OVERVIEW OF THE USE OF CROSS CURRENCY SWAPS

PRACTICAL CONSIDERATIONS

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AGENDA

1. BASICS

2. Pre-TRADE
   a. Prerequisites
   b. Operational infrastructure

3. SWAP EXECUTION
   a. Modeling
   b. Execution

4. Post-TRADE
   a. Collateral management
   b. Liquidity management
   c. Accounting considerations
What is a Swap?

• A swap is an exchange of one set of future cash flows for another.

• Cash flows are for a defined period of time and can be customized.

• Can be traded on exchanges or “Over-the-Counter”.

• Principal may or may not be exchanged.

• There are many different types of swaps.
  • Interest rate, currency, commodity, credit default,…etc.
Cross Currency Swap – a series of FX forwards

• Basic idea
  — Convert cash flow stream in one currency into another

• Type
  — Fixed-fixed
  — Fixed-floating
  — Floating-floating (XCCY Basis Swap)

• Principal exchange
  — Initial exchange (optional)
  — Final exchange (at maturity using spot FX at trade date)

• Main Benefits
  — Achieve the desired currency composition of the debt portfolio
  — Tap new markets/investors
  — Extend maturities
Application - Hedging Morocco’s Eurobond

Investors of Morocco’s 2022 USD global bond

Morocco

The Moroccan economy is linked to euro

USD

EUR

World Bank

EUR

USD

Market counterparty
Cross Currency Swap Cashflows

- **Initial exchange of principal amount**
  - Morocco receives USD 1,000 m.
  - WB receives EUR 753 m.

- **Interim exchange of interest**
  - Morocco pays USD 1,000 m with 4.25% interest.
  - WB pays EUR 753 m with 3.75% interest.

- **Final exchange of principal amount (same amount, no FX risk)**
  - Morocco repays USD 1,000 m.
  - WB repays EUR 753 m.
Swap Process Overview

Pre-trade

Internal Approvals
Legal Agreements (ISDA / CSA’s)
Infrastructure (swap model, systems, people, accounts)

Trade execution

Internal Modeling
Indicative quotes from dealers
Execution

Post-trade

Booking / Settlement
MtM Margining
Accounting considerations
Pre-Trade

- Prerequisites
- Operational Infrastructure
PRE-TRADE CONDITIONS

- Internal Approvals - does the DMO have internal authority to enter into derivative contracts?
- Understanding of regulatory framework
- Operational infrastructure - IT Systems, FO/BO staff
- Relationship with market makers
- Legal agreements (ISDA and CSA)
- Risk framework: debt management strategy and credit risk policy
OPERATIONAL INFRASTRUCTURE

- **Accounts**
  Hard currency and local currency accounts need to be operational in relevant banks.

- **Authorizations**
  Authorized signatories and instructions method (SWIFT) need to be in place.

- **Systems**
  Market data feed and valuation model need to be set up to keep track of value of the contract.
Trade Execution

- Design and Structuring
- Valuation
- Negotiation and Execution
Structuring Swaps: Main Parameters

• Effective date
• Maturity date
• Notional amounts – currency, bullet/amortizing/accreting schedule
• Principal exchange – initial, final, or both (and FX applied)
• Interest rate characteristics – pay/receive, floating/fixed, index/spread
• Payment and reset cycle – quarterly/semi-annually/annually
• Day count convention – e.g. 30/360, Act/360, Act/365,…etc.
• Business calendar for resets and payments
• Adjustment: following/modified following, adjusted/unadjusted,…etc.
Valuation and Pricing: Broker Screens

Once a trade is structured and term sheet prepared, the next step is to come up with a value and/or price of the structure.

Sources:
- Broker screens (plain-vanilla)
- Financial models
- Dealer indications

Major components:
- Cash flows – amounts, conventions
- Discount rates – sources, zero rates
- Model Assumptions – interpolations, short-term rates
- Bid/Ask Spreads – pricing depends on liquidity
Sample CCS Termsheet

EUR/USD Cross Currency Swap

Swap Details:
- Notional Amount in USD: USD 100,000,000.00
- Notional Amount in EUR: to be set at trade
- EUR/USD FX Rate: to be set at trade
- Trade Date: September 9, 2015
- Start Date: September 11, 2015
- Maturity Date: September 11, 2020

Initial and Final exchange of principal on both legs

IBRD Receives:
- USD s.a. fixed rate 5.00%
- Interest calculation period semi-annually on March 11 and September 11
- Pays semi-annually on March 11 and September 11
- 30/360, Following, Unadjusted
- New York and London business days for payments

IBRD Pays:
- EUR s.a. fixed rate [to be solved by the counterparty]
- Interest calculation period semi-annually on March 11 and September 11
- Pays semi-annually on March 11 and September 11
- 30/360, Following, Unadjusted
- New York, Target, and London business days for payments

- Agree on EUR fixed rate
- Agree on FX rate to determine EUR principal amount
- Include cash flows if amortizing
Screen rates are insufficient to value swaps with bespoke cash flows

Screen rates assume the following standard market conventions:

Cashflow conventions in USD

- Fixed leg: Semi-annual, 30/360, Modified following, Unadjusted
- Floating leg: Quarterly, Act/360, Modified following, Adjusted
- Effective date: T+2

Credit risk – very low counterparty credit risk

- Bilaterally collateralized
- Zero threshold for both counterparties
- Margin called daily
- Additional independent amount to cover the short dated cure period risk

Funding

- Self funded via collateral agreement
NEGOTIATION AND EXECUTION

- Send Term Sheet to several brokers
- Check screen rates and request broker indications
- Go live with best indications
- “Done” – confirm trade has been executed over the phone
- Exchange confirmations
Factors Affecting Swap Pricing

• Credit Risk (OTC):
  • Existence of a collateral agreement (e.g. Credit Support Annex (CSA))

• Volatility: Higher volatility, wider bid/ask spread

• Size: too small / too large

• Tenor: when the tenor is longer than market liquidity

• Dealer’s position and market view:
  • Predetermined appetite based on market positions
  • Commitment to certain markets or niches

• Local currency or other market limitations requiring the dealer to “keep the risk on their books”

• Complexity of the transaction
AFTER THE TRADE

— Collateral Management
— Liquidity Management
— Accounting Considerations
Example: Cross-currency EUR/USD swap

At maturity: Counterparty A must pay USD 1,000m and Counterparty B must pay EUR 753 m

- Assuming the EUR appreciates over the life of a swap, Counterparty A’s receive leg increases in value, relative to its pay leg.

→ The swap has a positive mark-to-market in favor of Counterparty A (swap is “in-the-money”). Counterparty A has a credit exposure to Counterparty B.
THE ROLE OF COLLATERAL

- Collateral agreements lower the effective exposure, allowing the institution to liquidate the collateral to compensate for the economic loss in case of a default of the counterparty.
- The collateral to be delivered or returned will depend on the difference between the MTM of the aggregate portfolio and the value of the existing collateral.

\[
\text{Mark-to-Market: } $80 \text{ m} \\
\text{Value of the Collateral: } $50 \text{ m} \\
\text{Collateral Request: } $30 \text{ m}
\]
LIQUIDITY MANAGEMENT

- Future margin calls need to be measured
- Contingent liquidity needs to be available to post margin
- Margin can be in cash or securities
- Consider outsourcing / using custodial services to manage margin requirements
- Failure to post margin can lead to early termination at very unfavorable times resulting in realized losses and unhedged exposure
ACCOUNTING APPROACHES

- Will depend on reporting standards of the particular country

Two broad categories of treatment:

- Accrual accounting
  - Will reflect accrued interest at cost
  - Does not vacillate with changing market conditions
  - Assumes swaps will be held until maturity

- Mark-to-Market approach ("MtM")
  - Reflects changes to market rates
  - Income varies with market conditions
  - Greater volatility in income
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