Advanced Treasury Structures

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

Pre-Meeting Survey

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

Cash Concentration | Investments | Cash Forecasting | POBO/ROBO

FX Management

- 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

Netting | Risk Management | Hedging

Subsidiary Funding

- 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

Short term (Working Capital) | Long term (Capital Structure)

In House Banks

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.

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

In House Banks

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

Today	3-6 months	Longer-term
Cash Management Processes	***Tsy Centralization Profile***	***Corporate Finance Initiatives***
• Improve cash positioning accuracy • Reassess daily investment & funding positions: e.g. funding outflows • Swap out where implied rates attractive • Reset cash pool interco rates	• 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	• 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

Liquidity Management

Regulatory Environment Reshaping Bank Balance Sheets

Liquidity	Liquidity Coverage Ratio	*Final Rule*	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.
	Net Stable Funding Ratio	*Proposed*	
	Intraday	*Final Rule*	
Leverage	Leverage Ratio	*Final Rule*	Establishes **minimum capital requirements based upon total assets and lending commitments** regardless of riskiness of those assets.
	Statutory Liquidity Ratio	*Final Rule*	
Risk Based Capital	Tier 1 Capital	*Final Rule*	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.
	Total Capital	*Final Rule*	
	G-SIB Buffer	*Proposed*	
	Capital Conservation & Countercyclical Buffer	*Final Rule*	

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**

Liquidity Management

"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/

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

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 into RTC/ IHB to aggregate and net positions
- … But in consideration of the longer term: "**Crossing the river by feeling the stones**"

Liquidity Management

Advanced Treasury Structures

Corporate Risk Management Trends (Citi Treasury Diagnostics)

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

Risk Management

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).

							Earning Carry	Paying Carry	
Currency	Exposures USD Equiv.	Individual 12M VaR - USD @ 95% C.L.	Component 12M VaR - USD @ 95% C.L.	Contribution to Risk	Marginal 12M VaR - USD @ 95% C.L.	Hedging (Costs) / Benefits Using Forwards USD Equiv	Marginal VaR Impact per USD1 earned	Marginal VaR Impact per USD1 spent	Individual Volatilities
GBP	10,000,000	1,607,811	1,461,900	10.7%	-1,443,472	-16,204		-89	9.8%
EUR	10,000,000	1,738,326	1,050,114	7.7%	-973,924	59,202	-16		10.6%
JPY	10,000,000	1,787,962	508,490	3.7%	-396,796	66,256	-6		10.9%
CHF	10,000,000	2,111,002	1,459,151	10.7%	-1,363,729	174,322	-8		12.8%
SEK	10,000,000	2,052,065	1,325,709	9.7%	-1,226,215	50,581	-24		12.5%
BRL	10,000,000	2,269,257	1,433,010	10.5%	-1,306,497	-1,074,656		-1	13.8%
KRW	10,000,000	1,673,673	1,082,779	8.0%	-1,017,915	-100,547		-10	10.2%
RUB	10,000,000	5,621,883	4,332,424	31.8%	-3,664,410	-1,734,758		-2	34.2%
TWD	10,000,000	854,752	614,194	4.5%	-600,602	52,303	-11		5.2%
CNY	10,000,000	658,700	337,970	2.5%	-325,929	-380,203		-1	4.0%
TOTAL	**100,000,000**	**20,375,431**	**13,605,741**	**100%**		**-2,903,704**			

	USD Equivalent
Sum of Individual VaRs	20,375,431
Total Portfolio VaR	13,605,741
Diversification Benefit	-6,769,690
Diversification Benefit (%)	-33%
Portfolio Volatilty	8.3%

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

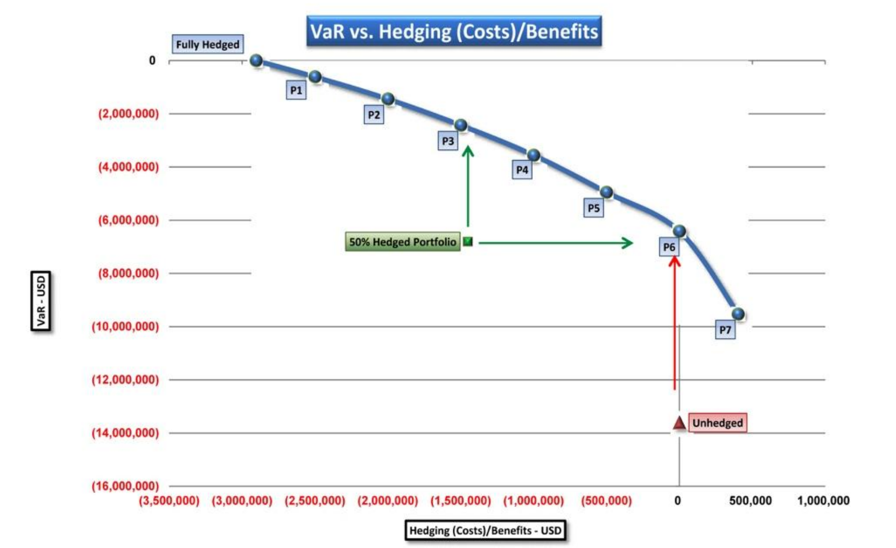
Findings & Implications:

- 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.

Risk Management

…Identify Cost/Benefit Of Alternatives On Efficient Frontier

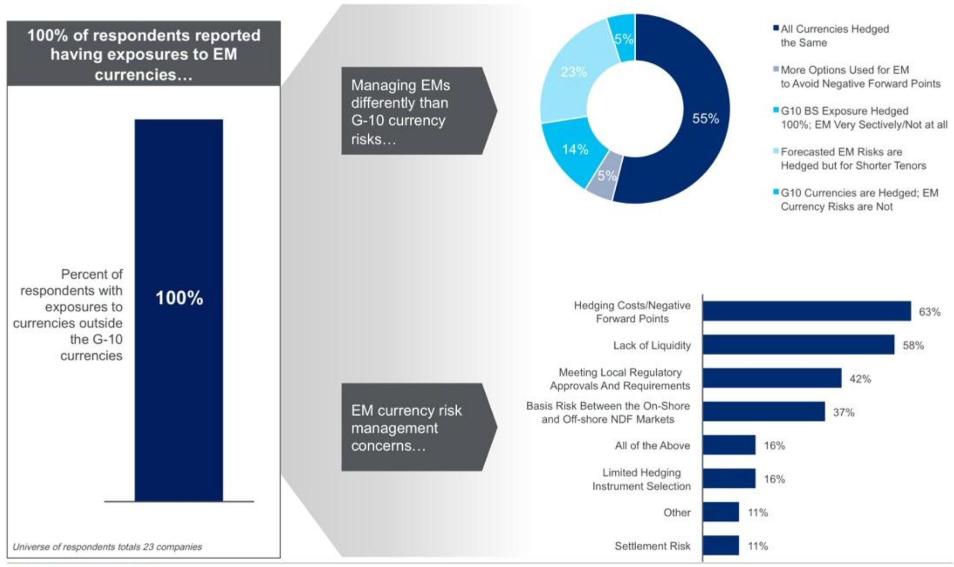
For this 12M profile, we show the efficient frontier between VAR and Hedging (Costs)/Benefits compared to the unhedged portfolio and a 50% Hedged Portfolio (i.e. all exposures hedged 50%).



Risk Management

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.

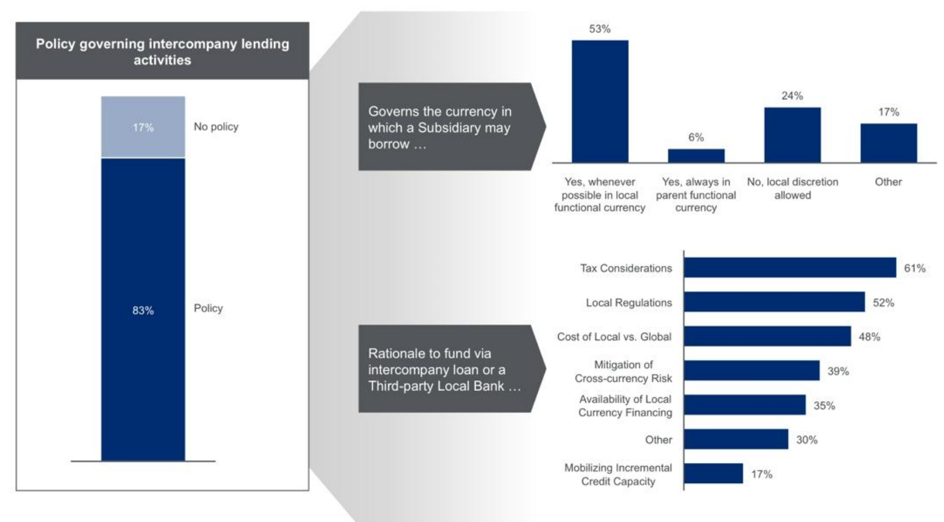


Risk Management

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.



Risk Management

Source: Citi Treasury Diagnostics

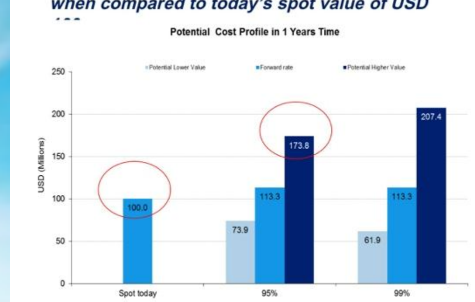
Where Can It Go Wrong? USD/RUB Risk Analysis – 1 Year

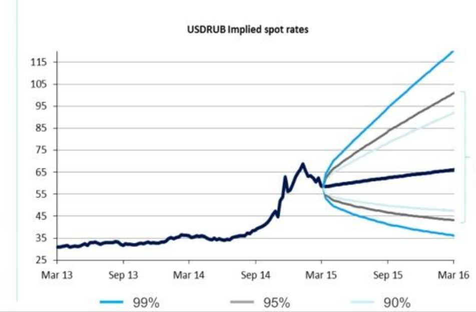
A USD functional company will be injecting USD 100mn for working capital purpose to its Russian subsidiary . These monies will be converted into RUB at the local subsidiary level.

- 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.

References: 30-03-2015	
Spot	58.2834
Forward	66.0581
Volatility	26.0%
Tenor	1.00 years
Exposure	100 mio USD

Implies loss of 73.8 mn USD at todays spot rates when compared to today's spot value of USD





Risk Management

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