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Basel III Regulation for New Age Global Banking

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☞ Artificial intelligence; Banking supervision; Capital adequacy; Central banks; Open source software; Systemic risk

Abstract

Basel III and the importance of banking risks, capital adequacy, global reserve currencies and gold are increasingly being recognised by G7 and BRICS nations. How can Artificial Intelligence (AI) companies collaborate with the Bank for International Settlements to create open-source AI tools for global banking, thus alleviating the challenges associated with implementing Basel III regulations through central banks?

Introduction

Basel III consists of a set of international banking regulations created by the Basel Committee on Banking Supervision aimed at preventing a repeat of the financial crisis of 2007–2008 and strengthening stringent standards for risk management in the global banking industry.¹ The importance of banking risks, capital adequacy, global reserve currencies, and gold is increasingly being recognised by G7 and BRICS nations.² This article explores how Basel III differs from Basel II and highlights the necessity for modern lawyers, accountants and AI specialists to mitigate systemic risks.³

There is an increasing demand for thorough legal and financial due diligence on banks' financial statements performed by international lawyers, global accountants and AI experts to diminish systemic risks within banks. Protocols for critical payments and securities transfers should include manual-only kill switches. The possibility of international sanctions being applied to an entire legal jurisdiction compels banks to consider conducting mock closeout exercises at the jurisdictional level.⁴ Moreover, the article addresses the subsequent questions presented below.

In a time marked by untrustworthy actors and geopolitical uncertainty, should banks prioritise ensuring that their systems have sufficient backups and that key vendors and third-party relationships are equipped with alternative providers? Should banks pay particular attention to verifying that procedures have been practised for scenarios where transactions need to be redirected and processes need to be adjusted?

Is it feasible for global banks and the Bank for International Settlements to require dedicated data centres in multiple territories to implement Basel III regulations and mitigate cyber fraud? What challenges are putting considerable pressure on Chinese banks, leading to the issuance of special-purpose bonds for their support? Do Chinese banks rely heavily on their government for assistance? Is there a necessity for increased capital distribution in emerging markets for the global market to experience annual growth? Can BRICS+ achieve success in efforts to reduce reliance on the US dollar globally?

Why banking risk?

Basel III establishes stricter standards for assessing Risk-Weighted Assets (RWAs), which determine the amount of capital banks are required to maintain, including rigorous regulations on credit, market and operational risk.⁵ The US Federal Reserve System (Fed) enforces risk-based capital requirements, ensuring that banks possess sufficient capital relative to their risk exposure, which encompasses credit, market and operational risks.⁶ Enhanced guidelines for counterparty

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¹ Basel Committee on Banking Supervision, "High-level summary of Basel III reforms" (December 2017), Switzerland: Bank for International Settlements, ISBN 978-9-292-59118-2, https://www.bis.org/bcbs/publ/d424_hlsummary.pdf.

² Dmitry Dolgin and Chris Turner, "De-dollarisation: More BRICS in the wall" (23 October 2024), Netherlands: ING Article on THINK economic and financial analysis, <https://think.ing.com/articles/de-dollarisation-more-brics-in-the-wall/>.

³ Santanu Roy and Binay Bhushan Chakrabarti provided their views on Basel I and Basel II in "Operational Risk and the Banking Sector" (2005) 20(10) J.I.B.L.R. 535–540.

⁴ Santanu Roy and Vani Mehta opined their views on Basel II in "Challenges for the Indian Banking System under Basel II" (2006) 21(10) J.I.B.L.R. 578–579.

⁵ Basel Committee on Banking Supervision, "Basel III: A global regulatory framework for more resilient banks and banking systems" (December 2010), Switzerland: Bank for International Settlements, ISBN 929-1-318-59-0, <https://www.bis.org/publ/bcbs189.pdf>.

⁶ Board of Governors of the Federal Reserve System, "Regulation D: Reserve Requirement of Depository Institutions" (24 March 2020), United States: Federal Reserve System, <https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20201222a1.pdf>.

credit risk (CCR) require banks to maintain capital for counterparty exposures, especially concerning derivatives, repos and other off-balance-sheet items.⁷

The Fed mandates that banks uphold adequate liquidity following the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR), ensuring their ability to meet both short-term and long-term commitments during times of market distress.⁸ The BRICS countries are concentrating on enhancing liquidity management in their banking systems, ensuring that banks hold high-quality liquid assets to meet short-term obligations and avert liquidity crises.⁹

The Bank of Canada (BoC)¹⁰ and the Bank of Russia¹¹ (CBR) provide liquidity facilities that allow them to lend to commercial banks and financial institutions while addressing short-term liquidity challenges. The Bank of England (BoE)¹² mandates that banks maintain enough liquid assets to manage net cash outflows for a 30-day stress scenario.

The South African Reserve Bank (SARB) imposes liquidity regulations on banks, including the LCR, which ensures that banks possess high-quality liquid assets and can honour their short-term commitments.¹³ An AI system can alert a bank if its LCR drops below 100% because of unforeseen deposit withdrawals, prompting swift corrective measures.

Larger systemically important banks (SIBs) are crucial to maintain extra capital reserves to prevent their collapse from causing widespread repercussions on the global financial system. The Fed and the Deutsche Bundesbank (Bundesbank) identify and oversee systemically important financial institutions, which are significant financial entities whose downfall could threaten the economy of the western world. These institutions face more stringent regulatory obligations, including increased capital buffers and stress testing.¹⁴

The BoE¹⁵ enforces additional capital prerequisites for SIBs to mitigate the risk of their insolvency and require them to maintain more capital to cover potential losses. Other international banks undergo various stress assessments to ensure their resilience against extreme financial or economic disturbances. The Fed and the BoC¹⁶ mandate that banks oversee counterparty risks, particularly those stemming from derivatives, loans and interbank transactions, which aids in diminishing systemic risks that come from the interconnectedness within their financial systems. The Bundesbank, in collaboration with BaFin (Germany's financial supervisory body), is tasked with monitoring and alleviating systemic risks in the banking sector, focusing on curbing excessive risk-taking and ensuring that German banks are robust against shocks.¹⁷

The Bank of Japan (BoJ) evaluates risks associated with its financial system and enacts strategies to address these risks.¹⁸ Central banks of BRICS member countries are charged with observing systemic risks and applying macro-prudential measures to sustain financial stability. BRICS promotes the exchange of information and collaboration on risk management strategies.¹⁹ The People's Bank of China (PBC) oversees systemic risks in the Chinese banking sector and enforces stringent policies to address these risks and evaluate the stability of China's financial system, including its weaknesses.²⁰

The Fed and the BoC²¹ function as the lender of last resort, offering emergency loans during periods of financial strain to banks experiencing liquidity issues and to avoid bank runs that could lead to widespread financial turmoil. Throughout the 2008 financial crisis and the COVID-19 pandemic, both the Fed and the BoC²² launched emergency lending initiatives to ensure the stability of their banking sectors.

During periods of significant economic hardship, the Fed and the BoC implement quantitative easing (QE) by buying government bonds and various financial assets,

⁷ Basel Committee on Banking Supervision, "Consultative Document—Guidelines for counterparty credit risk management" (28 August 2024), Switzerland: Bank for International Settlements, ISBN 978-9-292-59757-3, <https://www.bis.org/bcbs/publ/d574.pdf>.

⁸ Office of the Comptroller of the Currency, Department of the Treasury, Board of Governors of the Federal Reserve System and Federal Deposit Insurance Corporation, "Net Stable Funding Ratio: Liquidity Risk Measurement Standards and Disclosure" (1 July 2021), United States: Department of the Treasury, Federal Reserve System and the Federal Deposit Insurance Corporation, <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20201020b1.pdf>.

⁹ EXIM Bank, "Enhancing BRICS Cooperation: Way Forward" (September 2021), Mumbai, India: Export-Import Bank of India, https://www.eximbankindia.in/Assets/pdf/research-on-states/EXIM_Bank_Enhancing_BRICS_Cooperation_Way_Foward_08092021.pdf.

¹⁰ David Longworth, "Bank of Canada Liquidity Facilities: Past, Present, and Future" (17 February 2010), Toronto, Ontario: Bank of Canada (Banque Du Canada), <https://www.bankofcanada.ca/2010/02/liquidity-facilities-past-present-future/>.

¹¹ James Morsink and James Gordon, "Russian Federation—Financial System Stability Assessment" (2016), IMF Country Report No.16/231, International Monetary Fund, <https://www.imf.org/external/pubs/ft/scr/2016/cr16231.pdf>.

¹² Bank of England, "DPI/22—The prudential liquidity framework: Supporting liquid asset usability" (31 March 2022), London, UK: Bank of England, <https://www.bankofengland.co.uk/prudential-regulation/publication/2022/march/prudential-liquidity-framework-supporting-liquid-asset-usability>.

¹³ Basel Committee on Banking Supervision, "Regulatory Consistency Assessment Programme (RCAP)—Assessment of Basel III LCR regulations—South Africa" (June 2015), Switzerland: Bank for International Settlements, ISBN 978-9-291-97095-7, <https://www.bis.org/bcbs/publ/d323.pdf>.

¹⁴ José Vinals, "Review of the Financial Sector Assessment Program—Further Adaption to the Post-Crisis Era—Background Studies" (2014) IMF Publication, International Monetary Fund, <https://www.elibrary.imf.org/view/journals/007/2014/067/007.2014.issue-067-en.xml>.

¹⁵ Bank of England, "The framework of capital requirements for UK banks" (December 2015), London, UK: Bank of England.

¹⁶ Grzegorz Halaj and Ruben Hipp, "Decomposing Systemic Risk: The Role of Contagion and Common Exposures" (28 May 2024), Toronto, Ontario: Bank of Canada (Banque Du Canada), <https://www.bankofcanada.ca/wp-content/uploads/2024/05/swp2024-19.pdf>.

¹⁷ BaFin Federal Financial Supervisory Authority, "Supervision Guideline: Guideline on carrying out and ensuring the quality of the ongoing monitoring of credit and financial services institutions by the Deutsche Bundesbank" (19 December 2016), Frankfurt, Germany: BaFin.

¹⁸ BOJ Reports & Research Papers, "Financial System Report" (September 2024), Japan: Bank of Japan, <https://www.boj.or.jp/en/research/brp/fsr/data/fsr241024a.pdf>.

¹⁹ BRICS Economic Bulletin, "BRICS India 2021" (August 2021), Mumbai, India: Reserve Bank of India.

²⁰ Arturo Bris, "Crisis looms: The challenges facing China's banks and their global implications" (26 February 2024), Lausanne, Switzerland: Institute for Management Development (IMD), <https://www.imd.org/ibymd/finance/crisis-looms-the-challenges-facing-chinas-banks-and-their-global-implications/>.

²¹ Bank of Canada, "Lender of last resort", Toronto, Ontario: Bank of Canada (Banque Du Canada), <https://www.bankofcanada.ca/core-functions/financial-system/lender-of-last-resort/>.

²² Bank of Canada, "COVID-19: Actions to support the economy and financial system", Toronto, Ontario: Bank of Canada (Banque Du Canada), <https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/covid-19-actions-support-economy-financial-system/>.

such as securities, to increase liquidity in their economies, reduce interest rates and bolster financial markets.²³ The BoC modifies interest rates (by decreasing them) to control inflation, stimulate economic growth and ensure financial stability, as demonstrated throughout the COVID-19 pandemic.²⁴

Alongside overseeing banks, the Fed, the BoE and the BoC also keep an eye on wider financial markets, such as shadow banking, derivatives trading, housing, equities, credit markets and asset bubbles that may threaten financial stability.²⁵ The BoC assesses risks arising from housing trends, consumer debt and various macroeconomic elements that could destabilise its financial system. BRICS emphasises the significance of risk management strategies in the banking sector, particularly in managing operational risks like cyber-security threats and adherence to regulations.

The Reserve Bank of India (RBI), the BoE, the Banque de France (BdF), the Bank of Italy (BoI), the BoJ, the Banco Central do Brasil (BCB), and the Bundesbank ensure that their financial institutions are mandated to maintain systems and controls for handling operational risks, including cyber-attacks, compliance breaches and fraud.²⁶ Consequently, an increasing demand exists for global AI firms to collaborate with the Bank for International Settlements in developing applications and internal security frameworks aimed at safeguarding against online fraud through dedicated AI managers, overseeing an international bank's clientele and payments via a nation's central bank.

The BoE²⁷ and the BoJ oversee the resolution framework, ensuring that in the event of a bank failure, it can be managed in an organised manner without relying on taxpayer funds or causing significant disruption to the financial system. The Bundesbank and the BdF play a role in the European resolution framework for managing

failing banks, known as the single resolution mechanism,²⁸ which guarantees that bank failures do not lead to major taxpayer expenses or instability in the financial system.²⁹

Capital adequacy and Basel III

Capital adequacy refers to the requirement for banks to maintain a minimum level of capital to withstand losses and avoid insolvency or bankruptcy.³⁰ The European Central Bank's single supervisory mechanism³¹ oversees the primary mistakes of systemic banks in the Eurozone, while the Bundesbank plays a significant role in supervising smaller banks in Germany. Global central banks are urged to adopt the Basel III framework,³² which establishes minimum capital standards for banks.

AI companies have the capability to establish online platforms that facilitate mandatory Basel III assessments for global banks via their central bank, thereby enhancing the necessity for the Basel III framework. The World Bank and the International Monetary Fund may assist these AI companies in the obligatory implementation of the Basel III framework before providing loans or grants to any nation.

Basel III has intentionally increased the required capital that banks must hold. Banks are now mandated to maintain a minimum common equity Tier 1 capital of 4.5% of RWAs and Tier 2 capital totalling up to 8% of RWAs.³³ Banks in Brazil, China, South Africa and India must uphold higher Tier 1 capital ratios in their respective nations if the minimum requirements set by the BCB, the PBC, the SARB or the RBI exceed those of Basel III during an economic cycle.³⁴

Additionally, an extra buffer of approximately 2.5% of RWAs is designated to absorb losses during times of financial strain, leading to an overall Tier 1 and Tier 2 capital adequacy ratio of 10.5%.³⁵ Moreover, national

²³ Chinara Azizova, Jonathan Witmer and Xu Zhang, "Assessing the Impact of the Bank of Canada's Government Bond Purchases" (June 2024), Toronto, Ontario: Bank of Canada (Banque Du Canada) <https://www.bankofcanada.ca/2024/06/staff-discussion-paper-2024-5/>.

²⁴ Jenna Benchetrit, Business Reporter, "Bank of Canada makes a chunkier rate cut, lowering by half point for 1st time since pandemic" (24 October 2024), Canada: CBC News, <https://www.cbc.ca/news/business/bank-of-canada-october-interest-rate-1.7360509#:~:text=Social%20Sharing,-The%20Bank%20of%20Canada%20has%20lowered%20its%20key%20interest%20rate,stood%20at%204.25%20per%20cent>.

²⁵ Global Financial Stability Report, "Shadow Banking Around the Globe: How large, and how risky?" (October 2014), Ch.2—Risk taking, Liquidity and Shadow Banking—Curbing excess while promoting growth, International Monetary Fund, https://www.imf.org/-/media/Websites/IMF/imported-flagship-issues-external-pubs/ft/GFSR/2014/02/pdf_c2pdf.ashx.

²⁶ Tim Maurer and Arthur Nelson, "International Strategy to Better Protect the Financial System Against Cyber Threats", Washington, DC: Publications Department at Carnegie Endowment for International Peace in collaboration with World Economic Forum, https://carnegie-production-assets.s3.amazonaws.com/static/files/Maurer_Nelson_FinCyber_final1.pdf.

²⁷ Bank of England, "The Bank of England's approach to resolution" (15 December 2023), London, UK: Bank of England, <https://www.bankofengland.co.uk/-/media/boe/files/paper/2023/the-bank-of-englands-approach-to-resolution.pdf>.

²⁸ Thierry Tresselt, "The Single Resolution Mechanism" (11 December 2013), Ch.12 of IMF Staff Discussion Note *From Fragmentation to Financial Integration in Europe*, International Monetary Fund, ISBN 978-1-484-38766-5, <https://www.elibrary.imf.org/display/book/9781484387665/ch012.xml>.

²⁹ Working Groups of FSB, "Evaluation of the Effects of Too-Big-To-Fail Reforms (Final Report)" (1 April 2021), Financial Stability Board, <https://www.fsb.org/uploads/P010421-1.pdf>.

³⁰ Steven Nickolas, Khadija Khartit and Kimberly Overcast, "What is the Minimum Capital Adequacy Ratio Under Basel III?" (16 June 2023), Investopedia, <https://www.investopedia.com/ask/answers/062515/what-minimum-capital-adequacy-ratio-must-be-attained-under-basel-iii.asp>.

³¹ Claudia Buch, Chair of the Supervisory Board of the ECB, Keynote speech at the International Financial Markets Conference organised by the Ministry of Finance of Lithuania, Lietuvos bankas and the Lithuanian Banking Association, "Financial integration in the Baltics: lessons in resilience and transformation" (4 October 2024), Vilnius: European Central Bank, <https://www.bankingsupervision.europa.eu/press/speeches/date/2024/html/ssm.sp241004-9588c58d39.en.html>.

³² Basel Committee on Banking Supervision, "The Basel Framework" (2024), Switzerland: Bank for International Settlements, <https://www.bis.org/baselframework/BaselFramework.pdf>.

³³ Financial Stability Institute (FSI Connect), "Definition of capital in Basel III—Executive Summary" (2024), Switzerland: Bank for International Settlements, https://www.bis.org/fsi/fsisummaries/defcap_b3.pdf.

³⁴ Adam Hayes, Margaret James and Diane Costagliola, "Tier 1 Capital Ratio: Definition and Formula for Calculation?" (21 November 2023), Investopedia, <https://www.investopedia.com/terms/t/tier-1-capital-ratio.asp#toc-what-is-the-tier-1-capital-ratio>.

³⁵ MIT Press on COVID-19 (Connectedness and Contagion), "14. Capital Requirements: Basel III Framework" (8 April 2020), Massachusetts Institute of Technology, <https://covid-19.mitpress.mit.edu/pub/a8zvr6j>.

regulators can impose a countercyclical additional capital buffer³⁶ of up to 2.5% of RWAs (known as the capital conservation buffer by the Fed) during times of significant credit growth to safeguard the banking sector against periods of excessive credit expansion.

Basel III established a minimum leverage ratio of 3% of RWAs to serve as a supplementary measure to the risk-based capital requirements.³⁷ This ratio assesses a bank's capital relative to its total assets, without applying any risk weights. The BRICS nations have begun exchanging best practices and regulatory insights to fortify their banking systems and improve capital adequacy standards among member countries.³⁸

AI has the capability to forecast cash flow requirements and liquidity pressure situations by employing time-series analysis and natural language processing (NLP) to assess market sentiment or regulatory shifts. This enables banks to sustain their LCR (adequate high-quality liquid assets to address 30-day outflows) and NSFR (reliable funding for long-term assets). AI is capable of suggesting the conversion of short-term obligations into longer-term instruments in order to satisfy NSFR requirements.

The Fed, the BoE, the Bundesbank, the BdF, the BoI, the BoJ, the Central Bank of Brazil, the CBR, the RBI, the SARB and the BoC perform routine stress tests on banks to evaluate their capacity to handle economic crises. These stress tests protect global financial institutions by ensuring they have sufficient capital to keep operating during significant economic downturns.³⁹

"With \$ 209 billion in assets, [Silicon Valley Bank] was just one-eighteenth the size of JPMorgan Chase, the nation's largest. Still, Wall Street was rattled by SVB's abrupt end. ... Investors are starting to shy away from some similar institutions."
- *The Washington Post*, 10 March 2023⁴⁰

Gold standard

Under Basel III, gold has been assigned increased importance in banking regulations. Specifically, gold has been reclassified as a Tier 1 asset (previously classified as a Tier 3 asset), indicating that it is regarded as a secure, liquid asset that can be utilised to fulfil capital adequacy requirements.⁴¹ This shift enhanced the significance of

gold as a reserve asset, allowing banks to incorporate it into their liquidity reserves, which could affect its utilisation in international banking systems as a means of preserving value and as a financial reserve.

The Fed possesses one of the most substantial collections of gold reserves globally, yet gold is no longer a central element in US monetary policy or the valuation of the US dollar. While gold continues to be an important component of the Fed's reserves, mostly held at New York, it is no longer utilised to support the currency.⁴² The US dollar became a fiat currency in 1971 when President Nixon discontinued the gold standard.⁴³

The PBC has built significant gold reserves over time, positioning itself as one of the world's largest gold holders. Although China does not adhere to a gold standard, the PBC perceives gold as a crucial aspect of its foreign reserves. Gold signifies its approach to strengthening financial stability (both in China and the UK) and decreasing reliance on foreign currencies. The PBC routinely acquires gold from both domestic and international markets to enhance its reserves, reflecting its dedication to upholding a robust and diversified reserve portfolio.⁴⁴

The BoE serves as one of the world's largest custodians of gold reserves, safeguarding not only its own holdings but also those belonging to various countries, central banks and institutions. Throughout history, the UK adhered to the gold standard, with the BoE playing a pivotal role in overseeing this system.⁴⁵

The BdF and the Bundesbank possess some of the largest official gold reserves in the world, with a substantial number of tonnes kept in their vaults. Germany is second only to the US when it comes to national gold reserves. This gold constitutes an important portion of the Bundesbank's foreign reserves.⁴⁶ In contrast to several other central banks, the BdF has reliably retained most of its gold reserves in its own vaults, especially at its headquarters in Paris, thereby ensuring complete control over this vital asset.⁴⁷

In the past few years, the Bundesbank initiated a significant repatriation of a portion of its gold reserves from overseas storage locations, such as those in the US

³⁶ Basel Committee on Banking Supervision, "Countercyclical capital buffer (CCyB)" (18 October 2024), Switzerland: Bank for International Settlements, <https://www.bis.org/bcbs/ccyb/index.htm>.

³⁷ Basel Committee on Banking Supervision, "Basel III leverage ratio framework and disclosure requirements" (January 2014), Switzerland: Bank for International Settlements, ISBN 929-1-313-73-4, <https://www.bis.org/publ/bcbs270.pdf>.

³⁸ BRICS Kazan Declaration, "Strengthening multilateralism for just Global development and security" (23 October 2024), Kazan Russia: Russian Federation—XVI BRICS Summit (BRICS 2024 RUSSIA), https://cdn.brics-russia2024.ru/upload/docs/Kazan_Declaration_FINAL.pdf?1729693488349783.

³⁹ Troy Segal, Anthony Battle and Suzanne Kvilhaug, "What Is a Bank Stress Test? How It Works, Benefits, and Criticism" (28 October 2021), Investopedia, <https://www.investopedia.com/terms/b/bank-stress-test.asp>.

⁴⁰ Quote from *The Washington Post* (10 March 2023). Also available at <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2929-19cda4a673.en.pdf>.

⁴¹ GJEPC, "LBMA & WGC Advocate for Reclassifying Gold as High-Quality Liquid Asset Under Basel III" (11 July 2024), Bulletin, Solitaire International, <https://gjepec.org/solitaire/lbma-wgc-advocate-for-reclassifying-gold-as-high-quality-liquid-asset-under-basel-iii/#:~:text=The%20reclassification%20of%20gold%2C%20from,to%20proceed%20with%20the%20reclassification.>

⁴² Federal Reserve Bank of New York, "Gold Vault", <https://www.newyorkfed.org/aboutthefed/goldvault.html#:~:text=However%2C%20the%20vault%20today%20remains%20the%20world's,a%20combined%20weight%20of%206%2C331%20metric%20tons.>

⁴³ Will Kenton and Robert C. Kelly, "What Is the Nixon Shock?" (8 February 2024), Investopedia, <https://www.investopedia.com/terms/n/nixon-shock.asp#:~:text=The%20Nixon%20Shock%20refers%20to,shift%20and%20its%20eventual%20ramifications.>

⁴⁴ Ray Jia, Research Head, China, "China's gold market in April: investment demand remained strong" (15 May 2024), Goldhub—Insights, World Gold Council, <https://www.gold.org/goldhub/gold-focus/2024/05/chinas-gold-market-april-investment-demand-remained-strong>.

⁴⁵ Michael McLeay, Amar Radia and Ryland Thomas (Monetary Analysis Directorate Team), "Money in the modern economy: an introduction" (2014) Quarterly Bulletin—Q1, Bank of England, <https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-in-the-modern-economy-an-introduction.pdf>.

⁴⁶ News, "The development of the Bundesbank's gold reserves" (18 January 2013), Deutsche Bundesbank, <https://www.bundesbank.de/en/tasks/topics/the-development-of-the-bundesbank-s-gold-reserves-647196>.

⁴⁷ News, "Management of gold reserves" (27 June 2024), Banque de France, <https://www.banque-france.fr/en/monetary-strategy/markets/management-gold-reserves>.

and France, bringing them back to facilities in Germany. This action was taken to enhance public confidence and ensure greater transparency.⁴⁸

The SARB maintains gold within its foreign reserves, highlighting South Africa's historical importance as a leading gold producer.⁴⁹ The CBR, BCB and RBI⁵⁰ are recognised for their significant gold reserves, which they have been consistently expanding over the years. The CBR, SARB and RBI consider gold an essential component of their foreign reserves, ensuring financial stability (which includes the stability of the Indian economy) and lessening dependence on foreign currencies, particularly in light of geopolitical conflicts. The CBR, SARB and RBI frequently acquire gold from local miners and the global market to strengthen their reserves, regarding gold as a secure asset that can improve the nation's financial robustness.

Despite the discontinuation of the gold standard, gold continues to be an essential element of global financial security, and the BoE contributes to upholding the systems for gold trading and storage. Although gold is not involved in daily monetary operations, central banks such as the Fed, the BdF, the Bundesbank, the BoE, the PBC, the SARB, the BCB, the RBI and the CBR hold it as a means of value retention and a safeguard against the devaluation of the US dollar, euro, UK pound, renminbi, Russian ruble, South African rand, Brazilian real or Indian rupee, or against financial instability.⁵¹

The BoJ possesses comparatively modest gold reserves in relation to other central banks, with gold making up a small fraction of its overall foreign reserves. This is in contrast to BRICS nations, which hold substantial amounts of gold as a key element of their reserves. While gold is not a central aspect of the BoJ's monetary strategy, it is still regarded as a means to preserve value and a safeguard against inflation and fluctuations in the Japanese yen. The BoJ might participate in gold-related transactions, but its main emphasis remains on managing foreign exchange reserves via currency and government bonds.⁵²

As of 2016, the BoC had disposed of nearly all its gold reserves. This move stemmed from the bank's conviction that foreign currency assets offer greater liquidity and are more efficient for overseeing Canada's monetary policy and foreign exchange requirements. The BoC's strategy for managing reserves focuses on foreign currency assets (including US dollars and euros) instead of gold, highlighting the importance of liquidity and practicality in ensuring financial stability and adapting to market dynamics.⁵³

Global reserve currency

The policies of the US Fed significantly impact the US dollar, which serves as the primary global reserve currency.⁵⁴ This is a result of the immense size and strength of the US economy, the stability of the dollar and its role in international trade, finance and central bank reserves.⁵⁵ The Fed's measures, including changes in interest rates, QE and open market operations, significantly impact global financial markets because of the vast international transactions and foreign exchange reserves that are predominantly in US dollars. In times of financial crises, the Fed has supplied liquidity to foreign central banks via dollar swap lines,⁵⁶ thus guaranteeing that international financial markets can access US dollars and helping to stabilise the global financial system.

Many nations and companies take out loans in US dollars, creating a reliance on the policies of the Fed, since changes in interest rates or liquidity can impact the entire world.⁵⁷ Basel III does not explicitly tackle global reserve currencies like the US dollar, but it influences currency markets by enhancing the stability of the international banking system. The Basel regulations improve banks' resilience to economic shocks, which in turn affects global liquidity and the movement of currencies.⁵⁸

The euro's monetary policy is overseen by the European Central Bank, and the euro ranks as the second most commonly held global reserve currency following the US dollar.⁵⁹ The Japanese yen is also a significant

⁴⁸ News, "Bundesbank completes gold transfer ahead of schedule" (23 August 2017), Deutsche Bundesbank, <https://www.bundesbank.de/en/tasks/topics/bundesbank-completes-gold-transfer-ahead-of-schedule-646102>.

⁴⁹ Daniel Mminele, Deputy Governor, South African Reserve Bank (SARB), "The South African Reserve Bank (SARB) and South Africa's Gold" (July 2018) Issue 90, Alchemist (LBMA), available at: <https://cdn.lbma.org.uk/downloads/Alch90Complete.pdf>.

⁵⁰ News, "RBI's secret mission this Dhanteras brings back another 102 tonnes of gold from England" (2 November 2024), *The Economic Times*, <https://economictimes.indiatimes.com/news/economy/policy/rbis-secret-mission-this-dhanteras-brought-back-another-102-tonnes-of-gold-from-england/printarticle/114765172.cms>.

⁵¹ Ick Lioudis, Michael J. Boyles and Marcus Reeves, "What Is the Gold Standard? History and Collapse" (14 October 2024), *Investopedia*, available at: <https://www.investopedia.com/ask/answers/09/gold-standard.asp>.

⁵² Serkan Arslanalp, Barry Eichengreen and Chima Simpson-Bell, "Gold as International Reserves: A Barbarous Relic No More?" (January 2023), *Working Paper—WP/23/14*, *International Monetary Fund*, available at: <https://doi.org/10.5089/9798400229947.001>.

⁵³ Timothy Lane, Deputy Governor of the Bank of Canada, "Taking precautions—the Canadian approach to foreign reserves management" (6 February 2019), Peterson Institute for International Economics, Washington DC, USA, available at: <https://www.bis.org/review/r190206c.pdf>.

⁵⁴ Serkan Arslanalp, Barry Eichengreen and Chima Simpson-Bell, "Dollar Dominance in the International Reserve System: An Update" (11 June 2024), Ch.12 of IMF Staff Discussion Note *From Fragmentation to Financial Integration in Europe*, *International Monetary Fund*, IMF BLOG, available at: <https://www.imf.org/en/Blogs/Articles/2024/06/11/dollar-dominance-in-the-international-reserve-system-an-update>.

⁵⁵ Carol Bertaut, Bastian von Beschwitz and Stephanie Curcuro, "The International Role of the U.S. Dollar" (6 October 2021), United States: Board of Governors of the Federal Reserve System, <https://www.federalreserve.gov/econres/notes/feds-notes/the-international-role-of-the-u-s-dollar-20211006.html>.

⁵⁶ Press Release, "Federal Reserve releases agreements with foreign central banks to re-establish temporary dollar swap facilities" (11 May 2010), United States: Board of Governors of the Federal Reserve System, <https://www.federalreserve.gov/newsevents/pressreleases/monetary20100511a.htm>.

⁵⁷ Evan Tarver, Robert C. Kelly and Suzanne Kvilhaug, "How Moves in the Fed Funds Rate Affect the U.S. Dollar" (29 January 2024), *Investopedia*, <https://www.investopedia.com/articles/investing/101215/how-fed-fund-rate-hikes-affect-us-dollar.asp>.

⁵⁸ Santanu Roy and Binay Bhushan Chakrabarti provided their views on Basel I and Basel II in "Operational Risk and the Banking Sector" (2005) 20(10) J.I.B.L.R. 535–540.

⁵⁹ Board of the ECB, "The international role of the euro" (June 2023), Frankfurt, Germany: European Central Bank, ISBN 978-9-289-95527-0, <https://www.ecb.europa.eu/pub/pdf/ire/ecb.ire202306-d334007ede.en.pdf>.

global reserve currency, coming in behind the US dollar and the euro regarding the total global reserves held.⁶⁰ The renminbi has gained greater acknowledgement as a global reserve currency over the past few decades, and the PBC is proactively encouraging the renminbi's international use, primarily through initiatives such as the Belt and Road Initiative.⁶¹

The British pound is included in the basket of Special Drawing Rights (SDR) established by the International Monetary Fund (IMF), alongside the US dollar, euro, yen and renminbi. The inclusion of the renminbi⁶² in the IMF's SDR basket has enhanced its status as a global reserve currency, with several BRICS countries (excluding India) promoting an increased role for the renminbi in international trade.

One of BRICS's objectives is to lessen dependence on the US dollar in global trade and finance. The member nations have looked into utilising their local currencies for trade transactions to enhance financial independence. BRICS countries have entered into bilateral trade agreements and currency swap deals, enabling the use of local currencies (such as the Brazilian real, Russian ruble, Indian rupee, Chinese renminbi and South African rand) for trade and investment purposes.⁶³

Many banks in BRICS nations (excluding those from Russia) primarily rely on the US dollar as their core currency base, but they aim to progressively transition to other currencies from emerging economies, such as the renminbi, Indian rupee, Brazilian real and South African rand. The emphasis of Basel III on risk management and capital adequacy supports the stability of banks involved in foreign exchange and reserve currency management.

Conclusion

The BIS has the authority to provide recommendations for AI implementation in relation to Basel compliance, promoting uniformity across different regions. For instance, it could establish a standard for validating AI models to avoid over-fitting or bias in estimating risks. The central banks of Japan and India have made sure that their banks adhere to even more rigorous regulations beyond the Basel requirements, consequently lowering their risk of insolvency, bankruptcy and capital demands.

Experts in AI and firms specialising in accounting and law assist banks and regulatory bodies in forecasting impending bankruptcies or financial distress within a bank or nation. AI can leverage predictive analytics to modify capital buffers in real-time, helping banks to surpass the Basel III countercyclical capital buffer (ranging from 0 to 2.5% of RWAs) during periods of economic growth in anticipation of possible downturns. It is crucial for AI companies to partner with the Bank

for International Settlements to develop open-source AI resources for banking worldwide, thereby supporting the implementation of Basel III regulations through the central banks of various countries.

In recent times, the rapid advancement of research and the practical application of emerging computing technologies, such as digital innovations, have been reshaping financial operations and introducing new risks. For instance, concerning the next wave of computing technology, advancements in quantum computing are underway. If quantum computers become operational, they could potentially offer financial solutions that surpass those available through current computing systems, while also jeopardising the security of public key encryption. Global banks should prioritise ensuring that their systems have triple sets of backups and verification systems in a market which is increasingly being dominated by AI systems and third-party risks.

Among the various tools that are available, the authors argue that any of the following approaches could successfully tackle a failing bank:

- A settlement proposal or bail-in from other banks and private entities (in accordance with the bankruptcy laws of the respective nation) that adheres to Basel III guidelines; or
- The sale of a troubled bank and all its operations (through competitive bids) to a major private or public sector purchaser that employs a significant number of permanent staff and AI or quantum computer experts in the country where the bank operates; or
- The transfer of a failing bank and all its functions (through a banking mediation process facilitated by the central bank) to an asset management company under the oversight of that country's central bank and cyber fraud management experts; or
- The acquisition of a failing bank and all its functions by the Central Government or monarch (via its central bank).

These approaches can be applied to traditional too-big-to-fail banks. AI-driven simulations, such as Monte Carlo models or agent-based modeling, can improve the stress testing standards of Basel III by simulating extreme but likely scenarios, ensuring that banks are capable of withstanding losses during financial downturns.

⁶⁰ Anshu Siripurapu and Noah Berman, "The Dollar: The World's Reserve Currency" (19 July 2023), Council on Foreign Relations, <https://www.cfr.org/background/dollar-worlds-reserve-currency>.

⁶¹ SWP Research, "China's Currency Campaign" (June 2024), Stiftung Wissenschaft und Politik, German Institute for International and Security Affairs, *SWP Research Paper 7*, available at: https://www.swp-berlin.org/publications/products/research_papers/2024RP07_ChinasCurrencyCampaign.pdf.

⁶² IMF News, "IMF Adds Chinese Renminbi to Special Drawing Rights Basket" (30 September 2016), *International Monetary Fund, IMF NEWS*, available at: <https://www.imf.org/en/News/Articles/2016/09/29/AM16-NA093016IMF-Adds-Chinese-Renminbi-to-Special-Drawing-Rights-Basket>.

⁶³ Dmitry Dolgin and Chris Turner, "De-dollarisation: More BRICS in the wall" (23 October 2024), Netherlands: ING Article on THINK economic and financial analysis, <https://think.ing.com/articles/de-dollarisation-more-brics-in-the-wall/>.

A detailed examination of the financial conditions of firms that have defaulted reveals that the default rate among financially vulnerable firms has been increasing recently—specifically those with relatively low cash reserves and those experiencing operational losses alongside insolvency. Central banks have the authority to require audits of AI models to verify that banks' risk forecasts comply with Basel standards, along with the ability to enforce penalties or corrective measures for failures to comply (such as capital deficiencies or breaches of LCR/NSFR).

The ruling by a court in Hong Kong represents a notable event in the downturn of China Evergrande, which holds the title of the world's most indebted real estate firm. The court's decision to initiate the company's liquidation came after it officially defaulted, creating ripples in the Chinese financial sector. AI models (such as random forests and neural networks) can evaluate borrower information (including credit scores, repayment history, and economic indicators) to forecast default risks with greater precision than conventional models.

NLP can derive insights from unstructured data, such as news articles and social media, to evaluate the creditworthiness of borrowers or identify sector risks, in accordance with Basel's framework. AI can detect early warning signs of loan defaults, allowing banks to proactively modify RWAs and capital reserves. By examining correlations among various asset classes, AI can forecast market downturns, ensuring that there is sufficient capital to cover market risk exposures.

However, the authors believe that this reliance on governmental support introduces a significant systemic risk. In the case of a widespread banking crisis, which the authors foresee as a possibility, the government may struggle to meet all the commitments it has made, leading to financial instability. At present, China is experiencing deflationary trends, with a drop in consumer prices that could adversely influence the demand for goods and services from other countries, affecting global trade patterns and economic growth. The potential fallout from a banking crisis in China could be far more severe than that of the US subprime mortgage crisis of 2007–08, given the extensive size and interconnectedness of Chinese banks in the global financial system.

Foreign loans make up approximately one-third of Japanese banks' loan portfolios, making these institutions vulnerable to international financial and economic trends. Worries about potential adverse effects on foreign economies and the risks associated with corrections in foreign real estate markets have influenced this lending approach. Despite an increase in non-performing loan ratios and credit cost ratios due to the downgrading of some significant borrowers, the foreign credit risk for Japanese banks has remained low, as the proportion of investment-grade loans continues to be high. The loan-loss provision ratios for Japanese banks have

remained relatively elevated, in part due to an uptick in loan-loss provisions that reflect the correction in the US real estate sector and proactive loan-loss provisioning practices.

At the same time, the environment for US dollar funding has stayed consistent, although the costs associated with dollar funding have remained elevated due to the cumulative impact of increasing US short-term interest rates. Japanese banks' dollar funding premiums have shown stability. Although interest rates for dollar-denominated deposits at major banks have also increased, this rise has been less pronounced compared to loan interest rates, in part because local US banks have limited the pass-through of interest rate increases. Furthermore, the recent indication of the tariff imposition by the US in various countries could affect the volatility of financial markets globally thereby destabilising a country's economy and may lead to potential credit risks for its domestic banks.

AI tools are essential for global banks to uphold capital adequacy standards as mandated by Basel III or to boost reserves during times of crisis. Conversely, there is an increasing demand for enhanced capital distribution in emerging markets such as China, India and other promising island nations. AI models, including machine learning algorithms, can evaluate both historical and current data (such as loan performance, market conditions and macroeconomic indicators) to enhance capital allocation.

By analysing credit, market and operational risks, AI can predict RWAs with greater precision, helping banks to comply with Basel's minimum capital requirements. Central banks or governments in China, India and other island nations should refrain from acting as the lender of last resort for their major banks, as Basel regulations reinforce these banks by ensuring compliance.

The RBI possesses effective QE monetary policy instruments to augment the money supply and alleviate financial conditions during economic challenges like Covid-19, which lowered interest rates when the nation's economic growth had stagnated. In India, the rising demand for loans is indicative of merger and acquisition (M&A) activities and the need for real estate-related financing, alongside increasing working capital requirements as economic activity rebounds. There has been a continuous rise in loans to both large and medium enterprises as well as small businesses in India.⁶⁴ Additionally, lending to real estate firms and a variety of other sectors, including construction and information and communications, has increased, which is reflective of ongoing M&A transactions in India.

BRICS+ countries have made notable progress in promoting the international use of their currencies in recent years. The key advancements observed over the last four to eight years are evident in the growing share of major BRICS currencies in global payments via

⁶⁴ Santanu Roy opined his views on swap agreements in "Indian Central Bank Amends Accounting Standards in Relation to Interest Rate Swap and Bank's Exposure to Hedging and Speculation" (2006) 21 (11) J.I.B.L.R. 609–610.

SWIFT. Although this increase, starting from a minimal base, does not constitute an immediate and direct challenge to the dominance of the US dollar, BRICS+ could potentially rival specific local currencies in the future. For example, currencies such as the renminbi, the UAE dirham and the Indian rupee have been employed for the settlement of energy imports.

Indian refiners are executing payments for Russian crude oil in rubles. Nevertheless, a strong competitor in this context is the renminbi, which has outpaced the dollar as the primary foreign currency used in Russia's international trade and domestic foreign exchange market. In the international commodity markets, the prices of crude oil have recently fallen, primarily due to concerns regarding economic slowdowns in both the US and China, although there was a temporary rise in prices amid heightened tensions in the Middle East. Meanwhile, natural gas prices have increased as the market's focus has once again turned to geopolitical risks linked to the situation in Ukraine.

Although BRICS+ holds significant global foreign exchange reserves held by central banks, it is unlikely that this will greatly enhance the trend of dedollarisation worldwide. Gold appears to be the most promising alternative to the US dollar for this group. While BRICS+ countries are increasing their gold purchases, it makes up only about one-tenth of their central bank reserves.

The possibility of global diversification towards BRICS+ currencies, even in a synthetic form, is limited due to the relatively low external liabilities of its member nations. As a result, the dedollarisation of global foreign exchange reserves is expected to primarily advantage developed markets like Japan and the UK over emerging markets. Gold reserves alone cannot dictate the status of a fiat reserve currency like the US dollar, as gold's value tends to manifest primarily during economic crises and does not appreciate during periods of economic growth. AI is capable of identifying atypical transaction behaviours, which helps minimise losses from cyber threats or internal fraud.

AI has the potential to transform Basel compliance by improving capital and liquidity management, accurately forecasting risks and enabling banks to endure financial challenges. In the case of private banks, AI enhances the quality of capital, upholds compliance with LCR/NSFR and facilitates continuous monitoring. BIS and central banks are essential in establishing standards, supplying data, enforcing adherence and coordinating national frameworks with international best practices. By promoting the use of AI while tackling issues such as model risk and regulatory fragmentation, they can ensure that Basel regulations remain relevant in the face of a swiftly changing financial environment.