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Benchmarking the Financial Performance, Growth, and Outreach of Greenfield Microfinance Institutions in Sub-Saharan Africa

Robert Cull
Sven Harten
Ippei Nishida
Greta Bull

Abstract

In recent years there has been a rapid increase in the presence and growth of greenfield microfinance institutions in Sub-Saharan Africa. This paper uses regressions to benchmark those African greenfields relative to other microfinance providers and finds that greenfields grew faster in terms of deposits and lending, improved their profitability to levels comparable to the top microfinance institutions, and substantially increased their lending to women. The effects were especially strong for greenfields that followed a consultant-led model to establish a deep retail banking presence spanning multiple countries, including the creation of extensive branch networks. Although their loan sizes are somewhat larger than those of most African microfinance institutions, indicating less outreach to the poorest market segments, greenfields have achieved rapid gains in financial inclusion on a broad scale.

Benchmarking the Financial Performance, Growth, and Outreach of Greenfield Microfinance Institutions in Sub-Saharan Africa

Robert Cull, Sven Harten, Ippei Nishida, and Greta Bull♣

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1. Introduction

In recent years, financial inclusion – meaning the furthering of broad access to financial services tailored to specific needs, at affordable prices (after taking into account costs incurred by users such as travel) – has become an important research topic in both development and finance.[1] The objective of this paper is to study the impact of a new type of entrant, greenfield microfinance institutions, on the quality, breadth, and depth of usage of financial services in Sub-Saharan Africa. To get at those concepts, we rely on the best available indicators that proxy for the growth, financial performance, and outreach to typically underserved market segments of a set of 26 greenfield microfinance institutions (MFIs) that entered Africa beginning in 2005. Here we rely on the definition of greenfield financial institutions developed in a joint CGAP/IFC paper (Earne, Jansson, Koning, and Flaming, 2014), which refers to institutions that are created without any pre-existing organization.[2] They use standard operating procedures disseminated by a central group, often a holding company. The holding company usually plays a strong governance and management role, and holds a majority stake in their investees.

As described in greater detail below, the greenfield MFIs that are our focus are almost all majority-owned by foreign entities (i.e., the controlling owners are not residents of the African countries in which those institutions operate), and a substantial share of them are committed to establishing a deep retail banking presence in these countries including the creation of extensive branch networks. As our empirical results show, that strategy has had implications for both the

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[1] See, for example, Demirgüç-Kunt and Klapper (2012) for a description of the latest efforts to measure financial inclusion and a brief overview of related research.

[2] We set out to describe the growth, outreach, and financial performance of a broader set of thirty-eight African greenfield MFIs (see Table 1), but data availability limited us to only twenty-six greenfields in the regressions that follow. CGAP is the Consultative Group to Assist the Poor, an independent policy and research center dedicated to advancing financial access for the world's poor. Established in 1995 and housed at the World Bank, CGAP combines a pragmatic approach to market development with an evidence-based advocacy platform to advance poor people's access to finance. IFC, the International Finance Corporation, is a member of the World Bank Group and the largest global development institution focused exclusively on the private sector in developing countries. It finances and provides advice for private sector ventures and projects in developing countries.

growth and operating performance of those MFIs relative to other MFIs operating in the same markets. Specifically, we find that that greenfields grew faster in terms of deposits and lending, improved their profitability to levels comparable to the top African MFIs, and substantially increased their lending to women.

The remainder of the paper is organized as follows. Section 2 describes related literature. Section 3 describes the organization and strategy of microfinance greenfields in Africa. We emphasize that this is a new approach to cross-border banking in Africa, designed to reach poorer market segments via newly built retail branches. In contrast, much of the cross-border banking in Africa to date has involved the acquisition of pre-existing banks and provision of financial services to the corporate sector and wealthier clients (see Beck et al. 2014 for a detailed discussion). Section 4 describes our data and approach to estimation. Section 5 presents our regression results comparing the greenfields to other African microfinance institutions, subdivided into four areas: (a) depth of outreach to poorer market segments, (b) financial performance including portfolio quality, (c) growth in lending and deposits over time, and (d) the evolution of operating costs and loan pricing. Section 6 offers concluding remarks.

2. Related Literature

Our paper is related to a broad literature that examines the conditions under which de novo entrants from foreign countries can compete effectively with domestically owned banks in developing countries. A common theme is that domestic banks have superior knowledge of local borrowers which foreign banks must offset with technological and cost advantages. For example, Sangupta (2007) emphasizes foreign banks' greater ability to assess and accept a wider range of collateral to secure loans than domestic banks; Dell'Ariccia and Marquez (2004) focus on the

lower refinancing costs of foreign banks; and Claeys and Hainz (2006) model foreign banks as having a cost advantage in the form of a better technology for screening borrowers.

The empirical literature bears out that foreign entrants have often been more efficient and profitable than their domestic competitors in developing countries, particularly those that entered de novo rather than acquiring a pre-existing domestic bank. For example, Bonin et al. (2005) find that foreign greenfield banks and privatized banks operating in transition countries of Eastern Europe (Bulgaria, Czech Republic, Croatia, Hungary, Poland, and Romania) were significantly more profitable than private domestic banks. The foreign greenfields were also significantly more cost and profit efficient than private domestic banks. Similarly, Martínez Peria and Mody (2004) find that foreign banks in Latin America in the late 1990s had lower operating costs and charged lower interest rate spreads (i.e., the difference between the rate charged to borrowers and the rate paid to depositors) than domestic banks, and the differentials were substantially larger for de novo entrants than for those that entered through acquisitions.

The strategic decisions of the group of greenfield MFIs that are our focus can also be viewed through the lens of a small theoretical literature on the entry modes of foreign banks. From the perspective of the entrant, Lehner (2009) develops a theoretical model in which multinational banks choose their entry modes according to their efficiency in screening potential borrowers. These foreign banks can enter a host country via cross-border lending, acquisition of an existing domestic financial institution, or de novo. In the host country, banks compete on interest rates for potential borrowers that engage in investment projects of uncertain return. Foreign banks have a better screening technology and lower refinancing costs than domestic banks, which they use to offset the informational disadvantage that they face because domestic

banks have accumulated soft information about borrowers' creditworthiness through prior lending relationships.

The main implications of that model are that banks that are least efficient in screening do not enter a host country at all, while those slightly more efficient participate only through cross-border lending. Greenfield entry occurs for banks when screening is good enough to acquire enough market knowledge to offset the large fixed entry costs. A key insight is that only banks with superior screening technologies can generate market knowledge sufficient to drive down the purchase price enough to make acquisition the preferred mode of entry. However, variations of the model also show that greenfield entry is rarer than cross-border lending and acquisition in less developed banking sectors, and less frequent than acquisition in small banking markets. In those markets, banks with a screening technology effective enough to offset fixed entry costs, are also likely to be efficient enough to drive down acquisition prices. Of course, in the African microfinance context, there were few commercial microbanks to acquire. Because there were so few potential targets for the MFIs that we study, and because their screening technologies were likely better than almost all existing MFIs, these results therefore provide some intuition as to why they chose to enter as greenfields.

From the perspective of the host country, Lehner and Schnitzer (2008) introduce spillover effects from entry on other banks in a similar model of spatial bank competition. They distinguish very underdeveloped countries, with very high costs for investing in screening, from emerging markets that are on a swifter development path. They argue that the higher costs in underdeveloped countries could be related to the development of human capital, necessary financial restructuring processes, and upgrading of technical facilities. From the perspective of this paper, their key finding is that when financial market competition is weak (as in Africa),

very underdeveloped host countries best promote welfare by encouraging greenfield entry, whereas entry of foreign banks via acquisition best promotes welfare in emerging markets. This provides a rationale for why African host countries were receptive to entry by the greenfields that we study.

One long-standing concern with foreign entrants is their tendency to skim off the top customers (and perhaps the top performing staff) of domestic banks, thus undermining those institutions' financial health.[3] This could stem from using a screening technology that can more cost-effectively identify good credit risks based on observable characteristics, but that cannot identify good credit risks based on the soft information used by domestic banks. Detragiache, Tressel, and Gupta (2008) develop this intuition in a model in which soft-information clients are made worse off and overall welfare declines as a result of entry by foreign banks that lend based on hard information (such as that contained in balance sheets). Their model suggests that, in some circumstances, this type of foreign entry could be sufficiently destabilizing that some domestic banks might close and the overall credit level in the host country might decline. However, and as described in more detail below, African commercial microfinance was in its infancy at the time that these greenfields entered and there was little direct competition between the greenfields and mainstream African commercial banks during this period. It thus seems highly unlikely that greenfield entry could have been as destabilizing as suggested in the model.

Perhaps less directly relevant to our analysis, but still worthy of acknowledgment, is a larger literature that focuses on factors that draw financial institutions to foreign countries. Much of that literature emphasizes how features of the host country such as the size of the economy (Claessens et al, 2000), per capita income levels (Buch, 2000; Buch and Lipponer, 2004), and financial depth (Focarelli and Pozzolo, 2000, 2005) are positively associated with foreign bank

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[3] See Cull and Martínez Peria (2010) for a lengthier overview of the literature in this area.

entry. Another strand of the literature concerns commonalities between the home country of the entrant and its host destination. Foreign bank participation and acquisitions are more likely when the geographical distance between home and host are small and when they share a common language and a common legal framework (Buch, 2003; Buch and DeLong, 2004; Galindo, et al., 2003). Because the African financial sectors that we study were small and relatively underdeveloped, and because the investors in the greenfields hailed from developed countries, particularly in Europe, we argue that the type of entry that we study is not driven by the same factors that have typically driven foreign bank entry.

An important reason why insights from the literature on foreign bank participation in developing countries might not be perfectly applicable to greenfield MFIs that we study is the African microfinance context. In the banking studies described above, foreign entrants were competing with established domestic financial institutions. In African microfinance, most of the entry has been relatively recent and the range of microfinance institutions suggests that not all of them compete for the same market. In terms of growth, the number of borrowers served by the African microfinance institutions (MFIs) that report to the Microfinance Information eXchange (the MIX) increased from 1.6 million in 2003 to 8.5 million in 2009.[4]

As of 2009, MFIs organized as banks represented 7 percent of the institutions in Africa and elsewhere (figures are from Beck and Cull, 2014). In Africa, banks held 42.1 percent of microfinance assets compared with 48.6 percent in the rest of the developing world. According to the MIX data, NGOs comprised a smaller share of the institutions in Africa than outside Africa (26 vs. 35 percent), though the African NGOs held a larger share of total microfinance assets (20.4 vs. 11.6 percent).[5] Non-bank financial institutions (NBFIs) played a somewhat more

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[4] This is roughly consistent with the period that we study below in our regressions.
[5] NGO is the abbreviation for microfinance institutions owned by non-governmental organizations.

important role outside Africa, while credit unions and cooperatives played a larger role in Africa. Moreover, group liability loans typically favored by less commercialized institutions represented only 15 percent of microfinance assets and 26 percent of loans in Africa in 2009.[6]

The commercial greenfield financial institutions that are our focus are likely to be in more direct competition with the subset of commercially-oriented MFIs in the analysis that follows. Cull, Demirguc-Kunt, and Morduch (2009) show that commercial microfinance banks throughout the developing world are more likely than others to have for-profit status, use lending methods based on individual liability, make larger loans, lend less to women, and be relatively profitable. By contrast, NGO microfinance institutions are more likely to have non-profit status, making smaller loans based on group liability, serving more women, relying more heavily on subsidies for their funding, and, ultimately, being less profitable. We therefore expect the African greenfields to be more likely to share performance and outreach characteristics with commercial microbanks than with NGO or NBFI microfinance institutions. Indeed, the empirical literature describing variation across microfinance institutions by ownership/organizational type could be more relevant to our analysis than the literature on de novo foreign bank entry.

3. The Greenfield Strategy

In formulating hypotheses for the empirical analysis that follows, a least three features of the greenfield approach should be emphasized. First, the strategy was designed to facilitate the entry of a network of affiliated institutions rather than of a single institution (which has typically been the focus to date in the banking literature). As described in Earne et al. (2014), two defining aspects of the strategy are:

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[6] Beck et al. (2011) also note that African MFIs shifted away from the group liability lending mechanisms made famous in Bangladesh under Muhammad Yunus early in their development. In West Africa, they argue that only individual liability mechanisms were used.

"1) [T]he creation of a group of 'greenfield MFIs' defined as institutions that are newly created without pre-existing infrastructure, staff, clients or portfolios, and 2) the central organizing bodies – often holding companies – that create these MFIs through common ownership and management. The holding company usually also plays a strong role in backstopping operations, providing standard policies and procedures and co-branding the subsidiaries in the network." (p. 1)

Crucial to the sponsors' ability to provide patient capital to these endeavors are their ties to investors who share the same social objectives. During their first five years, greenfield MFIs depend heavily on equity and debt funding from Development Financial Institutions (DFIs) and specialized microfinance investment vehicles.[7] Earne et al. (2104) show that deposits increase over time as a source of funding for the greenfields, but equity and debt remain the main funding sources during the initial years of their operations.

In large part, the needs for external borrowing stem from the sponsors' desire to expand their reach through branch networks, the second feature of the greenfield strategy that we emphasize. Earne et al. (2014) report that the average number of branches expanded from nine (with 131 employees) at the end of the first year of operations to 31 (524 employees) at the end of year five for the thirty greenfield MFIs that they track. In the analysis that follows, therefore, we use capital costs (measured as the ratio of financial expenses to total assets) as a proxy for the total borrowing costs and associated branch expansion of the greenfield MFIs.

Earne et al. (2014) also point out that that the rate of branch expansion varies greatly between credit-only institutions and regulated deposit taking-institutions because it requires much more planning and investment, and sometimes regulatory approval, to set up deposit taking branches. In the analysis that follows, our focus is on deposit-taking greenfields, and we

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[7] DFIs include, for example, IFC, the European Investment Bank (EIB), the African Development Bank (AfDB), and the German government-owned development bank, KfW. Specialized microfinance investment vehicles include Responsibility, Symbiotics, Blue Orchard, Triple Jump, and MicroVest.

document both the growth in their total deposits and the relationship between their capital investment and outreach to underserved market segments.

The third and final feature that we emphasize is the distinction between consulting firm-led (CF-led) holding companies and network support organization-led (NSO-led) holding companies. European-based, specialized consulting firms designed their holdings as investments in branded microfinance networks comprised of subsidiaries spanning multiple countries. These were set up in a rather top-down manner with clear intent as deposit-taking banks, with a common structure and a holding company behind them. These consulting firms were also very successful in attracting investment in their holdings by development finance institutions, including the AfDB, EIB, IFC, and KfW. The CF-led holding companies are Access, Advans, Swiss Microfinance, ProCredit, and Microcred. The names of the holding companies are reflected in the names of their microfinance institutions. For reference, Table 1 lists the MFIs, grouping them into three categories. For ease of exposition, we refer to the institutions of the CF-led holding companies as "Bank greenfields" throughout the analysis.[8] NSO-led holding companies were created following a bottom-up organic growth of firms in order to consolidate the affiliates of existing microfinance networks and expand them by creating new greenfields. These include FINCA, BRAC, ASAI, and Opportunity International, and their names are also reflected in the names of their affiliated institutions in Table 1. We refer to those institutions as "non-bank greenfields" in the remainder of the paper. There is also a small group of microfinance investees in Africa supported by the DFIs described above that were not greenfields, but existing MFIs at the time of investment, that we classify into a separate sub-

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[8] In Table 1, Swiss Microfinance institutions go by the name of their sponsor consulting firm, FIDES. Also, the holdings of Ecobank, a Togo-based bank that has operations in 33 African countries, are grouped with the bank greenfields. Ecobank participated as a shareholder in Accion Nigeria and created specialized MFIs in Ghana (Accion Ghana) and Cameroon (Accion Cameroon). Note also that while IFC generally did not invest in NSO-led holdings, it does have an investment in FINCA DRC.

category called non-greenfields. As the regression results will show, the performance, growth, and outreach of the non-greenfields differ significantly from that of the greenfields.

Table 1 provides additional information on the average loan size (relative to GNI per capita) and the predominant lending methodology for each institution that highlights the differences in strategy across sub-groups. Bank greenfields tend to make larger loans than non-bank greenfields and non-greenfields, and they rely more heavily on making loans to individuals rather than groups. There are some exceptions to this pattern – for example, non-bank greenfields ACEP Cameroon, OIBM in Malawi, and ACEP Senegal make relatively large loans almost entirely to individuals – but the general tendency for non-bank greenfields and non-greenfields to make smaller loans based on group liability is a strong one. This pattern should be kept in mind when interpreting the regressions results that follow.

Overall, we use six indicators as dependent variables in the regressions. There are two indicators of depth of outreach (average loan size/GNI per capita and the share of lending to women), two for financial performance (the operational self-sufficiency index and the share of loan portfolio that is thirty or more days past due), and two measures of size (gross loan portfolio and total deposits). We provide additional information on the choice of those indicators and their construction in the next section. Table 1 also provides information on data availability for each MFI for three of those indicators (OSS ratio, average loan size, and share of lending to women). The information on data availability should give readers a better sense of the institutions that are driving the patterns we find below. It also shows that for some indicators, such as the OSS ratio, coverage is closer to complete than for our outreach measures. Finally, Table 1 shows that data are more likely to be unavailable for MFIs from specific countries, such as the Democratic Republic of the Congo.

4. Estimation Strategy

Equation 1 links measures of outreach for MFI j in country i in year t to characteristics of that MFI, including its type (greenfields, microfinance banks, or a catch-all category comprised of credit unions and cooperatives, NGOs, non-bank financial institutions (NBFI) and rural banks), size (total assets), age, and indicators of production methods (capital costs/assets, operating costs/assets, and yield on loan portfolio). The models also include country fixed effects (γ_i) and yearly dummy variables. In some models we replace those variables with country-year fixed effects to gauge the robustness of our findings using a less restrictive functional form that allows average yearly effects on MFI outcomes to vary by country. Equation 2 links measures of MFI financial performance to the same set of explanatory variables. We also run a series of regressions using equation 3, which describes the growth and evolution of MFIs using the value of the gross loan portfolio or of total deposits as the dependent variable. All models are estimated via ordinary least squares (OLS) with standard errors clustered at the country level to allow the error term to be correlated within space and time.

(1) $\text{OUTREACH}_{ijt} = \alpha + \gamma_i + \beta_1 \text{MFI type}_j + \beta_2 \text{Size}_{ijt} + \beta_3 \text{Age}_{ijt} + \beta_4 \text{Age}_{ijt}*\text{Type}_j + \beta_5 \text{Productivity}_{ijt} + \beta_6 \text{Year}_t + \varepsilon_{ijt}$

(2) $\text{FINANCIAL PERF}_{ijt} = \alpha + \gamma_i + \beta_1 \text{MFI type}_j + \beta_2 \text{Size}_{ijt} + \beta_3 \text{Age}_{ijt} + \beta_4 \text{Age}_{ijt}*\text{Type}_j + \beta_5 \text{Productivity}_{ijt} + \beta_6 \text{Year}_t + \varepsilon_{ijt}$

(3) $\text{Size}_{ijt} = \alpha + \gamma_i + \beta_1 \text{MFI type}_j + \beta_2 \text{Age}_{ijt} + \beta_3 \text{Age}_{ijt}*\text{Type}_j + \beta_5 \text{Productivity}_{ijt} + \beta_6 \text{Year}_t + \varepsilon_{ijt}$

As in other studies that have been published using the MIX data, we rely on the best available proxies for the outreach, financial performance, and growth of MFIs. For example, the ideal proxies for depth of outreach to the poor would be based on the wealth and income of each MFI's clients, but that is not yet available on a wide enough basis to be used in the regressions that we run. As proxies for outreach to financially underserved segments of the population, we

therefore use average loan size divided by GNI per capita and the share of loans that are provided to women. Smaller loan sizes and a higher share of lending to women are reflections of deeper outreach to underserved market segments. As measures of financial performance, we use the operational self-sufficiency (OSS) index, return on assets (ROA), and the share of the loan portfolio that is considered at risk (meaning delinquent for at least 30 days). The OSS index is financial revenue divided by the sum of financial expenses, net loan loss provision expenses, and operating expenses.[9]

Note that the key explanatory variables of interest are the MFI type variables and their interactions with age. The coefficient for the MFI type variables (β_1) measures the difference between MFIs of a given type and those in the omitted category in their initial year of existence. The coefficient for the interaction between MFI type and age (β_4 in equations 1 and 2) summarizes the average yearly change in a dependent variable for MFIs of a given type. We present models in which we compare bank greenfields, non-bank greenfields, and non-greenfield investees to microfinance banks and to MFIs in the catch-all category, which serves as the omitted category in the regressions. As described above, the commitment to retail microbanking and the construction of branch networks could set the bank greenfields apart from others. For example, yearly growth in retail deposits could be swifter for the bank greenfields and more closely tied to increases in capital costs than for other MFIs.

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[9] Another widely used measure of MFI financial performance is the financial self-sufficiency (FSS) ratio, which is adjusted financial revenue divided by the sum of adjusted financial expenses, adjusted net loan loss provision expenses, and adjusted operating expenses. It indicates the institution's ability to operate without ongoing subsidy, including soft loans and grants. The adjustments, which are performed by the MIX, are designed to help ensure comparability across institutions when measuring profitability. The adjustments are for inflation, the cost of subsidized funding, current-year cash donations to cover operating expenses, donated goods and services, write-offs, loan loss reserves and provisioning, a reclassification of some long-term liabilities as equity, and the reversal of any interest income accrued on non-performing loans. The definitions are from *MicroBanking Bulletin* (2005), p. 57. Data for almost all of the greenfield MFIs in our analysis was provided by the IFC rather than the MIX and does not contain the same adjusted variables. We were therefore unable to calculate the FSS ratio for those institutions, and thus must rely on the OSS ratio as our key measure of financial performance in what follows.

Based on the extant literature, MFI size and age tend to be positively linked to financial performance. Size tends to be negatively associated with MFIs' outreach to underserved market segments, while the relationship between MFI age and outreach is less conclusive. Regarding the productivity variables, we expect operating and capital costs to be negatively linked to financial performance. In contrast, the literature indicates that higher portfolio yields are associated with better financial performance. Predictions about the relationship between productivity measures and outreach are less clear-cut, though some papers have found positive links between outreach variables, cost variables, and portfolio yields. These patterns likely reflect the high costs of making small loans to poor borrowers and the associated high interest rates needed to cover those costs.

In an experimental set-up, MFIs in the treatment group would be assigned to a greenfield entry category, while otherwise similar MFIs would be assigned to a non-greenfield control group. However, because greenfield MFIs are start-ups, defining an appropriate control group is not straightforward. MFIs that entered the same market through acquisitions of existing institutions might be a possibility, but the number of acquisitions is small, and acquisitions in the same year and country of greenfield entries are likely to be exceedingly rare. Moreover, acquisition targets are not a randomly selected set of institutions (nor are the locations where greenfield MFIs choose to enter, for that matter). More practically, our data from the MIX do not identify entry through acquisitions.

These difficulties in selecting an appropriate set of comparator MFIs for the greenfields also pose serious problems for non-experimental research techniques such as propensity score matching (lacking a performance history, there are no characteristics on which to match greenfields to other MFIs) and difference-in-differences regression methods. Our approach

therefore relies on successively tighter comparisons between greenfields and other MFIs operating in the same environment. For each dependent variable, the first set of regressions compares the greenfields to all other MFIs operating in Africa. The second compares them only to those MFIs operating in the same set of African countries as they are. The interactions between age and the MFI type variables enable us to compare the growth and development of greenfield MFIs with that of other types of MFIs at the same age. The foregoing discussion of the greenfield model suggests that the most appropriate comparisons are likely to be with commercial microbanks, but our regressions afford comparisons with other types as well. The definitions and summary statistics for all variables in the regression analysis are shown in the Appendix.

5. Empirical Results

Our empirical findings are lengthy and thus we divide them into four parts summarizing the effects of MFI type (particularly the greenfield approach) on (a) outreach to underserved market segments, (b) financial performance, (c) growth of deposits and loans, and (d) changes in capital and operating costs and loan pricing over time. In sub-section (d), we are checking whether changes in these variables (which were inputs and regressors in our models thus far) can account for the differential outcomes that we find for greenfields in terms of growth, outreach, and financial performance.

a. Outreach

In Table 2, the dependent variable is average loan size divided by GNI per capita, and we compare greenfields with commercial microfinance banks (hereafter microbanks) and the catch-all omitted category comprised of MFIs organized as credit unions, cooperatives, non-governmental organizations (NGOs), other non-bank financial institutions (NBFIs), and rural

banks. Again, smaller average loan size is taken as a proxy for outreach to the poor since they

typically absorb credit in smaller amounts than wealthier borrowers.[10]

In the simplest models that include MFIs from all African countries (models 1, 3, and 5),

the positive significant coefficient on the 'bank greenfield' dummy indicates that average loan

sizes in their first year of operations are substantially larger (by 80-110% of per capita GNI) than

that of MFIs in the omitted category. A similar gap is found for commercial microbanks. For

reference, MFIs' mean loan size relative to GNI per capita in our sample is 0.94 (see Appendix).

The median average loan size is 0.50. Our estimates indicate therefore that bank greenfields and

commercial microbanks make substantially larger loans than the MFIs in the catch-all omitted

category. These tendencies are strong for microbanks, but slightly weaker for bank greenfields,

when we restrict the sample to MFIs in the countries where the greenfields listed in Table 1

operate (models 2, 4, and 6).

Neither the coefficient for the age variable, nor its interaction with the microbank dummy

(listed as 'Bank' in the tables) is robustly significant, indicating that the gap in average loan size

between microbanks and MFIs in the omitted category persists as those MFIs age. By contrast,

the coefficient for the interaction between age and the non-bank greenfield dummy is positive

and highly significant across all of the basic models in Table 2 (models 1-6), indicating that their

average loan size increases by roughly 8% of per capita GNI in each year after their

establishment. Recall that the greenfields that are the focus of this study began operations in

2005 or later and that our data run only through 2011, so we are only able to reliably describe the

development of those MFIs over a 5-6 year horizon. These estimates therefore indicate that the

average loan size for non-bank greenfields and for MFIs in the omitted category are statistically

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[10] Note that our results are very similar if we include the small set of rural banks in the same category as microbanks, or if we drop rural banks from the analysis. There are only 42 rural bank observations and all are from one country (Ghana), and thus their inclusion or exclusion has little effect on our general results.

indistinguishable from each other at those greenfields' inception (see insignificant coefficients on the non-bank greenfield variable), but are 40% of GNI higher in the fifth year of a non-bank greenfield's operations. The gain is large, but the gap is substantially smaller than that between microbanks (or bank greenfields) and MFIs in the omitted category.

In the basic models (1-6), productivity variables tend not to be significant, except for portfolio yield which is associated with significantly smaller average loan sizes. The coefficient for operating costs (divided by assets) is also negative and significant in one specification. The negative relationship reflects the high costs of making small loans that have been documented elsewhere in the literature. Models 7-8 allow the relationships between productivity variables and average loan size to vary by type of MFI. Many results are qualitatively similar to those in the basic models. For example, the coefficients for the microbanks and bank greenfield dummy variables remain positive and significant. In fact, both of those are larger than in the basic models. In contrast, the coefficient for portfolio yields becomes more negative and highly significant in multiple models, indicating that for MFIs in the omitted category higher yields are associated with smaller loan sizes. Similarly, the negative relationship between yields and loan size also holds for microbanks. Indeed, it is even stronger for that group in model 8 as indicated by the negative significant coefficient for the interaction between the microbank dummy and portfolio yield.[11]

Coupled with a substantially larger coefficient for the microbank dummy variable in the full interaction models, one interpretation is that, for the subset of microbanks that do not pursue deep outreach, portfolio yields are low and loan sizes are much larger relative to MFIs in the omitted category. For those microbanks that pursue outreach, portfolio yields are substantially

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[11] The tests of whether the sum of the yield coefficient and its interaction with the bank dummy is different from zero at the bottom of the table (Test H0: Portfolio Yield + Portfolio Yield * Microbanks = 0) also indicate that yields are significantly negatively linked to loan sizes for microbanks.

higher, and the gap in loan size relative to MFIs in the omitted category substantially declines. For bank greenfields, the interaction with yields is positive, significant in model 7, and similar in magnitude to the negative coefficient on the simple portfolio yield variable in models 7-8. Thus there is no strong relationship between yields and loan sizes for bank greenfields, which is confirmed by the tests at the bottom of the table showing that the sums of the coefficient for yields and its interaction with the bank greenfield dummy are not significantly different from zero.

Another minor difference from the basic results is that the negative relationship between operating costs and loan size is smaller and does not approach significance, an indication that MFIs in the omitted category were not driving that association in model 5. That interpretation is reinforced by the joint test at the bottom of the table indicating that the sum of the coefficients for the operating costs variable and its interaction with the bank greenfield dummy is negative and significantly different from zero in model 7. In short, the negative relationship between operating costs and loan size in our sample of African MFIs appears to be driven by the bank greenfields. This suggests some variation within the category, in which bank greenfields focused on outreach make smaller loans and have higher operating costs, while others have low operating costs and make larger loans.

The coefficient for non-greenfield investees ('non-GFs') is negative and highly significant across specifications, indicating that those MFIs make loans at inception that are actually smaller than those made by MFIs in the omitted category. Similar to the pattern for non-bank GFs, Table 2 reveals a positive relationship between age and loan size for non-GF investees. Thus, bank greenfields extend relatively large loans throughout their first five years of operations, while non-bank GFs extend loans of similar size to those in the omitted category at inception,

though as noted their average loan size crept up by about 8% of per capita GNI per year thereafter. Non-GF investees also showed a yearly increase in average loan size, though it is smaller (3-5% of per capita GNI) than that for non-bank GFs. These patterns are illustrated graphically in Figure 1.

That figure, and all those that follow, use circles to represent the median size of the gross loan portfolios of each type of MFI.[12] Thus, Figure 1 indicates that, while bank GFs made larger loans than all MFIs other than microbanks, their average loan size declined slightly at the same time they were growing their loan portfolios much more swiftly than other MFIs. In contrast, non-bank GFs were growing their portfolios, but at a slower rate, and increasing their average loan sizes so that by the end of their fifth year of operations, they tended to extend loans that were closer in size to those of the bank GFs. Microbanks and those in the omitted category also tended to grow their portfolios, but at slower rates, while maintaining their average loan sizes (large for microbanks, small for those in the omitted category).

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[12] Note that non-greenfield investees are not presented in the figures because the group is quite small and to avoid clutter.

Figure 1.

Predicted values are generated from ordinary least squares (OLS) model (3) in Table 2 in this paper. All standard errors allow for clustering at the country level. Top 5% of observations for Average Loan Size / GNI per capita are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks, all of which are categorized into 'Others' in this chart. Predicted values for loan size/GNI per capita are computed by multiplying coefficients by the median of the corresponding variable for each of the MFI types shown in the figure, and then summing those products and the constant (intercept). The only exception is the age variable, which is multiplied by each value of MFI age (1, 2, 3, 4, etc.). Note that each of the four MFI types shown in Figure 1 has different coefficients for the age variable in Table 2, model (3). Bubbles represent the median Gross Loan Portfolio (GLP) for each MFI type at each age. Not all MFIs have GLP data throughout the age range and thus we use an unbalanced panel to generate these predicted values. Similar qualitative results hold, however, when we use only the balanced panel of MFIs that have data for all of the age range.
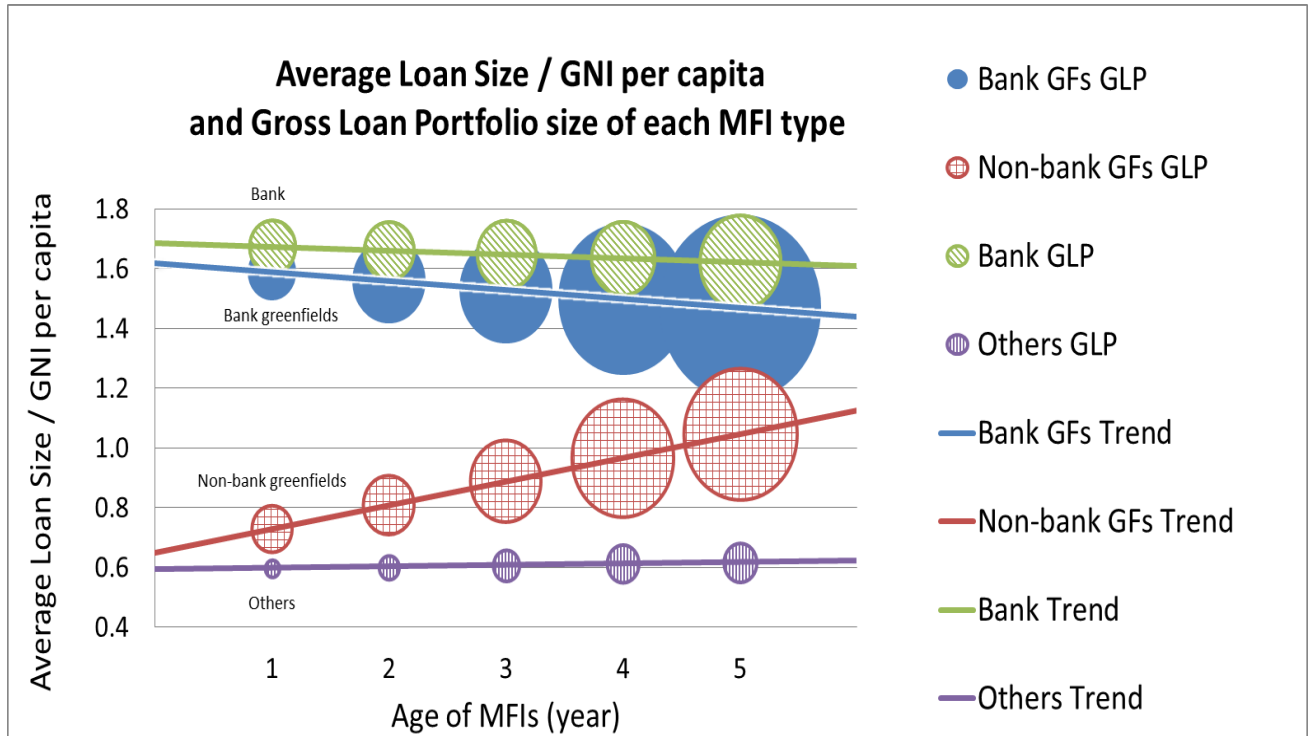
Turning to our other outreach measure, the share of lending to women, the basic models in Table 3 show no strong tendency for one MFI type to lend more to women than others, except for non-GF investees, which tend to lend less. The basic models also show a strong association between higher operating costs and more lending to women, in line with other findings in the literature. Some MFIs attempt to compensate for this by charging higher interest rates to women. The full interaction models in models 7-8 indicate that the positive association between operating

costs and lending to women in the basic models is driven by MFIs other than greenfields.[13]

Unlike the basic models, the full interaction models reveal a strong link between capital costs and lending to women for both types of greenfields (but especially for bank GFs), which suggests that their investment in retail branch networks has led to deeper outreach.

Positive significant coefficients for the interactions between MFI type and age in the basic models (1-6) indicate that bank greenfields and non-greenfield investees increased their lending to women over time. See Figure 2 for a visual depiction of the increase in lending to women by bank greenfields based on Table 3, model 3.

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[13] See, for example, the p-value for the test of whether the sum of the coefficients for the operating cost variable and its interaction with the microbanks is different from zero in model 8. Models 7-8 in Table 3 also indicate that this association is strong for non-greenfield investees.

Figure 2.

Predicted values are generated from ordinary least squares (OLS) model (3) in Table 3 in this paper. All standard errors allow for clustering at the country level. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks, all of which are categorized into 'Others' in this chart. Predicted values for loan size/GNI per capita are computed by multiplying coefficients by the median of the corresponding variable for each of the MFI types shown in the figure, and then summing those products and the constant (intercept). The only exception is the age variable, which is multiplied by each value of MFI age (1, 2, 3, 4, etc.). Note that each of the four MFI types shown in Figure 2 has different coefficients for the age variable in Table 3, model (3). Bubbles represent the median Gross Loan Portfolio (GLP) for each MFI type at each age. Not all MFIs have GLP data throughout the age range and thus we use an unbalanced panel to generate these predicted values. Similar qualitative results hold, however, when we use only the balanced panel of MFIs that have data for all of the age range.
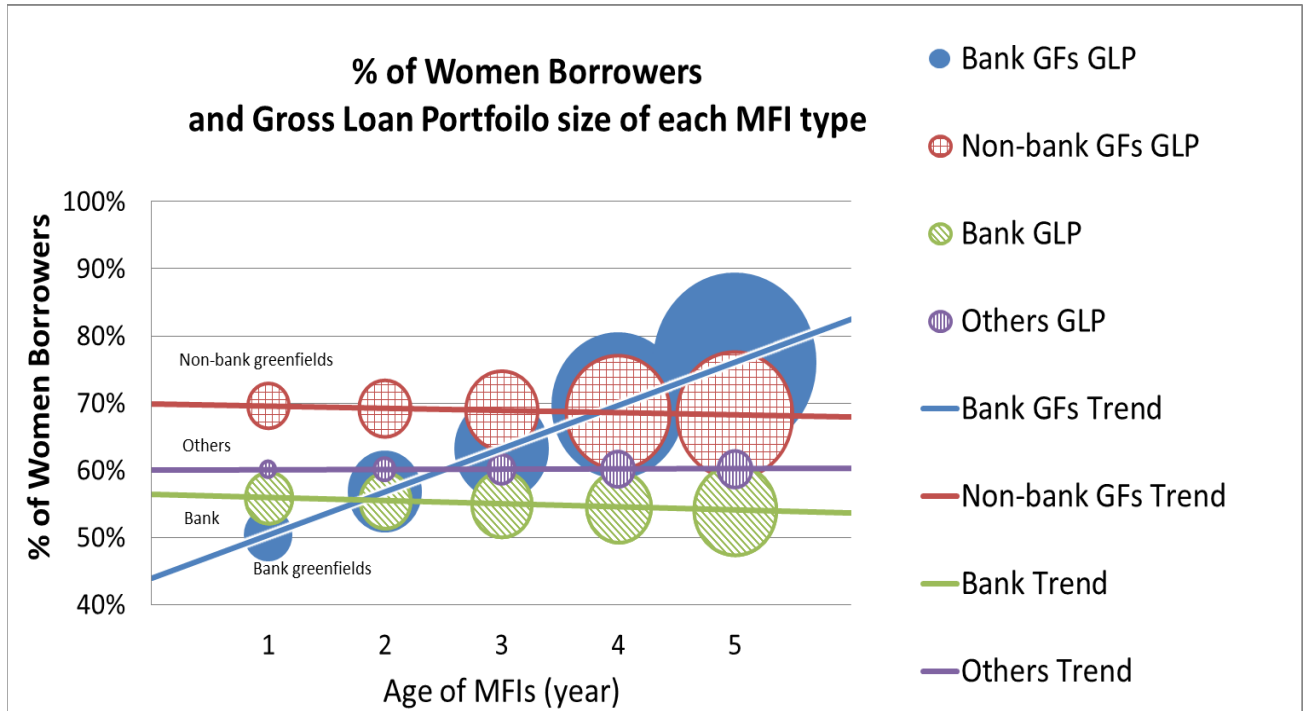
Table 3 also shows that non-greenfield investees increased their lending to women over time, perhaps because their shares of lending to women were much lower than those of other MFIs prior to investment (see negative significant coefficient for the non-GF dummy variable). For the bank greenfields, the interaction with age is no longer significant in the full interaction models in Table 3. However, the strong association between capital costs and lending to women for bank GFs in those models is consistent with the notion that those MFIs were increasing their capital investments at the same time that they were increasing their lending to women.

In short, our outreach regressions show that some greenfields deepened their outreach over time relative to other African MFIs. Non-bank greenfields tended to make smaller loans than all MFIs other than those in the omitted category at their inceptions, though their loan sizes grew somewhat over time. Bank greenfields began by making loans of similar size to microbanks, though average loan size declined slightly over time. The negative relationship between operating costs and average loan size for bank GFs suggests that some of them are incurring the high costs associated with making smaller loans while others are not. The findings regarding lending to women are more clear-cut. Bank GFs lent more to women over time, and both types of greenfields show a positive association between capital costs and the share of lending to women, suggesting that the build-out of retail branching led to deeper outreach to female clients. Those Bank GFs continue with their strategy of strengthening retail branching by using Alternative Delivery Channels (ADCs), for instance through mobile phone applications or cards that can be used at Point of Service (POS) terminals located in small shops. ADCs are considered by these institutions as the tool that will allow them to penetrate deeper into previous under-served areas. The patterns for the outreach variables are more consistent with the African greenfield strategy described above rather than the existing literature on the informational

disadvantages faced by de novo entrants to banking, and the implications for their lending profiles.

b. Financial Performance

The regressions that use OSS as the dependent variable show a strong tendency for weaker initial financial performance by greenfields than other MFIs, but sustained improvement over time as reflected in the positive significant coefficient for the interaction between the greenfield dummies and age (Table 4). To a much lesser extent, the same pattern holds for microbanks. The patterns hold for the greenfields in both the basic models and those with full interactions, though it is stronger in the full interaction models for bank greenfields than non-bank greenfields. The coefficient for the bank GF*age interaction is highly significant and large (.12-.14, relative to a mean OSS of 1.09) across all specifications in Table 4, indicating that initial financial-underperformance was completely erased within five to six years for bank greenfields. Non-bank greenfields show a similar pattern though initial financial under-performance is smaller and subsequent yearly improvement less pronounced. See Figure 3 for a visual representation of these results.

Figure 3.

Predicted values are generated from ordinary least squares (OLS) model (3) in Table 4 in this paper. All standard errors allow for clustering at the country level. Top 5% of observations for Operational Self-Sufficiency (OSS) are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks, all of which are categorized into 'Others' in this chart. Predicted values for loan size/GNI per capita are computed by multiplying coefficients by the median of the corresponding variable for each of the MFI types shown in the figure, and then summing those products and the constant (intercept). The only exception is the age variable, which is multiplied by each value of MFI age (1, 2, 3, 4, etc.). Note that each of the four MFI types shown in Figure 3 has different coefficients for the age variable in Table 4, model (3). Bubbles represent the median Gross Loan Portfolio (GLP) for each MFI type at each age. Not all MFIs have GLP data throughout the age range and thus we use an unbalanced panel to generate these predicted values. Similar qualitative results hold, however, when we use only the balanced panel of MFIs that have data for all of the age range.
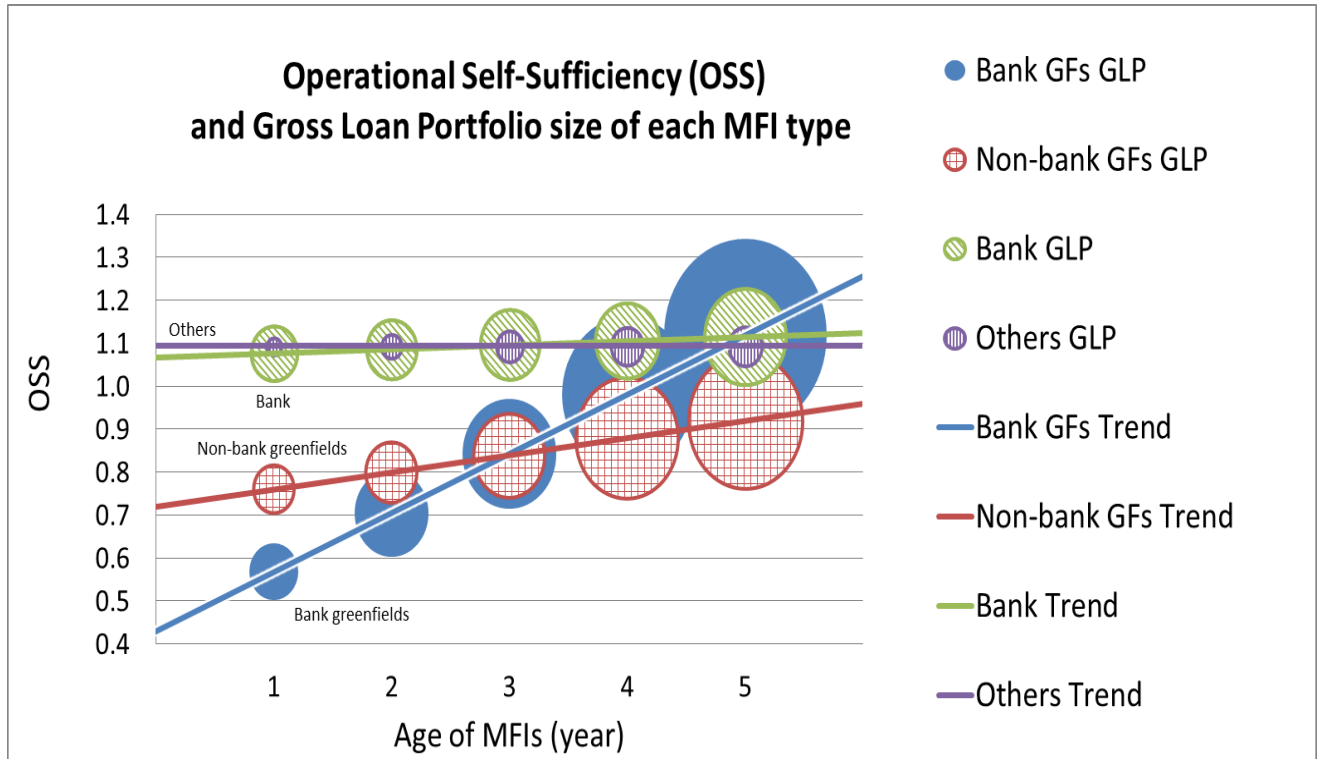
The basic models in Table 4 show a strong positive association between OSS and portfolio yields, and a robust negative link between OSS and operating costs, both of which have been found elsewhere in the literature. However, the full interaction models indicate that these patterns are largely driven by MFIs other than greenfields. Indeed, the tests at the bottom of the tables indicate that there is not a robust significant relationship between yields and the OSS of either type of greenfield, though there is a significant, but small positive relationship for bank greenfields in Model 7. By contrast, the full interaction models show that the positive association between yields and OSS is strong for microbanks.[14] The link between operating costs and OSS is also somewhat weaker for greenfields than others, while the link between capital costs and OSS tends to be insignificant across groups.

Our results suggest that the typical drivers of OSS (higher portfolio yields, lower operating costs) were not as relevant for the greenfields in this period. However, controlling for those differences in the effects of the productivity variables on OSS, the models in Table 4 still indicate steady and strong financial improvement for greenfields, especially bank greenfields as reflected in the large significant coefficient for the bank GF*age interaction.

One potential concern with our analysis was that financial performance data came from two sources: from the IFC for greenfields (and some non-greenfield investees) and from the MIX for all others. Almost all of the indicators used in the analysis are, therefore, very simple to calculate in order to minimize measurement error from one or both data sources. Because the OSS ratio is somewhat more complicated than other indicators, we re-run the financial performance regressions using return on assets, an easy-to-calculate indicator based on standard accounting entries, as the dependent variable. Results are very similar to those for the OSS ratio, and thus we do not present them here to conserve space.

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[14] See relevant t-tests at the bottom of the table.

Regarding loan portfolio quality, the basic models in Table 5 indicate that both types of greenfields had shares of at-risk loans (i.e., delinquent for thirty days or more) 3-4% lower than MFIs in the omitted category at inception, though some models also indicate that their share of at-risk loans crept up slightly in subsequent years. The share of at-risk loans also increased slightly over time for microbanks according to some models. In general, however, greenfields have maintained lower shares of at-risk loans than other MFIs since 2005. See Figure 4 for a visual representation of those results.

Figure 4.

Predicted values are generated from ordinary least squares (OLS) model (3) in Table 5 in this paper. All standard errors allow for clustering at the country level. Top 5% of observations for Portfolio at Risk > 30days are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks, all of which are categorized into 'Others' in this chart. Predicted values for loan size/GNI per capita are computed by multiplying coefficients by the median of the corresponding variable for each of the MFI types shown in the figure, and then summing those products and the constant (intercept). The only exception is the age variable, which is multiplied by each value of MFI age (1, 2, 3, 4, etc.). Note that each of the four MFI types shown in Figure 5 has different coefficients for the age variable in Table 5, model (3). Bubbles represent the median Gross Loan Portfolio (GLP) for each MFI type at each age. Not all MFIs have GLP data throughout the age range and thus we use an unbalanced panel to generate these predicted values. Similar qualitative results hold, however, when we use only the balanced panel of MFIs that have data for all of the age range.
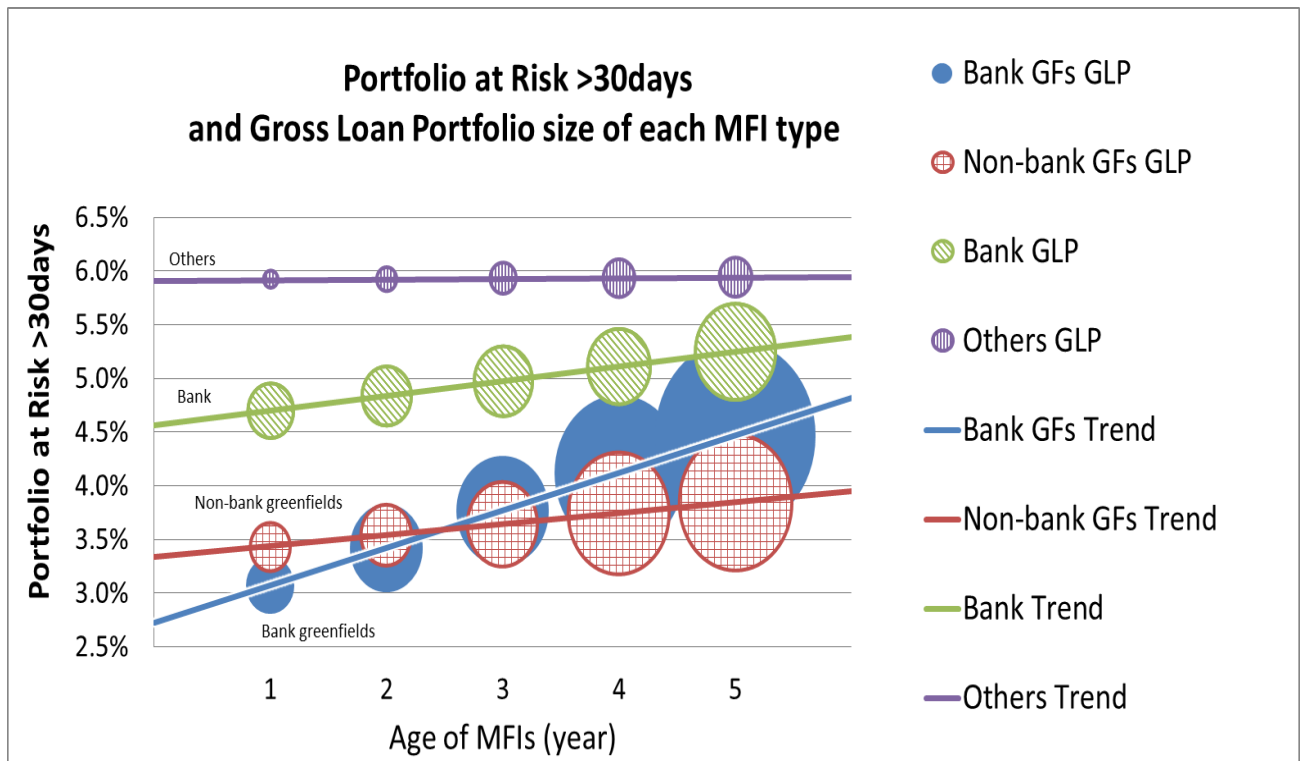
The full interaction models in Table 5 show similar patterns for greenfields as the base models. For model 8, which is based on only those MFIs operating in the same countries as greenfields (and the handful of non-greenfield investees), initially lower at-risk loan shares and the subsequent yearly increase are not significant for bank greenfields. For non-bank greenfields, however, that pattern is a bit stronger than in the base models. However, none of the models in Table 5 indicate that the at-risk loan shares of greenfield MFIs were any worse than those of other MFIs throughout the period.

For non-GF investees, initial at-risk loans shares were much lower and the subsequent yearly gains in at-risk loans more robustly significant than for other MFIs, though the results for that group are based on data for only two institutions. None of the productivity variables are significant in the basic models for delinquent loans in Table 5. Similar patterns hold in the full interactions models, though there are indications that capital costs are associated with significantly lower shares of at-risk loans for non-bank GFs and microbanks (see tests at the bottom of table 5). This suggests that capital investments by those MFI types were used to maintain (or at least coincided with) high portfolio quality. However, there is a positive association for non-bank GFs between operating costs and the share of at-risk loans (models 7 and 8) that is harder to interpret.

In all, there are no indications that the portfolio quality of greenfields was worse than that of other MFIs, and some indications that it was better. One possibility is that portfolio quality was maintained by making larger loans to wealthier borrowers, in line with hypotheses from the banking literature that foreign entrants cherry-pick the best clients. But the results on outreach cast some doubt on that interpretation. They suggest that greenfields, and especially bank

greenfields, lent more to women over time and made loans of similar size to other MFIs, particularly microbanks. At the same time, we see a correlation between deeper outreach and higher NPL's for greenfields over time, which ostensibly reflects the risk of issuing smaller loans, though both types of greenfields began from very low NPL levels like most de novo entrants so some increase was probably inevitable.

c. Growth of Deposits and Loans

For many of the greenfields that entered Africa since 2005, their strategy focused on establishing a substantial retail presence to provide a relatively full menu of services (including loans, savings, and transactions services) quickly, and then continuing to grow that presence over time. Regressions in Table 6 that use the log of the gross loan portfolio (in $US) as the dependent variable indicate that they have been successful. All MFIs showed growth in their loan portfolios as reflected in the positive significant coefficient for the age variable, and also in the gradually increasing size of the circles in the figures presented thus far. In the basic models, the bank GF*age interaction is positive and highly significant indicating that those greenfields expanded their loan portfolios at a rate faster than all other MFIs. That coefficient is also very large, indicating that banks GFs were able to achieve loan portfolios on par with those of existing microbanks within 4-5 years of entry. The interaction with age is also significant in some models for non-bank GFs, though its size is much smaller than for bank GFs.

The capital costs variable is also significantly positively associated with loan portfolio size across models. The interaction between capital costs and the greenfield dummies are also highly significant, suggesting that greenfields that made heavy capital investments tended to have large loan portfolios, both relative to other MFIs and to other greenfields. The relationship is especially pronounced for non-bank greenfields. However, the strong association for non-bank

greenfields is based on a small number of institutions, especially for the models that use the overlapping sample of countries. Still, the evidence in Table 6 indicates that all greenfields that incurred substantial capital costs during this period grew their loan portfolios more swiftly than other MFIs.

We acknowledge that larger loan portfolios do not necessarily imply that greenfields were serving more customers than other MFIs, but the findings above on average loan size and unreported regressions that use the number of loan (or deposit) accounts as the dependent variable suggest that, while their loan sizes were somewhat larger than MFIs in the omitted category (but smaller than microbanks), greenfields showed substantial account growth relative to other MFIs which was significantly linked to capital costs.

Collecting retail deposits on a large scale was another important aspect of the greenfield strategy, and regressions that use log of total deposits ($US) as the dependent variable (Table 7) confirm the patterns found in the portfolio size regressions. In particular, tight associations between capital costs and total deposits are found for non-bank greenfields, and yearly increases in total deposits were significantly larger for bank greenfields than all other MFIs. The patterns are consistent with the notion that greenfields were effective in establishing a strong retail presence within a short period, and that total deposits were substantially greater for greenfields with heavy capital investment, especially among non-bank greenfields.[15] This is at odds with findings from the literature on foreign bank entry suggesting that de novo entrants find it harder to establish a retail presence than foreign banks that acquire existing local institutions. In part, this is likely because African microfinance was largely in its infancy during the period that we study, and thus de novo entrants (especially those as well-heeled as many of the greenfields)

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[15] The link between capital costs and total deposits is also positive for bank greenfields though it is estimated with less precision and thus does not quite achieve significance.

were not at a great disadvantage relative to MFIs that had begun operations only a handful of years earlier. But the patterns also speak to the distinct, aggressive strategy pursued by the greenfields. They also confirm findings elsewhere in the literature that differences in orientation between commercial MFIs (microbanks and greenfields) and less commercial MFIs (NGOs, cooperatives, and NBFIs) can account for substantial differences in their growth, financial performance, and outreach profiles.

d. Costs and Portfolio Yields

For the greenfields, the associations between our productivity variables and performance outcomes in the previous sections have differed from those of other African microfinance institutions. Most notably, the capital costs variable's positive links to growth in deposits and loans, and to the share of lending to women are evident for greenfields but not for other MFIs. The pattern is consistent with the description of greenfield strategy in Earne et al. (2014). As a corroborating check, however, we run simple models to explain changes in portfolio yields, capital costs, and operating costs over time for different MFI types. The idea is that if changes in these productivity variables are driving our results for the greenfields, then the evolution of these variables should be different for them than for other MFIs.

There are relatively few significant coefficients for the regressions that compare greenfields to microbanks and MFIs in the omitted category in Table 8 in terms of operating costs and portfolio yields. However, Table 8 does show that the ratio of capital costs to assets was increasing over time, and relative to other MFIs, for bank greenfields (and non-greenfield investees). The capital costs regressions are consistent with the notion that the consultant-led bank greenfields relied on heavy capital investment during this period. Recall, however, that the associations between capital costs and total loans/deposits were tighter for non-bank greenfields

than for bank greenfields. This suggests variation in capital investment within the subset of non-bank greenfields. Those that had made more capital investments (as reflected in higher capital costs) held substantially more deposits/loans than those that had not, but their average increase in capital costs was about the same as for other MFIs.[16] In all, the results suggest that heavy capital investment in this short time period might have been a more crucial part of the bank greenfield strategy rather than a more general strategy among all greenfields.

6. Conclusions

In this paper, we study the impact of a set of greenfield entrants to African microfinance since 2005. Our regressions indicate that the greenfield MFIs grew faster than other African MFIs in terms of loans and deposits and improved their profitability to levels comparable to the better-performing MFIs. These effects were especially pronounced for the set of greenfields that followed the top-down consultant-led model, characterized by centralized leadership through a holding company, and the establishment of a branded retail micro-banking presence spanning multiple countries through the creation of extensive branch networks. These MFIs are currently trying to take this outreach strategy to the next level by means of the implementation of Alternative Delivery Channels. While it is too early to tell if the use of mobile technology will result in the financial inclusion of poorer or more rural customers, it appears that many MFIs are investing significant financial and human resources to create a hub-and-spokes model with branches being the hubs and mobile agents functioning as spokes to get deeper into areas that were previously out of reach for commercial institutions. Although their loan sizes are a bit larger than that of most African MFIs, their expansion also coincided with an increase in the

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[16] Another interpretation might be that capital costs/assets reflects only the cost of borrowed funds not their volume, but that would mean that non-bank greenfields with the highest funding costs had the most deposits and loans, which seems unlikely. Ideally, we would have liked information on actual investment and new branch construction costs for this part of the analysis, but it was not available. Even if it could have been found for the greenfields, it would be problematic to collect such data for all the MFIs that enter the regression analysis.

share of lending going to women, a result that is at odds with predictions from the cross-border banking literature that foreign banks tend to focus on relatively affluent clients.

Our results indicate that to this point, the greenfield model, and particularly the consultant-led model, has been an effective and profitable means of broadening financial inclusion in Sub-Saharan Africa within a short time period. While the existing literature suggests MFIs organized as NGOs and NBFIs, which rely more heavily on subsidized funding sources are, and will likely remain, more reliable vehicles for reaching the poorest of the poor, the greenfields appear likely to promote sustained gains in financial inclusion on a much broader scale for somewhat more affluent clients. With the mobile revolution in full swing in Africa, many financial institutions are trying to take advantage of new technologies to offer more convenience to existing customers or to get closer to under-served populations. One interesting area of future research would, therefore, be to investigate to what extent institutions embarking on new Alternative Delivery Channels are performing any differently relative to those pursuing other, more conventional strategies.

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Table 1. MFI name and Country Location: Bank greenfields, Non-bank greenfields & Non-greenfields

Category	MFI name	Country	Years			Predominant lending style	Average loan size / GNI per capita (median)	Is an institution included in the regression model (3) in Table 2-4		
								Average loan size / GNI per capita	% of female borrowers	OSS
Bank greenfields	Accion Cameroon	Cameroon	2009	-	2012	60%Ind, 40% grp	0.98	X		X
	Advans Cameroon	Cameroon	2007	-	2012	91% Ind, 9% grp	0.90	X	X	X
	Advans DRC	Democratic Republic of the Congo	2008	-	2012	Individual	10.46			
	ProCredit DRC	Democratic Republic of the Congo	2005	-	2012	Individual	20.58			X
	MicroCred Ivory Coast	Cote d'Ivoire (Ivory Coast)	2009	-	2012	Individual	0.70			
	Accion Ghana	Ghana	2008	-	2012	Individual	0.71	X	X	X
	Advans Ghana	Ghana	2008	-	2012	Individual	0.43	X	X	X
	ProCredit Ghana	Ghana	2004	-	2010	Individual	1.54	X	X	X
	Access Liberia	Liberia	2008	-	2012	Individual	2.58	X	X	X
	Access Madagascar	Madagascar	2007	-	2012	Individual	2.19	X	X	X
	MicroCred Madagascar	Madagascar	2006	-	2012	Individual	2.12	X	X	X
	ProCredit Mozambique	Mozambique	2007	-	2008	Individual	2.48			
	Access Nigeria	Nigeria	2008	-	2012	Individual	1.01	X	X	X
	Accion Nigeria	Nigeria	2006	-	2011	Individual	0.62	X	X	X
	MicroCred Nigeria	Nigeria	2010	-	2012	Individual	0.44	X		X
	Fides Senegal	Senegal	2011	-	2012	10% Ind, 90%g rp	0.15	X		X
	MicroCred Senegal	Senegal	2007	-	2012	Individual	1.21	X	X	X
	ProCredit Sierra Leone	Sierra Leone	2007	-	2010	N/A	3.77			X
	Access Tanzania	Tanzania	2007	-	2012	Individual	3.51	X	X	X
	Advans Tanzania	Tanzania	2011	-	2012	Individual	2.46			
	Access Zambia	Zambia	2011	-	2012	Individual	0.85			X
Non-bank greenfields	PAMF-BFA	Burkina Faso	2006	-	2008	91%grp, 9% Ind	N/A			X
	ACEP Cameroon	Cameroon	2001	-	2010	Individual	1.88	X	X	X
	FINCA DRC	Democratic Republic of the Congo	2003	-	2012	50%grp, 50% Ind	1.06			
	Opportunity DRC	Democratic Republic of the Congo	2005	-	2012	N/A	1.77			
	ASA Ghana	Ghana	2007	-	2012	Group	0.12			
	OISL	Ghana	2004	-	2010	72%grp, 28% Ind	0.35	X	X	X
	Opportunity Ghana	Ghana	2005	-	2012	N/A	0.32			
	BRAC Liberia	Liberia	2008	-	2012	64%grp, 36% Ind	0.41			
	OIBM	Malawi	2003	-	2010	89% Ind, 11%grp	2.36	X	X	X
	BOM	Mozambique	2005	-	2010	Individual	0.79	X	X	X
	ASA Lagos	Nigeria	2010	-	2012	Group	0.10			
	ASA Nigeria	Nigeria	2009	-	2012	Group	0.09			
	ACEP Senegal	Senegal	1997	-	2010	Individual	2.40	X	X	X
	BRAC Sierra Leone	Sierra Leone	2009	-	2012	Group	0.20			
	BRAC - SS	Sudan	2007	-	2010	Group	0.08	X	X	X
	BRAC Tanzania	Tanzania	2006	-	2012	86%grp, 14% Ind	0.26	X	X	X
	BRAC Uganda	Uganda	2004	-	2012	82% grp; 18% Ind	0.30	X	X	X
Non-greenfields	Finadev Benin	Benin	2006	-	2007	N/A	N/A			
	Faulu - KEN	Kenya	1999	-	2011	83%grp, 17% Ind	0.46	X	X	X
	K-Rep	Kenya	2000	-	2011	Group	1.01	X	X	X
	Opportunity Bank Rwanda	Rwanda	2011	-	2011	62%grp, 38% Ind	0.55	X		

Table 2. Average loan size / per capita GNI (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Average loan size / per capita GNI are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; log of MFI's total asset values, inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Average loan size / per capita GNI (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	0.7853**	0.605	1.0678***	0.7100**	0.9594***	0.9448***	1.1630**	1.1455**
	[0.039]	[0.110]	[0.007]	[0.042]	[0.006]	[0.010]	[0.012]	[0.036]
Non-bank greenfields	-0.086	-0.471	0.072	-0.361	-0.167	-0.416	0.775	0.675
	[0.798]	[0.160]	[0.836]	[0.282]	[0.605]	[0.125]	[0.421]	[0.558]
Non-greenfields	-0.7507***	-0.9864***	-0.7102***	-0.9794***	-0.6368***	-0.8625***	-0.4764***	-0.107
	[0.000]	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.001]	[0.863]
Bank	0.902	1.2991**	1.0467*	1.3454**	1.0585*	1.3794***	2.2612**	3.4108***
	[0.132]	[0.042]	[0.061]	[0.033]	[0.058]	[0.002]	[0.023]	[0.000]
Age of MFI	0.005	-0.009	0.005	-0.009	0.005	-0.002	0.005	-0.002
	[0.512]	[0.229]	[0.501]	[0.224]	[0.382]	[0.824]	[0.394]	[0.757]
Bank greenfields *Age of MFI	0.020	0.000	-0.035	-0.027	-0.059	-0.017	-0.009	0.002
	[0.670]	[0.997]	[0.494]	[0.614]	[0.458]	[0.811]	[0.900]	[0.972]
Non-bank greenfields *Age of MFI	0.0839***	0.0901***	0.0747***	0.0832***	0.0855***	0.0864***	0.049	0.047
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.213]	[0.330]
Non-greenfields *Age of MFI	0.0315***	0.0357***	0.0296**	0.0353***	0.0263***	0.0348***	0.0514***	0.0414**
	[0.002]	[0.002]	[0.015]	[0.004]	[0.001]	[0.000]	[0.000]	[0.014]
Bank *Age of MFI	-0.013	-0.045	-0.018	-0.046	-0.024	-0.0439**	-0.061	-0.1037***
	[0.718]	[0.145]	[0.627]	[0.140]	[0.546]	[0.037]	[0.217]	[0.000]
Portfolio yield			-0.4328**	-0.1423*	-0.3271*	-0.1561**	-0.7237***	-0.4349**
			[0.028]	[0.089]	[0.091]	[0.022]	[0.001]	[0.017]
Capital costs / Assets			1.883	1.026	2.495	2.520	3.280	3.557
			[0.417]	[0.739]	[0.272]	[0.407]	[0.122]	[0.278]
Operating costs / Assets			-0.222	-0.545	-0.5731*	-0.676	-0.141	-0.373
			[0.497]	[0.173]	[0.072]	[0.118]	[0.623]	[0.207]
Portfolio yield *Bank greenfields							0.8263***	0.4528
							[0.005]	[0.121]
Portfolio yield *Non-bank greenfields							-2.1892	-1.4093
							[0.116]	[0.351]
Portfolio yield *Non-greenfields							-0.9237	-3.0640**
							[0.250]	[0.023]
Portfolio yield *Bank							-0.4834	-3.7777***
							[0.483]	[0.003]

Table 2. Average loan size / per capita GNI (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

Average loan size / per capita GNI (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							-10.2200*	-8.919
							[0.055]	[0.284]
Capital costs / Assets*Non-bank greenfields							8.912	-3.7123
							[0.334]	[0.251]
Capital costs / Assets*Non-greenfields							-26.7014***	-22.6579***
							[0.000]	[0.009]
Capital costs / Assets*Bank							-6.0046	14.6419**
							[0.622]	[0.021]
Operating costs / Assets*Bank greenfields							-2.1700**	-1.2507
							[0.037]	[0.339]
Operating costs / Assets*Non-bank greenfields							0.8825	0.0636
							[0.437]	[0.909]
Operating costs / Assets*Non-greenfields							3.0267**	4.2127**
							[0.034]	[0.018]
Operating costs / Assets*Bank							-1.3979	-0.3121
							[0.509]	[0.693]
Observations	852	437	852	437	852	437	852	437
R-squared	0.204	0.365	0.235	0.386	0.544	0.644	0.571	0.669
Adjusted R-squared	0.192	0.347	0.221	0.364	0.453	0.557	0.477	0.574
Unique # of countries	36	15	36	15	36	15	36	15
Test, H0: Bank GF=Bank	[0.855]	[0.255]	[0.972]	[0.294]	[0.861]	[0.222]	[0.228]	[0.001]
Test, H0: Bank GF*Age =Bank *Age	[0.554]	[0.418]	[0.787]	[0.758]	[0.687]	[0.710]	[0.531]	[0.120]
Test, H0: Non-bank GF=Bank	[0.142]	[0.010]	[0.114]	[0.015]	[0.054]	[0.001]	[0.219]	[0.089]
Test, H0: Non-bank GF*Age =Bank *Age	[0.016]	[0.000]	[0.016]	[0.001]	[0.014]	[0.000]	[0.029]	[0.018]
Test, H0: Non-GF=Bank	[0.011]	[0.002]	[0.006]	[0.002]	[0.006]	[0.000]	[0.010]	[0.003]
Test, H0: Non-GF*Age =Bank *Age	[0.246]	[0.021]	[0.243]	[0.027]	[0.229]	[0.001]	[0.027]	[0.000]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.363]	[0.909]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.044]	[0.239]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.087]	[0.001]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.128]	[0.452]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.447]	[0.532]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.817]	[0.001]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.034]	[0.255]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.447]	[0.532]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.466]	[0.362]
Unique # of Bank greenfields (Total observation)	14(37)	14(37)	14(37)	14(37)	14(37)	14(37)	14(37)	14(37)
Unique # of Non-bank greenfields (Total observation)	8(29)	5(21)	8(29)	5(21)	8(29)	5(21)	8(29)	5(21)
Unique # of Non-greenfields (Total observation)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

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Table 3. % of Women borrowers (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; log of MFI's total asset values, inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

% of Women borrowers (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	-0.082	-0.110	-0.1835*	-0.136	-0.207	-0.151	-0.016	-0.131
	[0.233]	[0.259]	[0.059]	[0.192]	[0.172]	[0.298]	[0.910]	[0.464]
Non-bank greenfields	0.144	0.051	0.079	0.020	0.095	0.062	0.364	0.042
	[0.291]	[0.789]	[0.598]	[0.920]	[0.487]	[0.712]	[0.315]	[0.921]
Non-greenfields	-0.4010***	-0.4417***	-0.4567***	-0.4581***	-0.4921**	-0.019	0.081	-0.054
	[0.000]	[0.000]	[0.000]	[0.000]	[0.033]	[0.905]	[0.379]	[0.759]
Bank	0.015	0.053	-0.030	0.041	-0.111	-0.070	0.2538*	-0.254
	[0.862]	[0.731]	[0.730]	[0.764]	[0.195]	[0.452]	[0.086]	[0.344]
Age of MFI	0.000	-0.001	0.000	0.000	0.000	0.001	0.000	0.001
	[0.900]	[0.929]	[0.912]	[0.960]	[0.945]	[0.842]	[0.998]	[0.821]
Bank greenfields *Age of MFI	0.0306*	0.037	0.0641***	0.0504*	0.0676**	0.051	-0.015	-0.013
	[0.098]	[0.146]	[0.003]	[0.068]	[0.025]	[0.118]	[0.664]	[0.678]
Non-bank greenfields *Age of MFI	-0.007	-0.001	-0.004	0.001	-0.005	-0.003	-0.015	-0.004
	[0.343]	[0.928]	[0.670]	[0.942]	[0.525]	[0.748]	[0.284]	[0.841]
Non-greenfields *Age of MFI	0.0240***	0.0268***	0.0273***	0.0280***	0.0297**	0.000	0.0228**	0.007
	[0.000]	[0.000]	[0.000]	[0.000]	[0.047]	[0.977]	[0.019]	[0.524]
Bank *Age of MFI	-0.006	-0.002	-0.005	-0.001	0.001	0.004	-0.008	0.011
	[0.372]	[0.840]	[0.466]	[0.865]	[0.917]	[0.442]	[0.125]	[0.303]
Portfolio yield			0.128	0.032	0.070	-0.003	0.3176**	0.077
			[0.134]	[0.430]	[0.364]	[0.928]	[0.026]	[0.391]
Capital costs / Assets			-0.690	-0.579	-0.405	-0.429	-0.587	-0.727
			[0.211]	[0.391]	[0.476]	[0.556]	[0.302]	[0.343]
Operating costs / Assets			0.211	0.1849**	0.2949**	0.2490***	0.188	0.2191*
			[0.112]	[0.018]	[0.023]	[0.007]	[0.189]	[0.093]
Portfolio yield *Bank greenfields							-0.3005	-0.0474
							[0.101]	[0.773]
Portfolio yield *Non-bank greenfields							-0.1775	0.1896
							[0.686]	[0.719]
Portfolio yield *Non-greenfields							-2.2475***	-0.9410***
							[0.000]	[0.009]
Portfolio yield *Bank							-0.7155***	-0.4131
							[0.002]	[0.195]

Table 3. % of Women borrowers (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

% of Women borrowers (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							5.5170**	6.3496**
							[0.023]	[0.041]
Capital costs / Assets*Non-bank greenfields							2.7828	5.1085***
							[0.164]	[0.007]
Capital costs / Assets*Non-greenfields							-10.4601***	-6.7118
							[0.000]	[0.189]
Capital costs / Assets*Bank							-0.3774	-0.6124
							[0.847]	[0.678]
Operating costs / Assets*Bank greenfields							-0.3343	-0.4597
							[0.635]	[0.603]
Operating costs / Assets*Non-bank greenfields							-0.8581**	-0.7759***
							[0.016]	[0.004]
Operating costs / Assets*Non-greenfields							3.0403***	2.5679**
							[0.000]	[0.028]
Operating costs / Assets*Bank							0.4304	1.7320***
							[0.536]	[0.009]
Observations	774	380	774	380	774	380	774	380
R-squared	0.089	0.132	0.136	0.152	0.337	0.367	0.365	0.391
Adjusted R-squared	0.074	0.103	0.119	0.117	0.190	0.200	0.209	0.199
Unique # of countries	36	15	36	15	36	15	36	15
Test, H0: Bank GF=Bank	[0.309]	[0.317]	[0.164]	[0.259]	[0.526]	[0.482]	[0.071]	[0.503]
Test, H0: Bank GF*Age =Bank *Age	[0.070]	[0.167]	[0.002]	[0.091]	[0.030]	[0.151]	[0.829]	[0.472]
Test, H0: Non-bank GF=Bank	[0.346]	[0.991]	[0.450]	[0.906]	[0.182]	[0.398]	[0.768]	[0.519]
Test, H0: Non-bank GF*Age =Bank *Age	[0.862]	[0.951]	[0.878]	[0.850]	[0.534]	[0.420]	[0.590]	[0.394]
Test, H0: Non-GF=Bank	[0.000]	[0.005]	[0.000]	[0.003]	[0.175]	[0.816]	[0.250]	[0.622]
Test, H0: Non-GF*Age =Bank *Age	[0.000]	[0.001]	[0.000]	[0.002]	[0.113]	[0.698]	[0.017]	[0.801]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.841]	[0.781]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.733]	[0.609]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.007]	[0.227]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.021]	[0.040]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.046]	[0.046]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.607]	[0.291]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.823]	[0.768]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.046]	[0.046]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.379]	[0.003]
Unique # of Bank greenfields (Total observation)	13(35)	13(35)	11(23)	11(23)	11(23)	11(23)	11(23)	11(23)
Unique # of Non-bank greenfields (Total observation)	8(25)	5(20)	8(25)	5(20)	8(25)	5(20)	8(25)	5(20)
Unique # of Non-greenfields (Total observation)	2(6)	2(6)	2(5)	2(5)	2(5)	2(5)	2(5)	2(5)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

Table 4. Operational Self-Sufficiency (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Operational Self-Sufficiency are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; log of MFI's total asset values, inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Operational Self-Sufficiency (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	-0.6374***	-0.6060***	-0.7839***	-0.7336***	-0.7745***	-0.7276***	-0.5234***	-0.5262***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Non-bank greenfields	-0.4120***	-0.2395**	-0.4059***	-0.195	-0.3620***	-0.2380*	-0.325	0.185
	[0.000]	[0.010]	[0.007]	[0.101]	[0.003]	[0.069]	[0.287]	[0.681]
Non-greenfields	-0.034	0.015	-0.004	0.024	0.0720***	0.058	0.4669***	-0.3457**
	[0.291]	[0.729]	[0.899]	[0.510]	[0.007]	[0.142]	[0.000]	[0.034]
Bank	-0.082	-0.080	-0.103	-0.0733*	-0.094	-0.1735***	0.157	-0.016
	[0.195]	[0.243]	[0.102]	[0.099]	[0.164]	[0.003]	[0.119]	[0.921]
Age of MFI	0.000	0.002	0.000	0.001	0.000	0.000	0.001	0.001
	[0.926]	[0.409]	[0.948]	[0.413]	[0.807]	[0.881]	[0.620]	[0.673]
Bank greenfields *Age of MFI	0.1212***	0.1250***	0.1379***	0.1385***	0.1343***	0.1268***	0.1359***	0.1401***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Non-bank greenfields *Age of MFI	0.0382***	0.0306***	0.0398***	0.0290***	0.0365***	0.0301***	0.0352***	0.015
	[0.000]	[0.000]	[0.001]	[0.002]	[0.000]	[0.003]	[0.003]	[0.329]
Non-greenfields *Age of MFI	-0.002	-0.002	-0.002	-0.001	-0.0039*	-0.003	-0.0046***	0.0170***
	[0.416]	[0.392]	[0.305]	[0.573]	[0.052]	[0.196]	[0.003]	[0.000]
Bank *Age of MFI	0.007	0.012	0.0097**	0.0131*	0.010	0.0174**	0.007	0.0152**
	[0.170]	[0.208]	[0.048]	[0.074]	[0.112]	[0.036]	[0.136]	[0.037]
Portfolio yield			0.3976***	0.3076**	0.3363**	0.2418**	0.7215***	0.5477***
			[0.004]	[0.022]	[0.022]	[0.032]	[0.000]	[0.002]
Capital costs / Assets			-0.439	-0.564	-0.140	0.060	-0.188	0.105
			[0.349]	[0.151]	[0.798]	[0.913]	[0.755]	[0.864]
Operating costs / Assets			-1.2126***	-1.1147***	-1.1567***	-1.1649***	-1.3914***	-1.3199***
			[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Portfolio yield *Bank greenfields							-0.6012***	-0.4291***
							[0.001]	[0.008]
Portfolio yield *Non-bank greenfields							-0.3472	-0.813
							[0.533]	[0.274]
Portfolio yield *Non-greenfields							0.8191***	3.1192***
							[0.000]	[0.000]
Portfolio yield *Bank							-0.3213*	0.2048
							[0.084]	[0.446]

Table 4. Operational Self-Sufficiency (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

Operational Self-Sufficiency (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							-1.7291	-3.0704**
							[0.202]	[0.049]
Capital costs / Assets*Non-bank greenfields							2.5874	5.1270***
							[0.140]	[0.004]
Capital costs / Assets*Non-greenfields							-8.7591***	-18.8021***
							[0.000]	[0.000]
Capital costs / Assets*Bank							0.6926	-2.129
							[0.468]	[0.295]
Operating costs / Assets*Bank greenfields							0.5629	0.439
							[0.214]	[0.498]
Operating costs / Assets*Non-bank greenfields							0.2406	-0.0331
							[0.758]	[0.967]
Operating costs / Assets*Non-greenfields							-2.2812***	-1.4552***
							[0.000]	[0.000]
Operating costs / Assets*Bank							-0.5858*	-0.7648*
							[0.073]	[0.064]
Observations	863	453	863	453	863	453	863	453
R-squared	0.209	0.264	0.421	0.475	0.529	0.591	0.562	0.627
Adjusted R-squared	0.198	0.244	0.41	0.457	0.433	0.495	0.464	0.523
Unique # of countries	36	15	36	15	36	15	36	15
Test, H0: Bank GF=Bank	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.004]
Test, H0: Bank GF*Age =Bank *Age	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Test, H0: Non-bank GF=Bank	[0.003]	[0.205]	[0.030]	[0.331]	[0.024]	[0.609]	[0.140]	[0.631]
Test, H0: Non-bank GF*Age =Bank *Age	[0.000]	[0.087]	[0.008]	[0.096]	[0.012]	[0.265]	[0.046]	[0.982]
Test, H0: Non-GF=Bank	[0.400]	[0.222]	[0.139]	[0.140]	[0.027]	[0.007]	[0.002]	[0.161]
Test, H0: Non-GF*Age =Bank *Age	[0.099]	[0.133]	[0.020]	[0.046]	[0.024]	[0.017]	[0.015]	[0.833]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.041]	[0.160]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.468]	[0.715]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.000]	[0.001]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.106]	[0.021]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.136]	[0.142]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.536]	[0.281]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.035]	[0.126]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.136]	[0.142]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.000]	[0.000]
Unique # of Bank greenfields (Total observation)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)
Unique # of Non-bank greenfields (Total observation)	9(25)	5(16)	9(25)	5(16)	9(25)	5(16)	9(25)	5(16)
Unique # of Non-greenfields (Total observation)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

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Table 5. Portfolio at Risk >30days (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Portfolio at Risk >30days are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; log of MFI's total asset values, inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Portfolio at Risk >30days (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	-0.0343***	-0.0410***	-0.0285**	-0.0377***	-0.0308*	-0.0365**	-0.0538*	-0.026
	[0.004]	[0.001]	[0.038]	[0.005]	[0.072]	[0.029]	[0.054]	[0.329]
Non-bank greenfields	-0.023	-0.0413***	-0.020	-0.0379***	-0.0305***	-0.0320*	-0.0578**	-0.0870***
	[0.129]	[0.000]	[0.176]	[0.001]	[0.008]	[0.079]	[0.017]	[0.001]
Non-greenfields	-0.1911***	-0.1968***	-0.1892***	-0.1961***	-0.2079***	-0.2269***	-0.2633***	-0.1513***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Bank	-0.008	-0.0515**	-0.008	-0.0517**	0.000	-0.016	0.012	0.1182***
	[0.729]	[0.039]	[0.763]	[0.040]	[0.989]	[0.620]	[0.719]	[0.000]
Age of MFI	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	[0.944]	[0.521]	[0.891]	[0.528]	[0.757]	[0.546]	[0.612]	[0.585]
Bank greenfields *Age of MFI	0.0048***	0.0043**	0.0034**	0.0032*	0.004	0.004	0.004	0.006
	[0.002]	[0.014]	[0.049]	[0.079]	[0.251]	[0.272]	[0.444]	[0.251]
Non-bank greenfields *Age of MFI	0.001	0.0012**	0.001	0.001	0.001	0.001	0.0022***	0.0036***
	[0.276]	[0.049]	[0.295]	[0.109]	[0.122]	[0.215]	[0.002]	[0.000]
Non-greenfields *Age of MFI	0.0114***	0.0109***	0.0113***	0.0109***	0.0111***	0.0124***	0.0146***	0.0121***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Bank *Age of MFI	0.001	0.0046***	0.001	0.0046***	0.000	0.0030**	0.000	-0.001
	[0.463]	[0.000]	[0.455]	[0.000]	[0.861]	[0.044]	[0.932]	[0.374]
Portfolio yield			-0.009	-0.005	-0.015	-0.008	-0.0671**	-0.010
			[0.429]	[0.287]	[0.197]	[0.204]	[0.012]	[0.628]
Capital costs / Assets			0.125	0.081	0.079	0.051	0.159	0.156
			[0.175]	[0.514]	[0.449]	[0.755]	[0.183]	[0.401]
Operating costs / Assets			-0.001	-0.015	-0.003	0.024	0.029	0.032
			[0.978]	[0.429]	[0.882]	[0.356]	[0.156]	[0.206]
Portfolio yield *Bank greenfields							0.0646**	0.0062
							[0.027]	[0.805]
Portfolio yield *Non-bank greenfields							0.0329	0.0298
							[0.493]	[0.512]
Portfolio yield *Non-greenfields							-0.2816***	-0.6556***
							[0.000]	[0.000]
Portfolio yield *Bank							0.1863***	-0.1561**
							[0.001]	[0.016]

Table 5. Portfolio at Risk >30days (0.01=1%): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

Portfolio at Risk >30days (0.01=1%)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							0.0125	-0.383
							[0.978]	[0.280]
Capital costs / Assets*Non-bank greenfields							-0.3918*	-0.4251
							[0.059]	[0.151]
Capital costs / Assets*Non-greenfields							-1.9792***	-0.3307
							[0.000]	[0.341]
Capital costs / Assets*Bank							-0.8132**	-0.8870*
							[0.014]	[0.054]
Operating costs / Assets*Bank greenfields							-0.0364	-0.0322
							[0.342]	[0.328]
Operating costs / Assets*Non-bank greenfields							0.0731*	0.1336***
							[0.073]	[0.007]
Operating costs / Assets*Non-greenfields							0.9176***	0.8223***
							[0.000]	[0.000]
Operating costs / Assets*Bank							-0.3737***	0.0556
							[0.002]	[0.646]
Observations	816	415	816	415	816	415	816	415
R-squared	0.048	0.128	0.053	0.132	0.279	0.297	0.308	0.317
Adjusted R-squared	0.034	0.102	0.035	0.100	0.129	0.113	0.148	0.106
Unique # of countries	35	15	35	15	35	15	35	15
Test, H0: Bank GF=Bank	[0.330]	[0.692]	[0.461]	[0.611]	[0.363]	[0.535]	[0.142]	[0.000]
Test, H0: Bank GF*Age =Bank *Age	[0.112]	[0.855]	[0.392]	[0.461]	[0.350]	[0.697]	[0.450]	[0.120]
Test, H0: Non-bank GF=Bank	[0.610]	[0.696]	[0.669]	[0.617]	[0.372]	[0.700]	[0.097]	[0.000]
Test, H0: Non-bank GF*Age =Bank *Age	[0.911]	[0.005]	[0.873]	[0.006]	[0.674]	[0.429]	[0.191]	[0.002]
Test, H0: Non-GF=Bank	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Test, H0: Non-GF*Age =Bank *Age	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.697]	[0.631]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.325]	[0.631]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.005]	[0.004]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.670]	[0.416]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.001]	[0.000]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.027]	[0.050]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.844]	[0.997]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.001]	[0.000]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.003]	[0.423]
Unique # of Bank greenfields (Total observation)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)
Unique # of Non-bank greenfields (Total observation)	8(28)	5(21)	8(28)	5(21)	8(28)	5(21)	8(28)	5(21)
Unique # of Non-greenfields (Total observation)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

Table 6. Log of Gross Loan Portfolio (US$): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Log of Gross Loan Portfolio (US$) are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Log of Gross Loan Portfolio (US$)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	-0.111	0.196	0.148	0.363	0.202	0.281	-0.424	-0.284
	[0.815]	[0.719]	[0.741]	[0.488]	[0.718]	[0.654]	[0.487]	[0.750]
Non-bank greenfields	0.836	1.5500*	1.057	1.7891**	1.6041*	2.1184*	-0.722	0.325
	[0.214]	[0.088]	[0.112]	[0.038]	[0.053]	[0.052]	[0.520]	[0.687]
Non-greenfields	0.695	1.6742*	1.031	1.4347*	-0.020	1.823	4.3444**	5.6786***
	[0.609]	[0.099]	[0.310]	[0.087]	[0.988]	[0.129]	[0.026]	[0.000]
Bank	1.6665***	1.8329*	1.5770***	1.8930**	1.7043***	2.0436**	1.2896**	1.652
	[0.009]	[0.089]	[0.004]	[0.048]	[0.001]	[0.019]	[0.029]	[0.162]
Age of MFI	0.0747***	0.0836***	0.0684***	0.0771***	0.0642**	0.0757***	0.0634**	0.0757***
	[0.001]	[0.000]	[0.003]	[0.000]	[0.018]	[0.002]	[0.020]	[0.002]
Bank greenfields *Age of MFI	0.5107***	0.4931***	0.3961***	0.4182***	0.4079***	0.5362***	0.3958***	0.4938***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Non-bank greenfields *Age of MFI	0.0917*	0.033	0.071	0.008	0.012	-0.053	0.0953*	0.012
	[0.058]	[0.462]	[0.145]	[0.833]	[0.828]	[0.373]	[0.084]	[0.769]
Non-greenfields *Age of MFI	0.079	0.024	0.053	0.033	0.116	0.008	-0.162	-0.1952***
	[0.312]	[0.665]	[0.364]	[0.431]	[0.168]	[0.916]	[0.201]	[0.000]
Bank *Age of MFI	-0.024	-0.016	-0.014	-0.026	-0.013	-0.056	0.006	-0.020
	[0.673]	[0.887]	[0.759]	[0.798]	[0.780]	[0.569]	[0.838]	[0.723]
Portfolio yield			-0.337	-0.4316*	-0.301	-0.195	-0.9518*	-0.698
			[0.173]	[0.052]	[0.248]	[0.421]	[0.099]	[0.468]
Capital costs / Assets			7.1018**	2.069	6.4653**	5.3166**	5.7198**	3.6549**
			[0.021]	[0.337]	[0.016]	[0.012]	[0.049]	[0.039]
Operating costs / Assets			-2.2817***	-1.651	-2.0806**	-1.569	-1.6057*	-1.179
			[0.008]	[0.114]	[0.029]	[0.179]	[0.084]	[0.200]
Portfolio yield *Bank greenfields							0.9263	0.6559
							[0.150]	[0.517]
Portfolio yield *Non-bank greenfields							-0.0459	-1.8423
							[0.977]	[0.106]
Portfolio yield *Non-greenfields							-1.8918	-5.7603**
							[0.206]	[0.048]
Portfolio yield *Bank							3.9683***	3.1596**
							[0.000]	[0.011]

Table 6. Log of Gross Loan Portfolio (US$): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

Log of Gross Loan Portfolio (US$)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							9.1635	15.3495**
							[0.168]	[0.047]
Capital costs / Assets*Non-bank greenfields							30.8493**	50.7664***
							[0.040]	[0.004]
Capital costs / Assets*Non-greenfields							63.8864***	62.3136***
							[0.002]	[0.000]
Capital costs / Assets*Bank							-9.057	0.4619
							[0.121]	[0.932]
Operating costs / Assets*Bank greenfields							-0.7628	-0.8346
							[0.556]	[0.628]
Operating costs / Assets*Non-bank greenfields							4.8766***	5.5550**
							[0.007]	[0.013]
Operating costs / Assets*Non-greenfields							-6.4884**	-4.6828
							[0.012]	[0.163]
Operating costs / Assets*Bank							-6.3040**	-6.8541**
							[0.010]	[0.013]
Observations	834	441	834	441	834	441	834	441
R-squared	0.217	0.299	0.286	0.341	0.438	0.513	0.455	0.543
Adjusted R-squared	0.206	0.281	0.274	0.319	0.322	0.398	0.331	0.415
Unique # of countries	36	15	36	15	36	15	36	15
Test, H0: Bank GF=Bank	[0.009]	[0.138]	[0.005]	[0.107]	[0.010]	[0.059]	[0.000]	[0.023]
Test, H0: Bank GF*Age =Bank *Age	[0.000]	[0.004]	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
Test, H0: Non-bank GF=Bank	[0.248]	[0.815]	[0.366]	[0.920]	[0.860]	[0.890]	[0.127]	[0.366]
Test, H0: Non-bank GF*Age =Bank *Age	[0.081]	[0.672]	[0.131]	[0.732]	[0.638]	[0.983]	[0.145]	[0.665]
Test, H0: Non-GF=Bank	[0.518]	[0.910]	[0.629]	[0.684]	[0.255]	[0.893]	[0.178]	[0.004]
Test, H0: Non-GF*Age =Bank *Age	[0.302]	[0.751]	[0.372]	[0.579]	[0.172]	[0.614]	[0.211]	[0.020]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.892]	[0.855]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.508]	[0.015]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.004]	[0.002]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.010]	[0.010]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.037]	[0.094]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.538]	[0.435]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.050]	[0.223]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.037]	[0.094]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.002]	[0.004]
Unique # of Bank greenfields (Total observation)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)	16(42)
Unique # of Non-bank greenfields (Total observation)	9(27)	5(18)	9(27)	5(18)	9(27)	5(18)	9(27)	5(18)
Unique # of Non-greenfields (Total observation)	3(7)	3(7)	3(7)	3(7)	3(7)	3(7)	3(7)	3(7)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

Table 7. Log of Deposit Volume (US$): Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Log of Deposit Volume (US$) are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Log of Deposit Volume (US$)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank greenfields	0.293	-0.001	0.7270*	0.181	0.430	0.060	-0.132	0.264
	[0.552]	[0.999]	[0.095]	[0.672]	[0.456]	[0.929]	[0.872]	[0.805]
Non-bank greenfields	1.8492***	2.0070***	2.2609***	2.3750***	3.0192***	3.1184***	-1.673	-1.207
	[0.008]	[0.005]	[0.003]	[0.002]	[0.001]	[0.000]	[0.317]	[0.213]
Non-greenfields	0.616	0.413	0.612	0.196	0.192	-0.009	2.1589***	14.5283***
	[0.118]	[0.571]	[0.282]	[0.791]	[0.803]	[0.983]	[0.001]	[0.000]
Bank	2.3738***	1.791	2.3585***	1.8655**	2.5215***	2.6756***	1.9506**	2.5370***
	[0.004]	[0.124]	[0.000]	[0.028]	[0.000]	[0.007]	[0.031]	[0.005]
Age of MFI	0.1438***	0.1158***	0.1298***	0.1019***	0.1327***	0.1046***	0.1324***	0.1060***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.001]
Bank greenfields *Age of MFI	0.6157***	0.6355***	0.4561***	0.5206***	0.5237***	0.6521***	0.5100***	0.6025***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Non-bank greenfields *Age of MFI	-0.039	-0.0645*	-0.0764*	-0.1003***	-0.1475***	-0.1606***	0.019	0.005
	[0.310]	[0.054]	[0.098]	[0.005]	[0.005]	[0.000]	[0.774]	[0.897]
Non-greenfields *Age of MFI	0.0523*	0.067	0.046	0.070	0.060	0.0803***	-0.0558***	-0.3436***
	[0.054]	[0.116]	[0.201]	[0.107]	[0.215]	[0.010]	[0.004]	[0.000]
Bank *Age of MFI	-0.050	0.027	-0.043	0.014	-0.039	-0.028	-0.016	0.009
	[0.490]	[0.818]	[0.459]	[0.869]	[0.492]	[0.774]	[0.646]	[0.782]
Portfolio yield			-0.5868*	-0.455	-0.389	-0.191	-1.026	0.668
			[0.075]	[0.124]	[0.222]	[0.495]	[0.284]	[0.632]
Capital costs / Assets			5.116	1.163	2.620	-0.177	0.719	-3.532
			[0.170]	[0.797]	[0.490]	[0.965]	[0.861]	[0.518]
Operating costs / Assets			-3.6598***	-3.4268***	-3.2190***	-2.415	-2.7174***	-2.5145**
			[0.000]	[0.002]	[0.005]	[0.104]	[0.001]	[0.017]
Portfolio yield *Bank greenfields							0.7935	-0.9787
							[0.398]	[0.491]
Portfolio yield *Non-bank greenfields							1.8777	0.1861
							[0.313]	[0.887]
Portfolio yield *Non-greenfields							12.8483***	-20.8400***
							[0.000]	[0.000]
Portfolio yield *Bank							4.3999***	1.7899
							[0.001]	[0.224]

Table 7. Log of Deposit Volume (US$): Bank greenfields, Non-bank greenfields & Non-greenfields (cont.)

Log of Gross Loan Portfolio (US$)

Dependent Variable	Basic Models						Full Interaction Models	
Samples	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries	All African countries	Overlapping countries
Model	OLS	OLS	OLS	OLS	Country-Year	Country-Year	Country-Year	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital costs / Assets*Bank greenfields							10.9045	18.2874
							[0.248]	[0.130]
Capital costs / Assets*Non-bank greenfields							40.6911***	26.1602***
							[0.000]	[0.000]
Capital costs / Assets*Non-greenfields							51.2073**	242.1351***
							[0.020]	[0.000]
Capital costs / Assets*Bank							-7.5177	17.8493
							[0.689]	[0.240]
Operating costs / Assets*Bank greenfields							-0.8524	-0.7633
							[0.465]	[0.662]
Operating costs / Assets*Non-bank greenfields							7.2888***	9.5729***
							[0.000]	[0.000]
Operating costs / Assets*Non-greenfields							-35.6773***	-61.2722***
							[0.000]	[0.000]
Operating costs / Assets*Bank							-6.8498***	-7.2793***
							[0.000]	[0.000]
Observations	692	407	692	407	692	407	692	407
R-squared	0.302	0.323	0.398	0.407	0.515	0.526	0.535	0.56
Adjusted R-squared	0.291	0.305	0.385	0.386	0.405	0.408	0.418	0.429
Unique # of countries	35	15	35	15	35	15	35	15
Test, H0: Bank GF=Bank	[0.030]	[0.191]	[0.031]	[0.112]	[0.024]	[0.052]	[0.082]	[0.030]
Test, H0: Bank GF*Age =Bank *Age	[0.000]	[0.002]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Test, H0: Non-bank GF=Bank	[0.571]	[0.865]	[0.900]	[0.609]	[0.464]	[0.626]	[0.032]	[0.000]
Test, H0: Non-bank GF*Age =Bank *Age	[0.879]	[0.434]	[0.550]	[0.185]	[0.036]	[0.173]	[0.567]	[0.895]
Test, H0: Non-GF=Bank	[0.028]	[0.273]	[0.015]	[0.098]	[0.006]	[0.003]	[0.845]	[0.000]
Test, H0: Non-GF*Age =Bank *Age	[0.138]	[0.730]	[0.112]	[0.505]	[0.075]	[0.236]	[0.187]	[0.000]
Test, H0:PortfolioYield+PortfolioYield*Bank GF=0							[0.185]	[0.175]
Test, H0:PortfolioYield+PortfolioYield*Non-bank GF=0							[0.634]	[0.463]
Test, H0:PortfolioYield+PortfolioYield*Bank=0							[0.011]	[0.003]
Test, H0:Capital cost ratio+Cap*Bank GF=0							[0.184]	[0.171]
Test, H0:Capital cost ratio+Cap*Non-bank GF=0							[0.020]	[0.000]
Test, H0:Capital cost ratio+Cap*Bank=0							[0.707]	[0.270]
Test, H0:Operating cost ratio+Ope*Bank GF=0							[0.001]	[0.027]
Test, H0:Operating cost ratio+Ope*Non-bank GF=0							[0.020]	[0.000]
Test, H0:Operating cost ratio+Ope*Bank=0							[0.000]	[0.000]
Unique # of Bank greenfields (Total observation)	16(38)	16(38)	16(38)	16(38)	16(38)	16(38)	16(38)	16(38)
Unique # of Non-bank greenfields (Total observation)	9(28)	5(20)	9(28)	5(20)	9(28)	5(20)	9(28)	5(20)
Unique # of Non-greenfields (Total observation)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)	3(11)
Country-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes

Table 8. Yield and Cost ratios: Bank greenfields, Non-bank greenfields & Non-greenfields

P-values are in brackets. *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively. All models are estimated via two methods: ordinary least squares (OLS) and OLS models with country-year dummies (2006-2011). Standard errors allow for clustering at the country level. Top 5% of observations for Operational Self-Sufficiency are dropped as outliers. The omitted category for MFI organizational type is a combined category containing credit union / coops, NGOs, non-bank financial institutions (NBFIs) and rural banks. Though we do not present the coefficients to conserve space, all models include all of the following controls; log of MFI's total asset values, inflation rate (CPI) and annual GDP growth rate. All status dummies are mutually exclusive. That is, if bank, cu-coop, NGO, NBFI or rural bank dummy = 1, then Bank greenfields, Non-bank greenfields and Non-greenfields dummy=0. The countries where Bank greenfields operate are: Cote d'Ivoire, Cameroon, Democratic Republic of the Congo, Ghana, Liberia, Madagascar, Nigeria, Mozambique, Senegal, Sierra Leone, Tanzania and Zambia. Benin, Kenya, and Rwanda are included among the set of overlapping countries because IFC has an investment in a non-greenfield institution in each of those countries.

Yield and Cost ratios

Dependent Variable	Portfolio yield (Nominal)				Capital costs / Assets				Operating costs / Assets			
Samples	All African countries		Overlapping countries		All African countries		Overlapping countries		All African countries		Overlapping countries	
Model	OLS	Country-Year	OLS	Country-Year	OLS	Country-Year	OLS	Country-Year	OLS	Country-Year	OLS	Country-Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank greenfields	0.4678**	0.4723*	0.4466*	0.476	-0.0147*	-0.0129*	-0.012	-0.014	0.038	0.034	0.015	-0.015
	[0.047]	[0.068]	[0.073]	[0.158]	[0.053]	[0.087]	[0.115]	[0.134]	[0.520]	[0.637]	[0.827]	[0.825]
Non-bank greenfields	0.3051***	0.075	0.3093***	0.137	0.003	-0.007	-0.001	-0.010	0.1041*	0.022	0.1255**	0.080
	[0.010]	[0.536]	[0.002]	[0.157]	[0.814]	[0.566]	[0.972]	[0.456]	[0.066]	[0.782]	[0.044]	[0.232]
Non-greenfields	-0.0766*	-0.0781***	-0.067	-0.029	-0.0125***	-0.0124***	-0.0076*	-0.0105***	0.005	0.000	-0.007	0.006
	[0.058]	[0.002]	[0.163]	[0.264]	[0.001]	[0.000]	[0.092]	[0.004]	[0.840]	[0.991]	[0.824]	[0.673]
Bank dummy	0.3292*	0.266	0.174	0.041	0.0194*	0.021	0.017	0.016	0.084	0.018	0.046	-0.083
	[0.051]	[0.118]	[0.118]	[0.744]	[0.058]	[0.145]	[0.340]	[0.516]	[0.164]	[0.770]	[0.525]	[0.381]
Age of MFI	-0.001	-0.001	0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000
	[0.527]	[0.503]	[0.787]	[0.540]	[0.256]	[0.281]	[0.731]	[0.425]	[0.841]	[0.932]	[0.707]	[0.772]
Bank greenfields*Age of MFI	-0.071	-0.0802*	-0.069	-0.0853*	0.0062***	0.0058**	0.0067***	0.003	-0.012	-0.013	-0.010	-0.007
	[0.124]	[0.098]	[0.192]	[0.082]	[0.002]	[0.017]	[0.004]	[0.214]	[0.386]	[0.479]	[0.455]	[0.769]
Non-bank greenfields*Age of MFI	-0.0203***	-0.003	-0.0179***	-0.005	-0.001	0.000	-0.001	0.000	-0.0050*	0.000	-0.0061**	-0.002
	[0.007]	[0.639]	[0.000]	[0.369]	[0.143]	[0.568]	[0.380]	[0.600]	[0.098]	[0.963]	[0.039]	[0.608]
Non-greenfields*Age of MFI	0.0034**	0.002	0.003	-0.0026***	0.0007***	0.0009***	0.0007***	0.0009**	0.001	0.000	0.001	0.000
	[0.041]	[0.127]	[0.129]	[0.003]	[0.000]	[0.000]	[0.003]	[0.012]	[0.467]	[0.916]	[0.227]	[0.820]
Bank dummy*Age of MFI	-0.0138*	-0.0156*	-0.009	-0.006	-0.0015***	-0.0017**	-0.001	-0.001	-0.002	-0.001	-0.001	0.004
	[0.100]	[0.059]	[0.100]	[0.312]	[0.005]	[0.026]	[0.173]	[0.281]	[0.540]	[0.567]	[0.762]	[0.264]
Observations	863	863	453	453	863	863	453	453	863	863	453	453
R-squared	0.153	0.388	0.191	0.352	0.026	0.259	0.030	0.262	0.143	0.456	0.197	0.494
Adjusted R-squared	0.141	0.267	0.169	0.206	0.012	0.112	0.004	0.096	0.130	0.349	0.175	0.380
Unique # of countries	36	36	15	15	36	36	15	15	36	36	15	15
Test, H0: Bank-GF=Bank dummy	[0.617]	[0.467]	[0.300]	[0.192]	[0.003]	[0.024]	[0.124]	[0.221]	[0.486]	[0.785]	[0.655]	[0.312]
Test, H0: Bank-GF *Age =Bank dummy*Age	[0.221]	[0.184]	[0.269]	[0.115]	[0.000]	[0.004]	[0.002]	[0.084]	[0.452]	[0.519]	[0.508]	[0.628]
Test, H0: Non-bank GF=Bank dummy	[0.885]	[0.270]	[0.047]	[0.265]	[0.302]	[0.176]	[0.511]	[0.382]	[0.675]	[0.951]	[0.030]	[0.045]
Test, H0: Non-bank GF*Age =Bank dummy*Age	[0.482]	[0.143]	[0.087]	[0.781]	[0.566]	[0.071]	[0.633]	[0.245]	[0.220]	[0.713]	[0.055]	[0.059]
Test, H0: Non-GF=Bank dummy	[0.018]	[0.044]	[0.016]	[0.543]	[0.002]	[0.025]	[0.165]	[0.294]	[0.131]	[0.721]	[0.336]	[0.291]
Test, H0: Non GF*Age =Bank dummy*Age	[0.039]	[0.038]	[0.024]	[0.525]	[0.000]	[0.001]	[0.034]	[0.069]	[0.329]	[0.472]	[0.443]	[0.191]
Unique # : Bank greenfields (Total observation)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)	17(43)
Unique # of Non-bank greenfields (Total observation)	9(25)	9(25)	5(16)	5(16)	9(25)	9(25)	5(16)	5(16)	9(25)	9(25)	5(16)	5(16)
Unique # of Non greenfields (Total observation)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)	2(10)
Country-Year Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Appendix. Definitions and Summary Statistics

Top 5% observations (above 95 percentile) for the variables used as dependent variable in the regression (Average loan size / per capita GNI, Operational Self-Sufficiency, Portfolio at Risk >30days, Log of Gross Loan Portfolio and Log of Deposit Volume) are dropped as outliers respectively.

Variable Name	Level	Definition	Obs#	Mean	Median	Min	95 percentile	Max	St. Dev.
Average loan size / per capita GNI (0.01=1%)	MFI	Average loan size relative to Gross National Income (GNI) per capita	889	0.94	0.50	0.01	3.13	16.22	1.37
% of Women borrowers (0.01=1%)	MFI	Number of Active Borrowers who are women / Number of Outstanding Loans	774	0.61	0.62	0.01	1.00	1.00	0.25
Operational Self-Sufficiency (0.01=1%)	MFI	Ratio greater than one if institution generates sufficient revenue to cover its cost. OSS=Financial Revenue / (Financial Expense + Impairment Losses on Loans +Operating Expense).	910	1.09	1.08	0.00	1.73	5.22	0.39
Return on Assets (0.01=1%)	MFI	Profit losses after tax / Total assets	903	-0.01	0.02	-0.85	0.11	0.60	0.12
Portfolio at Risk >30days (0.01=1%)	MFI	The value of all loans outstanding that have one or more installments of principal past due more than 30 days. This includes the entire unpaid principal balance, including both the past due and future installments, but not accrued interest. It also includes loans that have been restructured or rescheduled (definition derived from MIX market Glossary 2012).	860	0.08	0.05	0.00	0.24	1.00	0.10
Log of Gross Loan Portfolio (US$)	MFI	Log form of gross loan portfolio outstanding	910	15.17	15.00	9.23	18.20	21.17	1.81
Log of Deposit Volume (US$)	MFI	Log form of deposit volume	724	14.43	14.41	7.10	18.22	20.89	2.26
Portfolio yield (Nominal) (0.01=1%)	MFI	Nominal yield on gross portfolio: (Interest Income from Loans + Fee Income from Loans + Income from Penalty Fees) / Gross Loan Portfolio	910	0.39	0.33	0.03	0.78	5.37	0.27
Capital costs / Assets (0.01=1%)	MFI	Financial expense / Total assets	910	0.03	0.02	0.00	0.08	0.39	0.03
Operating costs / Assets (0.01=1%)	MFI	Operating expense / Total assets	910	0.20	0.14	0.02	0.49	1.01	0.15
Log of MFI's total asset values	MFI	Log form of total assets	910	15.67	15.54	10.50	18.67	21.45	1.76
Inflation rate (CPI)	Country	Inflation rate (consumer price index) derived from World Development Indicator (WDI)	910	10.75	8.96	-8.97	19.25	728.67	34.50
Annual GDP growth rate	Country	Annual GDP growth rate derived from World Development Indicator (WDI)	910	5.82	6.02	-4.13	11.46	22.59	3.12
Age of MFI	MFI	Current fiscal year - established year (or a year of first loan disbursement)	910	11.09	10	0	25	59	7.98
Bank greenfields dummy	MFI	Dummy equal to one if the institution is IFC's client and Greenfield	910	0.05	0	0	0	1	0.21
Non-bank greenfields dummy	MFI	Dummy equal to one if the institution is NOT IFC's client, but Greenfield	910	0.03	0	0	0	1	0.18
Non-greenfields	MFI	Dummy equal to one if the institution is IFC's client, but NOT Greenfield	910	0.01	0	0	0	1	0.10
Bank dummy	MFI	Dummy equal to one if the institution is commercial bank in MIX dataset.	910	0.06	0	0	1	1	0.23
Cu-coop dummy	MFI	Dummy equal to one if the institution is credit union & coop in MIX dataset.	910	0.17	0	0	1	1	0.38
NGO dummy	MFI	Dummy equal to one if the institution is NGO in MIX dataset.	910	0.38	0	0	1	1	0.49
Non-bank financial institution (NBFI) dummy	MFI	Dummy equal to one if the institution is non-bank financial institution in MIX dataset.	910	0.25	0	0	1	1	0.44
Rural bank dummy	MFI	Dummy equal to one if the institution is rural bank in MIX dataset.	910	0.05	0	0	0	1	0.21