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FAVORING THE SMALL AND THE PLENTY: ISLAMIC BANKING FOR MSMES

OMNEYA ABDELSALAM,
AHMET F. AYSAN AND MUSTAFA DISLI

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Favoring the small and the plenty: Islamic banking for MSMEs

Omneya Abdelsalam^a – Ahmet F. Aysan^b – Mustafa Disli^{b,c}

^a Durham University Business School, UK

^b College of Islamic Studies, Hamad Bin Khalifa University, Qatar

^c Department of Economics, Ghent University, Belgium

E-mail addresses: o.h.abdelsalam@durham.ac.uk (O. Abdelsalam), aaysan@hbku.edu.qa (A.F. Aysan), mdisli@hbku.edu.qa (M. Disli).

Abstract

While MSMEs form the backbone of many countries, most of them suffer from limited access to finance. We extend the literature by examining whether Islamic banks, compared to their conventional peers, favor more the MSMEs credit market segment in Turkey. We do this by considering various aspects of the lending behavior towards MSMEs (total lending, foreign currency lending, loan commitments, loan quality, revenues, and cyclicalities) across different MSMEs size categories (micro, small and medium-sized firms). Our results show that once we control for bank-specific characteristics, we find that Islamic banks are more engaged with MSME financing and generate more revenues from servicing MSMEs. However, concerning the quality of the MSME lending portfolio, no distinguishable patterns were observed between Islamic and conventional banks. Further, our results show that MSME lending by Islamic banks tend to be on average less cyclical than that of conventional banks.

Keywords: Small business lending, Islamic banking.

JEL: G21, G28, G3

Favoring the small and the plenty: Islamic banking for MSMEs

1. Introduction

Banks are considered prime providers of finance for micro, small and medium-sized enterprises (MSMEs). MSMEs represent a vast portion of businesses in many economies, and contribute significantly to employment and growth. Across the OECD area, for instance, MSMEs account for approximately 99% of the total number of firms and two-thirds of employment (OECD 2019). Because of their informationally opaque nature, however, MSMEs face greater obstacles in raising external finance than their larger counterparts. It follows that suitable alternatives should be provided to close further the MSME financing gap.¹ One area that is particularly in need of further study is the role of Islamic banks in tackling financial exclusion. The past half of a century has witnessed the emergence of Islamic banking and finance from an expression of Muslims' distinct identity to a mature and conspicuously large and fast-growing industry. Especially since the outbreak of the latest global financial crisis, interest in Islamic banking has gained momentum as a viable alternative to the conventional way of banking. Indeed, the relative performance of Islamic banks to conventional banks proved to perform better in the lead-up to the crisis, and exhibited greater resilience during the crisis because of their fundamentals of risk-sharing, and avoidance of leverage and speculative financial products (e.g., Čihák and Hesse 2010, Hasan and Dridi 2011 and Beck et al. 2013). According to the figures of IFSB (2019), between 2008 and 2017, the Islamic banking industry grew by a compound rate of about 10%, reaching more than US\$ 1.6 trillion in total assets. Pursuing fairness and socio-economic justice are considered to be the most salient values of the Islamic financial system. Next to social responsibility, by expanding the range of financial products, Islamic finance is believed to be well-positioned to help improve financial access for those deprived of financial services, due to their faith. With its emphasis on norms and values, Islamic finance ideals encourage entrepreneurship at the micro-, meso- and macro-level (Gümüşay, 2015).

¹ MSME financing gap refers to the obstacle that a significant number of MSMEs face in raising external finance even for financially viable investment projects.

Compared to other developing countries, the ownership structure of banking systems in Muslim-majority countries has not only experienced a move towards more foreign bank presence, but has also become more distinctive with the development of Islamic banking entities. However, while the impact of conventional bank ownership on financing decisions has been subject to increasing scrutiny, almost no effort has been made to explore the provision of lending services, and more specifically lending to MSMEs, by Islamic banks. The aim of this paper is to test empirically whether Islamic banks are more inclined to service the MSME market by using Turkey as a single country case study. The Turkish context is particularly relevant given the dominance of the MSME sector in the economy. From Table 1, we can observe that Turkish MSMEs play a vitally important role in the ‘non-financial business economy’. They provided most of the jobs (75.5% in 2015), constituted 99.8% of all businesses and generated 50.5% of the value added in 2015. Relative to their numbers in the total enterprise population, micro-businesses accounted for a smaller share of the total value added compared to other size categories. Although they do not generate as much income as larger corporations, they are, however, considered as being a critical component of the strength of local economies. Since an overwhelming majority of businesses are MSMEs, with large enterprises representing only a tiny fraction of firms, the Turkish corporate sector structurally faces the problem of information asymmetry in obtaining external finance.² Therefore, an important policy question is whether alternative financing mechanisms, such as Islamic finance, can further ease MSMEs’ financing constraints.

<INSERT TABLE 1 ABOUT HERE>

The Turkish banking system is especially suitable for the comparative analysis of conventional and Islamic banks’ lending behavior towards MSMEs. Turkey implements a dual banking system, in which Islamic banks operate alongside conventional banks and are subject to the same regulatory standards. Furthermore, Islamic finance holds a sizeable segment within the financial services industry, and its relevance is set to increase even more because of Turkey’s large Muslim

² According to the Turkish Statistical Institute, businesses with fewer than 10 employees or annual sales of less than 1 million Turkish lira (TL) are classified as micro-sized enterprises; establishments employing between 10 and 49 people, or with annual sales between 1 and 5 million TL are identified as small-sized businesses; and businesses that have 50–249 employees or annual sales of 5–25 million TL are categorized as medium-sized businesses.

population.³ Using quarterly bank-level data from 2006Q4 to 2014Q2, we test whether belonging to a bank type – Islamic or conventional – is a critical factor in explaining the orientation towards financing MSMEs. In doing so, we contribute to the literature along several dimensions. First, while it has been claimed that Islamic finance is seen as an opportunity for advancing a possible alternative means of financial intermediation, especially for micro-businesses and SMEs, the empirical literature is surprisingly sparse due to both data limitations and the relatively recent interest in this subject.⁴ Secondly, we add to the general literature of banks’ MSME exposure as we are able to differentiate between lending to micro, small and medium-sized enterprises. Despite their importance to the economy, the literature has only to a limited extent studied whether bank orientation affects the credit provisioning to MSMEs.⁵ Furthermore, these studies have generally limited their scope to the aggregate category of MSME financing by banks, without being able to zoom further into the SME lending portfolio. The distinction between smaller and larger MSMEs is, however, important since evidence suggests that firm size affects financing patterns (Demirgüç-Kunt and Maksimovic 1999). Further, it is likely that financial statement lending is used less frequently for smaller MSMEs (Uchida et al. 2012). As far as we are aware of, this is the first attempt that makes a distinction between different MSME categories, and their relationship with different types of banks in obtaining funding. Third, by covering the entire banking sector, this is also the first study that relates bank type to various aspects of MSME lending practices. Similar to banks’ MSME loan exposure, our data allow us to examine whether bank type has an influence on foreign exchange lending, loan commitments, loan quality, and lending cyclicalities across different MSME classifications.

We find that bank orientation is a significant dimension to explain lending specialization. In particular, once we control for bank-specific characteristics, we find that Islamic banks are more

³ The nine core markets – Bahrain, Qatar, Saudi Arabia, Malaysia, United Arab Emirates, Kuwait, Pakistan and Turkey – are considered to be the pulse of the international Islamic banking industry (Ernst & Young, 2016).

⁴ The literature so far has almost entirely focused upon discussing how the *Shariah* way of intermediation differs from the conventional one.

⁵ Most of these studies explored the reasons why different *conventional* bank ownerships differ in terms of their total credit portfolio composition. For instance, in comparing the behavior of foreign and domestic banks, the argument is that the former have a comparative advantage in transaction lending and a disadvantage in relationship lending and therefore tend to “cherry pick” the largest, most transparent firms that they lend to in host countries (e.g., Aghion and Tirole 1997, Berger et al. 2005).

engaged with MSME financing. The distinction between different types of MSME borrowers yields us some interesting insights as well: Islamic banks fare especially well in the financing of small and medium-sized companies, whereas their credit extension towards micro-sized firms do not differ from privately-owned domestic banks. In the analyses of other aspects of lending behavior, we find that Islamic banks outperform their conventional peers in terms of foreign exchange lending, extension of letters of credit and generate more revenues from servicing MSMEs. This holds through different MSME size categories. Concerning the quality of the MSME lending portfolio, no distinguishable patterns were observed between Islamic and conventional banks. Further, our results show that MSME lending by Islamic banks tend to be on average less cyclical than that of conventional banks.

The remainder of this paper is structured as follows. In Section 2, we review the literature with a particular focus on Islamic banks' role in access to credit. In Section 3, we describe our data and empirical methodology. In Section 4, along with robustness checks, we present the empirical results on the effects of Islamic banks in the financing decision of MSMEs. In Section 5, we examine the impact of Islamic banks on various aspects of MSME lending: revenues, non-performing loans, lines of credit, foreign exchange lending, and cyclicity of lending decisions. Finally, Section 6 contains the conclusions reached.

2. Literature review

The key difference between Islamic and conventional banks is that the former operate in compliance with the rules of *Shariah*, the legal code of Islam. The most distinguishing feature of the Islamic financial system is the prohibition of *riba*, i.e., the payment of a fixed or determinable interest on funds. The moral code in Islamic banking and finance, as with many aspects of Islamic society, is justice. In this respect, justice is achieved through risk-sharing, which corresponds to sharing of profits or losses. From a *Shariah* point of view, the foundational philosophy of Islamic finance also heavily relies on the economic and social development, including financial inclusion through servicing the un-banked and under-banked of the society – such as MSMEs and lower-income individuals (Asutay 2012). Furthermore, it has been claimed that Islamic banks are through

asset-based and equity-based financing instruments well-equipped to finance enterprises and start-ups (Iqbal and Mirakhor 2011).⁶

In theory, as part of their corporate responsibility, Islamic finance is well-positioned to promote financial inclusion and economic development. The limited empirical evidence at the macro level indeed suggests that Islamic finance is a promising avenue for promoting economic growth. Applying the stochastic frontier approach at the country level for a sample of 70 countries over the 2000-2005 period, Gheeraert and Weill (2015) find that Islamic banking development fosters macroeconomic efficiency. Again in a cross-country setting, Imam and Kpodar (2016) show that Islamic banking positively contributes to economic growth, even after controlling for the level of financial development.⁷ There is, however, no unequivocal empirical evidence on the relationship between Islamic banking and financial inclusion parameters. Naceur et al. (2012) find that although physical access to financial services has grown more rapidly in Muslim-majority countries, the use of these services has not increased as rapidly. After controlling for other individual- and country-level characteristics, Demirgüç-Kunt et al. (2014) find that while Muslims are less likely to hold savings accounts in a formal financial institution, they are no less likely to borrow than non-Muslims.

For the most part, the conducive role of Islamic banks on the credit supply has been suggestive because of the paucity of appropriate data. For instance, the International Finance Corporation (IFC) (2014) reports that while Muslim countries exhibit lower levels of financial inclusion, the presence of Islamic banks mitigates religious self-exclusion since a lower share of firms in these countries cite access barriers to finance as a significant obstacle. Although profit-and-loss sharing through equity-based financial instruments (such as *Musharaka*) is accepted as the ideal form of intermediation, Islamic banks' main exposure is through asset-based financing in the form of *Murabaha*. *Murabaha* is a contract of exchange based on purchase-and-sale contracts (*Al-Bay'*)

⁶ The most commonly used financing option by Islamic banks is asset-based from which *Ijara* and especially *Murabaha* make up the bulk of the transactions. Under a *Murabaha* contract, a bank agrees to buy assets from a third party at the request of its clients, and then re-sells them to its client with a mark-up profit, usually paid back to the bank in installments. The *Ijara* contract or Islamic leasing involves a transaction in which a bank buys and leases out an asset or equipment to its client for a pre-agreed rental fee. The Islamic equity-based financing contracts are based on profit-and-loss sharing arrangements with *Musharaka* (participation financing) and *Mudaraba* (trust financing) being the most common ones.

⁷ Kumru and Sarntisart (2016) theoretically demonstrate that this finding is driven by an improved allocation of aggregate level of savings since the presence of Islamic banks mitigates religious self-exclusion.

with a predetermined cost and profit. Through this contract, the financier purchases the assets required by the client, and sells them, usually in installments, to the client at a cost that includes a disclosed profit margin. Nevertheless, since the bank maintains the ownership of the asset until the maturity of the contract, it has been claimed that the *Murabaha* contract significantly eases the collateral constraints that small entrepreneurs invariably find difficult to comply with.⁸ This feature may be particularly important for small businesses that usually have few assets or assets that are difficult to value as a collateral. We are aware of only two empirical studies that have explored the relationship between bank orientation (Islamic vs. conventional) and SME finance. Shaban et al. (2014) confirm that in the case of Indonesia – over the 2002–2010 period and looking at 114 banks – are more inclined to engage in small business lending than their conventional counterparts. A similar finding is reported by Aysan et al. (2016) in the Turkish context, who show that Turkish Islamic banks allocate a higher share of their assets to small business loans.

Islamic banks' mission of inclusive economic growth could, however, be compromised because of divergences between these banks' ideals and their practices. Using cross-country firm-level survey data, Léon and Weill (2017) do not find that Islamic banks alleviate firms' obstacles in obtaining external funds, suggesting the presence of mutually offsetting forces. The difficult financing conditions proposed by Islamic banks may act as one access limiting force. More specifically, Islamic banks may have a lower cost performance because these banks are usually relatively small (diseconomies of scale) and require additional legal obligations stemming from the very nature of their operations (Srairi 2010, Beck et al. 2013). The *Murabaha* financing mode involves two sales transactions – temporary purchase and sale – instead of one. The partnership financing scheme based on profit-and-loss sharing requires, next to additional screening and monitoring costs, the formation of separate of legal entities. Furthermore, Islamic banks need to institute a *Shariah* supervisory board to advise them whether their operations and activities are line with *Shariah* principles. Another force that can temper Islamic banks' willingness to finance is that these banks potentially have greater market power than their conventional counterparts (Léon and Weill 2017). More specifically, Islamic banks can benefit from *Shariah* arbitrage, i.e., the labeling of products as *Shariah*-compliant make their demand more inelastic since the clientele is driven by

⁸ The WB-IDB (2015) report provides further support for this mechanism by indicating that the collateral requirements are more effectively overcome through enforcing sale of asset in case of default.

religious motives (El-Gamal 2005). This may result in an increase in the intermediation margins and hence lower access to finance.

<INSERT TABLE 2 ABOUT HERE>

Given these considerations, whether the net effects of Islamic finance on access to credit are positive or negative is, ultimately, an empirical question. Table 2 summarizes the main findings of the above-mentioned empirical studies.⁹ Closest to this study are Shaban et al. (2014) and Aysan et al. (2016). Our work, however, extends and complements both of these studies in important ways. Rather than examining only the relationship between bank orientation and the aggregate MSME lending portfolio, we further disaggregate this portfolio into three size categories (micro, small and medium-sized firms). Furthermore, next to lending behavior, by incorporating various aspects of MSME lending into our analyses (such as foreign exchange lending, loan commitments, loan quality and cyclicalities), we offer a more complete perspective on the comparative performance of Islamic banks vis-a-vis conventional banks.

3. Data and empirical methodology

3.1. Background and data sources

Islamic banking in Turkey has taken off since the 1980s with the introduction of ‘Special Finance Houses’. Despite being *Shariah*-compliant, such a euphemism was adopted to soothe their Islamic image and to resonate with the ideological sensitivity of the secular establishment. However, shifts in subsequent governments’ priorities have allowed Islamic banking to gradually acquire legitimacy as financial intermediaries. Especially the enactment of the Banking Law No. 5411 in 2005 meant a major breakthrough in this respect, which enabled Islamic banks to have the same

⁹ For a more comprehensive survey of the empirical literature on Islamic banking and finance, we refer to Abedifar et al. (2015) and Narayan and Phan (2017).

privileges and status as conventional banks. Before this reform, Islamic banks in Turkey did not enjoy the same regulatory status as conventional banks, and Islamic deposits were not covered by the government-provided insurance.¹⁰ This legislation transformed ‘Special Finance Houses’ into ‘Participation Banks’ and brought their regulation and supervision on par with conventional banks.¹¹ The Turkish Islamic banking segment has since then witnessed a remarkable growth, but, as of 2016, still only accounts for 5.5% of the Turkish banking system assets. However, it appears to be that Turkish Islamic banks are better able to mitigate the information asymmetries in small business lending, and thereby improve the capital allocation process.¹² In fact, the country’s efforts in tackling the unmet demand of MSMEs have been praised by international bodies and the potential replication of its financing model across other emerging countries has been suggested to be put under scrutiny (WB-IDB 2015).

We test our hypotheses about Islamic banks’ attitudes towards MSME lending by using a novel dataset that was provided by the Central Bank of the Republic of Turkey (CBRT). The data contain information on the amount of granted loans, revenues from these loans, lines of credit, and non-performing loans for three borrower types: micro-sized enterprises, small-sized enterprises, and medium-sized enterprises. To examine whether Islamic banks’ lending behavior differs from their conventional counterparts, irrespective of individual bank characteristics, we accompany this small business lending data with standard information from balance sheets and income statements. The standard information for conventional banks is derived from the Banks Association of Turkey, and that of Islamic banks is from the Participation Banks Association of Turkey. Our quarterly dataset comprises 36 conventional banks and 4 Islamic banks over the time period 2006Q4–2014Q2. The four Islamic banks are *Bank Asya*, *Turkiye Finans*, *Albaraka Turk*, and *Kuveyt Turk*.¹³

¹⁰ For example, the regulatory framework in which Islamic banks’ operated was inadequate in the sense that the Decree No. 83/7506 that allowed Islamic banks to operate in Turkey could just as easily be revoked (Brown 2014).

¹¹ Islamic banks in Turkey are referred to as Participation banks since, in keeping with Islamic tenets, depositors and borrowers participate in the risk of financial transactions with their intermediaries.

¹² We refer to Aysan et al. (2017a) for a detailed discussion of the developments in the Turkish dual banking system.

¹³ Since 2015, to further stimulate the Islamic banking segment, two more banks, Ziraat Participation Bank and Vakif Participation have been authorized by the country’s banking regulator (BRSA) to operate as the first state-owned Islamic banks. In February 2015, however, the BRSA handed over Bank Asya’s

3.2. Empirical methodology

Once we control for bank characteristics, do banks having a different orientation (i.e. Islamic versus conventional) generate different behavior towards MSME finance? In particular, is it the case that, Islamic banks have more favorable attitudes towards SME financing? We first study the impact of bank orientation on the allocation of loans towards three borrower types: micro-sized enterprises, small-sized enterprises, and medium-sized enterprises. For each type of borrower, the growth rate and/or share of MSME financing are modelled as a function of bank orientation, as well as controls for bank characteristics and time-fixed effects. In particular, we estimate the following equation:

$$Y_{i,j,t} = \alpha_0 + \alpha_1 Islamic_{i,t} + \alpha_2 X_{i,t=init.} + \alpha_3 T_t + \varepsilon_{i,t} \quad (1)$$

where Y represents one of the MSME relationship measures for bank i to borrower type j at quarter t : (foreign exchange) lending, lines of credit, lending rates, and non-performing loans. The variable we are mostly interested in is *Islamic*, which is a dichotomous variable that equals to 1 for banks whose operations are based on *Shariah* principles. In particular, this variable captures the comparative behavior of banks of different orientation in the MSME segment of the credit market in Turkey. The matrix X stands for bank-level control variables. Note that to cope with potential endogeneity problems, instead of lagged explanatory variables, we prefer to use their initial values as in Clarke et al. (2005).¹⁴ Bellemare et al. (2015) show that the introduction of lagged values as explanatory variables does not solve the endogeneity problem, but merely moves it one period back in time. In un-tabulated analyses, however, when we replicate all the models used in this study with lagged explanatory variables, the coefficient estimate of the variable of interest remains, most of the time, qualitatively the same.¹⁵ Further, all regression models include quarterly time dummy

management to the deposit insurance fund on the grounds of irregular monetary transactions to Gülen-linked companies, and lack of transparency. Bank Asya's banking licence was eventually cancelled in July 2016.

¹⁴ The majority of initial values is taken from 2006Q4 when our dataset starts. However, for those banks that enter subsequently, their first observation is taken as the initial value.

¹⁵ The results of regressions with lagged independent variables are available from the authors upon request.

variables to control for time-varying macroeconomic shocks, and to capture economy-wide changes in loan volumes and other credit terms. The regressions are estimated using pooled OLS. Reported standard errors are robust to the presence of heteroscedasticity and serial correlation.¹⁶

<INSERT TABLE 3 ABOUT HERE>

Table 3 lists the names and definitions of all the variables used in this paper, while Table 4 reports their summary statistics. The last column of Table 4 presents the difference in means between Islamic and conventional banks for the variables used in the models, along with asterisks denoting their significance. The dependent variables capture various aspects of MSME financing for the full segment and its disaggregation into borrower types (micro, small and medium-sized firms). On average, Islamic banks allocate a higher proportion of their assets to MSME loans (full and across borrower types) than conventional banks, and that this difference was persistent during the sample period (growth rates do not significantly differ from each other between bank types). Similarly, we observe that Islamic banks extend proportionally more lines of credit to the MSME segment of the market. Differences between Islamic and conventional banks in both of these indicators may reflect the use of *Murabaha* contracts for credit transactions by Islamic banks, which is believed to operate as a tool to reduce informational asymmetries. On the other hand, Islamic banks are less engaged with foreign exchange MSME financing than their conventional counterparts. Especially foreign exchange lending to small-sized enterprises seems to drive this observation. Further, compared to conventional banks, Islamic banks generate more income from their MSME borrowers, while they

¹⁶ Throughout the manuscript, unless otherwise stated, the parameter estimations were performed using ordinary least squares (OLS) while the variances were estimated using an estimator robust to heteroscedasticity and serial correlation. In cross-sectional data regressions it is common that the homoscedasticity and no correlation assumptions are violated, with the result that the OLS estimator of the variance matrix likely becomes inconsistent. To overcome this problem, we use the Huber-White standard errors that correct for clustering and are robust to heteroscedasticity and serial correlation (Huber 1967; White 1980; Rogers 1993). Second, since we use the initial values of explanatory variables, we rule out the possibility that not including non-observable bank specific effects could be a source of endogeneity. Third, given that we use the initial values, the main source of information is the variability of the variables between banks (between variation), not the variability of them over time within a single bank (within variation). This renders the estimator using deviations from the variable means (Least Squares Dummy Variable or fixed-effects regression) inefficient. Fourth, Beck and Katz (1995) show that panel data OLS performs relatively well compared to other estimators if, as in our sample, the cross-sectional dimension dominates the time dimension.

are not differently exposed to non-performing loans. In fact, compared to their conventional peers, Islamic banks more effectively manage the credit risk of their investments in medium-sized enterprises. The focus of this study is whether these unconditional differences, as suggested by Table 4, still hold once we control for bank-specific characteristics.

<INSERT TABLE 4 ABOUT HERE>

To control for the possible sensitivity of MSME financing to bank health, we include the following bank fundamental ratios (Cull and Martínez Pería, 2013): solvability, liquidity, deposit-funding, and profitability. The impact of some of these fundamentals on banks' MSME loan portfolio is, however, a priori unknown. For example, more profitable and better capitalized banks might be better positioned than low-capitalized banks to advance know-how in specific areas such as MSME financing. On the other hand, undercapitalized banks may take more risk to boost profits by venturing more aggressively into high-risk segments such as MSME financing (Clarke et al. 2005). Liquid banks might try offset the opportunity costs of higher cash holdings through two opposing strategies (Aysan et al. 2016): charging higher lending rates to MSME borrowers (price effect) or rebalance their loan portfolio exposures by focusing more on MSME financing (quantity effect). Although deposit liabilities are a stable source of bank funding, their influence on small business lending is also difficult to determine. The figures reveal that Turkish Islamic banks are less-capitalized, more liquid, and rely more heavily on deposit-funding. The lower capitalization ratio may reflect the different nature of Islamic banks since these banks operate like equity-based companies in which depositors are treated as quasi-shareholders (Grais and Pellegrini 2006). Higher liquidity and deposits ratios might be a reflection of reduced access to *Shariah*-compliant investments and non-deposit funding sources, respectively. As for the other bank-control variables, we observe that Islamic banks are on average younger but bigger than conventional banks.

4. Estimation results

Below, we present our results as follows. First, we discuss whether Islamic banks differ from their conventional counterparts with respect to lending towards the MSME segment and its size

breakdown. Second, we repeat the previous exercise but with the difference that we take into account the heterogeneity in terms of ownership in the conventional banking group. Third, we determine whether our results hold with bank-fixed effects regressions.

4.1. Banks' MSME financing – Islamic versus conventional banks

For the full sample of MSME borrowers as well as for different borrower types, we initially investigate whether bank orientation (Islamic versus conventional) affects both the share and growth of lending. Considering both of these elements is important since lending growth reveals the dynamics of convergence (or divergence) in the MSME lending shares (Clarke et al. 2005, Aysan et al. 2016). In Table 5, the first two columns report the regression estimates for the full MSME segment, while the following columns show the separate estimation results for the three size categories of MSMEs. Differences in lending behavior towards MSMEs between Islamic and conventional banks are derived from the coefficient estimate on the *Islamic* variable. In the share regression for the entire MSME segment, the coefficient estimate for *Islamic* is positive and significant at the 1% level (Column 1). These results suggest that, after controlling for other factors that might affect lending, Islamic banks hold, on average, 11.235% larger share of MSME loans in the assets portfolio than conventional banks do. On the other hand, we observe that the coefficient estimate for *Islamic* in the growth regression is not statistically different from zero (Column 2). This indicates that the difference between Islamic and conventional banks in credit allocation towards MSMEs is persistent. Similar conclusions are reached for both share and growth regressions for the different size (micro, small, or medium-sized) categories and, in fact, the difference in shares between Islamic and conventional banks increases with the MSME size category: average difference in share of lending to micro-sized firm segment is 1.066%, whereas this difference is 3.822% and 6.347% to small-sized and medium-sized categories, respectively. Hence, the larger magnitude of coefficients in the regressions for larger MSME classifications suggests that larger MSMEs are relatively more serviced by Islamic banks. This observation is also the first evidence that Islamic banks follow heterogeneous lending policies according to the size of the MSME borrower.

<INSERT TABLE 5 ABOUT HERE>

Since bank lending to MSMEs constitute only a portion of the total investment activities, we lack strong priors about how balance sheet characteristics and other bank-specific information would affect the lending behavior towards MSMEs.¹⁷ For example, the *Equity ratio* enters the share regression for the entire MSMEs negatively, indicating that under-capitalized banks devote a higher portion to MSME lending. At first sight, this finding suggests that banks with low equity are willing to “gamble for resurrection” by resorting to risky practices, such as lending to MSMEs. However, the regressions for the subcategories offer a more nuanced picture: banks with lower capitalization invest more in the largest size category of MSMEs, while they invest less in the much more risky micro sub-segment. The *Liquidity ratio* does not seem to affect the supply of credit towards MSMEs. The only exception is for the micro SME sub-segment; banks with higher liquidity levels are, on average, more inclined to service micro-sized SMEs. Furthermore, the *Deposits ratio* does not unequivocally indicate that larger deposit-funding is steering towards MSME lending. Concerning the share regressions, deposit-funded banks do not seem to have an influence in the share of the total MSME portfolio. The sub-categories, however, indicate that deposit-funded banks allocate more favorably credits to micro-sized SMEs, while the opposite holds for medium-sized SMEs. The share regressions for the *Profits ratio* show that less profitable banks are more likely to invest in MSMEs, and this through all size categories. Hence, banks with low return on assets are venturing into riskier but more rewarding segments of the credit market. The *Bank age* variable indicate that older banks do hold a smaller share of the MSME lending, and that this finding is mainly driven by lending to both small and medium-sized sub-segments. On the other hand, compared with younger banks, we observe that older banks are more inclined to finance micro-sized firms. The *Bank size* variable does not seem to influence lending to the entire MSME segment. This finding, however, is not characteristic for the different size categories. Bigger banks allocate more funds to micro-sized firms, while the opposite is true for medium-sized firms.

The bank orientation variable as well as the bank characteristics are not significant in the growth rate regressions for the total MSME segment, and its sub-segments.

¹⁷ In addition, the literature is silent particularly on how these bank characteristics affect the allocative decisions within and between the various groups of investment activities.

4.2. Banks' MSME financing – Islamic versus different forms of bank ownership

Our aforementioned results show that, compared with conventional banks, Islamic banks exhibit larger credit exposures not only to the main MSME category, but also for all sub-categories. However, the previous literature shows that the heterogeneity in the ownership structure of conventional banks produces different lending outcomes towards small businesses. Historically, foreign banks were recognized for their efficiency in financial intermediation (e.g., Bonin et al. 2005, Fries and Taci 2005). However, evidence from emerging economies suggests that foreign banks are risk averse and therefore are less likely to lend to small and opaque companies for which most of the information on them is soft. This soft information impedes the effective transmission of information at foreign banks, which typically have more hierarchical decision-making structures (e.g., see Mian 2003, Gormley 2010, Sengupta 2007).¹⁸ The literature on state-owned banks indicates that the presence of these banks are correlated with poor financial development and inefficiencies in financial intermediation (Barth et al. 2001, La Porta et al. 2002). Further evidence suggests that these banks are more subject to credit misallocation due to politically motivated lending practices (Sapienza 2004, Dinç 2005, Claessens et al. 2008).

Hence, in this section, we compare Islamic banks' MSME lending behavior with the behavior of different conventional bank ownership forms. Out of the 36 conventional banks that operate in Turkey, 15 banks are classified as domestically owned commercial banks (more than 50% of their shares are owned by Turkish citizens), 18 banks are classified as foreign (more than 50% of their shares are owned by non-residents), and 3 of them are state-owned banks. We extend Eq. 1 by

¹⁸ In comparing the lending behavior of small and large banks, the argument is that the latter have a comparative advantage in transaction lending and a disadvantage in relationship lending. On the other hand, some recent studies (see Berger and Udell 2006, de la Torre et al. 2010) underline the possibility that large banks can be as effective in MSME lending through increasing the effectiveness of arms-length lending technologies (credit scoring, factoring, asset-based lending etc.). However, these lending technologies are less applied in Turkey. According the Turkish Commercial Code, the majority of enterprises are not legally required to audit their financial statements. Moreover, credit scoring to determine customers' history of creditworthiness is still not common practice mainly because of low quality of the credit registry (contains primarily negative information regarding delinquencies).

including bank ownership dummy variables in which domestically owned commercial banks serve as the control group.

<INSERT TABLE 6 ABOUT HERE>

Results of the extended models are presented in Table 6. The share regression for the aggregated MSME category confirms our previous finding that Islamic banks are allocating relatively more of their resources to MSME lending. More specifically, the weight they assign to MSME lending is more than all the different groups of conventional banks: the coefficient on *Islamic* is 0.0287, which implies that the average Islamic bank devotes 2.87% more MSME financing than domestically owned commercial banks. Consistent with the literature above, foreign and state-owned banks are less likely to lend to MSMEs. More specifically, after controlling for bank characteristics, foreign and state-owned banks' portfolio consists of 10.293% and 5.563%, respectively, less financing than the shares of privately owned commercial banks.

As for the MSME sub-segments: the positive coefficient on *Islamic* in the aggregated MSME regression seems to be driven by Islamic banks' lending to small and medium-sized firm categories. For the lending towards micro-segment of the industry, Islamic banks are not distinguishing themselves from privately-owned Turkish banks. Compared with privately-owned domestic banks, foreign banks are less likely to lend across all sub-segments. State-owned banks, on the other hand, while they lend less to small and medium-sized firms, they are more likely to be engaged in the debt-servicing of micro-firms. This finding reflects, in part, the historical role of state-owned banks in the achievement of their institutionalized development mandates. Through their countrywide branch network, Turkish authorities direct subsidized credits to agricultural producers and micro-firms.

In the share regressions, for the variables capturing bank characteristics, the coefficients and levels of significance remain similar to those observed in Table 5. In the growth regressions across all size categories, almost all coefficients on explanatory variables remain insignificant. A notable exception is the coefficient on state-owned banks for the medium-sized category which indicates that state-owned banks are increasing efforts in the credit allocation towards this sub-segment.

4.3. Fixed effect regressions

Although our primary regressions include a variety of bank-specific variables to control for inherent differences between Islamic and conventional banks, the estimation results may still suffer from an omitted-variable bias. In other contexts, the inclusion of bank-fixed effects would mitigate this omitted variables problem. In our case, however, the primarily variable of interest, i.e. the bank orientation variable *Islamic*, do not change during the sample period. Therefore, it is not possible to disentangle the effect of the *Islamic* variable from the individual bank-fixed effects. In fact, we observe a similar invariance for state-owned banks. Hence, the time-invariant nature of the bank orientation variable prevents us to include bank-fixed effects.

<INSERT TABLE 7 ABOUT HERE>

To circumvent this issue, it is necessary to divide the estimation procedure in two stages (see Hsiao 2014). We also refer to Clarke et al. (2005), who follow a similar estimation strategy to evaluate the sensitivity of their findings with respect to MSME lending in a sample of Latin American countries.¹⁹ In the first stage, we regress the share (or growth rate) of MSME lending on bank fundamentals, other controls, quarterly time-dummy variables, and individual bank dummy variables (i.e., bank fixed effects). In the second stage, the estimated fixed effects from the first stage are used as dependent variables. To conserve space, Table 7 only reports the estimated coefficients of the second stage. The share and growth regressions for the total MSME segment, as well as its sub-segments, are estimated under two model specifications. The first one includes the *Islamic variable* (vs. conventional banks), and the second one controls, next to the *Islamic variable*, for the heterogeneity in conventional banks' ownership structure. Although the number of observations dropped substantially commensurate with the number of banks, the results are consistent with our earlier analyses. For the two model specifications under share regressions,

¹⁹ Nevertheless, in order to mitigate the concerns about the robustness of our findings, we replicated all the analyses reported in the manuscript, using the random effects estimator. The findings for most of the models remain robust if the models are run with the random effects estimator. These additional results are available upon request.

Islamic banks are more willing to allocate credits to the entire spectrum of MSMEs. The only exception is again the financing approach towards the micro-sized sub-segment, where we do not find that Islamic banks differ from private domestic banks. As for the growth regressions, most of the coefficient estimates on *Islamic* remain insignificant.²⁰

5. Other aspects of MSME lending policies

In the previous section, we examined whether bank orientation explains (part of) the lending behavior towards MSMEs. In this section, we expand into other aspects of MSME lending policies. Since almost all variables were found to be insignificant in the growth regressions, from now on, unless otherwise stated, we will proceed with the share regressions. First, we verify the attitude of Islamic banks towards foreign exchange lending. Second, we examine whether bank orientation matters for lending rates. Third, we check whether our findings for bank lending corroborate with

²⁰ One may be concerned that our results could be driven by the Islamist-rooted government party, Justice and Development Party or AKP, such that Islamic banks' favorable attitude towards MSME financing might be a reflection of clientelistic practices. There are, however, a number of arguments against this possibility. First, although the AKP has its Islamist roots, the driving force behind the party's consecutive election wins is the growing but heterogeneous urban lower middle class. From this point of view, explicitly favoring one segment at the expense of another, would damage the mainstream image of the AKP. However, the government has indeed been following an active policy in correcting the historically-rooted institutionalized biases against the religious identity in various contexts, including the banking sector. In December 2005, upon enactment of the Banking Act No. 5411, the government created an even level playing field for Islamic banks vis-a-vis conventional banks. Since then, Islamic banks have been subject to the same regulatory rules and oversight, and Islamic depositors have benefited from the same deposit insurance coverage compared to their conventional peers. Hence, from a regulatory point of view, Islamic banks do not enjoy any preferential treatment. Concerning the lending towards MSMEs, Islamic banks have to meet the same minimum capital standards as conventional banks. If there have been any preferential treatment from the government towards MSMEs, this would have been materialized through state-owned banks, and not through the privately-owned Islamic banks (Dinç 2005, Cole 2009). Secondly, Tables 4-8 show that the growth rate in the volume of MSME lending between Islamic and conventional banks is, on average, not different from each other, indicating that the wedge in lending behavior between both bank types has not increased but remained unchanged. Thirdly, taking into account the AKP's prolonged tenure in power, one can in fact argue that the market share of Islamic banks has not matched with the expectations. Finally, although these findings need further substantiation, province-level regressions reveal that Islamic banks' total credit growth in the provinces (we have no data specifically on MSME lending on the level of provinces) which were lost by the AKP is larger than in provinces where the AKP was the largest, giving us an indication that there is no rent redistribution towards supporters through Islamic banks.

the issued letters of credit. Fourth, we reveal the impact of bank orientation on MSME loan quality. Finally, we check whether orientation is correlated with lending behavior over the business cycle.

5.1. Foreign exchange lending to MSMEs

The liberalization policies instituted by the late President Turgut Özal from the beginning of 1980s redirected the economy towards export-oriented and labor-intensive industrialization. It was also under his impetus that Islamic banks were founded. Moreover, one of the most important outcomes of Özal's export-oriented policies was the creation of Islamic business groups, which were mainly organized under the umbrella of MÜSIAD, the association of Islamic inclined businessmen. Over the years, and especially after the conservative Justice and Development Party (AKP) came into power in 2002, MÜSIAD has built an enormous outreach of representatives both within and beyond Turkey. MÜSIAD's members are mostly pious entrepreneurs from Anatolia, especially located in cities such as Gaziantep, Kayseri and Konya. The region is home to a strengthening conservative business class, often dubbed as 'Anatolian Tigers', and has fueled economic growth, industrial diffusion and export-capacity.

<INSERT TABLE 8 ABOUT HERE>

Numerous studies indicate that Islamic banks have played a pivotal role in the formation of export potential of Anatolian MSMEs (e.g., Özcan and Cokgezen 2003, Demiralp 2009, Gümüşcü 2010, Hosgör 2011). Table 8 provides the empirical verification of this assertion, and reports the results of the share regressions for extended loans in foreign currency. We indeed find that Islamic banks are more likely to lend in foreign currency for all MSME size-categories than their conventional peers. Further, compared with the difference in unconditional means (Table 4), the multivariate regressions show that Islamic banks are more apt to finance MSME in foreign currency. On the other hand, foreign and state-owned banks are less lending in foreign currency compared to domestically-owned private banks.

5.2. Loan rates to MSMEs

In this sub-section, we will proceed with the comparative evaluation of the rates charged on MSMEs between Islamic and conventional banks. As indicated before, Islamic rates refer to the revenues generated from their lending activities, mainly through *Murabaha* finance. Since in most countries, including Turkey, only a few Islamic banks operate alongside conventional banks, it has been argued that they have a more captive clientele (e.g., Kuran 2004). This has led to what El-Gamal (2005) dubs as ‘*Shariah* arbitrage’: participants in a captive market are willing to pay a higher premium for *Shariah*-approved financial products (but mimicking their conventional counterparts). We will examine whether Islamic banks indeed charge higher premiums to MSMEs than conventional banks.

<INSERT TABLE 9 ABOUT HERE>

Table 9 presents the results of the comparative analyses. For each size category, the revenues are calculated as the generated (interest/premium) income divided by the volume of lending directed to each corresponding category. The results show that the captivity hypothesis holds for each size category. For instance, Islamic banks are on average able to generate 2.245% more revenues from their total MSME lending portfolio than do conventional banks (Column 1). As for the conventional bank ownership groups, except towards the micro-sized sub-segment, foreign banks charge higher interest rates than their privately-owned domestic counterparts. This may be partly explained by their conservative lending policies towards MSMEs. On the other hand, state-owned banks charge their MSME borrowers less than privately-owned peers, a finding consistent with the idea that these banks are maintaining subsidized lending practices towards MSMEs, and hence are not governed by profit criteria alone.

5.3. Banks’ willingness to lend – Letters of Credit

Thus far, our focus has been on MSME loans held on the balance sheet and the results suggest that bank orientation matters for the explanation of credit supply towards different types of MSME borrowers. The CBRT data, however, allow us to distinguish between actual extension of funds (held on-balance sheet) and commitment loans (held off-balance sheet) towards different MSME types. The loans made under commitment arguably captures more effectively banks’ willingness

to lend. However, the bank has less control over the lending flows from previously negotiated commitments than it does with the newly negotiated terms for actual loan extensions (Hirtle 2009). Further, loan commitments require more intensive monitoring efforts because the borrower is more likely to access the negotiated facility when it is performing poorly (Berger and Udell 1995). On the empirical side, Drucker and Puri (2009) confirm the differential treatment between term loans and loan commitments in the loan sales market, suggesting the relevance of this distinction.

<INSERT TABLE 9 ABOUT HERE>

Table 9 reports the regression estimates of the impact of bank orientation on the commitment lending towards the general pool of MSMEs and its sub-segments. The results for the commitment lending mirror very closely the share regressions for the actual extension of funds (Tables 5 and 6): Islamic banks, on average, issue more commitment loans than conventional banks, and the results for the MSME sub-categories indicate that their appetite to do so is stronger for the medium-sized segment. Compared to their private domestic peers, foreign and state-owned banks are less active in this off-balance sheet market.

5.4. Non-performing loans in banks' MSME lending portfolio

Differences in asset quality across Islamic and conventional banks are, a priori, not well known. The consideration of non-performing loans (NPLs) of a particular segment of the credit market, namely the MSME sector, renders a prediction even more difficult. Indeed, the empirical literature on the relationship between asset quality of MSME credits and conventional bank ownership has not settled yet. The only study that we are aware of is Beck et al. (2008), who in a cross-country analysis show that the asset quality do not differ across different bank ownerships. In fact, perhaps surprisingly, even the literature on the impact of bank ownership on the total loan portfolio NPLs is quite limited. As for foreign banks, for example, Barajas et al. (2000) find that foreign banks in Columbia have fewer problems with asset quality than do domestic banks. This evidence might be the result of foreign banks' adoption of better credit-risk management practices (Berger et al. 2009). It, however, might also be a reflection of foreign banks' different customer-mix because they are believed to pursue more conservative lending policies, in which they tend to 'cherry pick' more

transparent and creditworthy borrowers (Beck and Brown 2015). State-owned banks, on the other hand, are more likely to make poor lending decisions because of political interference, and moral hazard problems arising from soft-budget constraints (Mian 2003, Cornett et al. 2010). As for Islamic banks, for a sample of 22 countries, Beck et al. (2013) report that Islamic banks have higher asset quality. Likely because of the activation of religious moral norms, Baele et al. (2014) show for Pakistan that loans originated from Islamic banks are subject to much lower default rates.

<INSERT TABLE 11 ABOUT HERE>

Table 11 presents the estimation results for MSMEs' non-performing loans. For the aggregate MSME, as well as for the sub-segments, the NPLs are calculated as the share of credits directed for each corresponding category (see Table 3). For the aggregate MSME category, Islamic banks record lower NPLs ratios compared to conventional banks (see Column 1, the *Islamic* variable has a negative and statistically significant coefficient. However, the statistical significance of this relationship is lost upon inclusion of conventional ownership dummy variables. As for the determinants of credit quality across different MSME size classifications: Islamic banks do not process the micro-lending portfolio any different from conventional banks, but the results for the two larger sub-segments produce opposing effects on NPLs. While the quality of Islamic banks' small-sized lending portfolio is better than conventional banks, the credit quality of the medium-sized portfolio is comparatively poor. These results only partially support the findings by Beck et al. (2013) and Baele et al. (2014). Although we acknowledge that transactions with Islamic principles may activate moral norms, which restrict dishonest behavior, it is likely that Islamic banks' aggressive MSME lending practices in Turkey temper the (average) borrower's moral salience.

5.5. Banks' MSME financing and business cycle

Our findings so far show clear positive links between Islamic banks and their propensity to issue MSME loans. Furthermore, in Section 4, the growth regressions revealed that bank orientation does

not matter in the explanation of the growth in MSME financing. In this subsection, we will verify whether the growth in MSME lending is, nonetheless, sensitive to business cycle effects. As far as we know, this is the first study that also incorporates Islamic banks' behavior with respect to business cycle fluctuations. Based on the evidence from conventional banks, state-owned banks have been found to be better positioned in times of crisis to provide counter-cyclical support measures. Lending by state-owned banks tends to increase in macroeconomic downturns, mitigating the downfall in lending by private banks (Micco and Panizza 2006, Bertay et al. 2015, Coleman and Feler 2015). Two reasons have been put forward to explain this divergence in lending. First, state-owned banks are less reliant on short-term obligations, but instead are more deposit-funded, which allows them to continue credit extensions (Ivashina and Scharfstein 2010). Second, state-owned banks are more subject to political influence, and hence increase their lending in downturns relative to private banks (Coleman and Feler 2015). Given the *Shariah*-constrained environment in which Islamic banks operate, Islamic banks too are heavily reliant on deposit-funding. This is also clearly shown in Table 4 where Islamic banks' average deposits ratio is substantially larger than that of conventional banks. This is because Islamic banks have limited access to both the interbank market and the lender of last resort facility. Ivashina and Scharfstein (2010) suggest that especially in economic downturns banks that are better able to fund themselves with deposits, because of their funding stability, will cut their lending by less than banks who are funded by short-term debt. Further, Farooq and Zaheer (2005) show that Islamic banks are less prone to deposit withdrawals during financial crises. Hence, we will verify whether the MSME credit growth is different for Islamic banks over the business cycle.

<INSERT TABLE 12 ABOUT HERE>

For this purpose, we extend Spec. 1 with an interaction variable between bank orientation and GDP growth. The GDP growth variable is computed by comparing a relative quarter of the year on annual basis. Note that the inclusion of time-fixed effects already controls for lending cyclicity throughout all banks, and that the coefficient on the interaction term captures the additional shift in the lending cyclicity of Islamic banks. Before discussing the estimation results, we, however, should take caution to draw too drastic conclusions from our findings. We are aware that the length of the time period is relatively short and may not fully capture the business cycle implications of

lending. Therefore, our result should be taken as a first indication and further work is needed to confirm them. The results are presented in Table 12. For the total MSME lending growth regressions (Columns 1 and 2), the interaction term *Islamic*GDP growth* is negative and statistically significant at the 10% level. This finding shows that Islamic banks are less cyclical than their conventional counterparts. Further, foreign and state-owned banks, since the coefficient estimations on their interactions with *GDP growth* are non-significant, follow a more cyclical lending behavior. The growth in Islamic banks' MSME lending portfolio seems to be particularly driven by engaging in countercyclical lending practices towards micro-firms. This is particularly important since previous evidence indicates that smaller firms are less likely to survive economic downturns (Gertler and Gilchrist 1994). The MSME breakdown further reveals that the separate conventional banking groups' lending behavior towards each sub-segment follows the cyclical movement of output.

Conclusions

The core principles of Islam emphasize social justice and empowerment. The specific implication stemming from this argument for MSME financing is that Islamic banks can promote financial inclusion by offering more suitable products for those that are unbanked and underbanked. This paper verifies whether Islamic banks indeed serve as a catalyst for inclusive growth. We do this by examining various aspects of MSME lending (lending, foreign exchange lending, loan commitments, loan quality, revenues, and cyclicity) across different MSME size categories (micro, small and medium-sized firms) and whether bank orientation is an explaining factor of lending behavior. We find that, on average, Islamic banks in Turkey lend more to MSMEs, and its three subcategories. Since growth rates in lending do not seem to be affected by bank orientation, the difference in lending behavior towards MSMEs is persistent between Islamic and conventional banks. But instead of making a comparison between Islamic and conventional banks, as is typically done in the literature, the comparison between Islamic and different conventional bank ownership forms yields us a slightly different picture: once controlled for bank-characteristics, Islamic banks lend to different types of MSMEs more than all other types of banks, except in the micro-sized

segment where they were not discernable from privately-owned commercial banks. Hence, firm size affects the access to finance: the larger the MSME the more likely to have a loan from Islamic banks. This finding furthermore suggests the incorporation of different conventional ownership groups rather than treating them as one homogeneous group in comparative studies with Islamic banks.

Similar (or even more stronger) findings were found for foreign exchange lending, issuance of letters of credit, and revenue generation. All of these results confirm that Islamic banks have a comparative advantage in lending to opaque borrowers. We believe that the specificities of *Murabaha*-financing and Islamic banks' specialization in the acquisition of soft information are the contributing factors for this observation. Another finding is that Islamic banks exhibit a lower cyclicity of MSME lending, and that is this finding is mainly driven through their countercyclical approach towards micro-sized firms. The social orientation and the specific liability structure (more deposit-funded) of Islamic banks may explain this finding. However, since our sample period is not long, further tests are needed to confirm the countercyclical lending behavior of Islamic banks.

Given the importance of small firms to value added and job creation, Turkish Islamic banks' favorable attitude towards the financing of MSMEs has also been praised by international organizations (WB-IDB 2015). Further, as evidenced by Aysan et al. (2017b), it is precisely because Islamic banks hold larger shares of their portfolios to MSMEs that makes monetary transmission more effective through these banks. However, Turkey's Islamic financial sector is still far less developed when compared to countries such as Bahrain and Malaysia. In seeking to expand the Islamic finance industry, the government has increased its efforts by putting public Islamic banks on the agenda. *Ziraat Participation Bank* and *Vakif Participation Bank*, the Islamic unit of two state-owned lenders, have started their operations and this process will continue with the establishment of *Halk Participation Bank*. Rather than competing with the existing Islamic banks, the aim of these public banks should be concentrating on the growth of the sector. Next to these efforts by the government, the large Muslim population will drive the sector to grow in the longer term. According to a survey conducted by Thomson Reuters (2013), there is much scope for a further advancement of the Islamic finance industry. The survey uncovered that there is indeed a strong demand for Islamic banks' home and MSME financing. However, to broaden Islamic banks' appeal to customers, several issues remain that need to be addressed by policy makers. First, there is an urgent need to increase the awareness of banking customers towards Islamic finance

(Thomson Reuters 2013). Secondly, the Banking Regulation and Supervision Agency of Turkey has the authority to supervise and enact legislation applicable to Turkish banks, including Islamic banks. This institution, however, lacks the necessary expertise and experience to steer and control Islamic banking activities. An active involvement of the Presidency of Religious Affairs (*Diyamet*) is necessary to create a much needed *Shariah* governance framework. Finally, the sector should focus on product diversification, such as offering *Shariah*-compliant insurance or *Takaful*, which at the present has a minimal profile in the Turkish market.

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Table 1: Importance of SMEs in Turkey and EU

Class size	Number of enterprises			Number of persons employed			Value added		
	Turkey		EU28	Turkey		EU28	Turkey		EU28
	Number	Share	Share	Number	Share	Share	Million €	Share	Share
Micro	2,380,885	96.4 %	92.8 %	5,112,500	45.2 %	29.0 %	30,075	15.3 %	20.2 %
Small	57,214	2.3 %	6.0 %	1,754,015	12.7 %	20.2 %	24,717	12.6 %	17.7 %
Medium-sized	25,948	1.1 %	1.0 %	2,582,542	17.6 %	17.1 %	44,596	22.6 %	18.4 %
SMEs	2,464,047	99.8 %	99.8 %	9,449,147	75.5 %	66.3 %	99,388	50.5 %	56.3 %
Large	4,694	0.2 %	0.2 %	3,583,058	24.5 %	33.7 %	97,539	49.5 %	43.7 %
Total	2,468,741	100.0 %	100.0 %	13,032,205	100.0 %	100.0 %	196,927	100.0 %	100.0 %

Source: European Commission's 2018 SBA Fact Sheet Turkey. Figures are related to 2015. According to the Turkish Statistical institute: businesses with fewer than 10 employees or annual sales of less than 1million TL are classified as micro-sized enterprises; businesses with 10–49 employees or annual sales of 1–5 million TL are identified as small businesses; and businesses that have 50–249 employees or annual sales of 5–25 million TL are categorized as medium-sized businesses. Turkey and EU use equal staff headcount ceilings for the definition of different SME categories.

Table 2: Islamic versus conventional banking systems – empirical evidence

Authors	Coverage	Period	Main findings
Macroeconomic performance			
Gheeraert and Weill (2015)	70 countries	2000-2005	Development of Islamic banking has a beneficial impact on macroeconomic efficiency
Imam and Kpodar (2016)	52 countries	1990-2010	Countries with a developed Islamic banking system experience faster economic growth.
Financial inclusion			
Demirgüç-Kunt et al. (2014)	64 countries	2011	Muslims are significantly less likely than non-Muslims to own a formal savings account. There is no discernable difference between Muslims and non-Muslims when it comes to borrowing. Muslims are more likely to report religion as a barrier to account ownership, and hence there is demand for Islamic financial products.
Naceur et al. (2012)	150 countries	2004-2013	The use of financial services in Muslim majority countries (both with and without Islamic banking) is lower than in non-Muslim majority countries. Muslim majority countries with Islamic banking exhibit average levels of inclusion surpass those Muslim majority countries without Islamic banking.
Access to credit			
Léon and Weill (2017)	52 countries	2000-2005	Overall, Islamic banking development does not relax credit constraints. Islamic banking development only exerts a positive impact on access to credit when conventional banking development is low.
SME financing			
Aysan et al. (2016)	Turkey	2006-2014	Compared to conventional banks, Islamic banks are more inclined toward financing MSMEs.
Shaban et al. (2014)	Indonesia	2002-2010	Islamic banks in Indonesia are more likely to lend to MSMEs than conventional banks.

Table 3: Definition of the variables

Dependent variables	
MSME Lending: Share	The ratio of the total MSME lending portfolio to total assets
MSME Lending: Growth	The quarterly first difference of the log of MSME loans
Micro Lending: Share	The ratio of lending to micro-sized firms to total assets
Micro Lending: Growth	The quarterly first difference of the log of lending to micro-sized firms
Small Lending: Share	The ratio of lending to small-sized firms to total assets
Small Lending: Growth	The quarterly first difference of the log of lending to small-sized firms
Medium Lending: Share	The ratio of lending to medium-sized firms to total assets
Medium Lending: Growth	The quarterly first difference of the log of lending to medium-sized firms
FX MSME Lending: Share	The ratio of MSME loans in foreign currency to total assets
FX Micro Lending: Share	The ratio of lending to micro-sized firms in foreign currency to total assets
FX Small Lending: Share	The ratio of lending to small-sized firms in foreign currency to total assets
FX Medium Lending: Share	The ratio of lending to medium-sized firms in foreign currency to total assets
MSME Lending rate	The ratio of interest income to MSME loans. Calculated on quarterly basis.
Micro Lending rate	The ratio of interest income to lending to micro-sized firms. Calculated on quarterly basis.
Small Lending rate	The ratio of interest income to lending to small-sized firms. Calculated on a quarterly basis.
Medium Lending rate	The ratio of interest income to lending to medium-sized firms. Calculated on a quarterly basis.
MSME Lines of Credit	The ratio of lines of credit to MSMEs to total assets
Micro Lines of Credit	The ratio of lines of credit to micro-sized firms to total assets
Small Lines of Credit	The ratio of lines of credit to small-sized firms to total assets
Medium Lines of Credit	The ratio of lines of credit to medium-sized firms to total assets
NPL: MSME Lending portfolio	The ratio of nonperforming loans to MSME loans
NPL: Micro Lending portfolio	The ratio of micro-sized nonperforming loans to lending to micro-sized firms
NPL: Small Lending portfolio	The ratio of small-sized nonperforming loans to lending to small-sized firms
NPL: Medium Lending portfolio	The ratio of medium-sized nonperforming loans to lending to medium-sized firms
Independent variables	
Islamic	A dummy variable which takes the value of one for Islamic banks, zero otherwise
Foreign	A dummy variable which takes the value of one if more than 50% of the bank is owned by non-residents, zero otherwise
State	A dummy variable which takes the value of one if more than 50% of the bank is owned by the government, zero otherwise
Equity ratio	The ratio of the book value of equity to total assets
Liquidity ratio	The ratio of liquid assets (cash and central bank reserves) to total assets
Deposits ratio	The ratio of deposits to total assets
Profits ratio	The ratio of after tax profits to total assets
Bank age	The natural logarithm of quarter-years the bank exists
Bank size	The natural logarithm of total assets

Table 4: Summary statistics

	Conventional Banks			Islamic Banks			Difference
	Obs.	Mean	SD	Obs.	Mean	SD	
MSME Lending: Share	1036	0.1389	0.110	122	0.2489	0.082	0.1101***
MSME Lending: Growth	963	0.0542	0.398	118	0.0799	0.262	0.0257
Micro Lending: Share	1036	0.0293	0.037	122	0.0407	0.027	0.0114***
Micro Lending: Growth	808	0.0647	0.643	115	0.0665	0.340	0.0018
Small Lending: Share	1036	0.0383	0.041	122	0.0746	0.026	0.0363***
Small Lending: Growth	900	0.0597	0.545	118	0.0806	0.255	0.0209
Medium Lending: Share	1036	0.0713	0.061	122	0.1336	0.049	0.0623***
Medium Lending: Growth	931	0.0657	0.386	115	0.0793	0.555	0.0137
FX MSME Lending: Share	1036	0.0319	0.056	122	0.0138	0.011	-0.0181***
FX Micro Lending: Share	1036	0.0049	0.016	122	0.0035	0.005	-0.0014
FX Small Lending: Share	1036	0.0082	0.022	122	0.0033	0.005	-0.0049**
FX Medium Lending: Share	1036	0.0188	0.026	122	0.0069	0.005	-0.0118
MSME Lending rate	1003	0.0174	0.021	122	0.0299	0.032	0.0126***
Micro Lending rate	852	0.0207	0.031	119	0.0378	0.052	0.0171***
Small Lending rate	942	0.0171	0.025	122	0.0244	0.023	0.0074***
Medium Lending rate	972	0.0169	0.027	119	0.0370	0.101	0.0201***
MSME Lines of Credit	1036	0.0494	0.058	122	0.1821	0.084	0.1327***
Micro Lines of Credit	1036	0.0082	0.023	122	0.0303	0.023	0.0221***
Small Lines of Credit	1036	0.0166	0.031	122	0.0542	0.025	0.0375***
Medium Lines of Credit	1036	0.0246	0.030	122	0.0976	0.053	0.0731***
NPL: MSME Lending portfolio	1003	0.4489	5.510	122	0.0412	0.026	-0.4077
NPL: Micro Lending portfolio	852	0.2724	4.294	119	0.0739	0.081	-0.1985
NPL: Small Lending portfolio	942	0.2797	2.191	122	0.0429	0.031	-0.2367
NPL: Medium Lending portfolio	972	0.0535	0.157	119	0.0318	0.021	-0.0217***
Equity ratio	1036	0.2247	0.205	122	0.1165	0.022	-0.1081***
Liquidity ratio	1036	0.0673	0.041	122	0.1219	0.041	0.0547***
Deposits ratio	1036	0.4494	0.283	122	0.7459	0.060	0.2965***
Profits ratio	1000	0.0052	0.006	118	0.0039	0.008	-0.0014**
Bank age	1036	4.8144	0.744	122	4.3521	0.273	-0.4623***
Bank size	1036	15.5608	2.136	122	16.0726	0.621	0.5118***

See Table 2 for the definition of the variables. The last column refers to the difference between Islamic and conventional banks. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 5: Banks' MSME financing – Islamic versus conventional banks

	MSMEs		Micro SMEs		Small SMEs		Medium SMEs	
	Share (1)	Growth (2)	Share (3)	Growth (4)	Share (5)	Growth (6)	Share (7)	Growth (8)
Bank ownership								
Islamic	0.11235*** (0.0143)	0.02171 (0.0409)	0.01066** (0.0043)	-0.10337 (0.0975)	0.03822*** (0.0051)	0.06901 (0.0519)	0.06347*** (0.0079)	0.00605 (0.0678)
Bank fundamentals								
Equity ratio ^a	-0.05215 (0.0368)	0.17169 (0.2310)	0.05129*** (0.0099)	0.45037 (0.3396)	-0.01163 (0.0134)	0.37061 (0.3302)	-0.09181*** (0.0201)	0.01756 (0.2516)
Liquidity ratio ^a	0.02590 (0.1123)	0.30088 (0.4597)	0.06628** (0.0306)	1.68327 (1.2519)	0.02520 (0.0390)	2.54459 (2.0907)	-0.06558 (0.0581)	0.42920 (0.4183)
Deposits ratio ^a	0.00750 (0.0182)	0.04601 (0.1135)	0.03329*** (0.0056)	0.20819 (0.2034)	0.00330 (0.0056)	-0.04438 (0.1201)	-0.02908*** (0.0108)	-0.01262 (0.1109)
Profits ratio ^a	-2.02722*** (0.5568)	-1.03736 (2.0799)	-0.55780*** (0.1420)	2.04928 (5.5130)	-0.71483*** (0.1903)	-4.44351 (3.0316)	-0.75460** (0.3172)	0.19012 (2.2756)
Bank controls								
Bank age ^a	-0.01428*** (0.0038)	-0.02207 (0.0171)	0.00320*** (0.0011)	-0.02706 (0.0338)	-0.00331** (0.0015)	0.00682 (0.0431)	-0.01417*** (0.0020)	0.00063 (0.0163)
Bank size ^a	0.00015 (0.0023)	0.01167 (0.0143)	0.00557*** (0.0006)	-0.01474 (0.0207)	0.00105 (0.0008)	0.00108 (0.0229)	-0.00647*** (0.0014)	0.00136 (0.0112)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,158	1,081	1,158	923	1,158	1,018	1,158	1,046
R-squared	0.1933	0.0380	0.2011	0.0412	0.1789	0.0560	0.2349	0.0356

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 6: Banks' MSME financing – Islamic banks versus different forms of bank ownership

	MSMEs		Micro SMEs		Small SMEs		Medium SMEs	
	Share (1)	Growth (2)	Share (3)	Growth (4)	Share (5)	Growth (6)	Share (7)	Growth (8)
Bank ownership								
Islamic	0.02847* (0.0151)	0.01337 (0.0435)	-0.00104 (0.0048)	-0.09091 (0.0965)	0.01358** (0.0061)	0.10232 (0.0825)	0.01592* (0.0084)	0.02061 (0.0712)
Foreign	-0.10293*** (0.0073)	-0.01249 (0.0322)	-0.01825*** (0.0021)	0.01397 (0.0620)	-0.02799*** (0.0033)	0.04300 (0.0848)	-0.05670*** (0.0041)	0.00842 (0.0313)
State	-0.05563*** (0.0101)	0.00731 (0.0374)	0.01791*** (0.0067)	0.02671 (0.0513)	-0.03117*** (0.0027)	0.05017 (0.0463)	-0.04237*** (0.0033)	0.06355* (0.0379)
Bank fundamentals								
Equity ratio ^a	-0.12248*** (0.0360)	0.15456 (0.2306)	0.02261** (0.0098)	0.44369 (0.3401)	-0.02138 (0.0142)	0.37308 (0.3647)	-0.12371*** (0.0194)	-0.02042 (0.2555)
Liquidity ratio ^a	0.13428 (0.1010)	0.31814 (0.4461)	0.08790*** (0.0276)	1.72914 (1.3000)	0.05328 (0.0364)	2.64007 (2.2172)	-0.00690 (0.0549)	0.44456 (0.4125)
Deposits ratio ^a	0.07007*** (0.0161)	0.04718 (0.1363)	0.03261*** (0.0046)	0.18635 (0.2303)	0.02711*** (0.0054)	-0.09130 (0.1616)	0.01035 (0.0100)	-0.04767 (0.1290)
Profits ratio ^a	-1.59945*** (0.5124)	-0.99444 (2.0365)	-0.45671*** (0.1409)	2.08448 (5.5000)	-0.61311*** (0.1871)	-4.29911 (3.0061)	-0.52963* (0.2850)	0.14214 (2.2517)
Bank controls								
Bank age ^a	-0.01974*** (0.0038)	-0.02429 (0.0180)	-0.00030 (0.0011)	-0.02651 (0.0389)	-0.00333** (0.0015)	0.00977 (0.0542)	-0.01611*** (0.0022)	-0.00500 (0.0177)
Bank size ^a	-0.01019*** (0.0024)	0.00999 (0.0132)	0.00273*** (0.0007)	-0.01503 (0.0205)	-0.00118 (0.0009)	0.00214 (0.0206)	-0.01174*** (0.0014)	-0.00020 (0.0109)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,158	1,081	1,158	923	1,158	1,018	1,158	1,046
R-squared	0.3161	0.0382	0.2580	0.0414	0.2609	0.0572	0.3596	0.0369

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 7: Fixed effects regressions—second stage.

	MSMEs		Micro SMEs		Small SMEs		Medium SMEs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Share regressions								
Bank ownership								
Islamic	0.11423*** (0.0287)	0.09201** (0.0345)	0.01377** (0.0066)	0.01113 (0.0076)	0.03723*** (0.0075)	0.02957*** (0.0104)	0.06324*** (0.0184)	0.05108** (0.0210)
Foreign		-0.04870 (0.0330)		-0.01393* (0.0074)		-0.01568 (0.0114)		-0.01847 (0.0185)
State		-0.03651 (0.0547)		0.03916 (0.0334)		-0.01846 (0.0120)		-0.05745*** (0.0153)
Observations	44	44	44	44	44	44	44	44
R-squared	0.1049	0.1540	0.0190	0.2238	0.0960	0.1458	0.1073	0.1795
Panel B: Growth regressions								
Bank ownership								
Islamic	0.04363 (0.0308)	0.02341 (0.0229)	-0.00009 (0.0421)	0.01593 (0.0455)	-0.04963 (0.1050)	0.03622** (0.0164)	0.01346 (0.0287)	0.01804 (0.0186)
Foreign		-0.04956 (0.0579)		0.04258 (0.0723)		0.22061 (0.2792)		0.00197 (0.0618)
State		0.00820 (0.0150)		-0.00827 (0.0358)		0.02929 (0.0230)		0.04668*** (0.0148)
Observations	42	42	37	37	41	41	41	41
R-squared	0.0083	0.0373	0.0000	0.0163	0.0006	0.0295	0.0008	0.0081

Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 8: Foreign exchange lending

	MSMEs Share		Micro SMEs Share		Small SMEs Share		Medium SMEs Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank ownership								
Islamic	0.04770*** (0.0072)	0.03507*** (0.0076)	0.01103*** (0.0022)	0.00875*** (0.0023)	0.01541*** (0.0029)	0.01154*** (0.0031)	0.02126*** (0.0030)	0.01479*** (0.0032)
Foreign		-0.01327*** (0.0021)		-0.00217*** (0.0005)		-0.00412*** (0.0009)		-0.00698*** (0.0013)
State		-0.02297*** (0.0033)		-0.00570*** (0.0009)		-0.00667*** (0.0012)		-0.01061*** (0.0016)
Bank fundamentals								
Equity ratio ^a	0.03859* (0.0224)	0.03875 (0.0241)	0.02399*** (0.0067)	0.02515*** (0.0072)	0.01994** (0.0087)	0.01971** (0.0094)	-0.00534 (0.0095)	-0.00612 (0.0101)
Liquidity ratio ^a	-0.38165*** (0.0597)	-0.36904*** (0.0603)	-0.06788*** (0.0189)	-0.06599*** (0.0190)	-0.12279*** (0.0245)	-0.11883*** (0.0246)	-0.19098*** (0.0251)	-0.18422*** (0.0256)
Deposits ratio ^a	-0.07119*** (0.0062)	-0.05642*** (0.0064)	-0.00622*** (0.0018)	-0.00298 (0.0018)	-0.01757*** (0.0024)	-0.01318*** (0.0026)	-0.04740*** (0.0042)	-0.04026*** (0.0043)
Profits ratio ^a	-2.47985*** (0.3540)	-2.43906*** (0.3573)	-0.51387*** (0.1068)	-0.50897*** (0.1083)	-0.73258*** (0.1356)	-0.71948*** (0.1371)	-1.23339*** (0.1419)	-1.21061*** (0.1422)
Bank controls								
Bank age ^a	0.00262 (0.0020)	0.00336 (0.0023)	0.00100** (0.0004)	0.00130*** (0.0005)	0.00197** (0.0008)	0.00215** (0.0009)	-0.00035 (0.0010)	-0.00010 (0.0012)
Bank size ^a	0.00687*** (0.0010)	0.00611*** (0.0012)	0.00177*** (0.0003)	0.00172*** (0.0003)	0.00175*** (0.0004)	0.00150*** (0.0005)	0.00334*** (0.0005)	0.00289*** (0.0005)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158
R-squared	0.2058	0.2213	0.1100	0.1186	0.1405	0.1498	0.2800	0.2981

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 9: Loan rates to MSMEs

	MSMEs		Micro SMEs		Small SMEs		Medium SMEs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank ownership								
Islamic	0.02245*** (0.0035)	0.02345*** (0.0035)	0.02666*** (0.0080)	0.02889*** (0.0094)	0.01864*** (0.0029)	0.02170*** (0.0032)	0.03456*** (0.0105)	0.03785*** (0.0105)
Foreign		0.00273* (0.0014)		0.00462 (0.0037)		0.00579*** (0.0018)		0.00521** (0.0020)
State		-0.00817*** (0.0016)		-0.00934*** (0.0027)		-0.00552*** (0.0018)		-0.00360 (0.0028)
Bank fundamentals								
Equity ratio ^a	0.00320 (0.0055)	0.01129** (0.0057)	0.02501** (0.0116)	0.03667*** (0.0129)	0.00203 (0.0096)	0.01121 (0.0109)	-0.01163 (0.0132)	-0.00427 (0.0134)
Liquidity ratio ^a	-0.07818*** (0.0142)	-0.08377*** (0.0147)	0.12202*** (0.0418)	0.12410*** (0.0447)	-0.07094*** (0.0243)	-0.06384** (0.0256)	-0.06011** (0.0258)	-0.06750*** (0.0252)
Deposits ratio ^a	-0.00459 (0.0049)	-0.00174 (0.0052)	0.00153 (0.0085)	0.00423 (0.0103)	-0.00451 (0.0071)	-0.00455 (0.0074)	-0.02053*** (0.0076)	-0.02078** (0.0090)
Profits ratio ^a	-0.58518*** (0.0901)	-0.59681*** (0.0886)	-0.79654** (0.3222)	-0.82147** (0.3252)	-0.73280*** (0.1419)	-0.72611*** (0.1394)	-0.73146*** (0.1350)	-0.74368*** (0.1333)
Bank controls								
Bank age ^a	-0.00005 (0.0010)	0.00106 (0.0011)	0.00331** (0.0015)	0.00518*** (0.0019)	-0.00019 (0.0010)	0.00138 (0.0012)	-0.00122 (0.0011)	-0.00023 (0.0012)
Bank size ^a	-0.00022 (0.0006)	0.00040 (0.0005)	-0.00274*** (0.0009)	-0.00205** (0.0008)	-0.00080 (0.0007)	-0.00016 (0.0006)	-0.00016 (0.0009)	0.00056 (0.0008)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,125	1,125	971	971	1,064	1,064	1,091	1,091
R-squared	0.1460	0.1561	0.1014	0.1088	0.1096	0.1215	0.1002	0.1031

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 10: Banks' willingness to lend – Letters of Credit

	MSMEs Share		Micro SMEs Share		Small SMEs Share		Medium SMEs Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank ownership								
Islamic	0.08209*** (0.0105)	0.04001*** (0.0117)	0.01057** (0.0050)	0.00164 (0.0059)	0.01724*** (0.0040)	0.00463 (0.0044)	0.05428*** (0.0055)	0.03374*** (0.0062)
Foreign		-0.04772*** (0.0042)		-0.01134*** (0.0019)		-0.01261*** (0.0018)		-0.02377*** (0.0024)
State		-0.05365*** (0.0041)		-0.00344** (0.0015)		-0.02720*** (0.0023)		-0.02301*** (0.0019)
Bank fundamentals								
Equity ratio ^a	-0.07480*** (0.0158)	-0.09115*** (0.0158)	-0.01406** (0.0065)	-0.02338*** (0.0082)	-0.00959 (0.0076)	-0.00631 (0.0082)	-0.05116*** (0.0065)	-0.06146*** (0.0065)
Liquidity ratio ^a	0.10811** (0.0510)	0.15594*** (0.0456)	0.06310*** (0.0206)	0.07527*** (0.0201)	-0.01529 (0.0217)	-0.00378 (0.0211)	0.06030** (0.0235)	0.08445*** (0.0229)
Deposits ratio ^a	0.03500*** (0.0090)	0.07581*** (0.0089)	0.00358 (0.0024)	0.00933*** (0.0025)	0.02050*** (0.0039)	0.03681*** (0.0043)	0.01092** (0.0047)	0.02967*** (0.0046)
Profits ratio ^a	2.22038*** (0.4039)	2.39337*** (0.3960)	0.58759** (0.2662)	0.63716** (0.2698)	1.46800*** (0.2242)	1.50188*** (0.2191)	0.16479* (0.0959)	0.25433*** (0.0910)
Bank controls								
Bank age ^a	-0.00791*** (0.0023)	-0.00790*** (0.0023)	-0.00223*** (0.0006)	-0.00308*** (0.0008)	0.00406*** (0.0012)	0.00525*** (0.0015)	-0.00974*** (0.0019)	-0.01007*** (0.0018)
Bank size ^a	-0.00541*** (0.0013)	-0.00919*** (0.0014)	-0.00084 (0.0006)	-0.00207*** (0.0008)	-0.00174*** (0.0005)	-0.00227*** (0.0006)	-0.00283*** (0.0007)	-0.00485*** (0.0007)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158
R-squared	0.3826	0.4592	0.1420	0.1731	0.2626	0.3119	0.4280	0.4883

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 11: Non-performing loans in banks' MSME lending portfolio

	MSMEs Share		Micro SMEs Share		Small SMEs Share		Medium SMEs Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank ownership								
Islamic	-0.87063** (0.3524)	-0.41898 (0.3401)	0.41966 (0.3825)	0.35110 (0.3068)	-0.80482** (0.3237)	-0.72678** (0.2968)	0.05607*** (0.0101)	0.03730*** (0.0090)
Foreign		0.60000 (0.3833)		-0.13978 (0.1928)		0.21966** (0.1021)		-0.03299*** (0.0106)
State		0.07322 (0.5745)		0.27294 (0.3499)		-0.52306** (0.2157)		0.03783*** (0.0113)
Bank fundamentals								
Equity ratio ^a	-3.22815 (3.2653)	-2.66963 (3.2554)	0.63968 (0.5687)	0.29387 (0.4068)	0.26693 (0.4201)	0.83083 (0.5552)	0.11838*** (0.0318)	0.06122 (0.0373)
Liquidity ratio ^a	4.43282 (5.8494)	3.70770 (5.5999)	0.64738 (4.5259)	0.57903 (4.4471)	-4.53214*** (1.4594)	-4.34730*** (1.4753)	0.12568 (0.1225)	0.17797 (0.1167)
Deposits ratio ^a	-1.60560 (1.6619)	-1.84994 (2.0389)	-1.25275 (1.3574)	-1.32922 (1.4463)	0.34521 (0.2371)	0.49698* (0.2916)	-0.11615*** (0.0268)	-0.12195*** (0.0288)
Profits ratio ^a	77.98792*** (28.3214)	75.72092*** (27.2875)	-24.25681 (20.3942)	-23.51745 (19.5937)	68.33877*** (25.2159)	68.41904*** (25.0278)	-3.35489*** (0.5712)	-3.28465*** (0.5702)
Bank controls								
Bank age ^a	0.48450** (0.2051)	0.54368** (0.2150)	-0.20635 (0.1786)	-0.26196 (0.2478)	0.27131** (0.1152)	0.36326** (0.1518)	-0.01912*** (0.0062)	-0.02693*** (0.0081)
Bank size ^a	-0.26825 (0.2073)	-0.20134 (0.1840)	0.06841 (0.0544)	0.04800 (0.0347)	-0.03315 (0.0297)	0.00229 (0.0315)	0.00228 (0.0023)	-0.00287 (0.0030)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,125	1,125	971	971	1,064	1,064	1,091	1,091
R-squared	0.0424	0.0443	0.0410	0.0415	0.1224	0.1283	0.1358	0.1483

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.

Table 12: Banks' MSME financing growth and business cycle

	MSMEs Growth		Micro SMEs Growth		Small SMEs Growth		Medium SMEs Growth	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank ownership & business cycle								
Islamic	0.15716*** (0.0526)	0.14667*** (0.0550)	0.01889 (0.1052)	0.03835 (0.1130)	0.09301 (0.1055)	0.16586* (0.1006)	0.18097** (0.0841)	0.18130** (0.0888)
Islamic x GDP growth	-0.67986* (0.4067)	-0.66924* (0.3660)	-1.24841** (0.5187)	-1.28083** (0.6149)	-0.42615 (0.4765)	-0.83130* (0.4829)	-0.99160 (0.6892)	-0.82623 (0.7124)
Foreign		-0.01100 (0.0641)		0.01107 (0.1005)		0.14487 (0.0962)		-0.02607 (0.0619)
Foreign x GDP growth		-0.02146 (0.6472)		0.06991 (0.7193)		-1.03526 (0.7091)		0.34180 (0.4399)
State		-0.00573 (0.0404)		0.08684 (0.0762)		0.13049* (0.0742)		0.02781 (0.0529)
State x GDP growth		0.20435 (0.2720)		-0.54762 (0.4983)		-0.44851 (0.4083)		0.36889 (0.4448)
Bank fundamentals								
Equity ratio ^a	0.21669 (0.2263)	0.19003 (0.2161)	0.45824 (0.3409)	0.45864 (0.3427)	0.06598 (0.2802)	0.03926 (0.2795)	0.06901 (0.2748)	0.03709 (0.2791)
Liquidity ratio ^a	0.43555 (0.3220)	0.43176 (0.3169)	1.76014 (1.2323)	1.81126 (1.2763)	2.66565 (2.4094)	2.74379 (2.5017)	0.34555 (0.3572)	0.29493 (0.3583)
Deposits ratio ^a	-0.00071 (0.0904)	-0.00028 (0.1093)	0.20527 (0.2004)	0.18199 (0.2240)	-0.17148 (0.1796)	-0.22280 (0.2345)	-0.04508 (0.1019)	-0.07842 (0.1140)
Profits ratio ^a	-4.99606* (2.7709)	-4.87441* (2.6276)	2.10136 (4.9621)	2.13547 (5.1433)	-2.52925 (5.5861)	-2.40984 (5.6274)	-3.38030 (2.7804)	-3.48031 (2.7484)
Bank controls								
Bank age ^a	-0.02134 (0.0151)	-0.02517 (0.0174)	-0.02818 (0.0336)	-0.02642 (0.0393)	0.00385 (0.0422)	0.00084 (0.0477)	-0.00317 (0.0159)	-0.00928 (0.0182)
Bank size ^a	0.01319 (0.0114)	0.01124 (0.0098)	-0.01284 (0.0205)	-0.01264 (0.0206)	-0.00505 (0.0327)	-0.00599 (0.0309)	0.00617 (0.0098)	0.00568 (0.0094)
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,077	1,077	919	919	1,014	1,014	1,042	1,042
R-squared	0.0405	0.0409	0.0414	0.0418	0.0559	0.0601	0.0381	0.0403

See Table 3 for the definition of the variables. ^a Indicates initial (beginning of sample) values. Cluster-robust standard errors (to account for both heteroskedasticity and autocorrelation) are in parentheses. *** Significance level at 1%, ** Significance level at 5%, * Significance level at 10%.