



Creating an FX hedging strategy

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Today's speakers



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Kevin is a member of Chatham's Corporate Risk Management Advisory Team where he regularly provides strategic risk analysis and derivative transaction execution for Chatham's clients; Kevin serves Chatham's clients in the areas of interest rate risk and foreign currency risk. Prior to joining Chatham, Kevin spent seven years working for the Federal Reserve Bank of New York, where he focused on foreign central bank FX reserve activity and U.S. Treasury markets. He earned his Bachelor's degree in international business from James Madison University and his Master's degree in Economics from Virginia Commonwealth University.



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Jason is a member of Chatham's Corporates team, focusing on client implementation and project management. Prior to Chatham, Jason was a project manager for Frontline Technology, a SaaS-based human capital management software company serving the k-12 educational space, leading large implementation and integration projects. Jason graduated with a BS from Messiah College.

Access unequalled expertise that spans industries

Unlike most financial risk management companies, we offer advisory and technology services across a wide range of industries. This provides us with a broader perspective and allows us to see the marketplace on a macro-scale.



Corporations



Real Estate



Financial Institutions



**Private Equity and
Infrastructure**

Services:

Interest rate, foreign currency, and commodity hedging

Hedging execution and processing

Hedge accounting

Derivative and debt valuation

Derivatives regulatory compliance

ISDA review and negotiation

Defeasance and yield maintenance

Debt and derivatives analytics

Financial risk management
technology

Your success is our mission

Financial risk management solutions that take your organization further

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More than **\$6 trillion**
hedged notional since 1991



2,500+ clients
around the world



190,000 end-of-day
valuations run nightly



3,000+ ISDAs reviewed
annually



Six global offices



Over **600+** employees

Agenda

- Market landscape
- FX hedging: foundational concept
- Risk management framework applied
- Q&A



Market landscape



2017 – early 2018



U.S. Companies Love That Weak Dollar, For Now

The Wall Street Journal – April 2018

Dollar Hits Lowest Level in More Than 2 1/2 years

The Wall Street Journal – Sept 2017

Greenback is being pushed down by rising geopolitical worries and a rallying euro

Currency impact on North American companies lowest since 2014 FiREapps – Q4 2017

Apple has lots to thank for from weak dollar Markets Insider – May 2018



And now...

The mighty US dollar is getting even stronger

February 13, 2019

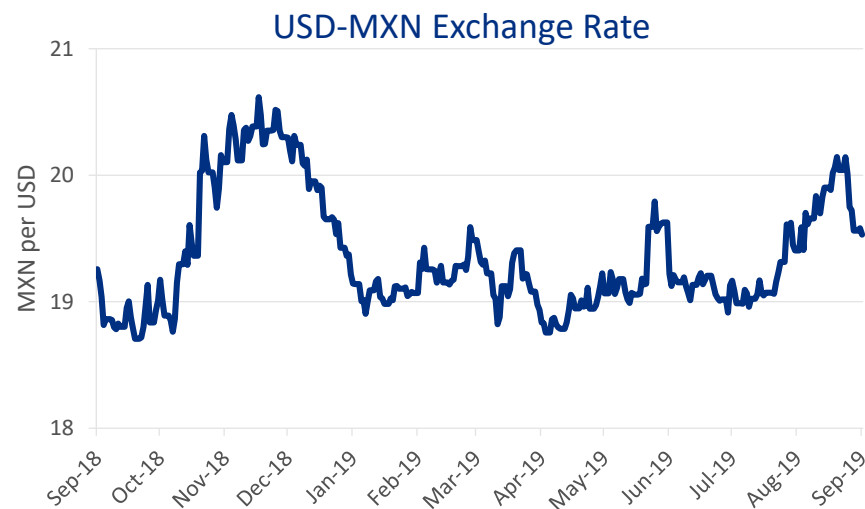
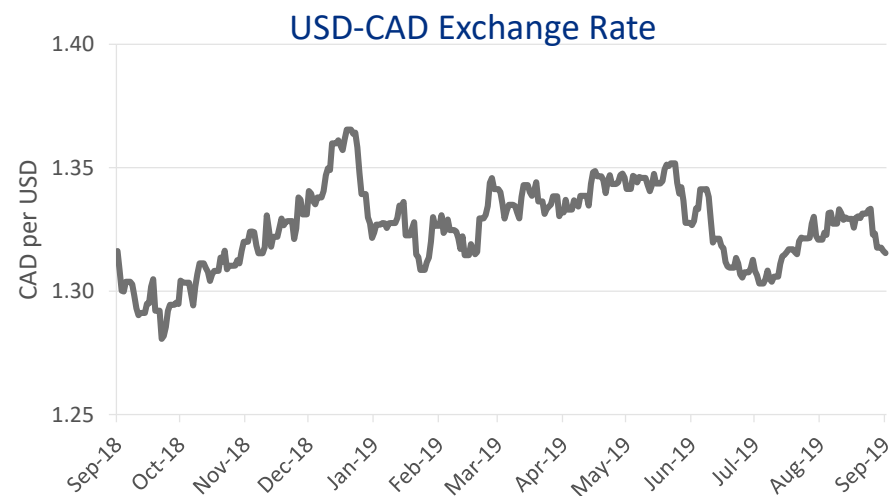
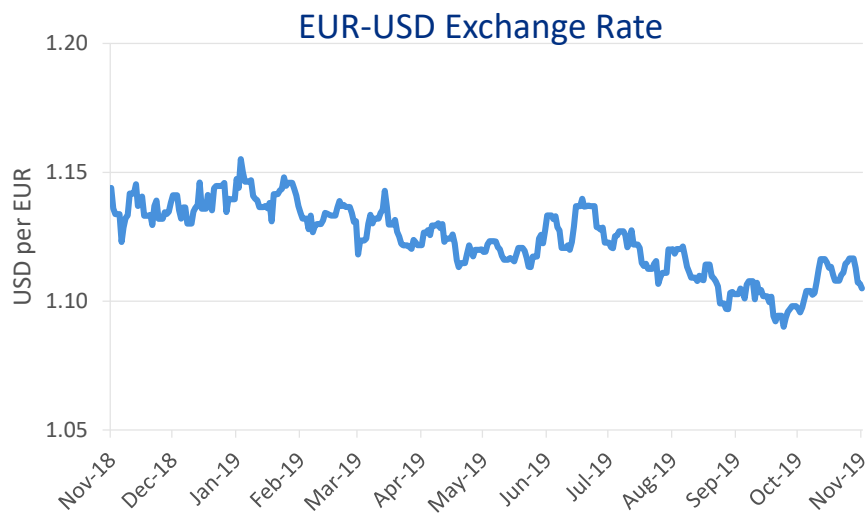
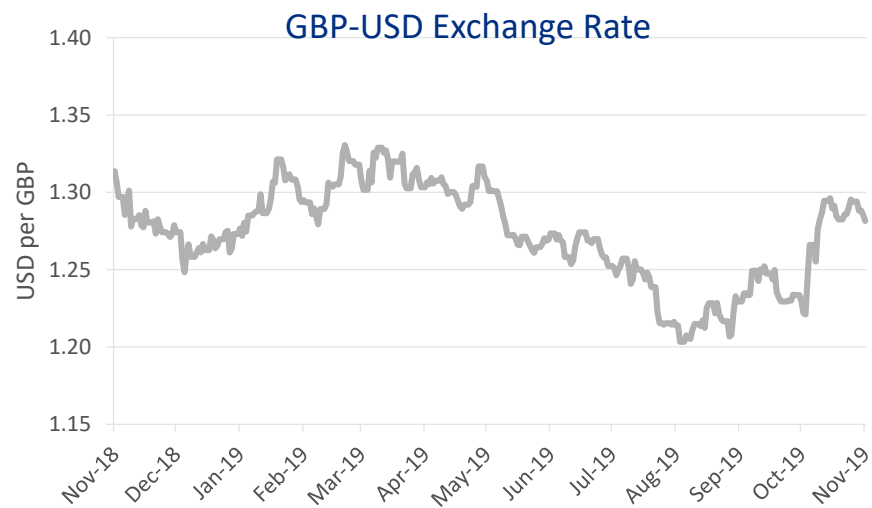


The US dollar just hit a two-year high and is threatening to make another major milestone

September 3, 2019



Market update – foreign currencies



Market update – foreign currencies

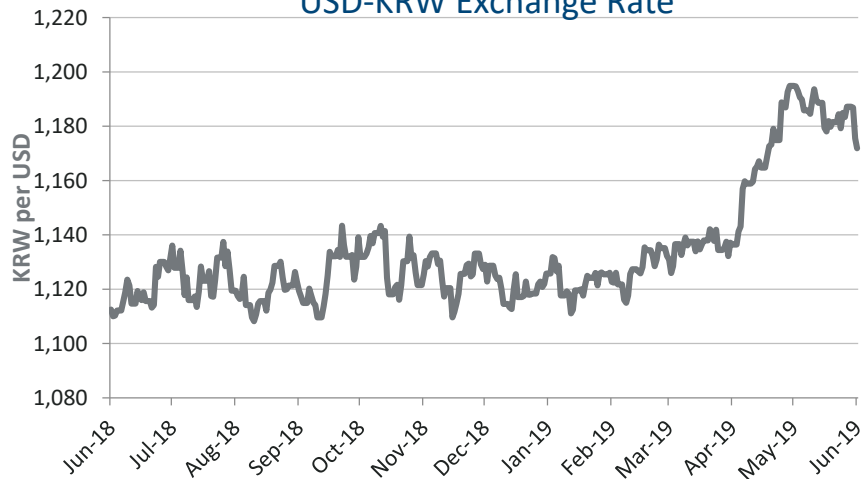
USD-JPY Exchange Rate



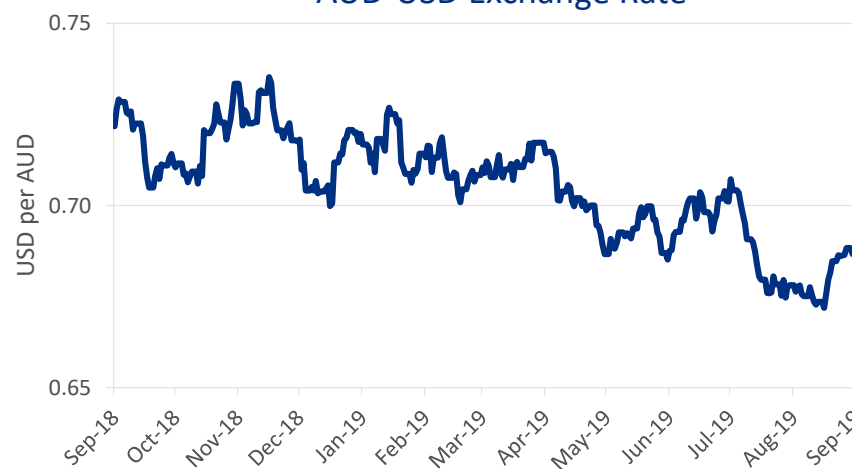
USD-CNY Exchange Rate



USD-KRW Exchange Rate



AUD-USD Exchange Rate



FX hedging: foundational concepts



Economic risk: margin vs. remeasurement risk

① Margin Risk

Subject to long periods of
currency volatility

Foreign
Revenue/Expenses
Forecasted



Now

② Remeasurement (i.e. Balance Sheet) Risk

Subject to short periods of
currency volatility

Foreign
Revenue/Expenses
Booked

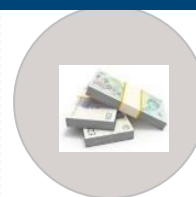
CAD 10mm = USD ?



2019

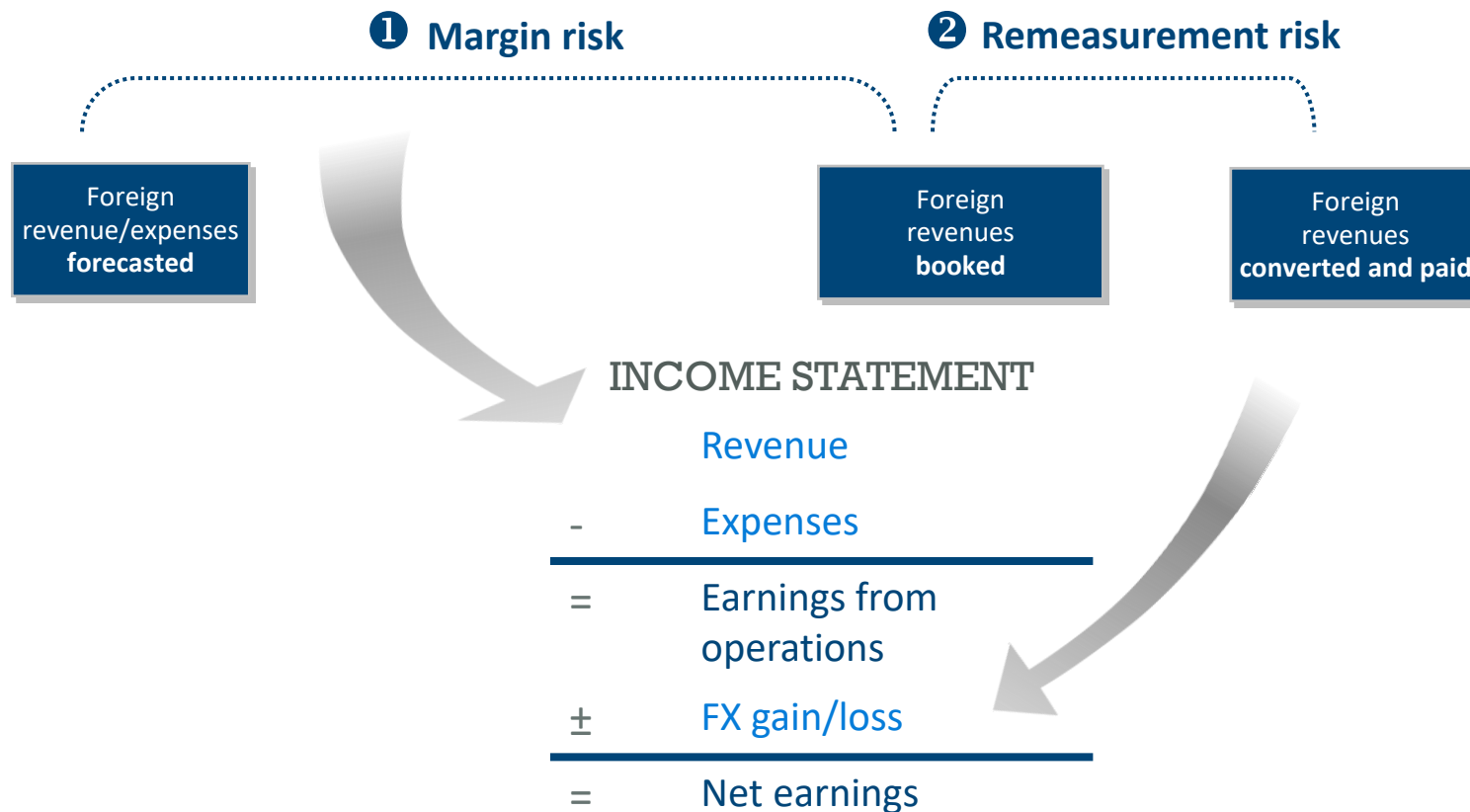
Foreign
Revenue/Expenses
Converted and Paid

CAD 10mm = USD ?



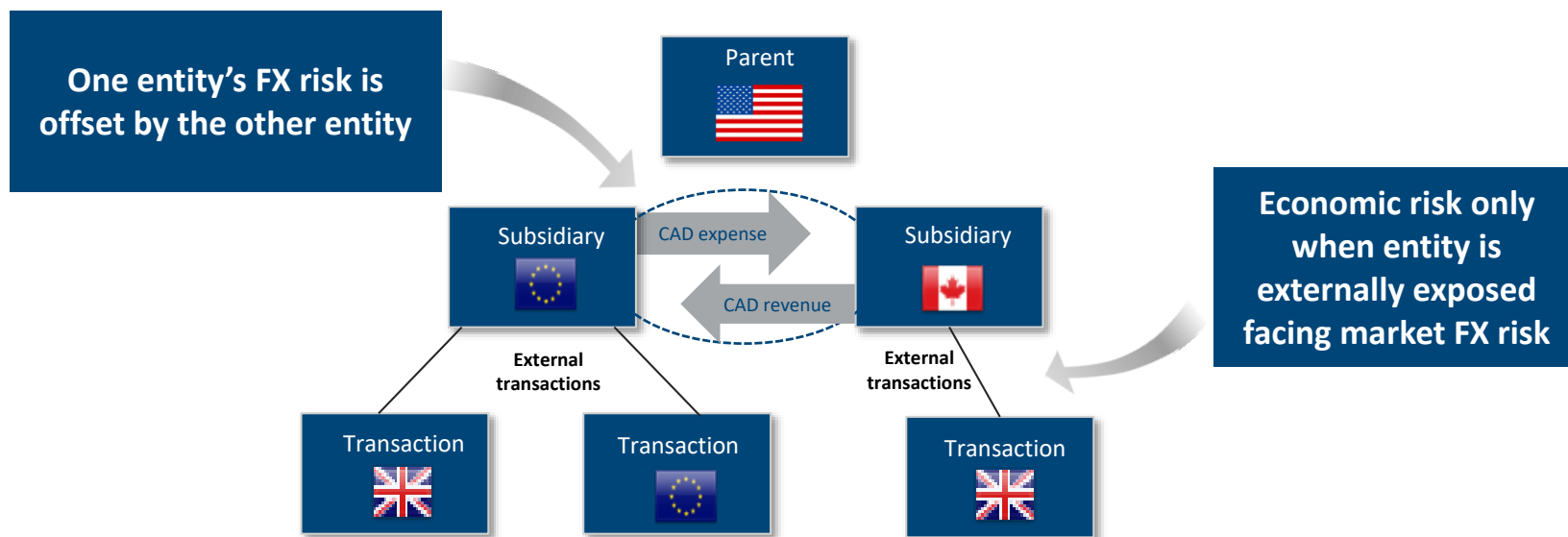
Future ➡

Economic risk: margin vs. remeasurement risk



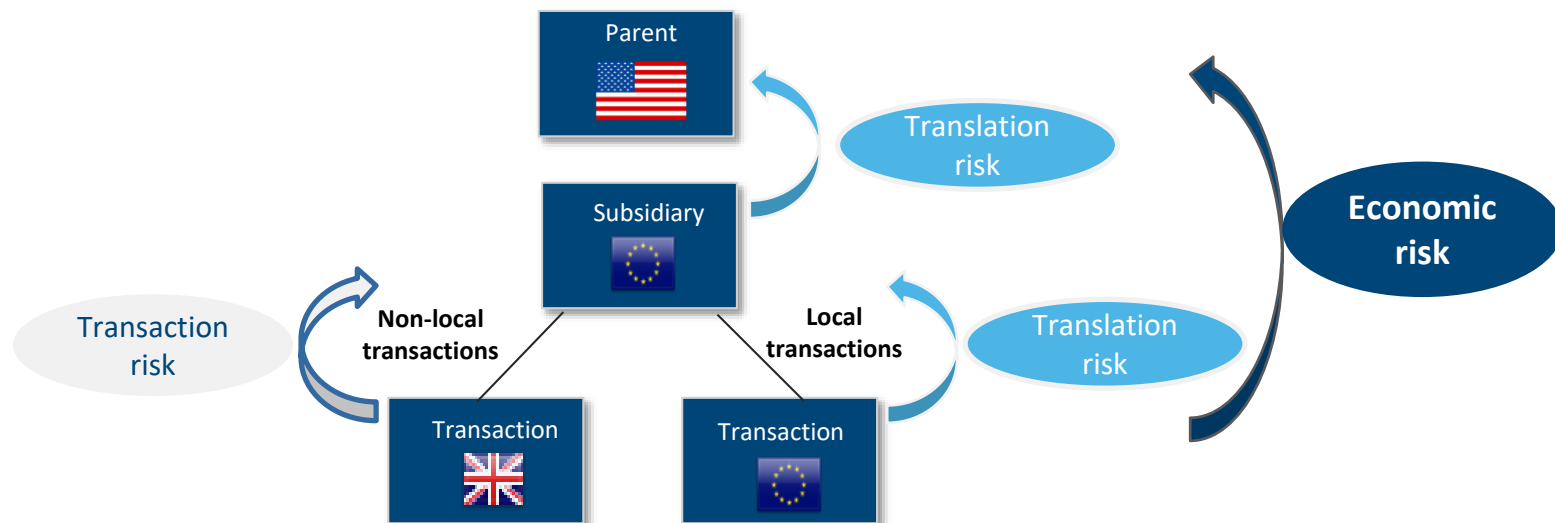
Impact of Margin risk will be embedded in the exposure line items and will not be separately identified unlike impact of Remeasurement risk, which will be recorded as FX gain/loss

Economic risk: external vs. internal



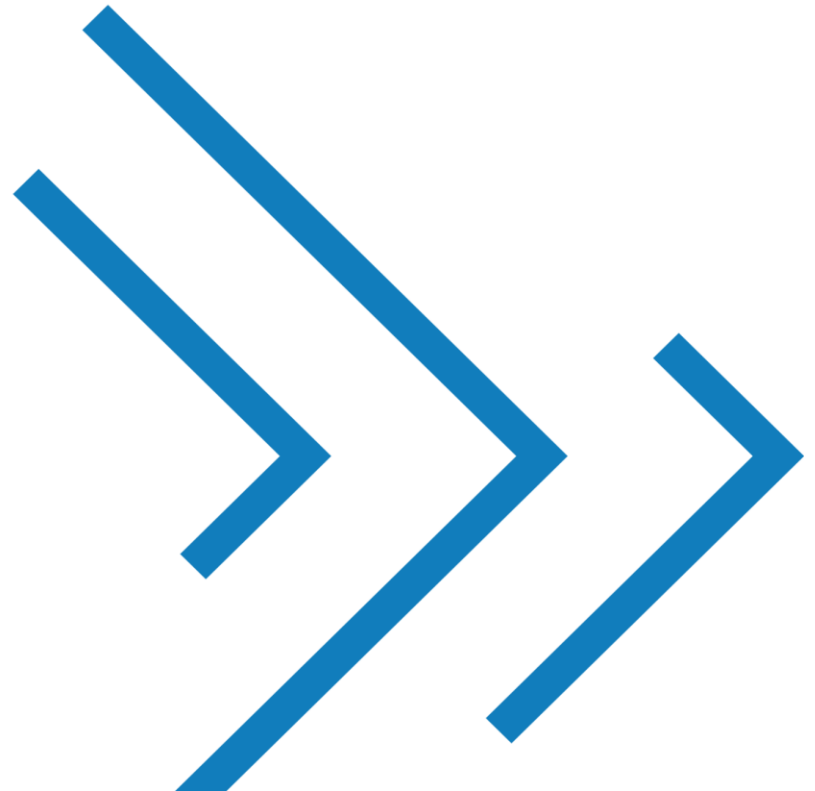
- Intercompany transactions between subsidiaries do not represent any economic risk as one entity's economic gain is another entity's economic loss
- Subsidiaries may experience FX risk on their financials from an accounting perspective but economic risk is manifested only when the party engages with an external entity for a purchase or a sale

Economic risk: transaction vs. translation

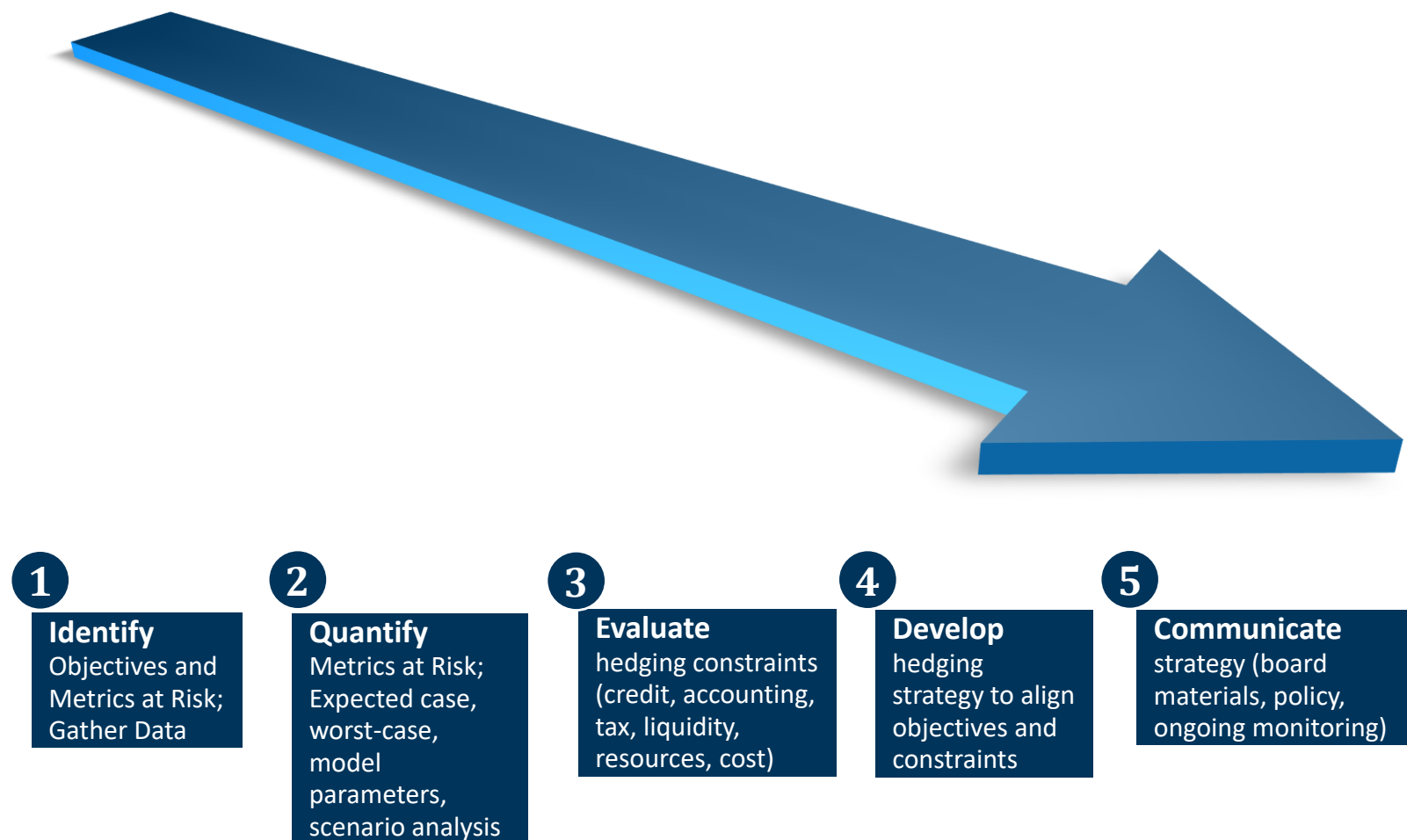


- External transaction + translation makes up economic risk
- Transaction risk is easier to hedge and also easier to apply hedge accounting

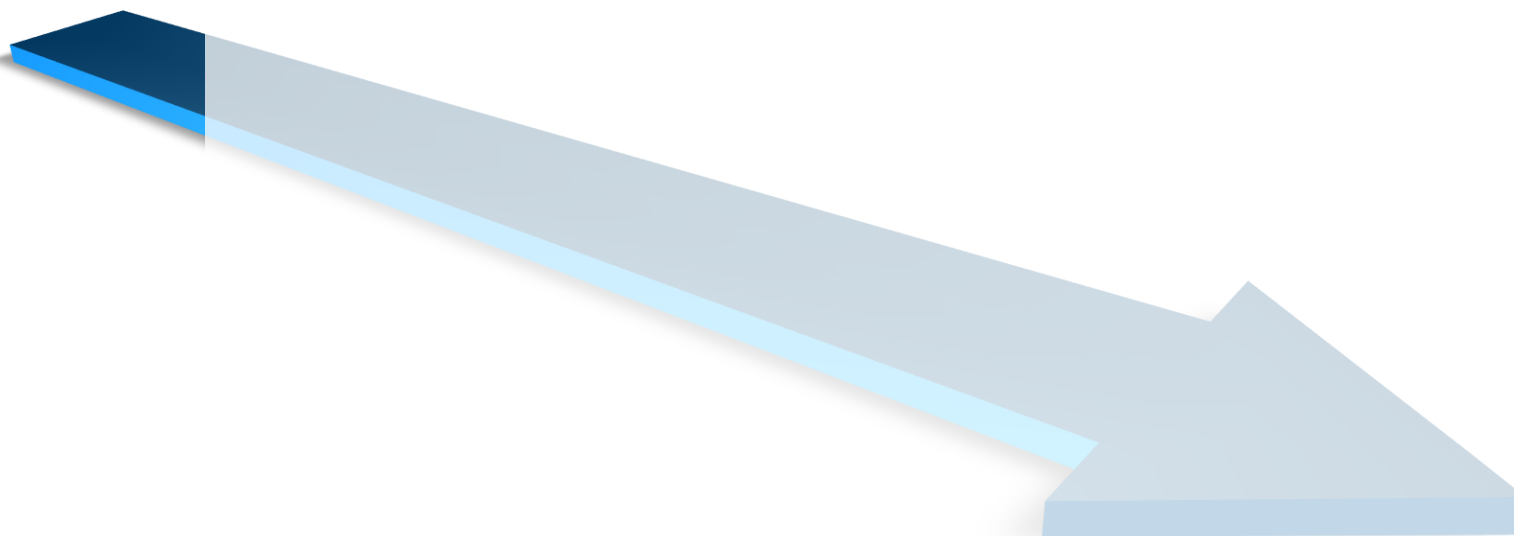
Risk management framework applied



Risk management framework



Risk management framework



1

Identify

Objectives and
Metrics at Risk;
Gather Data

2

Quantify

Metrics at Risk;
Expected case,
worst-case,
model
parameters,
scenario analysis

3

Evaluate

hedging constraints
(credit, accounting,
tax, liquidity,
resources, cost)

4

Develop

hedging
strategy to align
objectives and
constraints

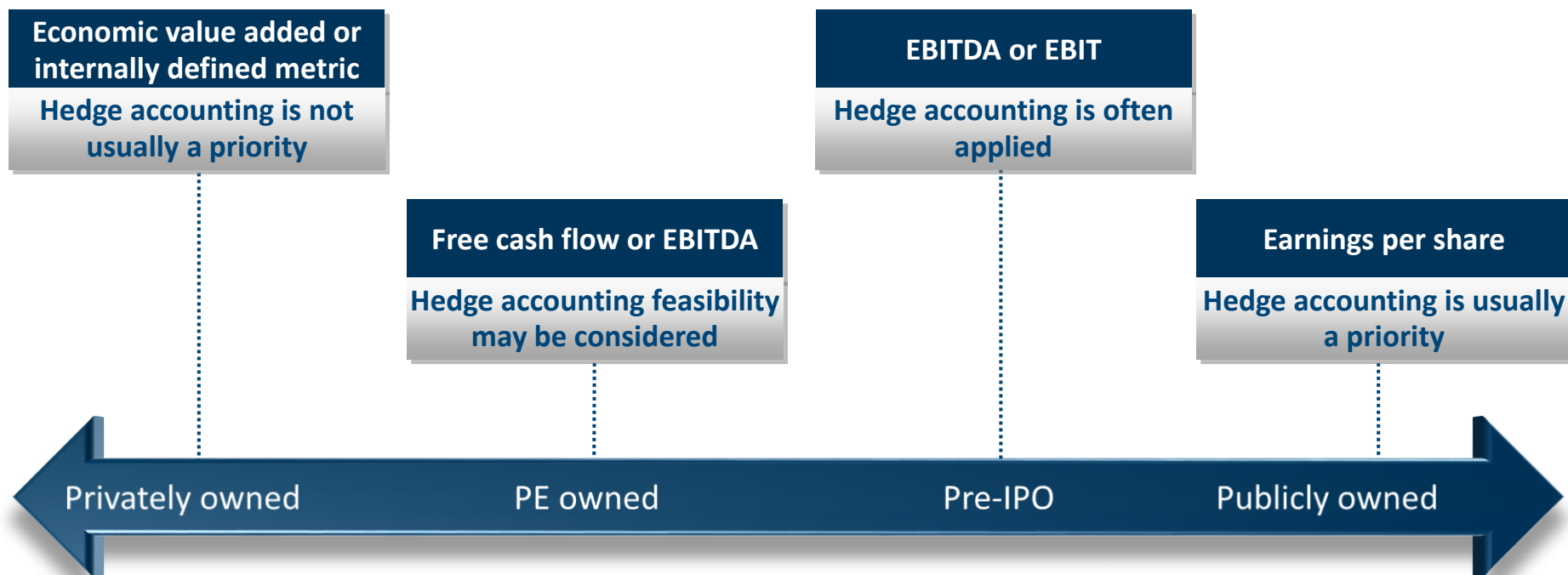
5

Communicate

strategy (board
materials, policy,
ongoing monitoring)

- ☐ Metric at risk
- ☐ Forecasting risk

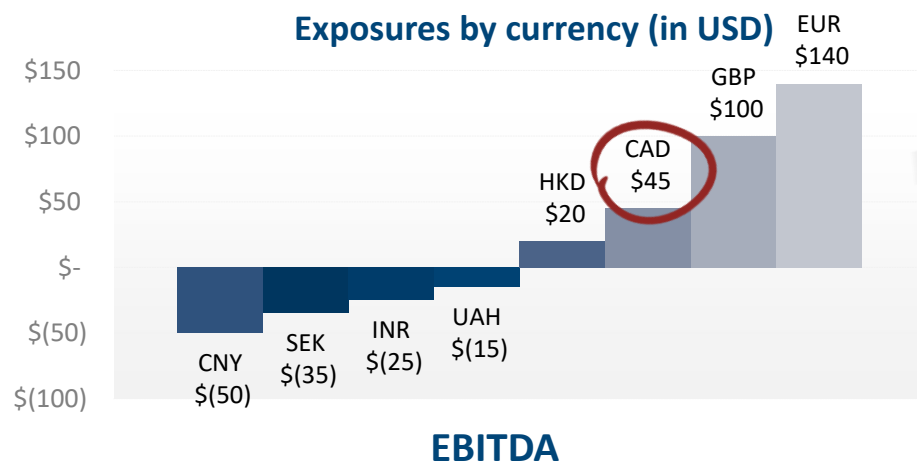
Identify: metrics that matter



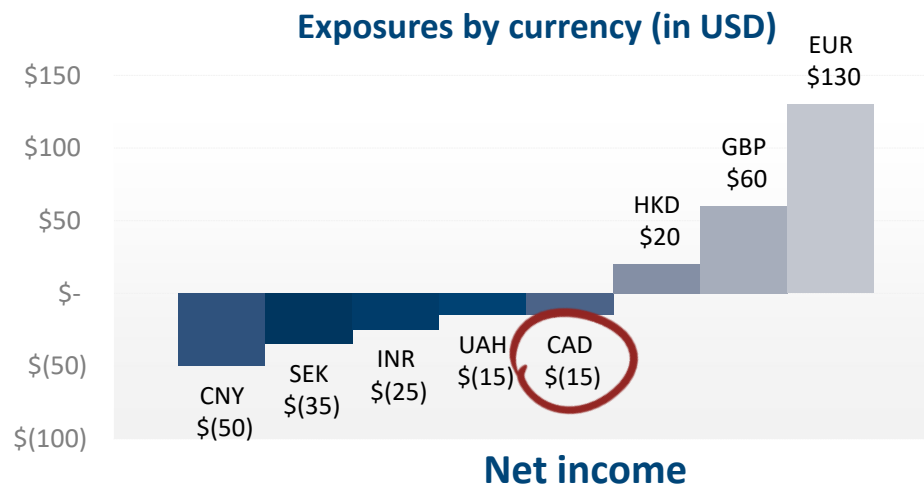
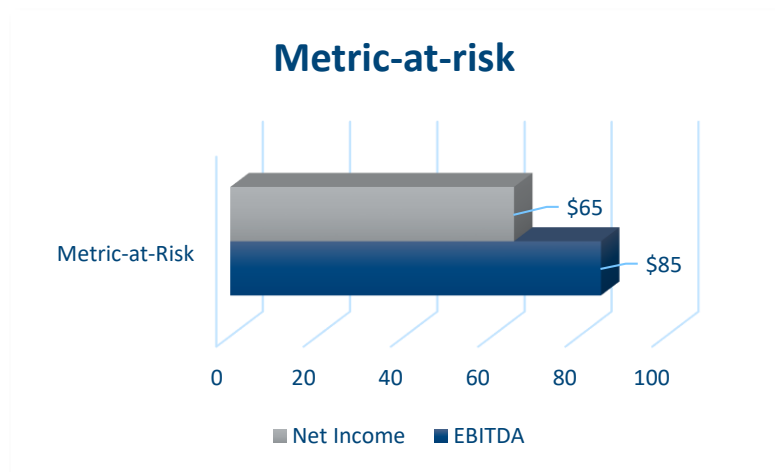
As companies transition from private to being publicly owned, metrics tend to move away from cash based metrics towards accrual based metrics

Hedge accounting tends to be a much higher priority as companies focus more on EBITDA or EPS metrics

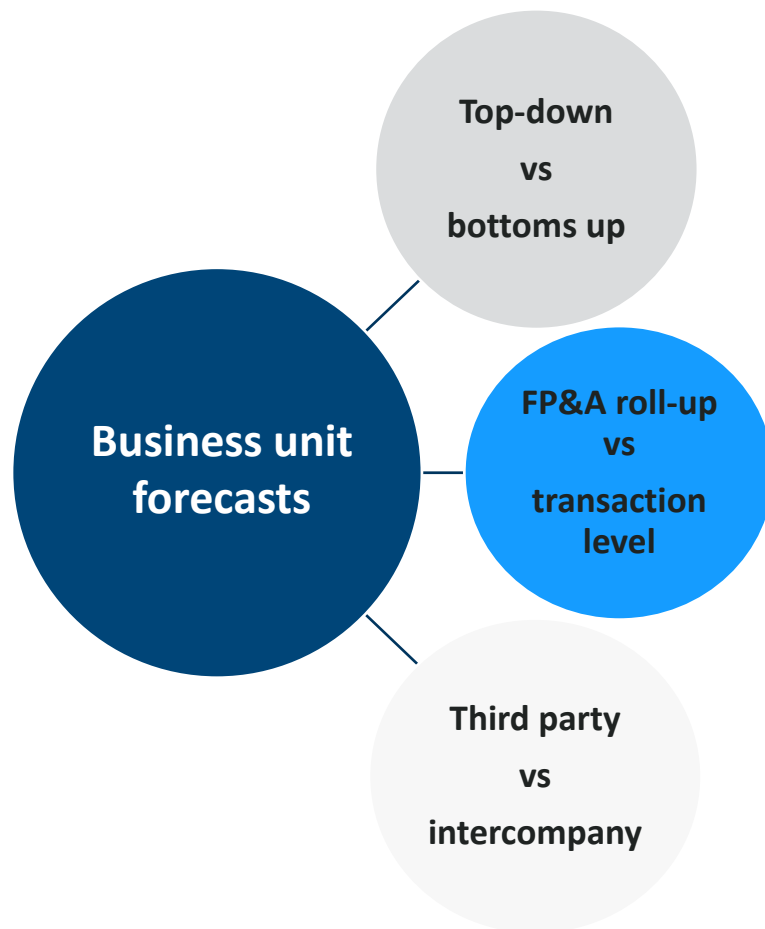
Identifying: company metrics



Based on the metric at focus, the company's exposure profile can alter significantly



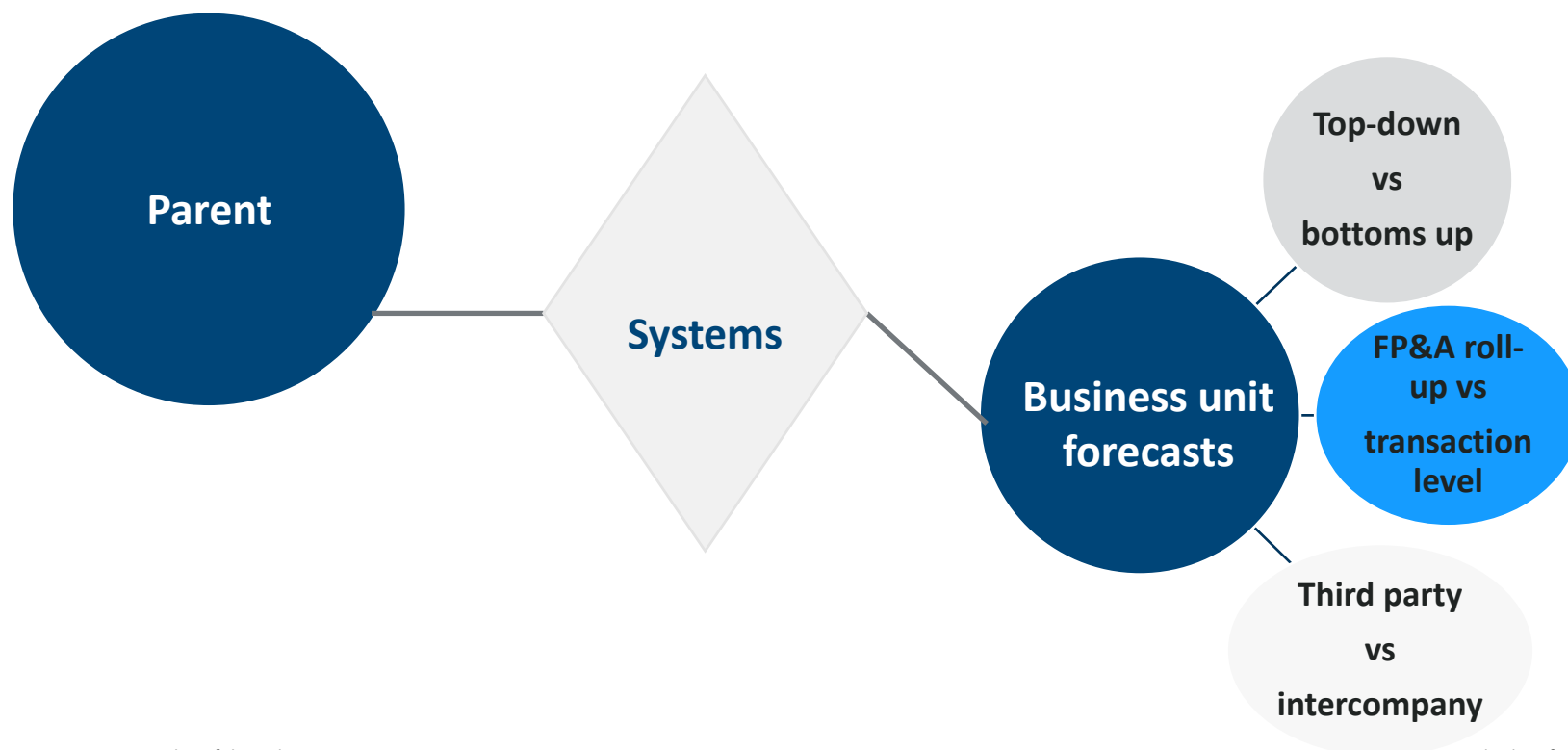
Identify: forecasting FX exposures



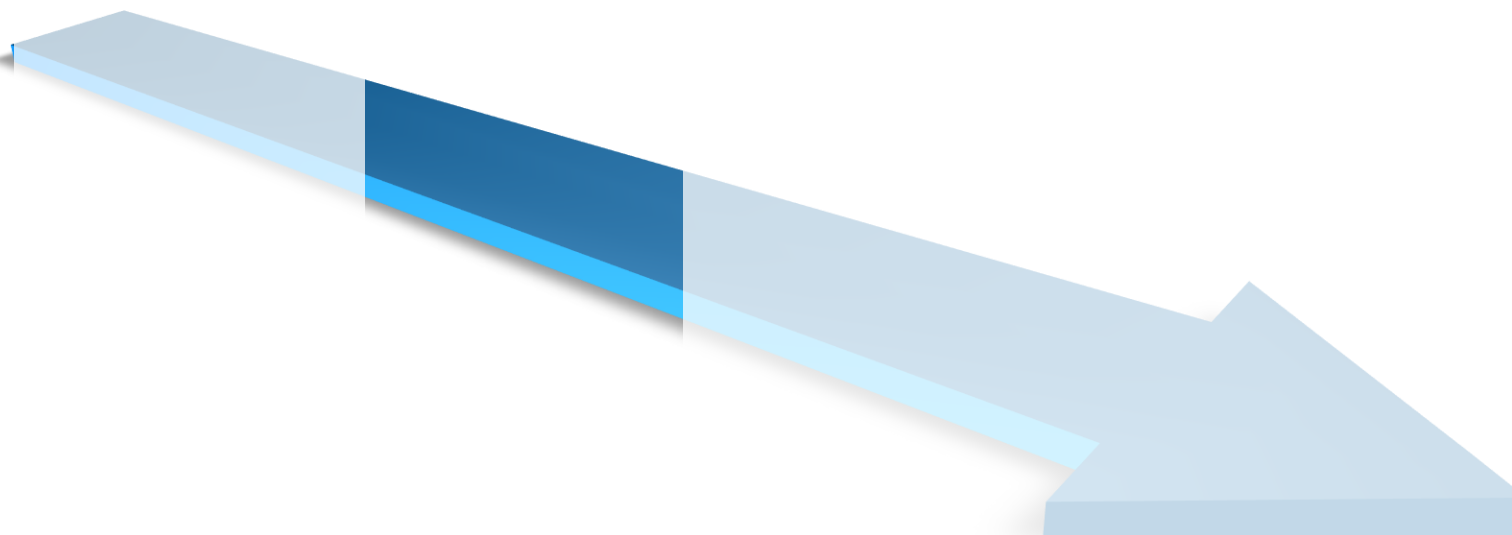
The ideal data: All forecasted revenue and expenses that contribute to the firm's consolidated operating margin/EBITDA, coded in their transactional currencies, at each legal entity, including third party and intercompany flows.

Identify: forecasting FX exposures

The ideal data: All forecasted revenue and expenses that contribute to the firm's consolidated operating margin/EBITDA, coded in their transactional currencies, at each legal entity, including third party and intercompany flows.



Risk management framework



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Objectives and
Metrics at Risk;
Gather Data

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Quantify
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Expected case,
worst-case,
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hedging constraints
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☐ **Statistical analysis**

Quantify: statistical analysis

1

Risk inputs



Magnitude & direction of exposures

- *Confirmed net currency exposures*
- *Static amounts by time period (monthly, quarterly, annually etc.)*



Currency correlations

- *Historical correlations based on previous 6-months of weekly data*
- *Assume static historical correlations apply for the entire risk horizon*



Currency volatilities

- *At-the-money implied currency volatility calculated from market quoted option pricing data for the chosen risk horizon*

2

Simulation engine



Monte-Carlo simulation

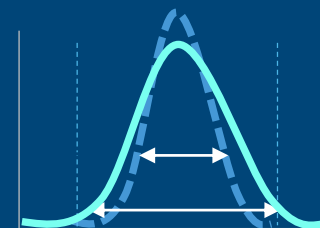
- *It is a robust methodology used industry-wide to understand the impact of risk and uncertainty*
- *It produces a range of possible results by simultaneously simulating any input factors that have inherent uncertainty.*

3

Risk quantification



Metric-at-risk calculation



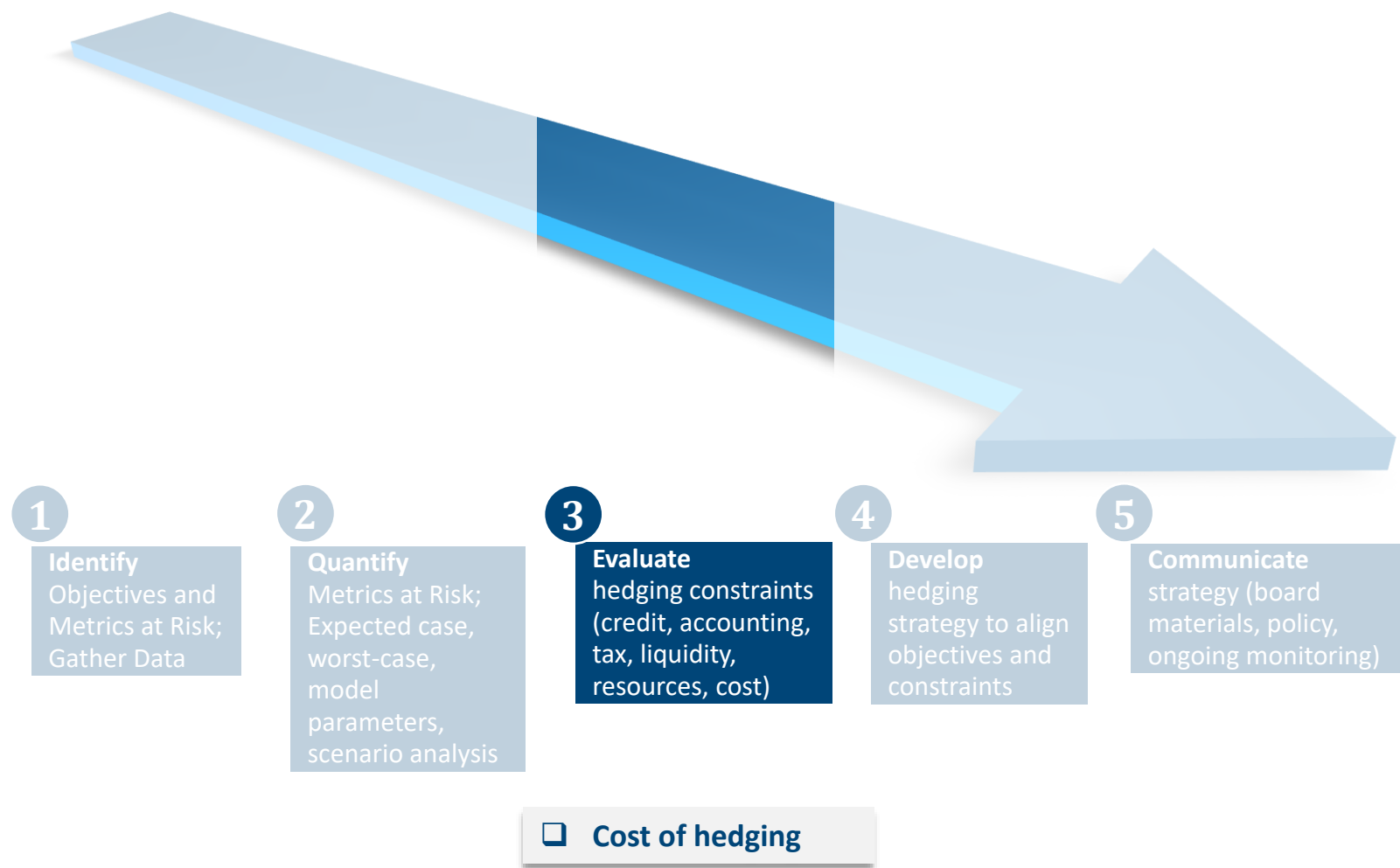
- *Metric at-risk is calculated as difference between expected value and 99% worst-case value*
- *Ability to view at-risk value post hedging and quantify risk reduction*

Quantity: statistical analysis disclosure

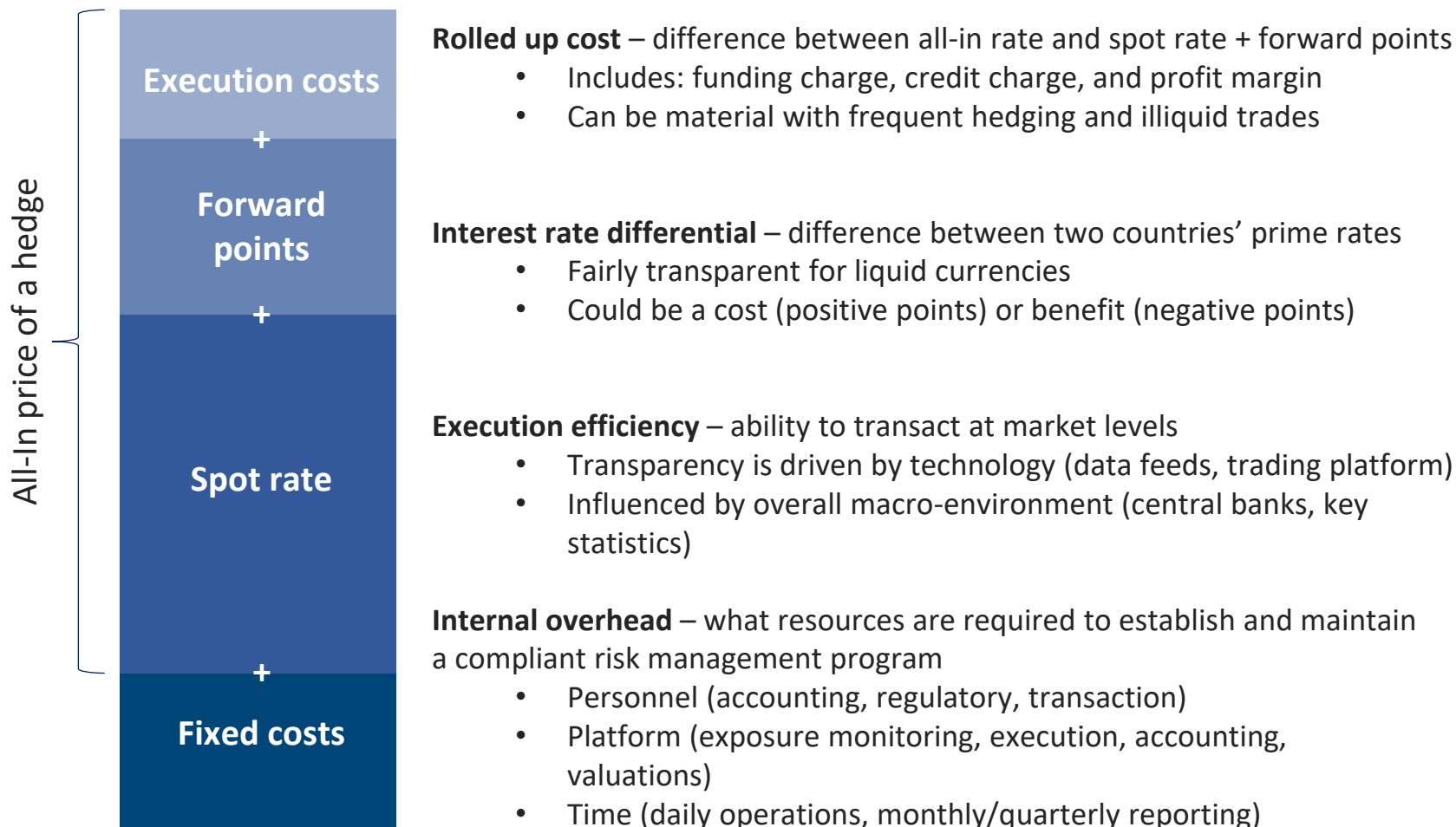
To provide a meaningful assessment of the foreign currency risk associated with certain of the Company's foreign currency derivative positions, **the Company performed a sensitivity analysis using a value-at-risk ("VAR") model to assess the potential impact of fluctuations in exchange rates. The VAR model consisted of using a Monte Carlo simulation to generate thousands of random market price paths assuming normal market conditions.** The VAR is the maximum expected loss in fair value, for a given confidence interval, to the Company's foreign currency derivative positions due to adverse movements in rates. The VAR model is not intended to represent actual losses but is used as a risk estimation and management tool....

Based on the results of the model, the Company estimates with 95% confidence, **a maximum one-day loss in fair value of \$485 million as of September 30, 2017 compared to a maximum one-day loss in fair value of \$434 million as of September 24, 2016.**

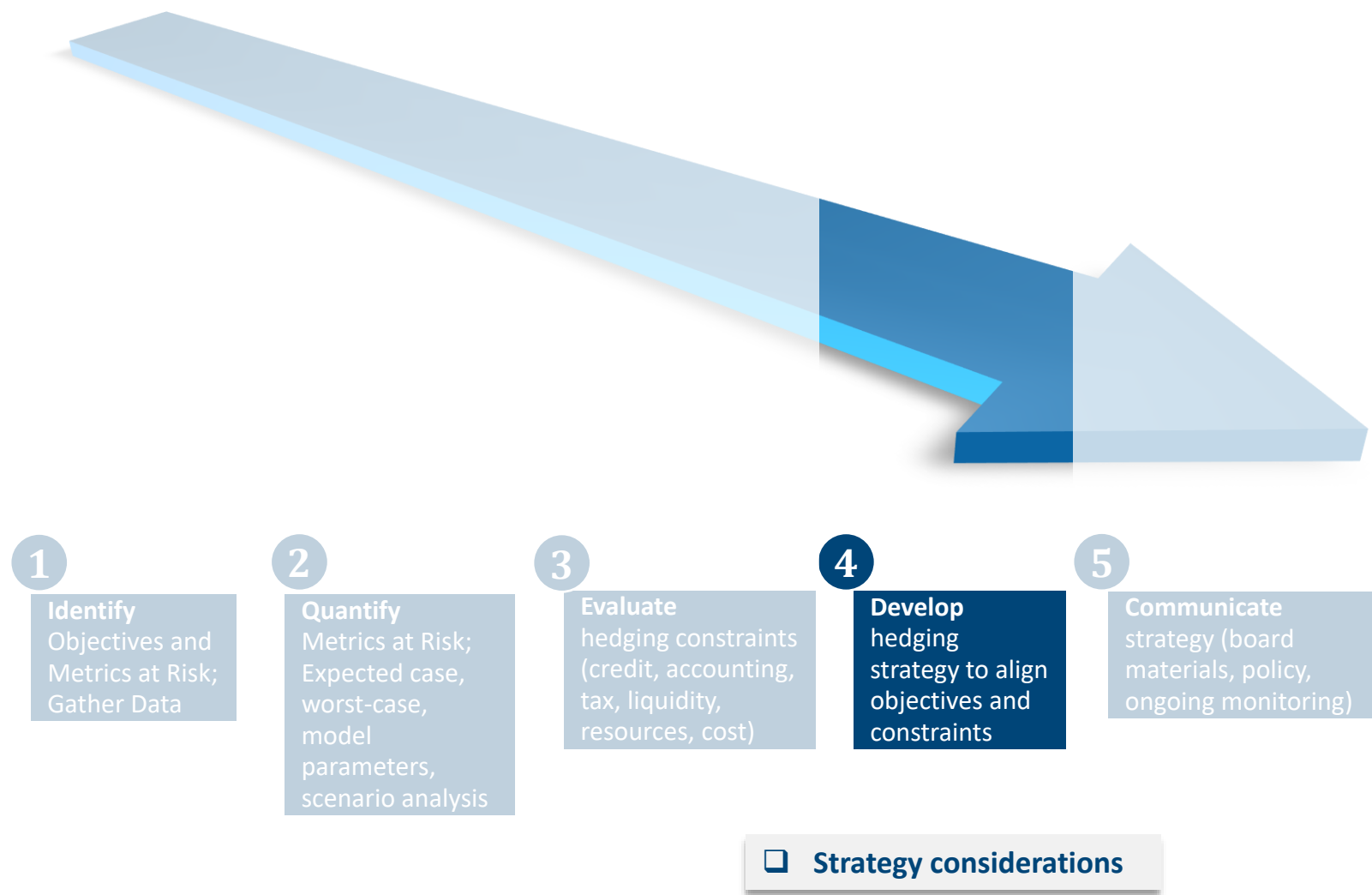
Risk management framework



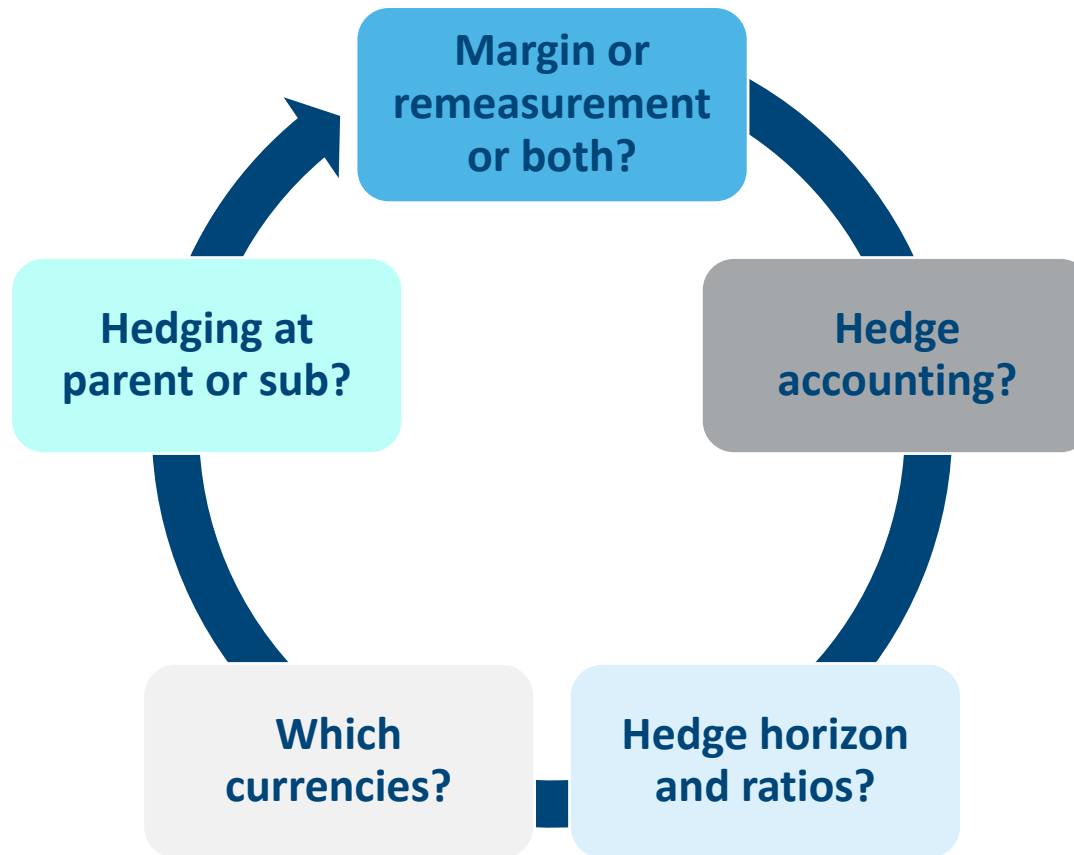
Evaluate: cost of hedging



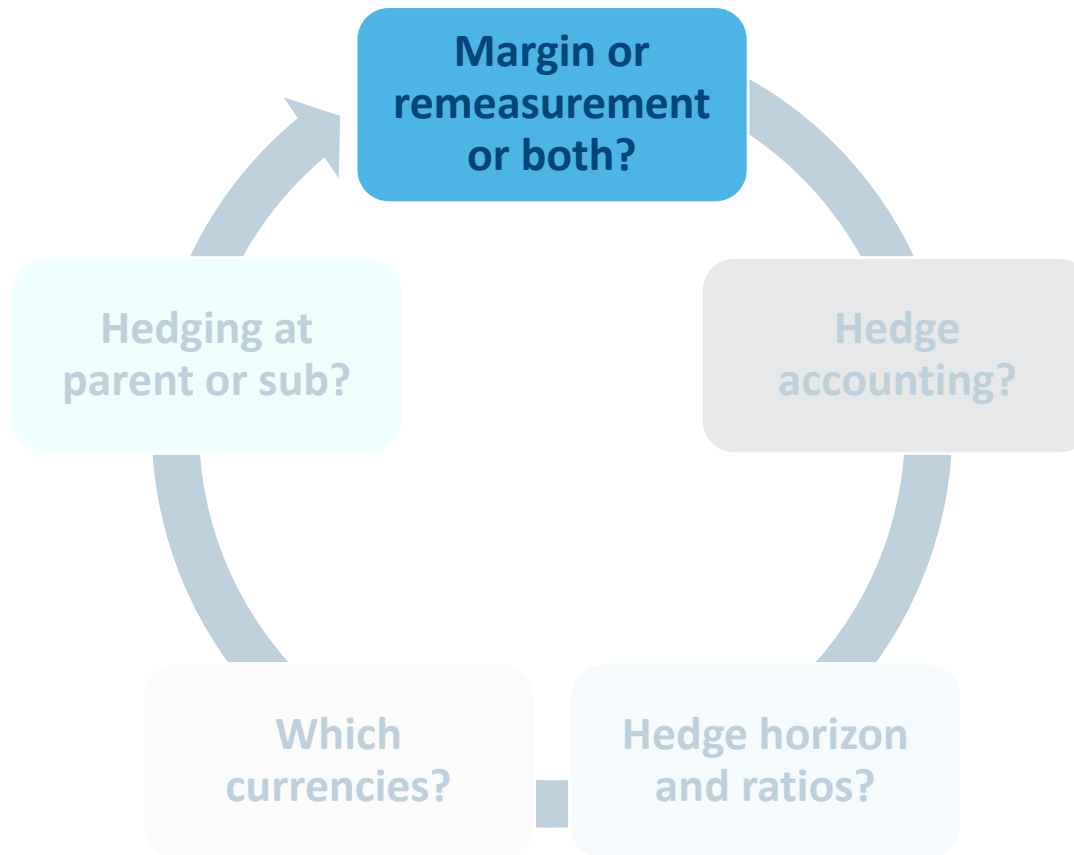
Risk management framework



Strategy considerations



Strategy Considerations

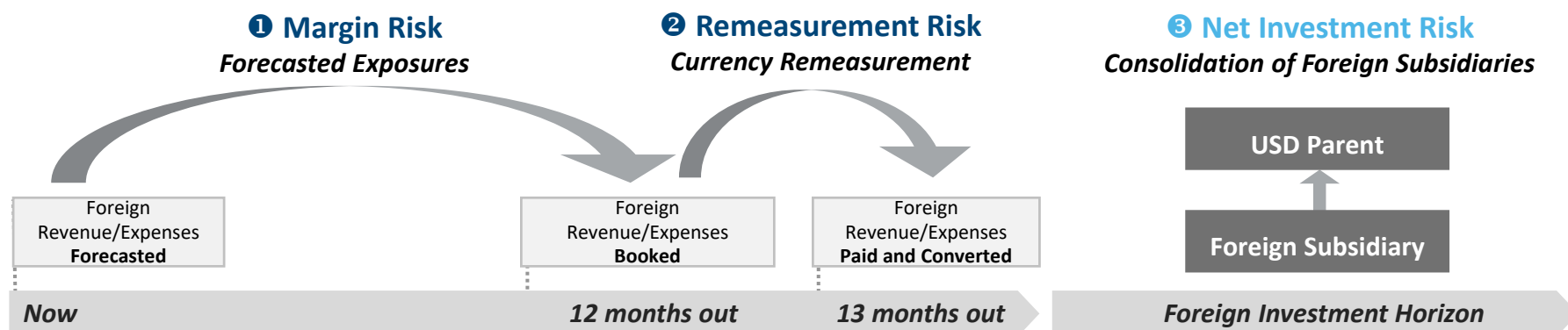


FX risk lifecycle

Forecasted revenues/expenses at the parent and subsidiary levels are subject to long periods of currency volatility which will impact earnings but are difficult to see

Non-functional monetary assets/liabilities at the parent and subsidiaries remeasure monthly, directly visible in FX G/L

Consolidating foreign denominated subsidiaries into the parent's functional currency presents net equity risk and impacts OCI/CTA



Margin Risk impacts future value of revenues/expenses and is not “visible” in financials

Remeasurement Risk impacts FX G/L, which is directly visible in financials

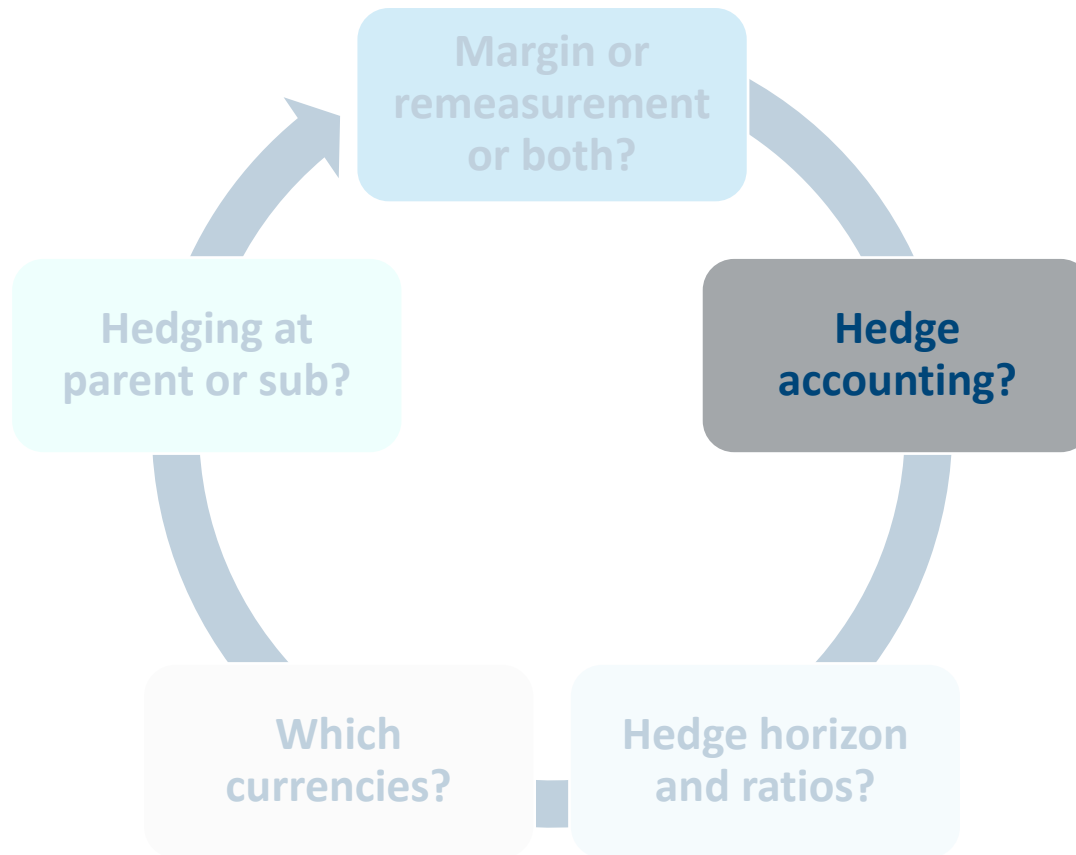
INCOME STATEMENT

Revenue	
- Expenses	
=	Earnings from Operations
±	FX Gain/Loss
=	Net Earnings

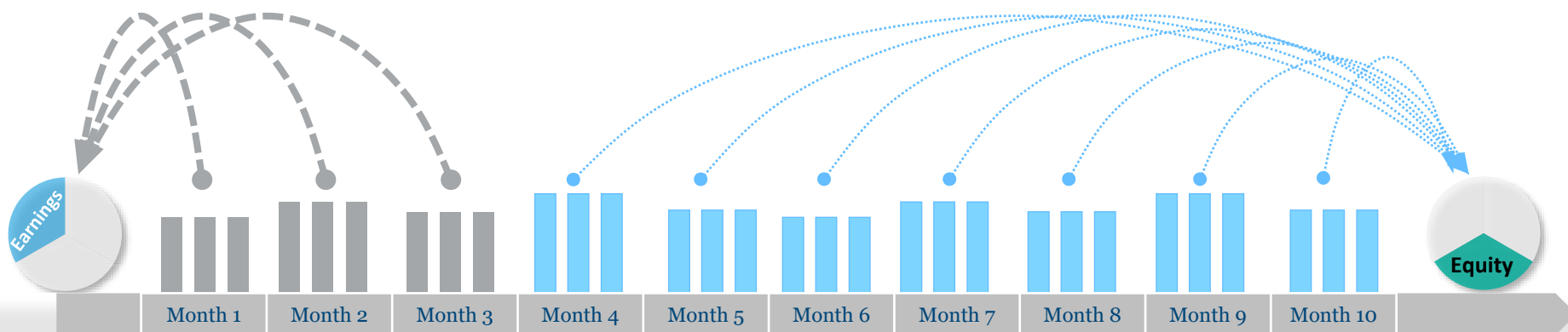
BALANCE SHEET

+/-	OCI (CTA)
=	Comprehensive Income

Strategy Considerations



Strategy considerations: hedge accounting



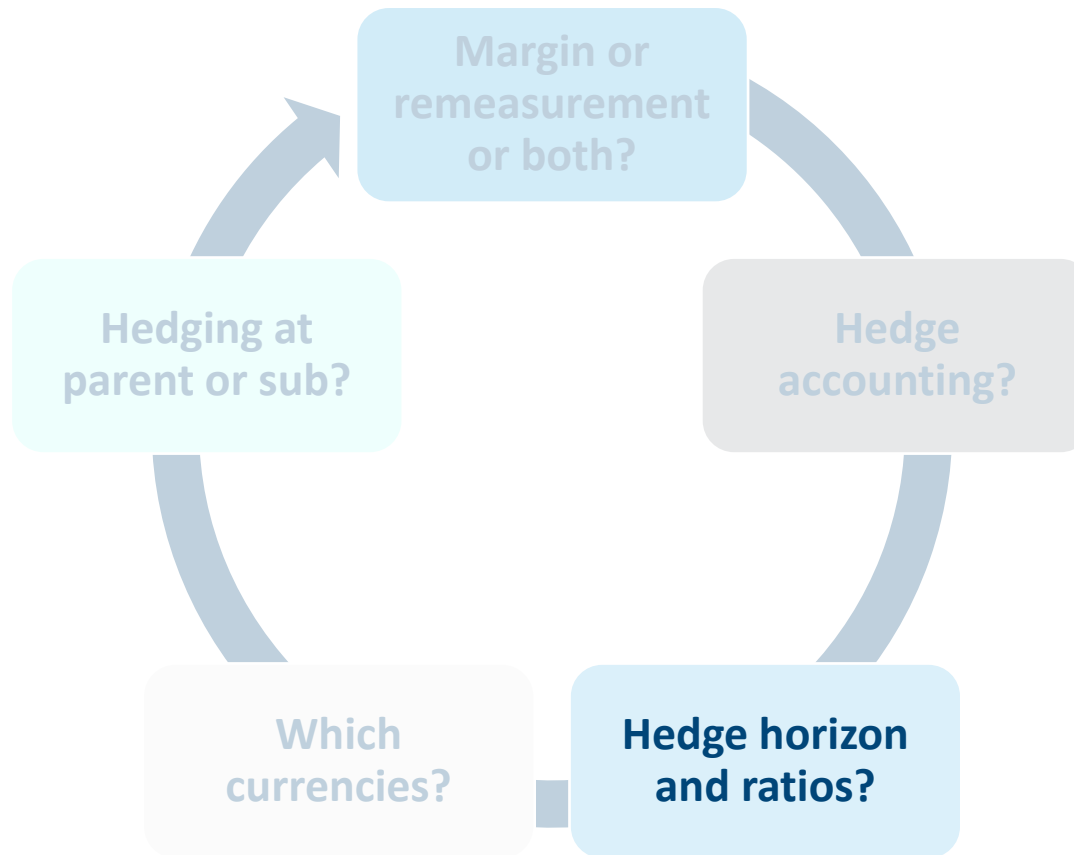
Example:

- 10 monthly hedges are executed to hedge forecasted exposures
- In the first quarter, 3 months of forecasted expenses are realized
- In the same first quarter, the MTM changes of the 3 relevant hedges will hit earnings
- MTM changes for remaining hedges flow to equity until hedged transactions occur

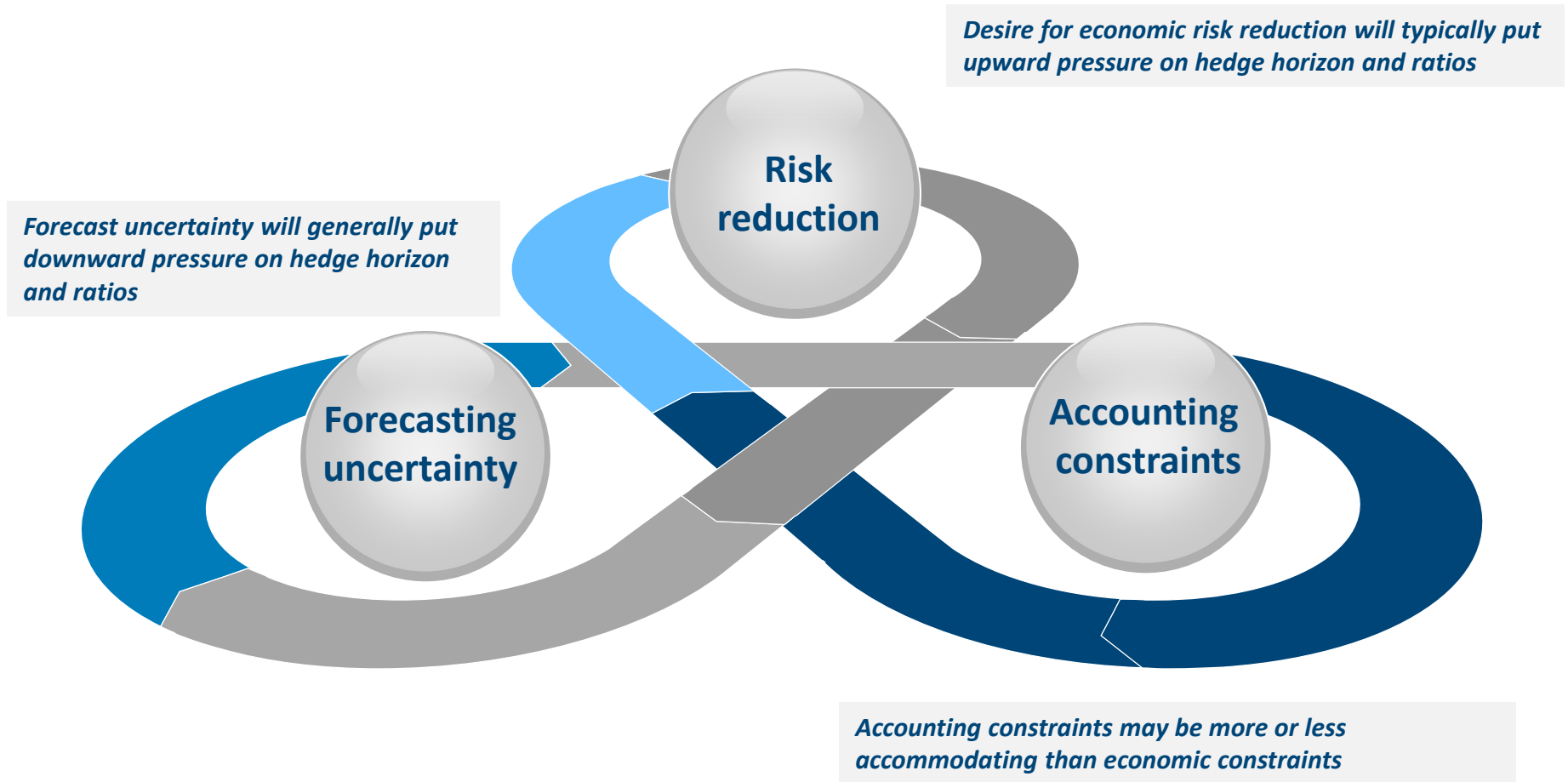
Cash Flow Hedge Accounting

- Effective portion of MTM changes flow to equity, equity reclassified to earnings as hedged transactions occur
- Ineffective portion of MTM changes flow to earnings

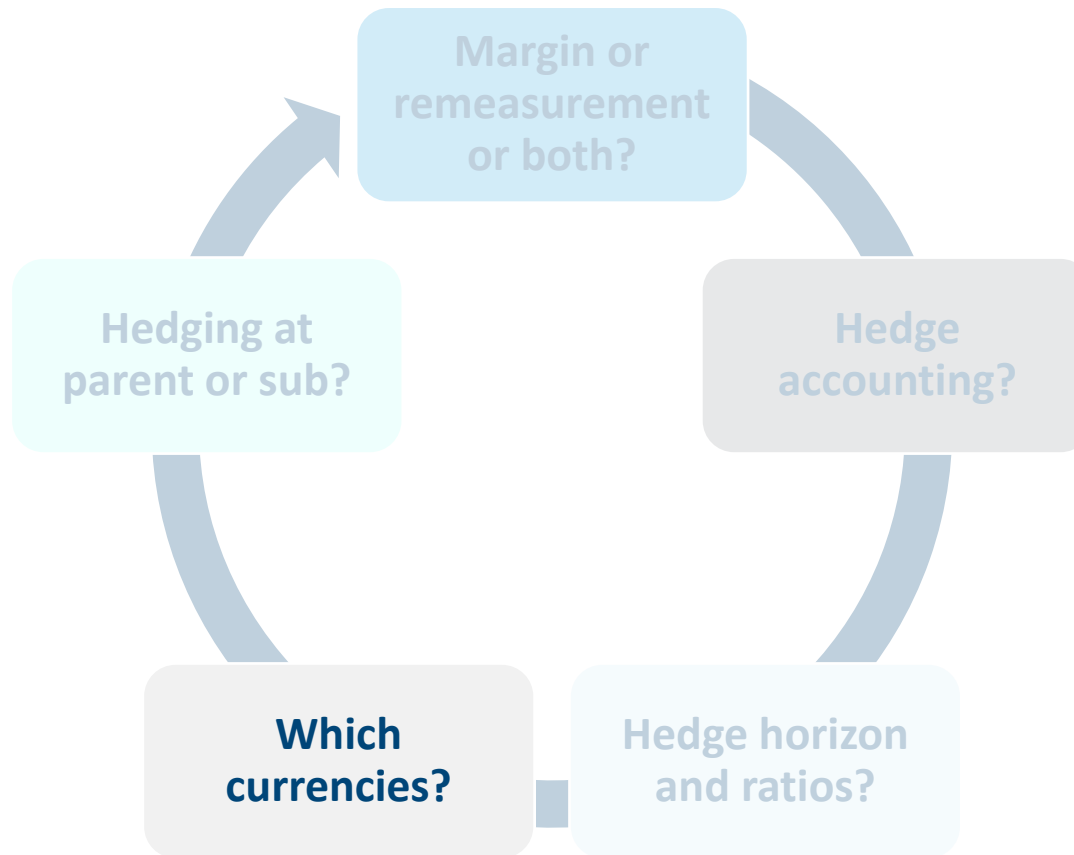
Strategy Considerations



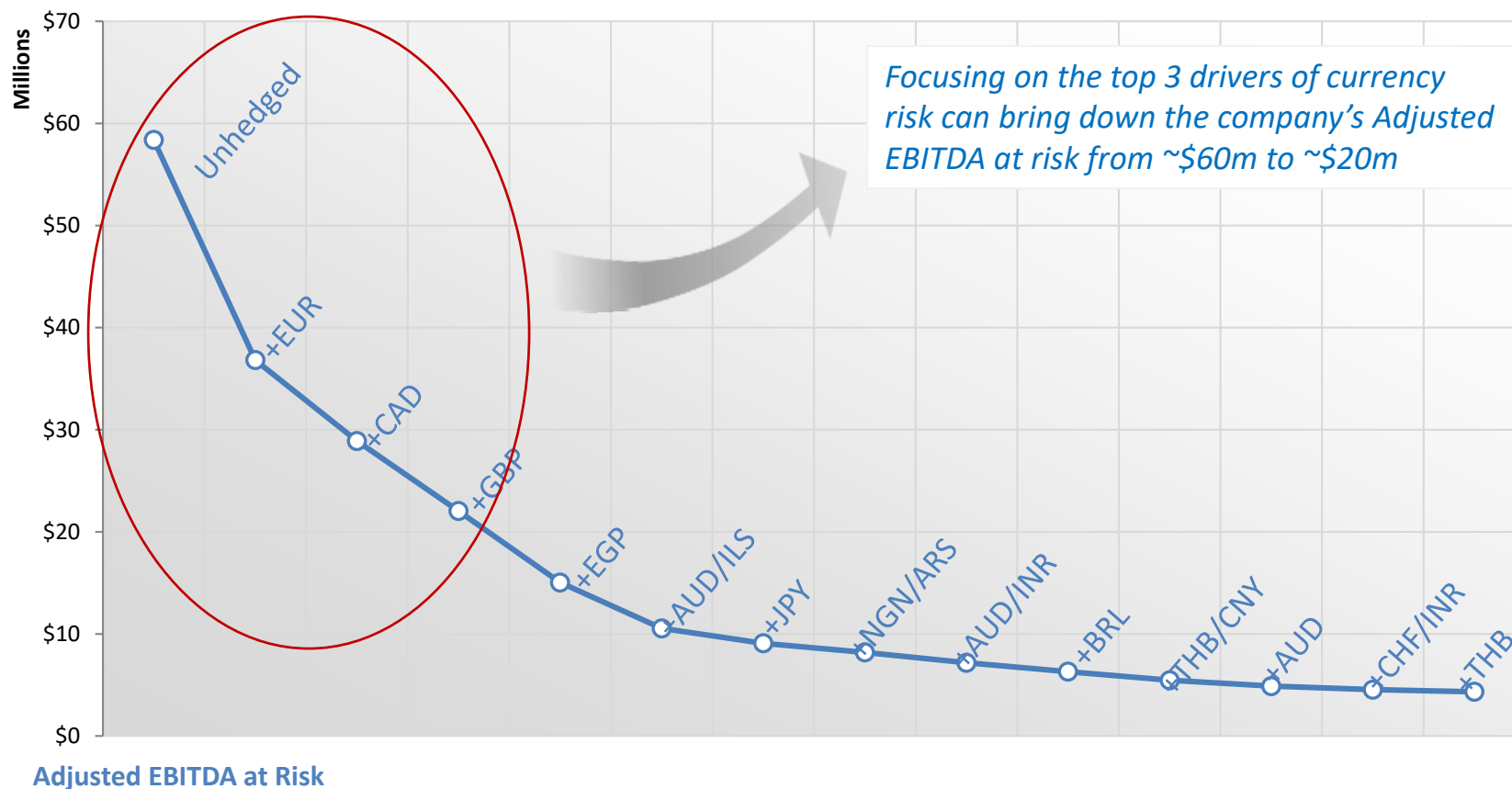
Strategy considerations: hedge horizon and ratios



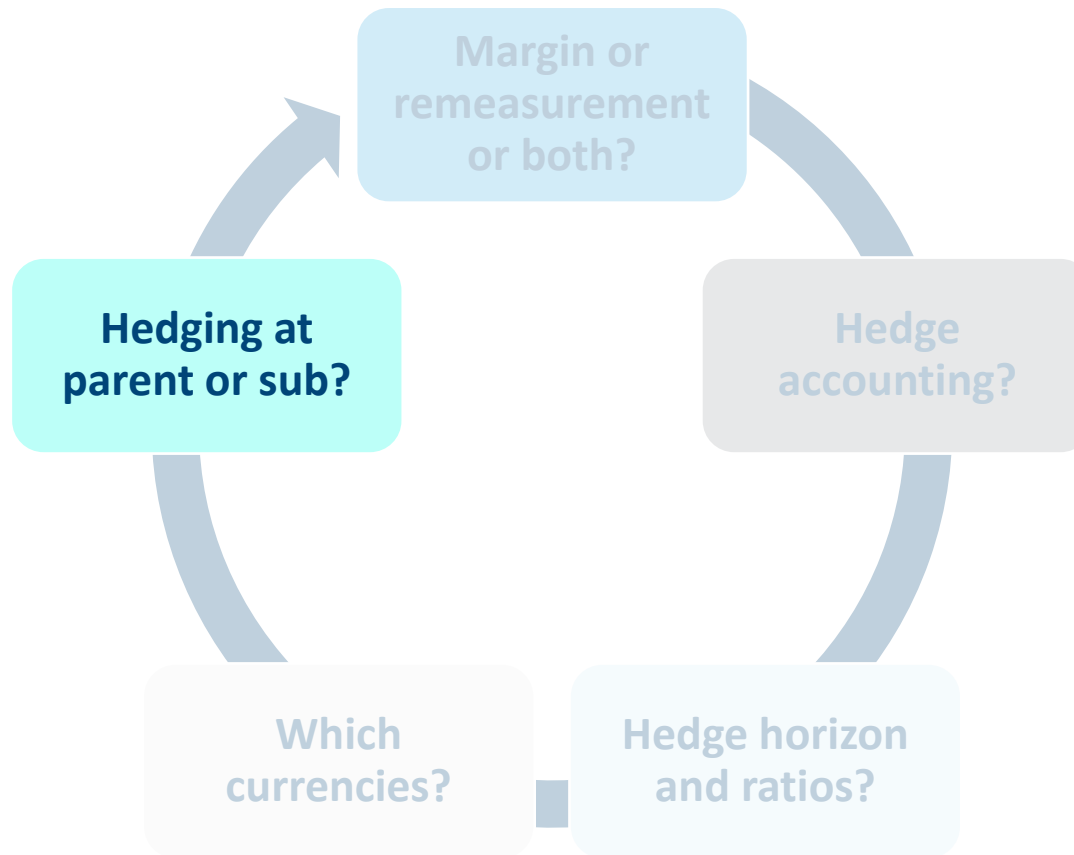
Strategy Considerations



Strategy considerations: currencies to hedge

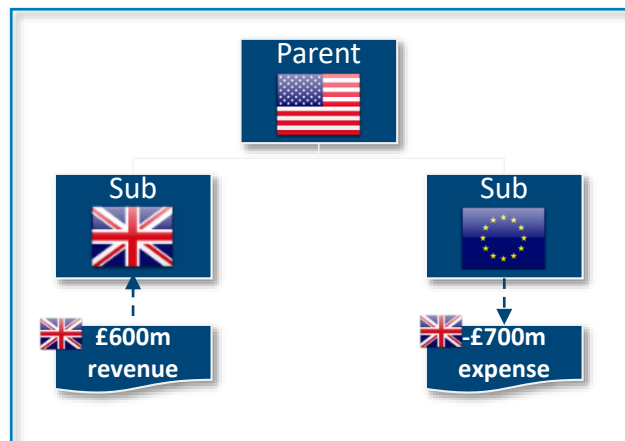


Strategy Considerations



Strategy considerations: parent vs. subsidiary

Parent strategy – aggregate all exposures (transaction and translation) at the parent



All exposures:
 $£600m - £700m = -£100m$

Hedge amount*:
 £100m

Residual parent risk
 $£600m - £700m + £100m \text{ (from hedge)} = £0$

Considerations:

- Aggregation considers natural offsets
- Fewer hedges necessary
- Lower transaction costs
- More holistic view of risk

Subsidiary strategy – risk is managed for each subsidiary independently (transaction only)



Hedge amount*:
 £0

GBP transaction at a GBP entity: no FX risk for the sub
Sub risk = £0



Hedge amount*:
 £700m

Sub risk = -£700m
 Hedge = £700m
Sub risk = £0

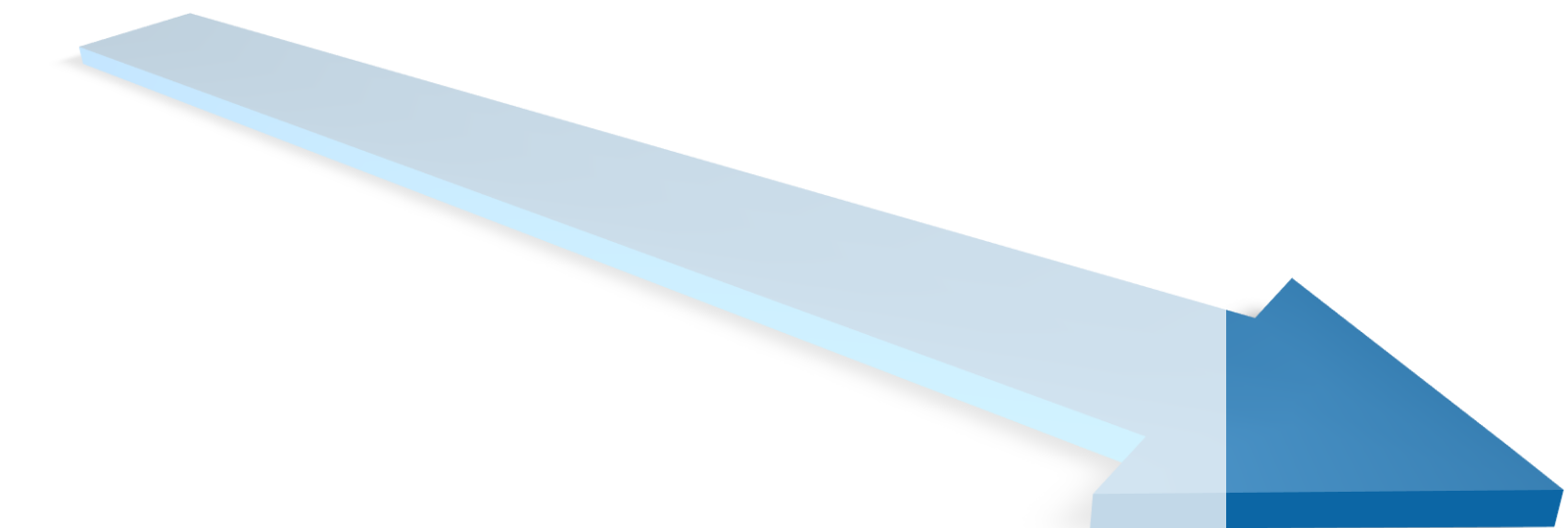
Parent risk

$£600m - £700m + £700m \text{ (from hedge)} = £600m$

Considerations

- Hedge accounting criteria aligns with exposures
- Protecting subsidiary results may increase parent's risk

Risk management framework



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strategy (board
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- ☐ Hedge Performance
- ☐ FX Dashboard

Communicate: hedge performance

Rate Movement		Good News	Bad News
Hedge EUR revenues @ 80% Hedge Ratio	EUR strengthens	EUR revenues are worth more in USD <i>(experience full 100% impact of rate movement)</i>	Forward contract is a liability <i>(only exposed to 80% of hedged notional)</i>
	EUR weakens	Forward contract is an asset <i>(only exposed to 80% of hedged notional)</i>	EUR revenues are worth less in USD <i>(experience full 100% impact of rate movement)</i>

Celebrating hedge losses can be counterintuitive.

Hedging typically covers some portion of an underlying exposure. So a company is generally in a stronger position when their hedge is a partial liability (and their full underlying exposure is an asset), rather than their hedge being a partial asset and their full underlying exposure is a liability.

Communicate: FX dashboard



Who is the intended audience?
Do the metrics resonate with stakeholder priorities?



What are the key metrics to be monitored?



What is the time horizon(s) of concern?

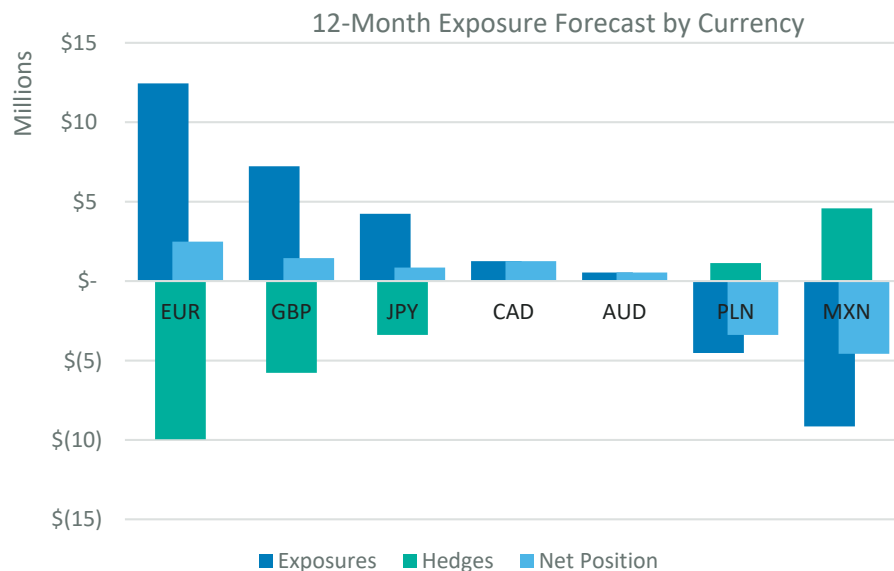


What are the key constraints to monitor? (accounting capacity, cash constraints, etc.)

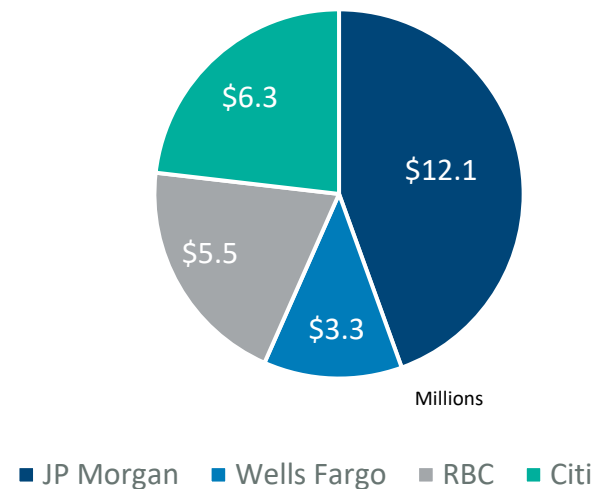


What is the format and frequency of output?
Will it be automated? Outsourced? Internal or external?

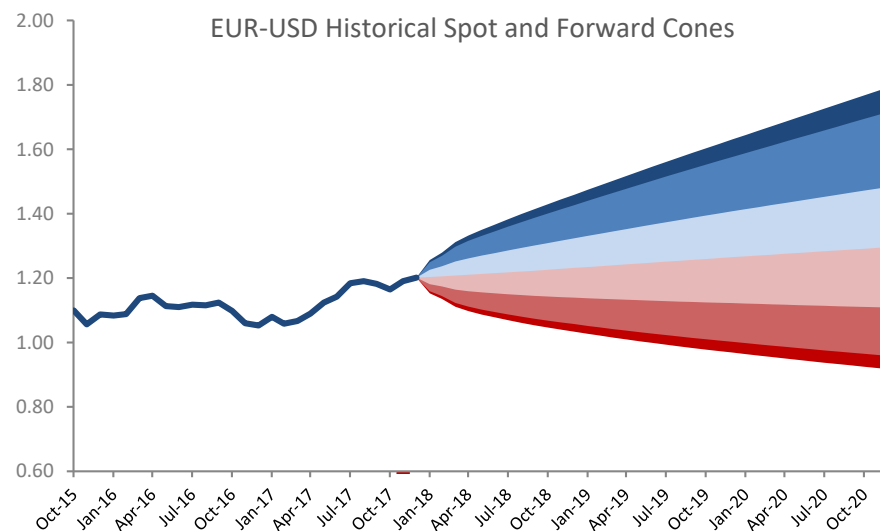
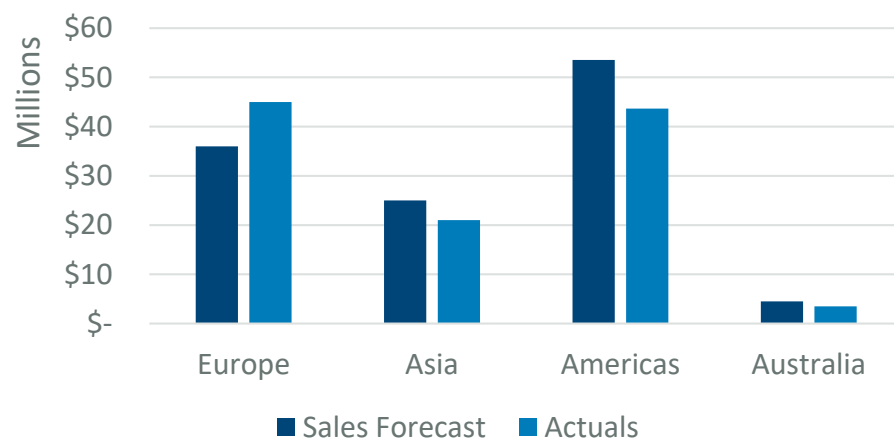
Communicate: FX dashboard



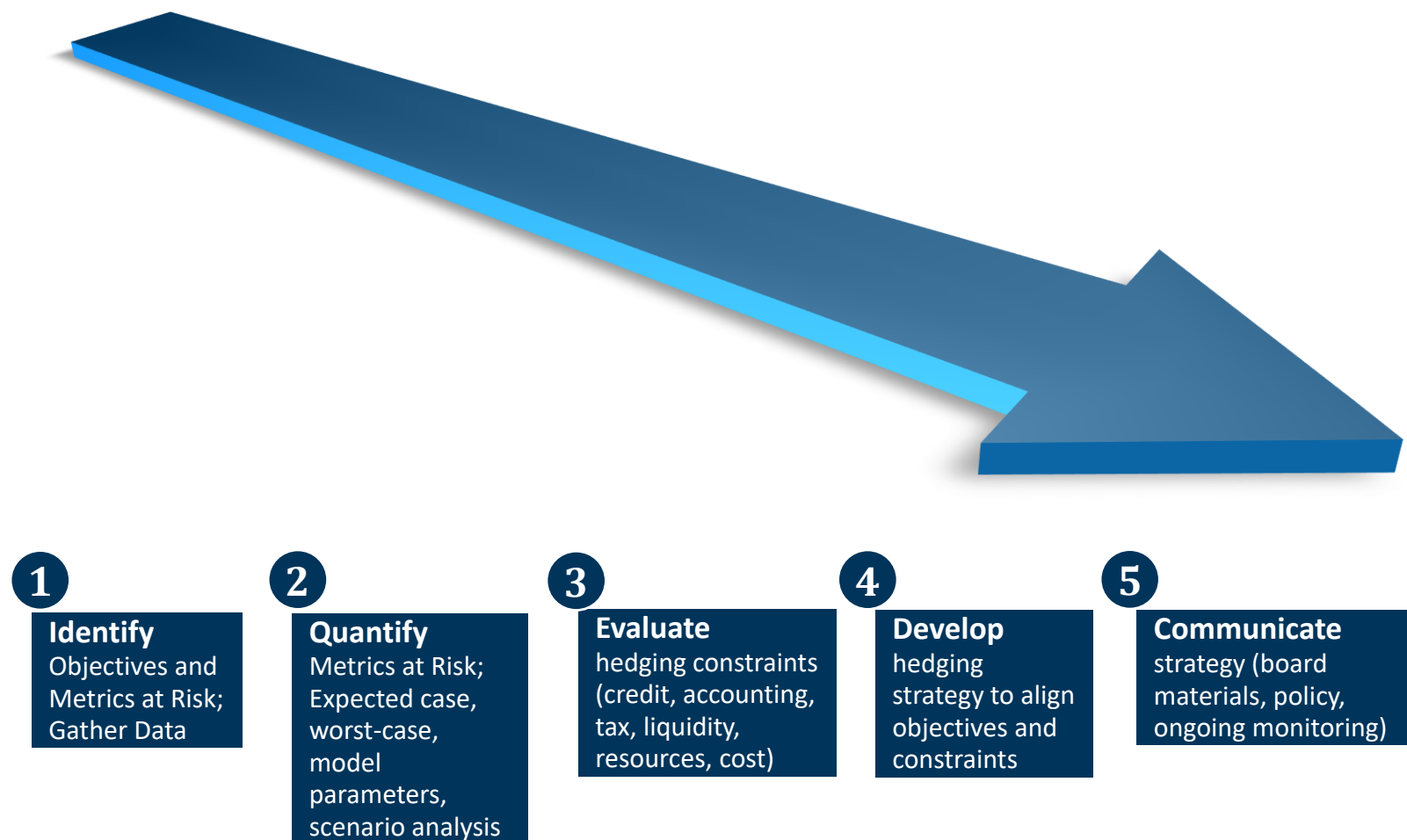
Hedge Allocation by Counterparty



Sales Forecast vs Actuals: Q4 2017



Risk management framework



Questions?