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# The exposure of microfinance institutions to financial risk<sup>☆,☆☆</sup>

Thomas Gietzen\*

KfW Development Bank, Evaluation Department, Palmengartenstrasse 5-9, 60325 Frankfurt am Main, Germany

## Abstract

This study examines the exposure of microfinance institutions to liquidity-, interest rate and foreign exchange (FX) risk. Using manually collected data from microfinance institutions' financial reporting, I find that the microfinance sector faces minimal liquidity risk, high interest rate risk and a lower than commonly assumed exposure to FX risk. Linking risk exposure to institutional characteristics, the data shows that legal status and regional affiliation are correlated with risk exposure while regulatory quality is not. Results suggest that the development community may not expect large benefits from expanding the plethora of current measures taken to mitigate liquidity or FX risk.

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## 1. Introduction

Modern microfinance that targets its activities to groups otherwise barred from formal financial services, has been widely accepted as a viable business model. After the very successful initial years, the microfinance community had even come to believe that microfinance is resilient to most traditional risks in banking thanks to its unique business model (Winkler and Wagner, 2012). However, a recent concourse of crises – for example in Bosnia and Herzegovina (2008), Pakistan (2008–09) and India (2010) – has brought down this level of optimism. In response, international donors and investors have made available large sums of money trying to mitigate the sector's exposure to financial risks. For example, in an attempt to reduce exposure to foreign currency fluctuations, development finance institu-

tions (DFIs) have created methods of local currency borrowing for microfinance institutions (MFIs). DFIs have also installed multi- million Dollar facilities that provide funds to MFIs in a liquidity crisis.<sup>1</sup>

Financial risks are of great concern in the standard banking literature but have gained little attention from the research community in microfinance up to now. From the commercial banking sector we know that a high exposure to financial risks depresses lending and reduces financial stability. High liquidity risk exposure of commercial banks led to a significant reduction in credit supply in the aftermath of the financial crisis in 2008 (Cornett et al., 2011) and the liquidity dry-up had to be met by massive public injections of liquidity into the financial markets. Similarly, a banking sector that is greatly exposed to foreign currency risk may exacerbate financial crises and risk exposure may be detrimental to credit supply in crisis times, as happened during the East-Asia crisis in the 90s (McKinnon

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\* Correspondence to: KfW Development Bank, Evaluation Department, Palmengartenstrasse 5-9, 60325 Frankfurt am Main, Germany.

E-mail address: [Thomas.Gietzen@kfw.de](mailto:Thomas.Gietzen@kfw.de)

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<sup>1</sup> An example concerning FX risk is the TCX fund that provides instruments to hedge FX risk and spans 70 primarily small currencies ([www.tcfund.com](http://www.tcfund.com)). Another is the African Local Currency Bond Fund ([www.alcbfund.com](http://www.alcbfund.com)) that promotes local currency borrowing for African MFIs. Regarding liquidity risk, the donor community has for example established the Microfinance Enhancement Facility, which is a 500 million US Dollar facility aimed at supporting MFIs facing liquidity shortages in the wake of the 2008 financial crisis ([www.mef-fund.com](http://www.mef-fund.com)).

and Pill, 1998). Landier et al. (2013) show that credit supply of banks that are exposed to more interest rate risk reacts stronger to changes in the market interest rates, potentially increasing the volatility of lending. Therefore, DFIs hope that mitigating financial risks in the microfinance sector will enhance stability, help MFIs to increase lending activities or at least help them to maintain outreach in crisis times. Yet, up to now, no study exists that has quantified the exposure of the microfinance sector to financial risks.<sup>2</sup> Currently, much of the money used to mitigate financial risk in the sector is spent based on little more than anecdotal evidence.

This study seeks to fill this void and investigates to what extent the microfinance sector is exposed to financial risks and whether the money spent by DFIs on risk mitigation in the sector is being used efficiently. I use a new hand-collected data set on the maturity structure of assets and liabilities and FX positions from MFIs' financial reporting files and quantify the exposure of MFIs to three financial risks, liquidity risk, interest rate risk and foreign exchange (FX) risk. To do so, I construct simple measures of financial risk from publicly available and audited financial reporting data of MFIs and compare the risk exposure to similar measures from the commercial banking sector. My base sample consists of the 309 largest MFIs in 2011 (about half of which report details on their exposure to the risks I study).

The results show that MFIs, other than commercial banks, are only exposed to a minimal level of liquidity risk. MFIs' short-term assets ( $\leq 30$  days) surpass short-term liabilities threefold on average (a negative level of maturity transformation). That means that much of the sector's long-term funding is translated into short-term lending or investment in liquid assets like government bonds. Furthermore, even the MFIs with the lowest liquidity coverage are, compared to the commercial banking sector, in a comfortable liquidity position. At the same time, interest rate risk exposure of MFIs is substantial and larger than that of commercial banks. The average difference between interest repricing assets and liabilities over a one-year horizon is 27% of total assets. My results also show that average exposure to FX risk is lower than most market observers tend to believe. Low FX risk exposure is the result of counterbalancing asset and liability positions. MFIs fund a considerable share of their assets with FX liabilities (28%), but the average share of FX assets also stands at 28% and offsets a large amount of exposure to FX funding. Using a conservative measure of FX risk, MFIs are only exposed to an average total difference between their foreign currency assets and liabilities (Net Open Position) of 4.5% of total assets.

Overall, results on the total risk exposure of MFIs suggest that liquidity or FX risk do not constrain the microfinance sector. This means that, while an extension of risk mitigation measures targeted towards FX or liquidity risk may be useful to support a few single MFIs, they are unlikely going to result in significantly more loans or longer-term loans extended to microfinance borrowers. The results also suggest that the sector is not prone

to a sudden liquidity dry-up in crisis times. Furthermore, interest rate risk seems to be underrepresented in the microfinance risk mitigation strategy of the international community, as it is substantially larger than that of the commercial banking sector. This also shows that measures to strengthen the microfinance sector in developing countries should be more firmly based on quantitative evidence to target risks that actually constrain MFIs' lending or endanger the sector's stability.

Naturally, the international investor and donor community is also concerned about the interplay of risk exposure with an MFI's legal status and the regulatory environment, because those are two key policy variables. The evidence on whether the exposure of MFIs to financial risks is affected by regulation and an MFI's legal status is limited. Klomp and de Haan (2015), using a large sample of banks in 94 developing and emerging economies, show that stricter capital requirements and supervisory control mitigate risk taking of financial institutions (measures by the Z-Score). In terms of legal status, practitioners frequently advocate the transformation of non-private MFIs and NGOs into private shareholder-owned firms (Mersland and Strom, 2008). This is at least partly due to the belief that shareholder-owned firms feature a superior ability to manage risk. Another strand of literature studies the effects of regulation and legal status on outreach and performance of MFIs. These studies hint at a limited impact of both the regulatory framework and the legal status. Mersland and Strom (2009) (using a data set of MFI ratings) and Hartarska and Nadolnyak (2007) (using financial reporting data) both conclude that regulation does not affect outreach and financial performance. Mersland and Strom (2008) find only small differences between private, shareholder-owned firms and non-profit institutions in terms of social orientation and performance.

I link my results on financial risk exposure to the MFIs' legal statuses and quality of the local regulation to contribute to the discussion about which institutional features of MFIs are suitable to attain social outreach while at the same time containing risk. Results show that the strength of local regulation plays no role in determining exposure to financial risks. An MFI's legal status, however, does correlate with the exposure to liquidity and FX risk. Banks in the microfinance sector face higher liquidity risk than Non-Banking Financial Institutions (NBFIs) and the effect cannot be fully explained by their larger share of funding via deposits. NGOs, Credit Unions and Cooperatives are exposed to more FX risk, although their share of funding via FX liabilities is lower, which suggests an inferior ability to mitigate FX risk. An interesting side result is that regional affiliation is highly correlated with levels of risk exposure.

## 2. Theory and hypotheses on risk exposure

According to the Basel Committee on Bank Supervision (BCBS, 2008), liquidity risk is the risk that a financial institution (FI) is unable to meet its immediately outstanding obligations. For example, an FI is exposed to liquidity risk whenever it needs to raise more cash to repay its creditors than is inflowing from maturing loans or can be raised immediately by selling assets. Liquidity risk is inherent to banking because banks trans-

<sup>2</sup> Abrams and Prieur (2011) is one exception, being an analysis of FX risk from the practitioner community.

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