Citi Global Wealth Investments

Alternative Approaches to Equity Investing: A Focus on Quality

Michael Yannell, Head of Hedge Fund Research

Campbell Anthony, Head of Equity and Event-Driven Strategies

Semyon Toybis, Hedge Fund Research Analyst

INVESTMENT PRODUCTS: NOT FDIC INSURED • NOT CDIC INSURED • NOT GOVERNMENT INSURED • NO BANK GUARANTEE • MAY LOSE VALUE

Introduction

From 2017 to 2021, global equities as measured by the MSCI World Index generated annualized returns of approximately 15%, with three of those five calendar years notching gains above 20%.[1] Given the strength of index returns, investors could comfortably allocate to equities without a focus on the quality of companies or allocations.

However, with the onset of inflationary pressures and economic growth concerns that began in 2022, investor sentiment towards equities has grown more cautious. Given the current level of uncertainty, we believe the ability to generate alpha rather than relying solely on beta is more important in today's environment.

While there are a wide variety of equity-oriented hedge fund strategies, the current market environment may be more conducive to a narrower set of opportunities.

In particular, we believe that two approaches have shown a persistent ability to generate alpha:

SHAREHOLDER ACTIVISM

Take concentrated positions in companies where managers seek to drive positive change

QUANTITATIVE LONG/SHORT EQUITY

Seek to identify long positions in resilient companies while shorting more speculative ones

While on the surface these strategies are quite different in their approach, they do have a key commonality — quality. Both strategies target investing in quality companies and have the potential to generate differentiated results.

[1] Bloomberg, as of May 2023, historical data through December 31, 2021

Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Real results may vary.

Shareholder Activism

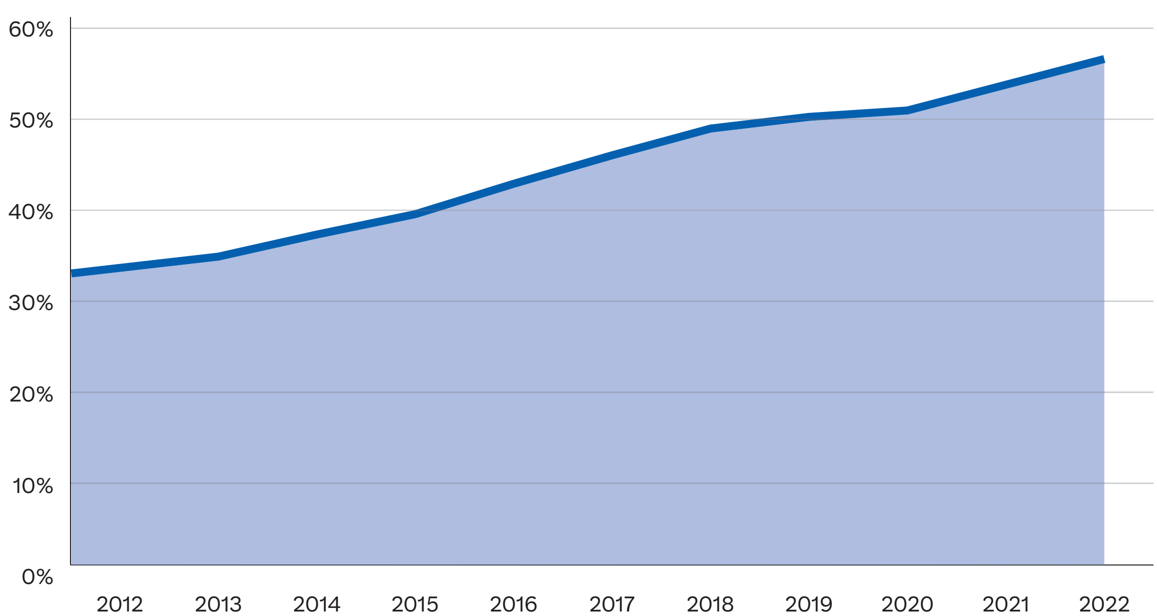
IMPLICATIONS OF THE GROWTH IN PASSIVE INVESTING

Since the first index-tracking mutual fund was launched in 1975, index funds have grown precipitously. In the last ten years alone, the percentage of capital allocated to passively managed equity ETFs and mutual funds has gone from 33% to 55% (see Figure 1).

Amidst this evolution of end investors, the structure of Boards of Directors of most publicly listed companies has shifted as well. Boards historically prioritized members that held substantial ownership in the company and were highly aligned and incentivized to maximize shareholder value. More recently, many Boards have instead placed greater value on independent directors who seek to appease this passive investor base with a focus on best practices on a range of issues. While these independent Board members play an important role, they tend to have modest financial interest in the companies, and therefore may not be fully incentivized to maximize shareholder value.

Furthermore, with a greater amount of passive capital invested, active shareholders have smaller stakes and are thus often unable or unwilling to take a stance against management teams.

FIGURE 1 — Passive Percentage Of All Equity Funds



Source: Bloomberg as of December 31, 2022.

Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Real results may vary.

The potential misalignment of the Board coupled with a less engaged shareholder base potentially creates a backdrop where management teams take measures that are aligned with their own compensation and goals rather than acting in the best interest of shareholders.

THE ROLE OF THE ACTIVIST INVESTOR

Public shareholder activism comes in many flavors, but typical campaigns may focus on objectives including a change in management or the Board of Directors, a recapitalization of the company to a more efficient debt/ equity mix, a sale or spinoff of non-core units to unlock value, and initiatives to reduce expenses, among various other company-specific initiatives.

One area where activist investors can be particularly additive to shareholder value is helping to drive better capital allocation decisions. While most public company CEOs are typically industry experts and proven business builders, they can be more focused on execution and growth rather than capital allocation and shareholder returns. Fundamental equity investors, and activists in particular, in contrast have a deep understanding of how the market prices capital and required rates of returns for investment that the high functioning company can leverage to better assess capital allocation decisions.

INGREDIENTS FOR ACTIVISM SUCCESS

While public campaigns tend to garner the headlines, they are often far from the first step, as activist investors typically have years of prior engagement with management teams and Boards, discussing issues ranging from financial performance to capital allocation. However, sometimes the only way enact meaningful change at a company is to do so through a public campaign, including convincing other large shareholders to support change by demonstrating a credible alternative plan.

Creating a plan to enhance shareholder value requires deep fundamental knowledge of a business and its competitive positioning. To get other shareholders aligned, the activist needs credibility that stems from a track record of successful engagement and results, as well as the capital to take a significant stake in the company.

THE ACTIVIST PHILOSOPHY: A PRIVATE EQUITY APPROACH TO PUBLIC MARKETS

Most activist investors take a concentrated approach to portfolio management, with the philosophy that the way to maximize gains is to focus on their highest conviction positions, including those where their efforts could best unlock value. This focus on a smaller number of names allows Activist managers to thoroughly understand the company, business model, industry dynamic, and what is causing a perceived valuation gap. Alongside that deep research will be an evaluation of the existing management team and a plan of engagement. To be effective, the activist must gather support from other investors and/or within the company as being aligned with long-term shareholders.

In sum, the combination of thoughtful portfolio concentration, deep diligence, and hands-on engagement is akin to the approach taken by private equity investors, but one which is undertaken with stakes in the public markets.

QUALITY TARGETS

A company targeted by an activist shareholder does not imply low quality. On the contrary, an activist's fundamental research process typically begins with identifying strong businesses that either have sustainable competitive advantages or operate in industries with considerable barriers to entry. In our opinion, the best activist investors will focus only on the highest quality companies that trade at the widest gap to their intrinsic value, and avoid disadvantaged, lower quality competitors by managing a concentrated and high conviction portfolio. This is likely even more critical in today's environment of economic uncertainty and inflationary pressures, as an activist can focus its portfolio on those businesses that have structural advantages that allow them to have durable revenue growth and pricing power.

A Systematic Approach to Quality Investing

THE QUALITY FACTOR

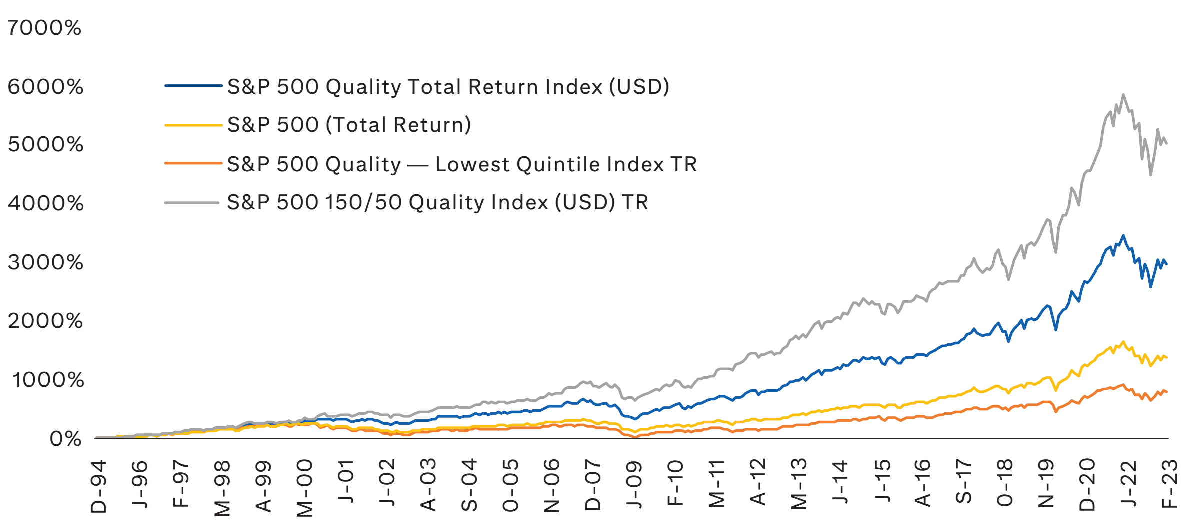
While activist investors are focused on a concentrated number of idiosyncratic investments, systematic investors tend to take a more diversified approach, looking to identify common factors that may drive outperformance. A factor is a unique characteristic that drives returns for an asset. Most investors are familiar with style factors including value, size, and momentum. As factor investing has gained prevalence, more style factors have been identified, including the quality factor. While definitions and measurements of quality depend on the specific implementation, a quality company is generally defined as a company with a strong balance sheet, stable earnings, and high margins. Historically, quality companies have been more defensive in nature and have outperformed the broader market over the long term. This performance is based in fundamentals, as the characteristics mentioned above may leave quality companies less susceptible to contractions in growth than lower quality counterparts.

OUTPERFORMANCE FROM THE QUALITY FACTOR

As an example, the S&P 500 Quality Index is constructed of the top 100 names in the S&P 500 that have the best rankings based on return on equity, accruals ratio which measures earnings quality, and financial leverage ratios. Contrasting the S&P 500 Quality Index, the S&P 500 Quality – Lowest Quintile Index holds the bottom 100 names in the S&P 500 based on the previously mentioned categories. As seen in Figure 2, the Quality Index has outperformed both the S&P 500 and the lower quality counterparts. This performance has come on a better risk-adjusted basis, with a Sharpe of 0.75 for the S&P Quality Index while the S&P 500 delivered a Sharpe of 0.51 and the Quality- Lowest Quintile Index delivered a Sharpe of 0.31.

Furthermore, the chart demonstrates how suitable investors may be able to benefit from a long/short approach. While it is possible to obtain quality exposure via a long-only approach by overweighting quality companies and underweighting lower quality

FIGURE 2 — Cumulative Return



Source: Bloomberg as of March 31, 2023; Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Real results may vary.

ones, it also possible to implement quality exposure via a long-short approach by utilizing leverage to short low-quality companies. This allows investors to gain exposure to the spread of quality versus lower quality companies, benefitting when quality companies outperform. In Figure 2, the S&P 500 150/50 Quality Index takes a leveraged long position in the S&P 500 Quality Index and a short position in the S&P 500 Quality – Lowest Quintile Index. The 150/50 index has outperformed the broad index and long-only quality index both from a total return perspective as well as a risk-adjusted perspective (delivering a Sharpe of 0.92). These are just index level returns from the factor, and do not capture the potential outperformance from actively managed portfolios that use quality as a factor.

In addition to better total returns over the long-term, quality exposure has provided investors downside mitigation in challenging market periods. As seen in Figure 3, quality indices have limited losses compared to the broader index as well as lower quality stocks in negative periods for the broader market. Importantly, this has not come at the expense of returns in conducive market environments.

THE QUANTITATIVE APPROACH TO QUALITY INVESTING

Quantitative equity managers have several potential advantages in accessing the quality factor.

First, the systematic approach of quantitative managers allows for thorough screening of a wider universe of equities, resulting in more diversified portfolios to capture the desired factor characteristics.

Additionally, the implementation of the quality factor may vary widely and evolve over time, and quantitative managers should have better access to data and analytics to keep pace. We believe that the largest institutions with strong research capabilities may generate alpha that is above what is attainable from purely accessing the quality factor on an index level.

Finally, quantitative managers can actively adjust the overall beta of the portfolio. For example, the S&P 150/50 Quality Index has a 0.7 beta to the S&P 500 Index; however, managers may target lower beta by increasing short exposure.

FIGURE 3 — Quality Returns During Ten Best and Worst Months for the S&P 500

	S&P 500 Quality Total Return Index (USD)	S&P 500 Quality — Lowest Quintile Index (USD, Total Return)	S&P 500 150/50 Quality Index (USD, Total Return)	S&P 500 Index (Total Return)
TEN WORST MONTHS FOR THE S&P 500 Average Return	-9.19%	-13.03%	-7.24%	-11.01%
TEN BEST MONTHS FOR THE S&P 500 Average Return	9.23%	11.57%	8.13%	9.82%

Source: Bloomberg as of March 31, 2023. Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Real results may vary.

Conclusion

Given market volatility and uncertainty over the past year, as suitable, we believe select hedge fund strategies that seek quality companies may present a way to invest in the equity markets as compared to traditional long-only strategies. While each approach has its own distinct potential advantages and risks, we believe they merit consideration for an allocation within a variety of suitable investment portfolios.

Glossary

Activist (or Shareholder Activist) strategies may obtain or attempt to obtain representation of the company's board of directors in an effort to impact the firm's policies or strategic direction and in some cases may advocate activities such as division or asset sales, partial or complete corporate divestiture, dividend or share buybacks, and changes in management. Strategies employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently or prospectively engaged in a corporate transaction, security issuance/repurchase, asset sales, division spin-off or other catalyst oriented situation. These involve both announced transactions as well as situations which pre-, post-date or situations in which no formal announcement is expected to occur. Activist strategies are distinguished from other Event Driven strategies in that, over a given market cycle, Activist strategies would expect to have greater than 50% of the portfolio in activist positions, as described.

Credit strategies generally buy and sell fixed-income securities, such as high-yield bonds, distressed bonds, structured credit, and their derivatives. Managers look for a relative value between the senior and junior securities of the same corporate issuer. They also trade securities of equivalent credit quality from different corporate issuers, or different tranches, in the complex capital of structured debt vehicles like mortgage-backed securities (MBSs) or collateralized loan obligations (CLOs). Credit hedge funds focus on credit rather than interest rates.

Distressed strategies invest in distressed debt. This type of debt can be loosely defined as the obligations of companies that have filed for bankruptcy or are very likely to file for bankruptcy in the near future. Hedge funds that invest in distressed debt purchase the bonds of firms that have filed for bankruptcy or are likely to do so in the near future.

Equity hedge strategies maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedge managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities - both long and short. EH is further subdivided into 7 sub-strategies.

Equity long/short strategies take long positions in stocks that are expected to appreciate and short positions in stocks that are expected to decline. A long-short equity strategy seeks to minimize market exposure while profiting from stock gains in the long positions, along with price declines in the short positions.

Equity market neutral is an investment strategy in which the portfolio manager attempts to exploit differences in stock prices by being long and short an equal amount in closely related stocks.

Event-driven strategies maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated, and frequently involve additional derivative securities. Event Driven exposure includes a combination of sensitivities to equity markets, credit markets and idiosyncratic, company specific developments. Investment theses are typically predicated on fundamental characteristics (as opposed to quantitative), with the realization of the thesis predicated on a specific development exogenous to the existing capital structure.

Hedge funds are composed of investment managers employing different investment styles as characterized by different sub categories – HFRI Equity Long/Short: Positions both long and short in primarily equity and equity derivative securities; HFRI Credit: Positions in corporate fixed income securities; HFRI Event Driven: Positions in companies currently or prospectively involved in wide variety of corporate transactions; HFRI Relative value: Positions based on a valuation discrepancy between multiple securities; HFRI Multi Strategy: Positions based on realization of a spread between related yield instruments; HFRI Macro: Positions based on movements in underlying economic variables and their impact on different markets; Barclays Trader CTA Index: The composite performance of established programs (Commodity Trading Advisors) with more than four years of performance history.

Merger arbitrage strategies employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction. Merger Arbitrage involves primarily announced transactions, typically with limited or no exposure to situations which pre-, post-date or situations in which no formal announcement is expected to occur. Opportunities are frequently presented in cross border, collared and international transactions which incorporate multiple geographic regulatory institutions, with typically involve minimal exposure to corporate credits. Merger Arbitrage strategies typically have over 75% of positions in announced transactions over a given market cycle.

MSCI World Index covers large- and mid-cap equities across 23 Developed Markets countries. With 1,603 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

Multi-strategy hedge funds combine different single hedge fund strategies in one portfolio and differentiate considerably from each other. Most often, such portfolios include a variety of long-short, relative value and event-driven strategies.

Quant strategy is an investment fund that selects securities based on quantitative analysis. In a quant fund, the managers build computer-based models to determine whether an investment is attractive. In a pure “quant shop” the final decision to buy or sell is made by the model; however, there is a middle ground where the fund manager will use human judgment in addition to a quantitative model.

Recapitalization involves exchanging one type of financing for another – debt for equity, or equity for debt. One example is when a company issues debt to buy back its equity shares. The purpose of recapitalization is to stabilize a company’s capital structure.

Relative value strategies maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV position may be involved in corporate transactions also, but as opposed to ED exposures, the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction.

S&P 500 Index is a capitalization-weighted index that includes a representative sample of 500 leading companies in leading industries of the US economy. Although the S&P 500 focuses on the large-cap segment of the market, with over 80% coverage of US equities, it is also an ideal proxy for the total market.

S&P 500 150/50 Quality Index takes a leveraged long position in the quality index and a short position in the lowest quest quintile index.

S&P 500 Lowest Quintile Index tracks the lowest 100 companies in the S&P 500 based on return on equity, accrual ratios, and financial leverage

S&P 500 Quality Index tracks the top 100 companies in the S&P 500 based on return on equity, accrual ratios, and financial leverage.

Structured credit is an investment strategy which involves pooling similar debt obligations and selling off the resulting cash flows. Structured credit products are created through a securitization process, in which financial assets such as loans and mortgages are packaged into interest-bearing securities backed by those assets, and issued to investors. This, in effect, re-allocates the risks and return potential involved in the underlying debt.

Volatility strategies generally focus on the equity or index volatility space, but are also able to trade volatility over a number of different markets, including commodities and currencies.

All investors must be both "Accredited Investors" and "Qualified Purchasers", as those terms are defined under the US Federal securities laws. Non-US Persons may be subject to other eligibility standards as further described in individual Fund Subscription Agreements. For additional information regarding Accredited Investors and Qualified Purchasers: https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins/updated-3

In any instance where distribution of this communication ("Communication") is subject to the rules of the US Commodity Futures Trading Commission ("CFTC"), this communication constitutes an invitation to consider entering into a derivatives transaction under US CFTC Regulations §§ 1.71 and 23.605, where applicable, but is not a binding offer to buy/sell any financial instrument.

This Communication is prepared by Citi Global Wealth Investments ("CGWI") which is comprised of the Investments and Capital Markets capabilities of Citi Private Bank, Citi Global Wealth at Work, Citi Personal Wealth Management and International Personal Bank U.S.

Citi Private Bank, Citi Global Wealth at Work, Citi Personal Wealth Management are businesses of Citigroup Inc. ("Citigroup"), which provide clients access to a broad array of products and services available through bank and non-bank af§liates of Citigroup. Not all products and services are provided by all af§liates or are available at all locations. In the U.S., investment products and services are provided by Citigroup Global Markets Inc. ("CGMI"), member FINRA and SIPC, Citi Private Advisory, LLC ("CPA"), member FINRA and SIPC, and Citi Global Alternatives, LLC ("CGA"). CPA acts as distributor of certain alternative investment products to certain eligible clients' segments. CGMI accounts are carried by Pershing LLC, member FINRA, NYSE, SIPC. Investment management services (including portfolio management) are available through CGMI, CGA, Citibank, N.A. and other affiliated advisory businesses. Insurance is offered by Citi Personal Wealth Management through Citigroup Life Agency LLC ("CLA"). In California, CLA does business as Citigroup Life Insurance Agency, LLC (license number 0G56746). CGMI, CPA, CGA, CLA and Citibank, N.A. are af§liated companies under the common control of Citigroup.

Outside the U.S., investment products and services are provided by other Citigroup affiliates. Investment Management services (including portfolio management) are available through CGMI, CGA, Citibank, N.A. and other affiliated advisory businesses. These Citigroup affiliates, including CGA, will be compensated for the respective investment management, advisory, administrative, distribution and placement services they may provide.

International Personal Bank U.S. ("IPB U.S."), is a business of Citigroup which provides its clients access to a broad array of products and services available through Citigroup, its bank and non-bank affiliates worldwide (collectively, "Citi"). Through IPB U.S. prospects and clients have access to the Citigold® Private Client International, Citigold® International, International Personal, Citi Global Executive Preferred, and Citi Global Executive Account Packages. Investment products and services are made available through Citi Personal Investments International ("CPII"), a business of Citigroup which offers securities through CGMI, member FINRA and SIPC, an investment advisor and broker-dealer registered with the Securities and Exchange Commission CGMI and investment accounts are carried by Pershing LLC, member FINRA, NYSE, and SIPC. Insurance is offered by CPII through CLA. In California, CLA does business as Citigroup Life Insurance Agency, LLC (license number 0G56746). Citibank, N.A., CGMI and CLA are affiliated companies under common control of Citigroup Inc.

An investment in alternative investments can be highly illiquid, is speculative and not suitable for all investors. Investing in alternative investments is for experienced and sophisticated investors who are willing to bear the high economic risks associated with such an investment. Investors should carefully review and consider potential risks before investing. Certain of these risks may include:

- loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices;

- lack of liquidity in that there may be no secondary market for the fund and none is expected to develop;

- volatility of returns;

restrictions on transferring interests in the fund;

- potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized;

- absence of information regarding valuations and pricing;

- complex tax structures and delays in tax reporting;

- less regulation and higher fees than mutual funds; and

- manager risk.

Individual funds will have specific risks related to their investment programs that will vary from fund to fund.

CGWI personnel are not research analysts, and the information in this Communication is not intended to constitute "research", as that term is defined by applicable regulations. Unless otherwise indicated, any reference to a research report or research recommendation is not intended to represent the whole report and is not in itself considered a recommendation or research report.

This Communication is provided for information and discussion purposes only, at the recipient's request. The recipient should notify CGWI immediately should it at any time wish to cease being provided with such information. Unless otherwise indicated, (i) it does not constitute an offer or recommendation to purchase or sell any security, financial instrument or other product or service, or to attract any funding or deposits, and (ii) it does not constitute a solicitation if it is not subject to the rules of the CFTC (but see discussion above regarding communication subject to CFTC rules) and (iii) it is not intended as an official confirmation of any transaction.

Unless otherwise expressly indicated, this Communication does not take into account the investment objectives, risk profile or financial situation of any particular person and as such, investments mentioned in this document may not be suitable for all investors. Citi is not acting as an investment or other advisor, fiduciary or agent. The information contained herein is not intended to be an exhaustive discussion of the strategies or concepts mentioned herein or tax or legal advice. Recipients of this Communication should obtain advice based on their own individual circumstances from their own tax, financial, legal, and other advisors about the risks and merits of any transaction before making an investment decision, and only make such decisions on the basis of their own objectives, experience, risk profile and resources.

The information contained in this Communication is based on generally available information and, although obtained from sources believed by Citi to be reliable, its accuracy and completeness cannot be assured, and such information may be incomplete or condensed. Any assumptions or information contained in this Communication constitute a judgment only as of the date of this document or on any specified dates and is subject to change without notice. Insofar as this Communication may contain historical and forward looking information, past performance is neither a guarantee nor an indication of future results, and future results may not meet expectations due to a variety of economic, market and other factors. Further, any projections of potential risk or return are illustrative and should not be taken as limitations of the maximum possible loss or gain. Any prices, values or estimates provided in this Communication (other than those that are identified as being historical) are indicative only, may change without notice and do not represent firm quotes as to either price or size, nor reflect the value Citi may assign a security in its inventory. Forward looking information does not indicate a level at which Citi is prepared to do a trade and may not account for all relevant assumptions and future conditions. Actual conditions may vary substantially from estimates which could have a negative impact on the value of an instrument.

Views, opinions and estimates expressed herein may differ from the opinions expressed by other Citi businesses or affiliates, and are not intended to be a forecast of future events, a guarantee of future results, or investment advice, and are subject to change without notice based on market and other conditions. Citi is under no duty to update this document and accepts no liability for any loss (whether direct, indirect or consequential) that may arise from any use of the information contained in or derived from this Communication.

IRS Circular 230 Disclosure: Citi and its employees are not in the business of providing, and do not provide, tax or legal advice to any taxpayer outside Citi. Any statement in this Communication regarding tax matters is not intended or written to be used, and cannot be used or relied upon, by any taxpayer for the purpose of avoiding tax penalties. Any such taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor.

This Communication is for the sole and exclusive use of the intended recipients, and may contain information proprietary to Citi which may not be reproduced or circulated in whole or in part without Citi's prior consent. The manner of circulation and distribution may be restricted by law or regulation in certain countries. Persons who come into possession of this document are required to inform themselves of, and to observe such restrictions. Citi accepts no liability whatsoever for the actions of third parties in this respect. Any unauthorized use, duplication, or disclosure of this document is prohibited by law and may result in prosecution.

Other businesses within Citigroup Inc. and affiliates of Citigroup Inc. may give advice, make recommendations, and take action in the interest of their clients, or for their own accounts, that may differ from the views expressed in this document. All expressions of opinion are current as of the date of this document and are subject to change without notice. Citigroup Inc. is not obligated to provide updates or changes to the information contained in this document.

The expressions of opinion are not intended to be a forecast of future events or a guarantee of future results. Past performance is not a guarantee of future results. Real results may vary.

Although information in this document has been obtained from sources believed to be reliable, Citigroup Inc. and its affiliates do not guarantee its accuracy or completeness and accept no liability for any direct or consequential losses arising from its use. Throughout this publication where charts indicate that a third party (parties) is the source, please note that the attributed may refer to the raw data received from such parties. No part of this document may be copied, photocopied or duplicated in any form or by any means, or distributed to any person that is not an employee, officer, director, or authorized agent of the recipient without Citigroup Inc.'s prior written consent.

Citigroup Inc. may act as principal for its own account or as agent for another person in connection with transactions placed by Citigroup Inc. for its clients involving securities that are the subject of this document or future editions of the document.

Citibank, N.A., Hong Kong/Singapore organized under the laws of U.S.A. with limited liability. This communication is distributed in Hong Kong by Citi Private Bank operating through Citibank N.A., Hong Kong Branch, which is registered in Hong Kong with the Securities and Futures Commission for Type 1 (dealing in securities), Type 4 (advising on securities), Type 6 (advising on corporate finance) and Type 9 (asset management) regulated activities with CE No: (AAP937) or in Singapore by Citi Private Bank operating through Citibank, N.A., Singapore Branch which is regulated by the Monetary Authority of Singapore. Any questions in connection with the contents in this communication should be directed to registered or licensed representatives of the relevant aforementioned entity. The contents of this communication have not been reviewed by any regulatory authority in Hong Kong or any regulatory authority in Singapore. This communication contains confidential and proprietary information and is intended only for recipient in accordance with accredited investors requirements in Singapore (as defined under the Securities and Futures Act (Chapter 289 of Singapore) (the "Act")) and professional investors requirements in Hong Kong(as defined under the Hong Kong Securities and Futures Ordinance and its subsidiary legislation).

For regulated asset management services, any mandate will be entered into only with Citibank, N.A., Hong Kong Branch and/or Citibank, N.A. Singapore Branch, as applicable. Citibank, N.A., Hong Kong Branch or Citibank, N.A., Singapore Branch may sub-delegate all or part of its mandate to another Citigroup affiliate or other branch of Citibank, N.A. Any references to named portfolio managers are for your information only, and this communication shall not be construed to be an offer to enter into any portfolio management mandate with any other Citigroup affiliate or other branch of Citibank, N.A. and, at no time will any other Citigroup affiliate or other branch of Citibank, N.A. or any other Citigroup affiliate enter into a mandate relating to the above portfolio with you. To the extent this communication is provided to clients who are booked and/or managed in Hong Kong: No other statement(s) in this communication shall operate to remove, exclude or restrict any of your rights or obligations of Citibank under applicable laws and regulations. Citibank, N.A., Hong Kong Branch does not intend to rely on any provisions herein which are inconsistent with its obligations under the Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission, or which mis-describes the actual services to be provided to you.

Citibank, N.A. is incorporated in the United States of America and its principal regulators are the US Office of the Comptroller of Currency and Federal Reserve under US laws, which differ from Australian laws. Citibank, N.A. does not hold an Australian Financial Services License under the Corporations Act 2001 as it enjoys the benefit of an exemption under ASIC Class Order CO 03/1101 (remade as ASIC Corporations (Repeal and Transitional) Instrument 2016/396 and extended by ASIC Corporations (Amendment) Instrument 2022/623).

In the United Kingdom, Citibank N.A., London Branch (registered branch number BR001018), Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB, is authorized and regulated by the Office of the Comptroller of the Currency (USA) and authorized by the Prudential Regulation Authority. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. The contact number for Citibank N.A., London Branch is +44 (0)20 7508 8000.

Citibank Europe plc (UK Branch), is a branch of Citibank Europe plc, which is authorised and regulated by the Central Bank of Ireland and the European Central Bank. Authorised by the Prudential Regulation Authority. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. Citibank Europe plc, UK Branch is registered as a branch in the register of companies for England and Wales with registered branch number BR017844. Its registered address is Citigroup Centre, Canada Square, Canary Wharf, London E14 5LB. VAT No.: GB 429 6256 29. Citibank Europe plc is registered in Ireland with number 132781, with its registered office at 1 North Wall Quay, Dublin 1. Citibank Europe plc is regulated by the Central Bank of Ireland. Ultimately owned by Citigroup Inc., New York, USA.

Citibank Europe plc, Luxembourg Branch, registered with the Luxembourg Trade and Companies Register under number B 200204, is a branch of Citibank Europe plc. It is subject to the joint supervision of the European Central bank and the Central Bank of Ireland. It is furthermore subject to limited regulation by the Commission de Surveillance du Secteur Financier (the CSSF) in its role as host Member State authority and registered with the CSSF under number B00000395. Its business office is at 31, Z.A. Bourmicht, 8070 Bertrange, Grand Duchy of Luxembourg. Citibank Europe plc is registered in Ireland with company registration number 132781. It is regulated by the Central Bank of Ireland under the reference number C26553 and supervised by the European Central Bank. Its registered office is at 1 North Wall Quay, Dublin 1, Ireland.

This document is communicated by Citibank (Switzerland) AG, which has its registered address at Hardstrasse 201, 8005 Zurich, Citibank N.A., Zurich Branch, which has its registered address at Hardstrasse 201, 8005 Zurich, or Citibank N.A., Geneva Branch, which has its registered address at 2, Quai de la Poste, 1204 Geneva. Citibank (Switzerland) AG and Citibank, N.A., Zurich and Geneva Branches are authorised and supervised by the Swiss Financial Supervisory Authority (FINMA).

In Jersey, this document is communicated by Citibank N.A., Jersey Branch which has its registered address at PO Box 104, 38 Esplanade, St Helier, Jersey JE4 8QB. Citibank N.A., Jersey Branch is regulated by the Jersey Financial Services Commission. Citibank N.A. Jersey Branch is a participant in the Jersey Bank Depositors Compensation Scheme. The Scheme offers protection for eligible deposits of up to £50,000. The maximum total amount of compensation is capped at £100,000,000 in any 5 year period. Full details of the Scheme and banking groups covered are available on the States of Jersey website www.gov.je/dcs, or on request.

In Canada, Citi Private Bank is a division of Citibank Canada, a Schedule II Canadian chartered bank. References herein to Citi Private Bank and its activities in Canada relate solely to Citibank Canada and do not refer to any affiliates or subsidiaries of Citibank Canada operating in Canada. Certain investment products are made available through Citibank Canada Investment Funds Limited ("CCIFL"), a wholly owned subsidiary of Citibank Canada. Investment Products are subject to investment risk, including possible loss of principal amount invested. Investment Products are not insured by the CDIC, FDIC or depository insurance regime of any jurisdiction and are not guaranteed by Citigroup or any affiliate thereof.

This document is for information purposes only and does not constitute an offer to sell or a solicitation of an offer to buy any securities to any person in any jurisdiction. The information set out herein may be subject to updating, completion, revision, verification and amendment and such information may change materially.

Citigroup, its affiliates and any of the officers, directors, employees, representatives or agents shall not be held liable for any direct, indirect, incidental, special, or consequential damages, including loss of profits, arising out of the use of information contained herein, including through errors whether caused by negligence or otherwise.

CCIFL is not currently a member, and does not intend to become a member of the Mutual Fund Dealers Association of Canada ("MFDA"); consequently, clients of CCIFL will not have available to them investor protection benefits that would otherwise derive from membership of CCIFL in the MFDA, including coverage under any investor protection plan for clients of members of the MFDA.

Global Consumer Bank (Asia Pacific and EMEA):

"Citi analysts" refer to investment professionals within Citi Research ("CR"), Citi Global Markets Inc. ("CGMI"), Citi Global Wealth Investments ("CGWI") and voting members of the Citi Global Investment Committee. Citibank N.A. and its affiliates/subsidiaries provide no independent research or analysis in the substance or preparation of this document.

The information in this document has been obtained from reports issued by CGMI and CGWI. Such information is based on sources CGMI and CGWI believe to be reliable. CGMI and CGWI, however, do not guarantee its accuracy and it may be incomplete or condensed. All opinions and estimates constitute CGMI and CGWI's judgment as of the date of the report and are subject to change without notice. This document is for general information purposes only and is not intended as a recommendation or an offer or solicitation for the purchase or sale of any security or currency. No part of this document may be reproduced in any manner without the written consent of Citibank N.A. Information in this document has been prepared without taking account of the objectives, financial situation, or needs of any particular investor. Any person considering an investment should consider the appropriateness of the investment having regard to their objectives, financial situation, or needs, and should seek independent advice on the suitability or otherwise of a particular investment. Investments are not deposits, are not obligations of, or guaranteed or insured by Citibank N.A., Citigroup Inc., or any of their affiliates or subsidiaries, or by any local government or insurance agency, and are subject to investment risk, including the possible loss of the principal amount invested. Investors investing in funds denominated in non-local currency should be aware of the risk of exchange rate fluctuations that may cause a loss of principal. Past performance is not indicative of future performance, prices can go up or down. Investment products are not available to US persons. Investors should be aware that it is his/her responsibility to seek legal and/or tax advice regarding the legal and tax consequences of his/her investment transactions. If an investor changes residence, citizenship, nationality, or place of work, it is his/her responsibility to understand how his/her investment transactions are affected by such change and comply with all applicable laws and regulations as and when such becomes applicable. Citibank does not provide legal and/or tax advice and is not responsible for advising an investor on the laws pertaining to his/her transaction.

Citi Research (CR) is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

For more information, please refer to [https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures.](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures)

Market Specific Disclosures

Hong Kong: This communication is distributed in Hong Kong by Citibank (Hong Kong) Limited ("CHKL") and/or Citibank, N.A., Hong Kong Branch ("CBNA HK", Citibank, N.A. is organized under the laws of U.S.A. with limited liability). CHKL and CBNA HK provide no independent research or analysis in the substance or preparation of this communication. Although information in this communication has been obtained from sources believed to be reliable, CHKL and CBNA HK do not guarantee its accuracy or completeness and accept no liability for any direct or consequential losses arising from its use.

This communication is for general information only, is not intended as a recommendation or an offer or solicitation for the purchase or sale of any products or services and should not be relied upon as financial advice. The information herein has not taken account of the objectives, financial situation or needs of any particular investor. Any person considering an investment should consider the suitability of the investment having regard to their objectives, financial situation and needs, and should seek independent advice before making an investment decision. You should obtain and consider the relevant product terms and conditions and risk disclosure statement, and consider if it's suitable for your objectives, financial situation or needs before making any investment decision. Investors are advised to obtain independent legal, financial and taxation advice prior to investing. Investments are not deposits, are not protected by the Deposit Protection Scheme in Hong Kong and are subject to investment risk including the possible loss of the principal amount invested.

This communication does not constitute the distribution of any information in any jurisdiction in which it is unlawful to distribute such information to any person in such jurisdiction.

CSL does not provide discretionary portfolio management services.

Singapore: This communication is distributed in Singapore by Citibank Singapore Limited ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this communication. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this communication. Investment products are not insured under the provisions of the Deposit Insurance and Policy Owners' Protection Schemes Act of Singapore and are not eligible for deposit insurance coverage under the Deposit Insurance Scheme.

This communication is for general information only and should not be relied upon as financial advice. The information herein has no regard to the specific objectives, financial situation and particular needs of any specific person and is not intended to be an exhaustive discussion of the strategies or concepts mentioned herein or tax or legal advice. Any person interested in the strategies or concepts mentioned herein should consult their independent tax, legal, financial or other advisors, as appropriate. This communication does not constitute the distribution of any information or the making of any offer or solicitation by anyone in any jurisdiction in which such distribution or offer is not authorized or to any person to whom it is unlawful to distribute such information or make any offer or solicitation.

Before making any investment, each investor must obtain the investment offering materials, which include a description of the risks, fees and expenses and the performance history, if any, which may be considered in connection with making an investment decision. Interested investors should seek the advice of their financial adviser about the issues discussed herein as appropriate. Should investors choose not to seek such advice, they should carefully consider the risks associated with the investment and make a determination based upon the investor's own particular circumstances, that the investment is consistent with the investor's investment objectives and assess whether the investment product is suitable for themselves. Although information in this document has been obtained from sources believed to be reliable, CSL does not guarantee its accuracy or completeness and accept no liability for any direct or consequential losses arising from its use.

CSL does not provide discretionary portfolio management services.

Bahrain: IN BAHRAIN, CITI PRIVATE BANK OPERATES UNDER SPECIFIC APPROVAL ISSUED ON THE BASIS OF CITIBANK, N.A., BAHRAIN BRANCH'S BANKING LICENSE. Marketing and distribution of Investment Funds to clients in Bahrain requires Notification to the Central Bank of Bahrain and will be limited to UHNWI as defined below. Minimum investment subscription criteria will apply for products for all subscriptions for Bahrain domiciled clients. Ultra-high net worth investors are:

(a) Individuals who have a minimum net worth (or joint net worth with their spouse) of USD 25 million or more;

(b) Companies, partnerships, trusts or other commercial undertakings, which have financial assets available for investment of not less than USD 25 million; or

(c) Governments, supranational organisations, central banks or other national monetary authorities, and state organisations whose main activity is to invest in financial instruments (such as state pension funds).

UAE: This document is distributed in UAE by Citibank, N.A. UAE. Citibank N.A. UAE is licensed by UAE Securities and Commodities Authority ("SCA") to undertake the financial activity as Promoter under license number 602003.

Citibank N.A. UAE is registered with Central Bank of UAE under license numbers BSD/504/83 for Al Wasl Branch Dubai, 13/184/2019 for Mall of the Emirates Branch Dubai, BSD/2819/9 for Sharjah Branch, and BSD/692/83 for Abu Dhabi Branch.

This is not an official statement of Citigroup Inc. and may not reflect all of your investments with or made through Citibank. For an accurate record of your accounts and transactions, please consult your official statement. Before making any investment, each investor must obtain the investment offering materials, which include a description of the risks, fees and expenses and the performance history, if any, which may be considered in connection with making an investment decision. Each investor should carefully consider the risks associated with the investment and make a determination based upon the investor's own particular circumstances, that the investment is consistent with the investor's investment objectives. At any time, Citigroup companies may compensate affiliates and their representatives for providing products and services to clients.

United Kingdom: This document is distributed in the U.K. by Citibank UK Limited and in Jersey by Citibank N.A., Jersey Branch.

Citibank UK Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Our firm's Financial Services Register number is 805574. Citibank UK Limited is a company limited by shares registered in England and Wales with registered address at Citigroup Centre, Canada Square, Canary Wharf, London E14 5LB, Companies House Registration No. 11283101.

Citibank N.A., Jersey Branch is regulated by the Jersey Financial Services Commission. Citi International Personal Bank is registered in Jersey as a business name of Citibank N.A. The address of Citibank N.A., Jersey Branch is P.O. Box 104, 38 Esplanade, St Helier, Jersey JE4 8QB. Citibank N.A. is incorporated with limited liability in the USA. Head office: 399 Park Avenue, New York, NY 10043, USA.

© All rights reserved Citibank UK Limited and Citibank N.A. (2023).

© 2023 Citigroup Inc. Citi, Citi and Arc Design and other marks used herein are service marks of Citigroup Inc. or its affiliates, used and registered throughout the world.