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Executive Summary

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In this issue of BAS TrendWatch report, we focus on the top themes happening across the investment management industry including the application of AI in idea generation and ESG, the increasingly nuanced utilization of proxy voting as an ESG tool, tokenization of real-world assets and its ability to expand access to private markets for wealth clients, the shift in the wealth management industry towards a holistic advisory approach, and lastly how investors could potentially be driving major changes for investment management.

As usual in our TrendWatch series, we analyze the frequently discussed themes raised by our investment management clients across the industry.

In 2023, the proliferation of ChatGPT and other Generative AI tools tailored for retail users have democratized the adoption of AI, which is putting pressure on the investment management industry to leverage this technology for innovation. Looking beyond the hype, we start this report by assessing how investment managers could leverage AI tools to optimize their idea generation approaches. We then discuss how AI capabilities provided by FinTechs can be leveraged by investment managers in their ESG investment approaches, highlighting specific use cases throughout the investment value chain along with both benefits and risks associated with AI application.

Continuing on the theme of ESG, we examine how proxy voting is being leveraged by investment managers as a part of their ESG engagement strategies. We explore the challenges seen in the space in 2023 as well as the developments managers are undertaking towards using proxy voting more effectively as an ESG tool.

Next, we shift to the technology realm to explore the trend of tokenizing real-world assets and recent developments of how both Traditional Finance and Decentralized Finance are leveraging tokenization. Tokenization may provide benefits such as enhanced portfolio diversification and reduced operational hurdles. We then discuss the growing intersection between private markets and wealth management and consider the technology aiding its growth, namely digital platforms and tokenization.

Extending this argument, we focus on the tools used by alternative and wealth managers today to enable their investors to access private market investments even as the investments remain relatively illiquid.

Continuing the theme for wealth management, we consider how wealth managers are leveraging technology to reinvent their business models and focus on delivering broader capabilities to their clients. This mindset could enable wealth managers to build offerings that are more holistic in nature across an investor's total wallet.

Our last article takes a step back and assesses how the various demands from investors could change the investment management industry. This article is split into four parts. The first considers the potential outcomes for pension plans in a decumulating world. The second explores how the industry could shift from generic approaches to create customized solutions and then eventually fully personalized portfolios. The third assesses how the industry might adapt to a bespoke product creation framework, and how each type of firm could take advantage of the emerging landscape. The fourth combines these various arguments and reflects on how sovereign wealth funds and public pension funds could lower their cost per dollar managed by expanding their pool of investors and potentially fund strategic priorities.

We hope you enjoy this paper, and we look forward to engaging you on our findings.

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AI for Idea Generation: Uncovering Alpha Opportunities

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Almost all of us have been using AI in our daily lives, sometimes without realizing it. When we use an internet search engine, talk to a virtual assistant, or accept an autofill suggestion on our phones, we are utilizing AI to make our lives easier. What has changed recently is the availability of highly complex AI tools to a mass audience, rather than a select number of technologically advanced firms.

Rising Interest in AI Use Cases: Many industries such as healthcare, manufacturing, and finance have explored and leveraged the power of AI in various use cases since the 1960s, yet, for the most part, asset managers have not been the biggest users of this technology in their front office capabilities. One of the reasons may be the lack of proof that AI can consistently outperform human traders and investment professionals thus far, but the widely noted launch of ChatGPT has shown many other possibilities of AI and has sparked increased interest in where and how it could be utilized in investment management. A recent report by Global Market Insights projected a 24% compound annual growth rate for the market size of AI in asset management between 2023 and 2032.[1]

Capturing Alpha with the Help of AI: Based on our conversations with AI FinTech providers and backed up with academic research, asset managers have yet to fully explore potential sources of alpha that could be more easily captured with the help of AI. These sources of alpha may come from more dynamic and holistic analysis of investors' objectives. AI can also help with more sophisticated and faster sentiment, technical, and fundamental analysis to assist portfolio managers in alpha discovery. Much of what is discussed around AI now links back to existing tools and envisages enhancing identification of signals, augmenting PMs capabilities and expertise, while accessing more capable machine learning to improve algorithmic trading.

AI may also help extract alpha during asset allocation through forward-looking discounting of asset correlation and potentially more accurate forecasting of expected returns.

One area that we have previously explored in our Industry Revolution Part II paper relates to idea sizing.[2] According to our interviewees at the time and since, there is a widespread belief that traders often enter trades with too small a size and increase this size as their confidence in the trade idea increases. This risk averse approach results in smaller positions when the alpha potential is greatest and larger positions when the alpha potential is smallest, creating a greater risk of exiting the position due to the large position held. Some managers already deploy technology solutions to assist their employees to correct their biases, such as behavioral analytic tools. These tools and others could leverage AI in their analysis.

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[1] "AI in Asset Management Industry Analysis," Global Market Insights, June 2023, https://www.gminsights.com/industry-analysis/artificial-intelligence-in-asset-management-market

[2] "Industry Revolution Part II: How Today's Innovation Efforts Could Lead to a Re-architecting of the Investment Management Industry, 2018 Industry Revolution Survey Part II, Citi Business Advisory Services, October 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/Industry Revolution Part II

Managers are Proceeding with Caution: It has been widely recognized across our clients that AI is a tool rather than a silver bullet to solving issues in investment management. Having a human in the loop to double-check AI output is considered a necessity in the majority of the use cases today. We have seen efforts from both the investment management industry and FinTech companies to improve the explainability, transparency, and auditability of the technology. The former actively recruits talents who understand AI, and the latter has been developing tools and solutions that allow humans to check contributing factors of final outputs and comprehend the logic behind them. However, there can be limits to the level of understanding that human analysts and even AI developers can master or be able to explain for certain types of highly complex AI models. Further, some AI companies may be reluctant to fully disclose the logic behind their AI models as to preserve competitive edges. This creates challenges for asset and wealth managers to fulfill fiduciary duties. Some of the main concerns are providing adequate disclosures and detecting inconsistency between AI recommendations and investor mandates. Establishing AI oversight teams equipped with the right technology to enhance internal ability of auditing and monitoring the use of AI will be key to risk and control.

The table below showcases a few possibilities where AI can be applied across different phases of portfolio management, where we have seen increased interest despite challenges and risks known to asset and wealth managers.

Figure 1. Potential AI Use Cases in Portfolio Management and Related FinTech Players

	Potential AI Use Cases	FinTech Players
Define Objectives	• Establish deeper understanding of clients through structured and unstructured data • Match investors' circumstances with suitable and quantifiable objectives such as financial and non-financial goals, return expectations, risk profiles, and investment time horizons • Easier and faster identification of suitable objectives and personalization of portfolio construction strategies to meet defined objectives for individuals in a scalable way • Deliver hyper-personalized planning and investment advice through RIAs or robo-advisors	PortfolioPilot Range TIFIN
Allocate Assets	• Generate more accurate short-term forecast of expected returns and variance-covariance matrices • Improve discounting of potential changes in the variance-covariance matrices • Discover tactical signals across different geographies and asset classes to guide allocation • Optimize allocation under complex constraints and multiple objectives • Develop tactical overlays to optimize multi-asset portfolio allocation • Help PMs evaluate and assess risk factors through back-tested portfolios to improve allocation	AlgoDynamix Axyon AI Boosted.ai MDOTM
Select Securities	• Behavioral diagnostics to reinforce PM's strengths and mitigate cognitive biases • Automatically screen, sort, and rank securities based on relevant factors of the investment strategy • Imitate PM's expertise and extract new insights from non-intuitive patterns and trends embedded in both traditional and alternative data to further assist PMs with security selection • Customize baskets under complex constraints and multiple objectives to align with PM's views, selection criteria, and investor's mandate • Replicate portfolios (e.g., a benchmark index) with less constituents	Axyon AI Boosted.ai Essentia Unlimited
Monitor & Adjust	• Cover and closely monitor more securities with less time and effort • Dynamically screen, sort, and rank securities in a more real-time and systematic manner based on pre-defined criteria of the PM's choice and continuously improve the criteria • Continuous tracking and forecasting at macro, market, asset class, and individual company level • More advanced and real-time fundamental, technical, and sentiment analysis and extraction of insights from alternative data to make trading/investment decisions and generate new ideas • Faster detection, evaluation, and anticipation of emerging risks for proactive risk management	Accern Aiera AlgoDynamix AlphaSense Axyon AI Boosted.ai bondIT Claira EndoTech Helios Life MDOTM RavenPack StockSnips Theia Insights Toggle AI Ux Wealth
Re-optimize & Rebalance	• Automate and systematize related processes to reduce manual labor • Minimize trading impact and maintain optimal asset allocation during rebalancing • Rebalance the weight of each instrument in a forward looking way to account for possible changes in market condition, volatility, and asset correlation • Simultaneously and coherently re-optimize and rebalance client portfolios subject to complex constraints and multiple objectives including investor mandates and views of PMs	MDOTM Ux Wealth
Analyze Attribution & Report	• Strengthen understanding of return, risk exposure, risk-adjusted performance, and deviation from investment objectives to inform and improve decisions on future adjustments • Conduct return attribution analysis at a more granular level • Extract information from large volumes of unstructured data to produce reports • Provide detailed and clear portfolio analysis tailored for both PMs and clients • Generate personalized and customized portfolio updates automatically at scale	Colmore Digipal AI Theia Insights Ux Wealth

Source: Citi Business Advisory Services with Company Websites

Democratized AI Tools Raise the Urgency to Act: AI has, to a certain extent, democratized some of the expertise and capabilities traditionally associated with buy-side institutions in recent years. More FinTech vendors are offering AI-powered investment products and solutions for free or at very little cost. For example, PortfolioPilot, a free ChatGPT plug-in, can help users optimize their portfolio allocation and offer personalized recommendations after they complete a simple financial assessment survey.[3] Composer allows its users to create, back-test, and

[3] PortfolioPilot company website, https://portfoliopilot.com/, accessed on October 5, 2023

manage trading algorithms with no-code AI assistance.[4] Toggle.AI analyzes fundamental data points in real time and covers over 35,000 global assets to help investors and traders identify and derive actionable insights.[5] Although it is unlikely that the majority of individual investors will start to manage assets by themselves with the help of AI, the base case of using democratized tools for investments could lead to greater expectations for the investment performance and services of buy-side institutions, and these AI-enabled individuals may choose to self-manage a bigger portion of their assets.

Early Planning and Strategizing are Key: What is different about AI compared to other technology innovations is it may be the most ubiquitous, versatile, and complex technology the world has seen, and its adoption will likely be a long-haul rather than a transient arms race. As its name suggests, AI can be applied wherever “intelligence” is needed, especially where data is abundant. It can establish synergies in combination with both humans and almost any other types of technology. There is a growing amount of promising AI techniques suitable for different purposes. The various open-source and proprietary AI models available today have their own strengths and weaknesses which may need to be combined to create functional ensembles. Therefore, selecting, deploying, and integrating AI tools and solutions will likely be a prolonged and non-exhaustive process involving a lot of risks and challenges that will require early planning and strategizing, much as the industry adapted to increasing use cases for FinTechs ten years ago.

[4] Composer company website, https://www.composer.trade/, accessed October 5, 2023

[5] Toggle.AI company website, https://toggle.ai/, accessed October 5, 2023

AI and ESG: FinTech Tools Aiding Application of AI in ESG Investing

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FinTech tools have been aiding managers in implementing ESG in the investment process, particularly around the use of ESG data. Our March 2022 edition of TrendWatch discussed the ways in which FinTechs are providing tools to investment managers to augment their ESG data capabilities, enabling them to move beyond using general, opaque industry scores to more dynamic ESG analytics.[6] This may help managers to improve the level of transparency in ESG scoring and reporting, progress the sophistication of their ESG analysis, and enhance the ability of investment managers to demonstrate materiality to their clients.

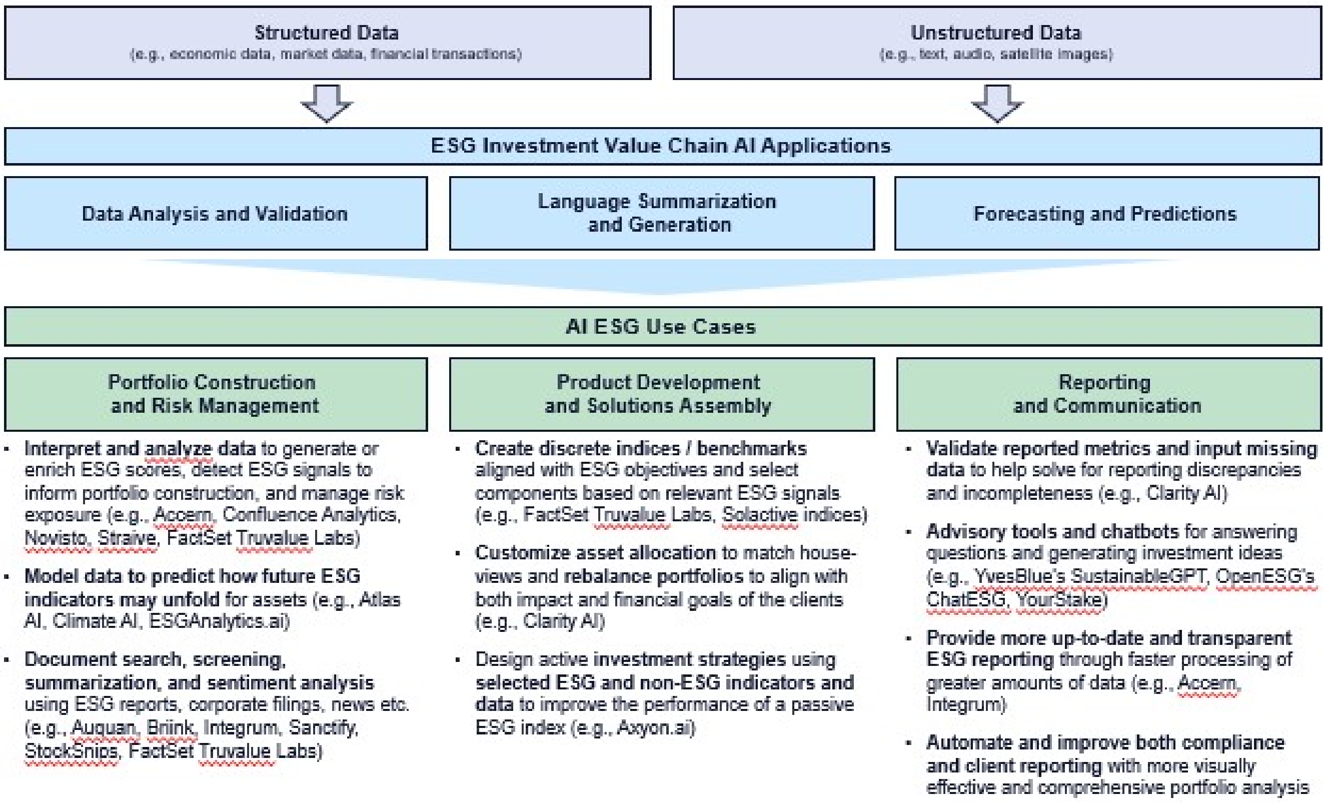
However, whilst advancements have been made in the application of ESG data in investment management over the past few years, challenges in all the aforementioned areas of progression continue to persist. There have been a number of AI-related applications in ESG emerging in the FinTech space which may allow managers to leverage external capabilities and expertise to better solve for the various challenges still occurring with ESG investing. The use of AI has been discussed widely in terms of its potential use cases in investment management, as well as the constraints to building these capabilities internally such as cost, talent, technology, vision, and time.[7]

Figure 2 outlines the ways in which AI can be leveraged for ESG use cases across portfolio construction and risk management, product development and solutions assembly, and reporting and communication. Example vendors are also included.

[6] TrendWatch 2022: Issue 1, Citi Business Advisory Services, March 2022, https://www.citivelocity.com/t/eppublic/TrendWatch 2022_Issue 1

[7] “AI Pioneers in Investment Management”, Larry Cao, Rhodri Preece, and Gary Baker, CFA Institute, 2019, https://www.cfainstitute.org/-/media/documents/survey/AI-Pioneers-in-Investment-Management.ashx

Figure 2. AI for ESG in Investment Management with Example Vendors



Source: Citi Business Advisory Services

With the help of AI, managers may be able to realize benefits for their ESG investment strategy in several ways, such as improving transparency and accessibility of ESG scores, solving for data and reporting lags, and seeking to increase and quantify their positive impact.

Figure 3 below elaborates on some of the AI use cases in ESG and their key benefits.

Figure 3. Examples of AI Use Cases in ESG and their Key Benefits

Benefits: Investment Process	
Improved Implementation of ESG and Reduced Costs	AI can provide the ability to analyze more data, including unstructured data, faster and with less human input. This can **save time and broaden the number of ESG metrics and indicators an analyst can use** to make informed decisions. AI can provide summaries of lengthy amounts of text, or it can answer questions regarding the text through an interactive user interface, leading to **faster analysis of documents** such as ESG reports.
Increased Ability to Translate Investor Preferences into Portfolio Outcomes	AI is better than humans at solving optimization problems under complex constraints and multiple objectives. Therefore, asset managers can utilize AI to **generate investment ideas or make portfolio construction recommendations** for clients based on their specific ESG and financial goals and preferences. Managers can also **design investment strategies** with the help of AI to outperform a specific benchmark without undermining the overarching ESG objectives of the portfolio.
Increased Availability of Forward-Looking ESG Indicators	The ability of AI to parse through large amounts of data and analyze correlations can also help to **generate forward-looking ESG indicators** such as socio-economic development, sentiment and climate-related default risk to help analysts and portfolio managers make more informed decisions.
Benefits: Reporting and Communication	
Improved Client Reporting and	AI can generate or **enrich reportable outcomes and scores** through the more systematic analysis of unstructured data. This could aid managers in providing personalized and detailed reporting at scale. The use of AI could allow firms to better generate or source ESG scores that

Demonstration of Impact	are more **transparent and explainable**, rather than needing to rely on external providers with opaque and subjective scoring methodologies. AI may also be used to better **curate and build benchmarks**, which can be utilized to judge the performance of ESG strategies more precisely in terms of both ESG and financial outcomes.
Reduced Inaccuracies, Lags and Omissions in Data	The use of AI can augment managers' **ability to automatically check and verify data and estimate scores** based on past or comparable data, rather than relying on subjective methods. Additionally, given AI may allow firms to analyze vast amounts of data faster and using less resources, it could enable **speedier analysis of data post-generation and for the data to be refreshed more regularly**, reducing or nearly eliminating reporting lags.
Enhanced Client Communication	AI-powered tools can help advisors **answer questions on ESG and supplement their knowledge**. Large language models such as GPT-4 can be trained to have deep ESG-specific knowledge or ingest information from lengthy ESG reports to answer questions for professionals. This is especially helpful in providing them with useful context when explaining investment decisions or answering client requests. Clients could also **utilize chatbots to better understand ESG investing** and how it relates to their goals.

Source: Citi Business Advisory Services

AI Limitations and Risks in High-Value ESG Use Cases: Like other technologies, the application of AI in ESG comes with limitations and risks. Aside from difficulties and risks in implementation, two other significant areas when it comes to using AI tools and solutions are data and the lack of understanding on AI output.

- **Data:** AI thrives where data are abundant, hence a lack of data will lead to weaker than desired outcomes. An AI-generated ESG signal may perform well during back-testing, but due to limited historical data, its predictive power may not be as strong as sought. This issue can occur with any applications of forecasting such as modelling for climate change or ESG sentiment analysis. It is also widely known that the performance of an AI model is limited by the quality of its input. The current ESG data landscape is fragmented and lacks standardization, which means the quality of some of the ESG data available today often may not meet the high standard for AI training.

- **Lack of Understanding:** One of the risks associated with using AI is taking recommendations without fully understanding the reasons, logic, and the data input used for training. Some AI models, such as the ones based on deep learning, are highly complex and often trained on a large volume of data. Thus, it is crucial for organizations to understand the quality and internal biases of the data AI models were trained on and the inner workings of how they arrive at certain conclusion. For higher-value use cases such as using AI to measure ESG outcomes, generate ESG signals, or make investment decisions, organizations are likely to opt for a "maker-checker" model. In this model, AI can provide the basic recommendations, answers, or point to the right sources, while human experts can then check its accuracy and build upon the AI-generated outputs.

Proxy Voting for ESG: Recent Challenges and Developments

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The Importance of Proxy Voting has Grown as Investors Have Significantly Increased their Stakes in Public Companies: The role of investors in voting on shareholder resolutions has increased over time as investment managers have accumulated growing shares of public companies. Amongst OECD member countries, the top 50 institutional investors doubled their stock market holdings in absolute terms from 2007 to 2019, accounting for over 25% of market capitalization by 2019, with institutional investors in total accounting for 43%. In the US and UK, institutional ownership of public companies at end-2020 was at 68% and 60% of market capitalization respectively, with the top three institutional investors alone holding a 23.5% share in the US and a 22.6% share in the UK at company level.[8]

Engagement Provides a More Nuanced Approach to ESG Investing: Given the more deliberate and intentional nature of engagement, incorporating engagement efforts into an investment strategy may provide a more compelling ESG approach compared to utilizing screening or divestment/exclusions alone. To address criticisms around the simplicity of some ESG strategies, utilizing an engagement strategy could provide managers with a way to differentiate their offerings and add value for investors through achieving progress and positive outcomes related to their ESG and potentially financial goals.

ESG engagement strategies involve managers seeking to influence investee companies to take actions which will improve their ESG credentials. Engagement typically encompasses efforts on proxy voting and shareholder proposals, as well as more direct dialogue and interactions with companies to steer and influence them. Proxy voting occurs when shareholders of public companies vote on shareholder resolutions at the company's annual general meeting. In ESG engagement, **proxy voting allows investment managers to demonstrate their views on and bring attention to specific ESG-related company issues.**

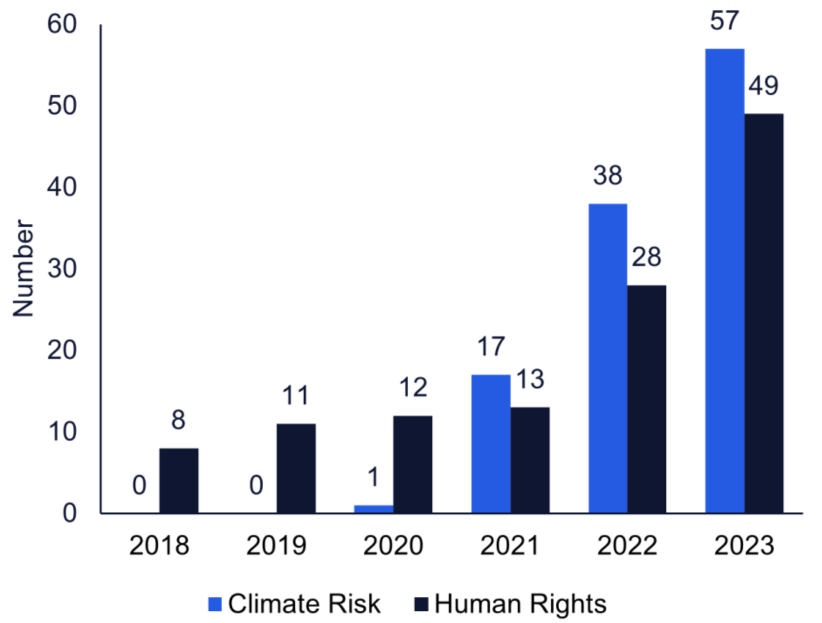
Specific ESG Themes are Emerging in Shareholder Resolutions: Voting on shareholder proposals enables investors to target specific issues, which complements the rise in interest of focusing on themes within ESG. In 2023, the top environmental and social related proposal categories for the US' largest 250 public companies were "Climate Risk" and "Human Rights", which were the 2nd and 4th most common proposal types overall (the other two top four categories were "Say on Pay" (1st) and "Chairman Independence" (3rd)). These two themes have grown in focus in the past few years as shown in Figure 4.[9] Voting practices on specific ESG themes may broaden to more themes and become more commonplace as firms build their knowledge and expertise in these domains. For example, in ShareAction's 2023 report which summarized the responsible investment strategies of 77 asset managers, 82% of managers had voting policies considering climate

[8] OECD (2022), Corporate ownership and concentration: Background note for the OECD-Asia Roundtable on Corporate Governance (October 2022), https://www.oecd.org/corporate/ca/Background-note-Asia-Roundtable-Corporate-ownership-and-concentration.pdf

[9] Citi Business Advisory Services analysis based on data from ProxyMonitor.org, www.proxymonitor.org, accessed September 19, 2023

compared to 38% so far for biodiversity, a less established but emerging theme within ESG investing.[10]

Figure 4. Number of Climate Risk and Human Rights Proposals for the 250 Largest US Public Companies, 2018-2023 YTD



Source: Citi Business Advisory Services' analysis based on data from Proxymonitor.org, www.proxymonitor.org, accessed September 19, 2023

ESG Proposals Encounter Wavering Support in 2023: Whilst the number of ESG proposals reaching a vote has grown in the past two years compared to previous years, there was wavering support for proposals in 2023. In the US, which accounts for most global shareholder proposals, despite the number of environmental proposals rising and social proposals remaining consistent, backing for proposals has fallen. Average support for environmental proposals in the US has dropped from 34.2% in 2022 to 21.7% so far this year, and support for social proposals from 24.5% to 17.7%. Average support for governance and remuneration proposals has also declined in 2023 compared to 2022. Globally, just nine environmental and social proposals received a majority of votes in favor in H1 2023, compared to 36 in H1 2022.[11] Notably, the largest asset managers have also reduced their support for ESG proposals.[12] To add to this, in 2022 the UNPRI found from a survey of 45 companies that only half of them said they had implemented or would be implementing proposals passed, emphasizing that investors need to not only vote

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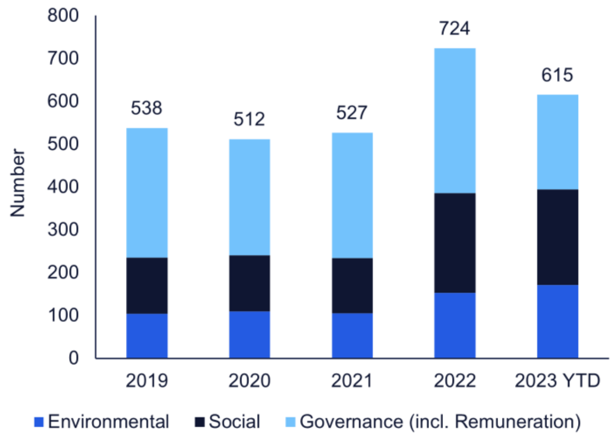
[10] "Point of No Returns 2023: Ranking 77 of the world's largest asset managers' approaches to responsible investment", ShareAction, February 2023, https://cdn2.assets-servd.host/shareaction-api/production/resources/reports/Point-of-No-Returns-2023-General-Findings_2023-03-01-115320_htgw.pdf

[11] "Diligent Market Intelligence's Proxy Season Review 2023.", Diligent, 2023, https://learn.diligent.com/rs/946-AVX-095/images/DiligentMarketIntelligence_ProxySeasonReview2023.pdf, data as of June 30, 2023

[12] "Vanguard's backing for green and social proposals falls to 2%", Madison Darbyshire and Brooke Masters, August 28, 2023, https://www.ft.com/content/4313afe4-1fee-447d-b05b-0c8c38cfbff1

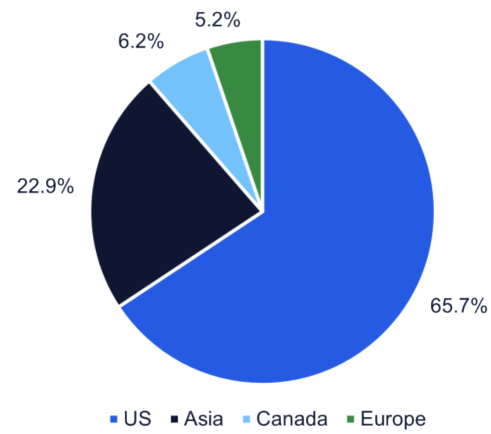
but track companies' progress and hold them to account, which require further resources and effort.[13]

Figure 5. ESG Shareholder Proposals by Category, 2019-2023 YTD



Source: Citi Business Advisory Services' analysis of data from Diligent Market Intelligence's Proxy Season Review 2023. Data as of June 30, 2023.

Figure 6. ESG Shareholder Proposals by Geography, 2023



Source: Citi Business Advisory Services' analysis of data from Diligent Market Intelligence's Proxy Season Review 2023. Data as of June 30, 2023.

There are a variety of potential reasons for the wavering support for ESG proposals. Firstly, the nature of some proposals has become more demanding compared to those from previous years. One example of this is a shift from proposals focused on disclosure versus action; according to data from Proxy Preview, climate finance proposals relating to disclosure received an average of 27% of votes in support, compared to just 8% that focused on restricting financed activities. Additionally, some proposals are withdrawn before going to a vote, mainly due to companies still discussing and agreeing to a form of action.[14] Outside pressures on the investment industry such as the shifting sentiment in the US on ESG are causing increased scrutiny on investment managers, and the potential for negative public reactions may also have had an impact on the way managers vote. However, this shift in public discourse has not translated into support for anti-ESG resolutions, with this category of proposals only receiving an average of 2.4% of votes in favor of them.[15] Nonetheless, this pressure combined with managers' overall lack of conviction and ability to gauge what underlying investors would want managers to do, may also be providing a hinderance to investment managers utilizing their voting powers as much as they could.

Extending Rights to Underlying Investors may Increase Voting Conviction: Improving investment managers' understanding of the goals, preferences and wishes of their clients may be one solution to providing greater assurance to managers in their voting decisions. This could be achieved by establishing a mechanism that would allow managers to view clients' preferences and provide a clear reporting line between the two parties. **In the past year, a number of**

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[13] "Are corporate boards responding to successful shareholder ESG proposals?", UNPRI, March 1, 2023, https://www.unpri.org/active-ownership-20/are-corporate-boards-responding-to-successful-shareholder-esg-proposals/11160.article

[14] "Key Findings: Environmental & Social Issues in the 2023 U.S. Proxy Season", Proxy Preview, July 24, 2023, https://www.proxypreview.org/review/2023-key-findings

[15] Ibid

initiatives have been deployed by investment managers that seek to establish and develop this communication channel. A non-exhaustive list of examples is provided below in Figure 7.

Figure 7. Examples of Recent Proxy Voting Developments in Asset Management

October 2022	**Schwab Asset Management** announced a pilot utilizing a polling solution from Broadridge Financial Solutions to understand investors' preferences and better inform Schwab's voting decisions and policies.[16]
February 2023	**Vanguard** commenced their pilot allowing underlying investors in three funds to select their preferences on proxy voting from a list of four options. The options which the investors choose direct how the funds vote in shareholder proposals.[17]
July 2023	**BlackRock** announced a pilot to allow retail investors in its iShares Core S&P 500 ETF to choose between seven voting policies to come into effect for the 2024 proxy voting season, subject to iShares' Board approval.[18] As of Q2 2023, institutional clients representing $2.3 trillion of BlackRock's total $4.8 trillion of index equity are able to participate in the manager's Voting Choice program, which launched in early 2022.[19]
September 2023	**Legal & General Investment Management** announce that its clients will be able to use pass-through voting on specific shareholder resolutions, rather than choose from a list of policy options, via Tumelo's solution.[20]

Source: Citi Business Advisory Services

Allowing underlying investors to express their preferences could enable managers to vote with more conviction and take less time and resources to come to decisions. It may also empower managers who previously did not exercise their voting rights to increase their participation. Additionally, it provides the underlying investor with a voice through increased democratization and may increase transparency and communication through the feedback of voting choices and results. Transparency could be boosted further by overarching standards being set. In June 2023, the UK Financial Conduct Authority's Vote Reporting Group opened a consultation to understand industry views on a potential voluntary reporting template on voting for UK asset managers. The consultation closed in September 2023.[21] In terms of wider public sentiment, this could also help demonstrate to other parties that

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[16] "Schwab Asset Management™ Pilots New Proxy Polling Solution to Gain Insight Into Shareholder Preferences", Business Wire, October 13, 2022, https://www.businesswire.com/news/home/20221013005408/en/Schwab-Asset-Management%E2%84%A2-Pilots-New-Proxy-Polling-Solution-to-Gain-Insight-Into-Shareholder-Preferences

[17] "Empowering everyday investors through proxy voting choice", Vanguard, February 1, 2023, https://investor.vanguard.com/investor-resources-education/article/empowering-everyday-investors-through-proxy-voting-choice

[18] "BlackRock to extend proxy voting to retail investors in largest ETF", Laura Miller, Investment Week, July 18, 2023, https://www.investmentweek.co.uk/news/4120340/blackrock-extend-proxy-voting-retail-investors-largest-etf

[19] "Empowering investors through BlackRock Voting Choice", BlackRock, https://www.blackrock.com/corporate/about-us/investment-stewardship/blackrock-voting-choice, accessed September 18, 2023

[20] "LGIM offers pass-through voting to pension funds", Emma Simon, Corporate Adviser, September 18, 2023, https://corporate-adviser.com/lgim-offers-pass-through-voting-to-pension-funds/

[21] "Vote Reporting: A consultation and discussion paper from the Vote Reporting Group" , Financial Conduct Authority, September 22, 2023, https://www.fca.org.uk/publications/consultation-papers/vote-reporting

investment firms are acting in the interests of their underlying clients and better reinforce their voting choices.

Initiatives so Far Show Promise but are Limited: Although progress is being made, many initiatives so far only allow investors to choose from a list of broadly defined policies, rather than express more specific views on each shareholder resolution or potential issue. Many initiatives also only currently extend rights to institutional investors, leaving out the voices of retail investors. Additionally, these programs are limited in their usefulness if there is low take-up of underlying investors on selecting choices. Therefore, managers may need to reduce frictions to voting and provide education and information around voting and the ESG topics at hand to increase participation. Developments in the number of choices, as well as encouraging and increasing participation from investors can promote the efficacy of these processes and potentially further legitimize and advance the practice of proxy voting for ESG.

Proxy Voting is One Part of ESG Strategy for Investment Managers: Ultimately, a compelling ESG strategy may encompass a variety of measures and tools. The other key aspect of an ESG engagement strategy involves establishing direct dialogue between a manager and its portfolio companies to help steer them towards ESG goals. One concrete example of supporting such engagement is the Sustainable Development Investments Asset Owner Platform (SDI AOP) initiative launched in 2020 by four large pension funds (APG, Australian Super, British Columbia Investment and PGGM). The SDI AOP's goal is to set standards by which to measure companies' performance and to enable investing teams to integrate ESG metrics into their stewardship activities and reporting requirements.[22] This aspect of engagement can enable a more collaborative, broad and varied approach that shareholder proposals alone are unable to achieve. This can then be complimented by the more precise and speedier nature of proxy voting, which could progressively be used more effectively and for a greater range of ESG goals than it currently is applied to, particularly as expertise on specific ESG themes grows within investment firms.

[22] SDI Asset Owners Platform website, https://www.sdi-aop.org/, accessed October 23, 2023

Tokenization: Unlocking Benefits and Opportunities in Real-World Assets (RWAs)

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What is Tokenization? Tokenization refers to the issuance of tokens as digital representation of an underlying asset including its associated rights and ownership, with blockchain the most typical technology utilized for this process.

Interest is Growing in Tokenization of RWAs: Both traditional financial institutions and DeFi players have shown increased interest in tokenizing real-world assets ("RWAs") this year, despite the crypto winter. Notably, the total value of tokenized treasury funds has increased almost six-fold since the beginning of 2023 to ~$625M as of mid-September 2023.[23] The rise of RWAs may be in part driven by investors in the crypto domain seeking opportunities to deploy assets in the real world while remaining within the crypto domain as yields in the DeFi domain have fallen and the macroeconomic environment has become more uncertain. While this may account for part of the growth, it seems to be the operational/technical benefits of tokenizing RWAs that have driven early interest from traditional financial institutions, such as Franklin Templeton and WisdomTree.[24,25]

What are RWAs? RWAs in the broadest sense refer to any types of assets that either tangibly or intangibly exist in the real world and can be brought on chain to the crypto world. Common examples of real-world intangible assets include music royalties and sports players' contracts, and tangible assets include real estate as well as most memorabilia and collectibles. Financial assets such as bonds, treasury funds and private equity funds, are sometimes separated from the rest of the RWAs as they typically originate from and exist in the system of traditional finance. The diagram below showcases a few examples of RWAs.

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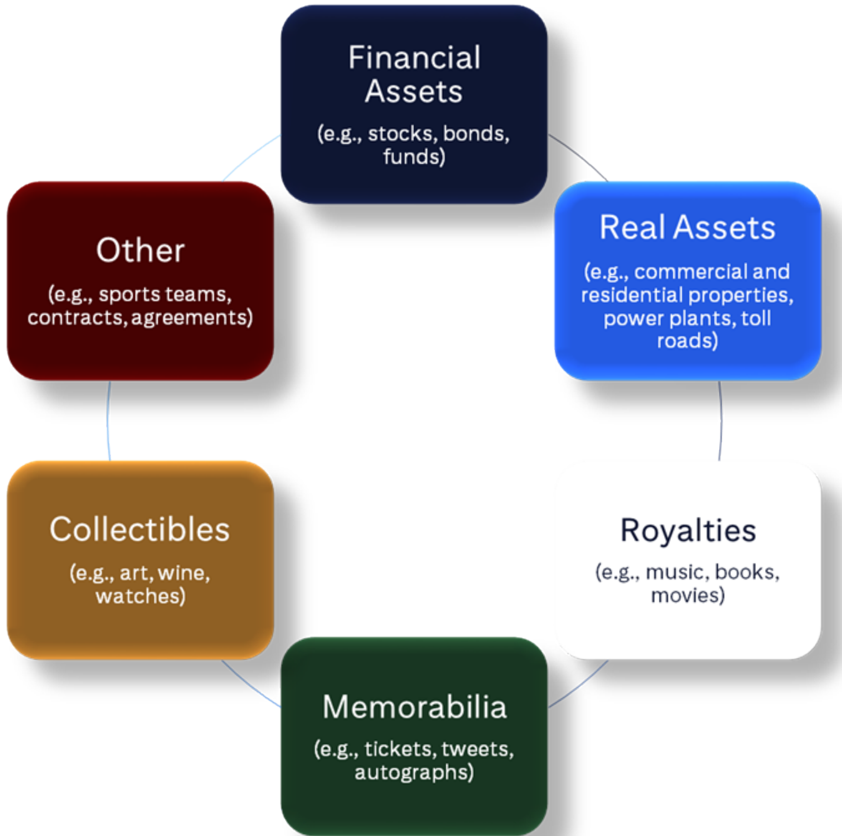
[23] rwa.xyz | Treasuries, accessed on September 14, 2023

[24] "Franklin Templeton Announces the Franklin OnChain U.S. Government Money Fund Surpasses $270 Million in Assets Under Management," Rebecca Radosevich, Franklin Templeton, April 24, 2023, https://www.franklintempleton.com/press-releases/news-room/2023/franklin-templeton-announces-the-franklin-onchain-u.s.-government-money-fund-surpasses-usd270-million-in-assets-under-management

[25] "WisdomTree Prime™ Goes Live, Now Available in App Stores," WisdomTree, July 12, 2023 https://ir.wisdomtree.com/news-events/press-releases/detail/641/wisdomtree-prime-goes-live-now-available-in-app-stores

Figure 8. Examples of RWAs



Source: Citi Business Advisory Services

The Benefits of Tokenizing RWAs: Before the emergence of blockchain technology, the securitized unitization of stocks and bonds was the smallest tradable unit envisioned for transacting in RWAs with other parties around the world. However, transactions at scale had been largely limited to financial RWAs, and individual investors weren't easily able to trade non-financial RWAs and certain types of financial RWAs such as in private markets.

One of the differences between blockchain and traditional fractionalization technology is that blockchain provides an immutable 'golden' copy of transaction and ownership data which can be made accessible to all participants. In theory this minimizes the need for trusted intermediaries but, in practice, market participants have noted their expectation that trust would not be obviated but that trust would need to be built into the network by design. Some of the other potential benefits of tokenizing RWAs are outlined below.

- **Expanded Access for Retail and Wealth:** The combination of growth in global retail, mass affluent, and wealth AUM and the low percentage of alternative investments in retail wallets presents opportunities for asset managers to extend their alternatives offerings to non-institutional investors. A number of asset managers have ~~all~~ been experimenting with tokenized private equity funds, which we discuss in more detail in our Private Markets and Wealth article in this issue and in our recent 2023 survey of the wealth management industry.[26] The level of demand and interest in alternatives from retail investors has also given rise to private investment crowdfunding startups.[27] However, regulatory protections for non-institutional investors may prevent widescale adoption until appropriate guardrails can be put in place. Tokenization provides the technology to expand access, but for participation of retail investors to scale, regulations need to not suppress accessibility and innovation while also provide adequate protection.

- **Increased Scalability of Institutional-grade Services:** Tokenization and smart contracts may significantly reduce the costs and operational complexity associated with certain functions and strategies traditionally reserved for institutional investors such as securities lending, automated roll-down strategies of treasury funds, and collateralization. With the help of tokenization, asset managers may be able to provide these services to retail investors in a scalable and cost-effective way.

- **Improved Integration of Alternatives:** Tokenization may facilitate better integration of alternative investments with traditional assets by reducing the operational siloes and complexity associated with alternatives. Today, alternative investments are often held separately from traditional assets, which has led to difficulties and limitations in portfolio management. Tokenization of alternatives, combined with smart contracts, may enable more automated and holistic diversification, rebalancing, risk management, and reporting of both traditional and alternative assets as one integrated portfolio.

- **Enhanced Diversification:** Many RWAs \have an investment profile relatively uncorrelated to other traditional investments, making them a possible option for diversification. For example, Citi Private Bank finds the broad art market to have low or flat correlation with other broad global asset classes.[28] Tokenization can also facilitate diversification as it allows fractional ownership and management of different assets in one wallet. For instance, an investor may be able to own and manage shares of multiple sports teams or royalties to various music genres to gain broad exposure and mitigate idiosyncratic risk. Eventually we may reach a stage where this broader range of assets could be held together with similar assets in traditional investment vehicles, such as ETFs. However, RWA trading volumes in secondary markets may need to increase before these types of assets could be added to ETFs or holdings in other investment vehicles.

- **Liquidity, Transparency, and Flexibility:** Tokenization of RWAs, as explored in our Industry Revolution Part I report, theoretically widens the pool of investors with direct access and the potentially lower investment minimum.[29] Although some argue liquidity and transparency may diminish the reasons some investors

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[26] "Disruption and Transformation in Wealth - Future-Proofing Service and Operating Models", Citi Business Advisory Services, July 18, 2023, https://www.citivelocity.com/t/r/eppublic/2lCM3

[27] One such example is Republic – see public company website, https://republic.com/raise, accessed on October 5, 2023

[28] "The Global Art Market and Covid-19," Citi GPS, December 2020, https://www.privatebank.citibank.com/newcpb-media/media/documents/insights/Citi-GPS-Art-report-Dec2020.pdf

[29] "Investment Management 2033 - The New Building Blocks: Moving Beyond Equities and Bonds, The Emergence of Robo-Beta & Democratizing Access to New Alpha Sources", Citi Business Advisory Service, 2018 Industry Revolution Survey Part I, March 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/EA5ab15457e4b0fe97dd68ffe50.pdf

have traditionally used private investments and blur the line between public and private or even increase correlations of the two markets, others welcome the liquidity and transparency tokenization may bring to the private market. Furthermore, fractional ownership and liquidity can allow for more flexibility in customizing and adjusting portfolios based on changing market environment and personal circumstances due to the potential for greater asset diversification.

- **Composability:** Tokenization could enable managers to leverage existing smart contract terms at a lower cost than developing capabilities in-house or standardize the terms of trade more as smart contracts proliferate. Managers could also make their own terms available to others in return for an effective royalty payment. Investors may also gain through the standardization of trade terms and through the combinations of various smart contracts which would be possible and enable a more customized approach to their needs. We discuss this in greater depth in our Industry Revolution Volume IV paper.[30]

Concerns and Obstacles of Tokenization: Despite the benefits tokenization may bring, there are still major challenges to unlocking these benefits and concerns around costs, security, and the complexity of implementation. Tokenization may incur significant cost savings on operational processes if it replaces record-keeping systems such as transfer agency, yet before there is more regulatory clarity, institutions will likely have to maintain both traditional and blockchain-based infrastructures. The associated costs may deter some participants. Security of the blockchain technology is also a major concern as both public and private blockchains are susceptible to attacks, with the latter potentially being more vulnerable and likely to suffer from incidents. The current regulatory and legal landscapes are major obstacles for both tokenizing RWAs and broadening adoption. Transferring and owning RWAs such as real assets often involve complex legal and regulatory requirements which still must be fulfilled in the real world. However, these difficulties have not stopped an increasing number of asset managers from exploring the tokenization of RWAs by running proof of concepts according to market participants in our conversations.

Leveraging of External Partnerships for Tokenization Strategy: Use-cases to implement tokenization exist on both ends of the spectrum, from more liquid products like treasury funds to less liquid products like private equity funds, royalties, and real estate. Launching tokenization initiatives can be challenging under the current environment due to multiple factors, such as regulatory uncertainty, budget constraints, and migration complexity and risk. To use internal resources more effectively and better navigate the blockchain technology, we expect to see more buy-side institutions choose to partner with FinTech vendors or large organizations as a part of their tokenization strategy.

[30] "The Convergence of the Crypto and Traditional Economies: How Investment Managers Can Deliver Value in a Decentralized "NewFi" World", Industry Revolution Series Volume IV, Citi Business Advisory Services, June 2021, https://content.citivelocity.com/contentmodelui/aknetpublic/cm/Citi_BAS_Industry_Revolution_Volume_IV___The_Convergence_of_the_Crypto_and_Traditional_Economies_2021-06-10_

Technology is Expanding the Intersection Between Private Markets and Wealth

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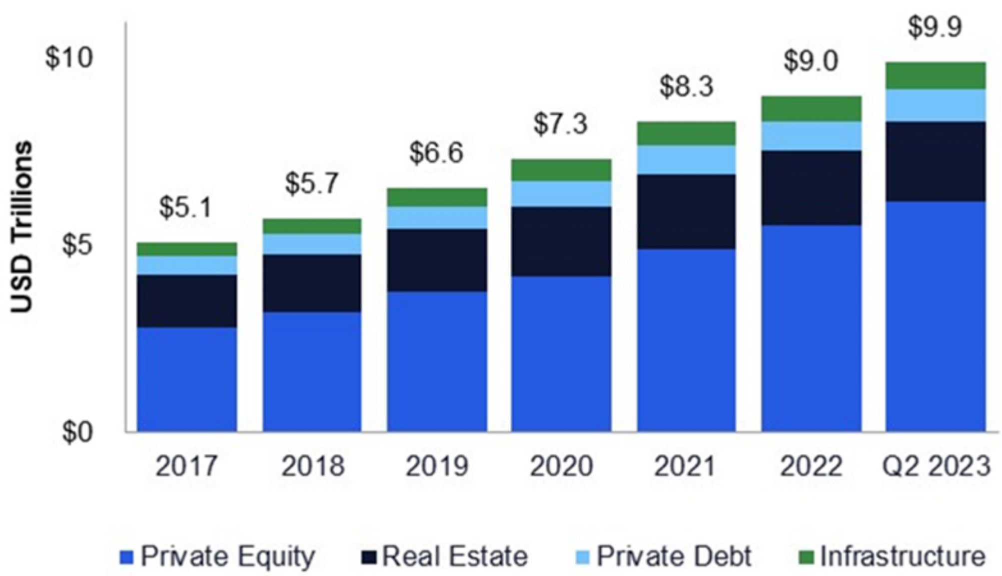
Historically, it has been difficult for individual investors to access private markets due to their illiquidity and high investment thresholds. However, interest from the wealth management sphere is on the rise, driven by the search for higher returns and the opportunities for portfolio diversification that private markets are perceived to offer. In addition, private fund managers are seeking new sources of funding in a competitive and challenging fundraising environment. **New technology is making it easier and more efficient to connect individual investors with investment opportunities in private markets. Digital marketplaces and tokenization are the two most significant technological innovations of note, which this article delves into further.**

Wealth Investors Show Significant Interest in Private Markets: The expansion of interest in private markets in wealth management is contributing to the overall expected market growth. In our 2023 survey of the wealth management industry, Disruption and Transformation in Wealth, 56% of respondents said that private assets were one of the product areas in which their clients were most interested.[31]

Figure 9. Private Capital Growth Slowed in 2022



Source: Citi Business Advisory Services' analysis based on data from Broadridge Global Market Intelligence (GMI)

Alternatives Managers Seek to Tap into Wealth Capital: As well as there being a drive towards private markets from wealth investors, strategic initiatives from private fund managers seeking to source a greater amount of funding from wealth channels are also helping to strengthen the bridge between the private markets and wealth space. Some of the largest managers have already been hiring senior staff dedicated to raising capital from wealth investors. The capital raised from this channel by alternatives managers is expected to continue to grow, with the likes of

[31] "Disruption and Transformation in Wealth - Future-Proofing Service and Operating Models", Citi Business Advisory Services, July 18, 2023, https://www.citivelocity.com/t/r/eppublic/2lCM3

KKR expecting to raise 30 to 50 percent of their capital from private wealth over the coming years and Apollo Global Management targeting raising $50 billion of capital from retail from 2022 to 2026. [32,33]

Despite Increasing Interest, Barriers Limit Access to Private Markets: Aside from the more concrete regulatory restrictions, a number of factors have been limiting investor access to private markets and slowing its adoption. The historically high investment minimums required to invest, and the illiquid nature of private markets investments have made it a complex endeavor to expand accessibility to wealth investors. In addition, investing in private markets can often be a very manual process requiring high levels of due diligence and documentation in order to review, understand and execute an investment, which may raise suitability concerns for non-institutional investors. Complexities in terms of distribution, which is still heavily relationship-based, non-uniform and non-transparent in private markets also hinders access, given that connectivity between the vast universe of private funds and limited partners is provided through multiple different intermediaries. Digital transformation is key to addressing these issues and has, in part, been enabled by the utilization of FinTech firms.

FinTechs Have Started to Break Down Barriers to Investing in Private Markets: A key area in which this has happened is through the development of digital platforms which provide wealth ecosystem participants access to a number of different funds in one place. Some platforms provide access to private market investments via advisors, while others allow unaffiliated accredited investors to sign up directly. For example, iCapital provides wealth managers access to investments via iCapital Marketplace, as does S64 Capital via its AltoFlex digital platform.[34,35] Yieldstreet provides accredited investors direct access to tailored offerings after verifying their accredited status on the platform.[36]

These platforms have enabled a significant reduction in the minimum investment size required, typically through aggregating multiple commitments from wealth investors into a feeder fund. For example, Moonfare accepts commitments as low as $75,000 in the US and €50,000 in Europe, and CAIS typically accepts $100,000 commitments for most of the products on its platform.[37,38] These offerings also benefit alternative fund managers, as they enable them to collect multiple smaller commitments without needing to build the technology and infrastructure to do so in-house or directly service numerous underlying investors. The technology platforms

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[32] "Carlyle Taps Franklin Exec to Head Private Wealth Strategy", Kathleen Laverty, FundFire, July 12, 2023, https://www.fundfire.com/c/4149784/536074/carlyle_taps_franklin_exec_head_private_wealth_strategy

[33] "Alternative Fund Managers Increasingly Target Private Clients – Study", Tom Burroughes, WealthBriefing, April 6, 2023, https://www.wealthbriefing.com/html/article.php

[34] iCapital Marketplace, https://marketplace.icapital.com/, accessed September 27, 2023

[35] S64 Capital, https://s64capital.com/, accessed September 27, 2023

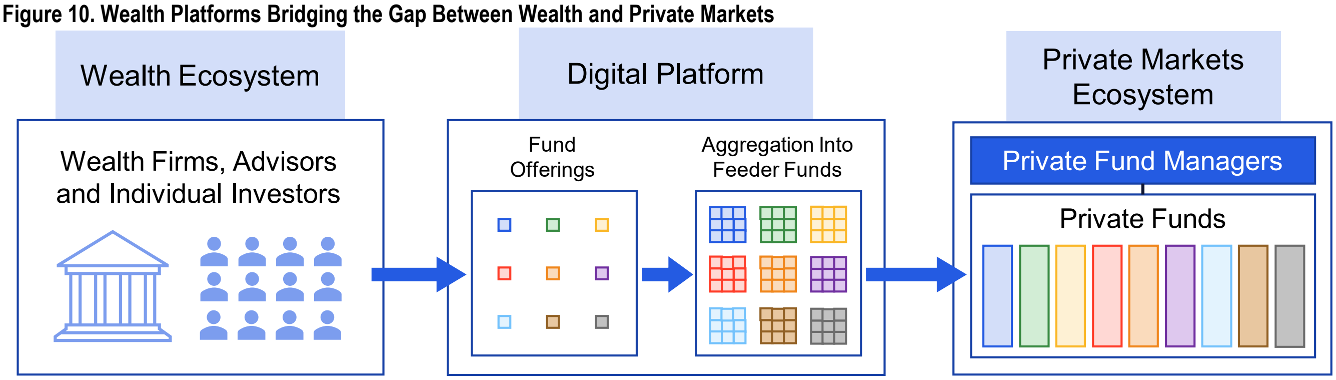
[36] "How it works", Yieldstreet, https://www.yieldstreet.com/how-it-works/, accessed September 27, 2023

[37] "Alternative investments", Richard Lehman, Moonfare, June 22, 2023, https://www.moonfare.com/glossary/alternative-investments: What's_the_minimum_commitment, accessed September 27, 2023

[38] "Form CRS", CAIS, April 7, 2022, https://www.caisgroup.com/legal/form-crs, accessed September 27, 2023

typically carry out due diligence via their in-house teams or a partner to determine which funds to list on their platforms, and they also digitize various aspects of the fundraising process such as onboarding, documentation, and reporting, helping to make the investment process more streamlined and manageable.

Figure 10. Wealth Platforms Bridging the Gap Between Wealth and Private Markets



Source: Citi Business Advisory Services

Whilst FinTech platforms have expanded access to private markets through the provision of marketplaces and digital infrastructure, the industry is also exploring the use of tokenization as a means to further bring down the barriers to investing.

Tokenization May Enable Firms to Deliver Private Market Securities More Easily and at a Cheaper Cost: As discussed in our Industry Revolution Part I in technology and tokenization has the potential to transform alternative markets and create conditions for increased liquidity.[39] Although digitalization lays the foundation and is the first step to further transformation like tokenization, there are additional benefits of bringing financial assets on blockchain. Two key reasons why blockchain may be preferred compared to traditional digitalization and fractionalization methods are the unification of rules and potential for further cost reductions.

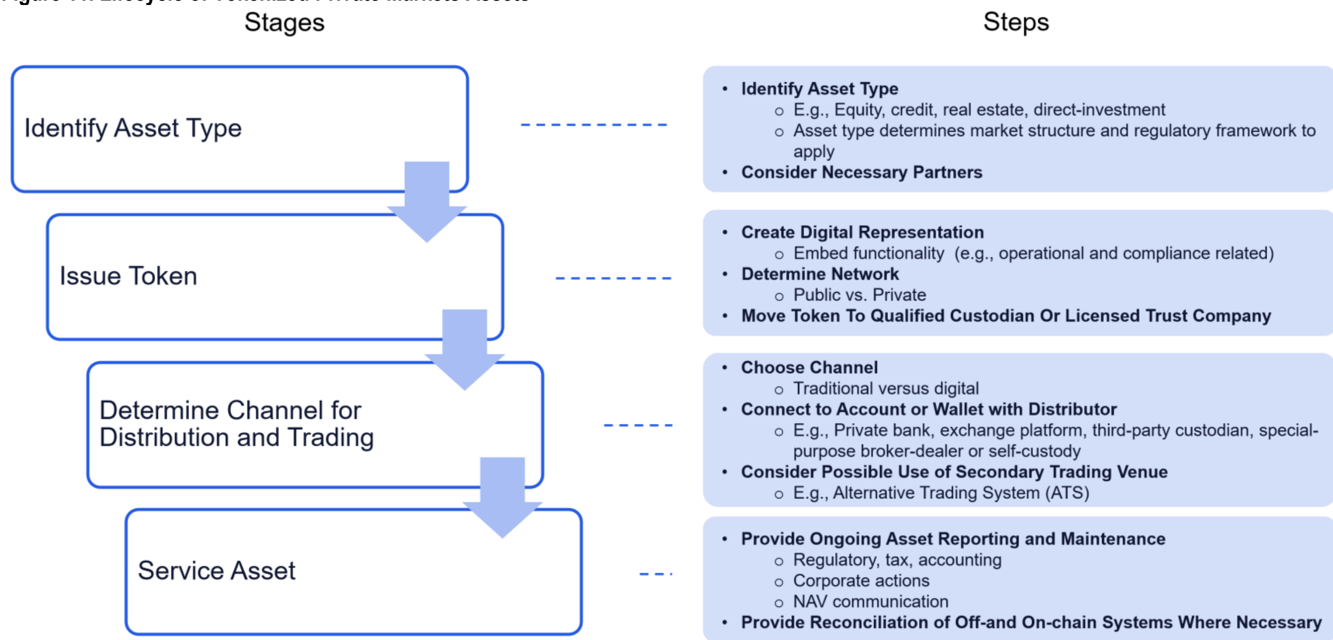
- **Unification of Rules at Infrastructure-Level:** The aforementioned aggregation process involves multiple parties in the transfer of capital from investor to private fund manager. These parties have separate technology infrastructures with their own databases and rules. Tokenization of private funds can not only disintermediate by providing investors access directly to private fund managers but also create unification of financial, legal, and regulatory rules. “You enforce all these rules at the infrastructure-level rather than some front-end app level, which is what digitization does”, says Nisha Surendran, Lead for Private Markets Tokenization for Citi’s Institutional Business. With blockchain, different parties can all access the same underlying database and infrastructure to work on the transaction directly, and they are all subject to the rules written into code on the blockchain. This is comparable to having all financial institutions digitalize their operations and communicate or transact with each other only through APIs and UIs which all follow the same set of rules, and which may have otherwise required significant transformation and coordination.

[39] “Industry Revolution Part I: Investment Management 2033 - The New Building Blocks: Moving Beyond Equities and Bonds, The Emergence of Robo-Beta & Democratizing Access to New Alpha Sources”, Industry Revolution Series Part I, Citi Business Advisory Services, March 20 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/EA5ab15457e4b0fe97dd68ffe50.pdf

- **Potential Cost Reduction:** As mentioned, tokenization of financial assets can reduce the need for intermediaries and thereby reduce or eliminate the fees and the operational layers embedded within and among them. This may also translate into cost reduction for asset managers. As digital ledgers can be used to record a 'golden' source of data on both ownerships and transactions, theoretically there will be no need for separate bookkeeping. For example, in the case of transfer agency, although there would be transaction or maintenance fees if an asset manager chooses to participate as a node in a blockchain network, these costs are much lower compared to traditional transfer agency fees according to early adopters among the asset management community who have spoken with us.

Figure 11 below, details the lifecycle of a tokenized asset and some of the steps involved in this process.

Figure 11. Lifecycle of Tokenized Private Markets Assets



Source: Citi Business Advisory Services with "How Tokenization in Asset Management is Driving Meaningful Opportunity," EY Parthenon, Sara Elinson, Prashant Kher, August 18, 2023, https://www.ey.com/en_us/financial-services/tokenization-in-asset-management; "Tokenization: A digital-asset déjà vu", Anutosh Banerjee, Ian DeBode, Matthieu Vergnes, Matt Higginson, and Julian Sevillano, including input from McKinsey's Corporate and Investment Banking team, August 15, 2023, https://www.mckinsey.com/industries/financial-services/our-insights/tokenization-a-digital-asset-deja-vu

The tokenization of assets not only provides the potential for more efficient transactions and easier transfer of ownership, but may also allow an asset to become accessible to an expanded set of investors in smaller investment sizes, and may lead to the creation of new investment products and build out of secondary markets. As noted by McKinsey, the theoretical ability to break up tokenized assets into smaller and smaller parts could enable retail investors to participate at lower investment thresholds, facilitating greater diversification of portfolios.[40]

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[40] "Tokenization: A digital-asset déjà vu", Anutosh Banerjee, Ian DeBode, Matthieu Vergnes, Matt Higginson, and Julian Sevillano, including input from McKinsey's Corporate and Investment Banking team, August 15, 2023, https://www.mckinsey.com/industries/financial-services/our-insights/tokenization-a-digital-asset-deja-vu

Some early adopters of tokenization technology are partnering with platforms to bring tokenized private equity products to traditionally underserved investors. Larger applications to date mostly involve the formation of tokenized feeder vehicles for private funds, the use of the smart contract coding and the development of secondary sale platforms for tokenized illiquid fund stakes.[41]

The Pace of New Tokenized Private Fund Launches Accelerated in 2022 Thanks to Further Developments Made Around Blockchain Functionality in Private Markets: In 2022, large alternative asset managers such as KKR, Apollo, and Hamilton Lane joined early tokenized asset adopters Mapletree, Partners Group, and Temasek with tokenized access to private asset funds through partnerships with the likes of Singapore's ADDX, US based digital assets platform Securitize, and blockchain technology firm Figure Technologies.

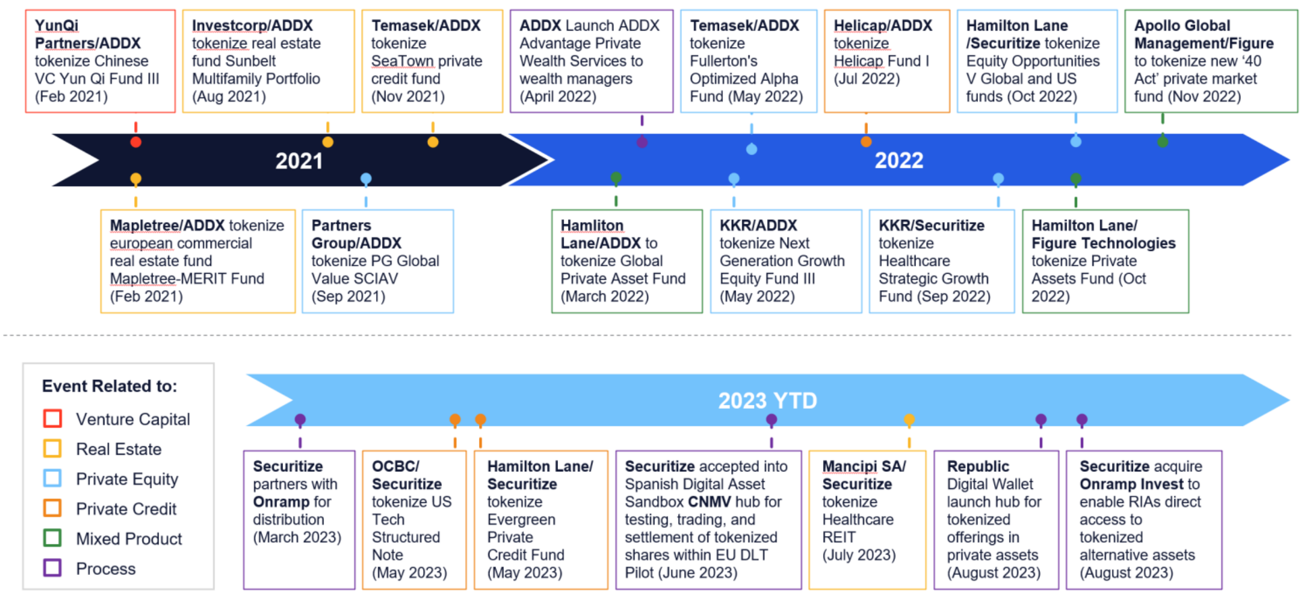
So far in 2023, there have been several developments opening new channels for distribution of tokenized private assets. In August 2023, Securitize acquired Onramp Invest, a digital asset wealth platform serving RIA firms, asset managers and index providers with a combined AUM in excess of $40 billion. The acquisition followed an initial partnership announced in March 2023 and followed news that Securitize started issuing tokenized securities in Europe.[42] Also in August 2023, Republic, a digital finance company launched 'Republic Wallet,' a self-custodial multi-chain wallet for investment in private assets and signifies a key component of the company's broader efforts to build web3-enabled products that help democratize private investing globally.[43]

[41] "Apollo Hops on Private Fund Tokenization Wave", FundFire, November 23, 2022, https://fundfire.com/c/3836304/apollo_global_management

[42]Securitize press release, August 17, 2023, https://securitize.io/press-releases/securitize-acquires-onramp-invest-extending-tokenized-alts-to-rias-managing-40b-in-aum-for-first-time

[43] "Republic Launches Self-Custodial Multi-Chain Wallet to its Global Community of 3M+", Chainwire, August 17, 2023, https://decrypt.co/152806/republic-launches-self-custodial-multi-chain-wallet-to-its-global-community-of-3m

Figure 12. Alternative Asset Managers Partner with FinTechs to Build Channels for Tokenized Access to Private Market Assets (Non-Exhaustive)



Source: Citi Business Advisory Services with additional sources available in the Endnotes

While notably small in size and limited in scope to date, tokenization capabilities are often being used to build a critical channel to feed a significantly broader array of assets ahead, which becomes possible thanks to the automation enabled by smart contracts and blockchain technology. These capabilities are particularly beneficial to private markets given the continued predominance of manual processes and the slow—although growing—adoption of digitalization in the space.

The Potential Benefits of Tokenization of Private Market Assets: While still in an early phase for mass affluent and retail segments, it is interesting to see the technology-enabled investment platforms and providers opening the way for individual investors to gain access to private markets and private company issuers to be able to tap into new sources of funding and engagement. As the use of tokenization in private markets grows, it could create the conditions for increased liquidity, enhanced efficiency in the management of private market assets and improved transparency.

Wealth Management Sees a Growing Shift to a Holistic Advisory Approach

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Holistic advisory is a financial planning approach that considers all aspects of a client's financial life including financial goals, risk tolerance, and personal values. It is a comprehensive approach that goes beyond traditional investment advice to include other areas such as tax planning, estate planning and retirement planning and is a shift in advisory towards optimizing the use of financial assets in addition to seeking returns.

Digital Technology Advances Have Led to a Shift in Client Expectations and Expansion of Scope of "Holistic Advisory" for Wealth Management

Client expectations have changed significantly in recent years with the introduction of new capabilities and services available through digital technologies in many businesses, including wealth management. Those shifting expectations encouraged wealth managers to expand the scope of how they provide additional value through an increasingly holistic advisory approach. Furthermore, wealth clients increasingly are seeking to address all of their financial needs in one place. One 2021 survey conducted by Cerulli and Phoenix showed that 58% of affluent respondents expressed an interest in consolidating all investible assets to a single institution.[44]

In addition, investors may be prone to switch wealth management providers if they are not having their expectations met. A 2022 PWC survey of HNW investors found that 46% of those surveyed planned to changed wealth management providers or add new wealth management relationship in the subsequent 12 to 24 months, 39% said that they had already switched and of those, a notable number cited unmet needs as the primary reason for the change. The switching was found to be more pronounced in those investors under 55 years old and particularly those aged 18 to 34.[45]

There are Challenges for Wealth Managers Building Out Holistic Advisory Services

Understanding the underlying different motivations, demands and expectations of the clients may require a consistent communication with the client and a capability to provide a personalized approach which is increasingly comprehensive in terms of services being delivered.

To be able to meet those challenges, wealth managers could develop an operating model that can support a holistic advisory approach. This type of model could include a digital transformation of legacy systems from end-to-end with the advisor playing a pivotal role in building a deeper and stickier relationship with the client, namely in-depth advisory services around 1) financial wellness 2) deeper financial

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[44] "Over Half of Retail Investors Prefer to Consolidate Their Financials to a Single Provider", Cerulli, June 14, 2022, https://www.cerulli.com/press-releases/over-half-of-retail-investors-prefer-to-consolidate-their-financials-to-a-single-provider

[45] "High-net-worth investor survey", PWC, Roland Kastoun, Arjun Patel, Michael Horvath, and Evan Siegal, https://www.pwc.com/us/en/industries/financial-services/asset-wealth-management/high-net-worth-investor.html, accessed September 27, 2023

literacy and 3) all within a context of being able to provide the advisory in a highly personalized construction.

Targeted Use of Technology is a Key Feature of Wealth Managers' Focus on Moving Toward Holistic Advisory Capabilities[46]

Actionable Insights Based on Data Analysis: One key source of technology sought after are solutions that provide actionable insights which can efficiently and effectively leverage data to enhance investment decisions, optimize portfolio strategies and deliver personalized services to clients. It is in this arena that the use of AI is seen to be of particular relevance. In our recent paper Disruption and Transformation in Wealth, firms discussed utilization of AI to help advisors generate investment ideas, automate the process of tailoring individual portfolios using client information, answer client questions, and assist in regulatory compliance and reporting.[47] Concerns about using this technology include uncertainties around regulatory compliance around the use of AI models themselves, model output reliability, interpretability, privacy concerns, the cost of data, the lack of clear data governance and the fragmented nature of firms' current data infrastructure. These are important concerns that need to be addressed and that AI will be utilized more over time. [48]

Increased Integration and Interconnectedness to Improve Visibility and Expand Offerings: One example of the targeted use of technology is to enable clients to virtually consolidate their assets into a single, integrated view so that their advisors can provide a 360-degree view across their portfolio. Other examples include integrating with some other wealth management platforms to expand access to offerings and connecting with distribution services to gain greater market access to other financial intermediaries.[49]

There is an Increased Focus on the Concept of Financial Wellness in Holistic Advisory

A recent survey by Thrive Global found that 90% of people say that money has an impact on their stress levels.[50] Financial wellness goes beyond having enough money to meet your needs, it includes looking at your goals, what are you doing to achieve those goals and what you need to do to stay on course, making financial planning capabilities key.[51]

In a recent study, the Bureau of Labor Statistics (BLS) expected the number of financial planners to grow by 13% between 2022 and 2032, much faster than the

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[46] "How Much is Technology Reshaping The Wealth Management Ecosystem", Forbes, Sandeepan Mukherjee, February 7, 2022, https://www.forbes.com/sites/forbesbusinessdevelopmentcouncil/2022/02/07/how-much-is-technology-reshaping-the-wealth-management-ecosystem

[47] "Disruption and Transformation in Wealth: Future-Proofing Service and Operating Models", Citi Business Advisory Services and Securities Services, July 2023, https://www.citivelocity.com/t/r/eppublic/2ICM3

[48] Ibid

[49] Ibid

[50] "Thriving Wallet Research Insights Report", Thrive Global and Discover, February 2020, https://community.thriveglobal.com/wp-content/uploads/2020/02/Thriving-Wallet-Research-Insights-Report.pdf

[51] "What Is Holistic Financial Planning?", smartasset, Rebecca Lake, August 29, 2023, https://smartasset.com/financial-advisor/holistic-financial-planning

3% average of all occupations.[52] The growth in the demand for financial planning is seen to be driven by the aging population moving into retirement, living longer in retirement and the anticipated need for supplementing traditional pension plans with individual retirement accounts. As a specific example, some wealth managers are providing financial wellness coaching services to help clients improve their relationship with money and make better financial decisions. These services may include helping clients develop budgets, set financial goals and create a saving/investment plan.[53]

Technology around data analytics and AI will continue to be important, but robo-advisory—another widely discussed wealth management technology—has seen less traction when considered for broader use. While robo-advisory firms may provide automated investment advice based on user inputs, the BLS sees the impact of the technology as somewhat limited in scope as consumers are seen to continue to turn to human advisors for their more complex and specialized investment advice over the coming years.[54] Market participants we've interviewed on the subject have also voiced a belief that even where robo-advisors are deployed, some of the most effective solutions have been hybrid human plus machine options, with the robo leading on most of the allocation decisions but with the ability to speak to a trusted advisor being critical to executing the decisions.

Holistic Advisory Includes an Emphasis on Education for Advisor and Client Alike

Research has found investors will be increasingly looking to their advisors to help with the moments that matter the most in their lives and points to the importance of wealth managers providing the tools and services to advisors to help them be able to educate the clients about financial matters and the products and services available and how best to use them for the individual client.[55]

One example of this came in 2021 with Fidelity Institutional℠ launching a new educational program for firms and advisors looking to grow.[56] The educational program included modules with research papers, videos, podcasts from Fidelity and other asset managers and provided ongoing personalized firm-level support for rollout planning, platform training and adoption measurement. Holistic advisory platforms extend a similar type of approach with educational programs aimed directly for clients with training modules around topics such as different investment styles, asset types, risks and 'what if' scenario calculation tools.

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[52] Occupational Outlook Handbook-Personal Financial Advisors-Job Outlook, U.S. Bureau of Labor Statistics, https://www.bls.gov/ooh/business-and-financial/personal-financial-advisors, accessed September 27, 2023

[53] "Financial Well-Being", Deloitte, 2021, https://www2.deloitte.com/content/dam/Deloitte/us/Documents/about-deloitte/us-ab-financial-well-being.pdf

[54] Occupational Outlook Handbook-Personal Financial Advisors-Job Outlook, U.S. Bureau of Labor Statistics, https://www.bls.gov/ooh/business-and-financial/personal-financial-advisors, accessed September 27, 2023

[55] "Fidelity Institutional℠ Launches New Educational Program for Firms and Advisors Looking to Grow", Fidelity Newsroom, May 25, 2021, https://newsroom.fidelity.com/pressreleases/fidelity-institutional--launches-new-educational-program-for-firms-and-advisors-looking-to-grow

[56] Ibid

Finally, Holistic Advisory Focuses on Providing Personalization

Holistic advisors are using data analytics and other technologies to gain deeper understanding of their clients' needs and preferences to be able to achieve the level of personalization demanded.

Having a robust client relationship management system (CRM) is key to holistic advisory. According to a recent Morningstar survey CRMs ranked as the most valuable software among financial investment companies.[57] Bringing client information into one place, available at any time, with access to personalized communications, automated alerts and market insights, a robust CRM could help the advisor to service the client more efficiently and provide a service that feels personalized and the advisor could provide human interaction when needed.

In the future, holistic advisory could become even more important as the financial landscape becomes increasingly complex and interconnected as the consolidation in the wealth management industry continues. Clients will be seeking advisors and wealth management platforms to help them navigate this complexity to make financial decisions that align with their goals and be able to service their broader needs around an evolving view of "wealth." Therefore, for the wealth managers of the future continuing to be able to provide their competitive strengths in financial services in an environment that is in step with the expected continuation of technological advances and expanding realm of services for holistic wealth advisory could become critical for their long-term relevance.

[57]"Choosing the best CRM for financial advisors", Altruist, May 25, 2023, https://grow.altruist.com/best-crm-for-financial-advisors

How Investors' Demand for Scale and Transparency Could Re-Shape Investment Management

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Conversations around the investment management industry usually center on the capabilities of investment managers. We assess the world from the perspective of the changing investor landscape and how this may drive a shift in the impetus for investment management. This article starts with a discussion of the evolution of the pension market, the increasing tailoring of investment offerings to the needs of end investors, the potential impacts on investment managers, and how sovereign wealth funds and public pension funds could unlock growth opportunities by capitalizing on these trends.

Investor Consolidation and Partnerships Could Build Scale and Enable Greater Sophistication

The trend of institutional investors insourcing investment management capabilities has heralded a new source of industry pressure. These pressures include increasing operating costs, regulatory compliance and falling investment margins, all while managing a world very much in flux and stakeholders who have been demanding increasing transparency. These are the very same pressures faced by investment managers all around the world with whom investors could partner and / or compete for returns.

The often-discussed shift from defined benefit (DB) to defined contribution (DC) is generally debated on a macro level in terms of asset allocation trends and the sufficiency of personal and or corporate contributions. What is much less frequently discussed is the viability of the fragmented corporate pension fund market going forward as these funds accelerate their decumulation plans.

A sub-group of institutional investors has faced an additional set of challenges: the corporate defined benefit pension fund. Requiring a corporate sponsor to commit the necessary capital proved the first hurdle which many plans have now overcome, through a combination of investor pressure to reduce liabilities on the sponsor's balance sheet and regulatory pressure to ensure protection for individual employees' retirement plans. However, decumulation presents an existential challenge. Indeed, corporate sponsors have undertaken pension risk transfers at a record rate in the US and the UK to reduce or entirely offload their liabilities.[58] Across Defined Benefit and Defined Contribution plans, there are tens of thousands of pension funds in the UK alone, as reported in the Financial Times.[59]

If we consider a parallel across the investment management market, investment managers have consolidated through M&A as well as failures of some smaller firms, while those in the middle report being squeezed by pressures to be nimbler—as their smaller competitors can—, or to leverage scale—as their larger competitors do—. Even here, the parallel is stretched as the pressures on smaller institutional investors, who have fiduciary responsibilities to their current or future retirees and disbursement requirements for those already retired, means that the risk profile they

[58] "Corporate pension buyouts reach record volumes in US and UK", Ian Smith, Financial Times, August 24, 2023, https://on.ft.com/45o8uX6

[59] "Why bigger pension funds are better for the UK", Toby Nangle, Financial Times, August 30, 2023, https://on.ft.com/3Ek5ejU

can afford to take on is fundamentally different to the nimble—and at times aggressive—trades of the smaller asset managers and hedge funds who can wield trading instruments to great effect and deliver enhanced returns (or losses) for their investors. Thus, according to the many investors and managers with whom we have spoken as part of our annual Industry Evolution reports, the smaller institutional investor is either reliant on external managers to support their goals or upon a relatively expensive internal asset management team, overseen by trustees, who may not have the same level of investment expertise as the partners they engage.

In the following section, we set out a non-exhaustive, and non-exclusive range of five scenarios to chart a path forward for corporate pension plans.

- **Scenario 1 – Maintain the Status Quo**: Corporate pension plans with internal management could continue as they are. This has the benefit of simplicity, in that there are no costly migration or merger processes required. The system will gradually wind down as assets are distributed to retirees. However, risks abound. As the assets diminish, the cost per dollar managed internally increases, management quality may deteriorate as talent pools to support plans decrease or more plans may fail along the way. As assets diminish, plans may choose to engage more external managers (see scenario #4), but if these plans continue to wait under the status quo, they may merely delay the inevitable.

  Should plans fail, investment managers have voiced to us their beliefs that governments may be forced to intervene, whether by direct subsidy, industry levies or heightened regulations to protect pension assets. One recent example of government assistance to a troubled pension fund was the US government's bailout of the Central States Pension Fund in 2022, when it injected $36 billion of public money into the plan to avoid the possibility of cuts of 60% to retirees' benefits in future years.[60]

  Market participants have commented that the moral hazard of dues imposed on future generations of taxpayers and savers cannot be entirely overlooked. Those same participants have further noted that governments would struggle to allow pension plans to fail as this would result in an increase of people reliant on direct state subsidies and / or a severe deterioration in their financial health. Thus, the impact of these measures may result in increased strains on public pension plans or protection schemes should they be called upon to draw on their capital reserves.

  The corporate pension plans which already engage external consultants in their asset allocation may well continue as they are. We have written previously about how the consolidation of the investment landscape has led to a blurring of the traditional divides between industry participants, whether consultants or investment managers, and so this option should be viewed as a strand of scenario #4 below.

- **Scenario 2 – DC-based Plan Buy-Outs and Transfers**: In theory and under certain conditions, troubled and decumulating defined benefit pension plans could offer their plan members a buy-out of their fixed income with a defined contribution-like offering. However, if the impetus for doing so is that the pension scheme predicts financial difficulties, the ethics of implementing a transfer would

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[60] "Biden releasing nearly $36B to aid pensions of union workers", David A. Lieb and Seung Min Kim, Associated Press, December 8, 2022, https://apnews.com/article/biden-business-united-states-government-and-politics-retirees-

be questionable at best. Should a transfer only make sense financially for the plan if the future or current retiree were offered inferior terms compared to their existing defined benefit offering, regulators might seek to intervene to prevent plan members from losing out. However, if the goal is to provide greater flexibility and to allow members access to their retirement incomes at different points, then a path forward could be charted, provided plan members are supportive.

The main risk with a policy of transferring plan members is that such an approach may simply store up issues. Whether defined benefit or defined contribution, significant numbers of corporate sponsors managing decumulating pools of assets could still constitute a systemic risk as outlined in scenario #1.

- **Scenario 3 – Partnerships – Creating Corporate ‘Super’ Pension Plans:** Consolidating corporate plans could alleviate the symptoms of some of the most immediate concerns for pension funds by, for example, increasing the pool of assets available to generate returns, allowing greater asset diversification and decreasing the impact of short-term liquidity demands. However, grouping together similar defined benefit funds with the same underlying issues of decumulation and increasing costs could lead to a larger systemic issue further down the line, and resemble larger versions of scenario #1.

  While defined contribution plans may still be in an accumulation or ongoing management phase, global demographic trends may complicate the assertion that defined contribution plans are more immune. This warrants a separate, broader discussion with industry involvement, so we’ll address that another time. Regardless, combining different pools of pension assets would resemble the same outcome as scenarios #4 and #5 as the creation of these super funds would constitute a move away from corporate sponsor-led allocation models.

- **Scenario 4 – Partnerships – Partially or Fully Outsourcing:** Many pension plans may engage insurance companies for pension risk transfers, asset managers and private equity firms for asset and liability management, or consultants to advise on asset allocation and in some cases asset and liability management too.

  The scope for shifting liability management from corporates to insurance companies in this scenario is limited by the balance sheet of the acquiring insurance companies and the systemic risk taken on by them to guarantee returns for larger pools of assets. The other element to consider here is the risk appetite of these insurance firms once they assume responsibility of the assets. Much has been discussed on the fact that such insurance firms may be incentivized to invest in bonds, i.e., a more conservative investment style relative to an approach which aimed to maximize investment returns for plan members.

  As plans decumulate further, their ability to negotiate fees with managers and consultants may decrease. While regulatory action may mandate fee transparency in certain jurisdictions, investment managers may take on mandates in other geographies on terms less preferential to the pension plans due to their falling AUM and their requirements for draw-down, and over time consultants may pivot their offerings to tailor to other asset pools which are still on the ascendence rather than the decumulating defined benefit pensions. Even in a world where fee transparency was absolute, the range of investment offerings available to larger investors may differentiate them versus smaller investors.

What may result is an increasingly concentrated allocation to a smaller number of managers in order to leverage the scale of their remaining assets. With the right partners and guardrails, these corporate assets could be well served in the same way as many other institutional and individual investors investing with these same managers.

Extending the OCIO mindset, some fund managers have spoken with us about fiduciary offerings for investors, whereby consultants or investment managers could assume responsibility for managing assets, and so move this decision-making process away from trustees who may not have deep investment knowledge. The resultant asset allocation process would require fund managers to assess how they could best meet the investors' needs, which may mean considering external allocations alongside internal offerings.

Several industry participants privately quip that some of the corporates they target should be assessed as pension companies with side businesses rather than as businesses that have pension liabilities. From a pension plan perspective, outsourcing their pension management responsibilities would mean that corporates would no longer need to focus on investment asset allocation and monitoring and could instead return to focus on their main corporate priorities.

- **Scenario 5 – Partnerships – Wholescale Aggregation with Public Bodies:** Aggregating corporate pension plans with large, sophisticated sovereign wealth funds and public pensions could achieve many of the same positive outcomes as outsourcing to consultants and managers from the perspective of the corporate plan.

  Pooling assets with public pension plans could have the added element of creating national champions that could invest in local infrastructure which would materially increase the quality of life for plan members. Time will tell how successful such projects prove to be, but as governments bailouts become necessary for failing pension plans, industry participants expressed their concerns in the aftermath of Covid-19 that government action would come with strings attached and that policymakers may not be able to resist the urge to ensure public accountability for those funds via centrally organized institutions.

Much of the discussion above stems from the negative impacts of not consolidating assets but there are positive elements to consolidating assets to discuss too. These arguments are relatively well-known across the industry and so we will quickly summarize them here.

- **Cost:** Larger investors have historically been able to negotiate fee discounts relative to their smaller peers. For investors seeking to build in-house capabilities, the benefit of scale means that they can afford to build the increasingly sophisticated risk and data analytic systems required to remain competitive, which may have been prohibitively expensive otherwise.

  For example, under scenario #5, the sovereign wealth funds and public pension plans which aggregate assets from corporate pensions could lower their cost per dollar managed internally or paid out to external counterparts.

- **Seeking Product Sophistication:** Larger investors can access opportunities which wouldn't necessarily be available to smaller investors. The most visible examples of this are in the private market space, with access to co-investment opportunities across a diversified portfolio of private market allocations with larger investors able to meet the minimum ticket sizes across a broader range of private market funds and opportunities than would be possible for smaller investors.

We have previously written about how firms that think across multiple asset classes could leverage data impacting each of those asset classes and use insights from one asset class to better inform other investment theses across their firm. An example may come in the form of a trade idea on government bonds, which could have impacts on corporate bonds emanating from that country, and downstream impacts on the equity valuations of companies in that country. To invest across multiple asset classes, investors need scale. Some investors have sought to build more of these investment management capabilities in-house so that they can assess risks across their total portfolio rather than on a fund basis, in addition to assessing their external managers more effectively and / or to focus external manager allocations on higher value areas.

- **Enhanced Liquidity:** In stressed investing environments, when an investor needs to pay out to their stakeholders (plan members, taxpayers or others), the investors may need to sell down part of their portfolio in order to realize the cash flow necessary to make the payment. Drawing upon a larger pool of assets may mean that investors are less likely to face as severe financial difficulties as the diversification they built into their portfolios would enable a range of assets to be called upon in times of need. The reality of this may be complicated as correlations have sometimes turned to one in the most stressed environments, but the theory remains that a broader, well diversified portfolio would be more insulated from shocks than a smaller, more concentrated portfolio.

Moving from Generic to Customized to Personalized

All pools of capital can be traced back to individual stakeholders. Even sovereign wealth funds, which could be considered the most institutional pool of capital, have individuals at their base, whether they be the citizens of today or those of tomorrow. The demand for transparency into how assets are managed on an individual investor's behalf is proliferating across the investment management industry. We have seen this from both directions: individual investors demanding greater access, such as visibility into the impact of a portfolio, and large public and private bodies opening themselves up to scrutiny of how resources are being consumed, such as the UK government providing an annual breakdown of how an individual taxpayer's tax revenue was spent.[61] Even though most people may not ever seek to take advantage of this level of transparency—and the overwhelming opinion from our conversations across the buy-side has been that most people would not—, the fact that transparency into portfolio investments, risks and impact can be achieved means that it could be used as a differentiating factor for service providers. The move to individual-level transparency is, therefore, inexorable.

In our Industry Revolution Part II paper we wrote about how investment managers could leverage cohort-based analysis to build scope for customization in a more scalable way. [62] Individual investors can be grouped into cohorts based on shared

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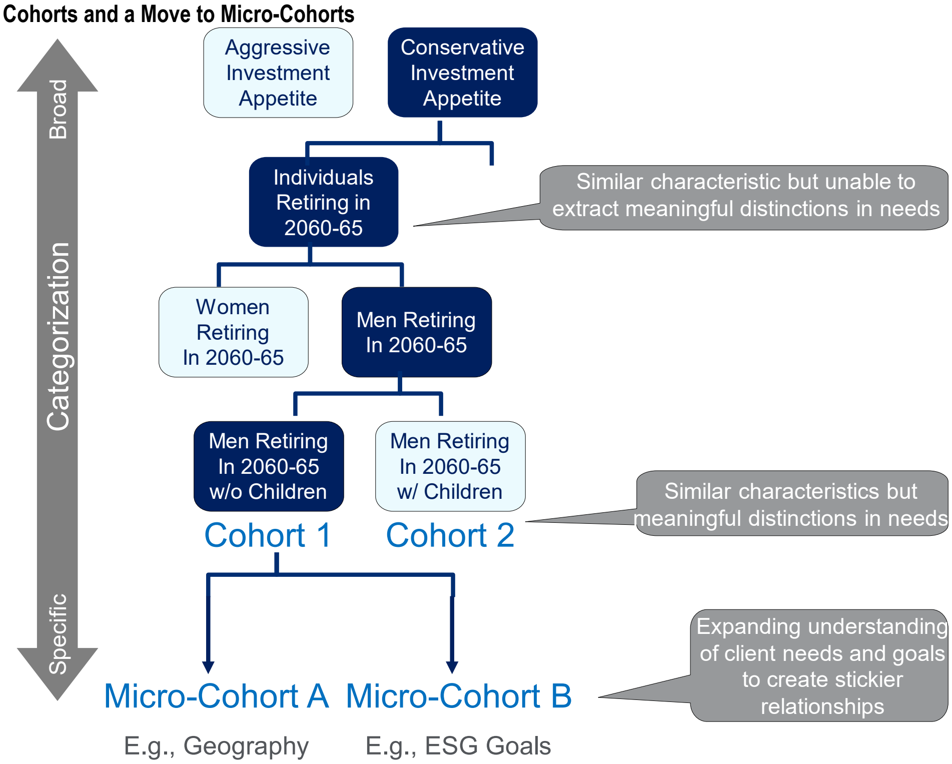
[61] "Dear taxpayer, here's where your hard-earned money really goes", Oliver Wright, Independent, March 20, 2012, https://www.independent.co.uk/news/uk/politics/dear-taxpayer-here-s-where-your-hardearned-money-really-goes-7578146.html

[62] "Industry Revolution Part II: How Today's Innovation Efforts Could Lead to a Re-architecting of the Investment Management Industry, 2018 Industry Revolution

defining characteristics and investment managers can customize portfolios designed for each set of cohorts. What we have seen since then is the drive—though largely not yet the ability—to go further, to what we are calling micro-cohorts, which requires more detailed data about investors to create smaller and smaller groups of investors, and from there to develop individualized personalization, possibly via retail separate accounts. As an example, increasingly the conversations we have around ESG stem less from queries about the specific nature of how we should use and measure a sustainable investment portfolio—as these elements become part of the mainstream in Europe—but instead focus on using ESG as a means of starting the conversation around understanding client needs more effectively.

Figure 13 is a simplified and illustrative model of how an investment manager could view an individual investor, following the path specific to themselves. It starts from the most basic level of understanding in terms of how the individual investor views investments, i.e., whether they approach their investments conservatively or aggressively. For this example, we will follow the conservative investment appetite. Next, a manager may be most likely to assess the age at which an investor may retire, and so seek to drawdown on their savings. Individual investors retiring in this period could be thought of as a group, as they may have similar characteristics, but we cannot, as yet, extract meaningful distinctions in needs.

Figure 13. Defining Cohorts and a Move to Micro-Cohorts



Source: Citi Business Advisory Services

Gender may have an impact too, due to the disparity of life expectancy between the sexes, which could indicate how long the individual investor may need their assets

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Survey Part II, Citi Business Advisory Services, October 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/EA5bd08b14e4b0496cf3c545a90.pdf to last to support them through retirement. There are obviously other factors at play here (smoking and other health-related conditions, which may be collected directly or via partnerships with life insurers), and these may be assessed within this construct of more accurately assessing financial needs.

Further factors such as whether an individual investor has children, elderly parents who may need financial support, or already owned or were saving up for their current abode etc. would shape their investment needs. Here we have cohorts of investors with meaningful distinctions between the individual investors that would allow a manager with access to this data to customize a portfolio to the investor's needs. In the last few years most of the conversations that we have had with investment managers around the scalability of customization have centered around how managers could leverage cohort-based segmentation.

Since we published that cohort-based analysis, the diagram has extended further to micro-cohorts to create stickier client relationships. The world is still globalized but it is more fragmented than it was ten years ago. Where the individual investor is based may further influence the exposure or risk they may tolerate to other markets (e.g., investors from the US may consider large exposures to China as a risk to their portfolio for geopolitical reasons, while investors in Singapore may consider a similar rate of exposure to China as an expected part of trading with intra-regional clients and stakeholders). Targeting specific ESG goals may result in additional micro-cohorts, along with a possible array of combinations. The goal of such segmentation is to create a stickier relationship with a client-base which is increasingly used to the frictionless feel of other primarily digital relationships and experiences, such as online shopping with predicted items appearing alongside current selections. For more on how the investment management industry could target digital-savvy investors, please see our Industry Revolution Volume IV paper.[63] Most market participants do not yet possess anything approaching this capability, but based on conversations with managers, this is direction of travel for the long term.

While AI can analyze large volumes of investor data to extract insights and make personalized recommendations at scale, blockchain may enable individual investors to make various types of assets more readily available for trading and optimization purposes. Based on the potential for AI and blockchain-enabled digital wallets, a minority of managers believe that we may even skip the micro-cohort step and move straight to blockchain-enabled digital wallets similar to those we set out in our Industry Revolution Volume IV paper.[64] Regardless of whether we formally use micro-cohorts or move straight from broader cohorts to personalized accounts, managers would need to gather and maintain similar levels of personal data, though the way they store and process it may differ.

The main concerns often voiced are the legitimacy around gathering and processing such detailed personal data, and regulatory comfort with portfolios of one and how we would benchmark success on a single portfolio-level. Encryption tools already exist to alleviate the data privacy concerns while still enabling managers to create

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[63] "The Convergence of the Crypto and Traditional Economies: How Investment Managers Can Deliver Value in a Decentralized "NewFi" World", Industry Revolution Series Volume IV, Citi Business Advisory Services, June 2021, https://content.citivelocity.com/contentmodelui/aknetpublic/cm/Citi_BAS_Industry_Revolution_Volume_IV___The_Convergence_of_the_Crypto_and_Traditional_Economies_2021-06-10.pdf

[64] Ibid

fully personalized solutions. Regulatory hesitance may prove the larger obstacle and is the main reason why we argue for micro-cohorts as the interim step before delivering completely personalized solutions. The industry is still developing responses to the other concerns and there is presently no consensus. Evidencing how firms have met investors' financial and non-financial needs, and seeking regulatory approval for blueprint design may prove the most viable options. (See our Industry Revolution Part II paper for more information on blueprint solution designs.) [65]

The Impact of Customization and Personalization on Industry Structure

In our 2021 Industry Evolution paper we segmented the investment management industry into four archetypes (Artisans, Federations, Engineers, and Ecosystems) and we wrote in our Industry Revolution Part II paper about how the future industry framework could lead to the emergence to an assembly layer between manufacturing and distribution. [66, 67] What we are doing here is to start the conversation about how industry forces could influence each other in the world of mass customization and personalization.

As a quick recap:

- **Artisans** pursue niche, capacity-constrained strategies, rely on one-to-one client relationships and differentiate themselves based on their ability to deliver outperformance.
- **Federations** are collections of artisans, and often provide broad spectrum capabilities. Federations also leverage human engagement for advancing client understanding.
- **Engineers** leverage scientific processes across the firm, can deliver against discrete, measurable client objectives, and not just financial risk and return. Engineers enhance client understanding and industrialize processes to create scale and product optionality.
- **Ecosystems** build on the engineer model and deliver adjacent products to augment their offering, such as providing risk analytics to investors.

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[65] "Industry Revolution Part II: How Today's Innovation Efforts Could Lead to a Re-architecting of the Investment Management Industry, 2018 Industry Revolution Survey Part II, Citi Business Advisory Services, October 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/Industry Revolution Part II.pdf

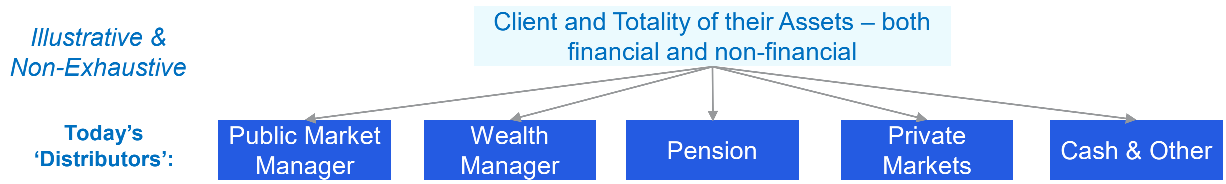
[66] "The Investment Management Industry's New "Alphas": Building a Competitive Advantage through Client Centricity", 2021 Industry Evolution Survey, Citi Business Advisory Services, November 2021, https://content.citivelocity.com/contentmodelui/aknetpublic/cm/Citi_BAS_2021_Industry_Evolution___The_Investment_Management_Industry_s_New__Alphas___Building_a_Competitive_Advantage_through_Client_Centricity_2021-11-23.pdf

[67] "Industry Revolution Part II: How Today's Innovation Efforts Could Lead to a Re-architecting of the Investment Management Industry, 2018 Industry Revolution Survey Part II, Citi Business Advisory Services, October 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/Industry Revolution Part II.pdf

Ecosystems leverage highly orchestrated platforms to garner insights from one business to fuel actions across the firms.

At present, to achieve their objectives, investors allocate their assets to a range of different distributors, as shown in Figure 14.

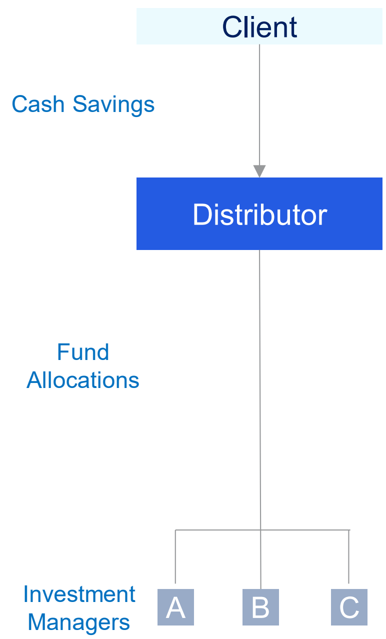
Figure 14. Broad Range of Distributors



Source: Citi Business Advisory Services

To achieve their investors' financial objectives, this range of distributors allocates cash to funds. Those funds could be managed internally by the distributor, or they may allocate to third parties, as shown in Figure 15. As a result, the distributor here has selected investment funds offered by Investment Managers A, B and C.

Figure 15. Majority of Today's Distribution Model



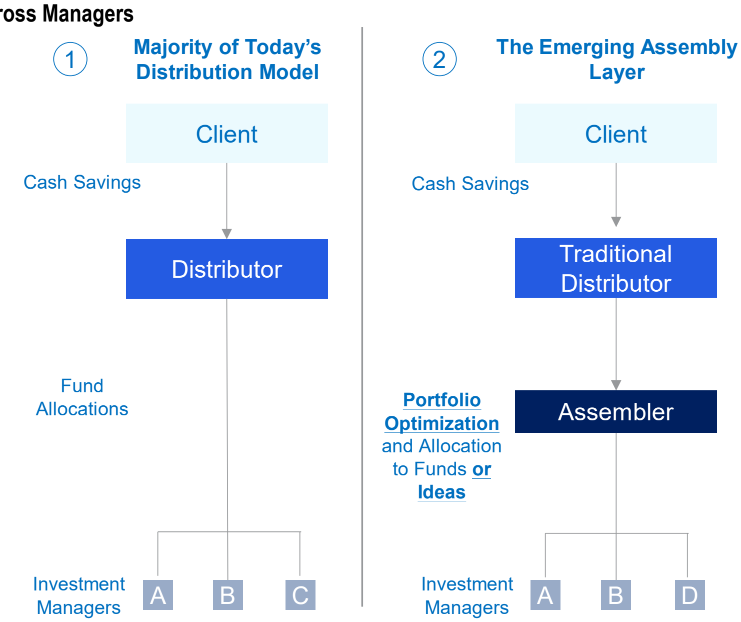
Source: Citi Business Advisory Services

Providing customization on a portfolio level is very difficult to achieve without oversight of all of the investor's financial assets, according to several of the managers with whom we have spoken. The proliferation of risk management tools across the industry has changed the way we can assess risks across a portfolio and could enable investors with access to these sophisticated investment tools to amplify or minimize their financial exposures, such as by adding more momentum exposure or deploying further hedging strategies. Unlike the first model, the assembly layer could mean investing in certain funds for core and satellite exposures, but assemblers aren't necessarily bound to invest solely in funds and could work with managers to provide ideas to supplement and complete portfolios.

Putting this into tactical terms, allocations to several fund managers might individually seek to maximize alpha. However, when viewed on a portfolio level, these funds may have excess risk exposure to volatility strategies, and so require additional elements—whether funds or specific trade ideas—to be added to the portfolio. The role of the assembler is to identify and seek the best range of exposures to meet the client's needs.

As a result, as shown in Figure 16 the assembler assesses the risks from the core portfolio and selects funds from investment managers A and B, with additional elements from investment manager D, after concluding that manager C's offering replicated too much of the same factor risk as the core elements from A and B.

Figure 16. Assessing Risk Across Managers



Source: Citi Business Advisory Services

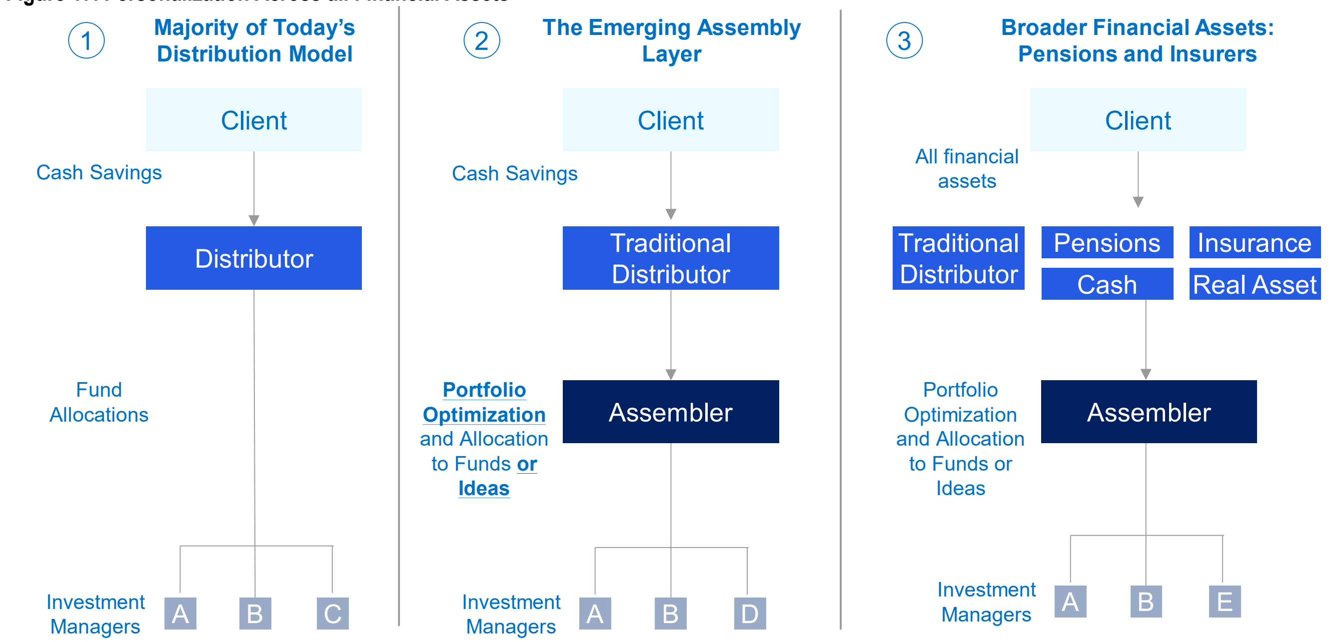
As the trend towards transparency expands to the pension space, individual investors may justifiably ask why their pension assets are spread across multiple corporate and / or public pension plans, with risk assessed on each sub-portfolio level. Aggregating these assets for individual investors enables more effective assessment of the risks entailed.

If an individual investor has long-term investments that they aim to draw upon in their retirement, and a pension which would be used for the same purpose, the division of those assets is based on local tax regimes and regulation, rather than financial logic. Even if, as most market participants assume, pension assets remain segregated from the rest of the portfolio from a wrapper and regulatory perspective, that doesn't mean that industry expertise across an entire financial portfolio couldn't add value to the management of these assets by considering the whole portfolio's exposure to risk factors. That is, an individual investor's financial risks in one part of their portfolio could be considered together with their financial risks in another part of their portfolio.

As Figure 17 shows below, an individual investor's broader set of financial assets could be assessed together by an assembler. In this hypothetical scenario, the assembler has selected the same core investment offerings from managers A and B and selected a set of hedging and completion strategies from manager E to complete the portfolio. The role for investment managers may expand to include assisting with this assessment on investors' behalf, just as in previous centuries the role for fund managers emerged to aid investors group their assets and manage them collectively.

A tangible example of assisting an investor with their array of financial assets might be to suggest that in a higher interest environment the investor could overpay their mortgage rather than making an investment. Thereby, the role of the assembler could expand from investments to assessing the financial wellbeing of the investor.

Figure 17. Personalization Across all Financial Assets



Source: Citi Business Advisory Services

In this future state, an investment manager's role could expand beyond the financial optimization to also include ownership optimization. In the example above, part of that ownership optimization could be viewed through the lens of optimizing financial expenses and returns.

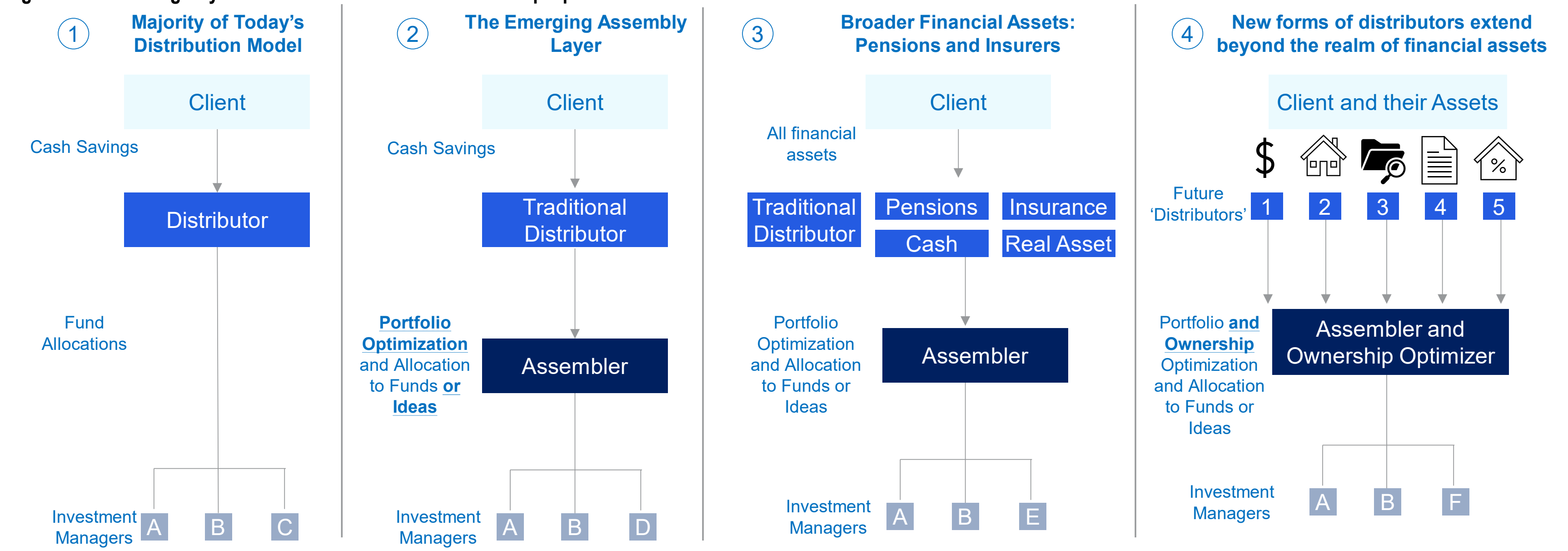
In a world where more and more assets are digitized and available via personal digital wallets, (see our Industry Revolution Volume IV report), that ownership optimization could expand beyond financial assets to also include other assets which could have value to an investor, such as airline or grocery loyalty points.[68] If, for example, you had accumulated a large volume of airline loyalty points which you were for whatever reason unwilling or unable to use, then those points could be sold on your behalf by your investment manager to procure assets which were more valuable to you, which may include investing in an index tracker or unlocking discounts on grocery items.

[68] "The Convergence of the Crypto and Traditional Economies: How Investment Managers Can Deliver Value in a Decentralized "NewFi" World", Industry Revolution Series Volume IV, Citi Business Advisory Services, June 2021, https://content.citivelocity.com/contentmodelui/aknetpublic/cm/Citi_BAS_Industry_Revolution_Volume_IV___The_Convergence_of_the_Crypto_and_Traditional_Economies_2021-06-10_.pdf

What this means for the investment management industry is complex. The phrases for what we today call an “asset manager” may need to become more specific to encapsulate the range of roles and responsibilities across the investment and ownership optimization value chain.

As the ability to unlock insights from smaller fragments of data proliferates, we could redefine the meaning of distribution to mean those with client interactions or relationships, whether financial or otherwise. Distribution by that point could mean the access to data to inform the decisions made by assemblers on behalf of their stakeholders (the investors from an investment management perspective). As can be seen in Figure 18, these assets could range from cash, existing investments, data (such as personal data to inform decision-making on how long the portfolio may need to last in retirement) as outlined above, loyalty points, and real estate, among other potential assets.

Figure 18. Extending Beyond the Financial Realm to Ownership Optimization



Source: Citi Business Advisory Services

In previous years, we have argued that the pricing power for investment management would go to the distributor. Given the nature of that relationship could be mostly transactional and from a wide range of sources, rather than a single, consolidated distributor, the pricing power may instead be with the assemblers or manufacturers.

Thinking through the lens of today's market participants, there is a lot that could change between now and this future point, but we can draw a few observations on the status quo and investor preferences today.

Artisans and Federations may create alpha directly for institutional investors, while providing funds and specific trade ideas for the assemblers. Both archetypes would not necessarily need to have sight of the specific investor's goals but could work based on the request for solutions template submitted to them (see blueprint design from our Industry Revolution Part II paper).[69]

Federations could also continue to offer investment offerings in the form of funds and other separately managed accounts for investors who prefer to keep their financial investments segregated from any other assets. Federations, along with Engineers and Ecosystems could also leverage their product breadth to deliver investment alpha and beta to portfolios both through direct relationships and through assemblers. Some Federations could also consider building assembly functions, though these functions may be limited to combinations of different investment funds, rather than also supplementing them with targeted trade ideas or hedges.

Engineers and Ecosystems may leverage their existing risk analytic and internal cross-asset orchestration tools to create their assembly functions. External orchestration tools could enable these firms to operate more fluidly across the spectrum of investors, for example, they could create the tools needed for integration with artisans and federations, to submit their trade ideas for the portfolios which they are shaping.[70]

Individual investors with the desire to do so could leverage the transparency on offer and create their own custom portfolios. Most individual investors today are not actively involved in the decisions in their portfolio beyond expressing their high-level goals. We have seen little reason to believe this will change in the near- or medium-term. However, a more concerted approach by managers to understanding and determining an investor's goals may become necessary to ensure the completeness of the data held on the investors.

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[69] "Industry Revolution Part II: How Today's Innovation Efforts Could Lead to a Re-architecting of the Investment Management Industry, 2018 Industry Revolution Survey Part II, Citi Business Advisory Services, October 2018, https://www.citivelocity.com/cv-content-web/geo/alerts/equity/Industry Revolution Part II.pdf

[70] "Decomposing Investment Management's Value Chains to Deliver on Innovation Imperatives in an Expanded Investible Universe", Industry Revolution Series Volume V, Citi Business Advisory Services, June 2022, https://content.citivelocity.com/contentmodelui/aknetpublic/cm/Citi_BAS___Industry_Revolution_Volume_V___Decomposing_Investment_Managements_Value_Chains_to_Deliver_on_Innovation_Imperatives_in_an_Expanded_Investible_Universe_2022-06-21_.pdf

The Potential Impacts for Sovereign Wealth Funds and Public Pension Funds

Combining the arguments presented here, we assess how sovereign wealth funds and public pension funds could leverage these findings.

The sovereign wealth funds most likely to gain from such a move to aggregate investors' pensions and other assets are those which are still building out their investment capabilities and seeking to lower their cost per dollar managed of doing so. That said, frank conversations should be held about how best to achieve their desired goals, including whether to build capabilities in-house or to become a distribution and aggregation engine that feeds assets to an external assembler and engaging third party managers to fulfil their needs.

A small number of large, sophisticated sovereign wealth funds and public pension funds, as well as other institutional investors, may choose to insource the assembly function and retain control over the exposures created by their investments. This choice may be independent of whether they manage any or all of their assets in-house as the assembly function could inform which strategies they seek internally or from their external partners. At the same time, many institutional investors may choose to work with third parties to lower their costs of building such a capability in-house and benefit from working with a provider that was already leveraging insights from a large range of other investors' portfolios which could lead to iterative improvements.

Using the lens of the archetypes of investment managers, sovereign wealth funds and public pension funds which can build out a full suite of investment capabilities including assembly, may most closely resemble Engineers or Ecosystems. The sovereign wealth funds and public pension funds which build out a broad suite of capabilities excluding assembly would resemble Federations and those which aim to be more specialized would be Artisans. Regardless of which archetype the funds fall into, each archetype can choose to engage with the broader range of firms by leveraging the archetype framework to establish the desired depth of relationship or offering.

Taking a step back and against the backdrop faced by the pension industry set out earlier, countries with large pension industries could seek to aggregate those assets to ensure the financial stability of the pension system for their future retirees, whether or not these assets are then managed by the aggregating entity.

Should there be a wholesale aggregation of investors' pension assets the potential for local champions is significant, with both public or private bodies emerging as those potential champions depending on the environment. It is true that the pecuniary duty for pension assets may require that assets be managed for the benefit of their plan members—and most would agree that this should be the case even where it is not legally compelled to be so. However, what has emerged in the last few years is a broader interpretation of a limited wider societal benefit. Part of this argument advanced on ESG grounds in the earlier phase of the discussion, but lately the narrative has quietly and very slowly shifted to the public good which could benefit plan members. The interpretation of that benefit strays into the political sphere and there have been concerns about the politicization of investment.

Some sovereign wealth funds may reasonably resist the idea of tying any assets to individual citizens today and argue that their remit is the longer-term financial security of their nation, though the example we noted earlier on the UK government tax breakdown could be an example of giving insight into the goals, direction and impact of public bodies, similar to transparency to individual taxpayers, i.e., what the national fund has done and what the impact of this investment has been. This would mean that these bodies could create retail-like reporting and transparency, even without linking assets to any individual investors.

There are two elements which could be explored from a business strategy perspective for the firms looking to become aggregators, in addition to any claims of public benefit, such as decreasing the likelihood of pension plans failing.

The first element relates to customization and personalization and the impact on transparency. The reality for those seeking to aggregate pension assets is that just as individual investors have demanded more transparency from their asset managers, they may do likewise of their pension assets. The growth of providers offering to aggregate disparate pension assets from an individual investor's previous employers may signal the start of this journey. As explored above, the basis for assessing risks across only a part of an investor's portfolio may be eroded over time. As transparency increases, and individual stakeholder's data access requests increase, we could see a blurring of the divide between institutional and individual investors. This would mean that assets, such as pension assets, that we currently consider institutional may continue to have institutional-like investment capabilities but may start to resemble individual investor-like accountability and breakdowns.

The second element relates to bringing in external capital. Sovereign wealth funds and public pension plans that aggregate corporate pension assets within their business would be signaling a shift away from purely managing internal assets to taking in external capital. Some sovereign wealth funds have been active participants in the financial markets for years, while others are building out new capabilities. Regardless of whether structures already exist within these funds, aggregating assets along the lines outlined above on a regional or national level could help unlock strategic national priorities, such as funding the expansion of local energy or transport infrastructure. Indonesia's sovereign wealth fund has demonstrated how targeted deployments of external capital could be used to fund the development of local infrastructure.[71]

If we put these two elements together, in theory, national champions which are already building out a more individualized investor mindset for transparency could also seek to take in individual investor investments, much as asset managers do today, thus creating an additional source of competition.

The scope for sovereign wealth funds and public pension funds may initially be more limited to the financial side rather than the non-financial aspects. However, over time, other national assets could be added into this, such as by monetizing anonymized healthcare data.[72]Assuming a decision was taken to begin the process of aggregating investors' assets, whether limited to their pension funds, their broader set of financial assets, or the totality of their assets, the question would be whether to build in-house, with all the expense and risks that entails, or to partner

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[71] "Indonesian sovereign wealth fund draws $20 bln in co-investments", Anshuman Daga and Yantoultra Ngui, Reuters, September 29, 2022, https://www.reuters.com/markets/asia/indonesian-sovereign-wealth-fund-draws-20-bln-co-investments-2022-09-29/

[72] "Health data could form the basis of a UK sovereign wealth fund", John Taysom, Financial Times, February 17, 2023, https://on.ft.com/3EdN9UO

with investment managers with a fiduciary mindset and an assembly function set-up.

Considering the arguments advanced above, the reconfiguration of the pension system in a world of decumulating pension funds coupled with the move to personalization, could cause ripples across the investment management industry and indeed redefine the purpose of investment managers.

The Industry in Charts: Asset Pools

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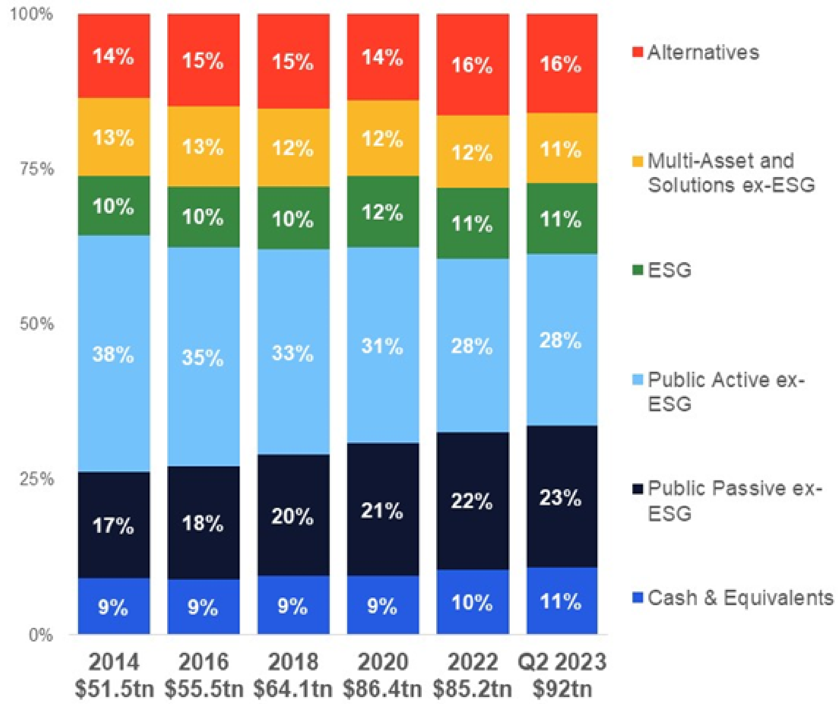
Active shrunk from 38% to 28% of industry AUM between 2014 and 2023 Q2. Passive grew from 17% to 23% over the same period.

Figure 19. Global AUM by Asset Type



Source: Citi Business Advisory Services' analysis based on data from Broadridge Global Market Intelligence (GMI) and HFR Industry Reports © HFR, Inc. Q2 2023, www.hfr.com.

Active share is falling globally and across all regions: Globally, the share of AUM in active products fell from 38% to 28%. This trend of a falling single asset active share took place in all three major investment regions.

However, what drove that shift was different among the regions:

- **Americas AUM has shifted from active to passive:** This trend is a largely US phenomenon and due to the size of the US market, its impact is shown within the global AUM asset pools shifting to passive
- **EMEA AUM shift driven by 39% increase of ESG share:** The shift in market share in European products has been largely driven by the large growth in ESG which has increased its share of European AUM between 2014 (25%) and 2023 Q2 (35%)
- **APAC AUM shift was most notable in fall in single asset active:** Active AUM fell from 40% of AUM to 32% of AUM but this is driven by a number of factors. Alternatives increased their share from 11% in 2014 to 14% in 2023 Q2 but beyond that, a small share gain or in line with industry growth is recorded for other asset types

Due to the growth of the overall market, active AUM still grew over the period, but at a slower pace versus the rest of the market.

The Industry in Charts: Net Industry Flows

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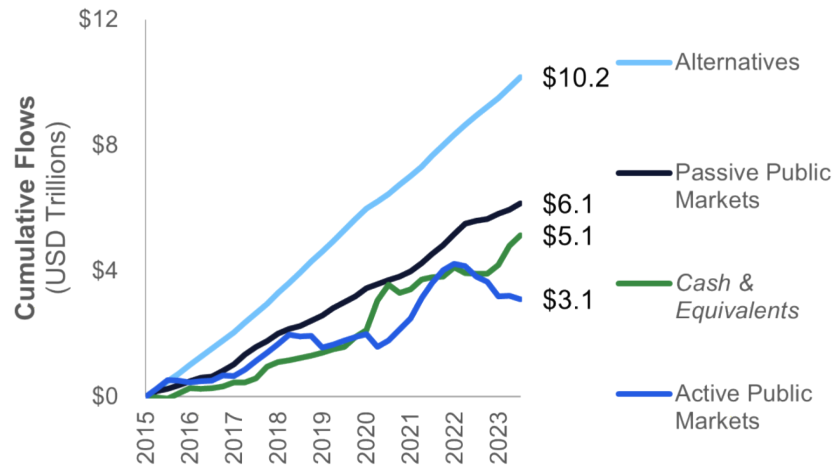
Overall Industry Flows are led by Alternatives Fundraising, with relatively consistent fundraising for private asset funds, though the trajectory for this slowed slightly during the pandemic and again during the tumultuous market conditions in 2022. Those periods of slowdowns in private market fundraising see increases in money market fund flows.

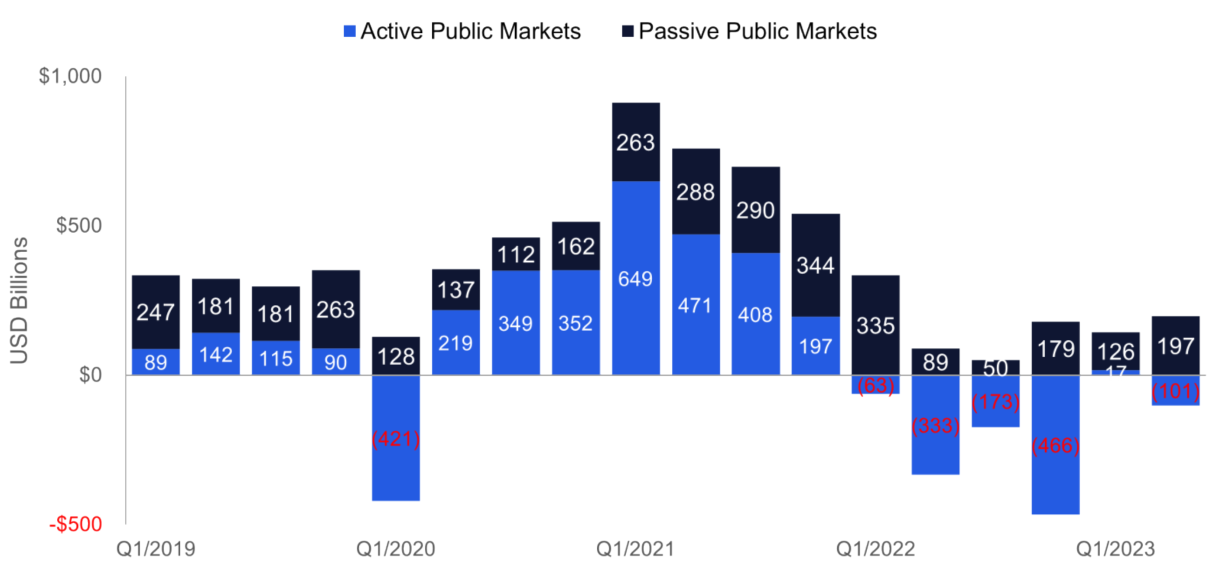
Figure 20. Net Industry Flows



Source: Citi Business Advisory Services' analysis based on data from Broadridge Global Market Intelligence (GMI) and HFR Industry Reports © HFR, Inc. Q2 2023, www.hfr.com.

The post-pandemic shock surge in active public market flows has reversed, with outflows from active products in four of the five previous quarters.

Figure 21. Post-Pandemic Shock Surge in Active Public Market Flow Reverses



Source: Citi Business Advisory Services' analysis with data from Broadridge Global Market Intelligence (GMI)

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The Industry in Charts: ETF AUM

ETF AUM sets new record high of $10.3 trillion, surpassing the previous high in Dec 2021 ($10.1 trillion)

- AUM rose 13% vs 2022, with Equities rising 14% and Bonds rising 10% in H1 2023
- However, Equities were flat on 2021 given the equity market fall in 2022, but bonds were relatively flat in 2022, so most of the delta versus 2021 is from the growth of bond ETFs

The largest 3 ETF issuers account for 65% of ETF AUM as of H1 2023, which is down on 69% in 2015

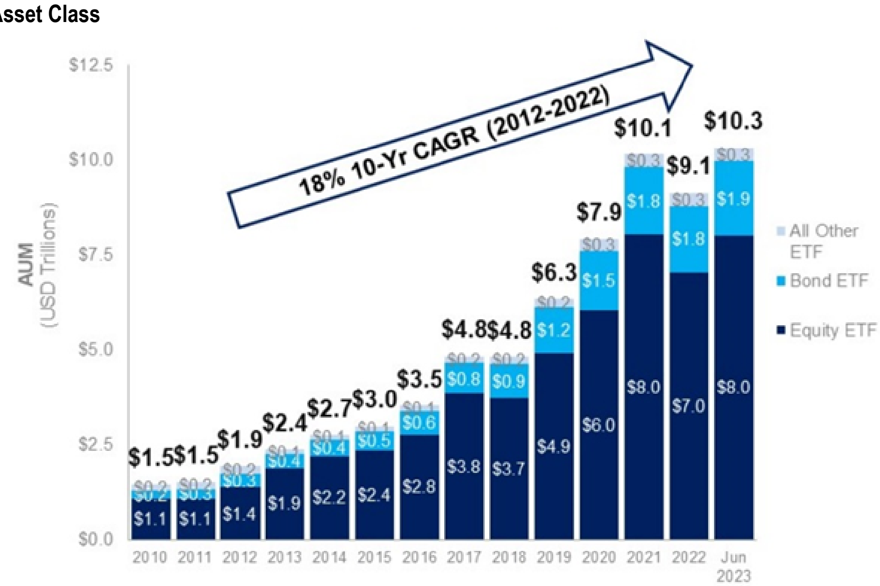
- Extending this to today's top 25 (91%) vs 2015's top 25 (95%), there's a similar trend of slightly less concentration than previously, but clearly the industry is still heavily dominated by a small number of firms

  However, the Active ETF AUM market is considerably less concentrated at present among the largest participants, with the largest 3 issuers accounting for 42% of Active ETF AUM. The largest 25 account for 81%

ETF AUM is still dominated by ETFs domiciled in the USA (~70% for years), though the share of ETF AUM domiciled in Ireland has almost doubled since 2010, from 6% in 2010, to 9% in 2015, and is now at 11%

- Regionally, APAC has also almost doubled their share of ETFs too, from 6% to 11% between 2010 and H1 2023
- Most of the explosive growth in *(mostly passive)* ESG ETFs since 2020 have been to "best in-class & positive screening" funds while "integration / engagement" funds languish, despite being the main strategy for *(mostly active)* mutual funds, likely due to the ways that active and passive ESG managers are able to focus their attentions on portfolio companies

Figure 22. ETF AUM by Asset Class



Source: Citi Business Advisory Services' analysis based on data from Broadridge Global Market Intelligence (GMI)

Endnotes

Technology is Expanding the Intersection Between Private Markets and Wealth

Figure 12. Alternative Asset Managers Partner with FinTechs to Build Channels for Tokenized Access to Private Market Assets (Non-Exhaustive)

Chart Source: Business Advisory Services with following references:

2021

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