052
-3.78	Belgium	0.472	-0.339	-0.695	-0.496	-0.047	1.343	-0.147	-0.017	-0.080	-0.002	0.007	-0.135	-3.642
3.19	Belize	-0.206	0.075	0.192	0.709	-0.033	0.152	-0.172	-0.025	0.006	0.009	-0.006	-0.035	2.524
-0.35	Benin	-0.092	-0.174	0.041	-0.098	0.054	-0.611	-0.070	-0.018	-0.007	0.009	0.011	0.060	0.547
0.52	Bolivia	-0.094	0.178	0.300	-0.106	0.014	-0.428	0.046	0.024	0.012	-0.007	0.038	0.004	0.541
0.30	Bosnia and Herzegovina	-0.113	0.196	0.003	0.690	0.038	-0.039	-0.125	-0.023	-0.012	-0.003	0.003	0.013	-0.327
0.48	Botswana	-0.127	-0.220	-0.140	-0.221	-0.019	-0.143	0.170	-0.008	-0.040	-0.002	-0.003	-0.050	1.280
1.15	Brazil	0.050	0.149	0.105	-0.502	-0.003	0.634	0.007	0.012	-0.015	-0.005	0.020	0.067	0.628
-0.45	Bulgaria	0.039	-0.009	-0.238	0.199	0.011	0.146	-0.036	-0.019	0.021	-0.003	-0.021	0.021	-0.559
0.06	Burkina Faso	-0.044	-0.192	0.231	0.061	0.009	-0.888	-0.108	-0.015	0.019	0.009	0.006	0.062	0.913
4.20	Burundi	-0.334	0.056	1.342	0.106	0.061	-0.652	0.233	0.025	0.051	0.009	0.019	0.091	3.197
0.41	Cambodia	-0.242	0.587	-0.162	0.688	-0.007	0.308	-0.027	-0.027	0.037	0.004	-0.011	0.080	-0.818
-0.64	Cameroon	-0.072	-0.233	0.265	-0.085	0.048	-1.063	-0.120	-0.024	0.035	0.008	0.008	0.073	0.519
-2.67	Canada	0.150	-0.173	-0.392	-0.393	-0.050	0.177	-0.164	-0.021	-0.192	-0.007	-0.011	-0.140	-1.452
-0.80	Chile	0.151	0.147	-0.245	0.010	-0.030	-0.100	-0.088	0.001	-0.032	-0.004	0.008	0.028	-0.645
-1.66	China	0.265	-0.154	-0.656	0.069	-0.024	1.151	-0.107	-0.027	0.051	-0.003	0.008	0.012	-2.246
1.71	Colombia	0.149	0.108	0.368	-0.200	0.002	-0.395	-0.063	-0.004	0.048	-0.005	0.002	-0.058	1.763
3.61	Congo, Dem. Rep.	-0.238	0.064	1.376	0.777	0.008	-1.259	0.136	0.068	-0.055	0.009	0.009	0.112	2.605
2.00	Costa Rica	-0.118	0.234	0.114	-0.242	-0.035	1.009	0.113	-0.006	-0.019	-0.005	0.020	0.048	0.890
-1.07	Croatia	-0.045	0.016	-0.151	0.257	0.043	0.293	-0.122	0.024	0.009	-0.001	-0.005	0.028	-1.420
-1.74	Cyprus	0.156	-0.186	0.304	-0.210	0.060	0.155	-0.165	-0.020	0.018	0.004	-0.017	-0.088	-1.750
-2.23	Czech Republic	0.207	-0.084	-0.468	-0.320	-0.016	0.406	-0.139	-0.021	0.054	-0.005	-0.003	-0.003	-1.837
0.02	Côte d'Ivoire	-0.034	-0.221	0.231	-0.273	0.040	-0.962	-0.126	-0.020	-0.008	0.009	0.009	0.022	1.351
-1.31	Denmark	-0.049	-0.007	-0.150	-0.289	0.020	0.414	-0.156	-0.018	0.012	-0.002	-0.020	-0.132	-0.933
4.11	Dominican Republic	-0.255	0.103	0.828	0.410	0.005	0.733	0.011	0.022	-0.067	-0.007	0.021	0.088	2.221
1.17	Ecuador	-0.124	0.013	0.664	-0.228	0.014	-0.235	-0.054	-0.017	-0.020	-0.006	0.026	0.065	1.071
-1.32	Egypt, Arab Rep.	0.148	-0.057	-0.458	-0.106	0.056	0.347	0.227	-0.010	-0.097	-0.006	0.020	0.049	-1.436
1.29	El Salvador	-0.051	0.151	-0.093	0.381	-0.007	1.239	0.017	0.006	0.031	-0.007	0.004	0.026	-0.402

Table 6a: Contributing factors to net interest margin, 2005-14, continued

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-1.98	Estonia	-0.081	-0.025	-0.480	-0.227	-0.021	-0.036	-0.026	-0.006	-0.012	-0.005	-0.005	0.004	-1.066
-0.44	Ethiopia	-0.148	-0.055	-0.395	-0.160	0.025	-0.824	0.363	-0.023	0.117	0.009	0.011	0.019	0.622
-3.35	Finland	0.271	-0.228	-0.592	-0.396	-0.051	-0.322	-0.168	-0.013	-0.116	-0.002	-0.017	-0.138	-1.581
-2.71	France	0.273	-0.131	-0.368	-0.460	-0.014	-0.351	-0.177	-0.020	-0.051	-0.002	0.007	-0.029	-1.389
3.75	Gambia, The	-0.431	-0.043	0.976	0.144	0.033	-0.954	-0.036	0.027	-0.026	0.009	0.004	0.034	4.014
4.26	Georgia	-0.160	0.315	0.566	0.351	0.034	0.225	0.005	0.023	0.014	-0.003	-0.010	0.025	2.874
-2.34	Germany	-0.041	-0.162	-0.403	-0.452	-0.036	0.572	-0.171	-0.026	-0.312	-0.007	-0.002	-0.119	-1.183
4.40	Ghana	-0.183	0.021	0.708	0.168	0.034	-0.276	0.282	0.062	0.049	0.004	-0.012	0.042	3.505
-2.17	Greece	0.337	-0.195	-0.458	-0.386	-0.004	0.596	-0.096	-0.016	-0.023	-0.003	0.011	-0.014	-1.921
1.80	Guatemala	-0.087	-0.072	0.081	0.258	-0.018	1.020	0.030	-0.026	0.020	-0.006	-0.008	0.033	0.578
4.16	Haiti	-0.164	-0.217	0.458	1.665	-0.023	-0.379	0.126	0.008	-0.037	0.009	0.020	0.112	2.583
2.81	Honduras	-0.086	-0.011	0.469	-0.141	-0.013	0.596	0.073	-0.005	-0.014	-0.007	-0.008	0.057	1.896
-2.66	Hong Kong SAR, China	0.092	0.281	-0.627	-0.026	-0.048	0.285	-0.116	-0.013	-0.029	-0.005	-0.027	-0.116	-2.315
-1.20	Hungary	0.274	-0.117	-0.162	-0.347	0.049	-0.364	-0.070	-0.001	-0.037	-0.003	-0.009	0.003	-0.413
-1.43	Iceland	-0.072	0.143	-0.237	-0.235	0.011	-1.126	0.053	0.024	-0.014	-0.005	-0.010	-0.114	0.154
-1.55	India	0.280	-0.178	-0.483	-0.210	-0.032	0.393	0.143	0.048	-0.001	-0.004	-0.010	0.042	-1.541
0.64	Indonesia	0.066	0.033	-0.173	-0.186	-0.027	0.852	0.077	0.004	0.047	-0.003	0.007	0.035	-0.089
-4.22	Ireland	0.325	-0.318	-0.891	-0.494	-0.055	1.489	-0.096	-0.014	-0.014	-0.005	-0.023	-0.135	-3.986
-2.35	Israel	0.345	-0.249	-0.358	0.197	-0.032	-0.168	-0.146	-0.015	-0.027	-0.005	-0.018	-0.042	-1.829
-2.06	Italy	-0.019	-0.064	-0.370	-0.491	-0.005	0.440	-0.157	-0.003	-0.094	-0.005	0.020	-0.059	-1.253
2.48	Jamaica	-0.065	0.022	0.303	-0.140	-0.032	0.664	0.279	0.045	0.041	0.009	-0.017	-0.070	1.444
-3.25	Japan	0.133	-0.287	-0.647	-0.419	-0.028	1.699	-0.231	-0.028	0.048	-0.005	0.002	-0.150	-3.335
-0.85	Jordan	0.109	0.067	-0.415	0.137	0.016	0.263	-0.012	-0.012	0.061	0.009	0.027	0.035	-1.132
2.40	Kenya	-0.153	0.193	0.285	-0.144	-0.001	0.046	0.193	0.001	0.057	0.009	-0.023	0.028	1.906
-1.63	Korea, Rep.	0.332	-0.257	-0.514	-0.303	-0.027	0.960	-0.108	-0.018	0.027	-0.006	-0.003	-0.118	-1.598
-1.77	Kuwait	0.404	0.011	-0.686	-0.078	0.020	0.154	-0.030	-0.009	0.116	-0.004	0.019	0.026	-1.710
3.75	Kyrgyz Republic	-0.356	0.200	0.360	0.144	0.008	-0.066	0.140	0.033	0.085	0.004	-0.019	0.017	3.202
-2.10	Latvia	-0.032	-0.091	-0.309	-0.050	0.018	-0.724	-0.018	0.007	0.001	0.000	-0.027	0.004	-0.877
-2.24	Lebanon	0.025	-0.152	-0.538	0.467	0.032	0.253	-0.095	-0.027	-0.085	-0.002	0.020	0.025	-2.158
-2.50	Lithuania	0.080	-0.119	-0.358	-0.014	0.007	-0.464	-0.072	-0.018	-0.014	-0.007	0.003	-0.025	-1.497
-3.08	Luxembourg	0.102	-0.077	-0.562	-0.396	-0.037	-0.223	-0.151	-0.020	-0.001	0.009	0.014	-0.010	-1.727
0.61	Macedonia, FYR	-0.164	0.217	0.007	0.667	0.070	0.227	-0.122	-0.019	0.008	-0.002	-0.003	-0.006	-0.275
2.41	Madagascar	-0.216	0.009	0.029	0.237	0.012	0.366	0.172	-0.009	0.009	0.009	0.026	0.065	1.704
5.38	Malawi	-0.349	0.142	1.320	-0.172	-0.022	-1.074	0.201	-0.004	0.011	0.009	-0.010	0.070	5.255
-1.84	Malaysia	0.181	-0.051	-0.657	0.847	-0.007	0.023	-0.119	-0.022	-0.062	-0.006	-0.030	0.001	-1.942
0.44	Mali	-0.166	-0.070	0.411	-0.121	0.023	-1.066	-0.092	-0.018	0.000	0.009	0.009	0.052	1.468
1.02	Mauritania	-0.271	0.552	0.111	0.283	0.087	-0.797	0.039	-0.016	0.092	0.009	0.020	0.112	0.800
-1.77	Mauritius	-0.032	-0.084	-0.509	0.044	-0.017	0.170	0.007	0.008	0.061	-0.001	-0.002	-0.056	-1.361
-0.17	Mexico	-0.043	0.050	0.162	-0.320	-0.010	-0.148	-0.069	-0.022	0.108	-0.007	-0.002	-0.079	0.207
1.78	Moldova	-0.250	0.441	0.441	0.364	0.013	-0.563	0.135	0.056	0.011	0.009	-0.016	0.028	1.116

Table 6a: Contributing factors to net interest margin, 2005-14, continued

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
1.10	Mongolia	-0.240	0.073	-0.136	0.062	0.001	0.633	0.183	0.058	0.117	0.000	-0.003	0.066	0.285
0.45	Montenegro	-0.125	0.138	0.120	0.366	0.021	-0.042	-0.067	-0.019	-0.145	0.000	-0.030	-0.014	0.244
-1.47	Morocco	0.364	-0.155	-0.407	-0.276	0.006	0.141	-0.176	-0.024	0.016	-0.002	0.020	0.027	-1.007
3.31	Mozambique	-0.258	0.066	0.744	0.254	0.001	-0.638	0.173	0.047	-0.011	0.009	0.018	0.041	2.863
-0.84	Nepal	-0.141	-0.096	-0.504	-0.077	-0.023	0.649	0.169	-0.028	-0.057	0.009	-0.011	-0.011	-0.714
-3.40	Netherlands	0.217	-0.125	-0.572	-0.206	-0.027	-0.043	-0.161	-0.022	-0.106	-0.005	0.005	-0.135	-2.223
-2.34	New Zealand	0.274	-0.147	-0.397	-0.416	-0.049	0.185	-0.094	-0.013	-0.044	-0.005	-0.030	-0.108	-1.496
1.12	Niger	-0.221	-0.175	0.247	0.155	-0.010	-0.494	-0.103	-0.017	0.009	0.009	0.011	0.071	1.641
2.66	Nigeria	0.111	0.191	0.326	0.012	0.033	-0.237	0.219	0.003	-0.028	0.007	-0.015	0.034	2.002
-2.48	Norway	-0.020	-0.126	-0.553	-0.375	-0.048	0.985	-0.145	-0.004	0.050	-0.002	-0.003	-0.143	-2.097
-1.12	Oman	0.215	0.044	-0.477	-0.179	0.017	0.331	-0.014	-0.013	0.082	0.001	0.011	0.013	-1.147
-0.67	Pakistan	0.077	-0.075	-0.289	-0.130	0.050	0.327	0.266	0.024	-0.071	0.006	-0.003	0.001	-0.851
-1.36	Panama	-0.022	-0.065	-0.322	-0.347	-0.037	0.294	-0.045	-0.017	0.038	-0.007	0.005	0.036	-0.870
3.26	Paraguay	-0.138	-0.052	1.136	1.107	-0.017	-0.547	0.039	0.025	-0.050	-0.007	0.020	0.065	1.681
1.75	Peru	0.138	-0.074	0.230	-0.231	-0.003	0.341	-0.112	-0.008	0.036	-0.007	-0.009	0.036	1.411
-0.38	Philippines	0.093	-0.035	-0.138	-0.207	0.021	0.119	-0.041	-0.014	-0.028	0.002	0.012	0.094	-0.262
-1.48	Poland	0.245	-0.078	-0.250	-0.310	0.009	-0.161	-0.123	-0.013	0.019	-0.007	-0.017	-0.002	-0.792
-2.35	Portugal	-0.061	-0.045	-0.386	-0.446	0.027	0.192	-0.166	-0.022	-0.022	-0.005	0.021	-0.093	-1.344
-1.98	Qatar	0.350	0.063	-0.661	-0.238	-0.027	0.125	-0.035	-0.012	0.106	0.003	0.020	0.031	-1.711
0.31	Romania	0.083	-0.006	0.147	0.521	0.034	-0.179	0.008	0.026	-0.016	-0.004	-0.022	0.037	-0.318
1.54	Russian Federation	-0.275	0.268	3.646	-0.219	0.041	-1.987	0.170	0.028	-0.057	-0.002	0.007	-0.006	-0.075
4.13	Rwanda	-0.231	0.130	0.903	0.024	0.038	-0.093	0.088	0.009	0.001	0.002	-0.008	0.098	3.168
-2.10	Saudi Arabia	0.510	0.052	-0.644	-0.088	-0.019	0.169	-0.050	-0.027	0.117	-0.007	0.011	0.112	-2.234
-1.11	Senegal	-0.111	-0.114	0.278	-0.156	0.006	-1.457	-0.181	-0.018	0.023	0.009	0.004	0.047	0.560
6.03	Sierra Leone	-0.433	0.095	1.330	-0.018	0.064	-0.532	0.221	-0.022	-0.028	0.009	-0.005	0.088	5.257
-2.77	Singapore	0.176	0.050	-0.600	-0.011	-0.019	-0.889	-0.115	-0.018	0.117	-0.001	-0.029	-0.142	-1.291
-1.72	Slovak Republic	0.164	-0.126	-0.376	-0.225	-0.004	0.381	-0.121	-0.018	0.003	-0.002	-0.014	-0.028	-1.359
-2.50	Slovenia	0.166	-0.157	-0.471	-0.317	0.039	0.195	-0.140	-0.019	-0.029	0.005	0.012	-0.024	-1.755
0.36	South Africa	-0.010	-0.041	0.207	0.183	-0.033	-0.364	0.033	-0.010	-0.053	-0.007	-0.007	0.016	0.448
-2.87	Spain	0.202	-0.160	-0.541	-0.462	-0.001	0.375	-0.151	-0.020	0.023	-0.005	0.000	-0.092	-2.035
0.42	Sri Lanka	0.001	-0.176	-0.057	-0.095	-0.008	0.483	0.204	0.045	-0.029	0.000	0.013	-0.007	0.044
2.08	Swaziland	-0.169	0.056	0.631	-0.030	0.009	-0.707	0.087	0.001	-0.024	-0.002	-0.003	0.010	2.224
-2.04	Sweden	-0.093	0.096	-0.358	-0.515	-0.044	0.306	-0.190	-0.015	0.026	-0.002	-0.010	-0.101	-1.137
-3.51	Switzerland	0.000	-0.271	-0.614	-0.320	-0.052	0.691	-0.250	-0.021	-0.061	-0.004	-0.007	-0.020	-2.584
1.96	Tanzania	-0.245	-0.041	0.497	0.189	-0.011	-0.311	0.190	0.036	0.024	0.009	-0.007	0.051	1.583
-1.81	Thailand	0.316	0.122	-0.484	-0.447	-0.004	0.755	-0.106	-0.014	0.062	-0.004	0.007	-0.038	-1.978
-0.61	Togo	-0.168	-0.160	0.354	-0.326	0.006	-1.458	-0.077	-0.017	-0.021	0.009	0.009	0.035	1.201
-0.17	Trinidad and Tobago	0.011	0.023	-0.215	0.237	-0.037	0.112	0.164	-0.011	0.040	-0.001	-0.023	0.041	-0.504
-1.71	Tunisia	0.149	-0.143	-0.403	-0.326	0.077	0.022	-0.051	-0.020	0.081	0.001	0.014	-0.035	-1.071
0.50	Turkey	0.279	0.027	-0.136	-0.118	-0.018	0.547	0.141	0.024	-0.019	-0.004	0.008	0.053	-0.287

Table 6a: Contributing factors to net interest margin, 2005-14, continued

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
4.39	Uganda	-0.241	0.196	0.860	0.111	-0.018	-0.030	0.166	0.048	0.018	0.009	-0.006	0.001	3.277
1.51	Ukraine	0.027	0.084	0.163	0.118	0.051	-0.004	0.262	0.075	-0.009	0.004	-0.023	0.088	0.674
-2.68	United Kingdom	0.017	0.037	-0.390	-0.258	-0.016	-0.167	-0.120	-0.020	0.017	-0.007	-0.023	-0.134	-1.615
-1.01	United States	-0.207	-0.058	-0.201	-0.166	-0.041	1.242	-0.137	-0.017	0.001	-0.007	-0.023	-0.111	-1.281
-0.67	Uruguay	-0.056	-0.009	0.398	0.303	0.017	-0.747	0.114	0.039	-0.027	-0.007	0.012	-0.009	-0.698
3.70	Venezuela, RB	0.056	-0.054	0.302	0.454	-0.002	0.198	0.398	0.070	0.015	0.004	0.025	0.095	2.143
-1.38	Vietnam	0.058	0.026	-0.490	-0.277	-0.041	0.722	0.160	0.012	-0.023	-0.001	-0.007	0.063	-1.579
3.38	Zambia	-0.248	0.112	0.952	0.410	0.005	-0.690	0.157	0.025	-0.074	0.001	-0.017	0.023	2.720

Note: Values of contribution in percentage points of net interest margin. results based on equation in Table 4a, column 4. The dashed line for each column indicates the cross-country mean for a variable, as listed in Table 1 and normalized to 0 in the regression analysis. The bars indicate relative distances from world averages, with the left and right sides of the cell representing minimum and maximum values across countries. Column “Other factors” reflects contributions associated to real incomes, country and time fixed effects, and regression residuals.

Table 6b: Contributing factors to net interest margin, 2005-14

[1] Net interest margin (v.s. world)	[2] Region	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-1.04	East Asia & Pacific	0.076	0.093	-0.412	0.051	-0.016	0.396	-0.021	-0.006	0.029	-0.002	-0.007	0.006	-1.223
0.95	Europe & Central Asia	-0.077	0.140	0.318	0.246	0.024	-0.074	0.021	0.012	-0.003	-0.001	-0.008	0.014	0.336
1.55	Latin America & Caribbean	-0.058	0.041	0.288	0.167	-0.012	0.129	0.048	0.006	0.009	-0.003	0.006	0.023	0.908
-1.41	Middle East & North Africa	0.227	0.024	-0.496	-0.014	0.017	0.124	-0.035	-0.016	0.047	0.000	0.019	0.023	-1.326
0.08	South Asia	0.002	-0.110	-0.274	0.071	-0.007	0.326	0.164	0.033	-0.029	0.005	-0.002	0.018	-0.113
1.87	Sub-Saharan Africa	-0.178	0.003	0.475	0.067	0.016	-0.615	0.087	0.006	0.009	0.006	0.003	0.047	1.945
-2.38	OECD high income	0.136	-0.122	-0.434	-0.323	-0.019	0.278	-0.131	-0.014	-0.032	-0.004	-0.006	-0.076	-1.638

Note: See note for Table 6a. Contribution for each group is represented by the average of contributions for countries within each group (see Table 7a-g for country groupings). Left and right sides of cells represent minimum and maximum values across regions.

Table 7a: Contributing factors to net interest margin, East Asia & Pacific Comparisons, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
1.45	Cambodia	-0.318	0.494	0.250	0.637	0.008	-0.087	-0.006	-0.020	0.008	0.006	-0.004	0.074	0.405
-0.62	China	0.188	-0.247	-0.243	0.018	-0.009	0.755	-0.086	-0.021	0.022	-0.001	0.015	0.007	-1.022
-1.63	Hong Kong SAR, China	0.016	0.188	-0.215	-0.077	-0.033	-0.111	-0.095	-0.007	-0.058	-0.003	-0.020	-0.122	-1.092
1.68	Indonesia	-0.011	-0.060	0.239	-0.237	-0.012	0.456	0.098	0.010	0.018	-0.001	0.014	0.030	1.135
-0.81	Malaysia	0.105	-0.144	-0.244	0.796	0.009	-0.373	-0.097	-0.016	-0.091	-0.004	-0.023	-0.004	-0.719
2.13	Mongolia	-0.316	-0.020	0.276	0.011	0.016	0.237	0.204	0.064	0.088	0.002	0.004	0.060	1.508
0.65	Philippines	0.016	-0.128	0.274	-0.258	0.037	-0.277	-0.019	-0.008	-0.057	0.004	0.019	0.088	0.961
-1.74	Singapore	0.099	-0.043	-0.187	-0.063	-0.004	-1.285	-0.094	-0.012	0.088	0.000	-0.021	-0.147	-0.067
-0.78	Thailand	0.239	0.028	-0.072	-0.498	0.012	0.359	-0.085	-0.008	0.034	-0.003	0.015	-0.044	-0.754
-0.34	Vietnam	-0.018	-0.067	-0.078	-0.328	-0.025	0.326	0.181	0.018	-0.052	0.000	0.000	0.058	-0.356

Note: See note for Table 6a. The bars indicate relative distances from group averages (see Table 6b), with the left and right sides of the cell representing minimum and maximum values across countries.

Table 7b: Contributing factors to net interest margin, Europe & Central Asia Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-1.71	Albania	-0.033	-0.155	-0.636	0.000	-0.008	0.867	-0.143	-0.024	-0.004	-0.001	-0.013	-0.013	-1.546
1.56	Armenia	-0.166	0.325	-0.206	0.226	-0.056	0.379	-0.024	0.003	0.017	-0.004	0.007	-0.004	1.060
2.09	Azerbaijan	-0.064	0.058	-0.159	0.045	0.009	0.268	0.023	-0.026	0.055	0.000	0.017	-0.012	1.876
2.09	Belarus	0.011	0.154	0.575	0.059	-0.018	-0.801	0.291	0.036	-0.008	0.000	0.030	0.047	1.715
-0.65	Bosnia and Herzegovina	-0.036	0.056	-0.315	0.444	0.014	0.036	-0.146	-0.034	-0.009	-0.002	0.010	-0.001	-0.663
-1.40	Bulgaria	0.116	-0.150	-0.556	-0.047	-0.013	0.220	-0.057	-0.030	0.024	-0.002	-0.014	0.007	-0.895
-2.02	Croatia	0.032	-0.125	-0.469	0.011	0.019	0.367	-0.143	0.012	0.013	0.000	0.002	0.015	-1.756
-2.69	Cyprus	0.233	-0.326	-0.013	-0.456	0.036	0.229	-0.186	-0.031	0.021	0.005	-0.009	-0.101	-2.086
3.31	Georgia	-0.084	0.175	0.248	0.105	0.010	0.299	-0.016	0.012	0.017	-0.002	-0.002	0.011	2.537
2.80	Kyrgyz Republic	-0.279	0.060	0.042	-0.102	-0.017	0.008	0.118	0.021	0.089	0.005	-0.011	0.004	2.866
-3.45	Lithuania	0.157	-0.259	-0.676	-0.260	-0.017	-0.390	-0.094	-0.030	-0.011	-0.006	0.010	-0.038	-1.833
-0.34	Macedonia, FYR	-0.087	0.077	-0.310	0.421	0.046	0.301	-0.144	-0.030	0.011	-0.001	0.005	-0.019	-0.611
0.84	Moldova	-0.173	0.300	0.123	0.118	-0.012	-0.489	0.114	0.045	0.014	0.010	-0.009	0.015	0.779
-0.50	Montenegro	-0.048	-0.002	-0.198	0.120	-0.003	0.032	-0.089	-0.030	-0.141	0.001	-0.023	-0.028	-0.092
-0.64	Romania	0.160	-0.146	-0.171	0.274	0.009	-0.105	-0.013	0.015	-0.013	-0.003	-0.014	0.023	-0.655
0.59	Russian Federation	-0.198	0.127	3.329	-0.465	0.017	-1.913	0.148	0.017	-0.054	-0.001	0.014	-0.020	-0.411
-0.45	Turkey	0.356	-0.113	-0.454	-0.364	-0.042	0.621	0.120	0.012	-0.015	-0.003	0.015	0.039	-0.623
0.56	Ukraine	0.104	-0.056	-0.155	-0.128	0.027	0.070	0.241	0.063	-0.006	0.005	-0.015	0.074	0.338

Note: See note for Table 7a.

Table 7c: Contributing factors to net interest margin, Latin America & Caribbean Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-0.41	Argentina	0.011	0.088	0.633	0.089	0.000	-1.759	0.207	0.024	0.000	-0.004	0.008	0.004	0.291
-2.81	Bahamas, The	-0.007	0.149	-0.640	0.024	-0.017	0.107	-0.190	-0.026	0.035	0.012	-0.025	-0.088	-2.144
1.64	Belize	-0.148	0.034	-0.096	0.542	-0.021	0.023	-0.220	-0.031	-0.003	0.012	-0.013	-0.058	1.616
-1.03	Bolivia	-0.036	0.137	0.012	-0.274	0.026	-0.557	-0.002	0.018	0.002	-0.004	0.032	-0.019	-0.367
-0.41	Brazil	0.108	0.108	-0.183	-0.669	0.010	0.504	-0.042	0.006	-0.025	-0.002	0.014	0.044	-0.280
0.16	Colombia	0.207	0.066	0.080	-0.367	0.015	-0.525	-0.111	-0.010	0.038	-0.002	-0.005	-0.081	0.855
0.45	Costa Rica	-0.060	0.192	-0.174	-0.409	-0.023	0.879	0.064	-0.011	-0.028	-0.002	0.013	0.025	-0.018
2.56	Dominican Republic	-0.197	0.061	0.540	0.242	0.018	0.604	-0.038	0.016	-0.077	-0.004	0.015	0.065	1.313
-0.39	Ecuador	-0.066	-0.029	0.376	-0.395	0.027	-0.365	-0.102	-0.022	-0.030	-0.003	0.019	0.042	0.163
-0.26	El Salvador	0.007	0.110	-0.381	0.213	0.005	1.109	-0.032	0.000	0.021	-0.004	-0.002	0.003	-1.310
0.25	Guatemala	-0.029	-0.114	-0.207	0.091	-0.006	0.891	-0.019	-0.032	0.011	-0.003	-0.014	0.011	-0.330
2.61	Haiti	-0.106	-0.258	0.169	1.498	-0.010	-0.509	0.078	0.002	-0.047	0.012	0.013	0.090	1.675
1.25	Honduras	-0.028	-0.052	0.181	-0.309	0.000	0.466	0.025	-0.010	-0.023	-0.004	-0.014	0.034	0.988
0.93	Jamaica	-0.007	-0.019	0.015	-0.307	-0.020	0.535	0.230	0.039	0.031	0.012	-0.023	-0.093	0.535
-1.73	Mexico	0.015	0.008	-0.126	-0.487	0.002	-0.277	-0.117	-0.028	0.099	-0.004	-0.009	-0.102	-0.701
-2.91	Panama	0.036	-0.106	-0.610	-0.515	-0.024	0.164	-0.094	-0.022	0.029	-0.004	-0.002	0.013	-1.778
1.71	Paraguay	-0.080	-0.093	0.848	0.940	-0.004	-0.676	-0.009	0.019	-0.060	-0.004	0.013	0.042	0.773
0.19	Peru	0.196	-0.116	-0.058	-0.398	0.009	0.211	-0.160	-0.014	0.026	-0.004	-0.016	0.013	0.503
-1.72	Trinidad and Tobago	0.069	-0.019	-0.504	0.069	-0.025	-0.018	0.116	-0.017	0.030	0.001	-0.030	0.018	-1.412
-2.23	Uruguay	0.002	-0.051	0.110	0.135	0.029	-0.877	0.065	0.034	-0.036	-0.004	0.006	-0.032	-1.606
2.15	Venezuela, RB	0.114	-0.095	0.014	0.287	0.010	0.068	0.349	0.064	0.006	0.007	0.019	0.072	1.234

Note: See note for Table 7a.

Table 7d: Contributing factors to net interest margin, Middle East & North America Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
2.39	Algeria	-0.197	0.352	0.266	0.799	-0.023	-0.809	0.017	0.012	0.059	0.009	0.002	-0.054	1.956
-0.49	Bahrain	-0.032	0.134	-0.038	-0.240	-0.006	0.120	-0.097	0.001	-0.028	-0.001	0.003	-0.024	-0.284
0.08	Egypt, Arab Rep.	-0.080	-0.081	0.037	-0.091	0.039	0.224	0.262	0.006	-0.144	-0.006	0.002	0.026	-0.110
0.56	Jordan	-0.118	0.044	0.081	0.151	0.000	0.139	0.023	0.004	0.014	0.009	0.009	0.012	0.194
-0.36	Kuwait	0.177	-0.013	-0.190	-0.063	0.004	0.030	0.005	0.007	0.068	-0.004	0.000	0.003	-0.384
-0.83	Lebanon	-0.202	-0.176	-0.042	0.482	0.015	0.129	-0.060	-0.011	-0.133	-0.002	0.001	0.002	-0.833
-0.07	Morocco	0.136	-0.179	0.089	-0.262	-0.011	0.017	-0.141	-0.008	-0.031	-0.003	0.002	0.004	0.319
0.29	Oman	-0.012	0.020	0.019	-0.165	0.001	0.207	0.021	0.002	0.034	0.001	-0.008	-0.010	0.179
-0.58	Qatar	0.123	0.039	-0.165	-0.224	-0.043	0.001	0.000	0.004	0.059	0.003	0.001	0.008	-0.385
-0.69	Saudi Arabia	0.283	0.029	-0.149	-0.074	-0.036	0.045	-0.014	-0.011	0.069	-0.007	-0.007	0.090	-0.908
-0.30	Tunisia	-0.079	-0.167	0.093	-0.312	0.060	-0.102	-0.015	-0.005	0.033	0.001	-0.005	-0.058	0.255

Note: See note for Table 7a.

Table 7e: Contributing factors to net interest margin, South Asia Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
3.93	Afghanistan	-0.250	0.089	0.335	1.047	-0.018	0.333	-0.069	0.005	0.036	0.004	-0.001	0.022	2.392
-0.95	Bangladesh	0.039	-0.002	-0.096	-0.250	0.004	-0.881	-0.056	0.036	0.007	0.004	0.002	0.025	0.218
-1.64	India	0.278	-0.068	-0.210	-0.282	-0.025	0.067	-0.021	0.016	0.028	-0.009	-0.008	0.024	-1.428
-0.92	Nepal	-0.143	0.014	-0.230	-0.148	-0.016	0.323	0.004	-0.060	-0.028	0.004	-0.008	-0.029	-0.601
-0.75	Pakistan	0.076	0.034	-0.016	-0.201	0.057	0.001	0.102	-0.009	-0.042	0.001	0.000	-0.017	-0.738
0.33	Sri Lanka	0.000	-0.067	0.216	-0.166	-0.001	0.157	0.040	0.012	0.000	-0.005	0.016	-0.025	0.157

Note: See note for Table 7a.

Table 7f: Contributing factors to net interest margin, Sub-Saharan Africa Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-0.23	Angola	0.124	0.036	-0.306	0.517	-0.005	-0.224	0.230	0.043	0.067	0.002	0.017	0.065	-0.795
-2.22	Benin	0.086	-0.177	-0.434	-0.165	0.037	0.004	-0.158	-0.023	-0.016	0.002	0.009	0.013	-1.398
-1.40	Botswana	0.051	-0.224	-0.615	-0.288	-0.036	0.472	0.082	-0.014	-0.050	-0.008	-0.006	-0.097	-0.666
-1.81	Burkina Faso	0.135	-0.196	-0.245	-0.006	-0.007	-0.273	-0.196	-0.021	0.010	0.002	0.003	0.015	-1.032
2.33	Burundi	-0.156	0.052	0.867	0.039	0.045	-0.037	0.145	0.020	0.041	0.002	0.016	0.043	1.252
-2.51	Cameroon	0.106	-0.236	-0.210	-0.152	0.031	-0.448	-0.208	-0.030	0.025	0.001	0.005	0.026	-1.427
1.74	Congo, Dem. Rep.	-0.059	0.061	0.901	0.710	-0.008	-0.644	0.049	0.062	-0.065	0.002	0.006	0.065	0.659
-1.86	Côte d'Ivoire	0.144	-0.225	-0.244	-0.339	0.023	-0.347	-0.214	-0.026	-0.017	0.002	0.006	-0.025	-0.595
-2.31	Ethiopia	0.031	-0.059	-0.870	-0.227	0.009	-0.209	0.276	-0.029	0.107	0.002	0.008	-0.028	-1.323
1.88	Gambia, The	-0.253	-0.047	0.501	0.077	0.017	-0.339	-0.123	0.021	-0.036	0.002	0.002	-0.013	2.069
2.53	Ghana	-0.004	0.017	0.233	0.101	0.018	0.339	0.195	0.056	0.040	-0.002	-0.015	-0.005	1.559
0.52	Kenya	0.025	0.190	-0.190	-0.211	-0.017	0.661	0.106	-0.005	0.047	0.002	-0.026	-0.019	-0.039
0.54	Madagascar	-0.038	0.005	-0.446	0.170	-0.004	0.981	0.084	-0.014	0.000	0.002	0.023	0.018	-0.242
3.50	Malawi	-0.171	0.139	0.845	-0.239	-0.038	-0.459	0.113	-0.009	0.001	0.002	-0.012	0.023	3.309
-1.43	Mali	0.012	-0.073	-0.064	-0.188	0.007	-0.451	-0.179	-0.024	-0.009	0.002	0.007	0.005	-0.477
-0.85	Mauritania	-0.093	0.549	-0.365	0.216	0.071	-0.182	-0.048	-0.022	0.083	0.002	0.017	0.065	-1.145
-3.65	Mauritius	0.146	-0.088	-0.985	-0.023	-0.034	0.785	-0.080	0.002	0.052	-0.008	-0.004	-0.103	-3.306
1.44	Mozambique	-0.080	0.062	0.269	0.187	-0.015	-0.023	0.086	0.042	-0.020	0.002	0.015	-0.006	0.918
-0.75	Niger	-0.043	-0.178	-0.228	0.088	-0.026	0.121	-0.191	-0.023	-0.001	0.002	0.008	0.024	-0.305
0.79	Nigeria	0.289	0.188	-0.149	-0.055	0.016	0.378	0.131	-0.003	-0.037	0.001	-0.018	-0.013	0.056
2.26	Rwanda	-0.053	0.127	0.428	-0.043	0.022	0.522	0.000	0.003	-0.009	-0.004	-0.010	0.051	1.222
-2.98	Senegal	0.067	-0.117	-0.197	-0.222	-0.010	-0.842	-0.268	-0.024	0.014	0.002	0.002	0.000	-1.386
4.15	Sierra Leone	-0.255	0.092	0.855	-0.085	0.048	0.083	0.134	-0.028	-0.038	0.002	-0.008	0.041	3.312
-1.51	South Africa	0.168	-0.045	-0.269	0.116	-0.050	0.251	-0.054	-0.016	-0.063	-0.013	-0.009	-0.031	-1.497
0.21	Swaziland	0.009	0.052	0.156	-0.097	-0.008	-0.092	-0.001	-0.005	-0.034	-0.008	-0.006	-0.037	0.278
0.09	Tanzania	-0.067	-0.045	0.022	0.122	-0.027	0.304	0.102	0.030	0.014	0.002	-0.010	0.004	-0.362
-2.49	Togo	0.010	-0.164	-0.121	-0.393	-0.010	-0.843	-0.165	-0.023	-0.030	0.002	0.007	-0.012	-0.745
2.52	Uganda	-0.063	0.192	0.385	0.044	-0.034	0.585	0.079	0.042	0.009	0.002	-0.008	-0.046	1.331
1.50	Zambia	-0.069	0.109	0.477	0.343	-0.011	-0.075	0.069	0.019	-0.084	-0.005	-0.020	-0.024	0.775

Note: See note for Table 7a.

Table 7g: Contributing factors to net interest margin, OECD High Income Economies Comparison, 2005-14

[1] Net interest margin (v.s. world)	[2] Economy	[3] Size of operations	[4] Risk aversion	[5] Overhead	[6] Reserve opportunity cost	[7] Credit risk	[8] Income diversification	[9] Inflation	[10] Interest rate risk	[11] Competition	[12] Information environment	[13] Creditor rights	[14] Contract enforcement	[15] Other factors
-0.13	Australia	0.142	-0.035	-0.001	-0.076	-0.034	-0.040	0.020	0.002	-0.039	-0.001	-0.017	-0.037	-0.015
-0.76	Austria	0.097	-0.081	-0.054	0.019	0.000	-0.202	-0.019	-0.006	0.037	-0.001	0.001	-0.028	-0.518
-1.40	Belgium	0.336	-0.217	-0.261	-0.173	-0.028	1.065	-0.016	-0.003	-0.048	0.002	0.012	-0.059	-2.004
-0.28	Canada	0.014	-0.050	0.043	-0.070	-0.031	-0.101	-0.033	-0.007	-0.160	-0.004	-0.005	-0.064	0.186
1.59	Chile	0.015	0.269	0.189	0.334	-0.011	-0.378	0.043	0.015	0.000	0.000	0.014	0.104	0.992
0.16	Czech Republic	0.070	0.038	-0.034	0.003	0.003	0.128	-0.008	-0.007	0.086	-0.001	0.003	0.073	-0.199
1.07	Denmark	-0.186	0.115	0.284	0.034	0.040	0.136	-0.025	-0.004	0.044	0.001	-0.014	-0.056	0.704
0.40	Estonia	-0.217	0.098	-0.046	0.097	-0.002	-0.314	0.105	0.008	0.020	-0.001	0.001	0.080	0.572
-0.97	Finland	0.135	-0.105	-0.157	-0.073	-0.032	-0.600	-0.038	0.001	-0.084	0.002	-0.011	-0.062	0.056
-0.33	France	0.137	-0.009	0.067	-0.137	0.005	-0.629	-0.046	-0.006	-0.019	0.001	0.013	0.047	0.248
0.04	Germany	-0.177	-0.039	0.032	-0.128	-0.017	0.294	-0.040	-0.012	-0.281	-0.004	0.004	-0.043	0.454
0.21	Greece	0.201	-0.073	-0.023	-0.063	0.015	0.318	0.035	-0.002	0.009	0.000	0.017	0.062	-0.283
1.19	Hungary	0.137	0.005	0.273	-0.024	0.068	-0.641	0.060	0.013	-0.005	0.001	-0.003	0.079	1.224
0.96	Iceland	-0.208	0.265	0.198	0.089	0.031	-1.404	0.183	0.038	0.018	-0.001	-0.004	-0.038	1.791
-1.83	Ireland	0.189	-0.196	-0.457	-0.171	-0.036	1.211	0.034	-0.001	0.018	-0.001	-0.017	-0.059	-2.349
0.04	Israel	0.209	-0.126	0.077	0.520	-0.013	-0.446	-0.016	-0.001	0.005	-0.001	-0.012	0.034	-0.192
0.32	Italy	-0.155	0.058	0.064	-0.168	0.014	0.162	-0.026	0.011	-0.062	-0.001	0.026	0.017	0.384
-0.86	Japan	-0.003	-0.165	-0.212	-0.095	-0.009	1.421	-0.100	-0.014	0.080	-0.002	0.007	-0.074	-1.698
0.75	Korea, Rep.	0.195	-0.135	-0.080	0.020	-0.008	0.682	0.022	-0.004	0.059	-0.003	0.003	-0.042	0.040
0.29	Latvia	-0.169	0.031	0.125	0.274	0.038	-1.002	0.113	0.021	0.033	0.004	-0.021	0.080	0.761
-0.70	Luxembourg	-0.035	0.045	-0.128	-0.073	-0.018	-0.501	-0.020	-0.006	0.030	0.012	0.020	0.066	-0.090
-1.02	Netherlands	0.081	-0.003	-0.138	0.117	-0.008	-0.321	-0.030	-0.008	-0.074	-0.001	0.011	-0.059	-0.586
0.05	New Zealand	0.138	-0.024	0.038	-0.093	-0.030	-0.093	0.037	0.001	-0.012	-0.001	-0.024	-0.032	0.142
-0.10	Norway	-0.156	-0.004	-0.119	-0.052	-0.029	0.707	-0.015	0.009	0.082	0.002	0.003	-0.067	-0.459
0.90	Poland	0.109	0.044	0.184	0.013	0.029	-0.439	0.007	0.001	0.050	-0.003	-0.011	0.074	0.846
0.03	Portugal	-0.197	0.077	0.048	-0.123	0.046	-0.086	-0.036	-0.009	0.010	-0.001	0.027	-0.017	0.293
0.66	Slovak Republic	0.028	-0.004	0.058	0.098	0.015	0.103	0.010	-0.004	0.035	0.002	-0.008	0.048	0.279
-0.11	Slovenia	0.030	-0.035	-0.036	0.007	0.058	-0.083	-0.009	-0.005	0.003	0.008	0.018	0.052	-0.117
-0.48	Spain	0.066	-0.037	-0.106	-0.139	0.018	0.097	-0.020	-0.006	0.054	-0.001	0.006	-0.016	-0.397
0.35	Sweden	-0.229	0.218	0.076	-0.192	-0.024	0.028	-0.059	-0.001	0.058	0.002	-0.004	-0.026	0.501
-1.13	Switzerland	-0.136	-0.149	-0.180	0.003	-0.033	0.413	-0.119	-0.007	-0.029	0.000	-0.001	0.056	-0.947
-0.30	United Kingdom	-0.119	0.159	0.044	0.065	0.003	-0.445	0.011	-0.006	0.049	-0.004	-0.017	-0.058	0.023
1.38	United States	-0.343	0.065	0.233	0.157	-0.022	0.964	-0.006	-0.004	0.033	-0.004	-0.017	-0.035	0.356

Note: See note for Table 7a.