



Identify, Quantify, and Manage FX Risk

A Guide for
Microfinance
Practitioners

Identifying Risk Exposure

Although hard currency loans may appear to be a relatively cost-effective and an easy source of funding to MFIs operating in local currency, they also create foreign exchange exposure by creating a currency mismatch. *Currency mismatches* occur when an MFI holds assets (such as microloans) denominated in the local currency of the MFI's country of operation but has hard currency loans, usually U.S. dollars (USD) or euros (EUR), financing its balance sheet.

Currency mismatch creates a situation where an unexpected depreciation of the currency can dramatically increase the cost of debt service relative to revenues. Ultimately, this can:

- leave the MFI with a loss of earnings and of capital,
- render the MFI less creditworthy and force it to hold higher levels of capital relative to its loan portfolio,
- reduce ROE,
- limit the MFI's ability to raise new funding.

Currency risk is typically aggravated when additional risks are added:

- **Interest rate risk:** When borrowing in foreign/hard currency is indexed to a reference rate (such as LIBOR for the Dollar and EURIBOR for the Euro) resulting in exposure to movements in interest rates as well as foreign exchange rates.
- **Convertibility risk:** The risk that the national government will not sell foreign currency to borrowers or others with obligations denominated in hard currency.
- **Transfer risk:** The risk that the national government will not allow foreign currency to leave the country regardless of its source.
- **Credit Risk:** MFIs in many cases seek to avoid currency mismatch by on-lending to their micro-entrepreneur clients in hard currency so as to match the assets and liabilities on their balance sheets. Setting aside the morally questionable practice of passing risk down to the most vulnerable link in the value chain, this approach in many cases simply hides the risk rather than eliminating it. In the event of devaluation or depreciation, the MFI is likely to have the currency risk it passed on come back in the form of higher repayment risk, attendant defaults and a weakening of its credit portfolio.

Since MFIs operate in developing countries where the risk of currency depreciation is highest, they are particularly vulnerable to foreign exchange rate risk. Convertibility and transfer risks, although less common, also are important factors to consider. Data on credit deterioration in the event of devaluation is rather scant but will likely be more severe in the future as leverage increases.

Quantifying Risk Exposure

The example below shows how the servicing requirements on foreign currency debt obligations rise dramatically for local currency operators if there is depreciation or devaluation of the local currency. Likewise, gains result if the reverse were true.

Example: Changes in the value of a USD Loan for an Ethiopian based MFI
Ethiopian Currency: Birr (ETB)

USD/ETB Exchange rate at the beginning of the loan	1 USD:10 ETB
Hard Currency Loan (Interest Only) Amount in USD\$	USD 1,000,000.00
MFI Debt Obligation in Local Currency	ETB 10,000,000.00
Loan Term	3 years
Fixed Interest Rate	10%
Frequency of Interest Payments	Annual

Case A: Annual depreciation of 10% for 3 years

	MFI Debt (in USD)	Interest Payments (in USD)	Exchange Rate	MFI Debt (in ETB)	Interest Payments (in ETB)
End Year 1	USD 1,000,000.00	USD 100,000.00	1:1100	ETB 11,000,000.00	ETB 1,100,000.00
End Year 2	USD 1,000,000.00	USD 100,000.00	1:1210	ETB 12,100,000.00	ETB 1,210,000.00
End Year 3	USD 1,000,000.00	USD 100,000.00	1:1331	ETB 13,310,000.00	ETB 1,331,000.00

If the Ethiopian Birr loses its value at a steady rate of 10 percent annually, by the time the loan matures, ETB 13.31 million will be needed to pay back the USD 1 million principal, which is an increase of 21 percent. Similarly, due to depreciation, the original fixed interest rate on the loan of 10 percent per annum has effectively increased to 21 percent.

The depreciation effectively adds 11 percent to the interest rate, an increase of more than 100 percent over the original fixed nominal interest rate of 10 percent.

Case B: 300% devaluation after 1 year

	MFI Debt (in USD)	Interest Payments (in USD)	Exchange Rate	MFI Debt (in ETB)	Interest Payments (in ETB)
End Year 1	USD 1,000,000.00	USD 100,000.00	1:100	ETB 10,000,000.00	ETB 1,000,000.00
End Year 2	USD 1,000,000.00	USD 100,000.00	1:300	ETB 30,000,000.00	ETB 3,000,000.00
End Year 3	USD 1,000,000.00	USD 100,000.00	1:300	ETB 30,000,000.00	ETB 3,000,000.00

If the value of the Ethiopian Birr collapses due to a devaluation from USD1:ETB10 to USD1:ETB30 at the end of the first year of the loan, then by the time the loan matures, ETB 30 million will be needed to pay back the USD 1 million principal, an increase of 300%. Similarly, due to devaluation, the original fixed loan rate of 10% has effectively increased to 59%.

The devaluation effectively adds 49 percent to the interest rate, an increase of more than 400 percent over the original fixed nominal interest rate of 10 percent

Managing Risk Exposure

Before choosing a method for mitigating currency risk, a borrower or lender should assess its tolerance for variability in earnings and adopt a strategy for managing currency risk consistent with its overall risk policy. An example of a Foreign Exchange Risk Management Policy may be to set a maximum numerical limit on the level of depreciation or devaluation in the exchange rate that could be absorbed by the MFI's equity. A formula often used to calculate the foreign currency exposure of an MFI's balance sheet is:

$$FX\text{Exposure} = \frac{(FX\text{Assets} - FX\text{Liabilities})}{Total\text{Equity}}$$

Convertibility risk and transfer risk can be included in the calculation by adding probability factors on scenarios such as likelihood of financial regime change.

Once a foreign exchange exposure limit is determined, exposures above that limit can be managed using hedge products and other tools. There are two basic methods to manage foreign exchange risk.

- Use derivatives such as **MFX Hedging Products**.
- Use various **non-derivative alternatives** for mitigating currency risk such as back-to-back lending, letters of credit, indexation of loans to hard currency.

An example of a risk management strategy using a combination of the above methods could be to leave 15% of the total debt obligations un-hedged and use the spot market for transactions. Another 25% of the total debt obligations of the MFI may use available loan structuring alternatives to reduce foreign exposure. The final 60% of the exposure may be hedged using various derivative products such as forward contracts and cross-currency swaps. An effective risk management strategy can reduce foreign exchange exposure and provide more flexibility while reducing the cost associated with hedging. As noted, passing on currency risk to the micro-entrepreneur borrower is not an effective currency risk mitigation strategy.