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A COMPARATIVE SECTORAL ANALYSIS

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ABSTRACT

We use data from the Groningen Growth and Development Centre (GGDC) database to perform preliminary empirical analysis of the interplay between quality and quantity of finance in accounting for the output growth of ten sectors. We review the existing literature and some salient open questions pertaining to the relationship between financial depth and output growth. Our analysis looks at the finance-growth nexus in 41 economies, including 11 East Asian and 9 Latin American economies for a comparison between two regions which are at similar income levels. We document large differences between the two regions in terms of the impact of financial depth on sectoral growth, and validate the negative impact of financial deepening on output growth in several sectors. Our results suggest that the impact of financial development on growth may be non-linear – i.e. it may promote growth only up to a point.

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1 Introduction

A lingering challenge in applied economics is measuring and controlling the quality of services – e.g. health care, education, and finance. Since services are measured at cost, their GDP share is correlated with per capita GDP. But short of controlling for the quality of services, it is not clear if the growing share of services in the GDP adds to welfare. To illustrate, in 2012, the GDP share of medical services was 17.9% in the US, 10.9% in Canada, 11.7% in France 11.7%, and 9.4% in the UK. Yet there is no evidence that the US health services deliver on average better quality of outcome. To the contrary, for most conventional measures of average quality of health, life expectancy at birth and the like, the US lags many other OECD countries by wide margins [OECD (2013)].¹ Similar observations apply to education and other services. Even after adjusting for PPP, the links between expenditure on services and the quality of these services in the OECD countries remain tenuous at best.

For financial services, the global financial crisis (GFC) underlines the relevance of such concerns. GFC paralyzed global financial systems and almost brought the world economy to its knees. According to conventional wisdom, financial depth contributes to the growth of the real sector, but the evidence remains mixed at best. The GFC put to the fore the possibility that the relationship between financial depth and output growth may be non-linear and unstable overtime. That is, the development of the financial sector may benefit the real sector, but only up to a point. Beyond that point, further financial development may have no effect or even a negative effect on growth. For example, the

¹ The share data taken from the World Bank, <http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS> (accessed September 10, 2104).

GFC was preceded by a wave of financial innovation which produced many complex high-tech financial products but entailed little obvious benefit for growth. Excessive financial innovation that overwhelms the regulatory capacity of regulatory authorities can culminate in financial crisis which sets back growth for some time.

Concerns about too much finance are more relevant for advanced economies that already have mature, sophisticated financial sectors with a good mix of banks and capital markets than for developing economies with backward financial sectors. Diminishing marginal returns to financial development are more likely at higher levels of financial development. However, there are fundamental measurement issues that affect both advanced and developing economies. The crux of the problem is that the standard measures of financial development are quantitative measures such as the ratio of private credit to GDP. Quantitative measures are highly imperfect measures of financial development, which refers to the quality of the financial system, or its ability to allocate resources to the most productive uses. For example, it is conceivable that even as the financial system expands in size, its capacity to channel resources efficiently stagnates or even recedes. Perhaps no country epitomizes such risks better than today's China.

East Asian countries generally have large financial sectors relative to their income levels. Yet they remain well inside the global finance frontier, as evident in their recycling of much of their abundant savings through the financial markets of the advanced economies. Even within the context of East Asia, China has an exceptionally large financial sector, yet few would mistake the large size as evidence of financial development. To the contrary, there are widespread concerns that an unsustainable expansion of credit – i.e. unsustainable expansion of financial sector – is jeopardizing

financial stability and eroding the quality of investments. A specific major concern is that state-owned banks may be channeling credit to state-owned firms at the expense of credit to the dynamic private sector. Latin America and East Asia are at similar income levels but one key difference is the relative abundance of savings in the latter. As such, a comparative analysis of the finance-growth nexus in the two regions is worthwhile.

This paper marks a preliminary attempt to explore some of the above issues by delving into the relationship between financial depth and sectoral output growth. The sectoral data encompass 10 sectors - agriculture, mining, manufacturing, construction, public utilities, retail and wholesale trade, transport and communication, finance and business services, other market services, and government services. Our analysis covers 41 economies, including 11 East Asian and 9 Latin American economies which we compare.² We use data from international financial institutions for measures of financial depth, financial spreads, and several proxies for quality and availability of finance. While the financial data are far from satisfactory, our paper provides preliminary insights about the key issues at hand and raises some questions that need further investigation. We review the literature, describe the data and empirical framework, report and discuss the preliminary results, and conclude with some final observations.

² It gives sectoral detail to the historical macro data in Maddison (2003) from 1950 onwards. The data for Asia and Latin-America are based on Marcel P. Timmer and Gaaitzen J. de Vries (2007), 'A Cross-Country Database For Sectoral Employment And Productivity In Asia And Latin America, 1950-2005', GGDC Research memorandum GD-98, Groningen Growth and Development Centre, August 2007. Data for Europe and the US is based on an update of Bart van Ark (1996), Sectoral Growth Accounting and Structural Change in Post-War Europe, in B. van Ark and N.F.R. Crafts, eds., Quantitative Aspects of Post-War European Economic Growth, CEPR/Cambridge University Press, pp. 84-164 See <http://www.rug.nl/research/ggdc/data/10-sector-database>.

2 Literature Review

The importance of the quality of financial intermediation has been well recognized in the literature, though identifying its effect remains a work in progress [see Levine (2005) for a comprehensive review]. Boyd and Smith (1992) show that the quality of financial intermediation has first order effects on capital flows and economic growth. In a model with adverse selection and costly state verification in which both debt contracts and credit rationing are observed, capital may flow from capital scarce countries to capital abundant countries if the capital abundant countries have financial intermediaries that are sufficiently more effective at exerting corporate control than the capital scarce countries. This insightful paper provides a nice interpretation to the Lucas paradox (1992) of capital flowing uphill, a topic that gained even more attention in the context of the global imbalances in the 2000s [see Laura et al. (2003), Ju and Wei (2011) and the references therein]. Thus, even though the physical marginal product of capital is higher in capital scarce countries, investors recognize that their expected returns depend on the monitoring quality of financial intermediaries.

Follow-up papers showed that the quality of financial intermediation is impacted by factors beyond the cost of monitoring. Boyd, Levine and Smith (2001) showed that the quality of financial intermediation is hampered by inflation. For economies with inflation rates exceeding 15 percent, there is a discrete drop in financial sector performance. La Porta et al. (2000) highlighted the role of a well-functioning legal system in facilitating efficient financial intermediaries – greater protection of creditors' rights and more efficient courts enable more efficient intermediation. The degree of competition and market contestability also matter. The relaxation of states' regulations on interstate branching in

the US during the 1970 provided 'a natural experiment' used to uncover the gains of quantity versus quality of finance. Jayaratne and Strahan (1996) found that branch reform boosted bank lending quality and accelerated real per capita growth rates. The channels at work were mostly the quality, and not the quantity of finance. Dehejia and Lleras-Muney (2003) finds that branch reform accelerated economic growth by improving the quality of bank loans and the efficiency of capital allocation, with little evidence that branch reform boosted quantity of lending.

The importance of financial dependence heterogeneity across sectors has been highlighted by the pioneering study of Rajan and Zingales (1998). Since lower costs of external finance facilitate firm growth and new firm formation, industries that are heavier users of external finance should benefit disproportionately from financial development. Their study validated this conjecture, finding that financial development has a bigger effect on the growth of industries which are more dependent on external finance, both through the expansion of existing firms and through the formation of new firms. Extending Rajan and Zingales (1998), Claessens and Laeven (2003) find evidence that better property rights promotes higher growth through improved asset allocation. Quantitatively, this growth effect is as large as that of improved access to financing due to financial development.

The GFC renewed attention on the interplay between the quantity and quality of finance. Cecchetti and Kharroubi (2012) studies how financial development affects growth at both the country and industry level. Based on a sample of developed and emerging economies, they find the level of financial development is good only up to a point, after which it becomes a drag on growth. For private sector credit extended by banks, the

turning point is close to 90% of GDP. For advanced economies, they show that a fast-growing financial sector can be detrimental to aggregate productivity growth. Looking at industry-level data, they find that financial sector growth disproportionately harms industries that are either financially dependent or R&D-intensive. Arcand, Berkes, and Panizza (2012) report similar findings. Finance starts having a negative effect on output growth when credit to the private sector reaches 100% of GDP. Intriguingly, these results are not driven by output volatility, banking crises, low institutional quality, or by differences in bank regulation and supervision. Instead, they appear to be in line with Rousseau and Wachtel (2011)'s "vanishing effect" – i.e. credit has no statistically significant impact on GDP growth over the 1965-2004 period. Looking at the more recent data, Philippon and Reshef (2013) concluded that at the very high end of financial development, rapidly diminishing social returns may have set in.

Aizenman, Pinto and Sushko (2013) examine how financial cycles affect the broader economy through their impact on real economic sectors during 1960–2005. Periods of accelerated growth of the financial sector are more likely to be followed by abrupt financial contractions than are periods of slower financial sector growth. While the majority of real sectors are adversely affected by financial contractions, they are not helped by expansions. Though these studies do not identify the mechanisms associated with the “vanishing effect” of finance, they are consistent with Minsky (1974)'s hypothesis over time that financial deepening may eventually divert financial resources from financing real activities into speculative and ultimately destabilizing risky and bubbly yield-seeking financial investments. Rajan (2005)'s seminal paper outlined the ways in which

deregulation and distorted incentives induce financial managers to overlook tail risks, causing financial deepening to culminate in larger financial crises.

The recent empirical literature validated the key role of credit cycles. Schularick and Taylor (2009) presents long-run historical data showing that financial instability was often the result of "credit booms gone wrong". Their analysis lends support to the Minsky-Kindleberger view of financial crises (Eichengreen and Mitchener, 2003). The credit system seems all too capable of creating its very own shocks, judging by how well past credit growth predicts future financial crises. The dynamic role of credit overhang is further validated by Óscar, Schularick, and Taylor (2011). Analyzing over 200 recessions in 14 advanced countries between 1870 and 2008, they find that financial crisis recessions are more costly than normal recessions in terms of lost output. For both types of recessions, credit-intensive expansions tend to be followed by deeper recessions and slower recoveries. Credit growth also affects the behavior of other key macroeconomic variables such as investment, lending, interest rates, and inflation.

Taking stock of the literature, one may conjecture that credit boom and bust cycles associated with financial deepening would disproportionately affect activities and sectors that rely on stable external finance and are subject to larger sunk costs. The tenuous link between financial depth and growth may reflect a host of factors, including the damaging and uneven effects of credit cycles, as well the rent seeking associated with distorted incentives in the financial sector, where excessive risk taking and financial innovation may precipitate instability that penalizes credit dependent sectors. This is all the more likely if the greater short and medium run profits associated with financial innovations divert credit from the real economy to further deepening of speculative financial intermediation.

3 Data

Data are derived from several sources subject to data availability. Sectoral Value-Added per Worker, which is used to calculate Sectoral Output Growth (%) for 1996-2011, are from Groningen Growth and Development Centre (GGDC) 10-Sector Database. Controls for quality of financial intermediation are available at various years and more recently. Bank Private Credit to GDP (%) and Lending-Deposit Interest Spread (%) for 1996-2011 are from Global Financial Development Database (2013 version); Getting Credit Index and Resolving Insolvency Index for 2005-2011 are from Doing Business Database; Depositors with Commercial Bank per 1,000 Adults and SME Loans from Commercial Banks (% GDP) for 2005-2011 are from Financial Access Survey Database.

Figure 1 plots average value-added per worker for 1996-2011. Across the ten sectors the level of value-added per worker in East Asia and Pacific is higher than the level in Latin America & the Caribbean. The differences can be quite large, ranging from 1.1 times in public utilities sector, 2.3 times in manufacturing sector, all the way to 2.6 times in financial and business services sector. In the following we examine to what extent these differences could be attributable to quality of financial intermediation between the two regions.

Table 1 provides the 2005-2011 average quality of financial intermediation for all the 280 countries for which data are available. Figure 2 then summarizes regional differences in the quality of financial intermediation. Note that only countries in East Asia and Pacific, Latin America & the Caribbean, and a few other areas have sectoral output data from GGDC, while measures of quality of financial intermediation are missing

altogether for some countries. Data are available for sectoral output growth, financial depth (bank private credit to GDP), and financial efficiency (lending-deposit interest spread) for 1996-2004, and for all other measures of the quality of finance for 2005-2013. As a result, we perform descriptive data analysis for 2005-2011 and more formal empirical analysis for 1996-2011 on selected variables subject to data availability.

Table 2 reports the correlation among financial variables in East Asia and Pacific vis-à-vis Latin America & the Caribbean. The level of financial depth as measured by bank private credit to GDP is correlated with the level of *de facto* financial efficiency as measured by lending-deposit interest spread in both regions, though with the opposite signs. This spread reflects the complex interaction of many factors, including the competitiveness of the banking industry, the riskiness of banks' portfolio, macro policies [higher inflation and higher reserve ratios are positively associated with the spreads], the efficiency of the judicial system, and the protection of creditors' rights. The data further indicates that lending-deposit interest spread is negatively correlated with resolving insolvency index. In East Asia, bank private credit to GDP is also positively correlated with getting credit index, resolving insolvency index, and SME loans from commercial banks as percentage of GDP. In Latin America, the number of depositors with commercial banks per 1,000 adults is positively correlated with financial depth but negatively with financial efficiency.

4 Empirical Framework and Results

To estimate the association between sectoral output growth and quality of financial intermediation, the benchmark regression is specified as the following:

$$(1) \quad \textit{Sectoral Output Growth} =$$

$$\alpha + \lambda(\text{Lagged Sectoral Output Growth}) + \beta(\text{Bank Private Credit / GDP}) + \gamma(\text{Lending-Deposit Interest Spread}) + \varepsilon$$

using annual data from 1996-2011 for East Asia and Pacific, and Latin America & the Caribbean.

Table 3 report estimation results based on OLS regressions, done over the whole sample of 41 economies, and sub-samples of 11 East Asian economies and 9 Latin American economies. Overall, the estimation explains about half of variation in the sectoral output growth data. Coefficient estimates on lagged sectoral output growth are negative and statistically significant, suggesting mean reversion in the output growth across sectors.

In the whole sample and both sub-samples, it is found that bank private credit to GDP (financial depth) is negatively associated with the growth of construction sector. Bank private credit growth is also negatively associated with the growth of manufacturing sector in East Asia, whereas it is positively associated with the growth of finance, insurance, and real estate sector in Latin America.

For the East Asian economies, it is found that lending-deposit interest spread (financial efficiency) is positively associated with the growth of finance, insurance, and real estate sector. The growth of construction sector is negatively associated with lending-deposit interest spread in East Asia, whereas it has a positive association in Latin America. The growth of wholesale and retail trade sector is positively associated with financial efficiency in East Asia, whereas the association is negative in Latin America. The results seem to suggest garden variety associations between finance and sectoral growth.

While the baseline results suggest that higher bank private credit to GDP tends to reduce sectoral growth of construction and manufacturing, the results also suggest the need to experiment with non-linear specification of bank private credit to GDP, and also to possibly control for lagged bank private credit to GDP, to verify whether higher bank private credit to GDP reduces construction and manufacturing. As the recent literature suggests, there is a possibility that bank private credit has a positive effect on GDP growth up to a point, but too much of it would lead road to a financial crisis or declining productivity, possibly due to lower quality of debt, and thus harm growth.

Table 4 provides an alternative specification using the following equation:

$$(2) \quad \textit{Sectoral Output Growth} = \alpha + \lambda(\textit{Lagged Sectoral Output Growth}) + \beta_1(\textit{Lagged Bank Private Credit / GDP}) + \beta_2(\textit{Bank Private Credit / GDP}) + \beta_3(\textit{Bank Private Credit / GDP})^2 + \gamma(\textit{Lending-Deposit Interest Spread}) + \varepsilon$$

The additional estimation results do not suggest non-linear effects of bank private credit on output growth across all sectors. The coefficient estimates of the non-linear term – i.e. square of bank private credit to GDP – on sectoral growth are not statistically significant for manufacturing and finance in East Asia and Latin America. The coefficients on bank private credit to GDP, both lagged and current, are mostly insignificant, suggesting that the estimation of the financial depth-sectoral growth link is not robust. On the other hand, the association between interest spread and sectoral growth are consistent with the baseline specification.

5 Some Further Empirical Analysis

The preliminary results reported above should be taken with a grain of salt – more data and work is needed to control better for the quality of credit, and other macro controls reflecting the stage of the business and the credit cycles. Yet our results are consistent with the conjectures outlined in the literature review. Financial deepening may lead to uneven growth patterns, where sectors more dependent on stable external finance and with limited collateral may be adversely affected by financial deepening associated with credit reallocations and instability of credit conditions.

Our empirical analysis uses data on sectoral composition of the economy with controls for the quality of financial intermediation. The quality of financial intermediation is impacted by prices [i.e. financial intermediation spreads] and quantities [e.g. financial depth, SMEs' ease of getting credit]. Financial spreads are, in turn, affected by access to credit, and quality of institutions [e.g. rights of creditors and efficacy of the judicial system], and the risk level of loans.

Figure 3 provides the economic significance of the controls. The economic significance of bank private credit to GDP for East Asia is a product of its coefficient estimates (including lagged, current, and squared terms) for East Asia from the regression in Table 4 multiplied by its standard deviation for East Asia. The calculation for Latin America and for lending-deposit interest spread is done similarly.

Intriguingly, for several sectors the control variables for our proxy of *de facto quality* of financial intermediation tend to have levels of economic significance that are larger in Latin America and the Caribbean than they are in East Asia and Pacific. The economic significance tends to be larger for non-tradable sectors, i.e. public utilities, wholesale and

retail trade, community and social services, and finance, insurance, and real estate, than for other sectors. In addition, bank private credit to GDP tends to have smaller economic significance than lending-deposit interest spread. The results may reflect the greater scarcity of finance in Latin America, and possibly the smaller share of state-owned firms enjoying preferential access to credit. Since credit may be scarcer in Latin America, the marginal importance of the quantity of finance is larger than in East Asia. The larger credit base of East Asia implies that region has reached the stage where quality may be at least as important as the quantity.

Figure 4 plots the average and variation of bank private credit to GDP, comparing East Asia and Pacific vis-à-vis Latin America & the Caribbean. Over the past two decades, the level of financial depth has always been larger in East Asia. Prior to the Asian financial crisis, bank private credit to GDP was 10% higher in East Asia than in Latin America. From 1999-2003, the difference fell to about 5%, but has rebounded to 10% recently. East Asia also hosts several financial centers – Tokyo, Hong Kong, and Singapore – which may improve the overall quality and quantity of financial intermediation, although identifying the impact of financial centers remains a challenge.

Over the long run, the quality of financial intermediation should be positively correlated with the quality of macroeconomic policies and quality of institutions. We measure the quality of macroeconomic policies by the average inflation and volatility of inflation in the past 5 years. For 1976-2012, Table 5 provides the correlation between quality of macroeconomic policies and quality of financial intermediation.

For East Asia, bank private credit to GDP is negatively correlated with average inflation, but positively correlated with risk premium on lending (measured as lending rate

minus Treasury bill rate). Average inflation is highly correlated with inflation volatility. For Latin America, the lending-deposit interest spread is correlated with average and volatility of inflation, as well as risk premium on lending. The volatility of inflation is also highly correlated with risk premium on lending. We have yet to formally confirm via regression analysis the association of sectoral output growth, quality of macroeconomic policies, and their interaction with the quality of financial intermediation and institutions. Furthermore, some of the financial quality measures are highly correlated with each other, potentially posing multicollinearity issues. However, based on the correlation analysis, it is highly plausible that over the long run, sectoral output growth rates are driven by financial quality factors.

In order to capture the role of service flows of the financial sector on sectoral growth, we provide additional estimation results in Table 6. Instead of bank private credit/GDP, we use bank private credit/financial&business services value added (%), in level and non-linear squared term, as alternative proxy for quality of finance. This new variable is constructed from bank private credit/GDP and financial&business services value added/GDP, both of which are available from the World Development Indicators. Consistent with our conjecture, there is some evidence, notably for public utilities sector and for community and social services sector, in both the whole sample and sub-samples, that the effect of service flow of financial sector to sector growth is non-linear. The coefficient estimate of lagged bank private credit/financial&business services is positive, while the estimate of lagged [bank private credit/financial&business services]² is negative in manufacturing and financial sectors.

The evidence suggests that the level of service flow of financial sector is good only up to a point, after which it becomes a drag on sectoral growth in the sample countries. However, we also found an opposite pattern, namely the coefficient estimate of lagged bank private credit/financial&business services is negative, while the estimate of lagged [bank private credit/financial&business services]² is positive in construction and mining. The association of interest spread and sectoral growth remains largely the same.

Finally, we offer another alternative specification in Table 7. To verify the possibility of “financial Dutch disease” – i.e. booming financial service flows reduces the supply of long term funding to manufacturing and other sectors that rely on stable external finance – we add a lagged growth of finance and business services, and control for the interest spread as well as its interaction with the growth of finance and business services. We find some support of this hypothesis in the whole sample since the coefficient estimate on the interaction term is negative and statistically significant for the growth of manufacturing sector.

6 Concluding Observations

At a broader level, our paper was motivated by the observation that what matters for economic growth is the quality of finance rather than the quantity of finance. Yet standard measures of financial development are quantitative measures of size rather than measures of financial efficiency that measure the capacity of a financial system to allocate financial resources to their most productive uses. The global financial crisis that wrought havoc on the financial systems of the US and EU underlines the possibility that expansion of the financial sector may be beneficial for growth but only up to a point. Even in developing countries, quantity of finance may be a poor measure of quality of finance.

For example, in China, the relentless expansion of credit in recent years, much of it to state-owned firms, has given rise to concerns about deterioration in the quality of investment. A key dimension of financial efficiency is the extent to which the financial system channels resources to productive sectors of the real economy.

Overall, our evidence is consistent with the hypotheses we set forth at the outset, in particular the non-linear effect of financial development on growth and its uneven effect across sectors. For one measure of the quality of finance, we find that the level has a positive, significant effect but the squared term has a negative, significant effect for a few sectors. Therefore, our evidence lends some support to the conjecture that financial development has a non-linear effect on output growth. In addition, we find that the effect of financial depth on output growth varies across sectors. More specifically, we find that financial depth has a negative effect on manufacturing in East Asia and a positive effect on finance, insurance, and real estate sector in Latin America. Financial efficiency, as measured by lending-deposit interest spread, is positively associated with the growth of finance, insurance, and real estate sector. Construction sector growth is negatively associated with the spread in East Asia, but positively in Latin America.

More generally, several of the differences between the regions may reflect the greater scarcity of finance in Latin America in comparison to East Asia. This may explain why the marginal importance of the quantity of finance is higher in Latin America than in East Asia. It may be that the expansion of East Asia's financial sector has reached the stage where the quality of finance may be at least as important as its quantity. We also find some evidence of a financial Dutch disease. More specifically, the faster the growth of financial services and the larger the lending-deposit interest spread, the slower the

growth of the manufacturing sector. It should be emphasized that our empirical analysis is preliminary and marks a first step toward more in-depth analysis of an important issue. Future research would benefit greatly from, subject to data availability, better measurement of the quality of finance by controlling for, for example, the degree of financial repression and the role of directed credit and state-owned banks.

Data Appendix

<i>Variable</i>	<i>Source and Definition</i>
<i>Sectoral Output Growth per Worker (%); VAK</i>	Groningen Growth and Development Centre 10-Sector Database. Provide a long-run internationally comparable dataset on sectoral productivity performance in Asia, Europe, Latin America and the US. Variables covered in the data set are annual series of value added, output deflators, and persons employed for 10 broad sectors. It gives sectoral detail to the historical macro data in Maddison (2003) from 1950 onwards. It consists of series for 10 countries in Asia, 9 in Latin-America and 9 in Europe and the US. The present data differentiate between ten sectors of the economy, namely: agriculture, mining, manufacturing, construction, public utilities, retail and wholesale trade, transport and communication, finance and business services, other market services and government services. (Estimates for the total economy are aggregated across sectors and that, given several adjustments at sectoral level; the aggregate results are not fully consistent with the national accounts aggregates. Value added data in this database are at constant prices).
<i>Bank Private Credit to GDP (%); BCRY</i>	Global Financial Development Database (GFDD); GFDD.DI.01. The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. (International Monetary Fund, International Financial Statistics, and World Bank GDP estimates)
<i>Lending-Deposit Interest Spread (%); SPRD</i>	GFDD; GFDD.EI.02. Difference between lending rate and deposit rate. Lending rate is the rate charged by banks on loans to the private sector and deposit interest rate is the rate offered by commercial banks on three-month deposits. (International Monetary Fund, International Financial Statistics)

Getting Credit Index (score); GTCR

Doing Business: Measuring Business Regulations Database. Measure of the legal rights of borrowers and lenders with respect to secured transactions through one set of indicators and the sharing of credit information through another. The first set of indicators measures whether certain features that facilitate lending exist within the applicable collateral and bankruptcy laws. The second set measures the coverage, scope and accessibility of credit information available through public credit registries and private credit bureaus. The ranking on the ease of getting credit is based on the percentile rankings on the sum of its component indicators: the depth of credit information index and the strength of legal rights index. This measure shows the distance of each economy to the “frontier.” The frontier represents the highest performance observed or each of the indicators across all economies measured in Doing Business since the inclusion of the indicator. An economy’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier.

Resolving Insolvency Index (score); REIN

Measure the time, cost and outcome of insolvency proceedings involving domestic entities. The data are derived from questionnaire responses by local insolvency practitioners and verified through a study of laws and regulations as well as public information on bankruptcy systems. The ranking on the ease of resolving insolvency is based on the recovery rate. This measure shows the distance of each economy to the “frontier.” The frontier represents the highest performance observed or each of the indicators across all economies measured in Doing Business since the inclusion of the indicator. An economy’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier.

Depositors with Commercial Bank per 1,000 Adults; DCBA

Financial Access Survey. Number of depositors with commercial banks per 1,000 adults. The data is from commercial banks-bank survey. (International Monetary Fund, Financial Access Survey)

SME Loans from Commercial Banks (% GDP); LSME

Financial Access Survey. Outstanding SME loans from commercial banks relative to the size of GDP.

Inflation (%); INF

World Development Indicators. (FP.CPI.TOTL.ZG) Inflation, consumer prices (annual %), as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. Data for Argentina are from Economist Intelligence Unit, of which prior to 2007, data are from the Instituto Nacional de Estadística y Censos; from 2007 the source for consumer price inflation data is PriceStats.

Risk Premium on Lending (%); RPLN

World Development Indicators. (FR.INR.RISK) Risk premium on lending (lending rate minus treasury bill rate, %). Risk premium on lending is the interest rate charged by banks on loans to private sector customers minus the "risk free" treasury bill interest rate at which short-term government securities are issued or traded in the market. In some countries this spread may be negative, indicating that the market considers its best corporate clients to be lower risk than the government. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.

Bank Private Credit / Financial&Business Services (%); FSER

World Development Indicators. Bank Private Credit/GDP divided by Financial&Business Services/GDP. Financial&Business Services/GDP (NV.SRV.TETC.ZS) corresponds to ISIC divisions 50-99 and include value added in financial professional services, wholesale and retail trade (including hotels and restaurants), transport, and government, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges.

Countries and Regions

Note: * included in the estimation sample in East Asia and Pacific; ** in Latin America & the Caribbean; *** economies in other regions included in the estimation.

East Asia and Pacific

Cambodia (KHM), People Republic of China (CHN), Fiji (FJI), Indonesia (IDN)*, Kiribati (KIR), Korea, Dem. Rep. (PRK), Lao PDR (LAO), Malaysia (MYS)*, Marshall Islands (MHL), Micronesia, Fed. Sts. (FSM), Mongolia (MNG), Myanmar (MMR), Palau (PLW), Papua New Guinea (PNG), Philippines (PHL)*, Samoa (WSM), Solomon Islands (SLB), St. Kitts and Nevis (KNA), Thailand (THA)*, Timor-Leste (TMP), Tonga (TON), Tuvalu (TUV), Vanuatu (VUT), Vietnam (VNM)

Latin America & the Caribbean

Antigua and Barbuda (ATG), Argentina (ARG)**, Belize (BLZ), Bolivia (BOL)**, Brazil (BRA)**, Chile (CHL), Colombia (COL)**, Costa Rica (CRI)**, Cuba (CUB), Dominica (DMA), Dominican Republic (DOM), Ecuador (ECU), El Salvador (SLV), Grenada (GRD), Guatemala (GTM), Guyana (GUY), Haiti (HTI), Honduras (HND), Jamaica (JAM), Mexico (MEX)**, Nicaragua (NIC), Panama (PAN), Paraguay (PRY), Peru (PER)**, St. Lucia (LCA), St. Vincent and the Grenadines (VCT), Suriname (SUR), Uruguay (URY), Venezuela, RB (VEN)

Europe and Central Asia

Albania (ALB), Armenia (ARM), Azerbaijan (AZE), Belarus (BLR), Bosnia and Herzegovina (BIH), Bulgaria (BGR), Georgia (GEO), Kazakhstan (KAZ), Kosovo (KSV), Kyrgyz Republic (KGZ), Latvia (LVA), Lithuania (LTU), Macedonia, FYR (MKD), Moldova (MDA), Montenegro (MNE), Romania (ROM), Russian Federation (RUS), Serbia (SRB), Tajikistan (TJK), Turkey (TUR), Turkmenistan (TKM), Ukraine (UKR), Uzbekistan (UZB)

High-income OECD members

Australia (AUS), Austria (AUT), Belgium (BEL), Canada (CAN), Czech Republic (CZE), Denmark (DNK)***, Estonia (EST), Finland (FIN), France (FRA)***, Germany (DEU), Greece (GRC), Hungary (HUN), Iceland (ISL), Ireland (IRL), Israel (ISR), Italy (ITA)***, Japan (JPN), Korea, Rep. (KOR)*, Luxembourg (LUX), Netherlands (NLD)***, New Zealand (NZL), Norway (NOR), Poland (POL), Portugal (PRT), Slovak Republic (SVK), Slovenia (SVN), Spain (ESP)***, Sweden (SWE)***, Switzerland (CHE), United Kingdom (GBR)***, United States (USA)***

High-income non-OECD members

Andorra (ADO), Aruba (ABW), Bahamas, The (BHS), Bahrain (BHR), Barbados (BRB), Bermuda (BMU), Brunei Darussalam (BRN), Cayman Islands (CYM), Croatia (HRV), Cyprus (CYP), Equatorial Guinea (GNQ), Faeroe Islands (FRO), French Polynesia (PYF), Hong Kong SAR, China (HKG)*, Isle of Man (IMY), Kuwait (KWT), Liechtenstein (LIE), Macao SAR, China (MAC), Malta (MLT), Monaco (MCO), New Caledonia (NCL), Oman (OMN), Qatar (QAT), San Marino (SMR), Saudi Arabia (SAU), Singapore (SGP), Trinidad and Tobago (TTO), United Arab Emirates (ARE), Virgin Islands (U.S.) (VIR)

Middle East and North Africa

Algeria (DZA), Djibouti (DJI), Egypt, Arab Rep. (EGY)***, Iran, Islamic Rep. (IRN), Iraq (IRQ), Jordan (JOR), Lebanon (LBN), Libya (LBY), Morocco (MAR), Syrian Arab Republic (SYR), Tunisia (TUN), West Bank and Gaza (WBG), Yemen, Rep. (YEM)

South Asia

Afghanistan (AFG), Bangladesh (BGD), Bhutan (BTN), India (IND), Maldives (MDV), Nepal (NPL), Pakistan (PAK), Sri Lanka (LKA)

Sub-Saharan Africa

Angola (AGO), Benin (BEN), Botswana (BWA)***, Burkina Faso (BFA), Burundi (BDI), Cameroon (CMR), Cape Verde (CPV), Central African Republic (CAF), Chad (TCD), Comoros (COM), Congo, Dem. Rep. (ZAR), Congo, Rep. (COG), Cote d'Ivoire (CIV), Eritrea (ERI), Ethiopia (ETH)***, Gabon (GAB), Gambia, The (GMB), Ghana (GHA), Guinea (GIN), Guinea-Bissau (GNB), Kenya (KEN)***, Lesotho (LSO), Liberia (LBR), Madagascar (MDG), Malawi (MWI)***, Mali (MLI), Mauritania (MRT), Mauritius (MUS)***, Mozambique (MOZ), Namibia (NAM), Niger (NER), Nigeria (NGA)***, Rwanda (RWA), Sao Tome and Principe (STP), Senegal (SEN), Seychelles (SYC), Sierra Leone (SLE), Somalia (SOM), South Africa (ZAF), Sudan (SDN), Swaziland (SWZ), Tanzania (TZA)***, Togo (TGO), Uganda (UGA), Zambia (ZMB)***, Zimbabwe (ZWE)***

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Table 1: Financial Depth, Efficiency, and Access, 2005-2011

This table provides measures of financial depth -- Bank Private Credit to GDP (% BCRY); efficiency -- Lending-Deposit Interest Spread (% SPRD); governance -- Getting Credit Index (GTCR) and Resolving Insolvency Index (REIN), and access -- Depositors with Commercial Banks per 1,000 Adults (DCBA) and Outstanding SME Loans from Commercial Banks (%GDP, LSME).

Sources: Authors' calculation on World Bank Global Financial Development Database (BCRY, SPRD), Doingbusiness Database (GTCR, REIN); and IMF Financial Access Survey (DCBA, LSME)

Country	BCRY	SPRD	GTCR	REIN	DCBA	LSME	Country	BCRY	SPRD	GTCR	REIN	DCBA	LSME
avg. =	50.6	7.8	50.5	35.1	510.8	11.5	std.dev. =	49.9	5.9	22.3	25.6	530.6	11.4
ABW	55.0	7.6	..	..	..	..	LBY	6.6	3.6	..	..	675.6	..
ADO	..	..	..	..	..	..	LCA	96.8	7.3	43.8	44.8	..	..
AFG	7.1	..	16.7	17.6	96.0	..	LCN	..	..	..	..	..	..
AGO	11.8	16.7	37.5	0.0	52.2	15.3	LCR	..	..	..	..	..	..
AIA	..	..	..	..	..	..	LDC	..	..	..	..	..	..
ALB	27.5	7.0	71.9	41.0	..	..	LIC	..	..	..	..	..	..
AND	..	..	..	..	..	..	LIE	..	..	..	..	..	..
ANR	..	..	..	..	..	..	LKA	27.9	5.5	49.0	44.7	..	..
ANT	..	..	..	..	..	..	LMC	..	..	..	..	..	..
ARB	..	..	..	..	..	..	LMY	..	..	..	..	..	..
ARE	67.5	..	46.9	29.0	..	..	LSO	10.3	7.9	37.5	28.2	282.9	..
ARG	11.9	3.6	62.5	35.3	635.9	..	LTU	46.0	2.5	68.8	52.1	..	..
ARM	16.7	10.5	63.5	38.4	..	..	LUX	165.0	..	25.0	44.6	..	..
ASM	..	..	..	..	..	..	LVA	73.2	5.6	88.5	34.1	1142.1	33.9
ATG	68.3	7.2	43.8	36.9	..	..	MAC	46.7	5.2	..	..	..	11.7
AUS	113.7	4.0	87.5	84.4	..	..	MAF	..	..	..	..	..	..
AUT	115.8	..	81.3	76.9	..	..	MAR	64.0	8.0	34.4	37.8	..	8.3
AZE	13.1	8.0	65.6	32.8	246.5	..	MCA	..	..	..	..	..	..
BDI	14.4	..	25.0	7.4	20.0	6.2	MCO	..	..	..	..	..	..
BEL	86.3	..	62.5	91.5	..	17.2	MDA	29.8	5.8	50.0	30.2	1053.2	..
BEN	19.4	..	25.0	18.6	86.1	..	MDG	10.1	27.3	15.6	17.4	27.0	2.1
BFA	18.0	..	25.0	22.7	..	..	MDV	67.7	6.4	50.0	51.6	1048.9	..
BGD	36.9	5.9	56.3	25.5	304.9	5.2	MEA	..	..	..	..	..	..
BGR	47.3	6.2	90.6	34.5	..	..	MEX	16.5	4.8	68.8	68.6	267.1	4.1
BHR	53.9	5.3	37.5	67.2	..	..	MHL	..	..	35.4	18.9	..	..
BHS	75.3	2.0	56.3	65.8	..	..	MIC	..	..	..	..	..	..
BIH	48.9	4.5	62.5	36.9	..	24.9	MKD	34.8	4.4	65.6	42.9	..	16.9
BLR	24.4	0.7	39.6	34.9	..	..	MLI	17.4	..	25.0	20.8	84.9	..
BLZ	58.8	6.1	43.8	67.2	947.6	..	MLT	117.7	2.7	..	..	934.9	35.0
BMU	..	..	..	..	..	..	MMR	..	5.0	..	..	121.7	1.6
BOL	33.7	9.3	42.7	40.1	..	..	MNA	..	..	..	..	..	..
BRA	40.4	34.7	50.0	13.8	500.5	..	MNE	61.9	..	77.5	45.6	..	..
BRB	71.8	5.9	..	..	..	..	MNG	34.3	10.3	56.3	21.0	..	3.6
BRN	37.6	4.7	43.8	49.2	1389.0	..	MNP	..	..	..	..	..	..
BTN	27.5	10.5	18.8	0.0	..	..	MOR	..	..	..	..	..	..
BWA	22.4	6.8	62.5	60.4	412.9	..	MOZ	16.6	7.7	40.6	15.9	..	..
CAA	..	..	..	..	..	..	MRT	23.5	12.6	25.0	0.0	46.4	..
CAF	6.9	11.5	31.3	0.0	27.6	..	MSR	..	..	..	..	..	..
CAN	126.7	3.2	81.3	94.7	..	..	MTQ	..	..	..	..	..	..
CEA	..	..	..	..	..	..	MUS	76.7	5.7	51.0	36.2	..	..
CEB	..	..	..	..	..	..	MWI	9.7	21.3	43.8	15.7	163.5	2.0
CEU	..	..	..	..	..	..	MYS	101.8	2.9	100.0	41.1	..	16.5
CHE	161.1	2.3	81.3	49.8	..	43.2	NAC	..	..	..	..	..	..
CHI	..	..	..	..	..	..	NAM	47.1	4.9	68.8	34.6	254.6	0.8
CHL	64.6	3.8	56.3	30.9	..	7.8	NCL	..	..	..	..	..	..
CHN	109.9	3.2	49.0	36.3	8.8	29.6	NER	9.7	..	25.0	13.3	..	..
CIV	15.8	..	25.0	32.2	105.2	..	NGA	22.8	7.3	59.4	29.1	406.6	0.0
CLA	..	..	..	..	..	..	NGA(alt)	..	..	..	..	..	..
CME	..	..	..	..	..	..	NIC	31.9	7.9	49.0	36.2	..	..
CMR	9.9	11.5	30.2	13.8	49.1	..	NIU	..	..	..	..	..	..
COD	..	..	..	..	7.3	..	NLD	185.5	0.5	68.8	90.0	..	..
COG	3.5	11.5	31.3	18.5	42.8	..	NOC	..	..	..	..	..	..
COK	..	..	..	..	..	..	NOR	77.3	1.9	62.5	95.6	1153.0	..
COL	29.2	6.9	62.5	56.3	1061.8	0.6	NPL	38.6	5.5	64.6	25.9	316.7	..
COM	11.3	6.8	18.8	0.0	61.5	2.7	NRU	..	..	..	..	..	..
CPV	52.4	7.2	35.4	0.0	1204.1	..	NZL	134.1	1.5	93.8	82.0	..	..
CRI	40.8	11.7	50.0	23.1	937.5	..	OEC	..	..	..	..	..	..
CSA	..	..	..	..	..	..	OED	..	..	..	..	..	..
CSS	..	..	..	..	..	..	OMN	34.4	3.3	37.5	37.2	..	..
CUB	..	..	..	..	..	..	OSS	..	..	..	..	..	..
CUW	..	..	..	..	..	..	PAK	24.6	6.2	61.5	42.0	201.8	..
CYM	..	..	..	..	..	..	PAN	78.1	4.7	68.8	28.1	915.5	..
CYP	220.8	3.3	60.4	74.8	..	..	PER	20.4	19.4	77.1	28.0	349.8	6.4
CZE	40.3	4.6	71.9	27.4	..	10.0	PHL	26.1	4.6	43.8	4.5	394.1	..
DEU	108.0	..	84.4	85.7	..	..	PLW	..	..	6.3	33.5	..	..
DEW	..	..	..	..	..	..	PNG	20.4	9.1	34.4	25.3	..	..
DJI	21.6	9.3	12.5	16.8	64.6	..	POL	33.9	3.7	84.4	36.0	..	..
DMA	49.9	6.2	56.3	29.6	..	..	PRI	..	..	87.5	68.5	..	..
DNK	183.8	..	80.2	86.0	..	..	PRK	..	..	..	..	..	..
DOM	19.6	9.1	55.2	8.5	569.6	..	PRT	166.1	..	50.0	76.8	..	..
DZA	12.6	6.2	30.2	44.1	326.0	..	PRY	23.9	24.5	56.3	17.8	91.8	..

Table 1, cot.: Financial Depth, Efficiency, and Access, 2005-2011

This table provides measures of financial depth -- Bank Private Credit to GDP (% BCRY); efficiency -- Lending-Deposit Interest Spread (% SPRD); governance -- Getting Credit Index (GTCR) and Resolving Insolvency Index (REIN), and access -- Depositors with Commercial Banks per 1,000 Adults (DCBA) and Outstanding SME Loans from Commercial Banks (%GDP, LSME).

Sources: Authors' calculation on World Bank Global Financial Development Database (BCRY, SPRD), Doingbusiness Database (GTCR, REIN); and IMF Financial Access Survey (DCBA, LSME)

Country	BCRY	SPRD	GTCR	REIN	DCBA	LSME	Country	BCRY	SPRD	GTCR	REIN	DCBA	LSME
avg. =	50.6	7.8	50.5	35.1	510.8	11.5	std.dev. =	49.9	5.9	22.3	25.6	530.6	11.4
EAP	..	..	..	..	..	..	PSE	..	..	..	..	571.7	2.1
EAS	..	..	..	..	..	..	PSS	..	..	..	..	..	..
ECA	..	..	..	..	..	..	PYF	..	..	..	..	..	..
ECC	..	..	..	..	..	..	QAT	36.2	3.5	31.3	55.9	674.8	..
ECS	..	..	..	..	..	..	REU	..	..	..	..	..	..
ECU	24.4	7.1	51.0	17.5	437.9	..	ROM	30.5	7.5	85.4	26.5	..	..
EGY	40.3	5.6	44.8	17.7	353.7	1.7	ROU	..	..	..	..	..	..
EMU	..	..	..	..	..	..	RUS	34.6	5.7	37.5	43.7	..	6.7
ERI	..	..	12.5	0.0	..	..	RWA	10.2	8.9	37.5	3.4	126.2	2.5
ESP	182.1	..	68.8	75.3	..	..	SAS	..	..	..	..	..	..
EST	86.7	3.7	69.8	40.3	1958.6	..	SAU	39.0	..	56.3	30.4	628.1	..
ETH	17.3	3.4	35.4	43.5	87.4	..	SCE	..	..	..	..	..	..
EUU	..	..	..	..	..	..	SDN	9.2	..	25.0	34.0	..	..
FCS	..	..	..	..	..	..	SEN	22.7	..	25.0	21.5	..	..
FIN	83.7	..	75.0	93.6	..	..	SGP	92.4	5.0	82.3	94.7	2075.2	..
FJI	44.3	3.2	68.8	47.6	..	1.8	SLB	19.3	12.4	30.2	24.8	..	..
FRA	103.7	..	64.6	49.0	..	..	SLE	6.9	13.4	35.4	9.1	109.6	..
FRO	..	..	..	..	..	..	SLV	4.7	..	67.7	31.2	..	17.7
FSM	..	13.4	39.6	3.5	..	8.5	SMR	336.7	..	..	..	..	..
GAB	8.7	11.5	31.3	15.6	159.7	..	SOM	..	..	..	..	..	..
GBR	183.9	..	100.0	90.4	..	12.5	SRB	36.8	8.7	69.8	25.8	..	..
GEO	24.4	12.8	61.5	28.9	476.8	8.3	SSA	..	..	..	..	..	..
GHA	12.9	..	46.9	25.4	250.6	..	SSD	..	..	..	..	..	..
GIN	4.4	..	18.8	22.0	..	4.1	SSF	..	..	..	..	..	..
GMB	12.0	14.9	31.3	29.1	..	..	SST	..	..	..	..	..	..
GNB	4.1	..	25.0	0.0	40.3	..	STP	27.5	18.3	12.5	4.6	349.8	..
GNQ	4.7	11.5	31.3	0.0	148.4	..	SUR	19.0	6.9	25.0	8.1	..	..
GRC	93.5	..	52.1	47.4	..	19.8	SVK	41.5	3.7	72.9	49.2	..	..
GRD	69.0	7.1	43.8	0.0	..	..	SVN	76.4	3.7	49.0	49.0	..	..
GRL	..	..	..	..	..	..	SWE	111.9	2.5	70.8	80.0	..	..
GTM	24.6	8.2	69.8	29.6	..	..	SWZ	21.6	6.2	68.8	38.5	456.8	..
GUF	..	..	..	..	..	..	SXM	..	..	..	..	..	..
GUM	..	..	..	..	..	..	SYC	23.1	7.7	25.0	41.9	608.5	..
GUY	38.1	12.2	25.0	18.6	..	..	SYR	15.3	2.8	8.3	30.9	192.7	..
HIC	..	..	..	..	..	..	TCA	..	..	..	..	..	..
HKG	148.5	5.1	93.8	84.7	..	..	TCD	3.8	11.5	25.0	0.0	..	..
HND	45.1	8.8	71.9	21.2	..	..	TGO	19.3	..	25.0	27.0	118.0	..
HPC	..	..	..	..	..	..	THA	94.9	4.3	61.5	45.3	1051.1	26.3
HRV	61.8	8.1	55.2	31.3	1440.3	..	TJK	15.4	13.0	17.7	38.9	333.8	..
HTI	12.6	18.6	27.1	0.0	..	..	TKM	..	..	47.9	42.9	..	..
HUN	55.6	2.4	75.0	40.4	..	13.9	TLS	..	..	..	..	130.0	..
IDN	23.5	5.5	51.0	16.0	..	6.2	TMP	17.0	12.7	12.5	0.0	..	..
IMN	..	..	..	..	..	..	TON	46.4	6.3	43.8	26.8	..	19.6
IMY	..	..	..	..	..	..	TTO	28.7	6.7	79.2	26.7	..	..
IND	42.3	..	74.0	25.7	..	3.6	TUN	56.6	..	41.7	54.8	693.0	..
INX	..	..	..	..	..	..	TUR	30.3	..	56.3	19.7	1236.4	8.8
IRL	197.9	2.6	87.5	92.4	..	34.9	TUV	..	..	..	..	..	..
IRN	27.6	1.8	44.8	22.5	..	..	TWN	..	..	59.4	85.6	..	..
IRQ	4.2	..	18.8	0.0	..	0.2	TZA	12.9	8.1	43.8	22.8	..	..
ISL	179.1	..	75.0	83.6	..	..	UGA	10.0	10.4	..	..	141.1	..
ISR	90.7	2.9	87.5	54.9	1042.0	..	UKR	51.1	7.0	66.7	9.2	3063.9	..
ITA	102.8	..	51.0	63.4	788.1	..	UMC	..	..	..	..	..	..
JAM	24.7	11.3	50.0	68.3	..	..	URY	22.5	8.0	61.5	43.1	495.3	4.6
JEY	..	..	..	..	..	..	USA	58.4	..	93.8	82.6	..	..
JOR	76.6	4.3	25.0	29.0	..	..	UVK	..	..	..	..	..	20.7
JPN	102.0	1.2	81.3	98.1	..	..	UZB	..	..	21.9	19.0	860.7	3.5
KAZ	41.0	..	42.7	42.3	915.9	..	VCT	48.1	6.5	43.8	0.0	..	..
KEN	28.1	8.8	83.3	33.3	..	0.1	VEN	18.8	4.7	19.8	6.6	728.2	0.6
KGZ	9.1	22.1	69.8	15.3	109.6	..	VIR	..	..	..	..	..	..
KHM	18.5	..	25.0	9.8	..	..	VNM	85.3	3.0	67.7	19.4	..	..
KIR	..	..	31.3	0.0	161.0	11.8	VUT	51.7	5.1	42.7	43.3	..	..
KNA	58.5	4.6	43.8	0.0	..	..	WBG	6.7	..	20.8	0.0	..	..
KOR	95.5	1.6	84.4	86.0	..	38.9	WLD	..	..	..	..	..	..
KSV	25.6	..	81.3	36.3	..	..	WSM	40.7	7.1	39.6	18.9	650.1	25.1
KWT	57.0	3.2	41.7	30.6	..	..	YEM	5.9	5.4	16.7	30.2	83.0	..
LAC	..	..	..	..	..	..	ZAF	71.8	3.7	79.2	35.4	..	..
LAO	9.9	21.8	24.0	0.0	..	..	ZAR	2.9	37.5	18.8	3.4	..	..
LBN	67.9	2.2	49.0	31.8	825.6	..	ZMB	10.2	13.2	64.6	29.0	24.1	0.4
LBR	11.5	11.3	28.8	8.6	..	..	ZWE	8.1	..	50.0	0.2	244.5	..

Table 2: Correlation between Quality of Finance Measures, 2005-2011

This table provides correlations of financial depth -- Bank Private Credit to GDP (% ,BCRY); efficiency -- Lending-Deposit Interest Spread (% ,SPRD); governance -- Getting Credit Index (GTCR) and Resolving Insolvency Index (REIN), and access -- Depositors with Commercial Banks per 1,000 Adults (DCBA) and Outstanding SME Loans from Commercial Banks (%GDP, LSME).

Sources: Authors' calculation on World Bank Global Financial Development Database (BCRY, SPRD), Doingbusiness Database (GTCR, REIN); and IMF Financial Access Survey (DCBA, LSME)

Note: Highlighted cell signifies statistical significance at 1 percent level.

	East Asia and Pacific					Latin America & the Caribbean				
	Bank Private Credit to GDP (%)	Lending-Deposit Interest Spread (%)	Getting Credit Index	Resolving Insolvency Index	Depositors with Commercial Banks per 1,000 Adults	Bank Private Credit to GDP (%)	Lending-Deposit Interest Spread (%)	Getting Credit Index	Resolving Insolvency Index	Depositors with Commercial Banks per 1,000 Adults
Lending-Deposit Interest Spread (%)	-0.7					0.3	1.0			
Getting Credit Index	0.5	-0.5				-0.3	0.1	1.0		
Resolving Insolvency Index	0.9	-0.5	0.6			-0.3	-0.4	0.6	1.0	
Depositors with Commercial Banks per 1,000 Adults	-0.1	0.5	0.6	0.4		0.3	-0.4	-0.4	0.1	1.0
SME Loans from Commercial Banks (%GDP)	0.7	-0.1	-0.6	0.5	-0.6	0.5	0.0	0.4	0.0	-0.6

Table 3: Baseline Estimation Results

This table reports OLS regression of sectoral output growth (%) on its lag, bank private credit to GDP (%) and lending-deposit interest spread (%). The sample is from 1996 to 2011, covering 41 economies, of which 11 are in East Asia and Pacific (CHN, HKG, IDN, IND, JPN, KOR, MYS, PHL, SGP, THA, TWN) and 9 are in Latin America & the Caribbean (ARG, BOL, BRA, CHL, COL, CRI, MEX, PER, VEN). Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.

Sources: Authors' calculation on Groningen Growth and Development Centre (GGDC) 10-Sector Database and World Bank Global Financial Development Database (BCRY, SPRD).

Dependent Variable: Sectoral Output Growth (%)	Lagged Sectoral Growth		Bank Private Credit to GDP (%)		Lending-Deposit Interest Spread (%)		R-sq.	observations
	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)		
Whole Sample (41 economies)								
Agriculture	-.52	(.03)***	.19	(.11)*	-1.59	(.60)***	.44	454
Mining	-.41	(.06)***	-.48	(.19)**	-1.35	(1.04)	.11	452
Manufacturing	-.50	(.02)***	.03	(.10)	-.53	(.51)	.47	455
Public Utilities	-.50	(.03)***	.54	(.12)***	2.31	(.62)***	.41	456
Construction	-.50	(.02)***	-.55	(.11)***	-.70	(.57)	.50	456
Wholesale and Retail Trade	-.52	(.02)***	.08	(.10)	-.65	(.54)	.51	454
Transport, Storage, and Communication	-.47	(.02)***	-.11	(.09)	.05	(.49)	.45	454
Finance, Insurance, and Real Estate	-.49	(.03)***	-.54	(.14)***	.96	(.72)	.34	459
Government Services	-.42	(.03)***	-.00	(.13)	2.11	(.68)***	.34	343
Community, Social and Personal Services	-.56	(.04)***	.78	(.13)***	-1.01	(.68)	.40	444
East Asia and Pacific (11 economies)								
Agriculture	-.52	(.05)***	-.09	(.16)	-8.62	(4.96)*	.49	141
Mining	-.46	(.10)***	-.34	(.32)	-5.30	(10.02)	.14	137
Manufacturing	-.52	(.04)***	-.46	(.15)***	-4.46	(4.67)	.52	139
Public Utilities	-.51	(.04)***	.01	(.15)	6.06	(4.71)	.49	140
Construction	-.50	(.04)***	-.56	(.15)***	-14.20	(4.76)***	.53	139
Wholesale and Retail Trade	-.48	(.05)***	.64	(.17)***	10.31	(5.13)**	.52	139
Transport, Storage, and Communication	-.52	(.04)***	.27	(.16)*	2.00	(4.94)	.53	138
Finance, Insurance, and Real Estate	-.43	(.05)***	-.18	(.19)	18.83	(5.86)***	.38	140
Government Services	-.45	(.07)***	-.54	(.28)*	-28.88	(9.51)***	.37	92
Community, Social and Personal Services	-.52	(.06)***	.70	(.22)***	8.58	(6.72)	.37	140
Latin America & the Caribbean (9 economies)								
Agriculture	-.44	(.06)***	1.28	(.65)*	-2.51	(.67)***	.42	111
Mining	-.62	(.08)***	-2.47	(.82)***	.18	(.83)	.37	112
Manufacturing	-.42	(.05)***	-.59	(.61)	-.77	(.63)	.42	113
Public Utilities	-.47	(.07)***	.16	(.76)	2.78	(.78)***	.40	114
Construction	-.60	(.05)***	-1.90	(.59)***	.85	(.61)	.61	114
Wholesale and Retail Trade	-.53	(.05)***	-1.31	(.60)**	-.18	(.62)	.55	112
Transport, Storage, and Communication	-.49	(.05)***	1.45	(.57)**	-1.01	(.59)*	.51	112
Finance, Insurance, and Real Estate	-.54	(.05)***	1.56	(.66)**	.30	(.69)	.52	113
Government Services	-.43	(.07)***	-.23	(1.06)	2.65	(.78)***	.42	62
Community, Social and Personal Services	-.57	(.05)***	1.40	(.62)**	-2.06	(.64)***	.53	114

Table 4: Alternative Specification - I

This table reports OLS regression of sectoral output growth (%) on its lagged term, lending-deposit interest spread, and bank private credit to GDP (%); including lagged term and squared term. The sample is from 1996 to 2011, covering 41 economies, of which 11 are in East Asia and Pacific (CHN, HKG, IDN, IND, JPN, KOR, MYS, PHL, SGP, THA, TWN) and 9 are in Latin America & the Caribbean (ARG, BOL, BRA, CHL, COL, CRI, MEX, PER, VEN). Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.

Sources: Authors' calculation on Groningen Growth and Development Centre (GGDC) 10-Sector Database and World Bank Global Financial Development Database (BCRY, SPRD).

Dependent Variable: Sectoral Output Growth (%)	Lagged Sectoral Growth		Lagged Bank Private Credit to GDP (%)		Bank Private Credit to GDP (%)		[Bank Private Credit to GDP (%)] Squared		Lending-Deposit Interest Spread (%)		R-sq.	observations
	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)		
Whole Sample (41 economies)												
Agriculture	-.51	(.03)***	-1.46	(2.19)	2.90	(2.22)	-.01	(.00)***	-1.34	(.60)**	.45	454
Mining	-.41	(.06)***	-1.17	(2.95)	-.16	(3.03)	.01	(.00)	-1.52	(1.04)	.11	451
Manufacturing	-.50	(.02)***	-3.08	(2.87)	3.39	(2.92)	-.00	(.00)	-.50	(.51)	.47	455
Public Utilities	-.51	(.03)***	-2.62	(2.77)	3.82	(2.80)	-.00	(.00)*	2.43	(.62)***	.42	456
Construction	-.51	(.02)***	-6.27	(3.67)*	4.34	(3.69)	.01	(.00)***	-.90	(.56)	.53	456
Wholesale and Retail Trade	-.52	(.02)***	-1.72	(1.59)	1.16	(1.59)	.00	(.00)**	-.76	(.54)	.51	453
Transport, Storage, and Communication	-.47	(.02)***	-.37	(1.07)	.49	(1.12)	-.00	(.00)	.09	(.49)	.45	454
Finance, Insurance, and Real Estate	-.49	(.03)***	-.11	(4.20)	-1.79	(4.21)	.01	(.00)***	.74	(.72)	.35	459
Government Services	-.42	(.03)***	-2.54	(1.80)	2.81	(1.85)	-.00	(.00)	2.12	(.68)***	.34	343
Community, Social and Personal Services	-.56	(.04)***	-2.98	(3.93)	4.76	(3.96)	-.01	(.00)***	-.81	(.68)	.41	442
East Asia and Pacific (11 economies)												
Agriculture	-.52	(.05)***	-.60	(1.92)	.24	(2.02)	.00	(.00)	-9.07	(5.15)*	.49	141
Mining	-.45	(.10)***	.32	(3.03)	-.56	(3.28)	-.00	(.01)	-5.05	(10.42)	.14	137
Manufacturing	-.52	(.04)***	-3.86	(3.09)	3.55	(3.24)	-.00	(.00)	-3.47	(4.87)	.53	139
Public Utilities	-.50	(.04)***	-3.99	(2.36)*	4.46	(2.45)*	-.00	(.00)	7.38	(4.82)	.51	140
Construction	-.52	(.04)***	-4.64	(3.68)	1.80	(3.74)	.01	(.00)***	-19.15	(4.56)***	.60	139
Wholesale and Retail Trade	-.48	(.05)***	.23	(2.44)	.78	(2.44)	-.00	(.00)	11.11	(5.31)**	.52	139
Transport, Storage, and Communication	-.53	(.04)***	-.69	(1.51)	2.35	(1.65)	-.01	(.00)**	4.41	(4.98)	.55	138
Finance, Insurance, and Real Estate	-.43	(.05)***	-1.05	(3.96)	1.75	(4.00)	-.00	(.00)	20.70	(6.03)***	.39	140
Government Services	-.46	(.07)***	-20.65	(21.89)	18.17	(21.82)	.01	(.00)**	-33.93	(9.51)***	.41	92
Community, Social and Personal Services	-.52	(.06)***	-8.28	(5.13)	9.22	(5.22)*	-.00	(.00)	9.28	(6.90)	.38	140
Latin America & the Caribbean (9 economies)												
Agriculture	-.46	(.06)***	4.29	(10.10)	-6.41	(10.95)	.05	(.04)	-2.22	(.72)***	.43	111
Mining	-.60	(.08)***	15.84	(13.89)	-26.60	(14.52)*	.12	(.05)**	.78	(.86)	.40	112
Manufacturing	-.43	(.05)***	-3.92	(9.09)	1.59	(9.47)	.02	(.04)	-.68	(.67)	.42	113
Public Utilities	-.47	(.07)***	-30.72	(19.30)	38.79	(19.62)*	-.11	(.05)**	2.21	(.80)***	.44	114
Construction	-.61	(.05)***	2.15	(6.14)	-4.28	(6.74)	.00	(.04)	.85	(.65)	.61	114
Wholesale and Retail Trade	-.54	(.05)***	-8.23	(8.21)	3.40	(8.77)	.05	(.04)	.11	(.65)	.56	112
Transport, Storage, and Communication	-.48	(.05)***	10.58	(5.26)**	-9.38	(6.03)	.00	(.04)	-.90	(.61)	.53	112
Finance, Insurance, and Real Estate	-.55	(.05)***	7.30	(8.83)	-6.36	(8.68)	.01	(.04)	.36	(.73)	.52	113
Government Services	-.43	(.07)***	-31.89	(34.41)	28.90	(33.60)	.04	(.08)	2.90	(.85)***	.43	62
Community, Social and Personal Services	-.58	(.05)***	-8.34	(7.77)	18.03	(8.07)**	-.12	(.04)***	-2.75	(.65)***	.58	112

Table 5: Financial Stability and Quality of Finance Measures, 1976-2012

This table provides for countries in estimation sample the correlations of financial depth – Bank Private Credit to GDP (% , BCRY); efficiency – Lending-Deposit Interest Spread (% , SPRD); and financial stability – Average Inflation over the Past 5 Years above the OECD level (% , INFA), Inflation Volatility over the Past 5 Years above the OECD level (% , INFV), and Risk Premium on Lending (% , RPLN).

Sources: Authors' calculation on World Bank Global Financial Development Database (BCRY , SPRD) and World Development Indicators (INFA, INFV, RPLN).

Note: Highlighted cell signifies statistical significance at 1 percent level.

	East Asia and Pacific (CHN, HKG, IDN, IND, JPN, KOR, MYS, PHL, SGP, THA, TWN)				Latin America & the Caribbean (ARG, BOL, BRA, CHL, COL, CRI, MEX, PER, VEN)			
	Bank Private Credit to GDP (%)	Lending-Deposit Interest Spread (%)	Average Inflation over the Past 5 Years relative to the OECD level (%)	Inflation Volatility over the Past 5 Years relative to the OECD level (%)	Bank Private Credit to GDP (%)	Lending-Deposit Interest Spread (%)	Average Inflation over the Past 5 Years relative to the OECD level (%)	Inflation Volatility over the Past 5 Years relative to the OECD level (%)
Lending-Deposit Interest Spread (%)	-0.05				-0.12			
Average Inflation over the Past 5 Years relative to the OECD level (%)	-0.22	0.12			0.07	0.20		
Inflation Volatility over the Past 5 Years relative to the OECD level (%)	-0.13	0.17	0.93		-0.01	0.23	0.90	
Risk Premium on Lending (%)	0.25	-0.04	-0.41	-0.21	0.50	0.99	0.50	0.52

Table 6: Alternative Specification - II

This table reports OLS regression of sectoral output growth (%) on its lagged term, lending-deposit interest spread, and bank private credit to financial&business services; including lagged term and squared term. The sample is from 1996 to 2011, covering 41 economies, of which 11 are in East Asia and Pacific (CHN, HKG, IDN, IND, JPN, KOR, MYS, PHL, SGP, THA, TWN) and 9 are in Latin America & the Caribbean (ARG, BOL, BRA, CHL, COL, CRI, MEX, PER, VEN). Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.

Sources: Authors' calculation on Groningen Growth and Development Centre (GGDC) 10-Sector Database and World Bank Global Financial Development Database (BCRY, FSER, SPRD).

Dependent Variable: Sectoral Output Growth (%)	Lagged Sectoral Growth		Lagged Bank Private Credit to Finance&Business Services		Lagged [Bank Private Credit to Finance&Business Services] Squared		Lending-Deposit Interest Spread (%)		R-sq.	observations
	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)		
Whole Sample (41 economies)										
Agriculture	-.51	(.03)***	1.08	(.21)***	-.04	(.01)***	-1.26	(.60)**	.47	449
Mining	-.40	(.06)***	-.72	(.38)*	.03	(.01)**	-.68	(1.07)	.11	446
Manufacturing	-.50	(.02)***	.00	(.19)	.00	(.01)	-.49	(.53)	.47	450
Public Utilities	-.51	(.03)***	.75	(.23)***	-.02	(.01)**	2.31	(.64)***	.41	451
Construction	-.50	(.02)***	-1.25	(.20)***	.03	(.01)***	-1.26	(.57)**	.52	452
Wholesale and Retail Trade	-.52	(.02)***	-.21	(.20)	.01	(.01)	-.98	(.55)*	.50	450
Transport, Storage, and Communication	-.46	(.02)***	-.13	(.18)	.00	(.01)	-.13	(.50)	.45	450
Finance, Insurance, and Real Estate	-.48	(.03)***	-1.18	(.27)***	.04	(.01)***	1.01	(.74)	.34	454
Government Services	-.42	(.03)***	.03	(.25)	-.01	(.01)	1.76	(.69)**	.34	343
Community, Social and Personal Services	-.55	(.04)***	1.30	(.25)***	-.03	(.01)***	-.83	(.70)	.40	437
East Asia and Pacific (11 economies)										
Agriculture	-.52	(.05)***	-.08	(.38)	-.00	(.01)	-10.16	(5.08)**	.52	137
Mining	-.44	(.10)***	-1.35	(.77)*	.05	(.02)**	-1.24	(9.90)	.23	133
Manufacturing	-.52	(.05)***	-.40	(.40)	.01	(.01)	-3.88	(4.95)	.51	135
Public Utilities	-.52	(.04)***	.69	(.38)*	-.02	(.01)**	7.21	(4.79)	.53	136
Construction	-.51	(.04)***	-2.02	(.35)***	.05	(.01)***	-19.77	(4.60)***	.59	136
Wholesale and Retail Trade	-.50	(.05)***	.88	(.42)**	-.02	(.01)*	11.22	(5.61)**	.49	134
Transport, Storage, and Communication	-.53	(.04)***	.84	(.39)**	-.02	(.01)*	3.57	(5.06)	.54	135
Finance, Insurance, and Real Estate	-.43	(.05)***	-.03	(.48)	.00	(.01)	20.48	(6.16)***	.38	136
Government Services	-.48	(.07)***	-2.16	(.62)***	.05	(.02)***	-36.50	(9.00)***	.44	92
Community, Social and Personal Services	-.50	(.06)***	1.61	(.54)***	-.04	(.01)***	9.52	(7.08)	.36	136
Latin America & the Caribbean (9 economies)										
Agriculture	-.46	(.06)***	-1.39	(1.67)	-.16	(.13)	-2.05	(.70)***	.42	110
Mining	-.59	(.08)***	-6.88	(1.94)***	.46	(.16)***	.73	(.83)	.41	111
Manufacturing	-.43	(.05)***	-.74	(1.52)	.02	(.12)	-.76	(.65)	.42	112
Public Utilities	-.49	(.07)***	4.31	(1.82)**	-.32	(.14)**	2.14	(.79)***	.43	113
Construction	-.60	(.05)***	-.86	(1.45)	-.03	(.11)	.75	(.62)	.62	113
Wholesale and Retail Trade	-.54	(.05)***	-2.77	(1.45)*	.15	(.12)	.01	(.62)	.57	112
Transport, Storage, and Communication	-.47	(.05)***	.36	(1.36)	.04	(.11)	-.92	(.59)	.50	111
Finance, Insurance, and Real Estate	-.55	(.05)***	.15	(1.67)	.06	(.13)	.54	(.71)	.52	112
Government Services	-.43	(.07)***	-.60	(3.87)	.06	(.41)	2.63	(.84)***	.42	62
Community, Social and Personal Services	-.57	(.05)***	5.26	(1.48)***	-.35	(.12)***	-2.53	(.63)***	.58	111

Table 7: Alternative Specification - III

This table reports OLS regression of sectoral output growth (%) on its lagged term, lending-deposit interest spread, and bank private credit to financial&business services; including lagged term and squared term. The sample is from 1996 to 2011, covering 41 economies, of which 11 are in East Asia and Pacific (CHN, HKG, IDN, IND, JPN, KOR, MYS, PHL, SGP, THA, TWN) and 9 are in Latin America & the Caribbean (ARG, BOL, BRA, CHL, COL, CRI, MEX, PER, VEN). Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.

Sources: Authors' calculation on Groningen Growth and Development Centre (GGDC) 10-Sector Database and World Bank Global Financial Development Database (BCRY, FSER, SPRD).

Dependent Variable: Sectoral Output Growth (%)	Lagged Sectoral Growth		Growth of Bank Private Credit to Finance&Business Services		Lending-Deposit Interest Spread (%)		Interaction of [Growth of Bank Private Credit/Financial&Business Services] and Interest Spread		R-sq.	observations
	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)	coeff.	(std. err.)		
Whole Sample (41 economies)										
Agriculture	-.52	(.03)***	-.31	(2.26)	-1.96	(.55)***	.20	(.15)	.44	449
Mining	-.40	(.06)***	3.41	(1.96)*	-.44	(.97)	-.12	(.15)	.10	445
Manufacturing	-.50	(.02)***	1.37	(1.34)	-.58	(.48)	-.09	(.10)	.47	449
Public Utilities	-.51	(.03)***	-.53	(1.01)	1.17	(.60)**	.04	(.13)	.38	451
Construction	-.51	(.03)***	2.35	(1.11)**	.43	(.54)	-.08	(.09)	.48	451
Wholesale and Retail Trade	-.52	(.02)***	.96	(.84)	-.82	(.50)*	.03	(.08)	.51	447
Transport, Storage, and Communication	-.46	(.02)***	.38	(.74)	.33	(.46)	-.10	(.09)	.45	449
Finance, Insurance, and Real Estate	-.49	(.04)***	1.53	(2.52)	2.16	(.69)***	-.10	(.17)	.31	454
Government Services	-.42	(.03)***	2.25	(1.39)	2.07	(.63)***	-.07	(.12)	.34	343
Community, Social and Personal Services	-.56	(.04)***	-2.03	(1.73)	-2.70	(.65)***	.31	(.20)	.35	436
East Asia and Pacific (11 economies)										
Agriculture	-.52	(.05)***	5.69	(7.25)	-7.12	(4.96)	-1.45	(1.57)	.50	137
Mining	-.45	(.10)***	4.06	(6.21)	-3.96	(10.01)	-1.20	(1.30)	.14	133
Manufacturing	-.53	(.05)***	-1.10	(3.41)	-2.07	(4.86)	.84	(1.25)	.50	134
Public Utilities	-.51	(.04)***	-11.00	(9.55)	5.53	(4.66)	3.02	(2.17)	.51	136
Construction	-.50	(.05)***	4.90	(7.87)	-10.16	(4.93)**	-.84	(2.25)	.48	136
Wholesale and Retail Trade	-.50	(.05)***	-2.92	(3.21)	6.79	(5.34)	.92	(.67)	.47	134
Transport, Storage, and Communication	-.52	(.04)***	-1.87	(4.15)	1.18	(4.99)	-.39	(.98)	.53	135
Finance, Insurance, and Real Estate	-.45	(.05)***	6.61	(11.78)	19.40	(5.83)***	-.46	(2.82)	.39	136
Government Services	-.47	(.07)***	-11.32	(30.93)	-18.99	(8.50)**	3.25	(7.36)	.35	92
Community, Social and Personal Services	-.49	(.06)***	-.06	(7.14)	4.14	(6.80)	1.52	(2.02)	.34	136
Latin America & the Caribbean (9 economies)										
Agriculture	-.45	(.06)***	-3.80	(3.92)	-2.20	(.66)***	.31	(.25)	.41	110
Mining	-.60	(.08)***	-5.50	(3.96)	-.75	(.85)	.03	(.16)	.34	110
Manufacturing	-.43	(.05)***	.38	(3.02)	-1.01	(.61)	-.00	(.20)	.41	112
Public Utilities	-.47	(.07)***	3.78	(6.43)	2.89	(.75)***	-.14	(.24)	.40	113
Construction	-.61	(.05)***	2.41	(2.56)	.22	(.62)	-.11	(.11)	.58	112
Wholesale and Retail Trade	-.53	(.05)***	2.64	(4.06)	-.63	(.60)	.00	(.14)	.54	111
Transport, Storage, and Communication	-.46	(.05)***	-.23	(2.24)	-.47	(.58)	-.14	(.20)	.47	111
Finance, Insurance, and Real Estate	-.55	(.06)***	1.48	(2.93)	-.96	(.69)	-.14	(.17)	.49	112
Government Services	-.49	(.08)***	6.82	(6.73)	3.17	(.71)***	.08	(.19)	.46	62
Community, Social and Personal Services	-.57	(.05)***	-2.99	(3.07)	-1.66	(.61)***	.52	(.27)*	.54	111

Figure 1: Value-Added (constant 2005 prices) per Worker in 10 Sectors

This figure provides average value added per worker in East Asia and Pacific, and Latin America & the Caribbean, from 1995-2011.

Sources: Authors' calculation on 10-Sector Database.

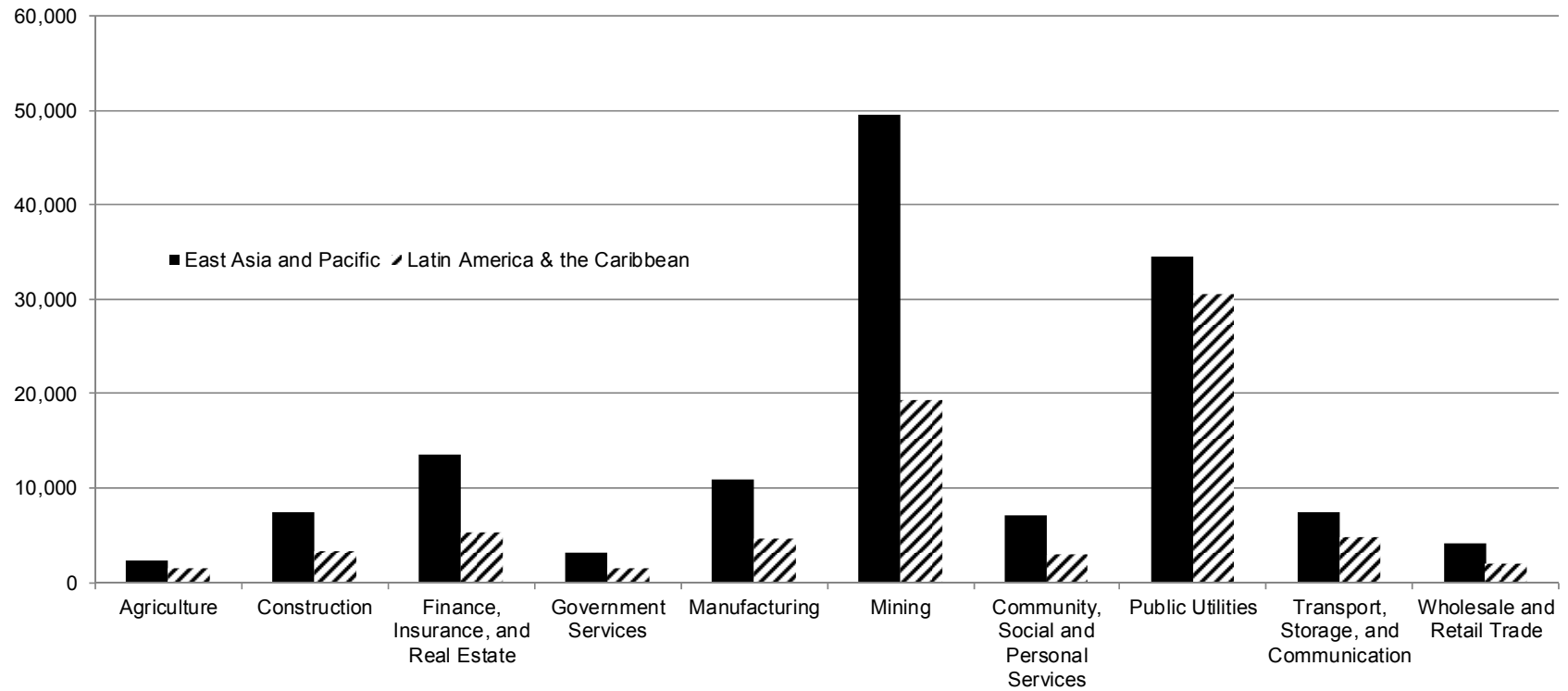


Figure 2: Regional Differences in Quality of Finance, 2005-2011

This figure provides an average for each region measures of financial depth – Bank Private Credit to GDP (% BCRY); efficiency – Lending-Deposit Interest Spread (% SPRD); governance – Getting Credit Index (GTCR) and Resolving Insolvency Index (REIN), and access – Depositors with Commercial Banks per 1,000 Adults (DCBA) and Outstanding SME Loans from Commercial Banks (%GDP, LSME).

Sources: Authors' calculation on World Bank Global Financial Development Database (BCRY, SPRD), Doingbusiness Database (GTCR, REIN); and IMF Financial Access Survey (DCBA, LSME)

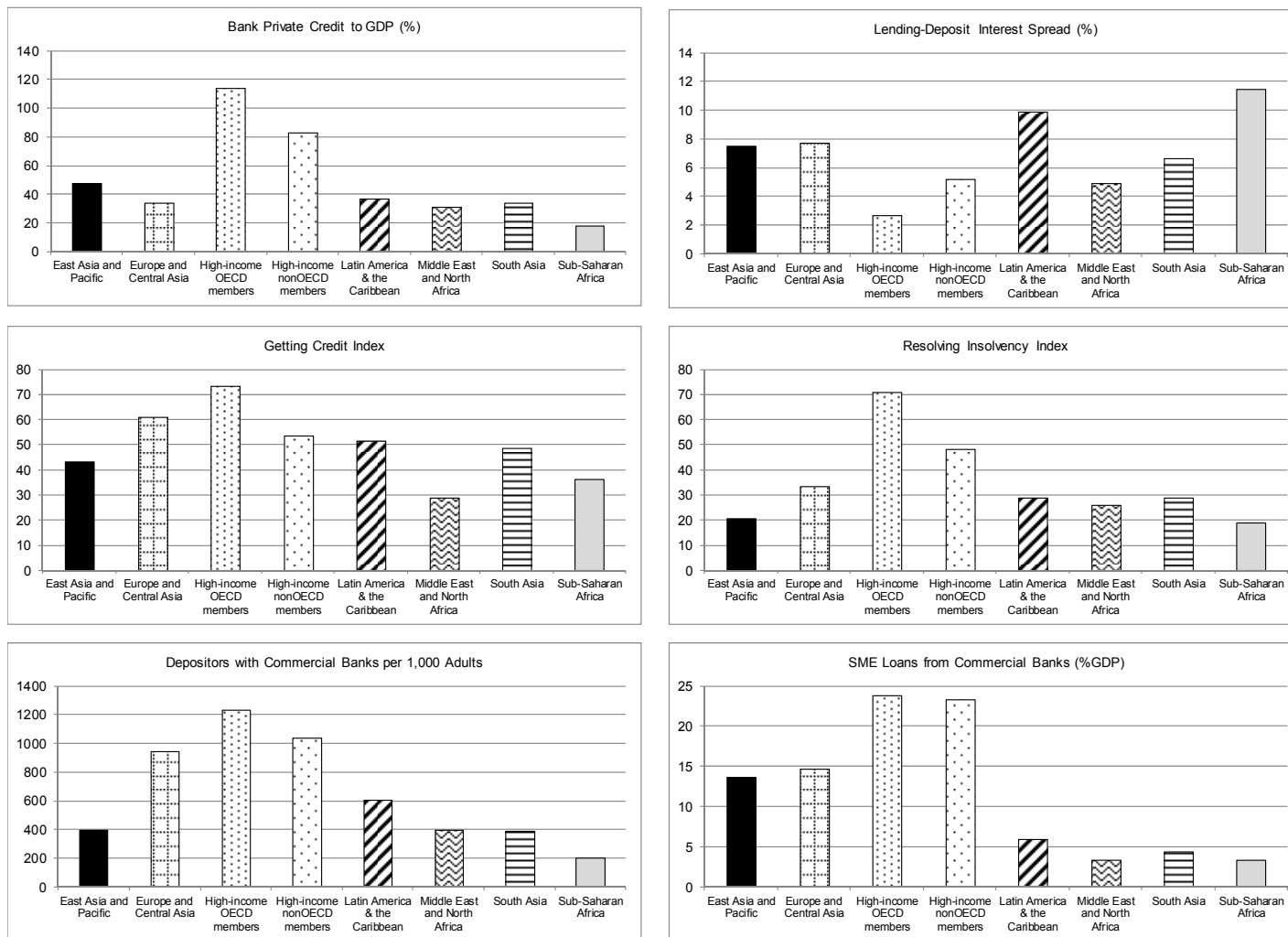


Figure 3: Economic Significance on Sectoral Output Growth

This figure provides economic significance (annualized) based on estimation results of ten years of data (1996-2011) of Bank Private Credit to GDP (% ,BCRY; including lagged, current, and squared terms) and Lending-Deposit Interest Spread (% ,SPRD) on Sectoral Output Growth (%), based on estimation results. The economic significance is calculated as a product of coefficient estimate and sample standard deviation of variable.

Sources: Authors' calculation on Groningen Growth and Development Centre (GGDC) 10-Sector Database and World Bank Global Financial Development Database (BCRY, SPRD).

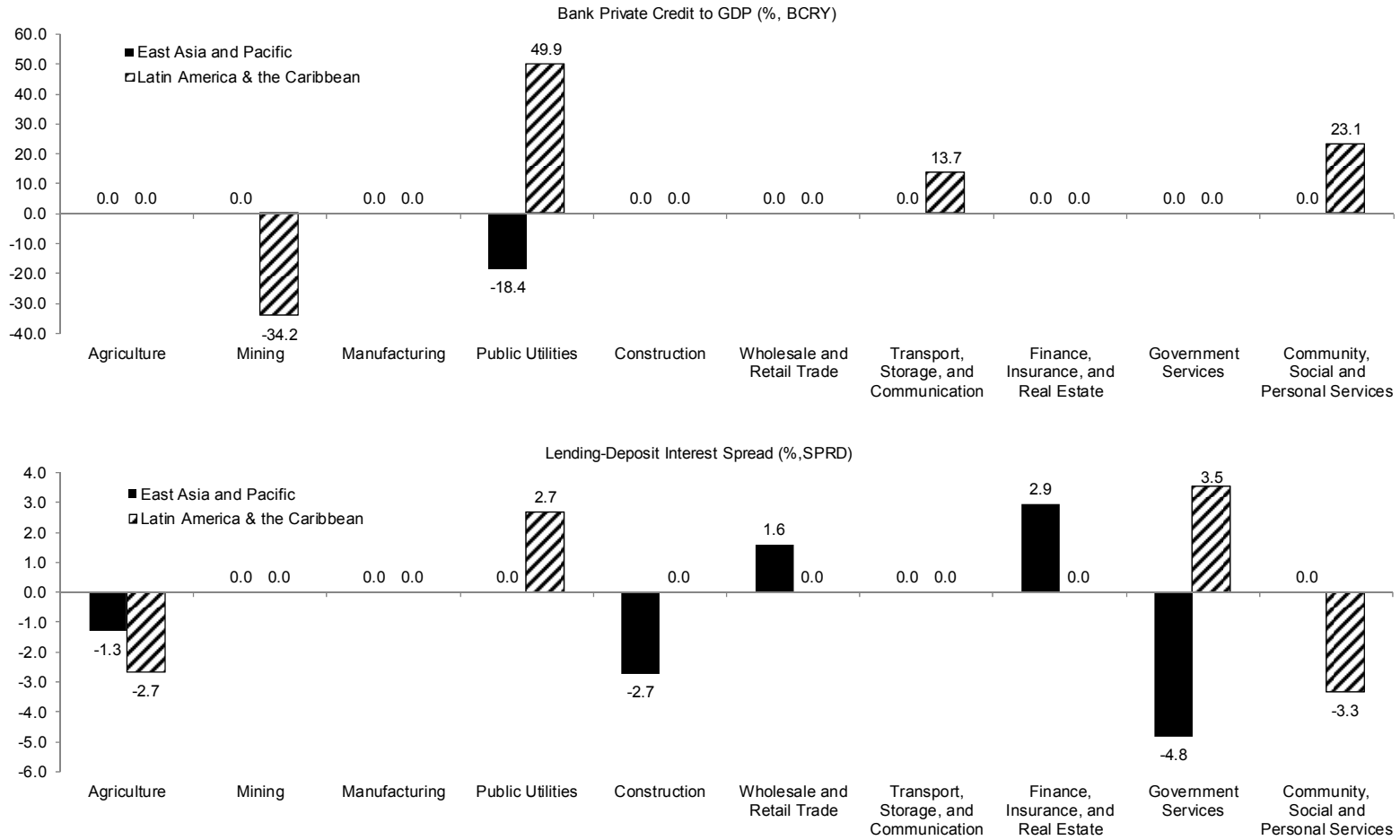


Figure 4: Financial Depth in East Asia and Pacific vis-à-vis Latin America & the Caribbean
 This figure provides box plots of bank private credit to GDP (%) for East Asia and Pacific vis-à-vis the ratio for Latin America & the Caribbean.

Sources: Authors' calculation on World Bank Global Financial Development Database.

