imas
INVESTMENT MANAGEMENT
ASSOCIATION OF SINGAPORE

IMAS DIGEST
ISSUE 11

-JUNE 2024-

Be a part of the IMAS Ecosystem:

Follow us on LinkedIn

Contact us to join our mailing list:

enquiries@imas.org.sg +65 6223 9353 www.imas.org.sg

TABLE OF CONTENTS

03 FOREWORD

04 A WARM WELCOME TO OUR NEW MEMBERS

05 IMAS CALENDAR OF EVENTS

07 PAST IMAS EVENTS

FEATURED ARTICLES FROM SPONSORS:

13 AUTOMATION BRINGS GREATER EFFICIENCY AND NEW OPPORTUNITIES
Tradeweb

16 SUSTAINABILITY, INVESTMENT AND THE FAMILY OFFICE
BlueOnion

20 AI STRATEGIES SERIES: EXPLAINABILITY DATA SCIENCE AND AI
FactSet

23 THE TWIN ROOTS OF RISING RATES
Franklin Templeton

27 WHAT IF... SAVING FOR RETIREMENT IS NOT ENOUGH?
JPMorgan Asset Management

FOREWORD

Dear Members,

As we approach the halfway mark of 2024, it is an opportune moment to reflect on the strides we have made in the area of investment risk and performance management. I am pleased to share insights and updates as Chairman of the IMAS Risk & Performance Committee (RPC) as we continue to foster and advocate the highest standards within our industry.

One of our flagship initiatives this year has been the comprehensive Survey of Risk & Performance Practices 2024, which garnered valuable insights from a broad spectrum of our members. The survey results have illuminated several key trends and challenges, from the evolving roles of Chief Risk Officers (CROs) and Chief Investment Officers (CIOs) in performance oversight and risk monitoring to the growing emphasis on liquidity management and the complexities of environmental risk management.

To share the results of the survey, we recently hosted an event titled "Navigating Data-Driven Investment Strategies and Analysis of Risk & Performance Survey 2024", gathering industry experts and thought leaders with interesting and thoughtful dialogue among RPC members and industry stakeholders. Topics included performance review frequencies and the challenges faced in adopting the MAS Guidelines on Environmental Risk Management (EnRM Guidelines) such as the reliability and quality of third-party data. IMAS co-created the EnRM Guidelines with MAS, which seeks to enhance financial institutions' resilience to and management of environmental risk. Looking ahead, the insights derived from our survey and event discussions will help guide our initiatives and priorities for the year ahead.

IMAS is dedicated to upskilling the industry and offers curated training programmes through its online e-learning portal, iLearn, and in-person sessions to ensure members can broaden and deepen their knowledge. In particular, I am proud to share that RPC has worked hard to introduce a new Core CPD course: Best Practice and Ethical Standards in Performance Measures (GIPS), providing an ethical lens to the principles of fair representation and full disclosure that underpin the GIPS Standards to foster transparency and global comparability across jurisdictions.

I encourage all members to take a look at the survey results available on IMAS' website, and continue contributing to our community's ongoing dialogue. Together, we can navigate our industry's complexities with confidence and clarity.



Trevor Persaud
Chairman, Risk & Performance Committee

A WARM WELCOME TO OUR NEW MEMBERS

REGULAR MEMBERS:

- Huatai Securities (Singapore) Pte Ltd
- CGS International Securities Singapore Pte Ltd ("CGS")
- Genedant Capital

ASSOCIATE MEMBERS:

- Standard & Poors International LLC Singapore Branch
- RepRisk
- Ortec Finance

ASSOCIATE FINTECH MEMBER:

- Transparently.AI



CALENDAR OF EVENTS IN Q2 2024

MAY

7 MAY 2024

IMAS Regulatory Committee

IMAS-FCA Roundtable

JUNE

12 JUN 2024

IMAS Risk & Performance Committee

IMAS Lunchtime Event: Navigating Data-Driven Investment Strategies and Analysis of Risk & Performance Survey 2024

25 JUN 2024

IMAS Development Committee

IMAS Lunchtime Event: Understanding Cyber Threats & Developments for Singapore's Cyber Law

27 JUN 2024

IMAS-Tradeweb Masterclass: The Rise of ETF Trading in APAC and the Automated Trade Execution to Optimize Portfolio Alpha

UPCOMING EVENTS

JULY

24 JULY 2024

IMAS Regulatory Committee

IMAS 10th Regulatory Forum

25 JULY 2024

IMAS Membership Engagement Roundtable

AUGUST

TBC

IMAS-BlueOnion Masterclass

SEPTEMBER

19 SEPTEMBER 2024

IMAS Industry Sharing @ Nanyang Business School Career Day

26 SEPTEMBER 2024

IMAS Annual General Meeting

TBC

IMAS Development Committee

Cybersecurity – Assessing Corporate & Organisational Cyber Resilience using Unbiased Methods

TBC

IMAS 18th Regulatory Roundtable

OCTOBER

TBC

IMAS Membership Engagement Roundtable

NOVEMBER

2 NOVEMBER 2024

Inspiring Retirement: IMAS at the Ready for Life Festival

TBC

IMAS Supporting Partnership @ Singapore Fintech Festival

TBC

Start of IMAS Investment Managers' Outlook Survey for 2025

TBC

Executive Roundtable for Gen AI

DECEMBER

TBC

IMAS Christmas Networking Event

FOR COLLABORATION FOR EVENTS AND SPONSORSHIP OPPORTUNITIES, PLEASE CONTACT IMAS SECRETARIAT AT ENQUIRIES@IMAS.ORG.SG

IMAS PAST EVENTS



IMAS-FCA ROUNDTABLE

7 May 2024

IMAS hosted a dynamic lunchtime roundtable featuring key regulatory stakeholders from the Monetary Authority of Singapore (MAS) led by Mr Teo Kok Ming, Department Head, Investment Intermediaries Department and Ms Camille Blackburn, Director of Wholesale Buy-side of the Financial Conduct Authority (FCA).

We were pleased to bridge this conversation between our members and the regulatory bodies. A wide range of topics was explored, from the deepening connectivity between the UK's and Singapore's asset management sectors to the role of AI and fund tokenisation in driving innovation in our industry.

Participants highlighted the challenges and opportunities of emerging technologies present, particularly in the context of real assets and private markets. Exploring opportunities for cross-border interoperable frameworks and networks, removing impediments to business flows, and potentially harmonizing regulatory frameworks were discussed during the meeting.



Key Takeaways

TAKEAWAY 1:

The potential for collaboration and increased connectivity between the UK and Singapore's asset management sectors was highlighted. There is mutual interest in exploring opportunities for cooperation, removing impediments to business flows, and potentially harmonizing regulatory frameworks.

TAKEAWAY 2:

Participants highlighted the challenges and oopportunities that technologies such as tokenization and artificial intelligence present, particularly in the context of real assets and private markets.

TAKEAWAY 3:

The FCA's approach to working on specific use cases and collaborating with industry stakeholders to identify regulatory impediments and promote interoperability was shared. The FCA recognizes the need to address regulatory and legal challenges in the tokenization space and is actively seeking input from industry participants to drive innovation and responsible technology use in the asset management industry.

IMAS Lunchtime Event: Navigating Data-Driven Investment Strategies and Analysis of Risk & Performance Survey 2024



12 June 2024

To share the findings of IMAS' Survey of Risk and Performance Practices 2024, IMAS hosted a Lunchtime Session: Navigating Data-Driven Investment Strategies and Analysis of Risk & Performance Survey 2024, in partnership with our event sponsor, FactSet.

The Survey of Risk and Performance Practices is carried out once every two to three years to foster and advocate the highest standards in risk and performance management as well as support the implementation of the Global Investment Performance Standards (GIPS). A total of 37 fund houses with a combined AUM of $93b responded to the survey and the results were analysed to provide an insight to their investment monitoring structure and resources, adoption of performance and risk strategies, risk tools and metrics utilization, environmental risk management and GIPS compliance.

The survey results were encouraging, showing a high standard of risk and performance measurement in general.

Key findings of the survey:

- CRO is gaining prominence in risk monitoring and economic uncertainty
- 34% of the funds surveyed have a CSO/ESG head for environmental risk management
- More firms monitor performance on a quarterly basis 40% (2021: 23%) instead of monthly basis 45% (2021: 71%)
- Majority of the firms quantify operational risk
- Availability and quality of data, analytical tools and systems are the common challenges faced in adopting MAS Guidelines on Environmental Risk Management
- More respondents (2024: 64%; 2021: 40%) are compliant with GIPS2020

Click here if you are interested in learning more about the survey results.

The event also featured an insightful presentation by Criat, on utilising early warning signals to avoid systematic losses on portfolio holdings, as well as a robust panel discussion on the survey results.

Speakers and Presenters:

- **Trevor Persaud**, IMAS Risk & Performance Committee Chairman
- **Bill Maldonado**, CEO, Eastspring
- **Dr Leon Chuang**, Chief Solution Officer, Criat
- **Patrick Yeo**, Partner, PwC

Moderator:

Simon van Djik, Director - Middle Office Solutions - Southeast Asia, FactSet

Panellists:

- **Pierre Soens**, Director, BlackRock
- **Cedric Torres**, Director, Eastspring
- **Madhu Gayer**, Managing Director, GIC Private Limited
- **Konstantina Founta**, Head of Risk Analytics of State Street Bank and Trust
- **Feng Fang**, Executive Director, Head of Regional Risk Management, UOB Asset Management



Key Takeaways for the Presentation:

TAKEAWAY 1:

Credit Rating Agencies (CRAs) may not always update the credit ratings in a timely manner. For instance, Lehman Brothers and Signature Bank still maintained investment-grade rating one month before their collapse.

TAKEAWAY 2:

In addition to default prediction, some market practitioners utilize PD (probability of default) for downgrade prediction and even forming trading strategies of bonds.

TAKEAWAY 3:

PD models and early warning signals can bridge gaps in credit assessment by providing wider coverage of credit across a wider range of issuers and industries, and help investors keep up with market developments and capture the nuances of a borrower's creditworthiness. Leveraging the insights from early warning signals and PD models can enable investors to identify mispriced bonds and capitalize on arbitrage opportunities across different rating categories, regions, and industry sectors, further enhancing their risk-adjusted returns.

Key Topics of Discussion for the Survey and Panel Discussion:

1 Investment Monitoring Structure & Resources

- Diverse organizational designs for Risk & Performance functions across firms
- The importance of risk management in portfolio restructuring
- The evolving roles of ESG heads in managing environmental risks

2 Investment Performance and Risk

- Having a clear strategy that is integrated into risk and performance function and ensuring that comprehensive performance review and attribution systems are implemented.
- Addressing challenges in performance analytics and integrating strategies across front, middle, and back offices

3 Risk Tools & Metrics

- Adopting robust risk frameworks and effective liquidity management tools, including stress testing
- Utilizing a range of risk metrics for a complete portfolio view
- Conducting scenario analysis and employing advanced credit risk models

4 Environmental Risk Management Process

- Incorporating sustainability and ESG risks into broader strategies
- Challenges arising from ESG data availability, quality, consistency and disclosure due to varying methodologies and potential inaccuracies.
- Active monitoring of ESG compliance, including exclusion criteria, thresholds, and relative analytics to benchmarks, is now a regular part of the investment management process.
- There is a need for more advanced techniques like scenario analysis and stress testing to assess climate risk systematically.

5 GIPS Compliance

- Navigating the adoption of GIPS standards across different regions
- Managing operational challenges and maintaining compliance
- Utilizing systems to ensure accurate and credible performance reporting
- IMAS provides a Core CPD course on the compliance of GIPS Standards and its ethical implications. Click here to find out more.

MATERIALS OF THE EVENT ARE AVAILABLE ON OUR WEBSITE.

imas
INVESTMENT MANAGEMENT
ASSOCIATION OF SINGAPORE

Best Practice and Ethical Standards in Performance Measures (GIPS)



Available now on iLearn!

- **New content refresh with an ethical standpoint**
- **1 Core SFA & FAA CPD hour**
- **Up to 70% funding for eligible participants**

Learning Outcomes

- Understand the objectives underlying the GIPS Standards
- Be cognizant of the ethical framework and key principles of the GIPS Standards
- Understand the benefits of compliance and verification
- Obtain an overview of the application of GIPS Standards in the context of Singapore regulations
- Explore illustrative examples and use cases of the GIPS Standards

Course Outline

- Introduction
- Objectives
- Ethic Framework behind the GIPS Standards
- Key Principles of the GIPS Standards
- Benefits of Compliance & Verification
- GIPS Standards in the Singapore Context
- Common Challenges
- Best Practices & Practical Tips
- Assessment A: Case Study
- Assessment B: Quiz

Assessment

There will be two Multiple Choice Questionnaire (MCQ) assessments made available to students after completion of the training module.

Both Assessment A: Case Study and Assessment B: Quiz will have 5 questions each. There will be a total of 10 questions and students are required to obtain the minimum passing grade of 70% for both assessments before they are deemed to have completed the training.

This 1-hour module is accredited by IBF as a Core SFA CPD course and eligible for Financial Training Scheme (FTS) funding support. The FTS is available to eligible entities based on the prevalent funding eligibility, quantum and caps. FTS claims may only be made for recognised programmes with specified validity period. Please refer to www.ibf.org.sg for more information.

Upskill.
Stay Relevant.
Be Ready.

Learn with iLearn



IMAS Lunchtime Talk: Understanding Cyber Threats & Developments for Singapore's Cyber Law

25 June 2024

Under the auspices of IMAS Development Committee, our recent in-person event at the UBS Auditorium drew over 70 industry professionals, addressing the rising cybersecurity threats impacting asset management firms. The event began with a presentation on the evolving cyber threats in the market, offering deep insights into new and emerging risks. This was followed by an overview of the latest developments in Singapore's cyber law landscape, emphasizing crucial legal and regulatory updates. A panel discussion provided practical best practices and strategies for effectively responding to cyber threats and managing data breach incidents. Selected participants were given the opportunity to see the UBS Cyber Fusion Centre and engage with practitioners to discuss best practices. Overall, the event equipped attendees with essential knowledge and tools to bolster their organizations' cybersecurity defences.

Featuring:

- **Manish Chawda**, Cyber Entrepreneur, ex-founder Pragma
- **Ken Chia**, Principal, Baker & McKenzie
- **Marcus Hackett**, CTO, Seviora Group
- **Janice Teo**, CISO EM/ Deputy CISO, UBS



Key Takeaways

TAKEAWAY 1:

The cyber threat landscape is driven by financial motives and geopolitical factors, with common threats like phishing, malware, DDOS attacks, insider threats, and ransomware originating from organized crime and nation-states aiming to disrupt or gain leverage.

TAKEAWAY 2:

Singapore and Southeast Asia are targeted for cyber attacks due to technological advancements and economic stability, with hackers focusing on financial gains and data theft, the conduct of simulations, training, and purchasing cyber insurance are important risk management measures.

TAKEAWAY 3:

Best practices for cybersecurity defence include leadership buy-in, contextualizing measures, conducting simulations, implementing tools and training, maintaining incident response playbooks, ensuring business continuity, conducting cyber due diligence, and considering insurance as a safety net against financial losses from cyber incidents.



IMAS-Tradeweb Masterclass
The Rise of ETF Trading in APAC and the Automated Trade Execution to Optimize Portfolio Alpha

27 June 2024

In partnership with IMAS, Tradeweb hosted a lunch time session on the rapidly evolving ETF market structure and trading approach. The event started with a sharing on Request For Quotation (RFQ) platforms and how its evolution has made trading more efficient, with better pricing and size, streamlined workflows and round the clock trading. Following that, Tradeweb provided an overview of the increased adoption of automated trading for several asset classes. The session then wrapped up with a panel discussion where the panellists shared their experiences with automated trading, and how it has helped their firms.

Featuring:

- **Keri Neo**, Head of Equities APAC, Tradeweb
- **Laurent Ischi**, Head of APAC Automation, Tradeweb
- **Damian Lim**, Head of Trading, Singapore, Amundi Intermediation Asia
- **Bruce Zhang**, Head of Fixed Income, CSOP Asset Management

INTERESTED IN TRADEWEB'S SOLUTIONS? CONTACT IMAS AT ENQUIRIES@IMAS.ORG.SG AND WE WILL ASSIST TO CONNECT YOU WITH A TRADEWEB REPRESENTATIVE.



Key Takeaways

TAKEAWAY 1:

With higher interest in passively managed funds, the adoption of automated trading will be important in easing the workload from the traditional mode of RFQ trading, and the cost savings from reducing trading costs would be equivalent to the fees earned from asset management.

TAKEAWAY 2:

With automated trading, the trading team and investment team will have to be aligned in terms of investment rationale, to achieve good alpha for the fund.

TAKEAWAY 3:

In an automated trading environment, it is essential to be able to modify rules, expand perimeters in the event of big volatility swings in markets, to ensure that the trades still go through.

Automation brings greater efficiency and new opportunities



Laurent Ischi,
Head of APAC Automation,
Tradeweb

Automation is a phenomenon that's transforming fixed income markets globally, and the Asia Pacific (APAC) region is no exception. Adoption of rules-based trading has skyrocketed, and we have seen the number of customers across APAC using our **Automated Intelligent Execution (AiEX)** tool has grown fourfold compared to the number we had in 2020.

While asset managers have been early adopters, we are now seeing hedge funds, sovereign wealth funds, and other institutional market participants turn to automation. Efficiency is not the only driver, as changes in market structure and evolving traders' strategies further encourage firms to embrace automation.

Advances in technology drive momentum

A simple reason for the increase in automation is the evolution of technology. We can do things now we simply couldn't do 20 years ago, and the pace of new innovations keeps accelerating. For example, within our own business, basic connectivity to clients' order management systems is now the standard. This makes for a faster and simpler transition to automation, which is the next evolution clients want. Automation not only allows for more efficient workflows, but also improves investors' certainty and speed of execution, which can help offset risk.

This evolution of technology has particularly changed the conversation when it comes to automation of less liquid products. It is no longer a question of whether or not automation is possible, but what clients can automate next. In APAC participants have seen the success of automation in Australia and Japan with more efficient execution of government bonds. In Q1 2021 Australia and New Zealand government bonds (AUGV) AiEX accounted for 10% trades and in Q1 2024 it was 43% of trades. This has driven interest in further local markets automation, including trading in Chinese government bonds.

Buy-side leads the way in Asia Pacific

In some areas of the world, the sell-side has led the way with automation. Within APAC, we've seen the reverse. The buy-side has pushed to automate in order to speed up execution, streamline workflow, and dedicate more time to transactions requiring high-level skills and hands-on expertise. They see the efficiencies gained by automation crucial to scaling their businesses.

The sell-side has responded by automating processes like auto-quoting. However, many sell-side participants in APAC have yet to fully capitalise on the benefits of automation. These benefits extend beyond more efficient trading processes to increasing attractiveness to buy-side participants who may systematically include certain sell-side participants in their AiEX enquiries based on their automation capabilities.



Automation supports new and refined trading strategies

In addition to increasing efficiency, automation is revolutionising the trading landscape by enabling the adoption of new strategies and allowing improved execution of existing ones. For example, as asset managers increasingly

automate their operations, they can rebalance portfolios more frequently. This leads to more accurate tracking of indexes for the end investor.

Hedge funds are particularly turning to automation for executing their systematic strategies and trading interest rate swaps. This gives them a competitive edge by allowing for faster execution and reduced frictional trading costs.

Traders are also using automation to put orders into the market when it's most convenient or beneficial, which may be outside of local trading hours. For example, with AiEX's time release function, APAC-based traders may choose to place orders for European government bonds or U.S. treasury bonds at the time of the respective market close.

Improved liquidity for traders and investors

While the origins of automated execution stem from the buy-side's need to free up time for larger tickets, the next evolutionary stage of AiEX allows traders to focus on products that are not yet available to be traded electronically. And as more products are traded electronically, we expect to see better offset of risk, as well as improved liquidity and market efficiency.

Another advantage that has emerged from increased automation is the quality of the data it provides. We have seen first-hand with our clients how it has become easier to track dealer performance and to better analyse the full trade lifecycle, including transaction cost. The resulting insights allow them to make better decisions to drive the best possible outcomes for investors.

Growth in automation continues across APAC

While the APAC region embraced automation later than other world markets, it is now entrenched within trading strategies of institutional investors in the region. We have seen a number of sovereign wealth funds automating execution in their day-to-day strategies and interest surrounding the automation of both developed market and local market denominated currency interest rate swaps is also accelerating.

These and other areas of increased automation will only fuel the efficiency and competitiveness of players in the APAC marketplace. Now is the time for both buy-side and sell-side participants to get onboard and make the most of this opportunity.

blueonion®
Invest Responsibly



Sustainability, investment and the family office



Dr Jeanne Ng
Chief Sustainability Officer,
BlueOnion



What is sustainability?

A traditional definition of “sustainability” is “the quality of being able to continue over a period of time” [1]. In recent decades, an additional expectation has appeared in the form of contributing to “sustainable development”, defined by the World Commission on Environment and Development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [2]. This has culminated in the idea of sustainability being a continual balancing of the three pillars of economic, environmental and social considerations.

The above definition implies that businesses need to minimize negative and/or maximize medium to long-term positive environmental and social impacts, while pursuing financial gains. But why should they do this – what is the business case link between the “sustainability” of a business and that of the “sustainable development” of society? A sustainable business relies on a sustainable environment and society. Without a healthy environment, we cannot have a healthy society. Without a healthy society, we do not have healthy employees, contractors, shareholders and customers to create a successful business – "business cannot succeed in a society that fails" [3].

1. Cambridge dictionary, https://dictionary.cambridge.org/dictionary/english/sustainability, captured June 2024
2. World Commission on Environment and Development, The Brundtland Report, March 1987.
3. World Business Council for Sustainable Development (WBCSD), Bjorn Stigson, Catalysing Change: A Short History of the WBCSD, February 2006.

What does this mean for investment?

There is no lack of financial capital - the challenge is to steer financial flows away from products, services, activities and practices that have negative impacts to the environment and society and direct these flows towards those that create positive environmental and social impacts and are conducive to supporting the sustainable development of our society and environment. In fact, the 17 United Nations Sustainable Development Goals (SDGs) launched in 2015[4], provide signals for potential business development opportunities, with different SDG priorities depending on the country and sector.

However, one of the fundamental barriers to investing in more sustainable options is financial industry's mainstream objective of chasing quick and significant returns. This has led to financial flows being attracted towards riskier new emerging business activities, business models and sectors, and sometimes diverted away from some traditional boringly less-risky sectors which need investment, like power infrastructure for example. If we want to tackle climate change, changing our electrons to green ones is a priority and yet it does not seem to be happening fast enough to make all power carbon neutral by 2050.

Why is sustainability particularly relevant to the family office?

Theoretically, the inherent objective of growing, preserving and ultimately transferring wealth to future generations is already completely aligned with sustainability's focus on future generations and the long-term. Consequently, family offices tend to have a relatively bigger appetite, compared to mainstream investors, for less risky and lower return investments. And now, with the heightened influence and disruptions arising from the world's megatrends of climate change, demographic shifts, fracturing world, social instability and technological advancements[5], family offices are facing a myriad of sustainability-related risks and opportunities, including increasing climate change, disclosure regulations, stock performance volatility, debt levels[6], global interest rates[7], customer expectations, supply chain scrutiny and need to shift from wealth creation to wealth retention[8].

Furthermore, the number of family offices have been estimated to have more than tripled between 2019 to 2023, from over 1,200 to over 4,500, with over 2,700 single-family offices comprising almost 60% of the family offices in 2023[8]. Since the inherent nature of family offices makes them a useful vehicle for supporting sustainability objectives, their growing numbers provides a great opportunity for potentially more uptake of sustainable investments.

How can a family office begin integrating the sustainable development objective as part of its financial sustainability?

To manage these constantly evolving risks and opportunities, which seem to be growing

4. United Nations, UN Sustainable Development Goals 2030, September 2015.
5. PwC, PwC Megatrends, captured June 2024.
6. UBS, UBS Global Family Office Report 2024, 2024.
7. IMAS Digest, Schroders, Outlook 2024: Private markets in the age of the 3D Reset, April 2024.
8. Preqin, Fundraising from Family Offices: A guide to raising capital report, February 2024.

in scope, significance and speed, family offices that relied mostly on strategic asset allocation in the past, will now need to be more proactive and perhaps hands-on. There will likely be a trend for more adoption of dynamic asset allocation or core-satellite allocation strategies to mitigate and manage both the potential short-term and long-term risks and opportunities. According to the BlackRock Global Family Office Survey 2023, they have seen “strong preferences for fixed income, diversifying alternative investments and adding more tactical capabilities to capture alpha from market dislocations.” [9]

Family offices will therefore need to develop more agile capabilities, as well as procure more data, information and possibly sustainability advisory services, for managing these evolving risks and the capitalization of changing opportunities. The latter will become increasingly important given family offices tend to employ few staff, and the few staff they do employ are usually investment specialists whose core focus is on financial rather than non-financial risks. Sustainability expertise and support will be needed to improve their knowledge and capacity in anticipating emerging sustainability-related risks and opportunities, as well as meet their often unique needs, as there is rarely any one-size fits-all solution to meet the needs of the range of family offices. Furthermore, more employment of technological solutions and tools can help the lean family office team to meet the increasing burdens of compliance, assessing and managing risks and opportunities, and improving performance, more robustly, efficiently and cost-effectively.



About BlueOnion

Through the development of technological tools, BlueOnion aims to support asset owners, asset managers and wealth managers to navigate through the uncertainties of changing times, while recognising the different levels of sustainability awareness and Environmental, Social & Governance (ESG) integration – ranging from risk management, to embedding positive ESG attributes to core products, to ensuring positive contributions and/or committing to contributing to the Sustainable Development Goals (SDGs) without potential adverse impacts (PAI) as the main investment purpose.

9. BlackRock, BlackRock Global Family Office Survey 2023, January 2023.

imas
INVESTMENT MANAGEMENT
ASSOCIATION OF SINGAPORE

IMAS Sustainable Finance Suite

AVAILABLE ON ILEARN NOW!



IMAS Sustainable Finance Suite offers a series of sustainable finance training courses with the aim of enhancing the skills and expertise of investment management professionals. With the launch of the MAS and IBF Sustainable Finance Job Transformation Map, IMAS has collaborated with partners to develop a number of courses with reference to the IBF-MAS developed Sustainable Finance Technical Skills and Competencies (SF TSCs) which are part of the Skills Framework for Financial Services.

Courses developed under the IBF-MAS SF TSCs

Sustainable Investment Management (3 hours)

Sustainable Finance | Sustainable Investment Strategies | Portfolio Management
Instructed by **Dr. Liang Hao**,
Associate Professor of Finance and Co-Director of Singapore Green Finance Centre

CLICK TO LEARN!

NEW

Sustainable Stewardship Development (3 hours)

Sustainability | Stewardship | Risk Management | Governance

Instructed by **Dr. Rajiv B Lall**,
Management Committee Member of SGFC and Professorial Research Fellow, Sim Kee Boon Institute for Financial Economics, SMU

CLICK TO LEARN!

NEW

Climate Change Management (4 hours)

Sustainability | International Agreements & Frameworks | Economic & Market Risks

Instructed by **Prof Winston Chow**,
Associate Professor of Urban Climate at SMU's College of Integrative Studies

CLICK TO LEARN!

ASFI Academy Infrastructure Series (3 hours)

Value Generation | Risks & Opportunities | Standards & Measures | Financing Strategies | Sustainability Risk Management

CLICK TO LEARN!

Up to 70% funding for eligible participants

FACTSET

AI STRATEGIES SERIES: EXPLAINABILITY

DATA SCIENCE AND AI



LUCY TANCREDI

SENIOR VICE PRESIDENT,
STRATEGIC INITIATIVES - TECHNOLOGY,
FACTSET

Given the potential for generative AI hallucinations, users understandably want source links or references to show where a Large Language Model (LLM) finds its answers. In this third installment of our six-part series, we discuss the challenge of generative AI's lack of explainability — specifically, the inability of LLMs to cite sources — and a solution called RAG for developers to implement explainable output.

As you may recall from our first article, How LLMs Do—and Do Not—Work, LLMs don't fetch answers from their training data. Rather, they generate a likely sequence of words based on language patterns they've learned from training data. In essence, the individual pieces of training data that feed an LLM are analogous to individual pieces of fruit fed into a blender. Once the model has been trained, what is left is like a fruit smoothie. Just as you can't extract the original whole pieces of fruit from a smoothie, LLMs can't refer to the original source data behind generated answers.

Although an LLM may generate a source reference or URL if you ask for one, it will most likely be a hallucination. Popular LLMs have famously fabricated, or hallucinated, not only information but also legitimate-sounding scholarly citations and URLs that are allegedly sources for that information.

However, in the past year, models such as ChatGPT have gotten better about sidestepping the hallucinated reference challenge by refusing to give source URLs or suggesting potential sources to check. In the example below, I asked an LLM for the source of its answer that Russia is the largest country by land mass. It explained its answers come from a mixture of data from different sources—that is, it didn't pretend that it fetched the answer from a specific website.



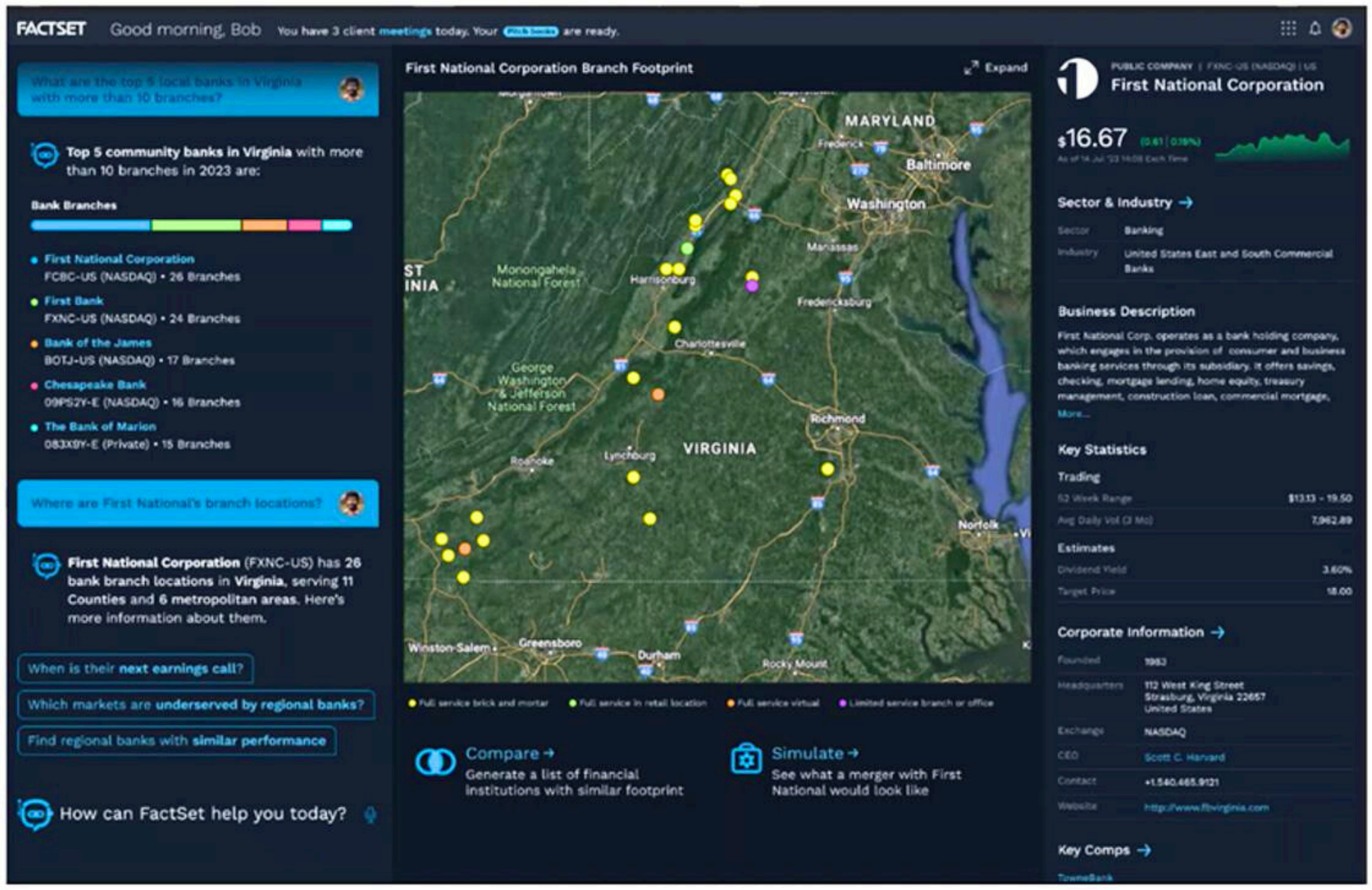
RAG TO THE RESCUE

In our previous article, we discussed how RAG (Retrieval-Augmented Generation) is a programmatic solution for hallucinations. RAG comes to the rescue for explainability as well. Because retrieval-augmented generation involves fetching known answers from an existing data source, programmers know exactly where the answer came from and can provide that exact source to the user. This kind of provability—along with access to massive amounts of trusted data—will determine the leaders among technology firms leveraging the conversational strengths of generative AI to deliver fact-based (not LLM-sourced) information.

LLM-enhanced products throughout FactSet are using RAG to ground answers in our trusted data. Responses to fact-based requests are retrieved from our governed databases, not generated from the Large Language Model's training data.

For example, FactSet Mercury for junior bankers uses RAG to not only deliver accurate results, but to also provide explainability via "prove it" functionality. In this screenshot, a user asks for the top five banks in Virginia with more than 10 branches. Mercury returns the answer in chat and provides additional context or

sources—in this case, a map of those bank branches—to reinforce the accuracy and trustworthiness of the answer. Users can always dive into the exact FactSet database or source that provided the answer. If Mercury doesn't have a factual answer in its database, it will say so, rather than allowing the LLM to hallucinate an answer.



CONCLUSION

Generative AI can help organizations increase productivity, enhance client and employee experiences, and accelerate business priorities. Understanding the implications and solutions for explainability of output from generative AI models will help organizations and individuals be effective providers and users of AI technologies.

In the meantime, watch for part four next week in this six-part series: inconsistent responses and outdated knowledge. If you missed the previous articles, check them out:

AI Strategies Series: How LLMs Do—and Do Not—Work

AI Strategies Series: 7 Ways to Overcome Hallucinations

FRANKLIN TEMPLETON

On My Mind

The twin roots of rising rates



CIO VIEWS

Sonal Desai, Ph.D.
Chief Investment Officer,
Franklin Templeton Fixed Income,
Franklin Templeton

Two driving forces are now simultaneously pushing in the direction of higher long-term real interest rates. While investors and commentators often tend to conflate the two, I think it is useful instead to distinguish them clearly. They are rising investment, and persistently large fiscal deficits.

A new trend toward stronger investment has emerged and is likely to endure for the next several years, driven by a number of important priorities: (a) there is a need to make up for past under-investment in infrastructure, including traditional infrastructure as well as digital infrastructure. The American Society of Civil Engineers' latest report assigns a failing grade to overall US infrastructure (not for the first time);[1] (b) rising geopolitical tensions necessitate an increase in defense spending across Western countries; (c) growing interest in the potential of Artificial Intelligence calls for new investment in the necessary hardware (notably semiconductors), software and energy; (d) the green energy transition requires more investment to boost the role of renewables; and (e) manufacturing companies need to continue to invest in new technologies, which includes making supply chains more resilient.

Not all of this will result in rapid gains in productivity. For example, while the green energy transition is a very important goal, a lot of the required investment will not increase productivity growth in the short and medium run. Because it consists of

1. Source: "2021 Report Card for America's Infrastructure." American Society of Civil Engineers, 2021.

replacing existing capital, it increases current economic growth via higher expenditures, but it does not raise productivity—much like rebuilding existing structures after they've been destroyed by a hurricane. The economist Jean Pisani-Ferry, in a recent report for the French government, has estimated that in fact investment in the green transition will likely reduce productivity growth by a quarter percentage point per year for the next several years. (The report also warns that the green transition increases inflation risks over the next decade).[2]

However, the bulk of investment should over time result in faster productivity growth (the acceleration in US productivity during 2023 already gives hope, even if the weak first quarter of this year counsels caution). Faster productivity growth should in turn drive faster real economic growth, reversing one of the key arguments of the Secular Stagnation theory,[3] and implying a higher equilibrium interest rate in the long run.

Moreover, for a given level of savings, stronger investment also eliminates or reduces the "savings glut," again pointing to higher real interest rates.

The government has and will carry out some of this, and investment is therefore often mentioned in the same breath as wider fiscal deficits. But the two need not go hand in hand. Governments could offset stronger public investment with a reduction in less productive public spending (or with higher taxes). Moreover, a significant portion of governments' investment often turns out to be ineffective at raising productivity—the private sector has consistently been a much better allocator of capital.

The United States has experienced a persistent loosening of fiscal policy that goes well beyond the country's public investment efforts. Therefore, quite separately from lifting investment, persistent large fiscal deficits now play their own important role in shaping the outlook for interest rates. The US government has been running a massively loose fiscal policy for a very long time now: The US fiscal deficit has averaged close to 8% of gross domestic product (GDP) for the last six years. It averaged just under 6% of GDP during 2022-2023 even as economic growth boomed, and the Congressional Budget Office (CBO) projects the deficit to average 5.5% of GDP for the next five years and then to rise further into the future. As a consequence of persistent large deficits, the debt stock has risen sharply.

A decade ago, publicly held federal debt was about 70%; now it is close to 100% of GDP and will keep rising rapidly if deficits remain as large as the CBO forecasts.

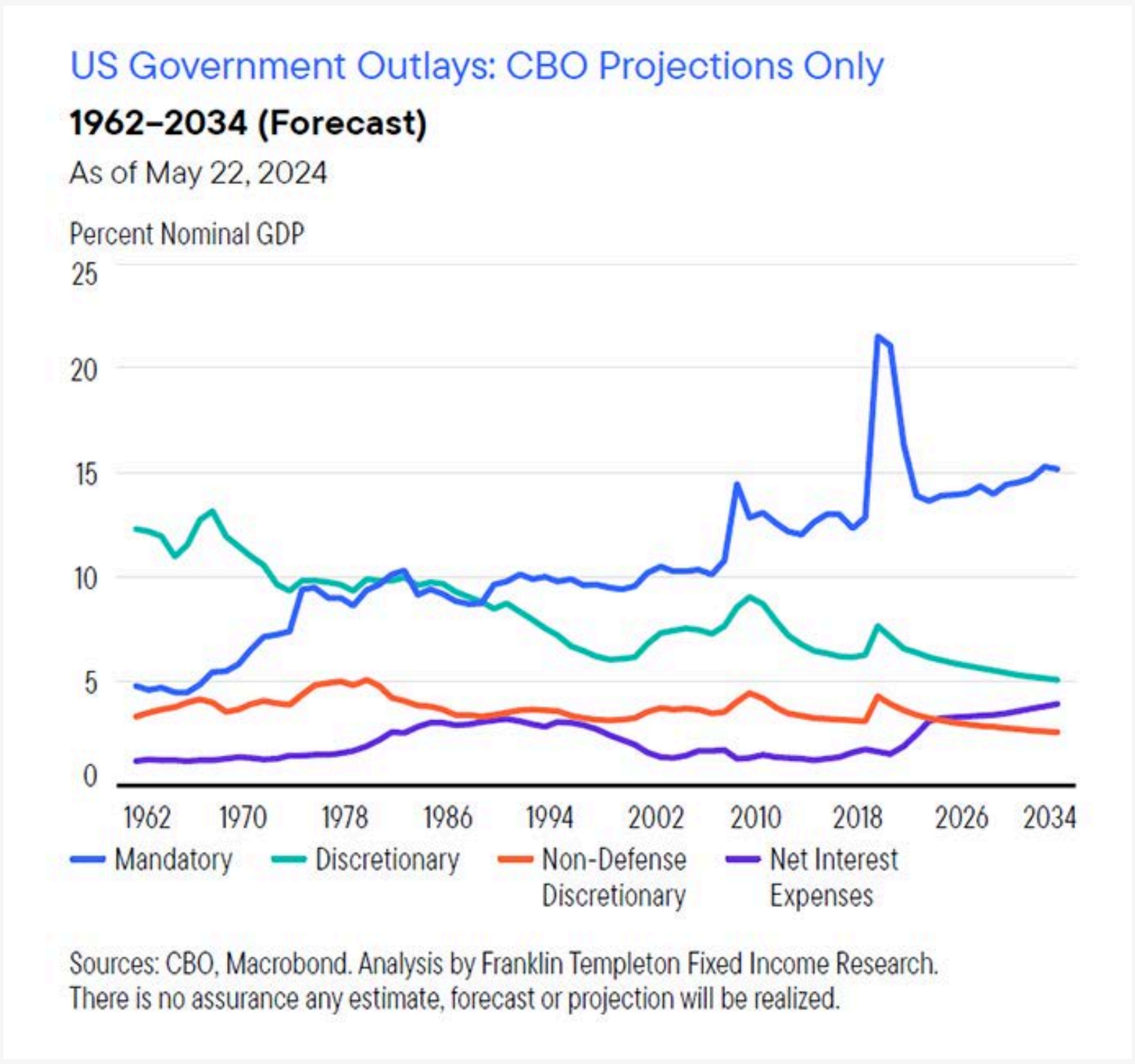
The need to fund large fiscal deficits year after year means a lot of pressure on bond supply. For a given level of demand, this tends to push bond prices down and interest rates up. Moreover, a large fiscal deficit, growing debt and high interest rates create a

2. Source: Pisani-Ferry, Jean and Mahfouz, Selma. "The economic implications of climate action." Republique Francaise. November 2023. There is no assurance that any estimate, forecast or projection will be realized.
3. Secular Stagnation theory suggests that an economy can experience persistent low GDP growth, low interest rates, and high long-term unemployment due to a deficiency in aggregate demand.

vicious spiral that makes it harder and harder to reduce the deficit. Currently, non-defense discretionary expenditures account for less than one-sixth of the US budget (15% of total expenditures). Interest expenditures meanwhile keep rising—they averaged just 1.5 % of GDP in the last 10 years. The CBO projects that they will average 3.5 % of GDP for the next 10 years, more than double, and will grow larger than non-defense discretionary spending by 2025. This would leave very few resources for education, infrastructure investment, transportation, homeland security and the like.

And, the underlying CBO forecasts are probably conservative: They assume that the interest rate on federal debt will remain under 3.5% over the next decade. To put this assumption in perspective, consider that through the 1990s up to the eve of the global financial crisis (GFC)—in other words before the more recent period of ultra-loose monetary policy—the interest rate on US government debt averaged close to 6%. If the average interest rate on debt were to rise even just one percentage point above the CBO assumption (still well below the pre-GFC average), within 10 years interest expenditures would be more than double their current level.

Any way you cut it, bringing the US budget deficit under control will require very serious efforts, which in my view seems implausible in the current political climate. Meanwhile, loose fiscal policy will likely continue to put upward pressure on interest rates.



I have been arguing for some time that equilibrium real interest rates are likely much higher than the markets and the Federal Reserve (Fed) still seem to assume—with the neutral fed funds rate above 4% rather than at the Fed's current forecast of about 2.5%, and 10-year US Treasury yields correspondingly higher. The confluence of loose fiscal policy and a rising investment trend can only strengthen my conviction in this higher interest rates outlook.

WHAT ARE THE RISKS?

All investments involve risks, including possible loss of principal.
Fixed income securities involve interest rate, credit, inflation and reinvestment risks, and possible loss of principal. As interest rates rise, the value of fixed income securities falls. **Low-rated, high-yield bonds** are subject to greater price volatility, illiquidity and possibility of default.

IMPORTANT LEGAL INFORMATION
This document is for information only and does not constitute investment advice or a recommendation and was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. This document may not be reproduced, distributed or published without prior written permission from Franklin Templeton.

Any research and analysis contained in this document has been procured by Franklin Templeton for its own purposes and may be acted upon in that connection and, as such, is provided to you incidentally. Although information has been obtained from sources that Franklin Templeton believes to be reliable, no guarantee can be given as to its accuracy and such information may be incomplete or condensed and may be subject to change at any time without notice. Any views expressed are the views of the fund manager as of the date of this document and do not constitute investment advice. The underlying assumptions and these views are subject to change based on market and other conditions and may differ from other portfolio managers or of the firm as a whole.

There is no assurance that any prediction, projection or forecast on the economy, stock market, bond market or the economic trends of the markets will be realized. Franklin Templeton accepts no liability whatsoever for any direct or indirect consequential loss arising from the use of any information, opinion or estimate herein.

The value of investments and the income from them can go down as well as up and you may not get back the full amount that you invested. Past performance is not necessarily indicative nor a guarantee of future performance.

Copyright© 2024 Franklin Templeton. All rights reserved.
Issued by Templeton Asset Management Ltd, Registration Number (UEN) 199205211E

CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute.
.

J.P.Morgan
ASSET MANAGEMENT



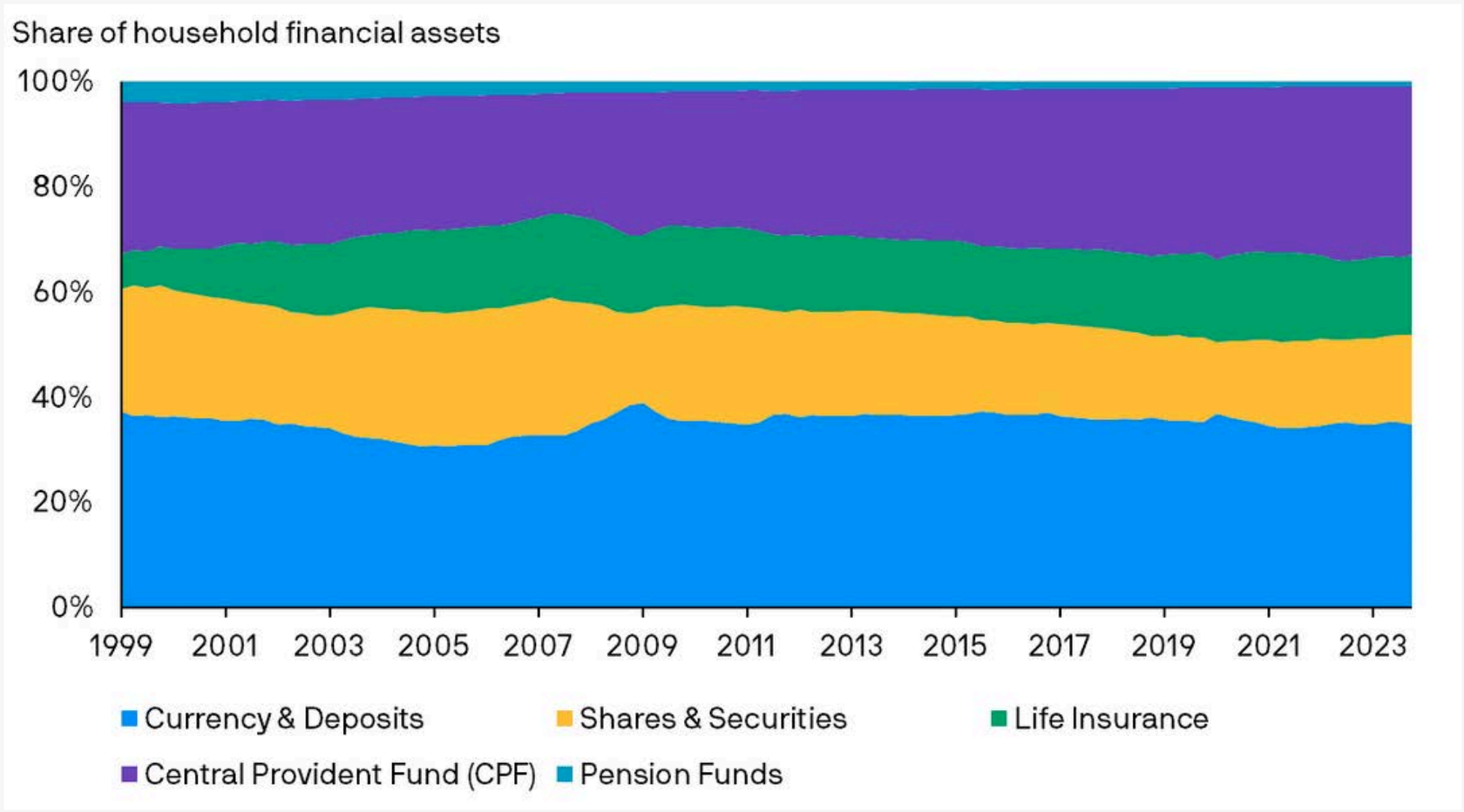
> Sitting on excess liquidity for long-term goals like retirement may not be optimal given the diminishing effects of inflation on the purchasing power of money over the long run. Investing early, subject to one's risk tolerance and objectives, can help individuals harness the power of compounding to grow their portfolio over time and build up their retirement coffers.

The average Singaporean household has more than a third of their financial assets in currency and deposits

With an average personal savings rate of over 30%[1], a culture of saving is deeply rooted in Singapore and for good reason. Savings provide a sense of security as it can act as a bulwark against unexpected setbacks such as unemployment or inevitable life events such as retirement.

Digging deeper, the average Singaporean household holds about 35%[2] of their financial assets in currency and deposits, according to data from the Department of Statistics Singapore as of 31.12.2023. Meanwhile, investments in shares and other securities form just around 17% of financial assets[2].

The average Singaporean household consistently holds more than a third of their financial assets in currency and deposits.



Source: Department of Statistics Singapore, J.P. Morgan Asset Management. Data as of 31.12.2023. The above presents the various asset categories as a percentage share of total household financial assets. This is based on quarterly data over the last 25 years, between 1999 and 2023.

Mobilising funds to help manage the impact of inflation

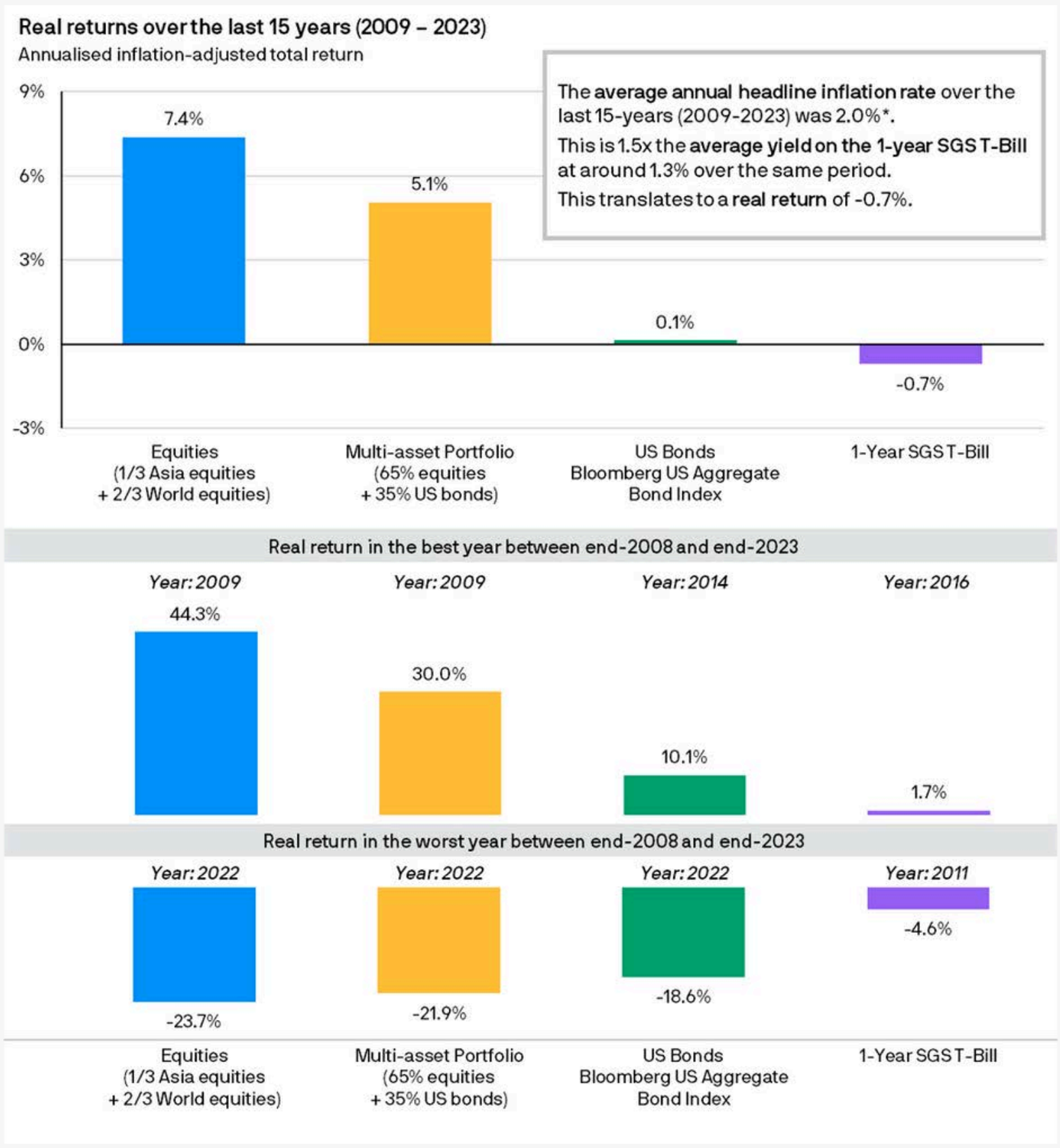
While ready access to money is important for near-term expenses and emergencies, accumulating excess liquidity may not be optimal for longer-term goals like retirement, due to the diminishing effects of inflation on the purchasing power of money [3].

As discussed in "**What if … things keep getting more expensive?**", if the nominal value of money does not keep pace with the general rise in the prices of goods and services, then the real value or purchasing power of the dollar has diminished.

As an example of this macro trend, consider the return on 1-year Singapore Government Securities Treasury Bills (SGS T-Bills), rolled over annually. Over the last 15 years ending 31.12.2023, the annualised real or inflation-adjusted return of 1-year SGS T-Bills would have been negative, as illustrated in the chart below [4]. This suggests a loss of purchasing power in the long-run [4].

Over the same period, various asset classes such as equities and fixed income have generally presented positive real returns that may help manage the impact of inflation. However, this comes at the risk of volatility, exemplified by the wider range of real returns over good and bad years, which can vary significantly across various asset classes.

Long-term annualised real returns of various asset classes.



Source: Bloomberg, Singapore Department of Statistics, Monetary Authority of Singapore, J.P. Morgan Asset Management. Data as of 31.12.2023.

Provided to illustrate macro trends and asset class trends only, not to be construed as research or investment recommendation. Opinions and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. Indices do not include fees or operating expenses and are not available for actual investment.

Both past performance and yields are not reliable indicators of current and future results.

Equities refer to: 1/3 MSCI Asia ex-Japan Total Return Index and 2/3 MSCI All Country World Total Return Index.

US Bonds refer to: Bloomberg US Aggregate Bond Index.

Multi-asset Portfolio refers to: 65% equities (following the sub-allocation for equities above) & 35% bond.
*Singapore's headline inflation rate is the annual average, calculated based on the year-on-year percentage change of the all-items Consumer Price Index (CPI) data.

Between end-2008 and end-2023, the best year for equities was 2009 and the worst year was 2022. For multi-asset portfolio, the best year was 2009 and the worst year was 2022.

For US bonds, the best year was 2014 and the worst year was 2022, and for SGS 1-Year T Bill, these were 2016 and 2011 respectively.

Total returns were calculated on an annual, inflation-adjusted basis, in SGD terms, from 31.12.2008 to 31.12.2023.

Finding a balance

Striking a balance between having sufficient funds to meet near-term needs and investing for longer-term goals is critical. Having sufficient liquidity serves as a cushion for near-term spending demands and as a safety net in the case of emergencies.

The appropriate allocation would vary from person to person, and is typically determined by one's private circumstances, objectives and preferences, although

there are some useful rules of thumb. Helpful information can be found in the Basic Financial Planning Guide published by the Monetary Authority of Singapore (MAS), in conjunction with the Association of Banks in Singapore (ABS), Association of Financial Advisers (Singapore) (AFAS) and Life Insurance Association (LIA). The following points from the guide are more directly related to emergency savings and investments:

Financial planning rules of thumb



Set aside at least 3 to 6 months' of expenses for emergency needs.



Invest at least 10% of income for retirement and other financial goals.

Source: Monetary Authority of Singapore, Association of Banks in Singapore (ABS), Association of Financial Advisers (Singapore) (AFAS), Life Insurance Association (LIA). "Basic Financial Planning Guide." Published 07.10.2023.

Investing may help to manage the diminishing effects of inflation, preserving the purchasing power of money and growing the real value of one's financial coffers over time. Furthermore, an investment portfolio that is diversified across various asset classes like equities and bonds may help reduce volatility while tapping into opportunities for income and growth.

Investing invariably entails some degree of risk, making it crucial to determine the right balance that aligns with one's objectives, investment horizon and risk tolerance.

Provided for information only based on market conditions as of date of publication, not to be construed as offer, investment recommendation or advice. Forecasts, projections and other forward looking statements are based upon current beliefs and expectations, may or may not come to pass. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecast, projections or other forward statements, actual events, results or performance may differ materially from those reflected or contemplated.

1. Source: Singapore Department of Statistics. "Personal Disposable Income and Saving: Fourth Quarter 2023." Published 22.02.2024.
2. Source: Singapore Department of Statistics, J.P. Morgan Asset Management. Data as of 31.12.2023.
3. Source: J.P. Morgan Asset Management. "What if … things keep getting more expensive?" Published 19.03.2024.
4. For illustrative purposes only based on current market conditions, subject to change from time to time. Not all investments are suitable for all investors. Exact allocation of portfolio depends on each individual's circumstance and market conditions.

This advertisement or publication has not been reviewed by the Monetary Authority of Singapore. It does not constitute investment advice, or an offer to sell, or a solicitation of an offer to buy any security, investment product or service. Informational sources are considered reliable but you should conduct your own verification of information contained herein. Investments involve risks. Investments in funds are not deposits and are not considered as being comparable to deposits. Past performance is not indicative of future performance and investors may not get back the full or any part of the amount invested. Dividend distributions if any are not guaranteed and are made at the manager's discretion. **Fund's net asset value may likely have high volatility due to its investment policies or portfolio management techniques. The value of the units in the scheme and the income accruing to the units, if any, may fall or rise.** Funds which are invested in emerging markets, smaller companies and financial derivative instruments may also involve higher risks and are usually more sensitive to price movements. Any applicable currency hedging process may not give a precise hedge and there is no guarantee that any hedging will be successful. Investors in a currency hedged fund or share class may have exposure to currencies other than the currency of their fund or share class. Investors should make their own investigation or evaluation or seek independent advice prior to making any investment. **Please refer to the Singapore Offering Documents (including the risk factors set out therein) and the relevant Product Highlights Sheet for details at https://am.jpmorgan.com/sg/en/asset-management/per/.** To the extent permitted by applicable law, we may record telephone calls and monitor electronic communications to comply with our legal and regulatory obligations and internal policies. Personal data will be collected, stored and processed by J.P. Morgan Asset Management in accordance with **https://am.jpmorgan.com/sg/en/asset-management/per/privacy-statement/.** Issued by JPMorgan Asset Management (Singapore) Limited (Co. Reg. No. 197601586K). All rights reserved.

imas
INVESTMENT MANAGEMENT
ASSOCIATION OF SINGAPORE

IMAS DIGEST

JUN. 2024 | ISSUE 11

IMAS SECRETARIAT

Three Phillip Street
Royal Group Building #07-01
Singapore 048693
Tel: +65 62239353

For collaboration for events or sponsorship opportunities, please contact enquiries@imas.org.sg.