Choosing Between USD or EUR-Denominated Debt in the International Markets

Lior David-Pur
Head of Risk Management Department
Debt Management Unit, Accountant General’s Office
Ministry of Finance, Israel

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The World Bank
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<td>Composition of the Foreign Currency</td>
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Debt Overview

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (2015)</td>
<td>$300 billion</td>
</tr>
<tr>
<td>Public Debt / GDP (2015)</td>
<td>63.9%</td>
</tr>
<tr>
<td>Total Debt (June 2016)</td>
<td>$192 billion</td>
</tr>
<tr>
<td>ATM (June 2016)</td>
<td>7.4 years</td>
</tr>
<tr>
<td>Roll-over Ratio (June 2016)</td>
<td>10.6%</td>
</tr>
<tr>
<td>Ratings/Outlook</td>
<td>A+ Stable / A1 Stable / A Positive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>71.1%</td>
</tr>
<tr>
<td>2011</td>
<td>69.1%</td>
</tr>
<tr>
<td>2012</td>
<td>68.4%</td>
</tr>
<tr>
<td>2013</td>
<td>66.9%</td>
</tr>
<tr>
<td>2014</td>
<td>66.0%</td>
</tr>
<tr>
<td>2015</td>
<td>63.9%</td>
</tr>
</tbody>
</table>

Source: MOF
Distribution Between Local and Foreign Currency

Source: MOF, Q2-2016
Debt Management Framework

Cost Risk Analysis and Quantitative Analysis

- Local Currency Nominal Fix Rate
- Local Currency CPI Linked
- Local Currency Floating Rate
- Foreign Currency

Risk Exposure Policy

Qualitative Analysis

Sovereign Considerations

Optimal Composition of the debt

Risk Exposure Policy

USD

EUR
Cost Risk Analysis and Quantitative Indicators

Cost Measure

- Average annual interest payments including inflation

Risk Measure

- Volatility in the average annual interest payments
- Tail (95%, 99%)
- Expected Shortfall (95%, 99%)

Quantitative Indicators

- Debt to GDP ratio
- Interest payments
- Average time to maturity (ATM)
- Rollover ratio
Qualitative analysis and Sovereign Considerations

**Qualitative analysis**
- Market conditions
- Expanding the investor base

**Sovereign Considerations (Strategic Targets)**
- Liquid foreign benchmark curve for corporate issuances
- Exposure of foreign investors to the Israeli market

**Challenges**
- Resilience in times of crisis
- Designated bonds for pension funds and insurances companies
- Two liquid bond curves in the local market (Nominal Fix Rate, CPI linked)
- Liquid foreign benchmark curve for corporate issuances
Risk Exposure Policy

Financial Risks
- Refinancing Risk
- Liquidity Risk
- Market Risk
- Credit Risk

Market Risk Drivers
- Interest Rate
- Inflation
- FX fluctuations

Risk Metrics
- Debt Portfolio
- Interest Expenditure
Mitigating Market Risk

**Principals**
- Minimum strategic hedge
- Short term hedge
- Long term hedge
- Consistence of the hedge

**Tools**
- Natural hedge
- FX Forward transactions
- Cross Currency Swap

**Challenges**
- Depth of derivatives market
- Decoupling of globally monetary policy
Composition of the Foreign Currency Debt

Without Hedging | With Hedging
---|---
USD | 84% | 71%
EUR | 14% | 16%
NIS | 0% | 11%
Other | 2% | 2%

Source: MOF, First chart Q2-2016, Second chart December 2015
**Case Study**

**Example for Issuances (Indication)**

<table>
<thead>
<tr>
<th>USD Issuances (%)</th>
<th>EUR Issuances (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury</td>
<td>1.60</td>
</tr>
<tr>
<td>Spread**</td>
<td>1.00</td>
</tr>
<tr>
<td>USD Coupon</td>
<td>2.60</td>
</tr>
<tr>
<td>Mid-Swap</td>
<td>0.30</td>
</tr>
<tr>
<td>Spread**</td>
<td>0.80</td>
</tr>
<tr>
<td>EUR Coupon</td>
<td>1.10</td>
</tr>
</tbody>
</table>

**Example for Hedge (Indication)**

<table>
<thead>
<tr>
<th>USD Issuances Coupon</th>
<th>2.60</th>
<th>EUR Issuances Coupon</th>
<th>1.10</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR Swap (+)</td>
<td>0.30</td>
<td>USD Swap (+)</td>
<td>1.45</td>
</tr>
<tr>
<td>USD Swap (-)</td>
<td>1.45</td>
<td>EUR Swap (-)</td>
<td>0.30</td>
</tr>
<tr>
<td>EUR Basis (+)</td>
<td>-0.50</td>
<td>EUR Basis (-)</td>
<td>-0.50</td>
</tr>
<tr>
<td>CCS EUR Coupon</td>
<td>0.95</td>
<td>CCS USD Coupon</td>
<td>2.75</td>
</tr>
</tbody>
</table>

*Data: Bloomberg September, 29th 2016  * for 10 years  **includes new issuances premium*
Case Study 2

- GAP
- USD Swap
- EUR Swap

- EUR Basis

- Synthetic Coupon (EUR)

- Fed Rate
- Euro Deposit Rate