



# **The Impact of External Governance Quality on the Economic Success of Microfinance Institutions**

## **Empirical Evidence**

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**Abstract:** While a growing number of theoretical and empirical studies outline the importance of internal governance mechanisms for microfinance institutions (MFIs), to date, no study has examined the impact of a country's institutions-based and outcomes-based external governance quality on the economic success of microbanks. 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.

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## 1. Introduction

In contrast to the formal banking sector, a microfinance institution (MFI henceforth) faces a dual mission since it has to provide financial services to the poor (*outreach*) while simultaneously covering its operating costs (*sustainability*). Furthermore, as the competition for funding sources (donations and investment capital from outside creditors) has enhanced due to an increasing number of MFIs, *profitability* becomes more important, even for those MFIs which are operated as not-for-profit organizations. As a consequence, a growing number of larger MFIs pursue the strategy of turning themselves into formal banks, hence facing competition with traditional commercial banks, which in turn have recently started financing MFIs or providing microfinance themselves.

From a developing country's government perspective, proceedings of microfinance as described above provide an opportunity, but even more the necessity to strengthen local institutions and governance outcomes. As it is well accepted that theories on institutional development and governance quality in developing countries apply to microfinance as well (e.g. GREIF, 2006; SHIRLEY, 2005; NORTH, 1990), a theoretical framework is offered suggesting that microbanks operating under high-quality local institutions and governance outcomes are more likely to achieve social and economic success.

Accordingly, a growing number of theoretical and small-sized, country-specific empirical studies are stressing the importance of the MFI's *internal* governance system as a key factor toward success. Hence, these studies focus on what is commonly accepted as a firm's *corporate governance* and recommend 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 and improve 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 (2007) and HARTARSKA (2005) struggle to find statistical evidence that best practice in corporate governance mechanisms of formal banks operating in mature markets has an impact on the social and economic success of microbanks.

In contrast to these ambiguous findings on *internal* governance, the impact of a country's *external* governance mechanisms on the economic success of microbanks is given minimal attention (SNOW, 1999). Although recent studies confirm that most donors and outside creditors pay considerable attention to the quality of external governance in recipient countries when making their capital allocation decisions (BERTHÉLEMY and TICHIT, 2004; BURNSIDE and DOLLAR, 2000), no study has examined the impact of *institutions-based* and *outcomes-based governance* quality on the economic success of MFIs yet. If at all, cross-sectional studies focus on banking regulation and market competition as proxies of a country's external governance system under which MFIs operate (e.g. MERSLAND and STRØM, 2007; HARTARSKA and NADOLNYAK, 2007; HARTARSKA, 2005). However, in our opinion these proxy variables are less convincing as they rather describe the regulatory framework and market structures which, if at all, are best characterized as institution-based external governance.

Against this background, the empirical analysis at hand aims to complement and extend previous studies by including popular and well-accepted governance indicators to empirically investigate the relationship between a country's external governance mechanisms and the economic success of 558 MFIs in 80 countries over the period from 2002 to 2007.

The remainder is organized as follows. Section 2 presents related empirical literature on the relationship between governance quality and the MFI's economic success. Sec-

tion 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. However, the majority of these empirical studies 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 and external governance mechanisms and the MFI's financial performance. The analysis provides statistical evidence that among all external governance 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 for an unknown time-period of panel estimations. While controlling for the macroeconomic and institutional framework as well as bank-specific characteristics, the panel data analysis reveals 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, the authors

suggest that MFIs do benefit indirectly from banking regulation if being regulated is the only way to access savings.

Finally, using data on 226 MFIs in 57 countries over the period from 2000 to 2006, MERSLAND and STRØM (2007) examine the impact of internal corporate governance and external governance mechanisms on the MFI's performance and outreach. Concerning external governance mechanisms the authors provide empirical evidence that competition supports the MFI's financial performance but not outreach, whereas regulation has no statistically significant effect on both dependent variables.

### **3. Empirical Analysis**

#### **3.1. Data**

Notes on variables and data sources, descriptive statistics for the entire dataset as well as the correlation matrix are provided in Tables 1 – 4.

We focus our empirical analysis on a unique dataset including balance sheet and other company-specific data on 558 MFIs in 80 countries for the period from 2002 to 2007, compiled and published by the *Microfinance Information eXchange* (MIX).<sup>1</sup> To ensure reliability and accuracy of the data obtained, we exclusively include MFIs ranked four or five diamonds by MIX since these institutions provide audited financial statements and hence guarantee 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

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<sup>1</sup> Microfinance Information eXchange is a not-for-profit private organisation incorporated in 2002 aiming to promote 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 MFIs.

world, institutions included in our data set serve a large fraction of customers worldwide. Table 1 provides information on the regional and institutional characteristics of MFIs included in the sample.

In line with relevant previous theoretical and empirical studies on microfinance, we employ three key measures to evaluate the economic success of MFIs: *profitability*, *sustainability* and *outreach*. To begin with, *profitability* is proxied by pre-tax return on assets (ROA), prevailing as one of the most common indicators to assess a bank's financial performance. In the special context of microfinance, the ratio is used to analyze an MFI's commercial viability since it provides information on the incentive of donors and further outside investors (e.g. commercial banks, investment companies) to finance the microbank.

From the MFI's perspective, profitability is considered to be one important determinant for achieving *sustainability*. 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. Though financial self-sufficiency in fact describes an accurate indicator, 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 even intensifies the struggle for donations, favoring those being profitable and efficient.<sup>2</sup> In addition, even outside investors may not only be interested in monetary profits gained by the MFI, but also in the achievement of social aims which is understood as "intrinsic profit" (CONNING, 1999). Thus, we rather include 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 this ratio exceeds the value of one

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<sup>2</sup> DEUTSCHE BANK RESEARCH (2007) estimates the funding gap of microbanks to total roughly USD 250 bn.

it is indicated that the MFI operates operationally self-sufficiently, meaning that operating expense is covered by financial revenue.

*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 by literature as "*mission drift*". The latter may be due to clients who mature and successfully develop their businesses and thus demand larger loans. To examine this phenomenon, our panel data is suitable without reservation since mission drift inherently involves adaption over time.

We include the quality of external governance as our measure of main interest. Among the variety of probable governance indicators<sup>3</sup> we consider the *KKZ Composite Index* suggested by KAUFMANN, KRAAY and ZOIDO-LOBATÓN (1999) to be most qualified to measure the level of institutions-based and outcomes-based quality of governance across countries and over time. The KKZ index consists of *six* aggregate indicators. "*Voice and Accountability*" measures the perception of civil rights, the responsiveness of government 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 has 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.

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

Next to this, “*Regulatory Quality*” measures excessive regulation, market-unfriendly policies and state interference 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, the degree to which corruption is an obstacle to business development and the efficiency of anti-corruption policies (KAUFMANN ET AL., 2008). We expect a higher quality of institutions-based and outcomes-based external governance quality to have a positive impact on the MFI’s economic success as measured by profitability, sustainability and outreach.

When examining the relationship between the quality of governance and the micro-bank’s economic success, it is imperative to control for macroeconomic, MFI-specific, institutional and regulatory characteristics that are likely to affect profitability, sustainability 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 per capita, GDP growth and the annual change of inflation rates as well as the annual change in real short term interest rates to capture the country-specific macroeconomic development. *GDP per capita* and the rate of growth of real GDP (*GDP growth*) are control variables since they proxy for a country’s economic trend which in turn might have an impact on the MFI’s economic success. Thus, as the MFI’s opportunities to make loans are assumed to be positively correlated with business cycles (LAEVEN and MAJONI, 2003), we expect a positive impact of GDP growth on profitability and sustainability. In contrast, however, LOWE (2003), BORIO ET AL. (2001) and KEETON (1999) state that formal banks frequently accumulate credit risk when the economy is prospering. Hence, a favorable economic environment may also lead to “ex-



cessive” lending by MFIs (BIKKER and METZEMAKERS, 2005; RUCKES, 2004), affecting the microbank’s profitability and sustainability negatively.

The effect of changes in *inflation* rates depends on whether it coincides with general economic fragility or 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 simultaneously increase the intricacy of borrowers’ loan repayment resulting in higher loan default rates (AHLIN and LIN, 2006; HORTLUND, 2005). Thus, as it depends on the MFI’s ability to reprice its assets and liabilities, the effect of inflation is expected to be ambiguous. Similarly, changes in real short term *interest rates* are likely to influence the MFI’s economic success. We 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, loan loss provision expense and the likelihood of loan defaults may increase and hence reduce the microbank’s profitability and sustainability (BOYD and DE NICOLÓ, 2005). In addition, DEHEJIA ET AL. (2005) provide empirical evidence that the demand for credit by poorer clients is elastic. Hence, we expect a falling demand for credit due to rising interest rates to reduce an MFI’s economies of scale. This is in line with CULL ET AL. (2007) providing empirical evidence that individual-based MFI lenders are more profitable when interest rates rise, however, only up to a certain threshold. 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 further include MFI-specific measures since microbanks significantly vary in our sample. To address this heterogeneity, we employ two matrices of MFI-specific variables. The *history* matrix contains three variables, notably *age*, *size* and *sources*, and describes the MFI's structural development and level of (business) know-how. The *business orientation* matrix allows for different business concepts depicted by the microbank's *capital ratio*, *the gross loan portfolio to total assets*, *the average savings balance (relative to GDP per capita)* and a dummy variable for the rendering of (social) *services*.

To begin with the *history* matrix, *age* is included since older MFIs may be more experienced due to learning-curve effects resulting from trial-and-error processes. 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) find empirical support for both hypotheses.

We include the logarithm of the MFI's total net assets 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 of this control variable on our dependent variables. This assumption is in line with ZACHARIAS (2008) and DEMSETZ and STRAHAN (1997) who find empirical evidence that larger (micro)banks are more able to reap benefits of diversification and economies of scale and scope, hence gaining higher profits and strengthening financial soundness. Moreover, as MFIs grow larger they may be more susceptible to a mission drift which

again may result in higher profitability and sustainability on the one hand, but reduce outreach in terms of serving the poorest of the poor on the other hand. The latter hypothesis is supported by CULL ET AL. (2007) providing empirical evidence that larger microbanks on average exhibit lower measures of outreach.

Next to size, we additionally control for the number of funding *sources* like equity capital, interbank loans and grants. Following the “life cycle theory” (HELMS, 2006; FEHR and HISHIGSUREN, 2004; DE SOUSA-SHIELDS ET AL., 2004), a greater variety of funding sources typically become available as the MFI matures. While the microbank strongly depends on donor’s equity at its start-up, which is associated with ineffective business operations due to the inability to compete for capital market funding, additional sources of funding in later stages of the life cycle result in a decrease in funding costs which, in turn, has a positive impact on profitability and sustainability. Moreover, using further refinancing facilities gains access of outside institutional creditors such as commercial banks and investment companies. Hence, market discipline is likely to increase the MFI’s profitability and sustainability, but provides an incentive for mission drift which negatively affects outreach in terms of depth.

The *business orientation* matrix captures MFI-specific characteristics that are likely to describe the institutions’ business concepts. To begin with, we include the capital to assets ratio (*capital*) to control for the institute-specific capital structure. We assume that higher capitalized MFIs are more profitable due to the fact that they are able to increase capital by means of retained earnings.<sup>4</sup>

We further control for the ratio of the gross loan portfolio to total assets (*loans*). We expect this measure to be positively related to all dependent variables since an increas-

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<sup>4</sup> Nevertheless, we cannot rule out reverse causality between profitability and an institution’s capital structure since only profitable MFIs are able to allocate capital. To obtain feasible regression results, we thus apply instrumental variables estimation (see section 3.3.2).

ing share of loans on total assets represents the microbank's viability to attend to its business. Similarly, we include *deposits* as the ratio of the MFI's voluntary savings to total assets. Collecting savings is the microbank's initial challenge to (sustainably) provide credit to the poor or low-income clients being economically active but facing restrictions accessing the formal banking sector. Moreover, the provision of saving opportunities may enable MFIs to acquire new and less poor clients who already have access to the formal banking sector. Next to donations, savings are likely to be used as cost-minimizing refinance opportunities of the loan portfolio. Hence, we expect a positive impact of savings on outreach and sustainability, whereas the provision of savings accounts raises operating expenses and hence may reduce the microbank's profitability.

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 include a dummy variable for the non-governmental ownership of the microbank since (1) the institution's business concept cannot be inferred from the ownership structure, and (2) MERSLAND and STRØM (2008) provide empirical evidence that ownership type does not influence an institution's performance. Instead, we employ *services* as a dummy coefficient that controls for the (voluntary) provision of (social) services other than microfinance and hence sheds a brighter light on the institutional concepts of microfinance. We assume that services might be inversely related to profitability and sustainability because the rendering of (social) services is neither an original feature of the operating business of MFIs nor a determinant for profit maximizing issues. Moreover, non-profit MFIs that are driven by social objectives might be forced to charge lower interest rates scaling down profits. In contrast, services may have a positive impact on the micro-

bank's outreach because the rendering of social services is primarily intended for poorer clients.

Finally, we control for a country's credit market structure and the MFI's regulatory status. Due to the fact that the number of MFIs is still increasing and formal banks have proceeded to provide microfinance by themselves, we include the one-period lag of *credit growth* serving as a proxy for the development of the credit market and hence competitiveness. From a traditional IO-perspective, competition should have a negative impact on profitability because of decreasing margins. In addition, MCINTOSH ET AL. (2005) provide empirical evidence that competition leads to a decline in repayment performance due to MFI's clients taking multiple (small) loans which results in a decrease in the microbank's profitability. In contrast, it is assumed that competition may foster sustainability and mission drift since next to local governments donor agencies have begun to promote competition in order to strengthen sustainability as well as breadth of outreach (RHYNE and OTERO, 2006; ARMENDÁRIZ DE AGHION and MURDOCH, 2004). Moreover, BANERJEE ET AL. (2003) provide empirical evidence that the maturity of capital markets within a country is positively related to the allocation of funding resources. Finally, *regulation* is a key determinant for the economic success of microfinance since an increasing number of MFIs improve their business model by phasing out differences to the formal banking sector which in turn provokes an increasing need for (prudential) regulation. Due to regulatory burden, we expect the dummy coefficient of the regulatory status to have a negative impact on the MFI's economic success.

### 3.2. Empirical Model

To test the hypothesis that a higher quality of a country's external governance has a positive impact on the economic success of microbanks being included in our sample, we use a panel model 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 the MFI  $i$  at time  $t$  and  $\beta$  and  $\gamma$  are vectors of coefficients associated with time-varying and time-invariant observable control variables as described above. The disturbance term  $\eta_{it}$  is assumed to be uncorrelated with the vector columns of  $(x, z, \alpha)$  and has a zero mean and constant variance  $\sigma_\eta^2$  conditional on  $x_{it}$  and  $z_i$ . The MFI-individual effect  $\alpha_i$  is assumed to be an unobserved time-invariant random variable, distributed independently across the MFIs, with variance  $\sigma_\alpha^2$ .

$\alpha_i$  is considered to be the unobserved firm heterogeneity which typically arises due to different characteristics of MFI's being included into the sample, such as different managerial abilities or internal firm structures. We are convinced that both aspects are particularly applicable to MFIs. Furthermore, there is reason to believe that the MFI managers' attitude towards the concept of microfinance differs. While some managers primarily follow the "welfarist approach", that is reaching the poorest by accepting state-granted subsidies or private donations (BRETT, 2006; WOLLER, 2002; WOLLER ET AL., 1999), others predominantly rely on building up financial self-sufficiency and efficiency in the long run which is 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  $\alpha_i$ , 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) 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 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  $\alpha_i$ . Hence, these seven 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 Table 5 indicates, 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**

Table 5 presents major results of our three core regressions assessing the impact of the quality of institutions-based and outcomes-based governance on the economic success of microbanks. Regressions reported in Tables 6 are robustness checks controlling for correlation-driven significances and including instrumental variables to control for potential reverse causality. Tables 7 and 8 present sensitivity analyses from accounting for the MFI's individual percentage of operations comprised by microfinance and disaggregating the *KKZ Composite Index*.

#### **3.3.1. Main Findings**

As Table 5 reports, the *KKZ Composite Index* enters regressions (1) – (2) significantly positive at the one-percent and five-percent level respectively, suggesting that the quality of a country's external governance has a positive impact on the MFI's economic success. This result supports our hypothesis that MFIs operating under high-quality local institutions and governance outcomes are more likely to be profitable and sustainable. Moreover, with regard to regression specification (3), we find empirical evidence that an improvement in the quality of external governance increases a microbank's out-



standing accounts (mission drift). Hence, we conclude that clients who benefit from high-quality external governance mechanisms are in a pole position to diversify their businesses and to take advantage of entrepreneurial opportunities which leads to an increase in the MFI's average loan balance per borrower and a structural change in the microbank's clientele.

Except for *GDP per capita* and *GDP growth* in regression specification (2), we find no statistical significance of our macroeconomic control variables. This may indicate, at least to a large extent, that the economic success of MFIs is still detached from a country's macro economy.

With regard to the MFI's *history* variables matrix, *age* enters our regressions on profitability and sustainability significantly positive at the five-percent and ten-percent level respectively, while its effect on outreach is statistically not significant. The result suggests that older microbanks may benefit from learning-curve effects under the framework of higher governance quality which is in line with empirical findings by HERMES AT AL. (2008). In contrast, we find no support for the theoretical argument that recently established MFIs may absorb this experience gained and will thus preempt older microbanks. *Size* enters regression specifications (1) – (3) significantly positive at the one-percent and five-percent level respectively, suggesting that larger microbanks operating under a higher governance quality are more profitable and face a higher probability to reach sustainability. This result confirms 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 MFIs, as they grow larger, may be more susceptible to a mission drift.

With regard to the microbank's *business orientation* variables matrix, *capital* enters specification (2) statistically positive at the one-percent level indicating that higher capitalized MFIs operating in an advanced governmental environment are more self-sufficient. *Loans* enters the regressions (1) – (3) significantly positive suggesting that the microbank's viability to attend to its business has a positive impact on profitability and sustainability. Similarly, an increase in this ratio might be due to higher average loan balances per borrower, which again reduces outreach in terms of depth. *Deposits* enters regression specification (3) significantly negative at the five-percent level. The negative effect on outreach 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 its poorer clientele. Finally, although exhibiting expected signs, the rendering of (social) *services* other than microfinance does not have a significant impact on our dependent variables.

Among variables controlling for market structure and the regulatory status, one-period lagged *credit growth* enters the regressions on profitability and outreach significantly negative at the one-percent level. The negative impact of credit growth on the MFI's profitability is in line with traditional IO-models predicting that increasing competition leads to a decrease in profit margins. In this context, we find no support for a mission drift of MFIs operating in highly competitive markets. In contrast, the negative relationship between outreach and credit growth corresponds to empirical findings by MCINTOSH ET AL. (2005) who provide evidence that an increase in competition is likely to bring on a decline in the MFI's average outstanding loan balance. This might be due to the fact that borrowers in developed credit markets prefer taking multiple smaller loans, but with different institutions. Although we expected a negative impact of regulation on profitability and sustainability due to regulatory burden, we do not observe any

significant influence of the MFI's *regulatory status* within regressions (1) – (3). This result corresponds to HARTARSKA and NADOLNYAK (2007) and may indicate that the *de jure* status of regulation may be less important to MFIs than the *de facto* organization of the regulatory framework.

### 3.3.2. Robustness Checks and Sensitivity Analyses

As Tables 6 to 8 indicate, our main finding of a positive relationship between a higher-developed institutions-based and outcomes-based governance framework and the economic success of microbanks even holds when performing various robustness checks and sensitivity analyses.

To begin with, our main results may be driven by collinearity due to a high level of correlation between the *KKZ Composite Index* and *GDP per capita* since both variables proxy for the institutional development of a country (see Table 4). We thus omit GDP per capita in specifications (1) to (3), Table 6. However, as the results reconfirm the positive impact of external governance on the MFI's economic success, it is not sensitive to include GDP per capita in our core and further regressions.

The relationship between the equity to assets ratio (*capital*) and ROA (*profitability*) may be a two-way causality. On the one hand, the bank's profitability may be positively related to its capital ratio since only profitable MFIs are able to increase retained earnings (FLANNERY and RANGAN, 2004). On the other hand, BERGER (1995) provides empirical evidence that higher capital is followed by higher earnings. To address this problem of potential reverse causality, we turn to instrumental variable techniques in specifications (4) and (5) and employ the initial capital to assets ratio (*capital (I)*) and the debt to asset ratio (*debt ratio*) as instruments. As shown in Table 6, we do not find evi-

dence for a bias of our inverse relationship between profitability and capital due to reverse causality while main findings keep robust.

Theoretical and empirical literature (e.g. HERMES and LENSINK, 2007; SCHREINER, 2002; WOLLER ET AL., 1999) suggests a probable trade-off between a microbank's ability to operate profitably on the one hand and to reach poor clients on the other hand. Thus, we additionally control for the impact of *profitability* on outreach in regression specification (6), but find no evidence for a trade-off. Hence, the MFI's profitability is not restrained by the provision of loans to a poor clientele.

By means of regressions shown in Table 7, we examine the relationship between the MFI's "microfinance grade" (*MF-grade*; percentage of operations comprised by microfinance) and a country's external governance quality. Constructing three interaction variables, we find that MFIs predominantly focusing on microfinance and operating under higher external governance quality are more profitable and likely to reach sustainability. With regard to outreach, however, we find that a mission drift is more probable for MFIs that do not exclusively rely on microfinance when operating under a high-quality external governance framework.

So far, we have used the aggregated *KKZ Composite Index* to describe a country's institutions-based and outcomes-based governance endowment. This aggregated index is convenient to use in empirical work, but suffers from the possibility of a propagation of estimation-errors among the single indicators.<sup>5</sup> To address this problem, we disaggregate the *KKZ Composite Index* and utilize the six individual governance indicators. As indicated in Table 8, only "*Rule of Law*" enters all regression specifications significantly positive, suggesting that fair administration of justice in society, the protection of property rights as well as the enforceability of contracts may strongly affect the eco-

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<sup>5</sup> See ARNDT and OMAN (2006) and KAUFMANN and KRAAY (2008) for a comprehensive discussion about the misuse of the *KKZ Composite Index* in academic work.

conomic success of MFIs. Moreover, “*Government Effectiveness*” enters the regressions on profitability and sustainability significantly positive at the five-percent level. This may indicate that the microbank’s entrepreneurial objectives in terms of profitability and sustainability are most sensitive to the government’s credibility and the quality and burdensomeness of public policy. In contrast, the ability to reach the poorest of the poor and hence to attain social goals might depend to a high degree on the transparency of capital markets and the degree of difficulty to start a business (“*Regulatory Quality*”).

#### **4. Conclusion**

While a growing number of theoretical and empirical studies outline the importance of internal governance mechanisms for MFIs, to date, no study has examined the impact of external governance structures on the economic 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 the quality of a country’s institutions-based and outcomes-based governance quality positively affects the microbank’s economic success in terms of profitability, sustainability and outreach. This result even holds when performing various robustness checks and sensitivity analyses. Moreover, when disaggregating the *KKZ Composite Index*, we find that “*Rule of Law*” and “*Government Effectiveness*” have a strong impact on the MFI’s economic success. Finally, while higher external governance quality positively affects those MFIs exhibiting a high MF-grade, microbanks that do not exclusively rely on microfinance are more susceptible to a mission drift under a good governance framework.

Against the background of our empirical results, we deduce the following policy implications. *To begin with*, a country’s government is able to provide indispensable support for microbanks through the effective and gradual implementation of good gov-

ernance. As high-quality local institutions and governance outcomes strongly determine the MFI's profitability which benefits 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 includes, 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*, the growing number of larger MFIs that adapt strategies so far exclusively pursued by formal banks, which, in turn, start providing microfinance by themselves, increases the urge for good governance expressed by prudential regulation and supervision. As our empirical findings indicate, the *de jure* status of regulation is less important for microbanks than the *de facto* implementation of regulation. Hence, we advise against putting microfinance institutions under traditional banking regulation but rather to adapt regulatory instruments to the particular needs of microfinance.

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**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	12.26	30	28.30	42	39.62	21	19.81	0	0.00
Northern Africa and West Asia	33	3	9.09	10	30.30	20	60.61	0	0.00	0	0.00
Eastern Europe and Central Asia	70	14	20.00	7	10.00	41	58.57	8	11.43	0	0.00
Americas	227	19	8.37	119	52.42	57	25.11	32	14.10	0	0.00
Southern Asia	75	3	4.00	39	52.00	21	28.00	5	6.67	7	9.33
Eastern and Southeastern Asia	47	4	8.51	19	40.43	17	36.17	1	2.13	6	12.77
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.
KKZ Composite Index	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)
GDP per Capita	Ratio of gross domestic product to population.	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)
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)

**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.

**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
KKZ Composite Index	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 per Capita	2789	558	1612.004	1602.261	103.000	8858.000
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
Age	3342	557	11.1155	8.3183	0	53
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

**Table 4: Correlation Matrix**

	KKZ Composite Index	GDP per Capita	GDP Growth	Inflation	Interest Rate (t-1)	Age	Size	Sources	Capital	Capital (I)	Debt Ratio	Loans	Deposits	Services	Credit Growth (t-1)	Regulation	Profitability
KKZ Composite Index	1.00																
GDP per Capita	0.51 ***	1.00															
GDP Growth	-0.07 ***	-0.05 ***	1.00														
Inflation	-0.16 ***	-0.01	-0.10 ***	1.00													
Interest Rate (t-1)	0.14 ***	0.31 ***	-0.04 *	-0.02	1.00												
Age	0.12 ***	0.07 ***	-0.09 ***	-0.07 ***	-0.00	1.00											
Size	0.09 ***	0.15 ***	-0.07 ***	-0.08 ***	0.04 *	0.34 ***	1.00										
Sources	-0.05 **	-0.06 ***	-0.05 **	-0.02	-0.01	0.00	-0.08 ***	1.00									
Capital	-0.01	-0.06 ***	0.08 ***	0.07 ***	-0.02	-0.15 ***	-0.35 ***	-0.19 ***	1.00								
Capital (I)	-0.03	-0.08 ***	0.14 ***	0.08 ***	-0.02	-0.10 ***	-0.28 ***	-0.16 ***	0.84 ***	1.00							
Debt Ratio	-0.02	-0.02	0.01	-0.02	-0.01	0.02	-0.03	0.02	-0.24 ***	-0.21 ***	1.00						
Loans	0.14 ***	0.16 ***	0.10 ***	-0.09 ***	0.03	0.14 ***	0.01	-0.10 ***	-0.09 ***	-0.07 ***	-0.09 ***	1.00					
Deposits	-0.06 ***	0.05 **	-0.09 ***	-0.02	0.00	0.15 ***	0.40 ***	0.27 ***	-0.33 ***	-0.36 ***	0.05 **	-0.20 ***	1.00				
Services	0.01	0.07 ***	-0.08 ***	-0.03 *	-0.02	0.18 ***	-0.12 ***	0.04 **	-0.04 *	-0.08 ***	0.05 **	0.03	0.06 ***	1.00			
Credit Growth (t-1)	0.42	0.26 ***	-0.12 ***	-0.05 **	0.03	0.13 ***	0.04 *	-0.06 ***	0.02	0.08 ***	-0.02	0.12 ***	-0.12 ***	0.03	1.00		
Regulation	-0.15 ***	-0.10 ***	0.10 ***	-0.05 ***	-0.01	-0.05 ***	0.32 ***	0.17 ***	-0.13 ***	-0.08 ***	0.06 ***	-0.10 ***	0.32 ***	-0.17 ***	0.00	1.00	
Profitability	-0.06 ***	-0.03	0.01	0.04	0.04	0.15 ***	0.23 ***	-0.02	-0.02	-0.04 **	-0.05 **	0.24 ***	0.00	-0.03	0.01	0.07 ***	1.00

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

**Table 5: External Governance Quality and Economic Success**

	Profitability	Sustainability	Outreach (Mission Drift)
	(1)	(2)	(3)
<u>TV exog.</u>			
KKZ Composite Index	0.0884 *** (0.0306)	0.1821 ** (0.0766)	0.8721 *** (0.3400)
GDP per Capita	1.39e-06 (6.38e-06)	-0.00004 *** (0.0000)	-0.00002 (0.0001)
GDP Growth	-0.0265 (0.0818)	0.6859 *** (0.2170)	0.2899 (0.8448)
Inflation	0.0679 (0.0695)	0.0228 (0.1525)	-0.4595 (0.8257)
Interest Rate (t-1)	-0.0565 (0.0530)	-0.0458 (0.1213)	0.2224 (0.4508)
Credit Growth (t-1)	-0.2616 *** (0.0795)	-0.2518 (0.1740)	-2.7480 *** (0.8838)
<u>TV endog.</u>			
Age	0.0451 ** (0.0227)	0.0997 * (0.0552)	-0.3426 (0.2228)
Size	0.0224 *** (0.0078)	0.1028 *** (0.0194)	0.1581 ** (0.0799)
Capital	-0.0023 (0.0203)	0.3101 *** (0.0518)	0.0540 (0.2079)
Loans	0.0501 * (0.0268)	0.3530 *** (0.0683)	1.4028 *** (0.2830)
Deposits	-0.0324 (0.0369)	-0.0036 (0.1007)	-1.0043 ** (0.4059)
<u>TI exog.</u>			
Regulation	-0.1576 (0.2428)	-0.2766 (0.4009)	-4.4858 (4.3559)
<u>TI endog.</u>			
Sources	0.2391 (0.5020)	0.3271 (0.8633)	10.8110 (9.3571)
Services	-0.3932 (0.5042)	-0.4309 (0.5843)	-3.3126 (6.4274)
No. of Obs.	1021	1145	1158
No. of Groups	366	379	382
Wald $\chi^2$	67.94 ***	160.34 ***	52.12 ***
Sargan-Hansen P-Values (DF)	0.7251 (4)	0.1667 (4)	0.9983 (4)

The panel model estimated is Dependent Variable  $_{i=country, t=time} = \beta_1$  KKZ Composite Index $_{1,i,t} + \beta_2$  GDP per Capita $_{1,i,t} + \beta_3$  GDP Growth $_{1,i,t} + \beta_4$  Inflation $_{1,i,t} + \beta_5$  Interest Rate $_{1,i,t-1} + \beta_6$  Credit Growth $_{1,i,t-1} + \beta_7$  Age $_{2,i,t} + \beta_8$  Size $_{2,i,t} + \beta_9$  Capital $_{2,i,t} + \beta_{10}$  Loans $_{2,i,t} + \beta_{11}$  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 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 6: Robustness Checks – Collinearity, Reverse Causality and Trade-Off**

	Profitability	Sustainability	Outreach (Mission Drift)	Profitability (IV)		Outreach (Trade-Off)
	(1)	(2)	(3)	(4)	(5)	(6)
KKZ Composite Index	0.0857 *** (0.0295)	0.2758 *** (0.0888)	0.9056 *** (0.3353)	0.0897 *** (0.0306)	0.0948 *** (0.0318)	0.7794 ** (0.3786)
Capital (I)				-0.0929 (0.6120)		
Debt Ratio					-0.0003 (0.0002)	
Profitability						0.1246 (0.4120)
No. of Obs.	1021	1145	1158	1025	1021	1018
No. of Groups	366	379	382	366	366	366
Wald $\chi^2$	69.71 ***	132.75 ***	51.03 ***	80.13 ***	69.67 ***	50.69 ***

The panel model estimated is Dependent Variable  $y_{i=country, t=time} = \beta_1$  KKZ Composite Index $_{1,i,t} + \beta_2$  GDP per Capita $_{1,i,t} + \beta_3$  GDP Growth $_{1,i,t} + \beta_4$  Inflation $_{1,i,t} + \beta_5$  Interest Rate $_{1,i,t-1} + \beta_6$  Credit Growth $_{1,i,t-1} + \beta_7$  Age $_{2,i,t} + \beta_8$  Size $_{2,i,t} + \beta_9$  Capital $_{2,i,t} + \beta_{10}$  Loans $_{2,i,t} + \beta_{11}$  Deposits $_{2,i,t} + \beta_{12}$  Profitability $_{2,i,t} + \gamma_1$  Sources $_{1,i} + \gamma_2$  Services $_{1,i} + \gamma_3$  Regulation $_{2,i} + \alpha_i + \eta_{i,t}$ .

In specifications (1) to (3), GDP per Capita is omitted. In regressions (4) and (5), Capital is instrumented using the initial capital ratio (Capital (I)) and debt to asset ratio (Debt Ratio) respectively. Specification (6) additionally controls for ROA (Profitability).

Constant term included but not reported.

Heteroskedasticity 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: Sensitivity Analyses I – Grade of Microfinance**

	Profitability			Sustainability			Outreach (Mission Drift)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MF-Grade I * KKZ Composite Index	0.0930 *** (0.0318)			0.1863 ** (0.0836)			0.4963 (0.3425)		
MF-Grade II * KKZ Composite Index		0.0347 (0.1082)			0.2648 (0.3124)			3.9924 *** (1.4351)	
MF-Grade III * KKZ Composite Index			-0.0501 (0.1171)			-0.2810 (0.3292)			4.3940 *** (1.0049)
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 $\chi^2$	72.31 ***	55.34 ***	61.39 ***	152.39 ***	144.13 ***	118.78 ***	49.53 ***	51.91 ***	62.95 ***

The panel model estimated is Dependent Variable  $y_{i=country, t=time} = \beta_1 \text{KKZ Composite Index}_{1,i,t} * \text{MF-Grade}_{2,i} + \beta_2 \text{GPD per Capita}_{1,i,t} + \beta_3 \text{GDP Growth}_{1,i,t} + \beta_4 \text{Inflation}_{1,i,t} + \beta_5 \text{Interest Rate}_{1,i,t-1} + \beta_6 \text{Credit Growth}_{1,i,t-1} + \beta_7 \text{Age}_{2,i,t} + \beta_8 \text{Size}_{2,i,t} + \beta_9 \text{Capital}_{2,i,t} + \beta_{10} \text{Loans}_{2,i,t} + \beta_{11} \text{Deposits}_{2,i,t} + \gamma_1 \text{Sources}_{1,i} + \gamma_2 \text{Services}_{1,i} + \gamma_3 \text{Regulation}_{2,i} + \alpha_i + \eta_{i,t}$ .  
Constant term included but not reported.

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

**Table 8: Sensitivity Analyses II – Governance Indicators**

	Profitability					
	(1)	(2)	(3)	(4)	(5)	(6)
Voice and Accountability	-0.0190 (0.0223)					
Political Stability		0.0448 *** (0.0132)				
Government Effectiveness			0.0546 ** (0.0222)			
Regulatory Quality				0.0196 (0.0197)		
Rule of Law					0.0528 ** (0.0212)	
Control of Corruption						0.0130 (0.0212)
No. of Obs.	1021	1021	1021	1021	1021	1021
No. of Groups	366	366	366	366	366	366
Wald $\chi^2$	60.53 ***	76.49 ***	61.99 ***	44.76 ***	70.67 ***	52.28 ***

The panel model estimated is Dependent Variable  $y_{i=country, t=time} = \beta_1$  Governance Indicator $_{1,i,t} + \beta_2$  GDP per Capita $_{1,i,t} + \beta_3$  GDP Growth $_{1,i,t} + \beta_4$  Inflation $_{1,i,t} + \beta_5$  Interest Rate $_{1,i,t-1} + \beta_6$  Credit Growth $_{1,i,t-1} + \beta_7$  Age $_{2,i,t} + \beta_8$  Size $_{2,i,t} + \beta_9$  Capital $_{2,i,t} + \beta_{10}$  Loans $_{2,i,t} + \beta_{11}$  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 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 cont.**

	Sustainability					
	(7)	(8)	(9)	(10)	(11)	(12)
Voice and Accountability	0.0233 (0.0619)					
Political Stability		0.0217 (0.0468)				
Government Effectiveness			0.1405 ** (0.0656)			
Regulatory Quality				0.1069 (0.0611)		
Rule of Law					0.1167 * (0.0634)	
Control of Corruption						0.0518 (0.0580)
No. of Obs.	1145	1145	1145	1145	1145	1145
No. of Groups	379	379	379	379	379	379
Wald $\chi^2$	134.44 ***	66.94 ***	110.24 ***	104.82 ***	117.44 ***	137.47 ***

The panel model estimated is Dependent Variable  $y_{i=country, t=time} = \beta_1$  Governance Indicator $_{1,i,t} + \beta_2$  GDP per Capita $_{1,i,t} + \beta_3$  GDP Growth $_{1,i,t} + \beta_4$  Inflation $_{1,i,t} + \beta_5$  Interest Rate $_{1,i,t-1} + \beta_6$  Credit Growth $_{1,i,t-1} + \beta_7$  Age $_{2,i,t} + \beta_8$  Size $_{2,i,t} + \beta_9$  Capital $_{2,i,t} + \beta_{10}$  Loans $_{2,i,t} + \beta_{11}$  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 consistent standard errors reported in parenthesis (\* significant at ten-percent level; \*\* significant at five-percent level; \*\*\* significant at one-percent level).

**Table 8 cont.**

	Outreach (Mission Drift)					
	(13)	(14)	(15)	(16)	(17)	(18)
Voice and Accountability	-0.0689 (0.2348)					
Political Stability		0.3061 ** (0.1319)				
Government Effectiveness			0.3784 (0.2661)			
Regulatory Quality				0.4598 ** (0.2234)		
Rule of Law					0.9476 *** (0.2160)	
Control of Corruption						0.3342 (0.2639)
No. of Obs.	1158	1158	1158	1158	1158	1158
No. of Groups	382	382	382	382	382	382
Wald $\chi^2$	54.23 ***	61.10 ***	41.94 ***	46.42 ***	74.49 ***	38.53 ***

The panel model estimated is Dependent Variable  $y_{i,t}$  =  $\beta_1$  Governance Indicator $_{1,i,t}$  +  $\beta_2$  GDP per Capita $_{1,i,t}$  +  $\beta_3$  GDP Growth $_{1,i,t}$  +  $\beta_4$  Inflation $_{1,i,t}$  +  $\beta_5$  Interest Rate $_{1,i,t-1}$  +  $\beta_6$  Credit Growth $_{1,i,t-1}$  +  $\beta_7$  Age $_{2,i,t}$  +  $\beta_8$  Size $_{2,i,t}$  +  $\beta_9$  Capital $_{2,i,t}$  +  $\beta_{10}$  Loans $_{2,i,t}$  +  $\beta_{11}$  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 consistent standard errors reported in parenthesis (\* significant at the ten-percent level; \*\* significant at the five-percent level; \*\*\* significant at the one-percent level)