

# Treasury: Engine Room Central

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Banking that fits your life.



# The Role of Treasury in Bank Financial Intermediation

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Banking that fits your life.



# Treasury's Mandate

*CIBC's Treasury function actively manages balance sheet resources, including capital and funding, as well as, balance sheet risks including interest rate, liquidity risk and FX in support of our corporate strategy*

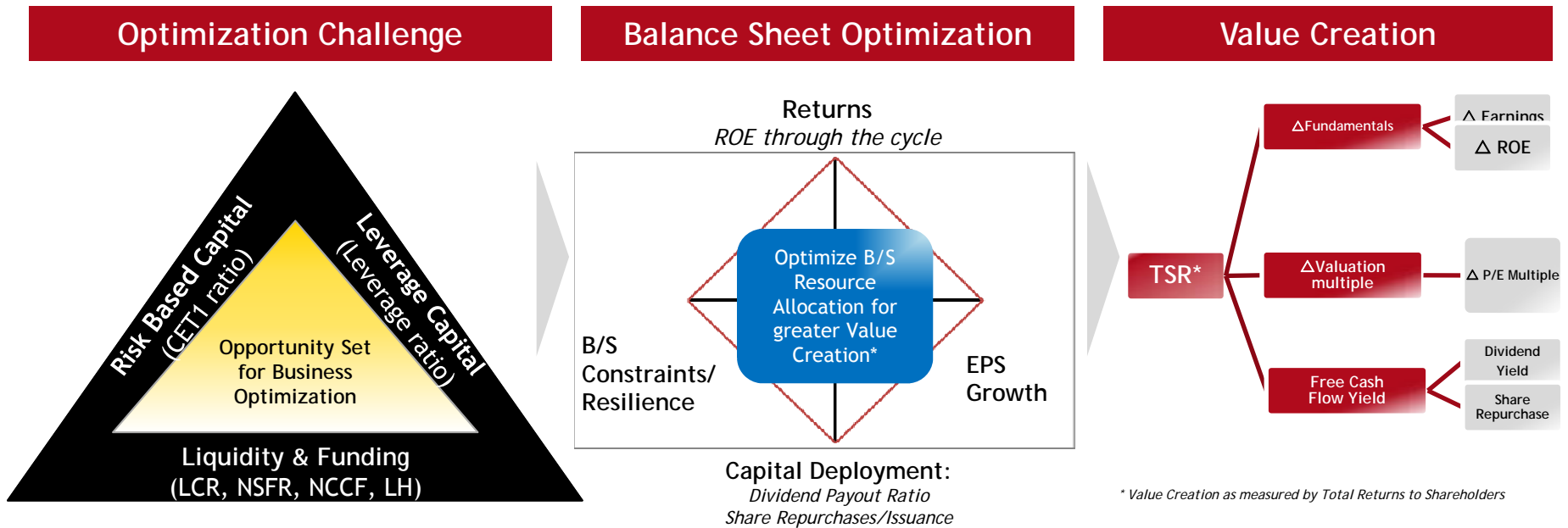
## ▲ Treasury's active responsibilities and objectives include the following:

<p>1</p> <p><b>Funding &amp; Liquidity Management</b></p>	<ul style="list-style-type: none"> <li>▲ Measurement and Management of Liquidity Risk</li> <li>▲ Sourcing and execution of cost efficient funding of the Bank's balance sheet within the constraints of liquidity, balance sheet, market and concentration limits</li> <li>▲ Cash management, related settlement, and collateral management at Central Banks and clearing corporations</li> </ul>
<p>2</p> <p><b>Performance Measurement &amp; Resource Allocation</b></p>	<ul style="list-style-type: none"> <li>▲ Long-term strategic deployment of balance sheet resources aligned with our corporate strategy with boundary conditions, in partnership with business unit CFOs</li> <li>▲ Optimization of the capital, liquidity and funding within the constraints of regulatory requirements and support strategic business plans</li> <li>▲ Management of transparent and effective funds transfer pricing model that is appropriately risk adjusted and reflects usage of all balance sheet and off-balance sheet resources</li> <li>▲ Management of regulatory, central bank, government, industry and investor relations related to capital instruments, financing vehicles and treasury related financial system risks</li> </ul>
<p>3</p> <p><b>Structural Risk Management</b></p>	<ul style="list-style-type: none"> <li>▲ Measurement and management of balance sheet structural risk, including:             <ul style="list-style-type: none"> <li>– Measurement and management of Asset/Liability Management (ALM) including structural FX and interest rate risk, asymmetric risks (optionality), and NII sensitivity</li> <li>– Investment management of liquid assets to meet the liquidity needs of the bank, align with interest rate risk management objectives and achieve investment returns consistent with our risk appetite</li> <li>– Pension Investment Strategy: Implement Liability Driven Investment solution including revised asset allocation mix</li> </ul> </li> </ul>

**Treasury must deliver on these objectives to help support the achievement both CIBC's business and financial objectives and maintain a strong long-term debt rating**

# The Balance Sheet Resource Management Challenge

- ▲ Banks face a number of resource constraints driven by regulatory requirements and slow economic growth; Optimization efforts to improve financial performance aligns with the goal of building a client focused relationship bank with a strong performance-oriented culture



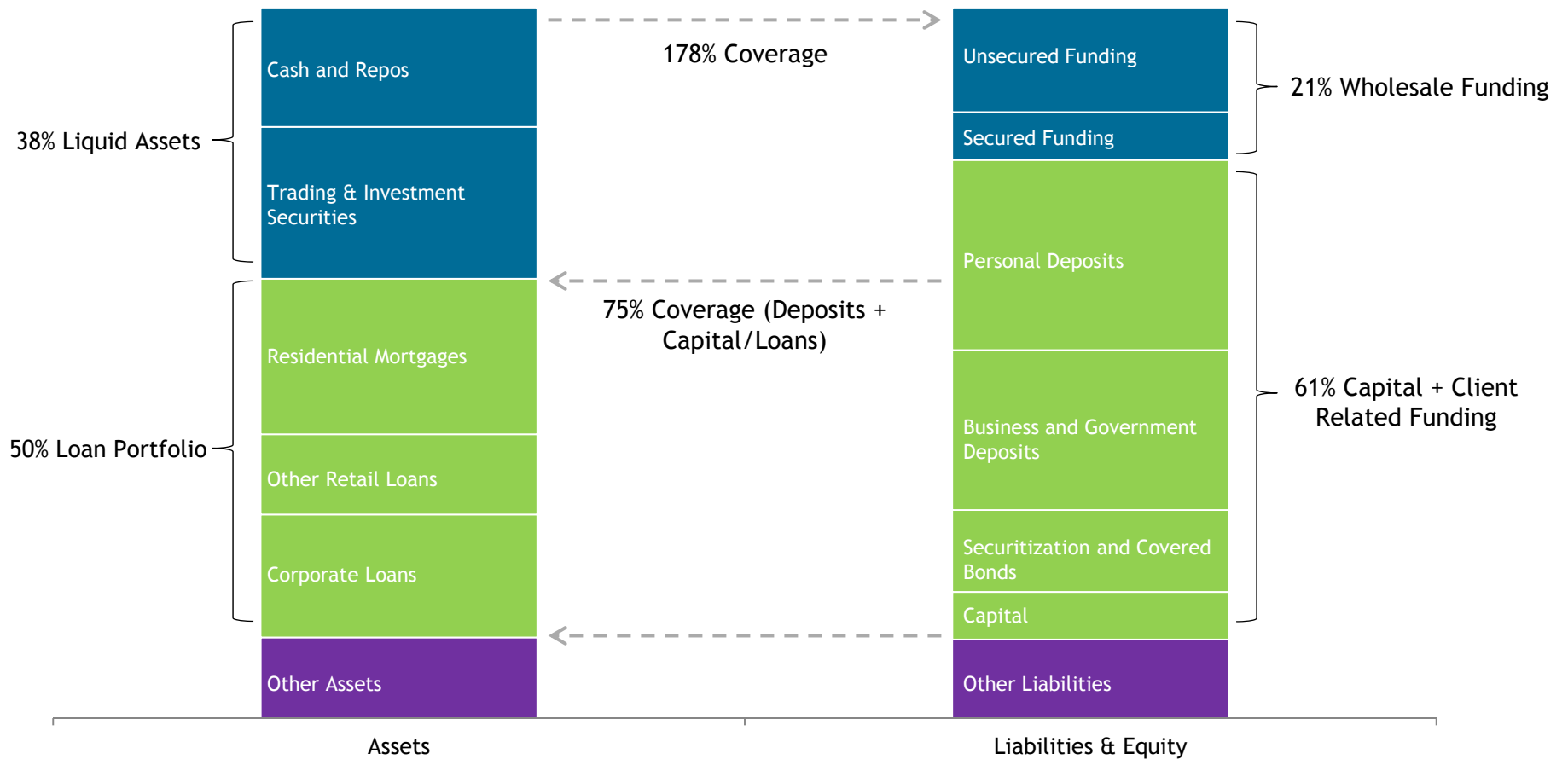
## The Challenge

- ▲ New global regulations relevant to capital, liquidity, and funding have created greater consistency in balance sheet profiles and changed the underlying market dynamics. As a result, balance sheet resources (capital & funding) used to drive earnings growth have become more scarce, increasing the cost to the bank and their customers
- ▲ These higher requirements incentivize banks to aggressively optimize their use of balance sheet resources; The usage of resources are reviewed by product/business/behavioural cash flows
- ▲ Dynamic tension exists between ROE and EPS growth objectives
- ▲ Optimizing one metric over another may come at the expense of other resources

# Strong, High Quality Liquid Client Driven Balance Sheets

## Average of Big 6 Canadian Bank Balance Sheets<sup>1</sup>

Based on Q2/17 results



(1) Based on weighted average of Top 6 Canadian Banks. % of Categories are heavily influenced by size of balance sheet (i.e. RBC and TD have the greatest influence on the average)

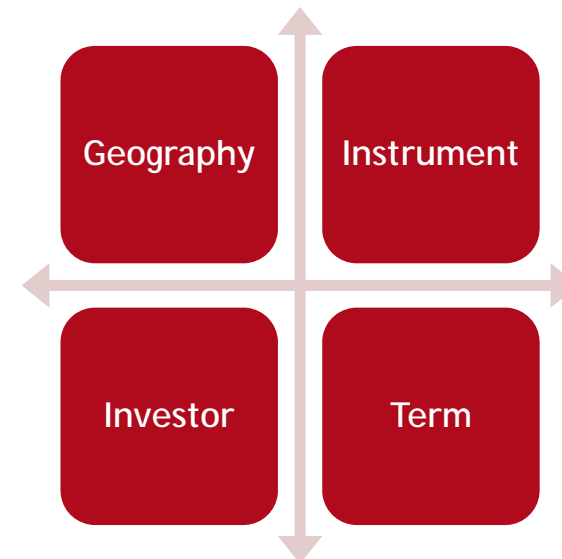
# Canadian Banks' Funding Strategy and Sources

- ▲ Canadian Bank's funding strategy includes access to funding through retail and corporate deposits, and wholesale funding
- ▲ The wholesale funding strategy is to develop and maintain a sustainable funding base through which CIBC can access funding across many different depositors and investors, geographies, maturities, and funding instruments
- ▲ Diversification Is The Key To A Stable Wholesale Funding Profile: Diversification across products, currencies, investor segments and geographic regions
- ▲ Achieve appropriate balance between cost and stability of funding
- ▲ Regular issuance to promote investor engagement and secondary market liquidity
- ▲ Well balanced maturity profile that is reflective of the maturity profile of our asset base

## Wholesale Funding Sources

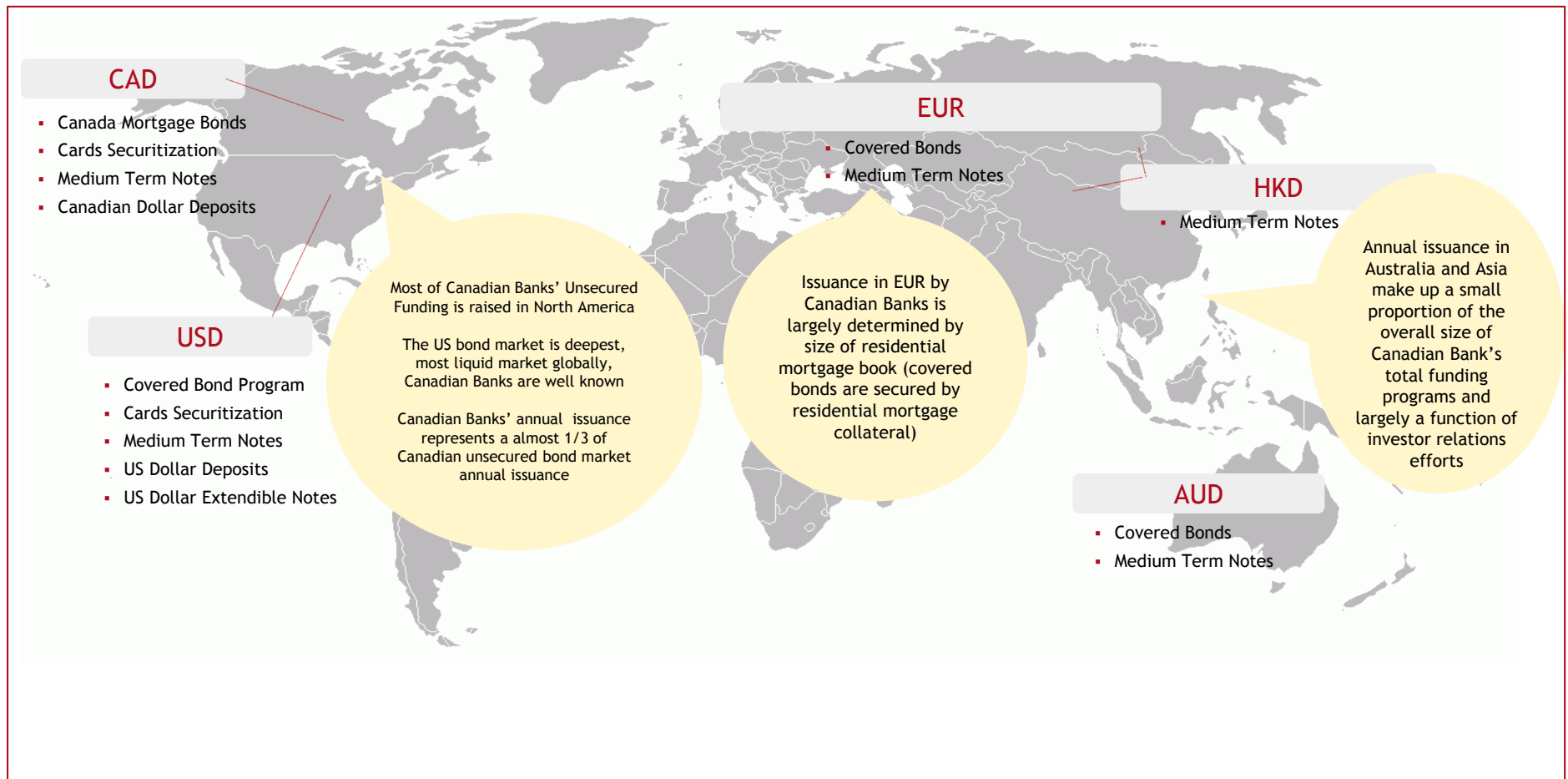
Money Markets (<1 year)	Wholesale term deposits Canada, U.S.
Global Medium Term Note programs	Credit card securitization Canada, U.S.
Covered Bond Programs	Mortgage securitization programs

## Wholesale Funding Diversification



# Canadian Banks' Wholesale Funding Profile by Geography

## Wholesale Funding By Market/Currency



# The Regulatory Environment is Continuously Evolving

<h2>Capital Requirements</h2>	<p>Risk-Based Capital Ratios</p>	<ul style="list-style-type: none"> <li>▪ Outlined in OSFI's Capital Adequacy Requirements (CAR) 2017</li> <li>▪ Revisions for Standardized Approach Credit Risk/Capital Floors (<i>document out for consultation</i>)</li> <li>▪ Risk-sensitive floor for loss-given-default tied to income and local property prices effective November 2016</li> <li>▪ Interest Rate Risk Banking Book (Pillar 2) - January 2018</li> <li>▪ Fundamental review of trading requirements</li> </ul>
<h2>Liquidity Requirements</h2>	<p>Liquidity Coverage Ratio (LCR)</p> <p>Net Cumulative Cash Flow (NCCF)</p> <p>Net Stable Funding Ratio (Proposed)</p>	<ul style="list-style-type: none"> <li>▪ Final Canadian rules released May 2014</li> <li>▪ LCR effective January 2015</li> <li>▪ Daily LCR effective Q1 2017</li> <li>▪ Final Canadian rules released May 2014</li> <li>▪ NCCF effective January 2015</li> <li>▪ Final BCBS rules released October 2014</li> <li>▪ OSFI consultative document released January 2014</li> <li>▪ Implementation date January 2019</li> </ul>
<h2>Other</h2>	<p>Total Loss Absorbing Capacity (TLAC) (Proposed)</p> <p>Derivatives Reform</p> <p>Residential Mortgage Underwriting</p>	<ul style="list-style-type: none"> <li>▪ Canadian Bail-in consultation paper issued August 2014; received Canadian parliamentary approval in June 2016</li> <li>▪ Financial Stability Board November 2015</li> <li>▪ Expected implementation 2017/2018</li> <li>▪ OSFI's B-7 Derivatives Sound Practices Guideline released January 2015</li> <li>▪ March 1, 2017 implementation of Margin requirements for non-centrally cleared derivatives</li> <li>▪ OSFI's B-20 Residential Mortgage Underwriting Practices and Procedures released in June 2012</li> <li>▪ July 2016, OSFI letter to FRFIs reinforcing expectation FRFIs engage in prudent underwriting of residential mortgage loans</li> </ul>



# Looking to the Future of Treasury: Impact of Technology

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## Potential Future Treasury Themes (1)

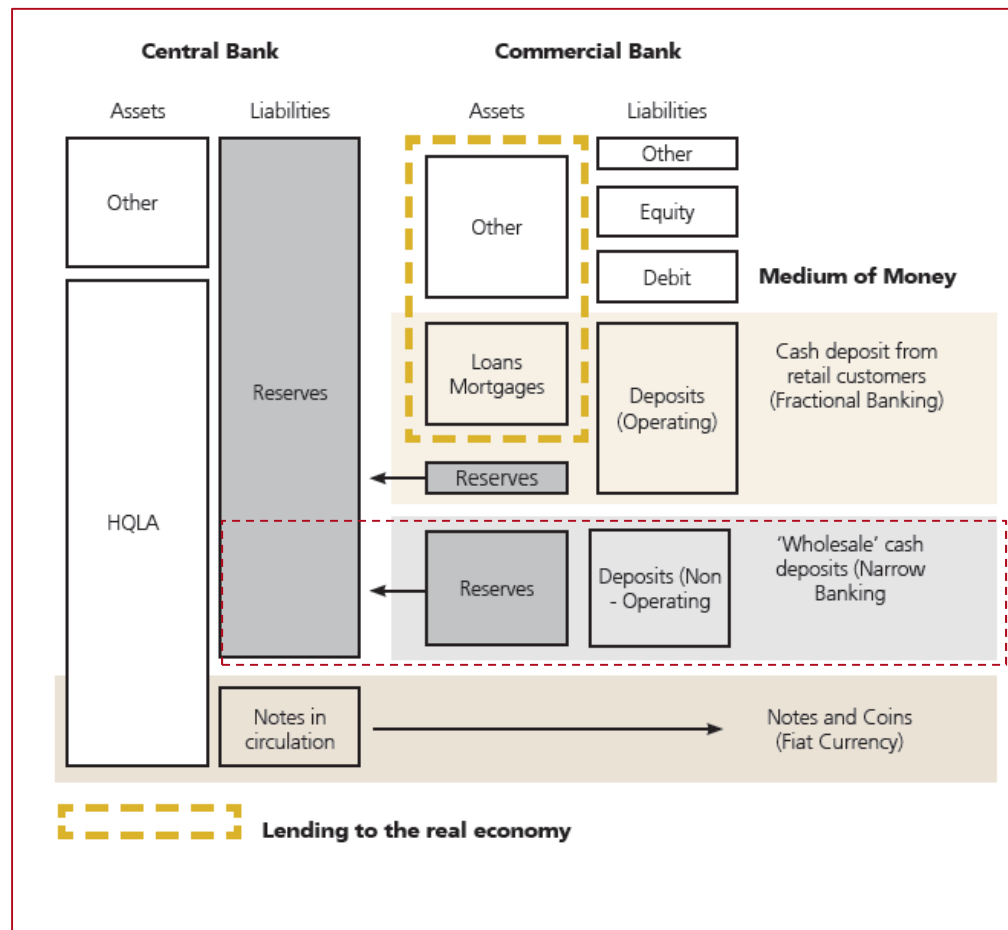
Topic	Description	Impact
<b>Digital Ledger Technology</b>	<ul style="list-style-type: none"> <li>▪ Shared, trusted, public ledger that everyone can inspect, but which no single user controls.</li> <li>▪ The participants in a blockchain system collectively keep the ledger up to date: it can be amended only according to strict rules and by general agreement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Blockchain technology expected to drive further improvements in derivatives post-trade lifecycle events:               <ul style="list-style-type: none"> <li>– Improving settlement times (real-time vs. 3-5 days currently)</li> <li>– Reduce costs: associated with reconciliations, settlement, and security</li> <li>– Improved transparency for regulatory bodies</li> <li>– Improved Risk Management: parties might consider cash flow exchanges every 30 seconds instead of every 30 days, reducing counterparty credit risk</li> <li>– Improved Collateral management</li> <li>– Smart derivative contracts that bind both seller and buyer will be stored on a distributed derivative ledger</li> <li>– Improved Liquidity: Transparency, alongside reduced transaction and trade maintenance costs, could, in turn, enhance trading liquidity</li> </ul> </li> <li>▪ Deposits of “non-operational accounts or hot money” with Central Banks rather than Commercial Banks - reduction in HQLA required to be held</li> </ul>
<b>Crowd Funding/ Hedging:</b> 1) Raise Debt and Equity  2) Hedging of Interest Rate Risk	<ul style="list-style-type: none"> <li>▪ Crowdsourcing and crowdfunding platforms, also referred to as “democratic finance”, enable parties across the world to pool in resources, including raising capital, to support various investments</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bypass of investment dealers to raise equity and debt through crowdfunding, represents a cost savings associated with the dealer fee. To enable banks to take advantage of efficient debt and equity crowdfunding, securities regulators would need to approve.</li> <li>▪ Banks laying off Interest Rate/FX risks through risk mutualization transactions/risk transference transactions through small transactions more frequent transactions rather than large, not as frequent Interest Rate Swaps or FX contracts</li> </ul>
<b>API treasury services offered /Payment Systems Innovation</b>	<ul style="list-style-type: none"> <li>▪ Application Programming Interface (API) solution for payment initiation, payment status, and account balance inquiries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Up to now, most payment innovations have been built on the back of existing infrastructure. But we are seeing a regulator-driven movement, across the global, to modernize and update these payment systems to make them faster and more secure.</li> <li>▪ Fully automated solutions to process transactions directly from the client’s own treasury platform to their banking partners’, without having to rely solely on banking portals that often require proprietary builds, applications or interfaces</li> </ul>

## Potential Future Treasury Themes (2)

Topic	Description	Impact
Full Digitization of Global Bond Markets	<ul style="list-style-type: none"> <li>▪ While most of the financial services industry has incorporated technology into its business processes, primary bond issuance continues to follow manual processes without full digitization</li> <li>▪ With technological changes impacting digitization of global equity markets, bond markets have been left behind, with huge potential for digitization.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The next few years of digitization will enable access to global bond markets in a direct, competitive and efficient manner including:               <ol style="list-style-type: none"> <li>i. Access to corporate and government bonds from all major global markets</li> <li>ii. Price optimization as global liquidity providers reduce spreads, and should improve liquidity across bond markets</li> <li>iii. Operational efficiencies via significant cost reductions and faster execution of transactions</li> </ol> </li> <li>▪ These changes of full digitization of global market for bonds, similar to the level of digitization of global equity markets (i.e. like a discount brokerage) would improve liquidity for the banks' funding instruments</li> </ul>
Regulatory Focus from "Banks" to "Activities"	<ul style="list-style-type: none"> <li>▪ So far, regulations in the financial industry have focused much more on banks than Fintechs</li> <li>▪ Fintechs have been able to grow as they are not constraint by regulatory oversight</li> </ul>	<ul style="list-style-type: none"> <li>▪ Governments are creating regulatory 'sandboxes' that will allow Fintech startups to test their business models within a tailored and flexible regulatory framework. Startups can innovate through time-limited registration with regulators. This gives them the ability to test out new technology or ideas without committing to the time and cost involved to obtain full regulatory oversight</li> <li>▪ In the future, regulations may potentially not focus on "banks" but rather on the "activities" that are conducted by any financial organization</li> <li>▪ This would lead to a more even playing field between the banks and Fintechs as they would be subject to similar regulations</li> </ul>

# Case Study: Future Impact of Digital Currencies on a Commercial Bank's Balance Sheet (1)

## Current State: Fiat Currency/"Narrow Banking" model

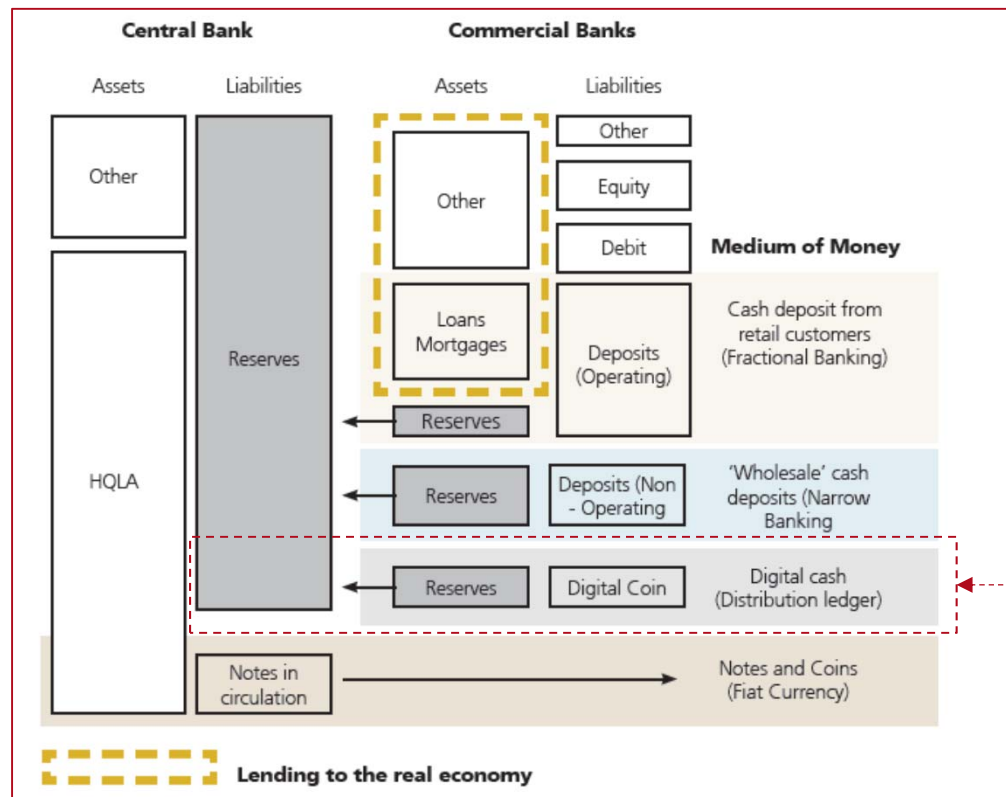


## Key Themes

- In response to global financial crisis (GFC), central banks ushered in unparalleled monetary policy and financial regulation
- The GFC exposed many banks as undercapitalized, given risky and opaque nature of assets portfolio. Balance sheets had excess of complex and illiquid securities and a shortage of readily marketable securities that could be quick sold and converted to cash
- The regulatory framework post-crisis looked to enhance capital and liquidity positions of banks
- As a result of central bank actions, markets are awash with enormous volumes of liquidity
- In practice banks are using cash deposits from large institutions to 'invest' these deposits into safe and low yielding government debt or leaving with central banks in the form of high quality liquid assets. This unprofitable activity is driven by Basel III regulation
- Narrow Banking model effectively exists related to non-operating deposits

# Case Study: Future Impact of Digital Currencies on a Commercial Bank's Balance Sheet (2)

## Future State: Fiat Currency/Digital Coin



*A commercial bank takes the non-operating deposit and places this cash with central bank with existing reserves*

## Key Themes

- A Central Bank Digital Currency describes a new medium for existing currency, where a central bank would directly issue its currency electronically, facilitated by distributed ledger technology
- Present an opportunity to widen access to central bank balance sheet beyond commercial banks
- Offers significant benefits such as: greater monetary control, transparency, economic growth and overall financial resilience
- Bank of England, the Federal Reserve, Bank of Canada and Reserve Bank of Australia actively engaged on the issuance of a digital currency
- Has a potential impact on funding profile of banks and ability to issue loans and may have impact fractional reserve banking model
- Digital currencies issuance could facilitated by:
  - 1) Central Banks through Central Bank Digital Currency (CBDC) may compete with commercial bank deposits
  - 2) Private sector initiative like Utility Settlement Coin (USC) that becomes and issuer of CBDC that runs on distributed industry rails managed by a consortium utility

## Case Study: Future Impact of Digital Currencies on a Commercial Bank's Balance Sheet (3)

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- ▲ The creation of central bank digital cash could address the following challenges:
  - 1) Central banks could take steps to implementation and realize potential benefits of CBDC without directly impacting lending in the real economy
  - 2) Commercial banks offer wholesale clients with non-operating deposits a viable cash alternative through digital currencies to reduce moving more deposits to the 'shadow banking' sector
  - 3) Realize significant operational and settlement benefits for the industry through effective transfer of value through Blockchain

## Potential Changes to Core Treasury Activities

- ▲ Intermediation function performed by Treasury is expected to continue; Future Technology will augment Treasury's ability to rapidly advise on how developments in the global financial markets will affect their organization

Potential Changes	Potential Benefits	Changes in Treasury Activities
Distributed ledger technology improvements in the connectivity of bank information systems	Business process transformation (or disruption)	<ul style="list-style-type: none"> <li>All counterparties will have understanding all of the transactions within that value chain - that view being indisputable, immutable, distributed and trusted by all participants - is driving some truly disruptive thinking and potentially has consequences for current manual processes</li> </ul>
	Use of Ledger /Improved Analytics to More Accurately Capture Underlying Client Risk	<ul style="list-style-type: none"> <li>A distributed ledger technology combined with improvements in artificial intelligence/machine learning may help in mining more customer data through a more comprehensive view of the client's financial activity and predictive analytics that reveal everything from the quality of their relationships with clients to the real value of those clients in terms of profitability</li> <li>World-class treasury functions will focus on building a deeper understanding of the business, the types of products and services it is developing, the business models it is testing and the implications on cash flow. They will get smarter at anticipating financial needs and modelling the best treasury strategies to support the organization's strategic direction</li> <li>Such analytics are expected to drive further insights on client needs and would drive potential improvements in development of new financial products, increased customization and improved pricing for specific clients depending on their specific situation including loyalty programs based on pseudo-currencies and blockchain wallets to spur demand for products/services</li> <li>The customization of products may lead to similar risks managed by Treasury today (Liquidity and Structural interest rate risk), along with new risks that have not emerged</li> <li>The potential impacts of these changes may include higher profits, lower liquidity and lower capital requirements for banks given more accurate/customized client risk assessment.</li> <li>Tangible example<sup>1</sup>: In repo and syndicated loan markets, banks are planning to test whether shared ledgers will enable deals to settle faster, which potentially results in less risk that transactions will fall through and less capital that banks have to set aside</li> </ul>

1) Fast Company, How Banks Learned to Stop Worrying and Love the Blockchain, Bitcoin's Underlying Tech

# Potential Changes to Core Treasury Activities

Potential Changes	Potential Benefits	Treasury Activity Changes
Use of Artificial Intelligence/ Machine Learning in Business/ Customer Profitability	Greater focus on Strategic Balance Sheet Management	<ul style="list-style-type: none"> <li>Artificial intelligence (AI) is the robotic technology that enables computer systems to perform tasks that previously required human intelligence, such as making decisions and recognizing speech</li> <li>Using AI, treasury groups can start to identify patterns across thousands or hundreds of thousands of transactions that they wouldn't ordinarily have the resource or the time to do</li> <li>The tools will get better at spotting issues in real time and providing customized reports without moving data between systems. They will also enable far more automated production of reports and commentaries</li> <li>Comprehensive real time Performance Measurement &amp; Resource Allocation activities may be driven largely through artificial intelligence/machine learning as information from the distributed ledger would be combined with real time economic and market data</li> <li>There will always be a role for the human to supervise and oversee what the machine is producing and to perform the role of the strategic analyst.</li> <li>The ultimate defense is where organizations are using these technologies, but they also have experienced analysts who are working with the technologies effectively, tuning them and back-testing the data/analysis engines</li> </ul>
Improved Efficiency with Distributed ledger technology	Improved Efficiency: Reduction in Reconciliation efforts between subsystems/ Parties	<ul style="list-style-type: none"> <li>Systems that govern settlement and payments (both internal clients and external)(counterparties and central banks) are not transparent to all users, creating challenges of reconciliation between multiple parties of back office systems and records. These processes can be entirely replaced by blockchain application through a verifiable data structure</li> <li>The creation of a single shared ledger, for which each institution needs only make one connection, which may replace a traditional clearing house systems</li> </ul>
Distributed ledger technology Improvements interactions with External parties	Improved Risk Assessment of underlying bank's Financial Profile	<ul style="list-style-type: none"> <li>Financial reporting/disclosure may be augmented through specific blockchains to add greater transparency to investors (including counterparties) in capital and funding instruments of the banks, as well as central banks and regulatory bodies to get a better picture of real-time financial activities of the banks and its interaction of counterparties</li> <li>The potential impacts of these changes may include higher profits, lower liquidity and lower cost of capital/funding for banks given better forward looking view of risk assessment</li> </ul>





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Questions?