



The Impact of External Governance Quality on the Economic Success and Outreach of Microfinance Institutions

Empirical Evidence

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Abstract: Using data on 558 MFIs in 80 countries for the period from 2002 to 2007, this paper provides empirical evidence that the quality of external governance positively affects the microbank's economic success in terms of ROA and operational self-sufficiency. In contrast, it has a negative influence on depth of outreach, although we find no empirical evidence for the existence of a trade-off between profitability and a microbank's ability to serve the poor. Empirical results from our panel regressions even hold when performing various robustness checks and sensitivity analyses.

JEL classification: G21, G28, H11, L21

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1. Introduction

Microfinance institutions (MFIs henceforth) approximately serve more than 100 million clients worldwide (Cull et al., 2009a). In contrast to the formal banking sector, however, the MFI faces a dual mission since it has to provide financial services to the poorest clients (*outreach*) while simultaneously covering its operating costs (*sustainability*). Furthermore, as the competition for funding sources (donations, state subsidies and investment capital from external investors) has enhanced due to an increasing number of microbanks and due to traditional banks having started providing microfinance service themselves, the MFI's performance (*profitability*) becomes even more important. Thus, while the majority of all microbanks are still non-governmental organizations or local credit unions/cooperatives pursuing a social business model, a growing number of MFIs has begun to transform into formal banks being regulated or even being listed at a stock exchange in order to access alternative sources of funding and hence, challenge competition successfully.

Against this background, a growing number of theoretical and small-sized, country-specific empirical studies stress the importance of an appropriate internal governance system as a key factor of success to cope with the dual mission and the transformation process of MFIs. These studies focus on what is commonly accepted as a firm's *corporate governance* suggesting that the constitution, experience, monetary compensation and independence of the board of directors as well as the establishment of a supervisory board and a control of the MFI's management should strengthen the microbank's performance while improving its sustainability and outreach (e.g. OTERO and CHU, 2002; LABIE, 2001; CAMPION, 1998; ROCK ET AL., 1998). However, more comprehensive, cross-sectional studies by MERSLAND and STRØM (2009) and HARTARSKA (2005) strug-

gle to find reliable empirical evidence that well-accepted best practice in corporate governance has an impact on the economic and social success of MFIs.

In contrast to these ambiguous findings on *internal* governance mechanisms, the relationship between a country's "*external* governance" and the microbanks' performance and outreach is only given scant attention (SNOW, 1999). Although recent studies confirm that most donors and potential investors pay considerable attention to the quality of the institutional environment in recipient countries when taking their capital allocation decisions (BERTHÉLEMY and TICHIT, 2004; BURNSIDE and DOLLAR, 2000), no empirical study has examined the impact of a country's institutional environment on the economic success and outreach of MFIs yet. If at all, cross-sectional studies focus on banking regulation and market competition as proxies of the institutional framework under which MFIs operate (e.g. MERSLAND and STRØM, 2009; HARTARSKA and NADOLNYAK, 2007; HARTARSKA, 2005). In our opinion, however, these proxy variables are less convincing as they describe the regulatory framework and market environment rather than a country's external governance mechanisms on the whole.

Henceforth, for the purpose of the following empirical investigation we define *external governance* as the structure and functioning of a country's legal and social institutions that support economic activity and economic transactions by protecting property rights, enforcing contracts and taking collective action (Dixit, 2009). In this context, appropriate legal and social institutions are anticipated to reduce uncertainty and shape incentives among economic actors resulting in a decrease in transaction costs and thus, higher economic performance (North, 1990). The latter is underlined by theoretical and empirical literature suggesting a positive relationship between the quality of external governance and economic growth (e.g. Rodrik et al., 2004; Rodrik, 2003; Easterley and Levine, 2003; Acemoglu et al., 2001). Moreover, recent financial crises and failed tran-

sition experiments have highlighted the fact that high-quality functioning institutions are fundamental to the goal of achieving economic performance.

The empirical analysis at hand aims to complement previous studies on the nexus between governance and the economic and social success of microbanks utilizing data provided by 558 MFIs in 80 countries over the period from 2002 to 2007. We derive the hypothesis that the quality of a country's external governance is positively related to the economic success and outreach of local microbanks. Moreover, we suggest that this relationship is even more important for emerging and transforming MFIs with particular requirements on the institutional environment, benefiting those microbanks operating under reliable and flexible external governance systems.

The remainder is organized as follows. Section 2 presents related empirical literature on the relationship between governance quality and the MFI's economic and social success. Section 3 includes the empirical analysis. While Section 3.1 describes the data set, Section 3.2 introduces the empirical model. Empirical results are presented and discussed in Section 3.3. Finally, Section 4 concludes.

2. Related Literature

Next to the huge number of anecdotal and theoretical surveys concerning microfinance, likewise many empirical studies have been released which, however, most often have been conducted on a small-sized and country-specific data basis. In contrast, comprehensive cross-country empirical studies are still uncommon.

To begin with, using data based on three surveys of rated and unrated MFIs in Eastern Europe for the period from 1998 to 2002, HARTARSKA (2005) examines the relationship between internal governance, bank-specific external governance and the MFI's financial performance. The analysis provides statistical evidence that among all selected

bank-specific mechanisms only public auditing positively affects outreach, whereas banking regulation and established rating systems do not have a significant impact on the MFI's performance. However, results should be taken with care since the number of observations is low for panel data estimations, ranging from 46 to 144 in single regression specifications.

HARTARSKA and NADOLNYAK (2007) study the impact of regulation on operational self-sufficiency and outreach of 114 MFIs from 62 countries. While controlling for the macroeconomic and institutional framework as well as bank-specific characteristics, the authors provide empirical evidence that the regulatory involvement of MFIs does not directly affect economic success either in terms of operational self-sufficiency or outreach. However, as the amount of savings has a positive impact on both dependent variables, it is suggested that MFIs do benefit indirectly from banking regulation if it is true that being regulated is the only way to access savings. In contrast, CULL ET AL. (2009b) provide empirical evidence that prudential regulation does have an impact on both the MFI's outreach and profitability. By means of an ordinary least squares estimation using one-year balance sheet and income statement data for 245 microbanks in 67 countries, they find that profit-oriented MFIs absorb the cost of supervision by reducing lending to the poor whereas less profit-oriented institutions do not adjust outreach, but at the expense of reduced profitability.

Finally, using data on 278 MFIs in 60 countries over the period from 1998 to 2007, MERSLAND and STRØM (2009) examine the impact of internal corporate governance, regulation and competition on the MFI's performance and outreach. The authors provide empirical evidence that competition supports the microbank's financial performance but not outreach, whereas regulation has no statistically significant effect on both

dependent variables. Against the background of the empirical results, the authors suggest an industry-specific approach to MFI governance.

3. Empirical analysis

3.1. Data

Notes on variables and data sources, descriptive statistics for the entire dataset as well as correlation matrices are provided in Tables 1 – 5 within the Statistical Appendix.

We focus our empirical analysis on a unique dataset provided by the *Microfinance Information eXchange* (MIX) database and including aggregated high-quality balance sheet and other company-specific data on 558 MFIs in 80 countries for the period from 2002 to 2007.¹ To ensure reliability and accuracy of the data obtained, we exclusively consider MFIs ranked four or five diamonds by MIX since these institutions provide audited financial statements guaranteeing a high level of data quality. Moreover, we explicitly focus on institutions comprising at least more than 50 percent of their operations by microfinance. Although the sample is thus not representative of all MFIs around the world, institutions being included in our data set serve a large fraction of customers worldwide. Table 1 illustrates the regional and institutional characteristics of MFIs being included into the sample.

¹ Microfinance Information eXchange is a not-for-profit private organisation incorporated in 2002 aiming to promote (non-)financial information on microfinance. It is supported by charitable trusts including the Rockdale Foundation, the Open Society Institute and the Citigroup Foundation. Amongst others, MIX carries its activities through the web-based information service called MIX Market. The database which comprises facts on more than 1,300 microbanks around the globe is the most reliable and trustworthy source to obtain high-quality information on microfinance institutions.

3.1.1 Measures of economic and social success

We employ *profitability*, *sustainability* and *outreach* as our dependent variables. *Profitability* is proxied by the microbanks' returns on assets (ROA), prevailing as one of the most common indicators to assess a bank's financial performance as well as a management's ability to efficiently employ the institution's assets to generate earnings.

Sustainability is described by operational self-sufficiency (OSS), which is calculated as the ratio of total financial revenue (including donations) to the sum of financial, operating and loan loss provision expense. If the ratio exceeds the value of one the MFI is operationally self-sufficient, i.e. operating expense is covered by financial revenue. In contrast to related empirical work (CULL ET AL., 2007), we do not include financial self-sufficiency as a proxy for the microbank's sustainability since it does not allow for donations to cover operating expenses. In our opinion, however, donations are of particular importance since the growing number of MFIs has intensified the struggle for donations in which microbanks operating profitably and efficiently are benefited.²

Finally, *outreach* is defined as the ratio of the average outstanding loan size per borrower to GDP per capita. In contrast to related empirical work (HARTARSKA and NADOLNYAK, 2007), we do not employ the number of active borrowers as a proxy for outreach in terms of *breadth*, but focus on the MFI's ability to even serve the poorest borrowers (*depth* of outreach). Hence, a decreasing average loan size is likely to be associated with a rise in depth of outreach, whereas an increase describes a shift in the composition of customer demographics described in literature as "*mission drift*". The latter may be due to clients maturing and successfully developing their businesses and thus demanding larger loans. To examine this phenomenon, our panel data is suitable without reservation since mission drift inherently involves adaption over time. Table 3

² In this context DEUTSCHE BANK RESEARCH (2007) estimates the funding gap of microbanks to total roughly USD 250 bn.

indicates that each of our dependent variables displays a wide variation for MFIs being included into the sample.

3.1.2 Measures of external governance

Among the variety of probable governance indicators³ we consider the *Worldwide Governance Indicators (WGI)* suggested by KAUFMANN, KRAAY and ZOIDO-LOBATÓN (1999) to be most qualified to proxy the level and trend of external governance quality across countries and over time. The WGI index is preferred as our key independent variable since external governance quality is measured relying on the subjective perception of a diverse range of informed stakeholders. In our opinion, the subjective perception of governance quality particularly matters for two reasons. *First*, economic actors typically base their economic activities on their perceptions, impressions and views. *Second*, related to the latter, objective or fact-based data usually captures the *de jure* notion of external governance, which however, may differ from the *de facto* reality (Kaufmann et al., 2008).

The WGI index comprises six single aggregate indicators. To begin with, *voice and accountability* measures the perception of civil rights, government's responsiveness to its people as well as free and fair elections. *Political stability* appraises the likelihood of politically-motivated violence and the peril of an unconstitutional overthrow of a legally elected government which is expected to have a destabilizing effect on the continuity of politics and the scope of civil rights. *Government effectiveness* captures government's credibility, the quality of public services, bureaucracy as an obstacle to business development and the independence of civil service from political pressure. Next to this, *regulatory quality* measures excessive regulation, market-unfriendly policies and state inter-

³ ARNDT and OMAN (2006) provide a comprehensive overview of the most widely used composite perceptions-based governance indicators.

ference in private business. While *rule of law* assesses the level of crime, the existence of black markets and the confidence among people that private property is protected, *control of corruption* finally describes the degree of corruption among public officials as well as its impact on business development and the efficiency of anti-corruption policies.

In sum, the six indicators are based on 340 variables, drawn from 35 data sources constructed by 32 international organizations, and are calculated by means of an unobserved components model (KAUFMANN ET AL., 2008). The overall WGI index equals the weighted average of all six governance indicators. All scores range between -2.5 and 2.5, with higher values corresponding to a higher level of external governance quality. We apply the 90-percent level of confidence⁴ to conduct our analyses and expect a higher quality of external governance quality to have a positive impact on the MFI's economic success and outreach. Table 3 indicates that the WGI Index and its single components display a wide variation for the different countries being included into the sample over time.

3.1.3 Further control variables

When examining the relationship between external governance quality and the microbank's economic and social success, it is imperative to control for further macroeconomic, bank-specific, market and regulatory characteristics that are likely to affect the MFI's economic success and outreach and hence help mitigate omitted variable bias. We lagged some of the control variables to avoid simultaneity.

To begin with, macroeconomic control variables are retrieved from the *World Bank's World Development Indicators (WDI)* database. We include *GDP growth*, the

⁴ The 90-percent level of confidence equals the 5th and 95th percentiles of the conditional distribution of governance for each country.

annual change of *inflation* rates as well as the annual change in real short term *interest rates* to capture the country-specific macroeconomic development. The rate of growth of real GDP (*GDP growth*) is a control variable since the MFI's opportunities to make loans are anticipated to be positively correlated with business cycles (LAEVEN AND MAJONI, 2003). Hence, we expect a positive impact of GDP growth on profitability and sustainability. In contrast, however, economic booms may also lead to "excessive" lending by MFIs (BIKKER and METZEMAKERS, 2005), affecting the microbank's profitability and sustainability negatively. The effect of changes in *inflation* rates depends on whether it coincides with general economic fragility and whether inflation is anticipated by the MFI. While a handing down of rising inflation rates to depositors will inflate the microbank's refinancing costs, a passing through to borrowers is expected to have a positive effect on profitability but might also let loan repayment for borrowers to be more difficult resulting in higher loan default rates (AHLIN et al., 2008). Thus, as it depends on the MFI's ability to reprice its assets and liabilities, the effect of inflation on the microbank's economic success is expected to be ambiguous. We finally include one-period lagged changes in real *interest rates* and expect a negative impact of rising interest rates on profitability and sustainability. Following agency theory arguments (STIGLITZ and WEISS, 1981), it is assumed that "low quality borrowers" engaging in risky investments will accept rising interest rates since their access to funding sources is limited. Accordingly, the likelihood of loan defaults may increase and hence reduce the microbank's profitability and sustainability. Concerning the relationship between changes in short term real interest rates and outreach, CULL ET AL. (2007) provide empirical evidence that lenders charging higher interest rates tend to make smaller loans and are likely to have a smaller customer base. We thus expect a positive impact of the changes in short term real interest rates on the MFI's depth of outreach.

Next to macroeconomic control variables, we account for the heterogeneity of MFIs in our sample by employing two matrices of microbank-specific measures. To begin with, the *history* matrix comprises *age*, *size* and *sources* and thus describes the MFI's structural development and level of (business) know-how. *Age* is included since older MFIs are assumed to be more experienced due to learning-curve effects. In contrast, however, more recently established MFIs may benefit from the experiences of pioneers in microfinance and might preempt them. Hence, if the first hypothesis holds age will have a positive impact on profitability and sustainability, whereas this relationship is expected to be negative if the second assumption is true. HERMES ET AL. (2008) provide empirical evidence for both hypotheses. The logarithm of the MFI's total net assets is included to proxy for the microbank's *size*. As this measure describes the level of the microbank's economic activity being fostered by economies of scale and scope, we expect a consistently positive effect on our dependent variables. This assumption is in line with ZACHARIAS (2008) who provides empirical evidence that larger microbanks are more able to reap benefits of diversification and economies of scale and scope, hence gaining higher profits and strengthening financial soundness. Furthermore, as MFIs grow larger they may be more susceptible to a mission drift (Cull et al., 2007) which again may result in higher profitability and sustainability on the one hand, but reduce outreach in terms of serving the poorest clients the other hand. We finally control for available funding *sources* including equity capital, interbank loans and grants. Following the "life cycle theory" (HELMS, 2006; FEHR and HISHIGSUREN, 2004; DE SOUSA-SHIELDS ET AL., 2004), most microbanks are unable to compete for capital market funding and thus strongly depend on donor's equity at their start-up while additional sources of funding become available in later stages of the institution's life cycle. Hence, we ex-

pect a broader variety of financing options to decrease funding costs which, in turn, will positively impact profitability, sustainability and outreach.

The *business orientation* matrix allows controlling for different business concepts proxied by the microbank's *capital* ratio, *loans* and *deposits* as well as a dummy variable for the rendering of (social) *services*. To begin with the capital to assets ratio (*capital*), we assume that higher capitalized MFIs are more profitable if it is true that capital is increased by means of retained earnings. Moreover, higher capitalized microbanks are anticipated to reach sustainability since capital buffers protect from default and relieve from refinancing from state subsidies and donors. We further employ the gross loan portfolio to total assets ratio (*loans*) and expect this measure to be positively related to sustainability and outreach since an increase in loans represents the microbank's viability to attend to its business. *Deposits* is included as the measure of the ratio of the MFI's voluntary savings to total assets. Collecting savings is the microbank's initial challenge to (sustainably) provide credit to poor clients. Hence, we expect a positive impact of deposits on outreach and sustainability, whereas the effect on profitability depends on the ability to reprice assets and loans. Finally and with regard to the evolution of different institutional concepts of microfinance, we control for the not-for-profit orientation of the microbank. In contrast to related empirical work (CULL ET AL., 2007; HARTARSKA and NADOLNYAK, 2007), we do not rely on the ownership structure but we employ *services* as a dummy coefficient that controls for the (voluntary) provision of (social) services other than microfinance. We assume services to be inversely related to profitability and sustainability since the rendering of (social) services is neither part of the operating business of MFIs nor a determinant for profit maximizing issues. In contrast, services may have a positive impact on the microbank's outreach since the provision of social services is primarily intended for poorer clients.

We finally control for differences regarding the market structure and the MFIs' regulatory status. Due to the fact that the number of MFIs is still increasing and formal banks have proceeded to provide microfinance services themselves, we include the one-period lag of *credit growth* serving as a proxy for the development of a country's credit market and hence the competitive environment. From a traditional IO-perspective, increasing market competition should result in declining margins and a decrease in the microbank's profitability. With special regard to microfinance, market competition may foster mission drift if MFIs succeed in adapting strategies so far exclusively pursued by formal banks. For this reason, not only have local governments but also donor agencies begun to promote competition in microfinance (RHYNE and OTERO, 2006; ARMENDÁRIZ DE AGHION and MURDOCH, 2004).

Finally, an increasing number of MFIs tends to improve their business model attaching great importance to the regulatory status which is a key aspect since regulation allows MFIs to fully evolve into banks and substitute donations by commercial sources of funding (e.g. deposits). The impact of regulation on the microbank's economic success and outreach is ambiguous. While the transformation into a bank is generally anticipated with a strengthening of profitability and sustainability, complying with regulation and supervision can be costly in particular for MFIs. In this context, CULL ET AL. (2009b) provide empirical evidence that profit-oriented MFIs tend to absorb the costs of regulation by reducing the costly outreach to the poorest clients (mission drift). In contrast, however, they also find that less profit-oriented MFIs do not adjust their outreach when regulated, which in turn negatively affects profitability.

3.2. Empirical model

To test our hypothesis that a country's quality of external governance has a positive impact on the economic success and outreach of local microbanks, we utilize a firm-specific random-effects model and set time dummies to control for unobserved time-specific effects. Since diagnostic tests reveal that our data suffers from autocorrelation and heteroscedasticity, we additionally address this problem by allowing for robust standard errors clustered at the firm level. Moreover, clustered-robust standard errors correct for a possible downward bias in the estimated standard errors (Moulton bias (Moulton, 1990)) that might stem from different aggregation levels of our dependent and independent variables.

The panel model is denoted as follows:

$$y_{it} = x_{it}\beta + z_i\gamma + \alpha_i + \eta_{it} \quad (1)$$

where y_{it} represents the measures of profitability, sustainability and outreach of MFI i at time t respectively. β and γ are vectors of coefficients associated with time-varying and time-invariant observable control variables as described above. The disturbance term η_{it} is assumed to be uncorrelated with the vector columns of (x, z, α) and has a zero mean and constant variance σ_η^2 conditional on x_{it} and z_i .

The MFI-individual effect α_i is assumed to be an unobserved time-invariant random variable, distributed independently across microbanks, with variance σ_α^2 . Moreover, the MFI-individual effect may suffer from unobserved firm heterogeneity due to different unobserved characteristics of MFIs being included into the sample. Hence, next to dissimilar internal firm structures and managerial abilities, in particular the microbank managers' attitudes towards the concept of microfinance may differ. While

some managers primarily follow the “welfarist approach”, that is focusing on the poorest clients by accepting state-granted subsidies or private donations (BRETT, 2006; WOLLER, 2002; WOLLER ET AL., 1999), others predominantly rely on transforming into formal banks and building up financial self-sufficiency in the long run, understood in literature as the “financial systems approach” (SCHREINER, 2002; CHRISTEN, 2001; RHYNE, 1998).

Against this background, we cannot rule out that the MFI-specific variables being included may be correlated with the unobserved MFI-individual effect α_i , thus violating the assumption of exogeneity of *all* regressors and the individual effect within the *standard* random effects model. To address this problem, we apply the Hausman-Taylor instrument variable estimator (henceforth HT-IV) suggested by HAUSMAN and TAYLOR (1981)⁵ which allows *some* of the regressors to be correlated with the individual effect and rearrange equation (1) into

$$y_{it} = x_{1it}\beta_1 + x_{2it}\beta_2 + z_{1i}\gamma_1 + z_{2i}\gamma_2 + \alpha_i + \eta_{it} \quad (2)$$

The HT-IV is based upon an instrument variable estimator for large panel data grouping the regressors into exogenous time-varying and time-constant (x_{1it}, z_{1i}) and endogenous time varying and time-constant (x_{2it}, z_{2i}) sets. The between and within variation of the individual means of the strictly exogenous time-varying regressors are then used as instruments for the endogenous time-invariant regressors that are assumed to be correlated with the unobserved individual effect (BALTAGI, 2001). Provided that

⁵ We modified the Hausman-Taylor estimator in STATA to force cluster-robust standard errors. The ado-file is provided on request.

the number of exogenous time-varying variables is at least as large as the number of endogenous time-invariant variables, the HT-IV estimator allows for consistently estimating the model parameters with the GLS technique.

We classify between exogenous and endogenous variables according to the Hausman-Taylor procedure. We assume that the MFI-specific variables (*age*, *size*, *sources*, *capital*, *loans*, *deposits* and *services*) are correlated with the unobservable MFI-individual effect α_i . Hence, these variables are considered to be endogenous variables while all others are assumed to be exogenous. The choice of the instrument variables is a testable hypothesis. Accordingly, we apply a modified Sargan-Hansen test (HANSEN, 1982; SARGAN, 1958) proposed by SCHAFFER and STILLMAN (2006) which even holds under the framework of a random effects model. With regard to the HT-IV estimator, this is a test of the null hypothesis that the excluded instruments are valid instruments for the endogenous variables, i.e., uncorrelated with the individual effect and correctly excluded from the estimated equation. As Tables 6 – 10 indicate, the validity of our instrument variables is confirmed by the robust Sargan-Hansen tests of overidentifying restrictions throughout all regression specifications.

3.3. Empirical results

Empirical results are presented in Tables 6 – 10 within the Appendix. Table 6 presents major results from our three baseline regressions assessing the impact of the quality of external governance on the economic success and outreach of microbanks. Regressions reported in Table 7 are robustness checks controlling for potential reverse causality and a probable trade-off between profitability and outreach. Tables 8 and 9 include sensitivity analyses accounting for firm-level and country-level heterogeneity

whereas Table 10 reports regression results from disaggregating the WGI index into its single components.

3.3.1. *Main Findings*

As Table 6 reports, *WGI* enters regressions (1) and (2) significantly positive at the five-percent level, supporting our hypothesis that an increase in the quality of a country's external governance has a positive impact on the economic success of local microbanks. We suggest that the structuring and functioning of a country's legal and social institutions reduce uncertainty among MFIs resulting in a decrease of transaction costs and hence fostering economic activity. Moreover, with regard to regression specification (3), we provide empirical evidence that external governance mechanisms of a higher quality tend to increase the MFI's average loan size per borrower indicating that microbanks operating under high quality external governance are more prone to a mission drift. We suggest that the poverty-alleviation focus of microbanks is diluted when struggling for higher profitability and sustainability. Moreover, microbank clients benefiting from reliable external governance may be more able to diversify their business and take advantage of entrepreneurial opportunities. As a consequence, the microbank's customer creditworthiness increases as the average loan size per borrower will do.

Among the macroeconomic control variables, *GDP growth* enters regression specification (2) significantly positive at the five-percent level, indicating a positive relationship between a country's economic development and the microbank's sustainability. We suggest that the MFI's investment opportunities tend to rise under economic booms and the borrowers' solvency should be higher under increasing economic performance, both resulting in a higher asset quality and hence, a decrease in the probability of default and an increase in sustainability. One-period lagged *inflation* enters regression specifica-

tions (1) and (2) significantly negative at the weak ten-percent level. We suggest that passing through increasing interest rates to depositors may rise the microbank's refunding costs and negatively affects profitability. Moreover, handing down higher interest rates to credit users may exacerbate the borrowers' loan repayment resulting in higher loan default rates and, as a result, lower sustainability.

With regard to the MFI's *history* variables matrix, *age* enters the regressions on profitability and sustainability significantly positive at the one-percent level. Our findings indicate that older microbanks may benefit from learning-curve effects under the framework of higher external governance quality which confirms empirical evidence provided by HERMES AT AL. (2008). In contrast, we do not find any empirical support for the theoretical argument that recently established MFIs may absorb the experience gained by older MFIS and will thus preempt them. *Size* enters regression specifications (1) – (3) significantly positive at the one-percent and ten-percent level respectively, suggesting that larger microbanks operating under a higher external governance quality are more profitable and face a higher probability to reach sustainability. These results confirm empirical findings by DEMSETZ and STRAHAN (1997) proposing that larger banks are more able to reap benefits of diversification and economies of scale and scope. Moreover, our findings correspond to theoretical predictions that microbanks, as they grow larger, may be more susceptible to a mission drift (Cull et al., 2007).

With regard to the microbank's *business orientation* variables matrix, *capital* enters specification (2) significantly positive at the one-percent level indicating that better capitalized MFIs operating under high external governance quality realize a higher level of sustainability. This finding is less surprising if one takes into account that accumulating capital protects from default and reduces dependency on state subsidies and donors. As expected, *loans* enters regression specifications (2) and (3) significantly positive at

the one-percent level suggesting that the microbank's viability to attend to its business has a positive impact on long-run sustainability. Similarly, an increase in this ratio might be due to higher average loan balances per borrower describing a mission drift. *Deposits* enters regression specification (3) significantly negative at the ten-percent level. The positive effect on outreach in terms of depth may be due to the fact that the provision of savings accounts primarily attracts wealthy clients (RICHARDSON, 2003). Hence, MFIs may use this additional source of funding for increased lending among low-income clients. Finally, although exhibiting expected signs, the rendering of (social) *services* other than microfinance does not have a significant impact on our dependent variables.

Among the variables controlling for differences regarding the market structure and the regulatory status of MFIs, one-period lagged *credit growth* enters the regressions on profitability and outreach significantly negative at the five-percent and one-percent level respectively. The negative impact of credit growth on the microbank's profitability is in line with traditional IO-models stressing that increasing competition on credit markets results in a decrease in a bank's profit margins. Consequently, we do not find any empirical evidence that higher competition fosters mission drift. Instead, the negative relationship between outreach and competition corresponds to findings by MCINTOSH ET AL. (2005) providing empirical evidence that an increase in competition is likely to negatively affect the MFI's average loan size per borrower. We suggest that borrowers in well-developed and competitive credit markets prefer taking multiple smaller loans, however with different financial institutions. Finally, introducing the regulatory status, this variable does not exhibit any significant influence on the MFI's economic and social success. This result corresponds to empirical findings provided by HARTARSKA and NADOLNYAK (2007), but may also indicate that a dummy variable of the *de jure* status

of regulation may be a weak indicator as compared to variables measuring the *de facto* organization of banking regulation and supervision (CULL ET AL., 2009b).

3.3.2. *Robustness checks and sensitivity analyses*

As a general result, Tables 7 – 10 report that our main finding of a positive relationship between a country's external governance quality and the economic success and outreach of local microbanks holds even when performing various robustness checks and sensitivity analyses.

To begin with, the relationship between *capital* and *profitability* may be a two-way causality. On the one hand, the microbank's profitability may be positively related to the institution's capital ratio since only profitable MFIs are able to accumulate capital (FLANNERY and RANGAN, 2004). On the other hand, BERGER (1995) provides empirical evidence that higher earnings follow higher capital since well-capitalized banks face fewer financial restraints but a larger variety of investment opportunities. Hence, to address potential reverse causality, we employ the initial capital to assets ratio (*capital (I)*) and the debt to asset ratio (*debt ratio*) as proxies of the capital measure in Table 7, regression specifications (1) and (2).⁶ As indicated, our main finding of a positive impact of external governance quality on the microbank's profitability is reiterated while other significances keep robust. Hence, we rule out that our baseline regression on profitability is biased by reverse causality.

Furthermore, theoretical as well as empirical literature (e.g. HERMES and LENSINK, 2007; SCHREINER, 2002; WOLLER ET AL., 1999) suggest a probable trade-off between a microbank's ability to operate profitably on the one hand and to simultaneously reach

⁶ With regard to the validity of our proxies, Table 5 reports that both the initial capital ratio and the debt ratio are highly correlated with the capital variable whereas their correlation with profitability is sufficiently low.

the poorest clients by means of micro loans on the other hand. Taking the dual mission into account, we control for the impact of profitability on outreach in regression specification (3). As Table 7 reports, even though profitability is additionally included, our main finding of a positive relationship between external governance quality and outreach is reconfirmed while other significances keep robust. Moreover, as profitability enters the regression specification statistically insignificant, we rule out that the MFI's financial performance may be restrained by the provision of small loans to poor customers.

By means of regression specifications (1) – (9) in Table 8 we address the high degree of firm-level heterogeneity in our sample. We initially classify the entire set of microbanks into three groups with banks focusing more than 90% of all operations on microfinance (*MF-Grade I*), banks comprising between 70% and 90% of all operations by microfinance (*MF-Grade II*) and those institutions focusing between 50% and 70% of all operations on microfinance (*MF-Grade III*). Subsequently we interact the governance measure with each of the different microfinance grades. As Table 8 reports, microbanks operating under higher external governance quality are more profitable and more likely to reach sustainability when predominantly focusing on microfinance. In contrast, the grade of microfinance activity is a statistically insignificant indicator with regard to outreach.

We further control for geographical heterogeneity. In a *first step*, we interact the governance measure with the log of real *GDP*. As shown in Table 9, the interaction term enters all regression specifications significantly positive at the five-percent level reconfirming our main finding of a positive relationship between external governance and the microbank's economic success and outreach. However, as compared to our baseline regressions, a decrease in the coefficients of the interaction term throughout all regres-

sions indicates that the positive effect of external governance quality is significantly lower in countries with a higher level of economic development. This is a less surprising result if it is assumed that a country's economic development and external governance quality might to be mutually dependent.

In a *second step*, we control for different regional characteristics by interacting the governance variable with several regional dummies (*Region I – VI*). As Table 9 reports, we find that MFIs operating in economically prospering countries exhibiting an increasing governance quality like Western, Middle, Eastern or Southern Africa and the Americas are more likely to operate profitably and sustainable. Furthermore, empirical results suggest that microbanks located in Eastern or Southern Asia tend to be more prone to a mission drift which might be due to the fact that banking sectors in Eastern and Southern Asia are highly developed as compared to Latin America (ARMENDÁRIZ and SZAFARZ, 2009).

Finally, though the aggregated WGI is a popular measure of governance in empirical work, it may suffer from a propagation of estimation-errors among its single indicators.⁷ To address this problem, we disaggregate the WGI index and employ the six individual governance indicators instead. As reported in Table 10, rule of law enters all three regression specifications significantly positive, suggesting that the protection of property rights as well as the enforceability of contracts positively affect the economic success and outreach of microbanks. This result was expected since it is assumed that a stronger institutional framework supports microfinance activities through a non-arbitrary government applying known principles or laws when making decisions. Introducing political stability, this variable enters regressions on profitability and outreach significantly positive indicating that MFIs operating in the absence of politically-

⁷ See ARNDT and OMAN (2006) and KAUFMANN and KRAAY (2008) for a comprehensive discussion on potential sources of error when utilizing the WGI index for empirical studies.

motivated violence and thus, under a stable political framework tend to be more profitable and more likely to realize a higher outreach. We suggest that a government's ability to carry out declared programs and to constitutionally stay in office may lead to a higher confidence among market participants. Moreover, political stability is anticipated to spur mission drift since in particular poor clients are anticipated to benefit from trustworthy political stability and hence be able to improve living conditions. Finally, government effectiveness enters the regressions on profitability and sustainability significantly positive. Findings suggest that the microbank's entrepreneurial objectives in terms of economic success may be sensitive to the government's overall credibility and the quality and burdensomeness of public policy and bureaucracy in particular.

4. Conclusion

While a growing number of theoretical and empirical studies outline the importance of internal governance mechanisms as a key factor of success for the dual mission of MFIs, to date, no study has explicitly examined the impact of external governance structures on the economic and social success of microbanks. Using data on 558 MFIs in 80 countries around the world for the period from 2002 to 2007, this paper provides empirical evidence that a higher quality of a country's external governance mechanisms positively affects local microbanks' economic success in terms of profitability and sustainability as well as social success measured by depth of outreach. As further results from various robustness checks and sensitivity analyses, we find that higher external governance quality supports economic success of those MFIs predominantly focusing on microfinance business while microbanks that do not exclusively rely on microfinance may be more prone to reach operational self-sufficiency under a good governance framework. Moreover, when disaggregating the WGI, we find that both rule of law and

government effectiveness has a strong impact on the microbanks economic success, while depth of outreach is reduced.

Against the background of our empirical results, we deduce the following policy implications. *To begin with*, we suggest that a country's government should provide indispensable support for microbanks through an effective and gradual implementation of good governance, e.g. the implementation of a non-arbitrary external governance, high-quality public services and bureaucracy not being an obstacle to private business decisions. As high-quality local institutions strongly determine the MFI's profitability which supports sustainability in turn, both the lasting provision of financial services to the poor and thus the alleviation of poverty become achievable goals. However, if it is true that depth of outreach is not diminished by profitability but external governance quality it becomes even more important that a country's administration admits its responsibility to ensure that the successful development of MFIs does not benefit mission drift and hence undermines the original purpose of microfinance.

In contrast, it may be surprising that *overall* economic policy does not pander to the development of microbanks since MFIs show very little exposure to a country's macro-economic cycles. Hence, to support a sustainable local microfinance industry, measures should be taken that meet the particular characteristics and needs of microfinance. More precisely, this may include but is not limited to, the diversification in funding opportunities in order to close the prevailing funding gap as well as innovative measures to contain transaction costs, which arise due to the institutions' business concept of providing miniscule loans.

In addition, we suggest MFIs not to adapt business models and strategies so far exclusively pursued by formal banks. As our empirical findings indicate, microbanks strictly focusing on microfinance while operating under high-quality external govern-

ance mechanisms are more likely to be profitable and reach higher levels of sustainability compared to formal banks. Hence, we recommend MFIs to specialize in microfinance and to strictly focus on their market niche rather than competing with the formal banking industry.

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Statistical Appendix

Table 1: Regional and Institutional Characteristics of MFIs in the Sample

	No. of MFIs	Bank		Non-Governmental Organization		Non-Bank Financial Institution		Cooperative/ Credit Union		Rural Bank	
		abs.	rel.	abs.	rel.	abs.	rel.	abs.	rel.	abs.	rel.
Western, Middle, Eastern and Southern Africa	106	13	<i>12.26</i>	30	<i>28.30</i>	42	<i>39.62</i>	21	<i>19.81</i>	0	<i>0.00</i>
Northern Africa and West Asia	33	3	<i>9.09</i>	10	<i>30.30</i>	20	<i>60.61</i>	0	<i>0.00</i>	0	<i>0.00</i>
Eastern Europe and Central Asia	70	14	<i>20.00</i>	7	<i>10.00</i>	41	<i>58.57</i>	8	<i>11.43</i>	0	<i>0.00</i>
Americas	227	19	<i>8.37</i>	119	<i>52.42</i>	57	<i>25.11</i>	32	<i>14.10</i>	0	<i>0.00</i>
Southern Asia	75	3	<i>4.00</i>	39	<i>52.00</i>	21	<i>28.00</i>	5	<i>6.67</i>	7	<i>9.33</i>
Eastern and Southeastern Asia	47	4	<i>8.51</i>	19	<i>40.43</i>	17	<i>36.17</i>	1	<i>2.13</i>	6	<i>12.77</i>
Total	558	56		224		198		67		13	

All countries have been classified following the United Nations geoscheme, created by the United Nations Statistics Division.

Table 2: Notes on Variables and Data Sources

Variable Name	Definition	Source
Profitability	Return on assets before tax.	Microfinance Information eXchange
Sustainability	Operational self-sufficiency, defined as the ratio of total financial revenues to the sum of financial expenses, loan loss provision and operating expenses.	Microfinance Information eXchange
Outreach	Ratio of average loan balance per borrower to gross domestic product per capita.	Microfinance Information eXchange, own calc.
WGI	Index that measures the quality of governance across countries and over time. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank), own calc.
Voice and Accountability	Indicator that measures citizens' ability to select their government, as well as freedom of expression, freedom of association and a free media. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Political Stability	Indicator that measures the perception of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Government Effectiveness	Indicator that measures the quality of policy formulation and implementation as well as the quality and independence of public services and civil service. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Regulatory Quality	Indicator that measures a government's ability to formulate and implement sound policies which promote private sector development. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Rule of Law	Indicator that measures individual's degree of confidence in rules of society and the likelihood of crime and violence. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Control of Corruption	Indicator that measures the extent to which public power is exercised for private gain and the influence of elites and private interests on policies. Scores range between -2.5 and 2.5, with higher scores corresponding with better outcomes.	Worldwide Governance Indicators (World Bank)
Interest Rate (t-1)	Lag (1) of the annual change of real short term interest rate, adjusted for inflation.	World Development Indicators Online (World Bank)
GDP Growth	Annual percentage change in real gross domestic product growth (in 2000 USD).	World Development Indicators Online (World Bank)
Inflation	Annual percentage change in gross domestic product deflator.	World Development Indicators Online (World Bank)
GDP	Log of real gross domestic product.	World Development Indicators Online (World Bank)

Table 2 cont.

Variable Name	Definition	Source
Age	Log of age of the MFI.	Microfinance Information eXchange
Size	Log of total net assets (in USD).	Microfinance Information eXchange
Sources	Number of funding sources used by the MFI (equity, loans, savings, grants).	Microfinance Information eXchange
Capital	Ratio of total equity to total assets.	Microfinance Information eXchange
Capital (I)	Initial ratio of total equity to total assets in 2002.	Microfinance Information eXchange
Debt Ratio	Ratio of total debt to total assets.	Microfinance Information eXchange
Loans	Ratio of the gross loan portfolio to total assets.	Microfinance Information eXchange
Deposits	Ratio of voluntary savings to total assets.	Microfinance Information eXchange
Services	Dummy variable that takes the value of one if the MFI offers services other than microfinance (e.g. health care, education); 0 otherwise.	Microfinance Information eXchange
Credit Growth (t-1)	Lag (1) of the ratio of domestic credit to private sector to gross domestic product.	World Development Indicators Online (World Bank)
Regulation	Dummy variable that takes the value of one if the MFI is regulated; 0 otherwise.	Microfinance Information eXchange
MF-Grade I	Dummy variable that takes the value one if the MFI comprises more than 90% of its operations by microfinance; 0 otherwise.	Microfinance Information eXchange, own calc.
MF-Grade II	Dummy variable that takes the value one if the MFI comprises more than 70%, but less than 90% of its operations by microfinance; 0 otherwise.	Microfinance Information eXchange, own calc.
MF-Grade III	Dummy variable that takes the value one if the MFI comprises more than 50%, but less than 70% of its operations by microfinance; 0 otherwise.	Microfinance Information eXchange, own calc.
Region I	Dummy variable that takes the value one if country is located in Western, Middle, Eastern or Southern Africa; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division
Region II	Dummy variable that takes the value one if country is located in Northern Africa or West Asia; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division
Region III	Dummy variable that takes the value one if country is located in Eastern Europe or Central Asia; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division
Region IV	Dummy variable that takes the value one if country is located in the Americas; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division
Region V	Dummy variable that takes the value one if country is located in Southern Asia; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division
Region VI	Dummy variable that takes the value one if country is located in Eastern or Southeastern Asia; 0 otherwise.	United Nations geoscheme, United Nations Statistics Division

Table 3: Descriptive Statistics

Variable Name	Obs.	Groups	Mean	SD	Min	Max
Profitability	2154	554	0.0152	0.1244	-1.8219	0.3407
Sustainability	2405	556	1.1535	0.3372	0.1314	2.4475
Outreach	2108	556	0.8383	1.6381	0.0074	27.0956
WGI	3344	558	-0.4904	0.4311	-1.7850	1.2250
Voice and Accountability	3344	558	-0.2729	0.5730	-1.7300	1.2100
Political Stability	3344	558	-0.7063	0.6998	-2.4500	1.0600
Government Effectiveness	3344	558	-0.4629	0.4486	-1.7700	1.3400
Regulatory Quality	3344	558	-0.3270	0.4762	-2.3300	1.4800
Rule of Law	3344	558	-0.5908	0.4571	-1.8800	1.1900
Control of Corruption	3336	558	-0.5594	0.4383	-1.7300	1.4800
GDP Growth	2789	558	0.0551	0.0367	-0.1267	0.3450
Inflation	2779	556	0.0801	0.1304	-0.0457	3.8127
Interest Rate (t-1)	2399	504	0.0026	0.0581	-0.1193	0.7683
GDP	2789	558	23.8823	1.6620	20.6768	28.3710
Age	3208	557	2.2036	0.7472	0	3.9703
Size	2520	557	15.5117	1.8741	10.0074	21.8623
Sources	2940	490	2.3061	0.9127	1	4
Capital	2475	550	0.3861	0.3067	0.0003	4.9384
Capital (I)	2637	550	0.4580	0.3682	0.0020	4.9384
Debt Ratio	2435	550	5.5836	20.6480	0	511.0385
Loans	2520	557	0.7434	0.1714	0	1.1794
Deposits	2465	558	0.1525	0.2545	0	1.0359
Services	3348	558	0.4283	0.4949	0	1
Credit Growth (t-1)	2322	542	0.2748	0.1897	0.0068	1.4352
Regulation	3126	521	0.5797	0.4937	0	1
MF-Grade I	3348	558	0.8943	0.3075	0	1
MF-Grade II	3348	558	0.0573	0.2325	0	1
MF-Grade III	3348	558	0.0484	0.2146	0	1
Region I	3348	558	0.1900	0.3923	0	1
Region II	3348	558	0.0842	0.2778	0	1
Region III	3348	558	0.4068	0.4913	0	1
Region IV	3348	558	0.1254	0.3313	0	1
Region V	3348	558	0.0591	0.2359	0	1
Region VI	3348	558	0.1344	0.3411	0	1

Table 4: Correlation Matrix

	Profitability	Sustainability	Outreach	WGI	GDP Growth	Inflation	Interest Rate (t-1)	GDP	Age	Size	Sources	Capital	Loans	Deposits	Services	Credit Growth (t-1)	Regulation
Profitability	1.00																
Sustainability	0.68 ***	1.00															
Outreach	0.04 *	0.08 ***	1.00														
WGI	-0.06 ***	-0.03	-0.13 ***	1.00													
GDP Growth	0.01	0.08 ***	-0.03	-0.07 ***	1.00												
Inflation	0.04	0.01	0.03	-0.16 ***	-0.10 ***	1.00											
Interest Rate (t-1)	0.04	0.01	-0.04	0.14 ***	-0.04 **	-0.02	1.00										
GDP	-0.04	-0.03	-0.29 ***	0.33 ***	0.06 ***	-0.08 ***	0.15 ***	1.00									
Age	0.16 ***	0.17 ***	-0.11 ***	0.12 ***	-0.09 ***	-0.07 ***	0.00	0.07 ***	1.00								
Size	0.23 ***	0.23 ***	0.14 ***	0.09 ***	-0.07 ***	-0.08 ***	0.04 *	0.01	0.34 ***	1.00							
Sources	-0.02	-0.07 ***	0.02	-0.05 **	-0.05 **	-0.02	-0.01	-0.05 **	0.00	0.08 ***	1.00						
Capital	-0.02	-0.01	-0.05 **	-0.01	0.08 ***	0.07 ***	-0.02	-0.12 ***	-0.15 ***	-0.35 ***	-0.19 ***	1.00					
Loans	0.24 ***	0.34 ***	-0.06 **	0.14 ***	0.10 ***	-0.09 ***	0.03	0.08 ***	0.14 ***	0.01	-0.10 ***	-0.09 ***	1.00				
Deposits	0.00	0.01	0.17 ***	-0.06 ***	-0.09 ***	-0.02	0.00	0.15 **	0.15 ***	0.40 ***	0.27 ***	-0.33 ***	-0.20 ***	1.00			
Services	-0.03	-0.01	-0.10 ***	0.01	-0.08 ***	-0.03 *	-0.02	0.10 ***	0.18 ***	-0.12 ***	-0.04 *	-0.04 *	0.03	0.06 ***	1.00		
Credit Growth (t-1)	0.01	0.00	-0.16 ***	0.43 ***	-0.12 ***	-0.05 **	0.03	0.06 ***	0.13 ***	0.04 *	-0.06 ***	0.02	-0.12 ***	-0.12 ***	0.03	1.00	
Regulation	0.07 ***	0.08 ***	0.12 ***	-0.15 ***	0.10 ***	-0.05 ***	-0.01	-0.04 **	-0.04 ***	0.32 ***	-0.13 ***	-0.13 ***	-0.10 ***	0.32 ***	-0.17 ***	0.00	1.00

* significant at the ten-percent level; ** significant at the five-percent level; *** significant at the one-percent level

Table 5: Correlation Matrix Proxies

	Profitability	Capital	Capital (I)	Debt Ratio
Profitability	1.00			
Capital	-0.02	1.00		
Capital (I)	-0.04 **	0.84 ***	1.00	
Debt Ratio	-0.05 **	-0.24 ***	-0.21 ***	1.00

* significant at the ten-percent level; ** significant at the five-percent level; *** significant at the one-percent level

Table 6: External Governance Quality and Economic Success

	Profitability	Sustainability	Outreach (Mission Drift)
	(1)	(2)	(3)
<u>TV exog.</u>			
WGI	0.0666 ** (0.0289)	0.2073 ** (0.0864)	0.7434 ** (0.3323)
GDP Growth	0.0443 (0.0775)	0.6918 ** (0.3026)	0.2409 (0.7308)
Inflation	0.0722 (0.1034)	0.00002 (0.2425)	-0.3810 (0.6812)
Interest Rate (t-1)	-0.0529 * (0.0279)	-0.1244 * (0.0706)	0.1679 (0.1569)
Credit Growth (t-1)	-0.2352 ** (0.1005)	-0.1686 (0.2297)	-2.6637 *** (0.9102)
<u>TV endog.</u>			
Age	0.0748 *** (0.0271)	0.1913 *** (0.0702)	-0.2021 (0.2042)
Size	0.0303 * (0.0182)	0.1215 *** (0.0325)	0.1990 *** (0.0566)
Capital	-0.0018 (0.0319)	0.3151 *** (0.0753)	0.0428 (0.1661)
Loans	0.0502 (0.0510)	0.3421 *** (0.0921)	1.3837 *** (0.4595)
Deposits	-0.0328 (0.0281)	-0.0377 (0.1039)	-1.0135 * (0.5794)
<u>TI exog.</u>			
Regulation	-0.0895 (0.1193)	-0.7862 (0.5467)	-1.2404 (2.5264)
<u>TI endog.</u>			
Sources	0.0989 (0.1269)	1.0946 (0.9306)	3.1506 (3.6214)
Services	-0.2664 (0.3700)	-1.5854 (1.1527)	-1.3668 (4.1531)
Time Dummies	Yes	Yes	Yes
No. of Obs.	1021	1145	1158
No. of Groups	366	379	382
Wald χ^2	47.86 ***	92.30 ***	35.76 ***
Sargan-Hansen P-Value (DF)	0.6696 (6)	0.9947 (6)	0.9271 (6)

The panel model estimated is Dependent Variable $_{i=\text{country}, t=\text{time}} = \beta_1 \text{WGI}_{1,i,t} + \beta_2 \text{GDP Growth}_{1,i,t} + \beta_3 \text{Inflation}_{1,i,t} + \beta_4 \text{Interest Rate}_{1,i,t-1} + \beta_5 \text{Credit Growth}_{1,i,t-1} + \beta_6 \text{Age}_{2,i,t} + \beta_7 \text{Size}_{2,i,t} + \beta_8 \text{Capital}_{2,i,t} + \beta_9 \text{Loans}_{2,i,t} + \beta_{10} \text{Deposits}_{2,i,t} + \gamma_1 \text{Sources}_{1,i} + \gamma_2 \text{Services}_{1,i} + \gamma_3 \text{Regulation}_{2,i} + \alpha_i + \eta_{i,t}$.

Constant term included but not reported.

Heteroskedasticity and autocorrelation consistent standard errors reported in parenthesis (* significant at the ten-percent level; ** significant at the five-percent level; *** significant at the one-percent level).

Table 7: Robustness Checks – Reverse Causality and Trade-Off

	Profitability (IV)		Outreach (Trade-Off)
	(1)	(2)	(3)
<u>TV exog.</u>			
WGI	0.0798 ** (0.0323)	0.0693 ** (0.0294)	0.5582 * (0.3224)
GDP Growth	0.0165 (0.0882)	0.0431 (0.0770)	0.7301 (0.8284)
Inflation	0.0617 (0.1042)	0.0791 (0.1054)	-0.0457 (0.6829)
Interest Rate (t-1)	-0.0637 * (0.0347)	-0.0523 * (0.0271)	0.0532 (0.1756)
Credit Growth (t-1)	-0.2399 ** (0.1099)	-0.2426 ** (0.1000)	-2.7877 *** (0.9372)
<u>TV endog.</u>			
Age	0.0797 *** (0.0299)	0.0740 *** (0.0273)	-0.3826 * (0.2295)
Size	0.0286 (0.0206)	0.0303 (0.0202)	0.1655 *** (0.0646)
Capital			-0.0429 (0.1924)
Debt Ratio		-0.0003 * (0.0002)	
Loans	0.0893 (0.0591)	0.0514 (0.0498)	1.6738 *** (0.5212)
Deposits	-0.0359 (0.0307)	-0.0335 (0.0282)	-1.1425 * (0.6407)
Profitability			0.1172 (0.1952)
<u>TI exog.</u>			
Regulation	-0.2003 (0.1666)	-0.0828 (0.1205)	0.2770 (1.0714)
<u>TI endog.</u>			
Sources	0.1986 (0.1980)	0.1311 (0.1317)	0.6445 (1.0714)
Services	-0.6583 (0.5477)	-0.1586 (0.3805)	1.3430 (2.9795)
Capital (I)	-0.2874 (0.3209)		
Time Dummies	Yes	Yes	Yes
No. of Obs.	1025	1021	1018
No. of Groups	366	366	366
Wald χ^2	37.79 ***	48.02 ***	34.53 ***
Sargan-Hansen P-Value (DF)	0.7701 (5)	0.7221 (6)	0.4014 (6)

The panel model estimated is Dependent Variable $i=\text{country}, t=\text{time} = \beta_1 \text{WGI}_{1,i,t} + \beta_2 \text{GDP Growth}_{1,i,t} + \beta_3 \text{Inflation}_{1,i,t} + \beta_4 \text{Interest Rate}_{1,i,t-1} + \beta_5 \text{Credit Growth}_{1,i,t-1} + \beta_6 \text{Age}_{2,i,t} + \beta_7 \text{Size}_{2,i,t} + \beta_8 \text{Capital}_{2,i,t} + \beta_9 \text{Loans}_{2,i,t} + \beta_{10} \text{Deposits}_{2,i,t} + \beta_{11} \text{Profitability}_{2,i,t} + \gamma_1 \text{Sources}_{1,i} + \gamma_2 \text{Services}_{1,i} + \gamma_3 \text{Regulation}_{2,i} + \alpha_i + \eta_{i,t}$.

In regressions (1) and (2), Capital is instrumented using the initial capital ratio (Capital (I)) and debt to asset ratio (Debt Ratio) respectively. Specification (3) additionally controls for ROA (Profitability).

Constant term included but not reported.

Heteroskedasticity and autocorrelation consistent standard errors reported in parenthesis (* significant at the ten-percent level; ** significant at the five-percent level; *** significant at the one-percent level).

Table 8: Sensitivity Analyses I – Firm-Level Heterogeneity

	Profitability			Sustainability			Outreach (Mission Drift)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
WGI * MF-Grade I	0.0746 ** (0.0312)			0.1950 ** (0.0871)			0.3825 (0.2841)		
WGI * MF-Grade II		0.0358 (0.0664)			0.5259 ** (0.2269)			3.4283 (2.4207)	
WGI * MF-Grade III			-0.0546 (0.0593)			-0.2113 (0.2074)			4.3044 (4.4122)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1021	1021	1021	1145	1145	1145	1158	1158	1158
No. of Groups	366	366	366	379	379	379	382	382	382
Wald χ^2	47.66 ***	46.30 ***	42.68 ***	91.74 ***	105.51 ***	87.00 ***	40.73 ***	37.17 ***	34.81 ***
Sargan-Hansen P-Value (DF)	0.8431 (6)	0.1222 (6)	0.1319 (6)	0.9941 (6)	0.9204 (6)	0.9501 (6)	0.9151 (6)	0.8228 (6)	0.9533 (6)

The panel model estimated is $Dependent\ Variable_{i=country, t=time} = \beta_1 WGI_{1,i,t} * MF-Grade_{2,i} + \beta_2 GDP\ Growth_{1,i,t} + \beta_3 Inflation_{1,i,t} + \beta_4 Interest\ Rate_{1,i,t-1} + \beta_5 Credit\ Growth_{1,i,t-1} + \beta_6 Age_{2,i,t} + \beta_7 Size_{2,i,t} + \beta_8 Capital_{2,i,t} + \beta_9 Loans_{2,i,t} + \beta_{10} Deposits_{2,i,t} + \gamma_1 Sources_{1,i} + \gamma_2 Services_{1,i} + \gamma_3 Regulation_{2,i} + \alpha_i + \eta_{i,t}$.

Constant term included but not reported.

Heteroskedasticity and autocorrelation consistent standard errors reported in parenthesis (* significant at the ten-percent level; ** significant at five-percent level; *** significant at the one-percent level).

Table 9: Sensitivity Analyses II – Country-Level Heterogeneity and Regional Characteristics

	Profitability						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
WGI * GDP	0.0030 ** (0.0012)						
WGI * Region I		0.1344 ** (0.0662)					
WGI * Region II			0.0509 (0.0911)				
WGI * Region III				0.0475 (0.0462)			
WGI * Region IV					0.1274 * (0.0716)		
WGI * Region V						0.0308 (0.0527)	
WGI * Region VI							-0.0341 (0.0702)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1021	1021	1021	1021	1021	1021	1021
No. of Groups	366	366	366	366	366	366	366
Wald χ^2	48.29 ***	44.19 ***	48.48 ***	49.65 ***	53.17 ***	50.75 ***	47.10 ***
Sargan-Hansen P-Value (DF)	0.6370 (6)	0.6486 (6)	0.4149 (6)	0.2769 (6)	0.4845 (6)	0.3990 (6)	0.3418 (6)

The panel model estimated is Dependent Variable $y_{i=country, t=time} = \beta_1 WGI_{1,i,t} * GDP/Region\ I-VI_{2,i} + \beta_2 GDP\ Growth_{1,i,t} + \beta_3 Inflation_{1,i,t} + \beta_4 Interest\ Rate_{1,i,t-1} + \beta_5 Credit\ Growth_{1,i,t-1} + \beta_6 Age_{2,i,t} + \beta_7 Size_{2,i,t} + \beta_8 Capital_{2,i,t} + \beta_9 Loans_{2,i,t} + \beta_{10} Deposits_{2,i,t} + \gamma_1 Sources_{1,i} + \gamma_2 Services_{1,i} + \gamma_3 Regulation_{2,i} + \alpha_i + \eta_{i,t}$.

Constant term included but not reported.

Heteroskedasticity and autocorrelation consistent standard errors reported in parenthesis (* significant at the ten-percent level; ** significant at five-percent level; *** significant at the one-percent level).

Table 9 cont.

	Sustainability							
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
WGI * GDP	0.0077 ** (0.0034)							
WGI * Region I		0.4526 ** (0.2227)						
WGI * Region II			0.1584 (0.2754)					
WGI * Region III				-0.0804 (0.1104)				
WGI * Region IV					1.0940 *** (0.3508)			
WGI * Region V						0.2127 (0.1451)		
WGI * Region VI							0.1423 (0.2487)	
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1145	1145	1145	1145	1145	1145	1145	1145
No. of Groups	379	379	379	379	379	379	379	379
Wald χ^2	99.91 ***	96.50 ***	94.79 ***	88.12 ***	100.10 ***	88.45 ***	89.83 ***	
Sargan-Hansen P-Value (DF)	0.9155 (6)	0.9809 (6)	0.8084 (6)	0.7028 (6)	0.8478	0.8716 (6)	0.9699 (6)	

Table 9 cont.

	Outreach						
	(15)	(16)	(17)	(18)	(19)	(20)	(21)
WGI * GDP	0.0293 ** (0.0136)						
WGI * Region I		-0.4966 (0.8166)					
WGI * Region II			3.1127 (2.1839)				
WGI * Region III				-0.3073 (0.2330)			
WGI * Region IV					1.7822 (2.0772)		
WGI * Region V						2.2543 *** (0.8195)	
WGI * Region VI							1.0121 ** (0.4809)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1158	1158	1158	1158	1158	1158	1158
No. of Groups	382	382	382	382	382	382	382
Wald χ^2	35.57 ***	39.25 ***	33.18 ***	34.40 ***	32.03 ***	40.52 ***	47.38 ***
Sargan-Hansen P-Value (DF)	0.8213 (6)	0.4523 (6)	0.9052 (6)	0.9580 (6)	0.6686	0.5333 (6)	0.2545 (6)

Table 10: Sensitivity Analyses III – Governance Indicators

	Profitability					
	(1)	(2)	(3)	(4)	(5)	(6)
Voice and Accountability	-0.0127 (0.0196)					
Political Stability		0.0391 *** (0.0148)				
Government Effectiveness			0.0404 * (0.0224)			
Regulatory Quality				0.0067 (0.0143)		
Rule of Law					0.0413 ** (0.0194)	
Control of Corruption						0.0041 (0.0163)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1021	1021	1021	1021	1021	1021
No. of Groups	366	366	366	366	366	366
Wald χ^2	52.78 ***	51.04 ***	45.86 ***	46.47 ***	49.26 ***	44.94 ***
Sargan-Hansen P-Value (DF)	0.4889 (6)	0.5969 (6)	0.4224 (6)	0.1357 (6)	0.6038 (6)	0.3053

The panel model estimated is Dependent Variable $y_{i,t} = \beta_1 \text{Governance Indicator}_{1,i,t} + \beta_2 \text{GDP Growth}_{1,i,t} + \beta_3 \text{Inflation}_{1,i,t} + \beta_4 \text{Interest Rate}_{1,i,t-1} + \beta_5 \text{Credit Growth}_{1,i,t-1} + \beta_6 \text{Age}_{2,i,t} + \beta_7 \text{Size}_{2,i,t} + \beta_8 \text{Capital}_{2,i,t} + \beta_9 \text{Loans}_{2,i,t} + \beta_{10} \text{Deposits}_{2,i,t} + \gamma_1 \text{Sources}_{1,i} + \gamma_2 \text{Services}_{1,i} + \gamma_3 \text{Regulation}_{2,i} + \alpha_i + \eta_{i,t}$.

Constant term included but not reported.

Heteroskedasticity and autocorrelation consistent standard errors reported in parenthesis (* significant at the ten-percent level; ** significant at the five-percent level; *** significant at the one-percent level)

Table 10 cont.

	Sustainability					
	(7)	(8)	(9)	(10)	(11)	(12)
Voice and Accountability	0.0500 (0.0587)					
Political Stability		0.0136 (0.0363)				
Government Effectiveness			0.1664 ** (0.0671)			
Regulatory Quality				0.0790 (0.0569)		
Rule of Law					0.1227 ** (0.0545)	
Control of Corruption						0.0548 (0.0605)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1145	1145	1145	1145	1145	1145
No. of Groups	379	379	379	379	379	379
Wald χ^2	91.01 ***	88.77 ***	94.70 ***	83.84 ***	102.23 ***	82.58 ***
Sargan-Hansen P-Value (DF)	0.7515 (6)	0.9799 (6)	0.9906 (6)	0.9913 (6)	0.9318 (6)	0.9644 (6)

Table 10 cont.

	Outreach (Mission Drift)					
	(13)	(14)	(15)	(16)	(17)	(18)
Voice and Accountability	-0.0516 (0.3080)					
Political Stability		0.2703 ** (0.1136)				
Government Effectiveness			0.2311 (0.2022)			
Regulatory Quality				0.3348 (0.2048)		
Rule of Law					0.9231 *** (0.3473)	
Control of Corruption						0.1959 (0.2880)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	1158	1158	1158	1158	1158	1158
No. of Groups	382	382	382	382	382	382
Wald χ^2	37.27 ***	37.59 ***	38.87 ***	36.83 ***	40.98 ***	37.20 ***
Sargan-Hansen P-Value (DF)	0.6343 (6)	0.9463 (6)	0.7784 (6)	0.7073 (6)	0.6150 (6)	0.6978 (6)