Fiscal Risk Management in Mexico
Introduction

- Fiscal Risks identified and quantified in Mexico:
  - Budgetary impact of fluctuations in key assumed macro-economic variables
  - Long-term fiscal pressures/risks and contingent liabilities

- How can Fiscal Risk be Managed?

- Fiscal Risk Management Strategy

- Final Remarks
Public finances are vulnerable to a number of macroeconomic shocks, related to fluctuations in:

- GDP growth
- Oil price
- Oil volume
- Interest rate
- Exchange rate

### Revenue and Expenditure Sensitivities in 2012

<table>
<thead>
<tr>
<th>Description</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Half a percent change in GDP</td>
<td>0.06%</td>
</tr>
<tr>
<td>2. Ten dollar change in the oil price</td>
<td>0.30%</td>
</tr>
<tr>
<td>3. For a 100 mdb crude oil extraction</td>
<td>0.22%</td>
</tr>
<tr>
<td>4. One dollar change in the average exchange rate</td>
<td>0.20%</td>
</tr>
<tr>
<td>Revenue</td>
<td>0.30%</td>
</tr>
<tr>
<td>Financial Cost</td>
<td>0.10%</td>
</tr>
<tr>
<td>5. For 100 bps in the interest rate</td>
<td>0.10%</td>
</tr>
</tbody>
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Long–Term Fiscal Risks and Contingent Liabilities

- **Demographics, Health and Pensions**
  - Fiscal Pressures – increasing health and pension costs related to demographic changes and epidemiological transition, pension system transition costs, etc.
  - Fiscal Risks – longevity risk, low pension coverage, changes in retirement age, health cost inflation, etc.
  - Federal government pension liabilities 60.5% of GDP

- **Development Banks**
  - Portfolio 3.7% of GDP

- **Commercial Banking and Deposit Insurance System**
  - Total system deposits 15.7% of GDP

- **State–Owned Entities**
  - 0.7% of GDP

- **Sub–national Debt**
  - 2.7% of GDP

- **Natural Disasters**
  - Between 1971 and 2010 economic damages due to natural disasters averaged 0.1% of 2011 GDP
  - In 2010 the Federal Government spent 0.3% of GDP for public infrastructure reconstruction
How can Fiscal Risk be Managed?

- **Self-Insure**
  - Governments are often not risk averse, and thus in most circumstances should not purchase insurance but rather self-insure (Arrow and Lind, 1970).

- **Mitigate and manage to reduce pressures/risk**
  - Enhance supervision and regulation (e.g. financial sector)
  - Implement structural measures (e.g. pension liabilities)

- **Transfer risk to markets**
  - Insurance products
  - Hedging strategies

- **Technical, political economy and market perception considerations drive decisions on how to manage risk**
  - Choice may depend on nature of risk

- In Mexico the overarching goal is to meet the balanced budget target and avoid highly disruptive and costly adjustments during annual budget implementation
Fiscal Policy in Mexico

- Fiscal Responsibility Law (FRL), 2006
  - Fiscal policy is guided by a balanced budget rule

- Formula for estimating oil prices in budget

- Oil-revenue stabilization funds

![Graph showing Mexican oil price (actual and budgeted)](image)
Fiscal Policy – Oil Revenue Stabilization

- Oil-revenue stabilization funds
  - Smooth revenue volatility
  - Mitigate impact of international oil price shocks
  - Transfers limited by 1.5% of GDP caps
  - Limited purpose and size

- Oil price hedge
  - Leverage resources in stabilization fund by purchasing put options
  - Options purchased for net exports at budgeted oil price
Mexico strengthened its public debt profile, limiting its vulnerability to short-term macroeconomic risks by:

- Substituting external for domestic debt
Debt Management

- Phasing out currency-linked debt
- Increasing fixed-rate instruments
- Lengthening maturities
- Broadening the investor base
Disaster Risk Management

- Measurement of risk led to a new way of thinking about risk management
  - Data collection and risk models
  - Physical inventory of assets
  - Quantify risks on the basis of probabilistic estimates
  - More detailed information reduces risk premiums

- Limited history of high impact events prevents use of traditional statistical tools to analyze and measure risk
  - Quantify risks on the basis of probabilistic estimates

- Once risk is understood a financial risk management strategy can be designed and existing funding mechanisms improved
Disaster Risk Management

Mexican Risk Management Model

Source: Secretaría de Hacienda y Crédito Público (SHCP).
Disaster Risk Management

- Retention
  - National Fund for Natural Disasters (FONDEN)
    - Ensures sufficient financial resources are immediately available in the aftermath of a natural disaster
    - Line item within federal budget to finance damaged public infrastructure and low-income housing

- Transfer
  - Reinsurance
    - Catastrophic excess loss insurance
      - Annual indemnity-based reinsurance product
      - Covers large annual deviations of aggregate losses to FONDEN
      - Promotes private sector supervision
    - Multi–Cat Bond
      - Provides cover against the risk of not having enough emergency funds quickly after a major disaster happens.
Disaster Risk Management

Financial Instruments for DRM

- Objective
  - Ensure availability of financial resources in the aftermath of a natural disaster
  - Avoid disruptions to overall budget or fiscal outcome

Source: Secretaría de Hacienda y Crédito Público (SHCP).
Final Remarks

- Identification, disclosure, measurement and management of fiscal risks
- Improved quantification of long term and contingent liabilities
- Enhanced supervision by relevant government bodies and private sector
- Evolving innovative approach to fiscal risk
  - Changing nature of risks
  - Availability of new instruments
  - Learning curve (reflected in premia)
  - Technical, political and market perception considerations
Disaster Risk Management

- Economic Losses per Event in Mexico, 1970–2010 (in millions of US dollars in 2011)

Source: Center for Research on Epidemiology of Disasters, Catholic University of Louvain.