Advanced Treasury Structures

Current Themes and Strategies

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Pre-Meeting Survey: What You Said You Were Interested In

- New Strategies
- Technology
- Regulations
- Interest Rates
- Risk Management
- China Liberalization

- Geographic Scope
- Functional Scope
- Netting / Pooling
- Capitalization
- Technology
- Regulations
- Benchmarking

- Advanced Treasury Structure

- In House Banks

- Changing Practices & Drivers

- Liquidity Management

- USD Appreciation
- Market Volatility
- Geo-Politics
- RMB
- New Ideas

- Risk Management

- New Strategies
- Technology
- Regulations
- (-ve) Interest Rates
- Risk Management
- China Liberalization

- Volatile Markets

- USD Appreciation
- Market Volatility
- Geo-Politics
- RMB
- New Ideas
1. Advanced Treasury Structures

What are companies doing? Where Next?
In House Bank (IHB): Evolution

Evolution usually driven by desire to create process efficiency, optimize Treasury resources and obtain positive cost/benefit outcomes through increased centralization.

Centralization

I. I/C Fixed Loans & Deposits

II. Cross-entity Liquidity Management—Regional

“I Segregated “ Liquidity Management (no co-mingling)

III. Centralize External Investments

IV. Centralize Cash Forecast & FX Risk Mgt

V. Intercompany Netting - Cashless

VI. POBO & ROBO

IHB (Integrated with Business Units)

IHB (Treasury Functionality)

Range of Services
Key Functions Of IHB

The IHB intermediates cash, foreign exchange, and funding transactions between subsidiaries and external banks. Once in place, the infrastructure also facilitates centrally managing and responding to changes in markets, regulation, corporate transformation/M&A, etc.

- **Liquidity Management**
  - IHB becomes global pool header to centralize cash, short term funding of subsidiaries, and net investing
  - Adoption of POBO/ROBO further reduces fragmentation of liquidity, saves FX spreads, improves forecasting
  - Subsidiaries execute FX trades (convertible currency pairs) with IHB - which nets positions - materially reducing external trades
  - Centralized portfolio of exposures at IHB can be better managed and hedged

- **FX Management**
  - Sub capital structure optimized by repatriating more retained earnings to HoldCo, with IHB providing long term debt funding, within country thin cap limits for tax deductibility

- **Subsidiary Funding**

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**Cash Concentration**

**Investments**

**Cash Forecasting**

**POBO/ROBO**

**Netting**

**Risk Management**

**Hedging**

**Short term (Working Capital)**

**Long term (Capital Structure)**
### Path To Centralized Risk Management

MNCs adopt best in class practices typically by centralizing their global risk management in a phased manner. Again, the IHB can play a key role.

<table>
<thead>
<tr>
<th></th>
<th>Decentralized</th>
<th>Partially Centralized</th>
<th>Centralized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Creation</strong></td>
<td>Sub → Banks</td>
<td>Sub → RTC → Banks</td>
<td>Sub → IHB → Bank</td>
</tr>
<tr>
<td><strong>Operating Cash Flow</strong></td>
<td>Subs, Parent</td>
<td>Management of subs exposures moves to regional hubs such as RTC</td>
<td>IHB or Re-invoicing Center (RIC) Global Treasury Center (GTC)</td>
</tr>
<tr>
<td><strong>Financial Assets &amp; Liabilities</strong></td>
<td>Subs, Parent</td>
<td>Primarily Subs, Parent (or regional IHB)</td>
<td>Global IHB/RIC and GTC</td>
</tr>
<tr>
<td><strong>Risk Identification</strong></td>
<td>Manual Sources: Subs Types: Booked</td>
<td>Partial Automation Sources: Subs, ERP systems, RTC Types: Booked, Anticipated up to 1 year</td>
<td>Further centralized automation, solutions such as POBO Sources: ERP systems, GTC TMS Types: Booked, Anticipated</td>
</tr>
<tr>
<td><strong>Risk Management</strong></td>
<td>Mostly decentralized to Subs. Some trades done by Treasury centrally</td>
<td>Each RTC executes on behalf of Subs. Regional FX positions managed on portfolio basis</td>
<td>All Subs execute FX trades with In-House Bank, which executes net exposures with external banks</td>
</tr>
<tr>
<td><strong>Likely Effects</strong></td>
<td>Inconsistent risk management Poor oversight of exposures and liquidity, ineffective processes</td>
<td>Good regional risk oversight and cost synergies However, potential incorrect perception of risk management efficiencies e.g., netting, credit and execution costs</td>
<td>Maximizes global cost and risk mitigation efficiency Benefits in FX, funding, credit, counterparty risk and free cash flow global oversight</td>
</tr>
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</table>
2. Liquidity Management

What is disrupting the status quo?
Evolving commercial and market realities are making legacy liquidity management practices sub-optimal.

- More Operating Currencies
- Changing Commercial Flows
- Diverging Rates and FX Volatility
- Changing Regulations & Tax Rules

- Improve Liquidity Mgt
- Rationalize Account Structures
- Assess Advanced Solutions

Key Performance Indicators
- Technology
  - ERP
  - TMS
  - Connectivity
- Cash Management Processes
  - Cash Management
  - I/C Lending
  - Risk Management
- People
  - Treasury Centers
  - Netting Centers
  - In-House Bank

Alignment of People, Processes and Technology in support of the evolving needs of the corporate growth agenda
Diverging (And Negative) Interest Rates

Treasury Considerations of NIRP*

**FX**
- **Revaluation losses** – On foreign currency assets and liabilities
- **Intercompany Loans** – Cash flow deltas arising from differences in spot rates on hedge rollovers

**Tax**
- **Arms Length Principles** – Need to ensure alignment with transfer pricing guidelines on intercompany loans and pooling benefit

**Operational & Organizational**
- **Treasury KPIs & Budgets** – pressure on returns, “use it or lose it”
- **Technology** – need to ensure treasury technology capable of dealing negative rates
- **Organizational** – internal hurdles when subsidiaries receive negative rates for intercompany deposits
- **Counterparty Management** – process challenges of investing with more local providers

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**Cash Management Processes**
- Improve cash positioning accuracy
- Reassess daily investment & funding positions: e.g. funding outflows
- Swap out where implied rates attractive
- Reset cash pool interco rates

**Tsy Centralization Profile**
- Improve cash flow forecasting
- Optimize banking structures: “centralize management of cash, but hold multi-domestic”
- Reassess economics of working capital financing to avoid excess cash

**Corporate Finance Initiatives**
- Reevaluate business commercial terms, invoicing currencies
- Reassess interco lending programs and hedge policies
- Review policies for earnings repatriation, local debt raising vs. interco funding

**Maintaining consistency with liquidity objectives**

**Balancing control, counterparty, and yield considerations**

**Integrating broader enterprise perspectives**

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*NIRP: Negative Interest Rate Policy*
Regulatory Environment Reshaping Bank Balance Sheets

Liquidity
- Liquidity Coverage Ratio
- Net Stable Funding Ratio
- Intraday

Leverage
- Leverage Ratio
- Statutory Liquidity Ratio

Risk Based Capital
- Tier 1 Capital
- Total Capital
- G-SIB Buffer
- Capital Conservation & Countercyclical Buffer

Require banks to maintain **adequate liquidity buffers** to manage unexpected outflows as well as **stable funding** to support key businesses during periods of extended stress.

Establishes **minimum capital requirements based upon total assets and lending commitments** regardless of riskiness of those assets.

Sets **minimum capital requirements based upon riskiness of lending** and other assets. SIBs must hold additional capital to absorb impacts of market stresses and continue providing services critical to marketplace without public support.

With capital and funding models evolving, banks are reevaluating business activities.

Even for operating services (which appear intrinsically attractive) nuances matter…

...as banks have to assess balances based on regulatory value: how much of deposit is operating.

Client deposits with **high regulatory value** will become viewed as providing return needed for credit extension.

*Final Rule* and *Proposed* based on rulings by the US Federal Reserve Board. A full progress report on the global implementation of the Basel III regulatory framework can be found at [http://www.bis.org/](http://www.bis.org/)
Integrating Major EMs into Global Treasury Structures: China

**Backdrop**

- Politically marching to own tune, hard to predict outcomes
- Economy in state of transition, with moderating growth
- Concerns about soundness of financial system
- Currency movements widening
- RMB Internationalization reforms continue, but multi-faceted and complex

**Treasury Considerations**

- Capital Markets & Funding
- Cash & Liquidity Management
- Risk Management
- Treasury Controls & Operations

**Potential Actions**

- Integrating into global liquidity structures to alleviate trapped cash or funding needs
- Changing invoicing currencies to create natural hedges or support growth
- Centralizing FX risk into RTC/IHB to aggregate and net positions
- ... But in consideration of the longer term: “Crossing the river by feeling the stones”
Other Developments: Impacts On Corporate Structures

Evolving regulations and penalties/opportunity costs for non-compliance will drive changes and require technology and organizational alignment.

Global Tax
- OECD/BEPS refocuses MNC attention on substance, establishment, transparency and deductibility
- Specific amendments to transfer pricing guidelines

US Tax
- FATCA deadlines for specific countries throughout 2015
- Local legislation and guidance will lead to variations in the date and format for reporting

Other Reform
- SEC 2a-7 Money Fund Regulation & EU Money Fund regulation

- Reviewing and modifying trading models and intercompany pricing processes to comply and optimize within new and evolving boundaries
- Impacting ICLs, Netting, SSCs, etc. with increased levels, frequency and consistency of reporting
- Updating ongoing legal entity, products and services, payments and payee analyses so that withholding and reporting requirements are clear
- Reporting policies, procedures, governance structures, and systems need to keep pace
- Evaluating investment policies in consideration of expected reform to allow for optimized portfolio
- Segmenting cash portfolio to allocate cash “buckets” within policy for risk weighted returns
3. Risk Management

Where are the opportunities to add value in this volatile market?
# Corporate Risk Management Trends (Citi Treasury Diagnostics)

<table>
<thead>
<tr>
<th>Observations</th>
<th>Implications</th>
</tr>
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<tbody>
<tr>
<td><strong>Continued Centralization of Treasury risk management</strong></td>
<td>Resource optimization, counterparty risk, hedging costs, exposure quantification</td>
</tr>
<tr>
<td><strong>Consensus on risks created by strong dollar cycle. Limited action taken</strong></td>
<td>Move to review existing hedging programs</td>
</tr>
<tr>
<td><strong>EM Risk Management: bifurcated approach from G10 in both policy and execution</strong></td>
<td>Unexpected jump risk in both earnings and key financial ratios</td>
</tr>
<tr>
<td><strong>In some cases, subsidiary financing and risk mitigation remain outside scope of central Treasury decision making</strong></td>
<td>Earnings volatility, thin cap, tax, credit rating, re-capitalization</td>
</tr>
<tr>
<td><strong>Exposure quantification evolution: from traditional notional risk measurement to sensitivity-based analysis.</strong></td>
<td>Required high degree of risk understanding across both financial and operational parts of the business</td>
</tr>
<tr>
<td><strong>Heavy preference for layered hedging programs. Limited hedging beyond 6 months</strong></td>
<td>Limited effectiveness in reducing volatility and economic risk.</td>
</tr>
<tr>
<td><strong>Focus on internal market risk visibility architecture</strong></td>
<td>Accounting based and economic earnings volatility. Higher operational and transactional costs.</td>
</tr>
</tbody>
</table>
Path To Effective Risk Management

Centrally manage All exposure (Commercial cash flows and financial assets & liabilities) and hedges are tracked in Treasury Management System

Consolidate transaction FX flow to portfolio exp level

Segment Risk
- Instrument (e.g. forward, swap)
- Type (sales, purchasing, and various internal txn types)
- Financial exposure (e.g. bank cash or loans in non-functional currency)

Determine Value at Risk at Portfolio Level

Outcomes
- Linking FX risk and flow identification architecture to a rules-based cost effective risk management program
- Risk management objectives will be best met if each is properly understood, executed and monitored
Understanding The Big Picture: Benchmark Your Portfolio…

In this example for a USD functional company holistically managing risk with a 12 month horizon. The currencies with the best hedging cost to risk reduction ratio are SEK and EUR (earning carry) & GBP (paying carry).

<table>
<thead>
<tr>
<th>Currency</th>
<th>Exposures USD Equiv.</th>
<th>Individual 12M VaR - USD @ 95% C.L.</th>
<th>Component 12M VaR - USD @ 95% C.L.</th>
<th>Contribution to Risk</th>
<th>Marginal 12M VaR - USD @ 95% C.L.</th>
<th>Hedging (Costs) / Benefits Using Forwards USD Equiv</th>
<th>Marginal VaR Impact per USD1 earned</th>
<th>Marginal VaR Impact per USD1 spent</th>
<th>Individual Volatilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP</td>
<td>10,000,000</td>
<td>1,607,811</td>
<td>1,461,900</td>
<td>10.7%</td>
<td>-1,443,472</td>
<td>-16,204</td>
<td>-16</td>
<td>-6</td>
<td>9.8%</td>
</tr>
<tr>
<td>EUR</td>
<td>10,000,000</td>
<td>1,738,326</td>
<td>1,050,114</td>
<td>7.7%</td>
<td>-973,924</td>
<td>59,202</td>
<td>-16</td>
<td>-6</td>
<td>10.6%</td>
</tr>
<tr>
<td>JPY</td>
<td>10,000,000</td>
<td>1,787,962</td>
<td>508,490</td>
<td>3.7%</td>
<td>-396,796</td>
<td>66,256</td>
<td>-8</td>
<td>-1</td>
<td>10.9%</td>
</tr>
<tr>
<td>CHF</td>
<td>10,000,000</td>
<td>2,111,002</td>
<td>1,459,151</td>
<td>10.7%</td>
<td>-1,363,729</td>
<td>174,322</td>
<td>-8</td>
<td>-1</td>
<td>12.8%</td>
</tr>
<tr>
<td>SEK</td>
<td>10,000,000</td>
<td>2,052,065</td>
<td>1,325,709</td>
<td>9.7%</td>
<td>-1,226,215</td>
<td>50,581</td>
<td>-24</td>
<td>-12</td>
<td>12.5%</td>
</tr>
<tr>
<td>BRL</td>
<td>10,000,000</td>
<td>2,269,257</td>
<td>1,433,010</td>
<td>10.5%</td>
<td>-1,306,497</td>
<td>-1,074,656</td>
<td>-24</td>
<td>-1</td>
<td>13.8%</td>
</tr>
<tr>
<td>KRW</td>
<td>10,000,000</td>
<td>1,673,673</td>
<td>1,082,779</td>
<td>8.0%</td>
<td>-1,017,915</td>
<td>-100,547</td>
<td>-10</td>
<td>-2</td>
<td>10.2%</td>
</tr>
<tr>
<td>RUB</td>
<td>10,000,000</td>
<td>5,621,883</td>
<td>4,332,424</td>
<td>31.8%</td>
<td>-3,664,410</td>
<td>-1,734,758</td>
<td>-2</td>
<td>34.2%</td>
<td>10.2%</td>
</tr>
<tr>
<td>TWD</td>
<td>10,000,000</td>
<td>854,752</td>
<td>614,194</td>
<td>4.5%</td>
<td>-600,602</td>
<td>52,303</td>
<td>-11</td>
<td>-1</td>
<td>4.5%</td>
</tr>
<tr>
<td>CNY</td>
<td>10,000,000</td>
<td>658,700</td>
<td>337,970</td>
<td>2.5%</td>
<td>-325,929</td>
<td>-380,203</td>
<td>-1</td>
<td>5.2%</td>
<td>8.3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100,000,000</td>
<td>20,375,431</td>
<td>13,605,741</td>
<td>100%</td>
<td>20,375,431</td>
<td>13,605,741</td>
<td>-2,903,704</td>
<td>-2,903,704</td>
<td>100%</td>
</tr>
</tbody>
</table>

Assumptions: 12-month implied vols and 1-year historical correlations

Findings & Implications:
- Although they constitute half of the portfolio, the EM exposures contribute more than half (57.3%) of the risk.
- Hedging SEK and EUR is clearly economical. In addition to earning carry, for every USD1 earned in hedging benefits the portfolio VaR is reduced by USD 24 and USD 16 respectively. It pays to hedge!
- Although GBP incurs a cost of hedging, doing so is effective – portfolio VaR is reduced by USD 89 for every USD 1 spent on carry.
For this 12M profile, we show the efficient frontier between VAR and Hedging (Costs)/Benefits compared to the unhedged portfolio and a 50% Hedged Portfolio (i.e. all exposures hedged 50%).
Layered hedging approach is the most common. However, the economic and risk reduction benefits expected have been limited due to short term hedging practices (1-6M). In G10, clients are now investigating the benefits of extending the hedging tenor past 1-year.

Source: Citi Treasury Diagnostics
Emerging Markets: Changing Mindsets?

Early indications of a shift towards the bi-furcation of hedging practices between EM and G10 exposures. Hedging costs and lack of liquidity continue to be main concerns cited by senior management.

100% of respondents reported having exposures to EM currencies...

Managing EMs differently than G-10 currency risks...

EM currency risk management concerns...

Hedging Costs/Negative Forward Points
- Lack of Liquidity
- Meeting Local Regulatory Approvals And Requirements
- Basis Risk Between the On-Shore and Off-shore NDF Markets
- All of the Above
- Limited Hedging Instrument Selection
- Other
- Settlement Risk

Early indications of a shift towards the bi-furcation of hedging practices between EM and G10 exposures. Hedging costs and lack of liquidity continue to be main concerns cited by senior management.

Universe of respondents totals 23 companies

Source: Citi Treasury Diagnostics
Intercompany Lending: Does This Keep You Awake At Night?

Frequency of local discretion and focus on tax suggests need for further alignment to better address potential risk management implications.

Policy governing intercompany lending activities

- 83% Policy
- 17% No policy

Governs the currency in which a Subsidiary may borrow...

- 53% Yes, whenever possible in local functional currency
- 6% Yes, always in parent functional currency
- 24% No, local discretion allowed
- 17% Other

Rationale to fund via intercompany loan or a Third-party Local Bank...

- 61% Tax Considerations
- 52% Local Regulations
- 48% Cost of Local vs. Global
- 39% Mitigation of Cross-currency Risk
- 35% Availability of Local Currency Financing
- 30% Other
- 17% Mobilizing Incremental Credit Capacity

Source: Citi Treasury Diagnostics
Value-at-Risk (VAR) analysis focuses on FX risk profile of intercompany loans totalling USD 100mn over 1 year, from USD to RUB.

Quantified by applying current market rates and implied volatility in order to generate the Value-at-Risk in USD when converting to RUB.

1 in 20 chance that USD/RUB will be higher than 101.274 in 1 years time.

**Implies loss of 73.8 mn USD at today’s spot rates when compared to today’s spot value of USD 100mn.**

References:
- Spot: 58.2834
- Forward: 66.0581
- Volatility: 26.0%
- Tenor: 1.00 years
- Exposure: 100 mio USD
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efficiency, renewable energy and mitigation