2016

The Hedging Process

a step–by–step guide

MFX MICROFINANCE CURRENCY RISK SOLUTIONS

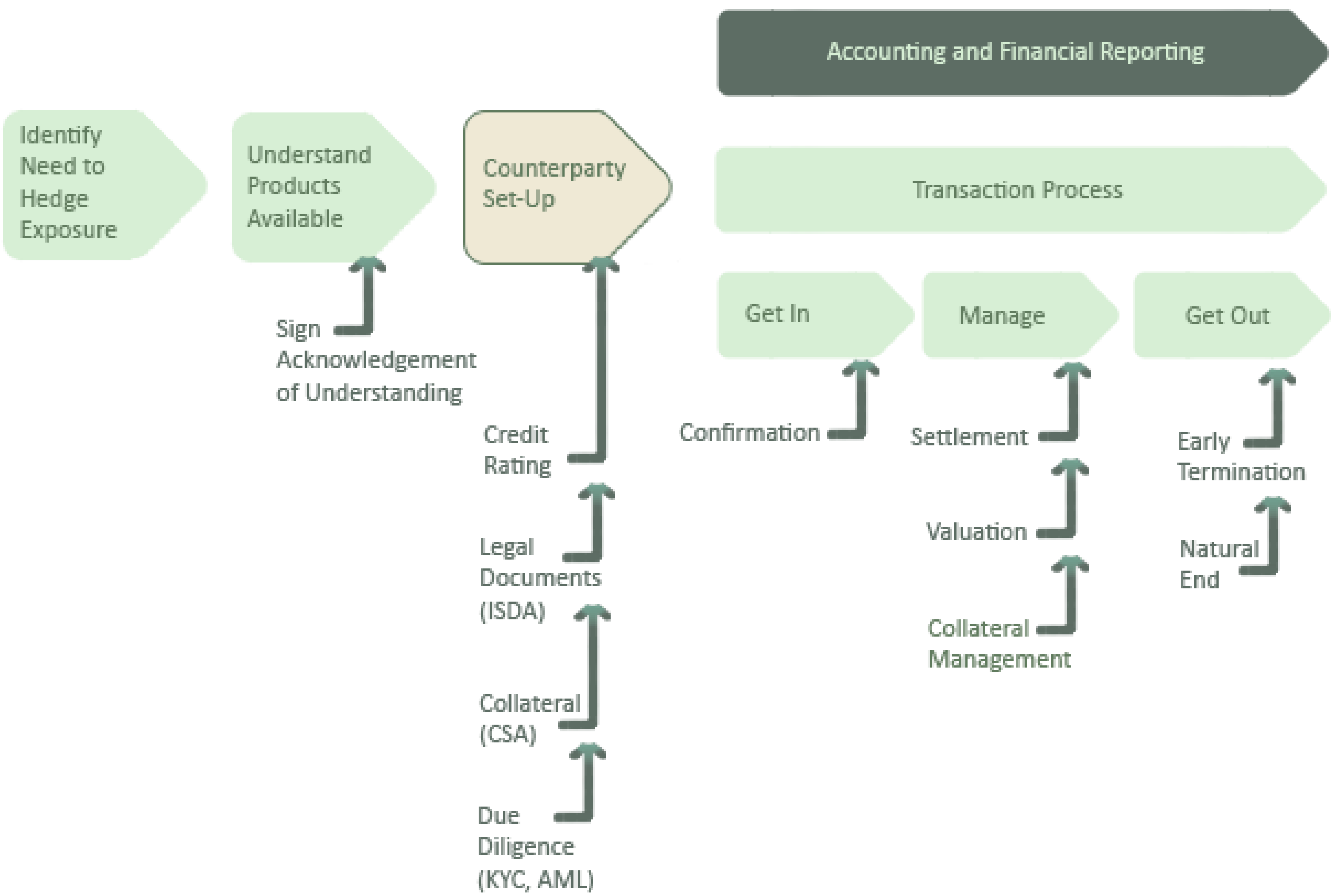
Hedging

An overview

What is hedging? Why would a business need it? How would it help mitigate risks? How would one be able to get started with it? How can MFX help? Everything it entails can be summarized in a concise, yet detailed step-by-step process. There are several key steps a company must follow in order to go through with this process and benefit. Let the simple flow chart below direct you as you read through this guide.

Key Steps to the Hedging Process

A flowchart to follow



Why would you need hedging?

Identify need to hedge exposure

Hedging using derivatives is a common and popular method for managing different kinds of risk for all different kinds of business. However, before going down the path of contracting a hedge, it is important to understand exactly what risk your institution faces. Without fully understanding how your financial position will react to changes in the risk factors you are trying to hedge, there is a risk that entering into a derivative contract could add additional risk of different kinds of risk than you currently face. It is important to think about other risk factors other than the one you are hedging that could affect the hedge. For example, how certain are you of the cash flows you are trying to hedge? Are you hedging balance sheet or cash risk? Are there natural hedges in other parts of your business that offset the risk you are trying to hedge? MFX's team can help you consider the decision to hedge, but the client is responsible for assessing its risk and the appropriateness of hedging it.

Understanding Products

Understand products available

Once you understand your risk, you are in a position to consider different hedging products to find the one that best suits your situation and risk profile. We offer several different options that can be customized to fit our clients' needs. Below is an explanation of the basic products we offer. It is important that the client fully understand the hedging products it is considering and our team is happy to provide detailed explanations of all aspects of these products. Prior to signing the contract documents, we will ask you to sign a document acknowledging that you have fully understood the products being offered and considered their suitability for your situation.[1]

MFX Products

Currency Forward Contracts:

What is a forward?

In the Foreign Exchange market, a forward is a contract that locks in the price at which an entity can buy or sell a currency on a future date. A forward can be used to hedge the exposure to foreign exchange in a loan when the client only wants to protect principal repayments. Forwards are quoted as a future exchange rate or as points above the current spot rate.

[1] *See ACKNOWLEDGEMENT & IMPORTANT NOTICES under required documents*

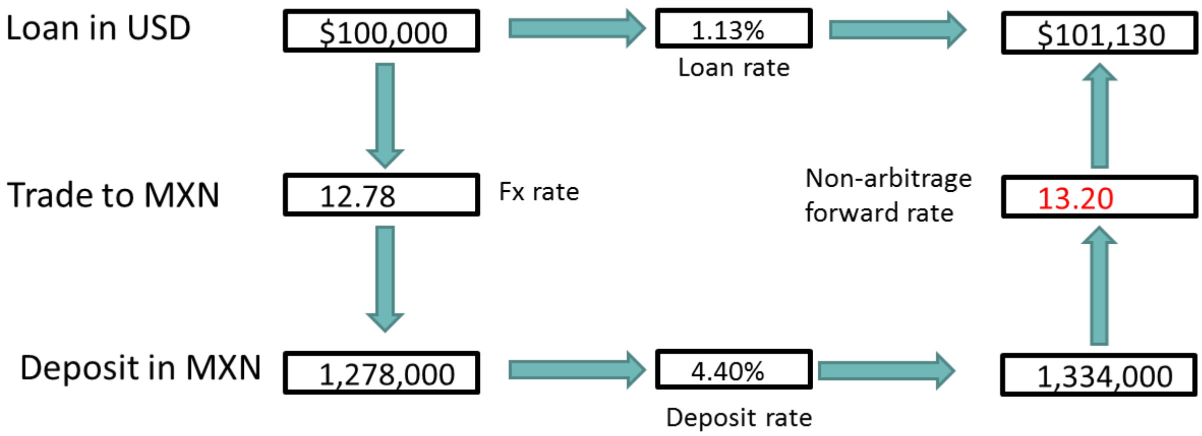
How are the prices of forwards determined?

The Currency Forwards Market is entirely based on the **Theory of Rate Parity**

- Interest rate parity is a non-arbitrage condition which says that the returns from borrowing in one currency, exchanging it for another, investing it and exchanging it back at the end of the holding period, should be equal to the returns from purchasing and holding similar interest-bearing instruments of the first currency.

In other words, interest rate parity says that the forward price of a currency must reflect the interest rate differential between the two currencies.

EXAMPLE



As this example shows, the forward rate is determined as the rate at which the funds changed into the second currency and deposited must be re-exchanged into the base currency for the two scenarios to be equal.

How is the value of the forward determined over the course of the contract?

The client will receive a weekly report that will show the value of the forward. On day one of the contract, the value will be zero. However, as the spot rate and the interest rate differential change, the value of the forward contract will move in favor of one of the counterparties. This is the Mark-to Market (MTM) of the contract. The MTM essentially captures the difference between the forward price as determined by interest rate parity using current spot and interest rates vs. the forward price set at the beginning of the contract. It is also the value (excluding any fees) at which a contract would be closed out if the client wanted to exit early. Generally the weaker the local currency and the wider the interest rate differential compared to those prevailing at the time the trade was initiated, the more the contract will be in the client's favor.

How are forwards settled?

We offer only non-deliverable contracts, which means that there is no physical exchange of currency and the contract is settled in a single payment in dollars on the expiration date of the contract. The payment is determined by comparing the spot rate to the forward rate on the expiration date. If the spot rate is higher (i.e. the local currency is weaker) than the forward rate, then the client will receive a payment. This payment will compensate for losses being incurred on the loan being hedged. If the local currency is stronger than the forward rate then the client will owe on the contract.

Cross Currency Swaps:

In a cross currency swap, the parties exchange a stream of cash flows in one currency for a stream of cash flows in another. The typical cross currency swap involves the exchange of both recurring interest and principal repayments and thus can fully cover the risk of a loan transaction. Conceptually, cross currency swaps can be viewed as a series of forward contracts packaged together. We offer "non-deliverable", i.e. , where the local currency flow is converted to hard currency terms at settlement and only a net payment is made.

Types of Swaps-

MFX offers the following different types of swaps. The appropriate swap for the client is determined by the terms of the loan being hedged and whether the client wants to hedge all or part of its currency risk:

1) **Fixed-for-Fixed rate swap**: This swap mirrors the terms of the most common types of loans to MFIs and both sides pay and receive a fixed rate.

2) **Fixed-for-Floating rate swap**: Here one party pays a fixed rate but receives a rate based on a floating benchmark rate (ex: LIBOR, EURIBOR, local T-bill rate). The floating rate can simply be the benchmark or can include a fixed % above the benchmark (ex: Libor+ 2.5%). The fixing of the rate is set out in the hedge confirmation

3) **Floating-for-Float rate swap**: Here both rates being swap are floating. If it is just an exchange of benchmark rates then it is called a basis swap. Floating rate swaps can be "cheaper" (i.e. a lower differential) because interest and spot rates often compensate for each other. For example, when a currency depreciates, interest rates often rise and vice versa.

How are the prices of Cross currency swaps determined?

Swap pricing is very similar to forward pricing. For swaps, each leg (cashflow) of the swap is considered independently. The net present value of each leg is determined by discounting the cashflows at the lowest available risk free rate for each of the tenors for both currencies. These are T-bills, bonds and other emissions of the governments or central banks of the country in question or interbank rates such as Libor. The idea is to calculate a rate of return (fixed or float) whereby market participants are indifferent between paying or receiving either leg. This is accomplished by setting the value of the swap equal to zero at inception.

Once the swap rate is set the using this method, the value of the swap will move based on changes in

i. The spot exchange rate
ii. The yield on Currency 1
iii. The yield on Currency 2

These changes determine the MTM on the swap.

FX Options:

In certain markets MFX can provide currency options. The buyer of the option has the right, but not the obligation, to buy (or sell) a currency at a specific price and date. These products can be useful in hedging transactions where cash flows are uncertain or where the lender wants to limit, but not eliminate exposure in exchange for a lower hedging cost. Options can be packaged into "range forwards" which allows the client to set a band of risk beyond which it is protected.

FX Option Types-

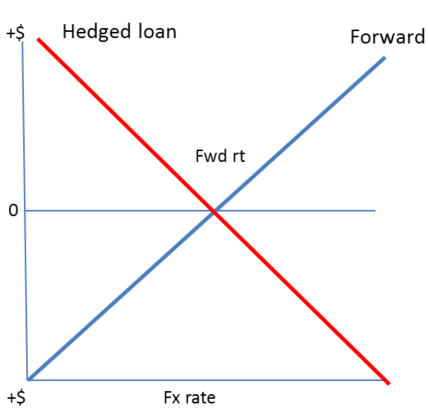
Call Option: This is an option where a buyer has the right but no obligation to buy a currency at a specified price during a specified period of time in the future. Using this option could ensure profit margin protection if exchange rate were to experience sustained weakness by maturity. Options require paying a premium up front. If the option is not exercised then there is no further obligation for the client on the contract. MFX offers only European Options which can be exercised only on the date of maturity.

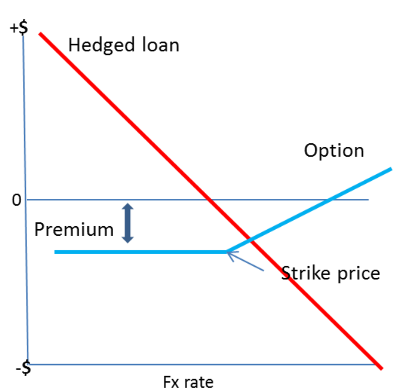
Range forward: This is a contract that combines buying a Call and selling a Put at different strike prices in a way that eliminates downside risk at a contracted point and gives up upside gain potential in return. Range Forwards can be structured with or without premiums. The product is useful for clients who can take some risk but want to hedge against large moves in the currency rate.

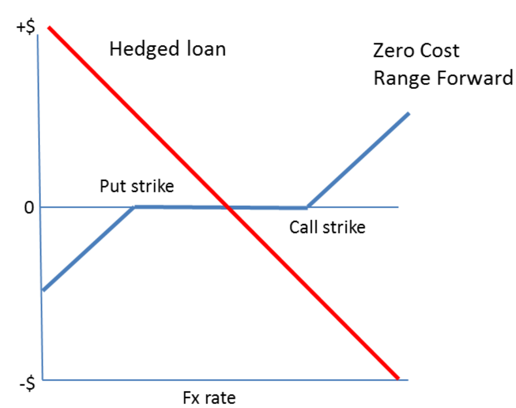
Option pricing is complex and is contingent upon:

- The spot rate
- Volatility of currency pair
- Foreign and domestic interest rate
- Time of maturity
- Strike price (Exercise price)

When comparing the payoffs of these different products, a Forward (or a Swap) will generally exactly mirror, either positively or negatively, the payoff on the underlying loan. An Option pays off only if the spot rate exceeds the strike price and the client benefits only if the amount received exceeds the cost of the premium. The range forward only compensates for foreign currency loses or gains outside of the thresholds determined by the Put and Call strike prices. Within that range, the client collects any foreign currency gains on the underlying loan or absorbs any losses.







The Set-Up Process

Counterparty setup

There are five main steps to setting up a hedging relationship:

- Determining the counterparty
- Credit review
- The ISDA Master Agreement and Schedule
- The CSA (collateral agreement)
- Providing due diligence information and documents for KYC and AML

Determining the Counterparty

MFX and TCX work in partnership. TCX is the ultimate carrier of exotic currency risk and MFX acts as a market intermediary and facilitator for the MSME market. The hedge counterparty relationship can be structured either directly between the client and TCX or with MFX and the client as counterparties. While terms are roughly the same, depending on the currency being hedged, the credit profile of the client and the structure of the transaction, one approach may make more sense. Our team will explain the options so you can make the proper choice.

Credit Review

We require basic credit information on clients in order to enter into a hedge.

- For fund clients, MFX requires a credit review to be carried out by one of our external partners, Luminis or Microfinanza. This is a desk study which yields an unofficial rating that MFX uses to set counterparty exposure limits. The rating does not affect the pricing that MFX quotes the client. The cost of this review is $6000 and is borne by the client.
- For financial institution clients (Banks, MFIs, NBFIs), we require a current rating either from a major rating agency (S&P, Moody's, Fitch) or from an established microfinance rating agency (MicroRate, Microfinanza, Planet Rating, or M-Cril). We also require 3 years of audited financials (or less if counterparty has been in existence for less than that period) and the 3 most recent unaudited quarterly management accounts.
- For clients who are firms borrowing from OPIC or another DFI, we do not require a separate rating but do require basic financial information. In addition, in order to be able to transact without collateral, a clause in the DFI loan agreement must explicitly assure that, in the event of a client default, all hedge costs are senior to the DFI creditor.

The International Swap Dealer Association Contract (ISDA)

The standardized ISDA contract was developed to bring uniformity to the swaps and derivatives market, provide certainty in interpretation, and keep legal costs under control. The basic ISDA contract has two parts:

- The 2002 ISDA Master Agreement is a 27 page standardized contract that is the same for all derivatives contracts. It covers the fundamental terms of the hedging relationship such as termination events, rights of the respective parties, dispute settlement terms and jurisdiction. MFX's ISDA's are all New York Law based. Broadly the ISDA Master is a balanced commercial document and as such any specific terms are typically incorporated into the ISDA Schedule.
- The ISDA Schedule is a shorter contract which sets out the specific terms that apply to the parties. It covers commercial terms that may be non-balanced, information that needs to be provided by both

parties, additional termination events and other information that the ISDA Master requires to be specified in the ISDA Schedule (e.g. Calculation Agent, Specified Entities, Netting Arrangements etc.).

Credit Support Annex (CSA)

The CSA is technically part of the ISDA contract and sets out the terms for collateral. Cash collateral is only required for financial institutions and DFI borrowers who can't provide seniority to hedge costs in their loan document. _In general, fund clients and OPIC/DFI borrowers will not be required to post collateral.

We use standardized collateral terms which makes the process simple to understand with no need for negotiation. The key terms in a collateral relationship are:

- Initial Collateral (also called the Independent Amount or Initial Margin): This the amount of USD cash that the client must put on deposit in the designated collateral account at the beginning of the contract. It is generally set as a percent of the notional amount of the hedge and is returned to the client upon completion of the contract.
- The Threshold Amount: This is the amount, if any, below which the MTM on the hedge can move against the client before it is required to put up additional collateral.
- Variable Margin: The collateral that is put up in addition to the Initial Margin to cover changes in MTM. These amounts can be returned to the client if the MTM moves back in favor of the client.
- Minimum Transfer Amount. This is the smallest amount that can be transferred either into or out of the collateral account. For example if the client falls $1 below the minimum collateral level (i.e. Initial Collateral – Threshold Amount) and the minimum transfer amount were 1% of notional, the client would have to transfer 1% of notional into the account. It would then have a buffer in the account against further changes in MTM. In the opposite case, the client could only withdraw funds from the collateral account when the excess exceeds the minimum transfer amount.

Basic collateral terms we offer:

Initial Collateral	5%
Threshold	1%
Minimum Transfer Amount	1% of notional

Due Diligence Documents

We require standard documentation for KYC and AML. The required information can be easily uploaded to the MFX customer portal interface. KYC and AML information (as specified below) needs to be updated for on-going monitoring by MFX. To upload documents please contact Patricia Cadilla at patricia@mfxsolutions.com.

Know Your Customer Documentation (KYC) & Anti-Money Laundering Documentation (AML)

Policy

- It is the policy of MFX to prohibit and actively pursue the prevention of money laundering and any activity that facilitates money laundering or the funding of terrorist or criminal activities.
- Money laundering is generally defined as engaging in acts designed to conceal or disguise the true origins of criminally derived proceeds.
- MFX complies with the Treasury Department's Office of Foreign Asset Control regulations prohibiting financial and other transactions with certain sanctioned countries and blocked persons, including transactions involving Cuba, Iran, North Korea, Sudan and Syria.

AML Compliance Officer

- Officer, Anmol Chandan, is responsible for the design, implementation and updating of the Policy as required; dissemination of information, training, investor identification reviews, record keeping and independent testing of Policy's operation.

Client Identification Program

- MFX will collect certain minimum identification information from each investor and utilize risk-based measures to verify identities.
- Information required prior to transacting and to facilitate the AML/KYC review, will at the minimum include:
    1. An executed United States Internal Revenue Service Form W-9. (If US based).
    2. An executed United States Internal Revenue Service Form W-8BEN. (if Non-US based)
    3. Legal Name, address and contact details of the entity which is 'Party B' to this contract, for notices or communications sent by MFX.
    4. Name, address, contact details and acceptance letter of your process agent in the US. (If Non-US based)
    5. Evidence of the due authorization by your company of the signatories to the ISDA Agreement, as well as a personnel list of officers authorized to execute trades and confirmations. (e.g. Board Resolution naming authorization to the signatory of the agreements)
    6. A copy of your three most recent audited financial statements and annual report.
    7. Constitution or similar legal document authorizing the ability to enter into derivatives.
    8. Certified copies of all corporate authorizations and any other documents with respect to the execution, delivery and performance of this Master Agreement.
    9. Credit Support Document: if an existing Credit Rating of the entity which is party to this contract exists, please provide MFX with a copy.
    10. List of Directors of the counterparty (together with addresses, country of residence and citizenship)
    11. List of all shareholders of the counterparty holding greater than 10% equity in the counterparty.
    12. If a subsidiary, the counterparty would also need to provide items 6, 10 and 11 for the ultimate parent company.

Some of the above documents would need to be notarized.

Checking the Office of Foreign Assets Control SDN and Other Restricted Party Lists

- Prior to transacting, MFX will verify that the person or entities provided above do not appear on OFAC's "SDN List" or any other restricted party list maintained by the U.S. Government as well as ensure that funds are not coming from a country subject to trade or financial sanctions and prohibitions.

Monitoring and Reporting Suspicious Activity

- MFX will monitor a sufficient amount of activity to permit identification of patterns of unusual size, volume, patterns or type of transactions.

Recordkeeping

- AML Compliance Officer is responsible for ensuring that AML records are properly maintained and that reports and other records are maintained for at least five years from the date that records were produced.

Training

- AML Compliance Officer will conduct training on an annual basis and determine the ongoing training requirements and ensure written procedures are updated as required.

Testing of the Policy

- Testing will be conducted by an outside independent third party as required by the Board of Directors.

Administration

- AML Compliance Officer is responsible for the administration, revision, interpretation and application of this policy.

Management Approval

- Approval required by investor.

Transacting a Deal

Transaction process to its natural end

Once the initial set up is in place, it is fairly simple to enter into a hedge contract. The actual trade is done by phone or email with the first confirmation of the terms of the trade coming in email form called the Pre-Confirmation (Pre-conf). At this point, the hedge initiation is complete and it moves on to hedge administration.

Confirmation

The first step in the hedge management process is the official confirmation. Clients will need to sign and return the official confirmation within two business days of the transaction. This confirmation supersedes all previous correspondence and pre-confirmations and becomes the official trade terms. Clients are therefore requested to review this in detail against the terms agreed over the phone and by e-mails.

Valuation

Once the trade is in place, you will begin to receive a weekly notice providing you with the MTM valuation of the hedge based on the most recent market data. The valuation can move either in favor of the client or against the client depending on the movement of the spot rate and the interest rate differential. The valuation is used to calculate whether any new collateral needs to be posted or whether collateral can be returned to the client. We are always happy show you the market data used to calculate the valuation.

Collateral management

Prior to closing the trade, the client will have deposited in the collateral account the Initial Collateral (5% of notional). Based on the changing valuation of the contract the client may either 1) be required to post additional variable margin or 2) may be able to withdraw cash from the collateral account. The client will receive a weekly Valuation Statement[2] which indicates the current status of the hedge including the initial collateral, variable margin posted, the minimum collateral amount that must be maintained, any additional required to be posted or excess collateral that can be withdrawn.

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[2] See Annotated Valuation Statement