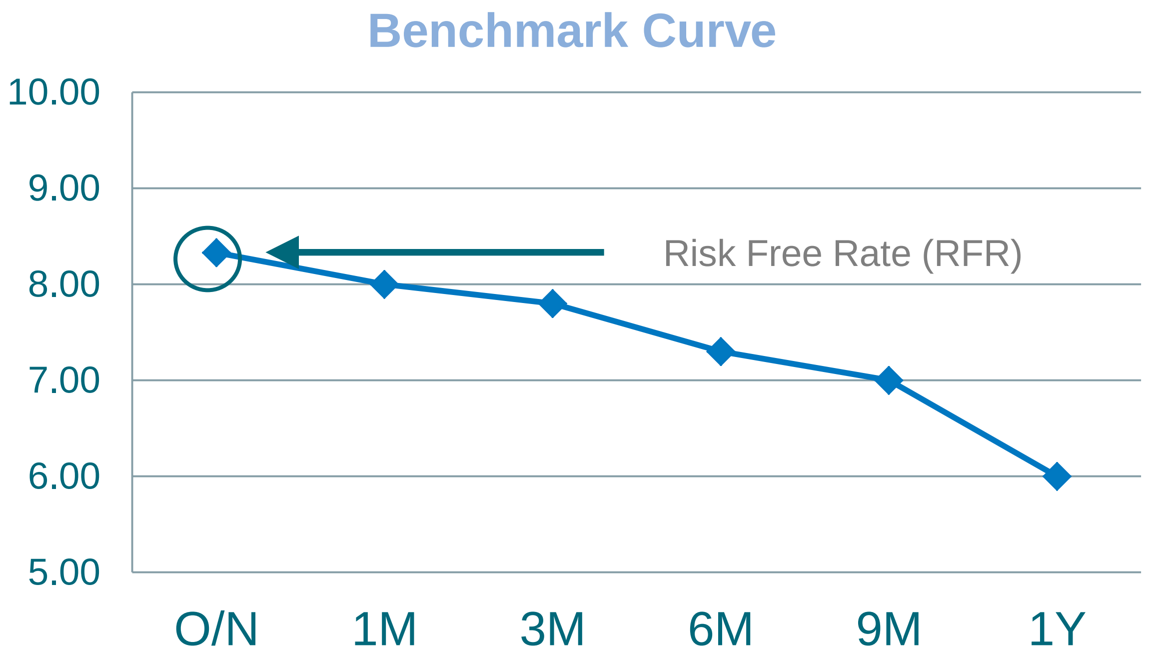
MONEY MARKET INDICES

25 July 2018

What is a Money Market Benchmark ?



Why do we need Money Market Benchmarks?

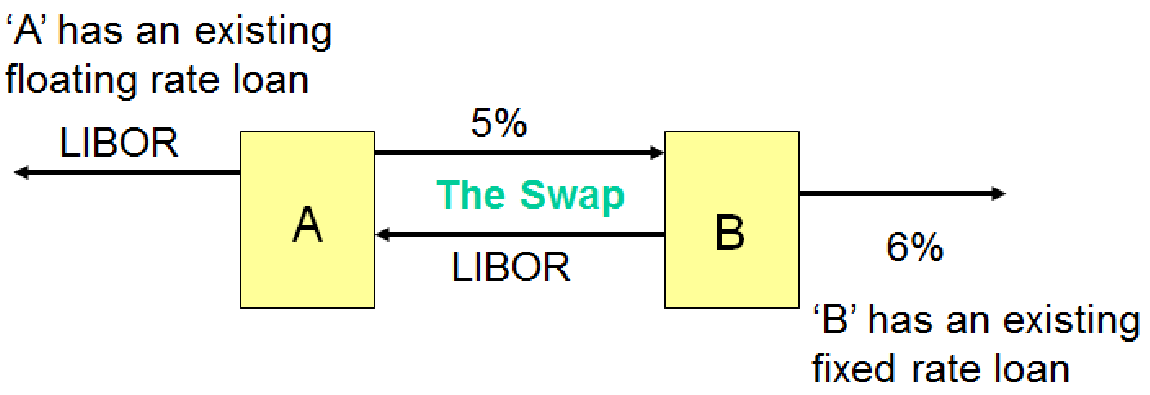
Support development of longer term and more flexible financing to economy at more efficient prices

How do benchmarks support better risk management? Using a Swap to Transform Liabilities

Party A has access to floating rate funding, but wants to hedge against rising interest rates (either because of expects rates to rise and/or to hedge fixed rate assets)

Party B has access to fixed rate funding, but wants floating rate funding (either because expects that rates will fall and/or to hedge floating rate assets)

They agree to the following Interest Rate Swap (IRS):



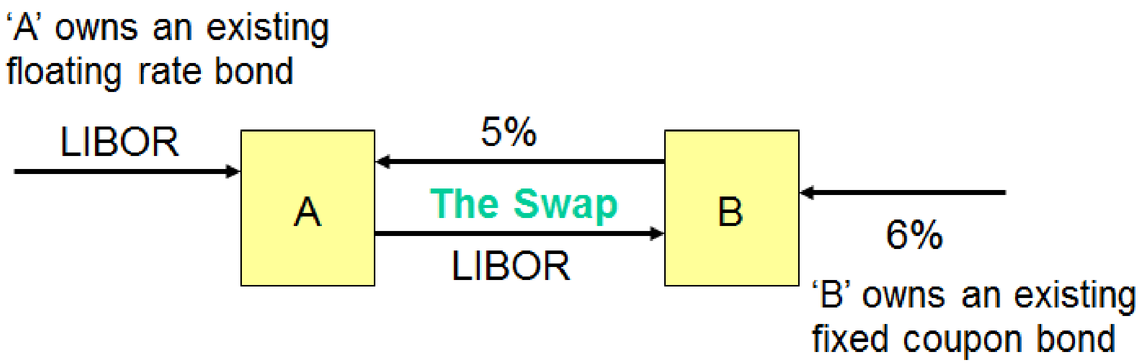
- After swap, party A will be paying 5% fixed and party B will be paying LIBOR + 100 bp
- This is possible because both parties have different interest rate expectations and/or balance sheet exposure to interest rate risk
- The swap is an efficient tool to achieve required interest rate exposure at better all-in rates (better risk allocation in the market allowing to reduce risk premium, efficient use of balance sheet)

How do benchmarks support better risk management? Using a Swap to Transform Liabilities

Party A buys a floating rate asset / offers a floating rate loan, but wants a fixed rate return

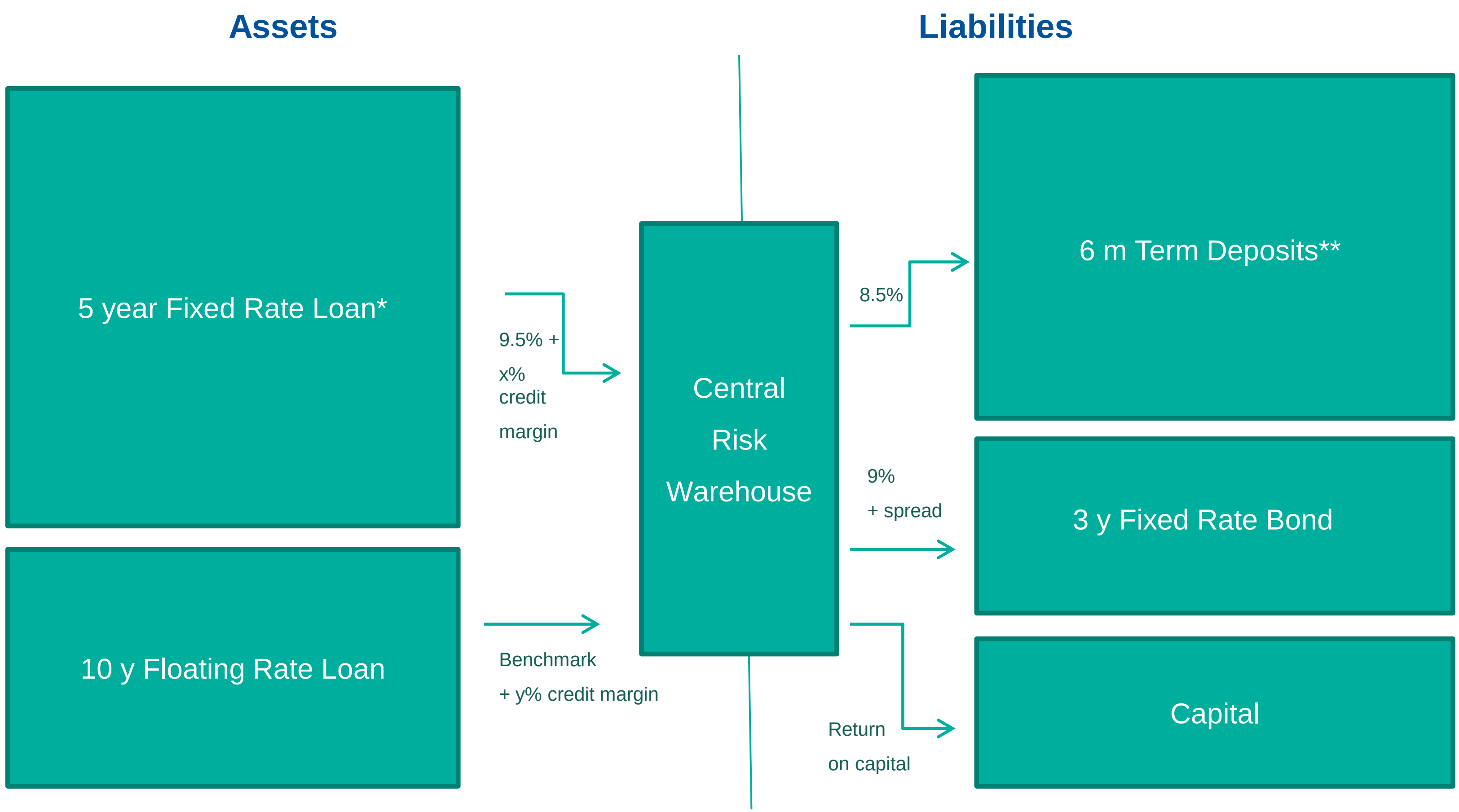
Party B buys a fixed rate asset / offers a fixed rate loan, but wants exposure to a floating rate asset

They agree to the following IRS:



- After swap, A will be receiving 5% fixed and B will be receiving LIBOR + 100 bp.
- Possible because both parties have different interest rate expectations and/or balance sheet exposure to interest rate risk
- Possibility to manage interest rate risk efficiently will allow investors to request lower interest rate risk premium when purchasing assets and allow borrowers to improve cost of funds

How do benchmarks support better risk management? At the Balance Sheet level



* Real fixed rate!

** Term deposit that cannot be broken without a penalty

How do benchmarks support better risk management?
At the Balance Sheet level

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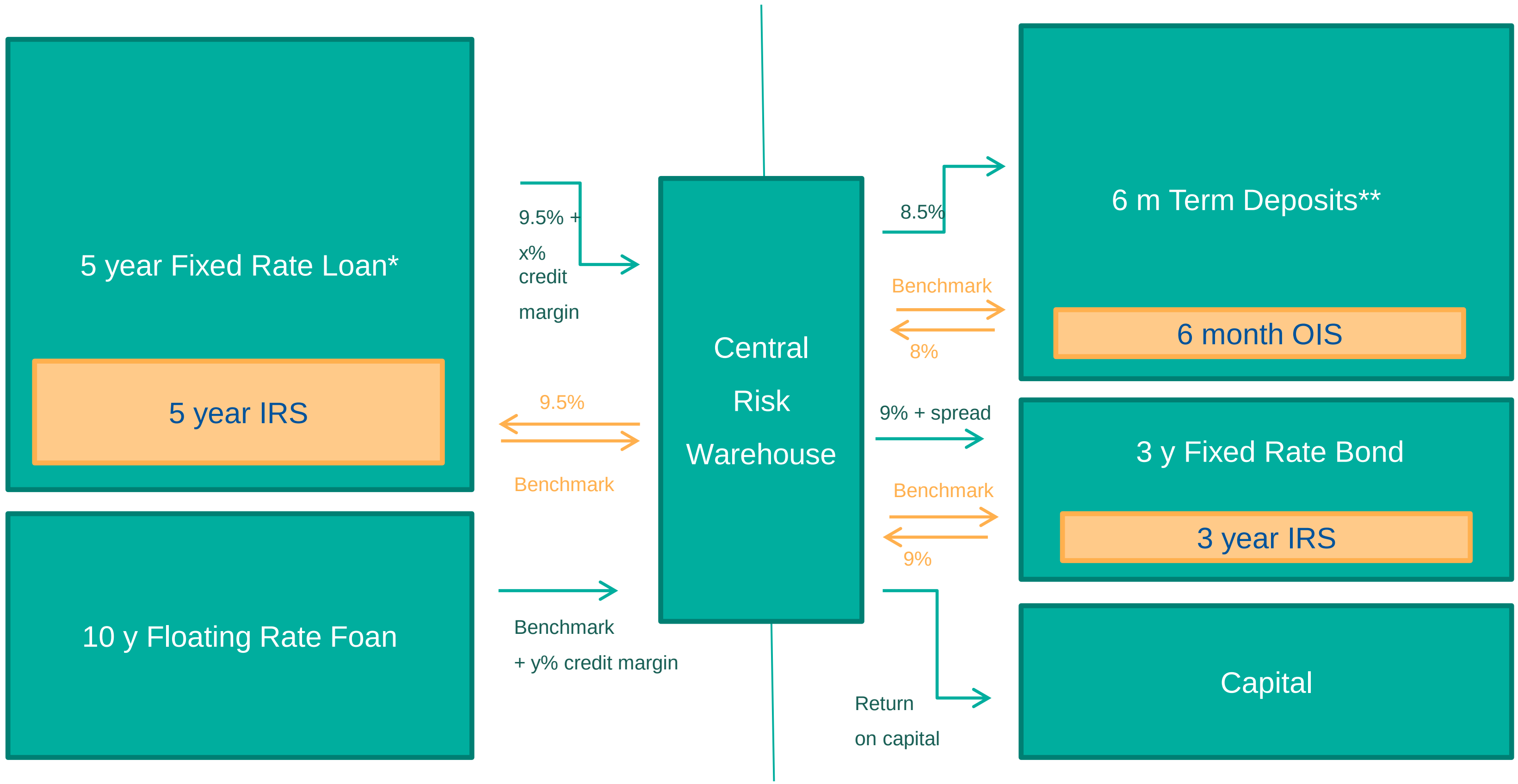
Assets **Liabilities**



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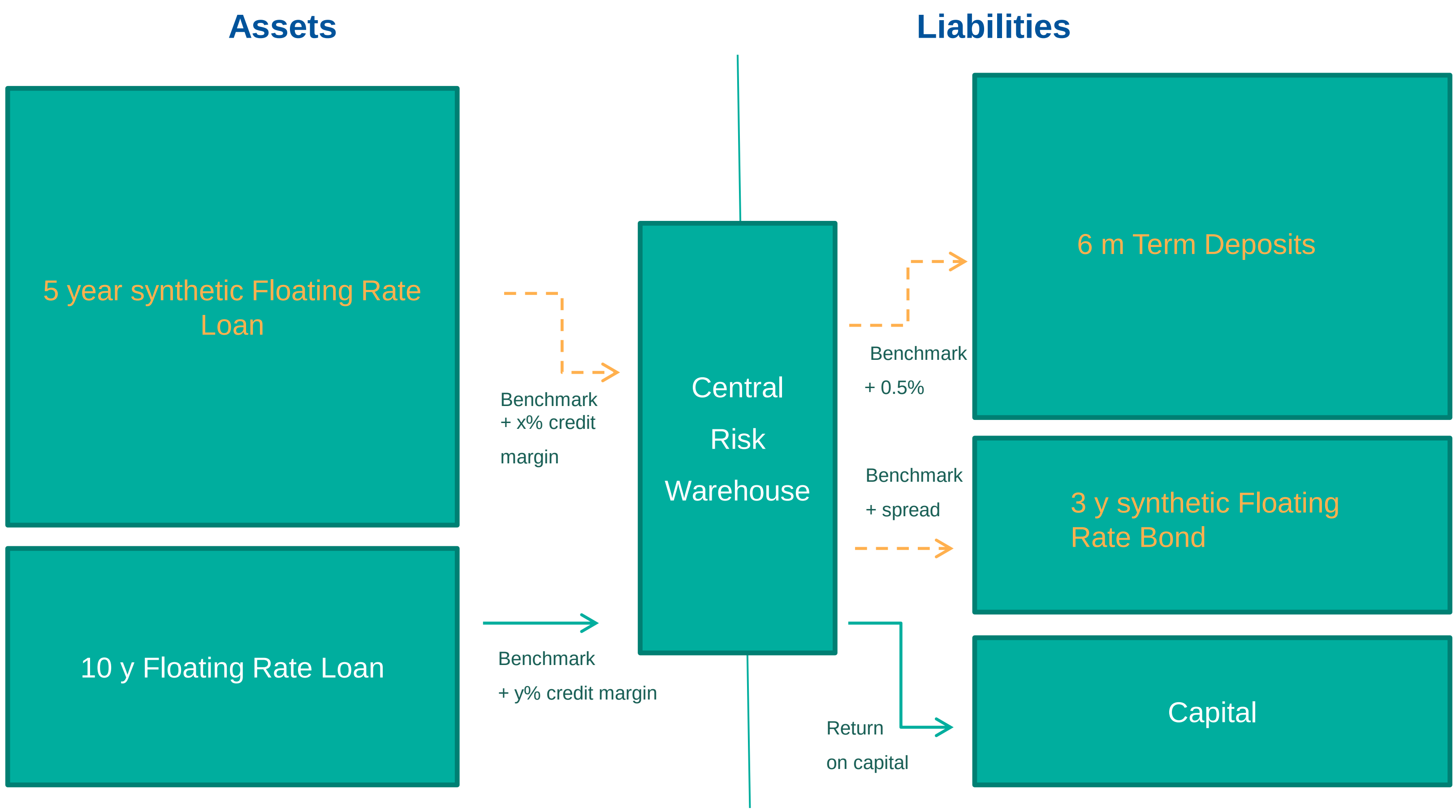
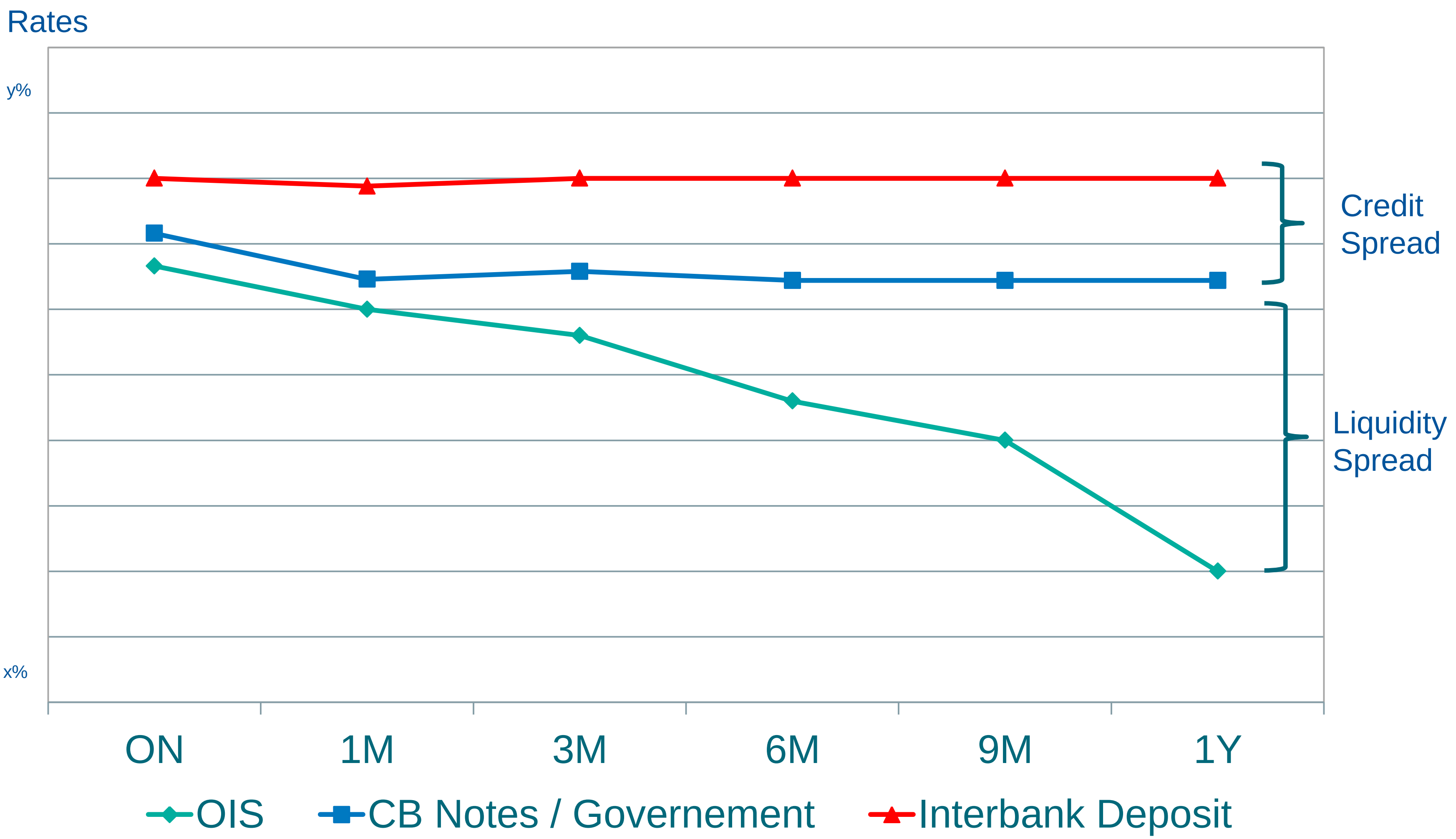
How do benchmarks support better risk management?
At the Balance Sheet level



How do money market benchmarks support better risk management?

- Manage interest rate risk in more efficient manner: reduce or increase exposure to fluctuations in interest rates or obtain a marginally lower interest rate than would have been possible without the swap
- Improve domestic interest rate risk allocation (transfer between market players)
- Support capital market development (supports increased liquidity and lower risk premium)
- Means to reduce all-in funding cost for borrowers
- Derivatives are efficient in terms of credit and capital charges (more efficient than using cash instruments or balance sheet adjustments)
- Managing interest rate risk with Interest Rate Swaps allows to manage interest rate risk independently from FX liquidity (which is not the case for FX swaps and Cross Currency swaps)
- Allow for better monitoring of effectiveness of monetary policy

What can be used as Money Market Benchmark?



International Tendencies
From Libor to Risk Free Rates

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2007-2008 crisis: Libor-OIS spread explosion

2009: Libor manipulation scandal

July 2013: IOSCO publishes report on 'Principles for financial benchmarks

July 2014: FSB recommendations on interest rate benchmarks
=> **Recommending multi-benchmark approach: IBOR+ and Risk Free Rates (RFR)**

2015: Interim report on implementation of July 2014 FSB recommendations

July 2016: progress report on implementation of July 2014 FSB recommendations

2017:
- **April**: WG for £ RFR recommends Sonia
- **June**: ARRC announces Broad Repo Rate as its Preferred Alternative Reference Rate
- ISDA working group working on Libor fall-back referencing RFR
- **July**: Announcement that mandatory contribution to **Libor to be discontinued by 2021**

=> Focus on transition to RFRs

1/1/2018: EU regulation on financial benchmarks effective: Supervised entities must not use benchmarks in financial instruments in the EU unless benchmark is provided by an authorised/registered EU administrator or is a qualifying non-EU benchmark

International Tendencies
From Libor to Risk Free Rates

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From term unsecured indicative deposit rates to overnight ‘risk free’ traded rates:

IBORs - universal benchmarks for all transactions

IBOR type indices reflecting unsecured indicative interbank rates including credit and liquidity premium which could be volatile at times of interbank stress and don’t always reflect actual market rates (for lack of underlying market)

Dual work streams on IBORs+ and RFRs

Acknowledgement that IBORs may not be best benchmarks for some types of floating rate transactions eg interest rate derivatives that manage pure interest rate risk

=> Parallel work streams on IBOR+ (reforming IBORs) and Risk Free Rates

IBORs to be replaced by RFRs?

- Banks won’t be compelled to contribute to Libor from 2021
- Fear of financial penalties
- ISDA working group on Libor fall-backs
- Working Groups on Risk Free Rates and term Risk Free Rates

G7 RFR Working Groups

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Jurisdiction	Working Group	Alternative RFR	Regulator	Publication Date	Description of RFR
	Alternative Reference Rate Committee	Secured Overnight Financing Rate (SOFR)	Federal Reserve Bank of New York	April 3, 2018	SOFR is **secured,** overnight, and transaction-based. SOFR encompasses multiple repo market segments.
	Working Group on Sterling Risk-free Reference Rate	Reformed Sterling Overnight Index Average (SONIA)	Bank of England	April 23, 2018	Reformed SONIA is **unsecured,** overnight, and transactions-based.
	Working Group on Euro Risk-free Rates	TBD	European Central Bank (ECB), the Financial Services and Markets Authority (FSMA), the European Securities and Markets Authority (ESMA) and the European Commission	TBD	The first public consultation by the Working Group closed on July 13, 2018
	The National Working Group on CHF Reference Rates	Swiss Average Rate Overnight (SARON)	Swiss National Bank	Currently being published	SARON is a **secured** overnight rate that reflects interest paid on interbank overnight repo transactions. The entire CHF Tomorrow Overnight Indexed Swap (TOIS) market was transitioned to SARON on December 29, 2017 upon the TOIS rate's discontinuation.
	Study Group on Risk-free Reference Rates	Tokyo Overnight Average Rate (TONA)	Bank of Japan	Currently being published	TONA is **unsecured,** overnight and transaction-based. It reflects the uncollateralized overnight call rate market
	Canadian Alternative Reference Rate Working Group	Expected to be an enhanced Canadian Overnight Repo Rate Average (CORRA)	Bank of Canada	TBD	CORRA is **secured,** overnight and transaction based. It is a measure of the average cost of overnight collateralized funding and covers the overnight repo market.

Guiding principles for a reliable Money Market benchmark rate

European Bank for Reconstruction and Development

Guiding principles for a reliable MM interest rate benchmark

- Reflecting a tradable underlying by all market participants
- Expressive of the policy target of the Central Bank
- Transparent definition that is robust to adverse changes in market structure
- Appropriate Governance
- Minimal opportunities for market manipulation
- Conducive to building a term extension and curve

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