



WP/20/55

IMF Working Paper

Unlocking Access to Finance for SMEs:
A Cross-Country Analysis

by Armand Fouejieu, Anta Ndoye, and Tetyana Sydorenko

***IMF Working Papers* describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

Middle East and Central Asia Department

Unlocking Access to Finance for SMEs: A Cross-Country Analysis

Prepared by Armand Fouejieu, Anta Ndoye, and Tetyana Sydorenko

Authorized for distribution by Nicolas Blancher

March 2020

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate. The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Abstract

Countries in the MENAP and CCA regions have the lowest levels of financial inclusion of small and medium enterprises (SMEs) in the world. The paper provides empirical evidence on the drivers of SME access to finance for a large sample of countries, and identifies key policy priorities for these two regions: economic and institutional stability, competition, public sector size and government effectiveness, credit information infrastructure (e.g., credit registries), the business environment (e.g., legal frameworks for contract enforcement), and financial supervisory and regulatory capacity. The analysis also shows that improving credit information, economic competition, the business environment along with economic development and better governance would help close the SME financial inclusion gap between MENAP and CCA regions and the best performers. The paper concludes on the need to adopt holistic policy strategies that take into account the full range of macro and institutional requirements and reforms, and prioritize these reforms in accordance with each country's specific characteristics.

JEL Classification Numbers: D12; D25; O16;

Keywords: Small and Medium Sized Enterprises; Financial Inclusion;

Author's E-Mail Address: [afouejieu@imf.org; andoye@imf.org; tsydorenko@imf.org]

Contents

Abstract.....	2
I. Introduction	4
II. Stylized Facts	6
A. Data	6
B. Methodology for the SME Financial Inclusion Index.....	7
III. Drivers of SME financial inclusion	10
A. Empirical framework	10
B. Results	17
IV. Conclusion	20
References.....	21
Appendices.....	25

I. INTRODUCTION

The MENAP (Middle East, North Africa, Afghanistan and Pakistan) and CCA (Caucasus and Central Asia) regions need higher and more inclusive growth to boost incomes and job creation.¹ The MENAP region has high unemployment, a large expected pool of labor market entrants, and growth has been uneven since the global financial crisis. The CCA region needs to raise medium-term growth rates, which are currently set to drop to less than half of the average growth rate experienced in the early 2000s (IMF, 2018).

An enhanced, private sector-driven, growth engine is needed to achieve better outcomes. SMEs in the MENAP and CCA regions contribute relatively little in terms of output and employment compared to those in other regions. A vibrant SME sector could be a major source of employment and innovation, helping boost productivity, growth, and economic diversification. But for this to happen, a broad array of structural and institutional challenges need to be addressed, including access to finance, a major constraint for private sector development in both regions (Purfield and al, 2018; IMF, 2018).

The MENAP and CCA regions lag most other regions in terms of SME access to bank finance.² The average share of loans to SMEs in total bank lending in the MENAP and CCA regions is about 7 percent. According to the World Bank Enterprise Survey, a comparatively high percentage of firms in the MENAP region (about 32 percent) report access to credit as a major constraint (against a world average of 26 percent). The percentage is lower in the CCA region (18 percent).

A large literature looked at the role of legal and institutional constraints on bank credit, especially for smaller firms. Beck et al. (2005) and Kuntchev et al. (2014) find that small firms are consistently the most impacted by shortcomings in collateral regime, red tape, connected lending practices, and high interest rates. In the same vein, Beck et al. (2008) point to a differentiated impact of property right improvements between firms of different sizes. Cross-country studies such as Djankov et al. (2007) show that creditor protection and credit registries are important determinants of private credit. Insolvency regimes are often too costly, time-consuming and inefficient in middle income countries. Finally, Love et al. (2016) find that the introduction of collateral registries for movable assets can increase the likelihood of firms having access to bank financing by 10 percentage points, while also reducing lending rates and increasing loan maturities.

¹ The MENAP and CCA regions refer to 31 countries in the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) and in the Caucasus and Central Asia (CCA).

² See also “*Financial Inclusion of Small and Medium-Sized Enterprises in the Middle East and Central Asia*” for a broader discussion (<https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2019/02/11/Financial-Inclusion-of-Small-and-Medium-Sized-Enterprises-in-the-Middle-East-and-Central-Asia-46335>).

Studies have also shown that economic fundamentals matter for financial inclusion, including for SMEs. Higher incomes and better physical infrastructure increase savings and the pool of funds in the economy and improve access to finance (Dabla-Norris et al. (2015a)). Allen et al. (2012) show that the education level is also a significant determinant of populations' ownership and usage of accounts in the formal financial system. Macroeconomic instability and financial crises can drastically affect credit and other financial services to SMEs, as banks restore their regulatory capital ratios by curtailing credit, especially to riskier borrowers such as SMEs (Rojas-Suarez, 2016). Better governance can help enforce financial contracts for SMEs, which facilitates their access to finance (Rojas-Suarez and Amado (2014)). Informality can also play a role, as noted by Farazi (2014), who points to the fact that registered firms are 54 percent more likely to have a bank account and 32 percent more likely to have loans.

The structure of the financial sector and level of bank competition also matter for SME access to finance. Love & Martinez-Peria (2015) find a positive impact of increased bank competition on firms' access to credit, and that the impact depends on the coverage of credit bureaus. Beck et al. (2013) study the impact of the weight of non-bank institutions in the financial system on the usage of financial services by firms of different sizes, focusing in particular on the role of specialized lenders, such as leasing and factoring companies and low-end financial institutions such as cooperatives, credit unions and microfinance institutions. Their findings indicate that a higher weight of specialized lenders is associated with a higher likelihood of obtaining overdraft facilities or loans for SMEs.

This paper seeks to inform policymakers by identifying the main constraints to SME financial inclusion. It takes a comprehensive approach, looking back not only at legal and institutional constraints, but also at the impact of macroeconomic and financial sector indicators, as well the role of the business environment on SME access to finance. Our contribution to the literature is two-fold: we identify the constraints and policies that are most likely to influence SME access to finance and the key priorities to reduce the financial inclusion gap of SMEs.

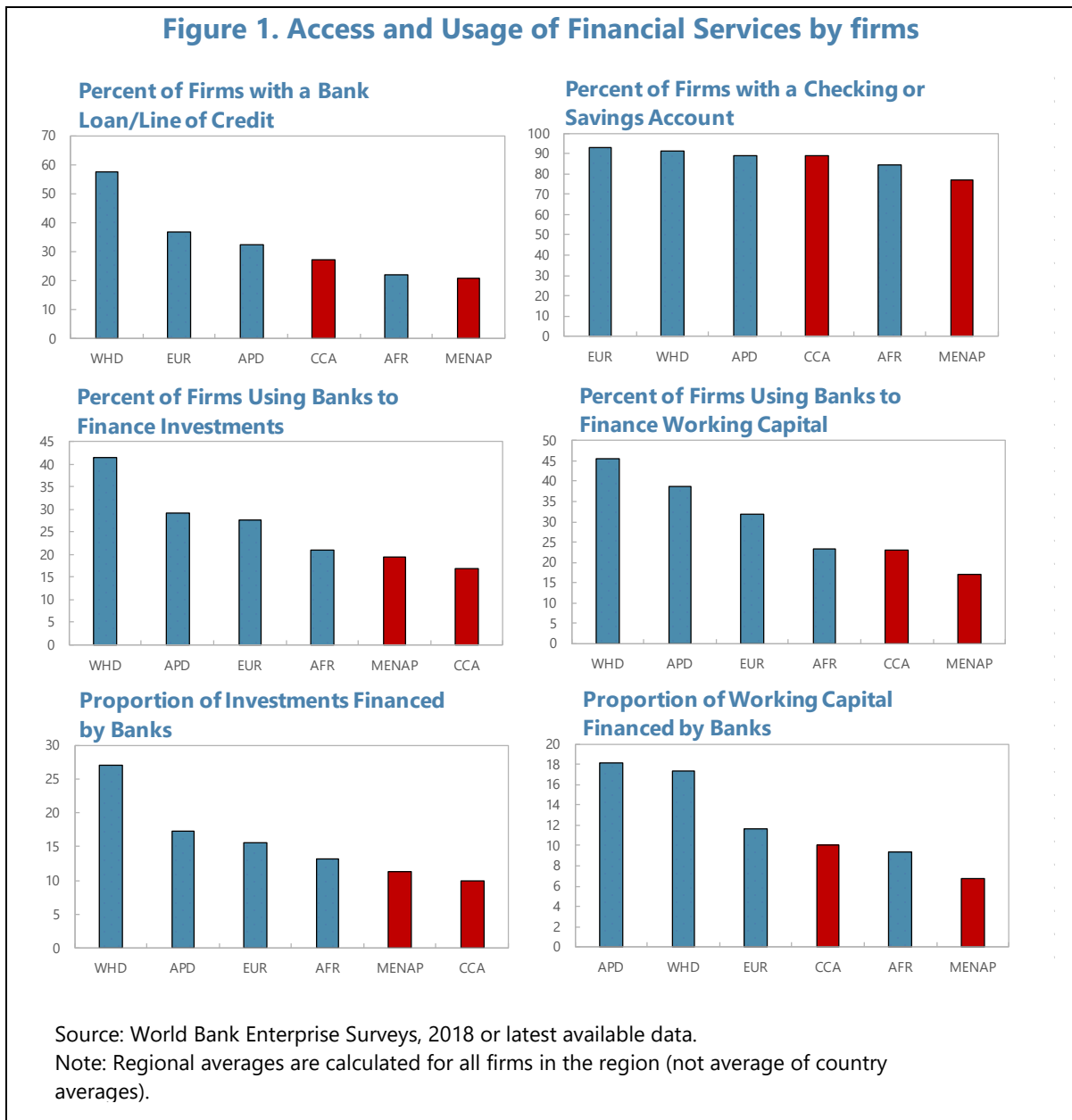
Our analysis shows that economic fundamentals and financial sector characteristics, such as macroeconomic stability, limited public sector size (to avoid crowding out SME access to credit), financial sector soundness, a competitive banking system and, more broadly, a competitive and open economy are important factors to boost SME access to finance. Institutional factors, such as strong governance and financial regulatory and supervisory capacity, credit information availability, and a supportive business environment, including modern collateral and insolvency frameworks, and legal systems that allow to adequately enforce property rights and contracts are also key drivers of SME bank credit.

The paper is organized as follows: The next section presents stylized facts on SME access to finance in the MENAP and CCA regions. Section III presents the analysis of the drivers of SME access to finance, while stressing comparatively their relevance for MENAP and CCA countries. Section IV concludes.

II. STYLIZED FACTS

A. Data

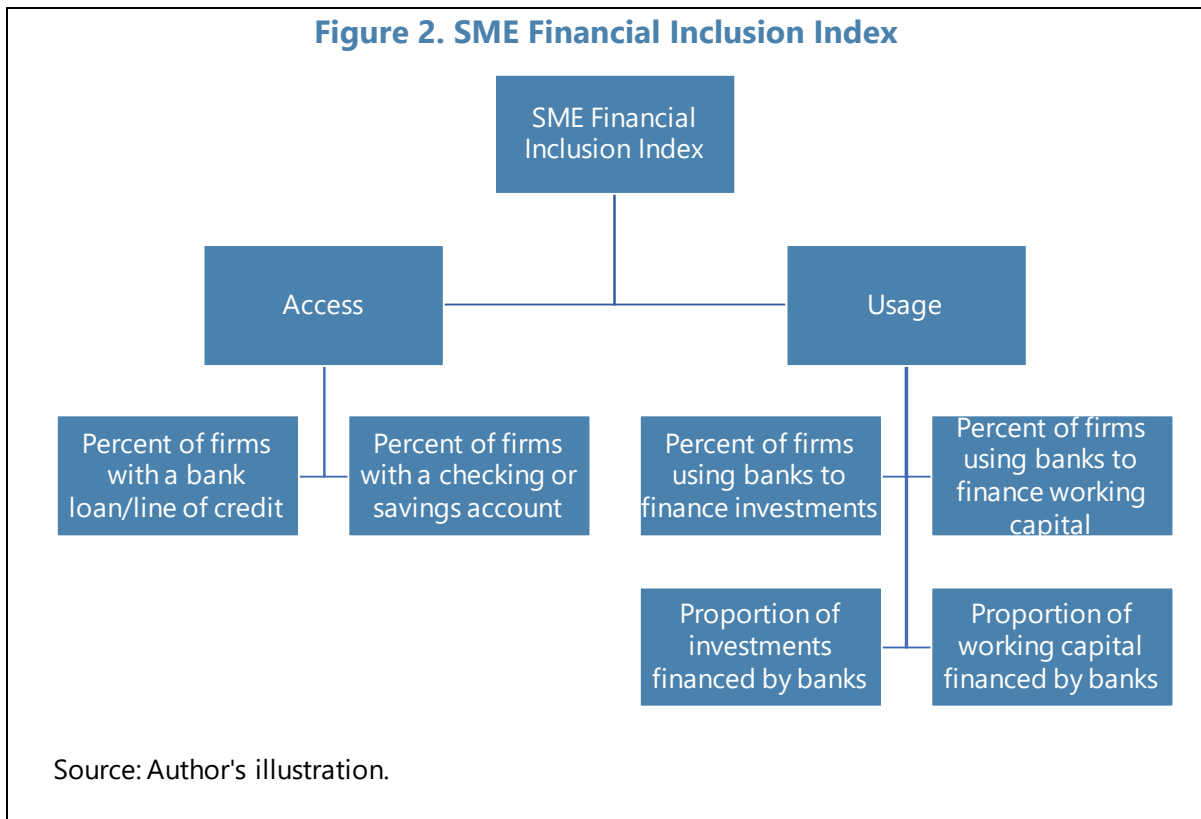
The World Bank Enterprise Survey (WBES) and IMF Financial Access Survey (FAS) are key sources of data on SME financial inclusion. The WBES is a firm-level dataset that covers a range of business environment topics including access to finance. Coverage is available for both large firms and SMEs and the survey is done about every 4 years per country. The IMF FAS provides data on access and use of financial services by firms and individuals and is updated annually. However, FAS has limited data on SME lending and only covers 7 of the MENAP and CCA countries.



The MENAP and CCA regions lag most other regions in terms of both access and usage of financial services. According to the WBES, MENAP and CCA countries score the lowest in the number of firms using banks to finance investments (16 percent against a world average of 30 percent). The MENAP region also has the lowest share of firms with a bank loan and a checking or savings account. The CCA region performs slightly better on these measures, but still lags Asia, Europe and Latin America (Figure 1). Both CCA and MENAP countries have the lowest percentage of firms that finance their investment and working capital using banks. Almost 80 percent of firms in MENAP and CCA use internal funds instead of banks.

B. Methodology for the SME Financial Inclusion Index

The SME Financial inclusion index is constructed following the methodology in Sviryzdenka, 2016, using data over 2006-2017. Multidimensional data from the WBES is reduced into a summary index using the following steps: (i) normalization of variables; (ii) aggregation of normalized variables into sub-indices by principle component analysis (PCA), using the first component; and (iii) aggregation of the sub-indices into the final index. Several choices need to be made in constructing the index. In the WBES, several questions are designed to evaluate financial conditions for firms. From these, the variables most relevant to bank finance conditions were chosen (listed below) and divided into categories of access and usage.



Normalization

To normalize the variables, each series is winsorized to prevent extreme values from distorting the 0-1 indicators. Winsorized indicators are then normalized between 0 and 1, using the min-max procedures to facilitate aggregation over variables expressed in different measurement units:

$$I_x = \frac{x - x_{min}}{x_{max} - x_{min}} \quad (1)$$

$$I_{xn} = 1 - \frac{x - x_{min}}{x_{max} - x_{min}} \quad (2)$$

where x is the underlying raw data and I_{xn} is the transformed continuous 0-1 indicator. The procedure normalizes indicators to have an identical range [0, 1] by subtracting the minimum value and dividing by the range of the indicator values. It relates country performance on an indicator to the global minimum and maximum across all countries and years. Thus, the highest (lowest) value of a given variable across time and countries is equal to one (zero) and all other values are measured relative to these maximum (minimum) values.

Principal Component Analysis

For the SME financial inclusion index, principal component analysis (PCA) is used so as not to prejudge the importance of particular indicators in measuring financial inclusion.³ Sub-indices are constructed as weighted averages of the normalized series, where the weights are squared factor loadings (such that their sum adds up to 1) from principal component analysis of the underlying series.⁴

The factor loadings on the first principal component are chosen as weights. Given the wide-ranging nature of the exercise, the first principal component can be interpreted to summarize the latent information on the degree of financial inclusion. The first principal component accounts for around 70 percent of the variance in data.

³ Principal component analysis groups together individual indicators which are collinear to form a composite indicator that captures as much as possible of the information common to individual indicators. The idea is to account for the highest possible variation in the indicator set using the smallest possible number of factors. As a result, the composite index no longer depends upon the dimensionality of the data set but rather is based on the statistical dimensions of the data.

⁴ Factor loadings are coefficients that relate the observed variables to the principal components, or factors. The factor loadings represent the proportion of the total variance of the indicator which is explained by the factor. The series that contributes more to the direction of common variation in the data gets a higher weight. Weighting intervenes only to correct for overlapping information between two or more correlated indicators and is not a measure of the theoretical importance of the associated indicator.

Aggregation

The aggregation is a weighted sum of the underlying series, where the weights are obtained from principal component analysis, reflecting the contribution of each underlying series to the variation in the specific sub-index. All of the sub-indices are then re-normalized using equation 1, so that the range is between 0 and 1.

$$FI_{(A|U)it} = \sum_{j=1}^n w_j I_{ijt} \quad (3)$$

where FI represents financial access or usage, I denotes one of the six indicators capturing financial inclusion (see Figure 2), and w is the weight associated with I . i , j , and t are country, indicator, and time specific indices, respectively.

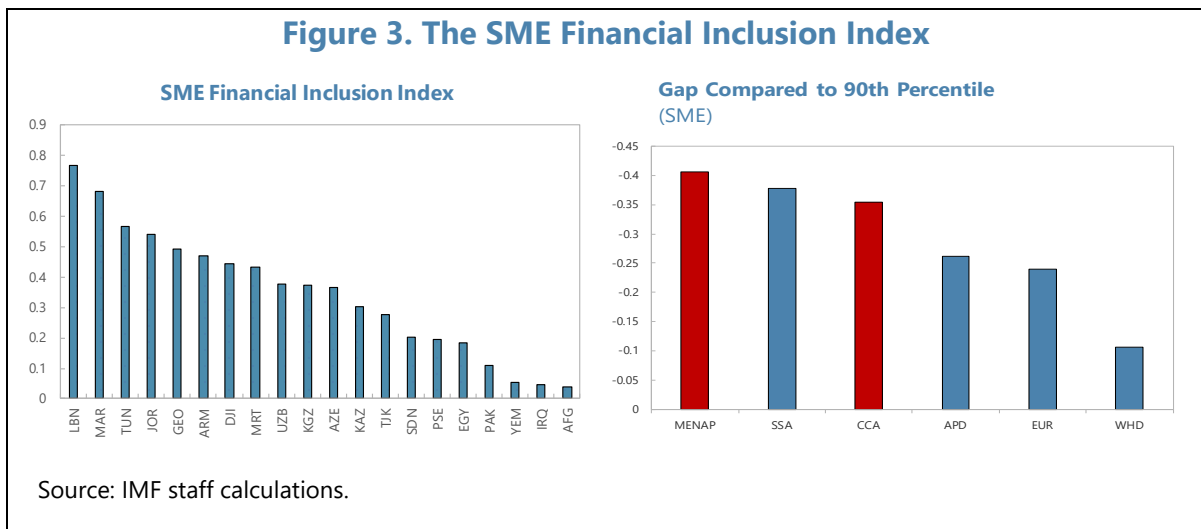
Sub-indices are aggregated into higher-level indices.

$$FI = w_A FI_A + w_U FI_U \quad (4)$$

The linear functional form of the aggregator is best suited for the data with a significant share of zero or close to zero observations. Linear aggregation assumes full compensability, such that poor performance in some indicators can be compensated for by sufficiently high values in other indicators. In other words, it assumes that the indicators are perfect substitutes.

Results

This index is available for 119 countries worldwide, of which 20 are in the MENAP and CCA regions. At the country level, the results suggest that Lebanon, Morocco and Tunisia have the highest level of SME financial inclusion in the region, while fragile countries such as Afghanistan, Iraq and Yemen have the lowest level of SME financial inclusion. At the regional level, results suggest that the MENAP region has the lowest level of SME financial inclusion while CCA region has the third lowest.



III. DRIVERS OF SME FINANCIAL INCLUSION

This section discusses and tests the empirical relevance of key determinants of SME financial inclusion in the MENAP and CCA regions. Data limitations constraint this exercise, especially its ability to identify causality. The empirical analysis therefore aims at providing some indication on the correlations between a set of fundamentals and SME financial inclusion.

A. Empirical framework

The analysis identifies the main drivers of SME access to formal finance for a sample of around 123 countries (Appendix table 9) as described above, and highlights their relevance to MENAP and CCA countries in particular. The estimated equations take the form of⁵:

$$FI_{it} = \alpha + BX_{it} + \lambda regional_{dummy} + \varphi z_{it} + \varepsilon_{it} \quad (5)$$

$$FI_{it} = \alpha + BX_{it} + \lambda regional_dummy + p regional_dummy * z_{it} + \varphi z_{it} + \varepsilon_{it} \quad (6)$$

Where the dependent variable (*FI*) is the SME financial inclusion index defined in the previous section. The baseline specification controls for a set of variables (vector *X*) aiming at capturing macroeconomic fundamentals relevant to the SME sector. *X* includes:

Total investment (in percent of GDP) – Increased investment could reflect positive economic perspectives, including for the SME sector which could increase demand for financing. Investment is expected to be positively correlated with the financial inclusion index.

Inflation rate – High inflation is a key signal of macroeconomic instability, which is associated with higher risk perceptions, lower private sector confidence, and lower credit supply, especially for SMEs (which are generally riskier borrowers than larger firms).

SME share of employment (in total employment) – Measures the size of the SME sector in the economy, capturing to some extent credit demand from the SMEs. The expected effect of this variable on SME financial inclusion is difficult to determine a priori. A large and dynamic SME sector can help diversify banks' assets and therefore attract bank lending. However, the SME sector tends to be larger in developing countries with limited access to finance.

Income level dummies – Capture countries' levels of economic development. SME financial inclusion is expected to improve as countries further develop.⁶

⁵ The empirical analysis makes use of several Third-Party Indicators which should be considered carefully, including for example because they are derived from perceptions-based data.

⁶ We do not include GDP per capital to reduce risks of collinearity with the other variables in the model.

Region_dummy is a dummy variable for MENAP or CCA countries. As discussed above, both regions are below emerging and developing countries' average in terms of SME access to credit. The dummy variables are therefore expected to be negatively correlated with the financial inclusion index.

The baseline specification is expanded to explore the impact of a broader range of macro-financial and institutional factors on SME access to finance (z). Furthermore, as described in equation (6), an interaction term with the regional dummies is included to assess the relative importance of these factors for MENAP and CCA countries compared to the full sample average.

The additional variables (z) are classified into four groups:⁷

The macroeconomic environment

Diversification – A diversified economy would be favorable to SME development and growth via more investment opportunities, which also implies more risk diversification and potentially improved access to financing. Diversification is proxied by the OECD complexity index.

Competition – Competition within and across sectors increases productivity and efficient allocation of resources, including in the SME sector. Competition is measured by the domestic competition index of the World Economic Forum.

Informality – Economies with large informal sectors tend to face tighter constraints on SME access to formal financial services, due to the lack of traceability of their activities. Informality is proxied by the size of the 'shadow economy' (in percentage of GDP).

Infrastructure – Availability and quality of infrastructure are key determinants of private investment and development, including for SMEs. The number of fixed telephone lines per 100 inhabitants is used as a proxy for infrastructure.⁸

Public investment (percent of total investment) – The size of the public sector in the economy can affect SME access to credit. A large public sector can crowd out private sector activity, including by limiting access to financing. For example, SOEs can benefit from regulatory and other competitive advantages which tend to ease access to bank lending. Large government and SOEs financing needs could therefore reduce availability of bank credit, especially for SMEs which are often perceived by banks as riskier. On the other hand, public

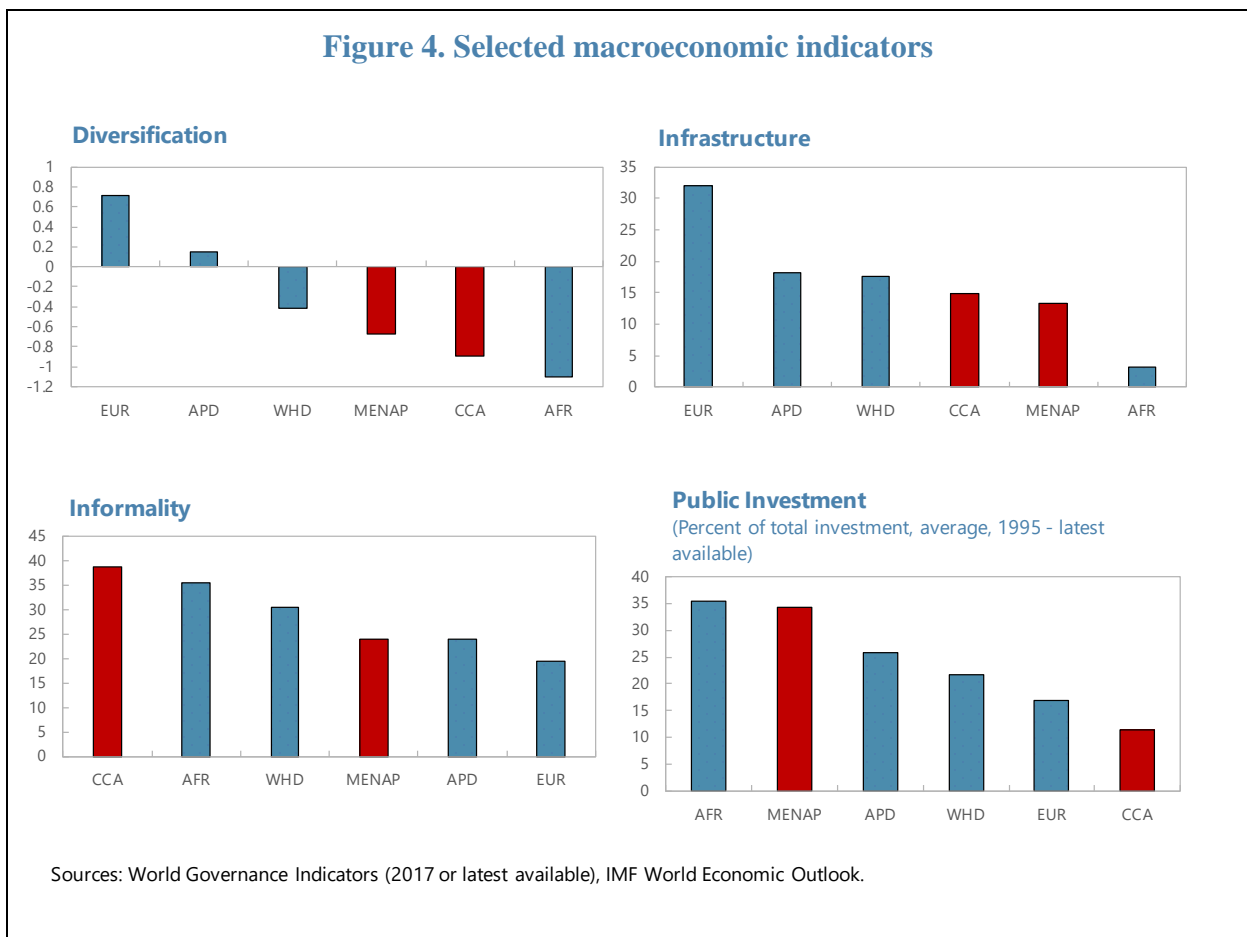
⁷ A larger set of controls were tested. The paper only discusses those found to be the most statistically relevant.

⁸ Mobile phone coverage or degree of the digitalization could be alternative proxies. However, the sample coverage is much more limited.

investment may also be associated with better infrastructure and thus support private sector and SME development.⁹

Oil exporter dummy – The oil sector represents a large share of the economy in certain countries (especially in the MENAP region), which may thus be less diversified on average, with a relatively large public sector that centralizes and controls the natural resource. Bank lending may then be concentrated in the oil sectors and SOEs, leaving SMEs underserved.

Figure 4 suggests that on average, CCA countries have a larger informal sector compared to others region, while quality of infrastructure and economic diversification are lower in both MENAP and CCA compared to other regions (except AFR). The size of the public sector is also larger in MENAP countries on average compared to the rest of the sample. Overall, we expect diversification, competition, and infrastructure to be positively correlated with SME financial inclusion, while the correlation with informality, public investment, the oil exporter dummy should be negative.



⁹ Other variables measuring the size of the public sector or crowding out, including fiscal balances, were tested but did not show a statistically significant relationship with SME financial inclusion.

Quality of institutions

Strong institutional quality, including good governance and political stability, is a key determinant of private sector development. Transparent institutions support equal treatment and access to services, including bank financing. Indeed, Faccio (2006) finds evidence that large firms tend to be more politically connected in countries with poor institutional quality (low political regulation, and high corruption), and as a result benefit from better access to bank financing. Such preferential access to credit may crowd out smaller firms. We assess the relationship between institutions and SME financial inclusion via:

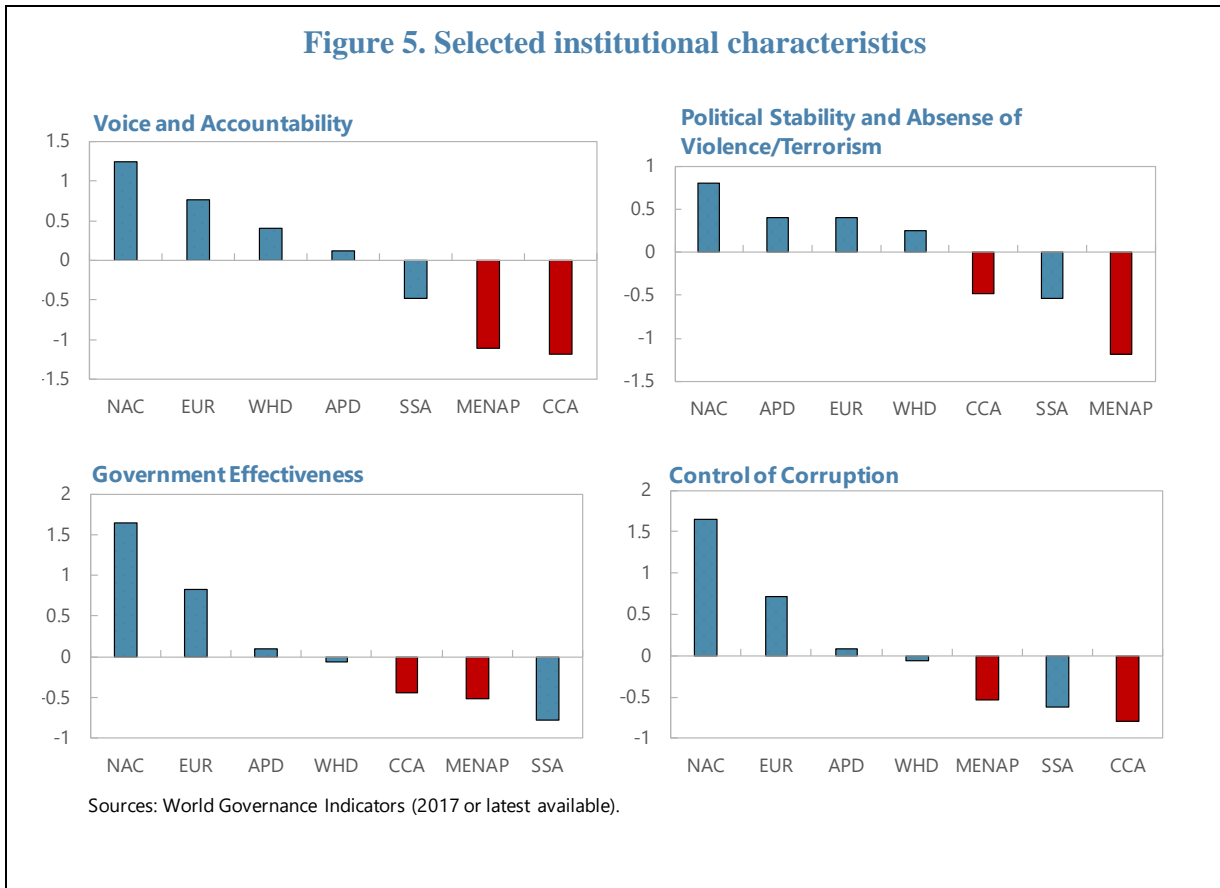
Voice and accountability – Measures the extent to which a country’s citizens are able to participate in selecting their government, as well freedom of expression, association and free media.

Political stability – Measures the perceived likelihood that a government will be destabilized or overthrown through unconstitutional means, including political violence or terrorism.

Government effectiveness – Measures the quality of public services, the quality of the civil service and its independence from political pressure; the quality of policy formulation and implementation, and credibility of government commitment to such policy.

Control of corruption – Measures the extent to which public power is exercised for private gain (including both petty and grand forms of corruption), as well as capture of the state by elites and private interests.

While these variables should be positively correlated with SME financial inclusion, we would expect an even stronger correlation for MENAP and CCA. Indeed, countries in both regions lag behind peers’ average in terms of these institutional characteristics (Figure 5).



Financial sector characteristics and regulation

Banking sector characteristics and financial regulation can also play an important role for SME access to formal financial services, especially:

Bank profitability – Proxied by bank return on equity. Increased bank profitability may reduce bank incentives to acquire new and riskier assets, such as SME loans.

Asset quality – Measured by the ratio of non-performing loans (NPLs) to total loans. High NPL ratios could reduce banks' willingness to lend to smaller and riskier borrowers such as SMEs.

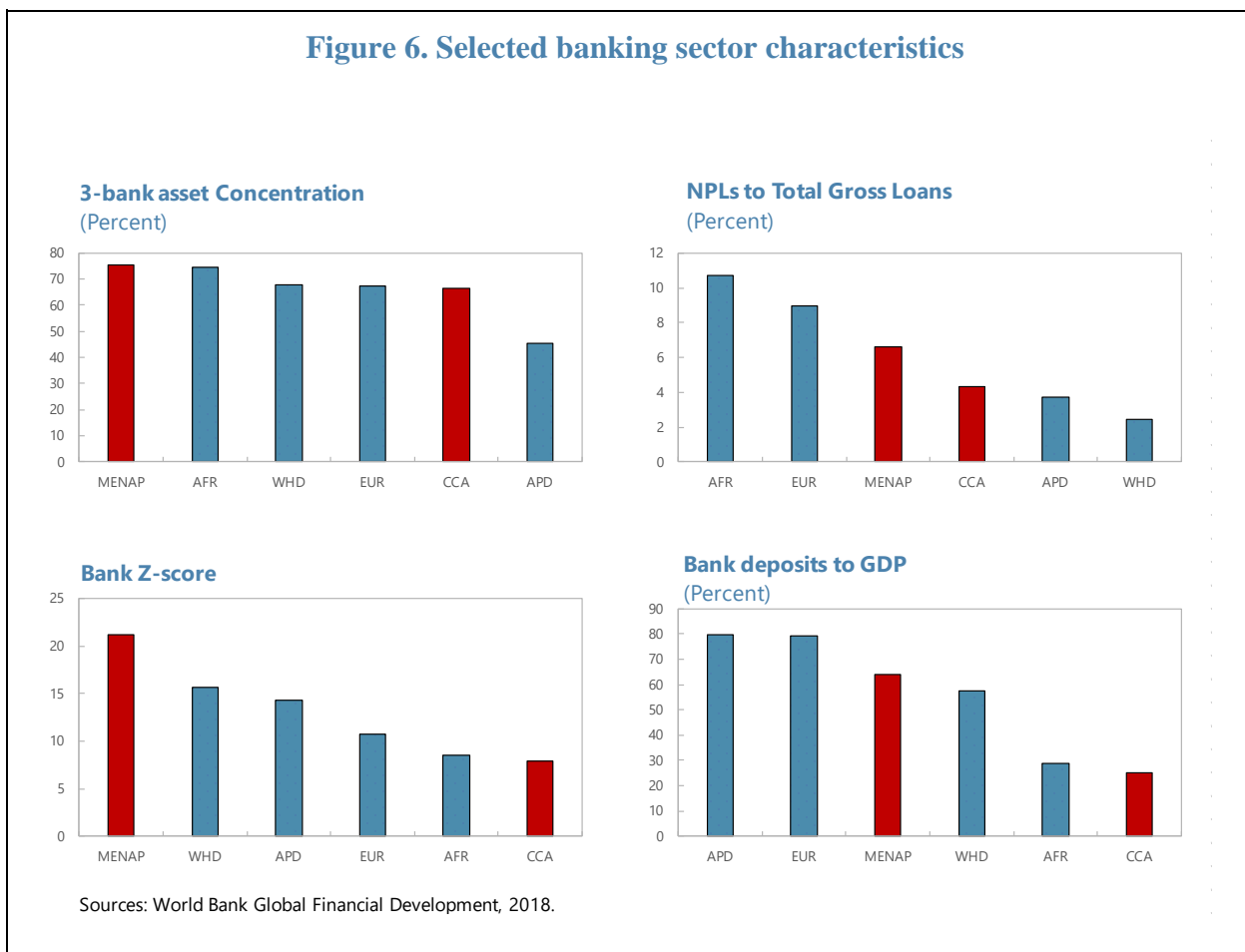
Bank deposits – Higher reliance on bank deposits provides more stable funding for banks and could facilitate lending to SMEs.

Banking sector stability – A more stable banking system increases confidence and could be associated with higher bank credit, including to SMEs. Banking sector stability is measured by bank Z-score.

Bank concentration – Bank concentration could reduce SME access to credit, especially where banks are focused on some specific sectors or market segments.

Financial sector regulation – Banking sector regulation and supervision are critical to monitor and address potential emerging risks and to support financial deepening and inclusion programs. Effective regulation should therefore be associated with a safer financial system which would benefit SME financial inclusion. The empirical analysis controls for the *capacity of the regulatory agency, regulatory and supervisory capacity of deposit-taking activities, and regulatory and supervisory capacity for financial inclusion*.¹⁰

Figure 6 suggests that MENAP and CCA countries perform better on average than APD and WHD in terms of assets quality, but lag behind compared to AFR and EUR. CCA countries lag behind other regions in terms banking sector stability and deposit ratios, while MENAP countries have on average the most concentrated banking sectors



¹⁰ These three indicators capture various aspects of the quality of financial sector regulation for each country. See the [Economist Intelligence Unit Global Microscope](#) for further details.

Business environment

A favorable business environment can contribute to SME growth, reduce incentives for SMEs to remain in the informal sector, and thereby improve SME access to financing. Especially:

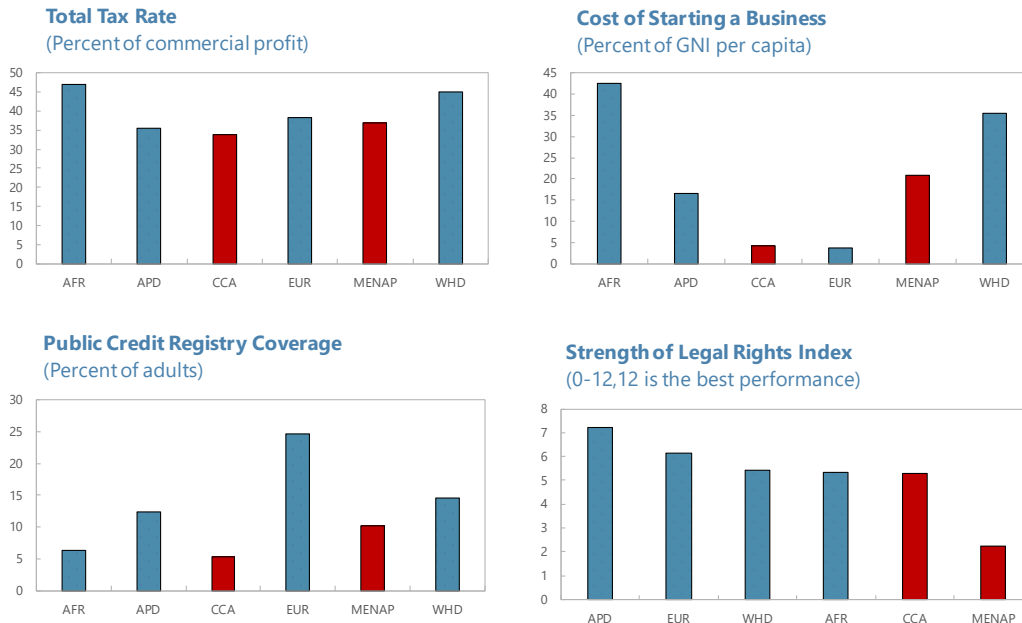
Tax burden and Business start-up cost – Could reduce investment incentives, hamper firm's growth, increase incentives for informality, with negative effect on access to formal financial services. Tax payments in percentage of firm's profit is used as a proxy for tax burden. Business start-up cost is proxied by cost of business start-up procedure, in percent of the GNI per capita.

Contract enforcement and Property rights – Both allow greater alienability of assets, which can be sold, transferred, or collateralized more easily. For smaller and riskier firms, this plays an even more important role. Contract enforcement is measured by the number of days required to enforce a contract. We use the property right index from the World Economic Forum.

Property registration cost – In line with the above, a high property registration cost would tend to be negatively correlated with SME access to bank credit, as it may impair collateral availability. The cost to register a property is measured in percentage of the property value.

Credit information – Good and readily available information on borrowers improve access to credit by mitigating moral hazard. It also supports SME financing by reducing collateral requirements and borrowing cost. Credit information is measured by the extent of the credit bureau coverage.

On average, MENA and CCA countries lag behind other regions regarding the availability of credit information and strength of legal rights. However, the two regions perform better than peers regarding business taxation, while MENAP countries on average have higher business start-up costs compared to EUR and APD (Figure 7).

Figure 7. Selected business environment characteristics

Sources: World Bank Doing Business, 2018.

B. Results

Equations 5 and 6 are estimated using OLS fixed effects. Starting with the baseline model (which includes the set of variables X), variables z and related interaction terms are added one at a time. We follow such a procedure to reduce the risk of multicollinearity which can be particularly strong in this case given the large number of control variables and the relatively small sample size. Addressing potential endogeneity bias in this empirical exercise can be difficult, due again to the large number of controls and difficulty to find relevant instruments. The common GMM approach often used in such circumstances would not be efficient here either, since we have a limited time series (the financial inclusion index is based on the Enterprise Survey which only covers a few non-consecutive years for each country). Therefore, our analysis should be viewed as an attempt to establish the direction and strength of the relationships between the control variables and SME financial inclusion, and not necessarily to identify causality.

Appendix tables 1 through 8 provide the regression results. Figures 8 and 9 summarize the main findings by reporting the estimated coefficients.¹¹ In most specifications, coefficients

¹¹ This helps to ease comparisons of correlations across variables, and different subsamples. We run a large set of regressions on samples that vary across specifications due to data limitations on control variables. However, the findings remain materially in line with our main conclusion if we restrict the sample to countries for which

associated to the variables in the baseline model are statistically significant with the expected sign. Investment is found to be positively correlated with SME financial inclusion, while the correlation with inflation is negative. As discussed, increased investment could signal positive economic outlook which may also benefit SMEs and thereby increase both demand and supply of the credit, while higher inflation would have the opposite effect as it signals increased macroeconomic instability. The later relationship appears to be slightly stronger for CCA countries. The share of employment in the SME sector is negatively correlated with SME access to finance. This negative relationship likely reflects the fact that low-income countries often have a larger SME sector, which is also more financially constrained. The relationships between MENAP and CCA dummies show negative correlations, suggesting that on average, SMEs in both regions are more constrained in terms access to formal financial services. This is in line with the discussion in section II which provides some statistical evidence. Estimates on income level dummies suggest that SMEs financial inclusion tends to increase with economic development.

The results point to a strong positive and statistically significant correlation between economic competition, diversification and SME financial inclusion. Furthermore, the relationship with competition is significantly stronger for MENAP and CCA countries compared to the sample average, highlighting the key role of competition in both regions where a significant share of economic activity is often concentrated in the public sector and a limited number of large firms. The regression results also confirm the positive relationship between infrastructure and SME access to finance. Conversely, the negative coefficients associated with informality and the share of public investment suggest that in countries with large informal sector, SMEs tend to have less access to credit. We also find that a large public sector is associated with lower SME financial inclusion. Elasticities estimates suggest that a 1 percent increase in public investment may lead to a 0.7 percent decline in SME financial inclusion (against a 0.2 percent decline for emerging markets and developing countries, on average). As discussed above, this could be due to a crowding out effect on the private sector. Oil exporting countries are found to have on average a lower degree of SME financial inclusion. This could be due, among other factors, to less economic diversification and a larger public sector.

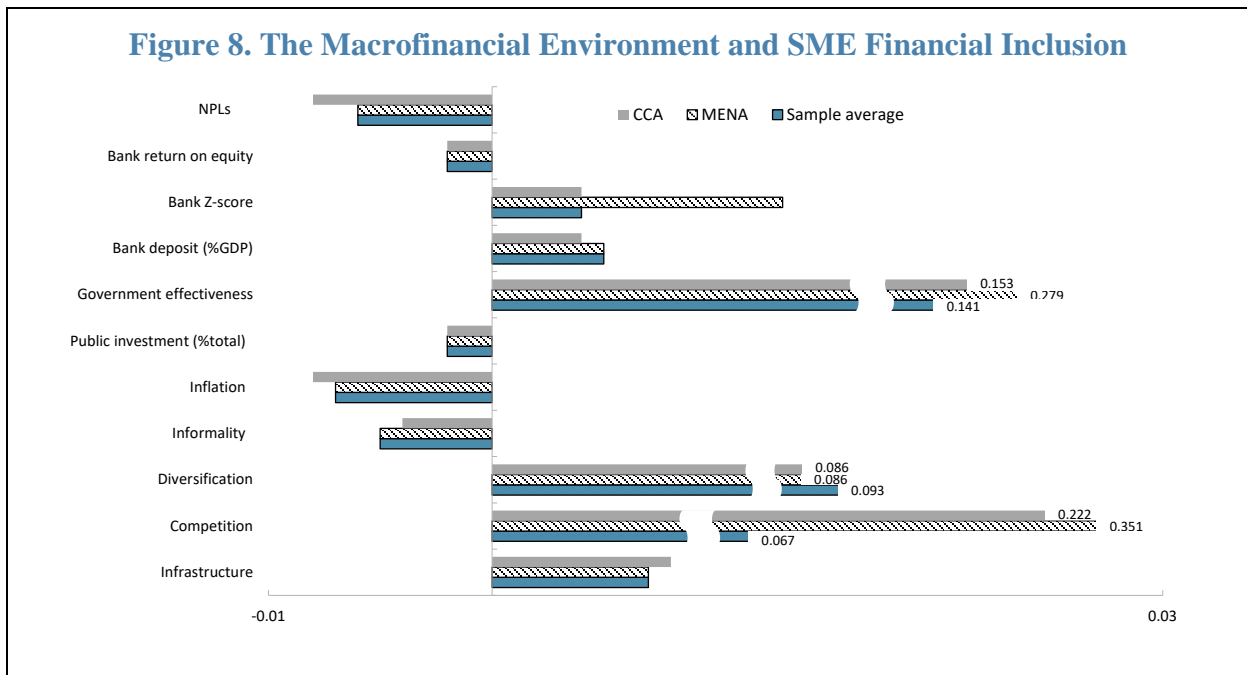
We find that institutions play a key role for SME financial inclusion. The positive correlation between government effectiveness, control of corruption, and SME financial inclusion is stronger for the MENAP and CCA regions (the estimated coefficients are almost twice larger for MENAP relative to the sample average). The relationship between political stability and SME access to credit is also positive in general, but more relevant for MENAP countries and CCA. Finally, voice and accountability is positively correlated with SME financial inclusion, with a stronger relationship for CCA. Overall, the estimated coefficients associated to institutional variables are larger compared to those associated with most other variables in

data are available. In the latter case, the number of observations is significantly low compared to the number of controls, raising a number of econometric issues, including multicollinearity and limited degree of freedom. The paper therefore makes the choice to present the empirical analysis based on the largest sample possible, for each regression specification.

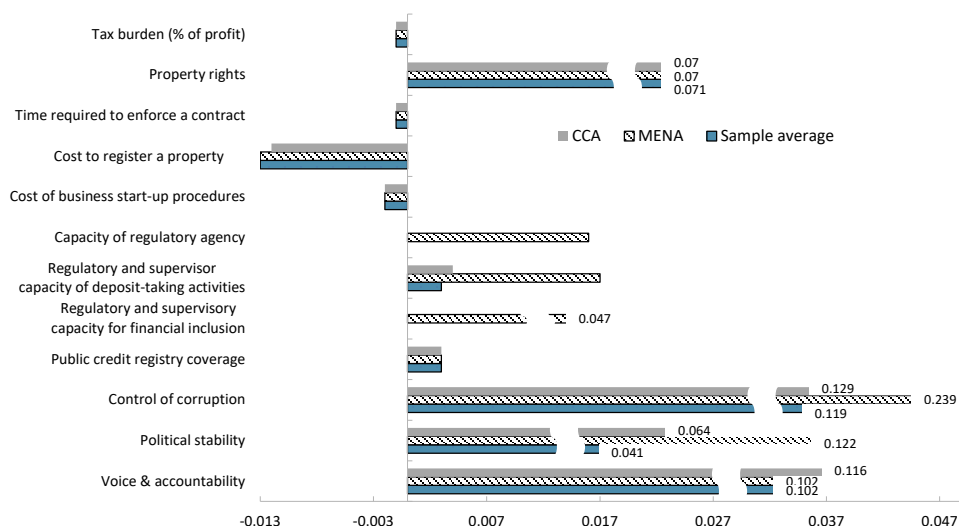
the model, suggesting that improvements to the quality of institutions can have a relatively large impact on SME access to finance.

Financial sector characteristics also affect access to finance for SMEs. We find a positive correlation between banking sector stability (bank z-score) and SME financial inclusion. Higher bank deposits ratio is associated with increased SME access to formal finance. This may be due to improved bank soundness (as banks rely more on core funding) but also to higher available resources for the lending activity. Conversely, we find that bank profitability tends to be associated with lower financing for SMEs. As discussed, this may be linked to banks' reluctance to lend to generally riskier SME borrowers if they are already highly profitable. The NPL ratio is also negatively correlated with SME financial inclusion, suggesting that lower asset quality in banks would further restrict SME access to credit. Importantly, we show that an effective regulatory and supervisory framework can contribute to improve SME financial inclusion: regulatory capacity is associated with improved SME access to finance.

Our results also highlight the importance of the business environment for SME financial inclusion. We show that a restrictive tax system, costs for contract enforcement, property registry costs, and cost of business start-up procedures, are negatively correlated with SME financial inclusion. Such negative relationships could emerge through lower investment incentives, and higher incentives for small businesses to operate informally (if the cost of 'formalizing' a business is too high). On the contrary, property rights and availability of credit information would have a favorable effect on SME access to finance. Both contribute to reduce uncertainties by easing availability of collateral and access to information on the borrower.¹²



¹² The effects are not significant at standard statistical levels. This may be due to limited data availability.

Figure 9. Institutions, Business Environment and SME Financial Inclusion

Note: Coefficient estimates from equations (1) and (2), based on OLS panel fixed effects. The coefficients are statistically significant at a minimum level of 10%, with robust standard errors.

Sources: IMF staff estimates

IV. CONCLUSION

The MENAP and CCA countries are making efforts to support SME development. SMEs can play a significant role in delivering higher and more inclusive growth to meet the needs of a young and growing population. To achieve this outcome, increasing SME access to finance can be essential, as it is currently the lowest in the world in these two subregions, due to a large extent to weak domestic fundamentals and the need to strengthen legal and credit infrastructures.

A comprehensive approach can catalyze SME access to finance in these countries. Reform strategies should be customized to each country's specific circumstances. However, some key principles can guide policymakers, including prioritizing the need for: (i) a sound macroeconomic environment, in particular economic competition and macroeconomic stability; (ii) better institutional quality, including improved governance, (iii) financial sector soundness, including through strong supervisory and regulatory frameworks and competition, (iv) an enabling business environment, cutting across legal, regulatory and tax issues.

Policy makers should also be aware that higher financial inclusion could be associated with lower safety buffers for banks. To counteract this, additional steps may be needed, to guarantee financial stability and future research should look more carefully into the tradeoff between financial stability and financial inclusion. Future research could also look at the role of demand versus supply factors in explaining the low levels of SME financial inclusion.

REFERENCES

- Abraham F., and Schmukler S., 'Addressing the SME Finance Problem', Research & Policy Briefs from the World Bank Malaysia Hub, No. 9, Oct 2017
- ADB, 'Capital Market Financing for SMEs: A Growing Need in Emerging Asia', ADB Working Paper Series on Regional Economic Integration, Asian Development Bank, 2014
- Albuquerque, R. and H. A. Hopenhayn; 'Optimal Lending Contracts and Firm Dynamics'. *Review of Economic Studies* 71 (2), 285–315., 2004
- Allen, F., Demirguc-Kunt, A., Klapper, L. and Soledad, M. 'The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts', World Bank Policy Research Working Paper 6290, December 2012
- Anzoategui, D.; Martinez Peria, M. and Rocha, R.; 'Bank Competition in the Middle East and Northern Africa Region', *Review of Middle East Economics and Finance*, Volume 6, Number 2, 2010
- Arcand, J., Berkes, E. and Panizza, U., 'Too much finance?', *Journal of Economic Growth*, 2015, 20: 105-148
- Ayyagari, M., Demirguc-Kunt, A. and Maksimovic, V.; 'Who creates jobs in developing countries?'; *Small Bus Econ*, 43:75–99, 2014
- Ayyagari, M., Juarros, P., Martinez Peria and Singh, S.; 'Access to Finance and Job Growth: Firm-Level Evidence across Developing Countries', World Bank Policy Research Working Paper 7604, March 2016
- Beck, T., Demirguc-Kunt, A. and Singer, D., 'Is Small Beautiful? Financial Structure, Size and Access to Finance', *World Development* Vol. 52, pp. 19–33, 2013
- Beck, T.; Demirguc-Kunt, A. and Maksimovic, V.; 'Financial and Legal Constraints to Growth: Does Firm Size Matter?'; *The Journal of Finance*. Vol. LX, No.1, February 2005
- Beck, T.; Demirguc-Kunt, A. and Maksimovic, V.; 'Financing patterns around the world: Are small firms different?'; *Journal of Financial Economics* 89, 467–487, 2008
- Beck, T.; Demirguc-Kunt, A.; Laeven, L. and Levine, R.; 'Finance, Firm Size and Growth'; *Journal of Money Credit and Banking*; Vol. 40, Oct 2008
- Bhattacharya, R. and Wolde, H., 'Constraints on Growth in the MENA Region', IMF Working Paper WP/10/30, 2010
- BIS, 'Sound Practices Implications of fintech developments for banks and bank supervisors', 2018
- Brown, M., Jappelli, T. and Pagano, M., 'Information sharing and credit: Firm-level evidence from transition countries', *Journal of Financial Intermediation* 18, 151–172, 2009
- Calice P., 'Assessing Implementation of the Principles for Public Credit Guarantees for SMEs', World Bank Group Finance and Markets Global Practice Group, July 2016
- Chatzouz M., Gereben A., Lang F. and Toufs W., 'Credit Guarantee Schemes for SME lending in Western Europe', EIF Research & Marke Analysis Working Paper 2017/42

Chodorow-Reich, G., 'The Employment Effects of Credit Market Disruptions: Firm-Level Evidence from the 2008–9 Financial Crisis', *The Quarterly Journal of Economics*, Volume 129, Issue 1, 1 February 2014, Pages 1–59

Clarke, G., Cull, R., Soledad, M., Peria, M., Sanchez, S., 2003. Foreign bank entry: Experience, implications for developing economies and agenda for further research. *World Bank Research Observer* 18 (1), 25–59

Clementi, G. L. and H. A. Hopenhayn (2006). A Theory of Financing Constraints and Firm Dynamics. *The Quarterly Journal of Economics* 121 (1), 229–265.

Dabla-Norris, E.; Deng, Y.; Ivanova, A.; Karpowicz, I.; Unsal, F.; VanLeemput, E. and Wong, J.; 'Financial Inclusion: Zooming in on Latin America'; IMF Working Paper, WP/15/206; September 2015a

Dabla-Norris, E.; Ji, Y.; Townsend, R.; and Unsal, F.; 'Identifying Constraints to Financial Inclusion and Their Impact on GDP and Inequality: A Structural Framework for Policy'; IMF Working Paper, WP/15/22; January 2015b

de la Torre, A., Ize, A., & Schmukler, S. (2011). *Financial development in Latin America and the Caribbean: The road ahead*. Washington, DC: The World Bank

Djankov, S.; Hart, O., McLiesh, C. and Shleifer, A.; 'Debt Enforcement around the World'; *Journal of Political Economy*, 2008, vol. 116, no. 6

Djankov, S.; McLiesh, C. and Shleifer, A.; 'Private Credit in 129 countries'; *Journal of Financial Economics* 84 (2007) 299-329

Duygan-Bump, B., Levkov, A. and Montoriol-Garriga, J., 'Financing constraints and unemployment: Evidence from the Great Recession', *Journal of Monetary Economics* 75 (2015) 89–105

EBRD, EIB and The World Bank, 'What's Holding Back the Private Sector in Mena? Lessons from The Enterprise Survey', 2016

Farazi, S.; 'Informal Firms and Financial Inclusion: Status and Determinants', World Bank Policy Research Working Paper 6778, March 2014

Ferrari, A., Masetti, O. and Ren, J., 'Interest Rate Caps: The Theory and The Practice', World Bank Policy Research Working Paper 8398, March 2018

FESE, 'SME Access to capital markets funding', Federation of European Securities Exchanges

FSB, 'FinTech credit: Market structure, business models and financial stability implications', Report prepared by a Working Group established by the Committee on the Global Financial System (CGFS) and the Financial Stability Board (FSB), 2017

Gormley, T., 'The impact of foreign bank entry in emerging markets: Evidence from India', *Journal of Financial Intermediation* 19 (2010) 26–51

Harwood, A. & Konidaris, T., 'SME Exchanges in Emerging Market Economies A Stocktaking of Development Practices', Finance and Markets Global Practice Group, World Bank Group, January 2015

- IFC, 'SME Finance Policy Guide', 2011
- IMF 2017, 'Supporting Growth and Inclusion through Financial Development', IMF Country Report No. 17/213, Pakistan Selected Issues Paper.
- IMF, 'Finance and Fintech: Invigorating Investment and Inclusion in India, Remarks by IMF Deputy Managing Director Tao Zhang', Mumbai, India, 2018
- IMF, 'Financial Inclusion in Asia Pacific', 2018, forthcoming.
- IOSCO, 'Market-Based Long-Term Financing Solutions for SMEs and Infrastructure', September 2014
- IOSCO, 'SME Financing through capital markets: Final Report', July 2015
- Kumar, R.; 'Targeted SME Financing and Employment Effects: What Do We Know and What Can We Do Differently?', Jobs Working Paper, Issue No.3, World Bank Group, 2017
- Kuntchev, V.; Ramalho, R.; Rodriguez-Meza, J. and Yang, J.; 'What Have We Learned from the Enterprise Surveys Regarding Access to Credit by SMEs', Policy Research Working Paper 6670, Enterprise Analysis Unit, Financial and Private Sector Development, The World Bank, October 2013
- Love, I. and Martinez Peria, M.; 'How Bank Competition Affects Firms' Access to Finance', The World Bank Economic Review, Volume 29, Issue 3, 1 January 2015, Pages 413–448
- Love, I. Martinez Peria, M. and Singh, S.; 'Collateral Registries for Movable Assets: Does Their Introduction Spur Firms' Access to Bank Financing?', Journal of Financial Services Research (2016) 49:1–37
- Lukonga, I., IMF Working Paper 'Fintech, Inclusive Growth and Cyber Risks: A Focus on the MENAP and CCA Regions', June 2018
- Lyman, T., Noor, W. 2014. 'AML/CFT and financial inclusion: new opportunities emerge from recent FATF action', CGAP focus note No. 98., Washington, DC, World Bank Group.
- Mehrotra, A. and Yetman, J.; 'Financial inclusion and optimal monetary policy'; BIS Working Papers No 476, December 2014
- Melecky, M. and A. Podpiera, 2018, 'Financial Sector Strategies and Financial Sector Outcomes. Do the Strategies Perform?', World Bank Policy Research Paper 8315.
- Mills, K.G, McCarthy, B., The State of Small Business Lending: Innovation and Technology and the Implications for Regulation, Harvard Business School, 2017
- OECD, "Evaluating Publicly Supported Credit Guarantee Programs for SMEs", 2017
- OECD, 'Opportunities and Constraints of Market-Based Financing For SMEs', OECD report to G20 Finance Ministers And Central Bank Governors, September 2015
- PARP, 2014, "Report on the Condition of Small and Medium-Sized Enterprise Sector in Poland in 2012-2013," Polska Agencja Rozwoju Przedsiębiorczości, Selected chapters – chapters 2 and 6 prepared originally in Polish and published in "Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2012-2013", PARP, 2014

Popov, A. and Rocholl, J., 'Do credit shocks affect labor demand? Evidence for employment and wages during the financial crisis', *Journal of Financial Intermediation* (2016) 1-12

Reuters, 2018 'Alibaba-backed online lender MYbank owes cost-savings to home-made tech', *Reuters Business News*, <https://www.reuters.com/article/us-china-banking-mybank/alibaba-backed-online-lender-mybank-owes-cost-savings-to-home-made-tech-idUSKBN1FL3S6>

Rocha, R.; Farazi, S., Khouri, R. and Pearce, D., 'The Status of Bank Lending To SMEs In The Middle East And North Africa Region: The Results Of A Joint Survey Of The Union Of Arab Banks And The World Bank', *The World Bank and The Union of Arab Banks*, 2010

Rojas-Suárez, L. and Amado, M., 'Understanding Latin America's Financial Inclusion Gap', *Working Paper 367*, May 2014

Rojas-Suárez, L., 'Financial Inclusion in Latin America Facts, Obstacles and Central Banks' Policy Issues', *Discussion Paper No. IDB-DP-464*, June 2016

Sahay, R.; Čihák, M.; N'Diaye, P.; Barajas, A.; Mitra, S.; Kyobe, A.; Mooi, Y. and Yousefi, S., 'Financial Inclusion: Can It Meet Multiple Macroeconomic Goals?', *IMF Staff Discussion Note, SDN/15/17*, September 2015

Toronto Centre, 'FinTech, RegTech and SupTech: What They Mean for Financial Supervision', *TC Notes*, August 2017

UK Government, 'SME finance: help to match SMEs rejected for finance with alternative lenders', 2014

World Bank, IMF and OECD, 'Capital market instruments to mobilize institutional investors to infrastructure and SME financing in Emerging Market Economies: Report for the G20', 2015

World Bank, 'Bankers without Borders', *Global Financial Development Report*, 2018

World Bank, 'Competition in the GCC SME Lending Markets: An Initial Assessment', *Middle East and North Africa Region GCC Country Unit*, 2016

World Bank Group, 'The World Bank Group's Joint Capital Market Program', 2018

World Bank Group, 'Principles for Public Credit Guarantee Schemes for SMEs', *Task Force for the Design, Implementation and Evaluation of Public Credit Guarantee Schemes for Small and Medium Enterprises*, 2015

Zarutskie, R., 'Evidence on the effects of bank competition on firm borrowing and investment', *Journal of Financial Economics* 81 (2006) 503–537

APPENDICES

Appendix table 1: SME financial inclusion and the macroeconomic characteristics - MENA

	Dependent variable: SME financial inclusion index											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)
Investment (%GDP)	0.005*** (0.002)	0.003 (0.003)	0.003 (0.002)	0.004* (0.002)	0.002 (0.002)	0.002 (0.002)	0.005*** (0.002)	0.002 (0.003)	0.003 (0.002)	0.004* (0.002)	0.002 (0.002)	0.004* (0.002)
Inflation	-0.007*** (0.002)	-0.004* (0.002)	-0.006*** (0.002)	-0.003 (0.002)	-0.004 (0.003)	-0.004 (0.003)	-0.007*** (0.002)	-0.004* (0.002)	-0.006*** (0.002)	-0.003 (0.002)	-0.004 (0.003)	-0.007*** (0.002)
SME share of employment	-0.001 (0.001)	-0.002 (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.003*** (0.001)
MENA	-0.167*** (0.044)	-0.115* (0.061)	-0.184*** (0.062)	-0.106 (0.065)	-0.143** (0.066)	-0.147** (0.063)	-0.155*** (0.044)	-0.078 (0.091)	-0.039 (0.231)	-0.270** (0.114)	-1.592*** (0.566)	-0.127 (0.093)
Eco. Diversification		0.086*** (0.023)						0.084*** (0.024)				
Informality			-0.005*** (0.002)						-0.005*** (0.002)			
Infrastructure				0.007*** (0.001)						0.007*** (0.001)		
Eco. Competition					0.067* (0.039)						0.053 (0.040)	
Public investment (% total)						-0.002** (0.001)						-0.002 (0.001)
Oil exporters							-0.085** (0.037)					
MENA*Eco. Diversification								0.043 (0.076)				
MENA*Informality									-0.005 (0.009)			
MENA*Infrastructure										0.026 (0.018)		
MENA*Competition											0.351*** (0.133)	
MENA*Public investment												-0.002 (0.002)
Constant	0.431*** (0.055)	0.509*** (0.081)	0.659*** (0.076)	0.388*** (0.063)	0.206 (0.175)	0.572*** (0.075)	0.439*** (0.055)	0.505*** (0.081)	0.657*** (0.077)	0.385*** (0.064)	0.257 (0.176)	0.567*** (0.076)
Observations	190	121	148	124	124	122	190	121	148	124	124	122
R-squared	0.158	0.250	0.210	0.267	0.099	0.273	0.174	0.252	0.211	0.280	0.123	0.275
Adjusted R-squared	0.140	0.218	0.182	0.236	0.0608	0.242	0.151	0.212	0.178	0.243	0.0784	0.238

Robust standard errors in parentheses. Incone levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 2: SME financial inclusion and the macroeconomic characteristics - CCA

	Dependent variable: SME financial inclusion index										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)
Investment (%GDP)	0.005*** (0.002)	0.003 (0.003)	0.004* (0.002)	0.004** (0.002)	0.003 (0.002)	0.005** (0.002)	0.003 (0.003)	0.004* (0.002)	0.004* (0.002)	0.003 (0.002)	0.005** (0.002)
Inflation	-0.008*** (0.002)	-0.005** (0.002)	-0.007*** (0.002)	-0.003 (0.002)	-0.005 (0.003)	-0.007*** (0.002)	-0.005** (0.002)	-0.007*** (0.002)	-0.003 (0.002)	-0.005 (0.003)	-0.007*** (0.002)
SME share of employment	-0.001* (0.001)	-0.002 (0.001)	-0.002** (0.001)	-0.002* (0.001)	-0.001 (0.001)	-0.003*** (0.001)	-0.002 (0.001)	-0.002** (0.001)	-0.002* (0.001)	-0.001 (0.001)	-0.003*** (0.001)
CCA	-0.078** (0.031)	0.002 (0.043)	-0.052 (0.046)	-0.128*** (0.038)	-0.071** (0.034)	-0.014 (0.031)	0.022 (0.065)	-0.426*** (0.092)	-0.062 (0.066)	-0.734*** (0.266)	-0.014 (0.031)
Eco. Diversification		0.093*** (0.023)					0.093*** (0.023)				
Informality			-0.004** (0.002)					-0.004** (0.002)			
Infrastructure				0.008*** (0.001)					0.008*** (0.001)		
Eco. Competition					0.069* (0.040)					0.067* (0.040)	
Public investment (% total)						-0.002* (0.001)					-0.002* (0.001)
Oil exporters											
CCA*Eco. Diversification							0.022 (0.062)				
CCA*Informality								0.010*** (0.002)			
CCA*Infrastructure									-0.003 (0.004)		
CCA*Competition										0.153** (0.063)	
CCA*Public investment											0.000 (0.000)
Constant	0.422*** (0.059)	0.482*** (0.081)	0.604*** (0.085)	0.365*** (0.065)	0.174 (0.179)	0.539*** (0.081)	0.482*** (0.082)	0.617*** (0.086)	0.365*** (0.065)	0.182 (0.181)	0.539*** (0.081)
Observations	190	121	148	124	124	122	121	148	124	124	122
R-squared	0.118	0.227	0.165	0.264	0.068	0.210	0.227	0.171	0.265	0.070	0.210
Adjusted R-squared	0.0989	0.194	0.135	0.233	0.0288	0.176	0.187	0.136	0.227	0.0220	0.176

Robust standard errors in parentheses. Incone levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 3: SME financial inclusion and the financial sector and regulatory characteristics – MENA

	Dependent variable: SME financial inclusion index															
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)	(14)	(15)	(16)	
Investment (%GDP)	0.005*** (0.002)	0.005*** (0.002)	0.003 (0.002)	0.003 (0.002)	0.003* (0.002)	0.007* (0.003)	0.006* (0.003)	0.005 (0.003)	0.005*** (0.002)	0.003 (0.002)	0.003 (0.002)	0.003* (0.002)	0.004 (0.003)	0.003 (0.003)	0.003 (0.003)	
Inflation	-0.007*** (0.002)	-0.006** (0.002)	-0.001 (0.003)	-0.010** (0.005)	-0.007*** (0.002)	-0.003 (0.009)	-0.003 (0.009)	0.000 (0.009)	-0.006** (0.002)	-0.001 (0.003)	-0.010** (0.005)	-0.007*** (0.002)	0.003 (0.008)	0.004 (0.008)	0.006 (0.007)	
SME share of employment	-0.001 (0.001)	-0.001* (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.001 (0.002)	-0.000 (0.002)	-0.001* (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.002)	0.001 (0.002)	-0.000 (0.002)	
MENA	-0.167*** (0.044)	-0.191*** (0.051)	-0.222*** (0.040)	-0.137*** (0.065)	-0.226*** (0.048)	0.019 (0.187)	0.009 (0.183)	-0.064 (0.162)	-0.194* (0.100)	-0.253*** (0.077)	-0.072 (0.147)	-0.404*** (0.078)	-1.318*** (0.236)	-2.873*** (0.493)	-1.222*** (0.220)	
Bank return on equity		-0.002* (0.001)							-0.002 (0.001)							
Bank deposit (%GDP)			0.005*** (0.001)							0.004*** (0.001)						
NPLs (% gross loans)				-0.006* (0.003)							-0.005 (0.003)					
Bank Z-score					0.005** (0.002)							0.004* (0.002)				
Capacity of regulatory agency						-0.001 (0.001)							-0.001 (0.001)			
Reg and Sup capacity for FI							-0.000 (0.002)							-0.000 (0.002)		
Reg and Sup capacity of deposit-taking act.								0.003** (0.001)							0.003** (0.001)	
MENA*Bank return on equity									0.000 (0.005)							
MENA*Bank deposit (%GDP)										0.001 (0.001)						
MENA*NPLs (% gross loans)											-0.005 (0.009)					
MENA*Bank Z-score												0.009*** (0.003)				
MENA*Capacity of regulatory agency													0.016*** (0.003)			
MENA*Reg and Sup capacity for FI														0.047*** (0.008)		
MENA*Reg and Sup capacity of deposit-taking activities															0.014*** (0.002)	
Constant	0.431*** (0.055)	0.480*** (0.063)	0.330*** (0.061)	0.541*** (0.085)	0.421*** (0.064)	0.428*** (0.139)	0.409*** (0.128)	0.206 (0.140)	0.480*** (0.063)	0.331*** (0.062)	0.532*** (0.089)	0.432*** (0.065)	0.506*** (0.141)	0.475*** (0.125)	0.275** (0.127)	
Observations	190	159	161	112	160	32	32	32	159	161	112	160	32	32	32	
R-squared	0.158	0.165	0.360	0.143	0.192	0.309	0.306	0.420	0.165	0.360	0.145	0.204	0.417	0.409	0.501	
Adjusted R-squared	0.140	0.138	0.339	0.103	0.166	0.108	0.104	0.250	0.132	0.335	0.0957	0.173	0.214	0.203	0.327	

Robust standard errors in parentheses. Income levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 4: SME financial inclusion and the financial sector and regulatory characteristics – CCA

	Dependent variable: SME financial inclusion index															
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)	(14)	(15)	(16)	
Investment (%GDP)	0.005*** (0.002)	0.005*** (0.002)	0.004** (0.002)	0.003 (0.002)	0.004** (0.002)	0.007* (0.003)	0.006* (0.003)	0.005 (0.003)	0.005*** (0.002)	0.004** (0.002)	0.003 (0.002)	0.004** (0.002)	0.007** (0.003)	0.007* (0.003)	0.003 (0.004)	
Inflation	-0.008*** (0.002)	-0.006** (0.003)	-0.003 (0.002)	-0.011** (0.005)	-0.008*** (0.002)	-0.004 (0.009)	-0.003 (0.009)	0.000 (0.009)	-0.006** (0.003)	-0.003 (0.002)	-0.011** (0.005)	-0.008*** (0.002)	-0.002 (0.008)	-0.002 (0.009)	0.002 (0.009)	
SME share of employment	-0.001* (0.001)	-0.002* (0.001)	-0.002** (0.001)	-0.000 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	-0.002* (0.001)	-0.002** (0.001)	-0.000 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	
CCA	-0.078** (0.031)	-0.087*** (0.033)	-0.003 (0.035)	-0.106*** (0.029)	-0.070** (0.035)	-0.056 (0.077)	-0.039 (0.077)	-0.024 (0.072)	-0.113 (0.094)	-0.034 (0.070)	-0.102** (0.046)	-0.012 (0.053)	0.158 (0.131)	0.321 (0.250)	0.282 (0.195)	
Bank return on equity		-0.001 (0.001)									-0.001 (0.001)					
Bank deposit (%GDP)			0.004*** (0.001)								0.004*** (0.001)					
NPLs (% gross loans)				-0.008*** (0.003)								-0.008*** (0.003)				
Bank Z-score					0.003 (0.002)								0.003 (0.002)			
Capacity of regulatory agency						-0.001 (0.001)								0.001 (0.002)		
Reg and Sup capacity for FI							-0.000 (0.002)								0.000 (0.002)	
Reg and Sup capacity of deposit-taking act.								0.003** (0.001)								0.004** (0.002)
CCA*Bank return on equity									0.002 (0.006)							
CCA*Bank deposit (%GDP)										0.002 (0.004)						
CCA*NPLs (% gross loans)											-0.001 (0.004)					
CCA*Bank Z-score												0.0007 (0.004)				
CCA*Capacity of regulatory agency													0.0005 (0.003)			
CCA*Reg and Sup capacity for FI														-0.009 (0.007)		
CCA*Reg and Sup capacity of deposit-taking activities																-0.004 (0.003)
Constant	0.422*** (0.059)	0.460*** (0.068)	0.317*** (0.066)	0.542*** (0.086)	0.420*** (0.067)	0.193 (0.136)	0.424*** (0.131)	0.212 (0.138)	0.460*** (0.068)	0.317*** (0.066)	0.542*** (0.086)	0.420*** (0.067)	0.363** (0.175)	0.404*** (0.134)	0.175 (0.144)	
Observations	190	159	161	112	160	32	32	32	159	161	112	160	32	32	32	
R-squared	0.118	0.111	0.285	0.128	0.117	0.319	0.311	0.416	0.112	0.285	0.128	0.118	0.382	0.341	0.457	
Adjusted R-squared	0.0989	0.0824	0.262	0.0871	0.0881	0.120	0.111	0.246	0.0765	0.257	0.0784	0.0834	0.166	0.111	0.268	

Robust standard errors in parentheses. Income levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 5: SME financial inclusion and quality of institutions – MENA

	Dependent variable: SME financial inclusion index								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment (%GDP)	0.004** (0.002)	0.005*** (0.002)	0.003** (0.002)	0.003** (0.001)	0.003** (0.001)	0.005*** (0.002)	0.003 (0.002)	0.003** (0.001)	0.003* (0.001)
Inflation	-0.005*** (0.002)	-0.002 (0.002)	-0.003* (0.002)	-0.003 (0.002)	-0.003* (0.002)	-0.002 (0.002)	-0.003* (0.002)	-0.002 (0.002)	-0.003 (0.002)
SME share of employment	-0.001 (0.001)	-0.001* (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.001* (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)
MENA	-0.156*** (0.039)	-0.087** (0.040)	-0.107** (0.042)	-0.130*** (0.038)	-0.134*** (0.037)	-0.002 (0.095)	-0.001 (0.061)	-0.031 (0.062)	-0.048 (0.063)
Voice & accountability		0.102*** (0.020)				0.101*** (0.020)			
Political stability			0.050** (0.021)				0.041* (0.022)		
Gov effectiveness				0.131*** (0.029)				0.126*** (0.029)	
Control of corruption					0.123*** (0.024)				0.119*** (0.025)
MENA*Voice & accountability						0.087 (0.088)			
MENA*Political stability							0.081** (0.036)		
MENA*Gov effectiveness								0.133* (0.075)	
MENA*Control of corruption									0.120* (0.069)
Constant	0.503*** (0.064)	0.424*** (0.060)	0.496*** (0.063)	0.387*** (0.062)	0.458*** (0.056)	0.424*** (0.060)	0.510*** (0.065)	0.386*** (0.063)	0.460*** (0.056)
Observations	189	184	184	184	184	184	184	184	184
R-squared	0.321	0.392	0.335	0.384	0.406	0.394	0.344	0.390	0.411
Adjusted R-squared	0.294	0.364	0.304	0.356	0.379	0.362	0.310	0.359	0.381

Robust standard errors in parentheses. Incone levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 6: SME financial inclusion and quality of institutions – CCA

	Dependent variable: SME financial inclusion index								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment (%GDP)	0.005** (0.002)	0.005*** (0.002)	0.003* (0.002)	0.004*** (0.001)	0.003** (0.001)	0.005*** (0.002)	0.003* (0.002)	0.004** (0.001)	0.003** (0.002)
Inflation	-0.006*** (0.002)	-0.002 (0.002)	-0.003* (0.002)	-0.003 (0.002)	-0.004** (0.002)	-0.002 (0.002)	-0.003* (0.002)	-0.002 (0.002)	-0.004** (0.002)
SME share of employment	-0.001 (0.001)	-0.001** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
CCA	-0.081* (0.046)	0.008 (0.037)	-0.068* (0.040)	-0.064*** (0.021)	-0.027 (0.031)	-0.043 (0.052)	-0.077 (0.066)	-0.013 (0.068)	-0.058* (0.033)
Voice & accountability		0.114*** (0.019)				0.116*** (0.020)			
Political stability			0.064*** (0.019)				0.064*** (0.019)		
Gov effectiveness				0.152*** (0.018)				0.141*** (0.019)	
Control of corruption					0.127*** (0.025)				0.129*** (0.026)
CCA*Voice & accountability						-0.051 (0.043)			
CCA*Political stability							-0.017 (0.070)		
CCA*Gov effectiveness								0.138* (0.082)	
CCA*Control of corruption									-0.038 (0.035)
Constant	0.503*** (0.067)	0.417*** (0.061)	0.496*** (0.064)	0.380*** (0.064)	0.457*** (0.058)	0.416*** (0.061)	0.496*** (0.064)	0.378*** (0.065)	0.457*** (0.058)
Observations	189	184	184	184	184	184	184	184	184
R-squared	0.288	0.381	0.323	0.363	0.379	0.382	0.323	0.363	0.379
Adjusted R-squared	0.260	0.352	0.292	0.334	0.350	0.350	0.288	0.331	0.347

Robust standard errors in parentheses. Incone levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 7: SME financial inclusion and business environment – MENA

	Dependent variable: SME financial inclusion index													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)	(14)	
Investment (%GDP)	0.005*** (0.002)	0.006*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.006*** (0.002)	0.002 (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.004** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.002 (0.002)	
Inflation	-0.007*** (0.002)	-0.007*** (0.002)	-0.005*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)	-0.004 (0.003)	-0.007*** (0.002)	-0.005*** (0.002)	-0.007*** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)	-0.004 (0.003)	
SME share of employment	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)
MENA	-0.167*** (0.044)	-0.163*** (0.046)	-0.176*** (0.047)	-0.190*** (0.050)	-0.148*** (0.043)	-0.152*** (0.044)	-0.147** (0.063)	-0.259*** (0.093)	-0.177** (0.072)	-0.365*** (0.059)	-0.047 (0.097)	-0.173*** (0.055)	-0.507 (0.329)	
Total tax rate (%profit)		-0.000* (0.000)						-0.001** (0.000)						
Cost of business start-up procedures			-0.001*** (0.000)							-0.001*** (0.000)				
Cost to register property				-0.011*** (0.003)							-0.013*** (0.003)			
Time required to enforce a contract					-0.000* (0.000)							-0.000 (0.000)		
Public credit registry coverage						0.003** (0.001)							0.003** (0.001)	
Property rights							0.070*** (0.022)						0.062*** (0.023)	
MENA*Total tax rate								0.002 (0.002)						
MENA*Cost of business start-up procedures									0.000 (0.001)					
MENA*Cost to register property										0.036*** (0.011)				
MENA*Time required to enforce a contract											-0.000 (0.000)			
MENA*Public credit registry coverage												0.004 (0.004)		
MENA*Property rights													0.092 (0.078)	
Constant	0.431*** (0.055)	0.446*** (0.056)	0.444*** (0.053)	0.485*** (0.055)	0.503*** (0.077)	0.392*** (0.055)	0.215** (0.108)	0.453*** (0.058)	0.444*** (0.054)	0.502*** (0.057)	0.498*** (0.077)	0.391*** (0.055)	0.240** (0.111)	
Observations	190	182	182	187	182	182	124	182	182	187	182	182	124	
R-squared	0.158	0.189	0.252	0.220	0.197	0.211	0.149	0.192	0.252	0.238	0.200	0.212	0.158	
Adjusted R-squared	0.140	0.166	0.231	0.198	0.174	0.188	0.113	0.164	0.227	0.213	0.172	0.185	0.115	

Robust standard errors in parentheses. Income levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 8: SME financial inclusion and business environment – CCA

	Dependent variable: SME financial inclusion index												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)	(14)
Investment (%GDP)	0.005*** (0.002)	0.006*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.006*** (0.002)	0.002 (0.002)	0.006*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.006*** (0.002)	0.002 (0.002)
Inflation	-0.008*** (0.002)	-0.008*** (0.002)	-0.006*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.007*** (0.002)	-0.005 (0.003)	-0.008*** (0.002)	-0.006*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.007*** (0.002)	-0.005 (0.003)
SME share of employment	-0.001* (0.001)	-0.001* (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001* (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.001 (0.001)
CCA	-0.078** (0.031)	-0.085*** (0.031)	-0.112*** (0.032)	-0.145*** (0.035)	-0.122*** (0.036)	-0.080*** (0.030)	-0.054 (0.040)	-0.084 (0.063)	-0.100*** (0.038)	-0.140*** (0.044)	-0.172* (0.104)	-0.079** (0.037)	0.166 (0.206)
Total tax rate (%profit)		-0.000 (0.000)						-0.000 (0.000)					
Cost of business start-up procedures			-0.001*** (0.000)							-0.001*** (0.000)			
Cost to register property				-0.012*** (0.003)							-0.012*** (0.003)		
Time required to enforce a contract					-0.000** (0.000)							-0.000** (0.000)	
Public credit registry coverage						0.003** (0.001)							0.003** (0.001)
Property rights							0.069*** (0.022)						0.071*** (0.022)
CCA*Total tax rate								-0.000 (0.001)					
CCA*Cost of business start-up procedures									-0.002 (0.002)				
CCA*Cost to register property										-0.006 (0.012)			
CCA*Time required to enforce a contract											0.000 (0.000)		
CCA*Public credit registry coverage												-0.000 (0.003)	
CCA*Property rights													-0.058 (0.054)
Constant	0.422*** (0.059)	0.437*** (0.061)	0.437*** (0.057)	0.476*** (0.060)	0.524*** (0.082)	0.385*** (0.058)	0.198* (0.111)	0.437*** (0.061)	0.437*** (0.058)	0.476*** (0.061)	0.524*** (0.082)	0.385*** (0.058)	0.193* (0.112)
Observations	190	182	182	187	182	182	124	182	182	187	182	182	124
R-squared	0.118	0.153	0.214	0.178	0.174	0.179	0.114	0.153	0.214	0.178	0.174	0.179	0.115
Adjusted R-squared	0.0989	0.129	0.191	0.155	0.151	0.156	0.0762	0.124	0.187	0.151	0.146	0.151	0.0696

Robust standard errors in parentheses. Income levels dummies included but not reported. ***, **, * indicate statistical significance at 10, 5, and 1 percent levels, respectively.

Appendix table 9: Sample

Afghanistan	Croatia	Lebanon	Sierra Leone
Albania	Czech Republic	Lesotho	Slovak Republic
Angola	Djibouti	Lithuania	Slovenia
Antigua and Barbuda	Dominica	Madagascar	Solomon Islands
Argentina	Dominican Republic	Malawi	South Africa
Armenia	Ecuador	Malaysia	Sri Lanka
Azerbaijan	Egypt, Arab Rep.	Mali	St. Kitts and Nevis
Bahamas, The	El Salvador	Mauritania	St. Lucia
Bangladesh	Eritrea	Mauritius	St. Vincent and the Grenadines
Barbados	Estonia	Mexico	Sudan
Belarus	Ethiopia	Moldova	Suriname
Belize	Fiji	Mongolia	Swaziland
Benin	Gabon	Montenegro	Tajikistan
Bhutan	Gambia, The	Morocco	Tanzania
Bolivia	Georgia	Mozambique	Thailand
Bosnia and Herzegovina	Ghana	Myanmar	Timor-Leste
Botswana	Grenada	Namibia	Togo
Brazil	Guatemala	Nepal	Tunisia
Bulgaria	Guinea	Nicaragua	Turkey
Burkina Faso	Guinea-Bissau	Niger	Turkmenistan
Burundi	Guyana	Nigeria	Uganda
Cambodia	Honduras	Pakistan	Ukraine
Cameroon	Hungary	Panama	Uruguay
Central African Republic	India	Paraguay	Uzbekistan
Chad	Indonesia	Peru	Vanuatu
Chile	Israel	Philippines	Venezuela, RB
China	Jamaica	Poland	Vietnam
Colombia	Jordan	Romania	West Bank and Gaza
Congo, Dem. Rep.	Kazakhstan	Russian Federation	Yemen, Rep.
Congo, Rep.	Kenya	Rwanda	Zambia
Costa Rica	Kyrgyz Republic	Senegal	Zimbabwe
Cote d'Ivoire	Latvia	Serbia	