Asia Pacific Strategy

January 3, 2024

Li-Gang Liu
Head, Asia Pacific Investment Economic Analysis

Ken Peng
Head, Asia Pacific Investment Strategy

Thomas Huen
Head HK, Investment Lab Asia Pacific

Calvin Ha
Senior Asia Pacific Investment Strategist

Andrea Leung
Senior Asia Pacific Investment Strategist

Wang Shurong
Analyst, Asia Pacific Investment Strategy

The China Dilemma: How Should We Position Chinese Equities in Portfolios?

- China's equity market has significantly underperformed over the last three years with an annual average return at around -17%. Investors are getting increasingly impatient to hold their China equities as a long-term investment portfolio.
- Based on our data analytics and the latest academic studies, we establish certain salient facts of Chinese equity market over the last 25 years that are worthwhile to note:
  - **First**, China's equity performance has little to do with the rapid rise of the Chinese economy. It is also the only major economy with equity market returns un-correlated with its GDP growth.
  - **Second**, China's equity returns have been consistently lower than those in both developed and some emerging markets during the same period. For those Chinese stocks with dual listing status, the onshore price-earnings multiple often fetched a premium over those offshore-listed firms.
  - **Third**, the underperformance of Chinese equities can be attributable to sub-par earning-per-share growth as well as P/E multiples' contraction.
  - **Fourth**, Chinese equity market has been in a trading range characterized by frequent bull/bear transitions, resulting in inconsistent return over medium-term holding periods.
- What are the key factors behind these unique features of the China's equity market? Studies have found that current market regulations have allowed large shareholders to dominate corporate governance decisions, leading to overinvestment, low efficiency, and low cash flows. Inadequate regulatory enforcement has also allowed poor-performing firms to stay listed without fear of being delisted. Additionally, a lack of institutional investor culture discourages active investor participation in corporate governance of listed firms, either.
- These features suggest that investors should take a thoughtful and alpha-oriented approach in positioning Chinese equities in their portfolio until important regulatory reforms can be undertaken to support a structural bull market.

3 THINGS TO KNOW

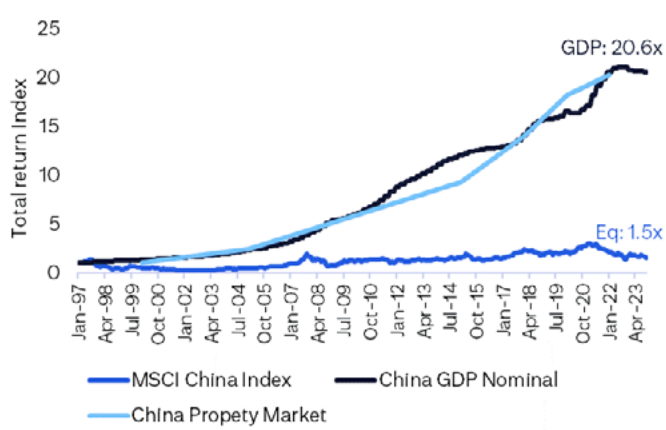
The Chinese equity market indices have significantly under-performed China's rapid rise in GDP and other key DM and EM markets since 1997.

Frequent bull/bear transitions, with bear market dominance, lead to inconsistent medium-term returns.

These features make Chinese equities more suitable to tactical investment opportunities.

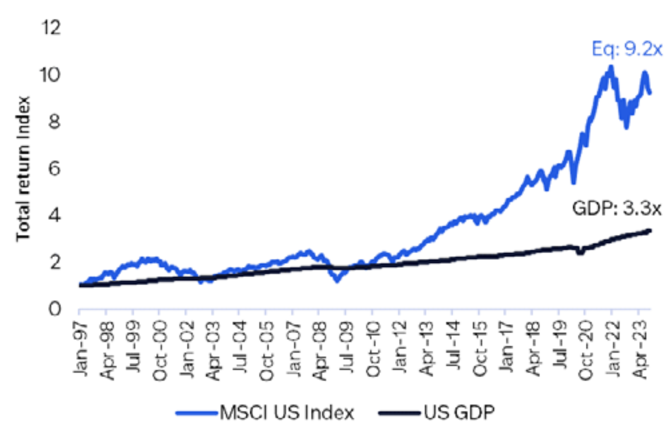
China's GDP has risen by almost 21 times since 1997, but its equity market index has barely grown much, rising only by 1.5 times over the same period. Meanwhile, China's property market had huge gains, which saw its value multiply at a similar pace as GDP (**Figure 1**). In contrast, the US GDP over the same period only rose by 3.3 times, while its equity market have offered investors with a return of 9.2 times (**Figure 2**). This striking comparison raises a serious question on how we should position the equities of the second largest economy in investment portfolio: are they more compatible to strategic or tactical investment in investors' portfolio allocation?

Figure 1: China total returns comparison: Equity vs GDP vs Property market



Source: Bloomberg and Zeping Macro, as of 3 Jan 2024.

Figure 2: US total returns comparison: Equity vs GDP



Source: Bloomberg, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

Some features of China's equity market performance

In this note, we establish some stylized facts on the Chinese equity market since 1997 based on our own data analytics and the latest academic studies. **First,** consistent to the results found in **Figure 1**, the equity market returns of China's A shares have little to do with its GDP growth. Among major economies in the world, China is perhaps the only economy whose equity market return doesn't correlate positively with its GDP growth (**Figure 3**). Looking at China's equity return from a long-term perspective, we also find that its 10-year averaged annual return was 1.2%, lower than Japan's — a country barely grew in the last twenty years, and significantly underperformed the key US indices (**Figure 4**). Even worse, its last 3- and 5-year average return per annum was at around -17% and -2.5%, much lower than those in the US and Japanese market. For the year 2023, the onshore A share market and the offshore Hong Kong market were the worst performing markets among major markets in the world.

Figure 3: Correlations between (5-year) stock return and future GDP growth among large economics

IMF GDP (PPP) Ranking	1M	YTD
1	China A share	-0.013
2	US	0.286
3	India	0.185
4	Jpan	0.38
5	Germany	0.532
6	Russia	0.386
7	Indonesia	0.531
8	Brazil	0.429
9	**UK**	**0.479**
10	France	0.587

IMF GDP (PPP) Ranking	1M	YTD
11	Italy	0.446
12	Mexico	0.489
13	Turkey	0.195
14	South Korea	0.366
15	Spain	0.6
16	Saudi Arabia	0.35
17	Canada	0.521
18	Iran	0.056
19	Thailand	0.469
20	Australia	0.116
21	South Africa	0.656

Source: Bloomberg and Citi Private Bank, as of 3 Jan 2024. Note: The time period of correlation is starting from the year 1991 to 2018. It's estimated using cumulative stock returns of a 5-year interval and the cumulative GDP growth in the next 5-year interval until the end of 2018, on a rolling basis, for example, we obtain stock returns for years (t to t+4), (t+1 to t+5), and so on, and GDP growth for years (t+1 to t+5), (t+2 to t+6), ...

Past performance is no guarantee of future results. Real results may vary.

Figure 4: China's equity market return was much worse than those other key global equity markets

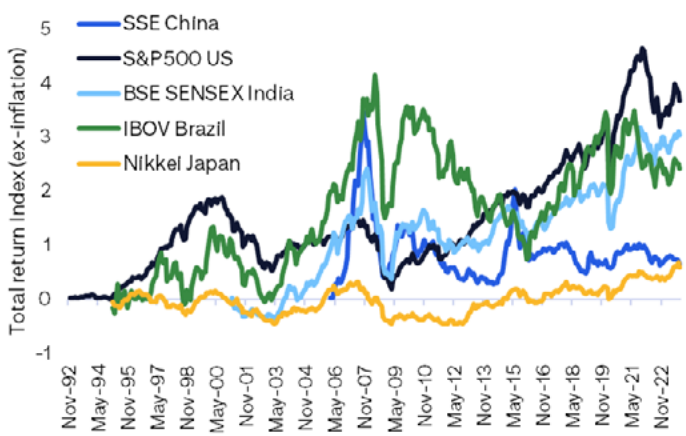
	Annulised return (Priced in USD)					
	3 years	5 years	7 years	10 years	15 years	20 years
S&P 500	10.3%	11.0%	12.2%	11.2%	12.5%	9.3%
NASDAQ	6.5%	13.0%	15.0%	13.8%	15.6%	11.1%
MSCI China Index	-16.8%	-2.5%	0.5%	1.2%	5.7%	7.5%
Japan TOPIX Index	1.9%	2.9%	4.1%	4.4%	5.8%	4.3%
S&P New York Home Price Index	11.7%	7.9%	6.7%	5.6%	2.8%	3.2%

Source: Bloomberg and Citi Private Bank, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees, or sales charges, which would lower performance.

Second, the Shanghai A share market has mostly underperformed Brazilian and Indian markets (**Figure 5**). While the SSE Index performed slightly better than Nikkei during the post-bubble Japan, it has started to lag the Japan market in recent years. While China's equity market can't match the stellar performance of some key markets, it still outdid the returns of the bank deposits, owing to severe financial repression in the banking market where interest rates are not fully liberalized (**Figure 6**). China's onshore equity market is often over-valued relative to the same equities listed in the offshore Hong Kong market, measured by the PE ratio (**Figure 7**). Historically, the average A over H share premium was at 24%, and the latest is over 49%, second highest since 2006.

Figure 5: Monthly return of stock indices among large economies



Source: Haver Analytics and Citi Private bank, as of 3 Jan 2024.

Figure 6: Stock market returns from 2006 to present comparing with bond returns and bank deposit returns

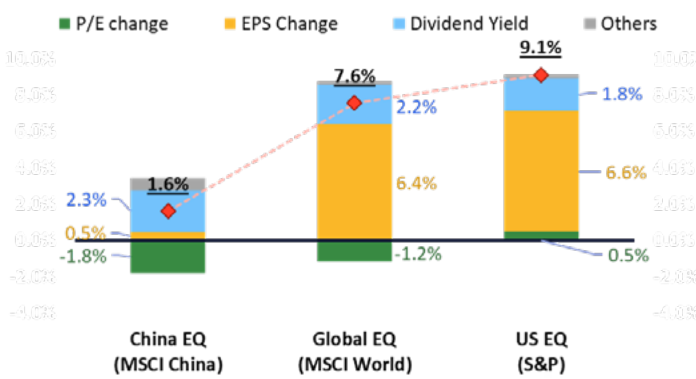
Source: ChinaBond, Haver Analytics and Citi Private bank, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance. Note: the return in **Figure 5** has been adjusted by inflation.

Figure 7: A/H PE premier

Source: Bloomberg, as of 3 Jan 2024.

Figure 8: Annualized return decomposition of Chinese, global and US equities (1997-2023)



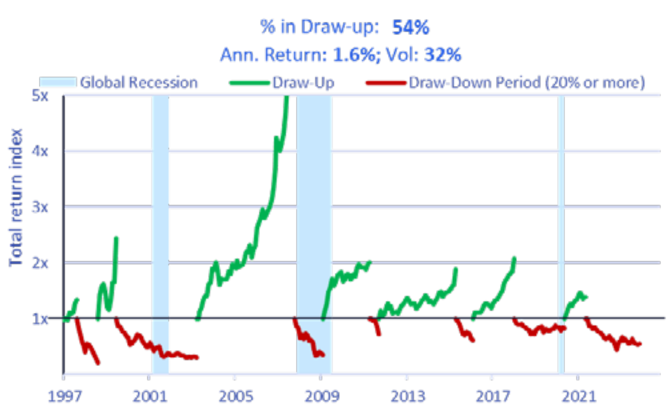
Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance. Note: the return in **Figure 5** has been adjusted by inflation.

Third, total return of Chinese equity is quite low relative to global and US equities (**Figure 8**). Since 1997, Chinese equity realized 1.6% annual return and 31% volatility[1], while US/Global equity realized 9.1%/7.6% return and 16% volatility. Academic research suggests long-term equity return is primarily contributed by three factors, namely earnings-per-share (EPS) growth, P/E multiple changes, and dividend yield. Under such methodology, China's underperformance to US was mainly driven by (i) **sub-par EPS growth** (0.5% vs 6.6%) from share dilution and (ii) P/E **multiples contraction** (-1.8% vs +0.5%) as long-term EPS expectation/profit margins declined; and (iii) relatively good **dividend returns** (2.3% vs. 1.8%).

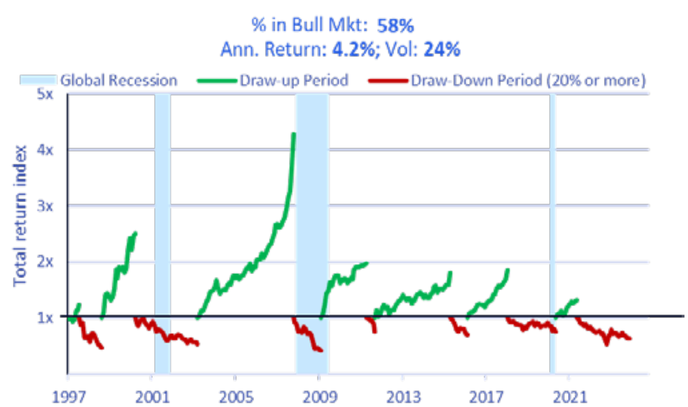
Fourth, a frequent bull/bear market transition means it is difficult to generate consistent medium-term returns[2]. A key determinant of a strategic allocation is consistency and risk-return characteristics over a medium-holding period *(e.g., a rolling 5-year period)*. Like certain emerging markets, Chinese market was in bull market state for only half of the time (54%), being in trading range characterized by frequent bull/bear transitions. Chinese equity's volatility and drawdown periods were almost double that of Global equity. These features suggest that the Chinese equities are more compatible to tactical opportunities in its performance behaviors. Even as a core and strategic investment, the weight China equities should be adjusted flexibly to shifting regulatory and macro conditions. In contrast, the Global/US markets possess positive return skews and consistency with more than 80% of the time in bull market, thus a core part of investors' strategic allocation (**Figure 9-12**).

Figure 9: China Equity (MSCI China, Total Return) cumulative returns in drawdown and draw-up periods



Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Figure 10: HK Equity (HSI Index, Total Return) cumulative returns in drawdown and draw-up periods



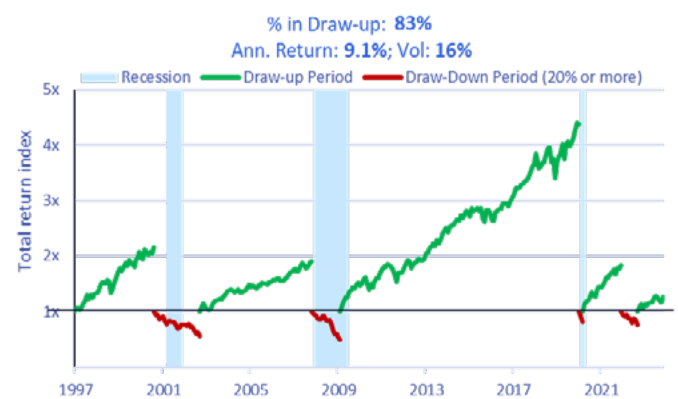
Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

1 Note that in **Figure 4**, the 20-year return is 7.5%, whereas the 25-year return is only 1.6%, suggesting the timing of investment is important in obtaining favorable returns. This is different from the features of the US and global equities where investment timing doesn't make much difference.

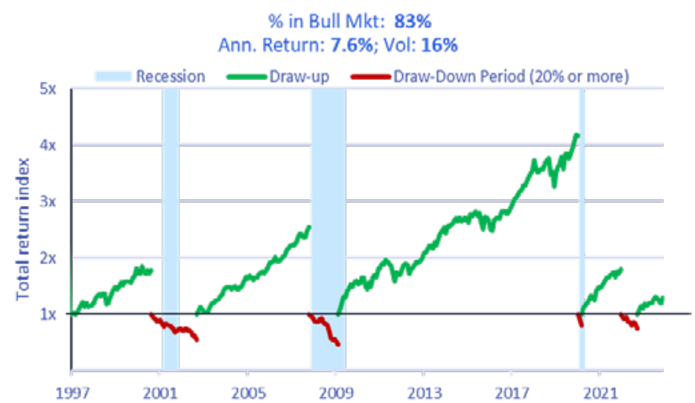
2 Bull/bear corresponds to draw-up and draw-down in charts 9-12. A "draw-down" period (in red) is defined by cumulative losses of over 20% from peak, while a "draw-up" period (in green) is defined by cumulative gains from trough until next draw-down periods.

Figure 11: US Equity (S&P 500, Total Return) cumulative returns in drawdown and draw-up periods



Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Figure 12: Global Equity (MSCI World, Total Return) cumulative returns in drawdown and draw-up periods



Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

What are the key factors that explain the Chinese equity underperformance?

There has been a growing number of studies[3] investigating the poor performance of Chinese equity market over the long term. These studies generally found that the existing equity market regulations have allowed large shareholders to dominate corporate governance decisions, leading to overinvestment, low investment efficiency, and low cash holdings. Inadequate regulatory enforcement also allowed many poor performing firms to stay listed without fear of being delisted. Additionally, a lack of institutional investors also doesn't facilitate active investor participation in corporate governance of listed firms. Among others, Allen, et al (2022)[2] are perhaps the most updated and authoritative analysts. Broadly speaking, China's equity market underperformance could be attributed to the following factors[4]:

1) Asymmetric requirement for IPO approval and delisting

Partly due to the difficulty in getting initial public offerings (IPO) approvals from regulators, companies tended to raise capital at the time financials demonstrated high growth prospects, while the financials performance subsequently tended to decline post-listing. Using Return-on-Asset (ROA) ratio as an indicator, Chinese firms listed onshore saw their ROA dropping by more than 50% after they were listed, contrary to those firms listed in the US markets and even those in the Indian market (**Figure 13**). Additionally, it is equally difficult to de-list firms from stock exchanges, as the number of firms in 'stop trading' (ST) status increased annually has gone up sharply to around 139 from around 20 in the early 2000s (**Figure 14**).

[3] Allen, Franklin, Qian, Jun, Shan, Chenyu, and Zhu, Lei (2023), "*Dissecting the Long-term Performance of the Chinese Stock Market*," Journal of Finance, ISSN: 0022-1082.
[4] This section was drawn from Allen et al (2023) and Liu, Jipeng, "Institutional factor in regulating China's equity market" 2 December, 2023 (in Chinese).

Figure 13: IPO ROA and the following years of ROA once being listed

	ROA before listing	ROA after listing
A share	13%	6%
US listed	4.9%	4.5%
India listed	12.1%	9.9%

Source: Dissecting the long-term performance of Chinese stock market, as of 3 Jan 2024.

Figure 14: The number of ST firms increased annually

Source: JREI, Bloomberg, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

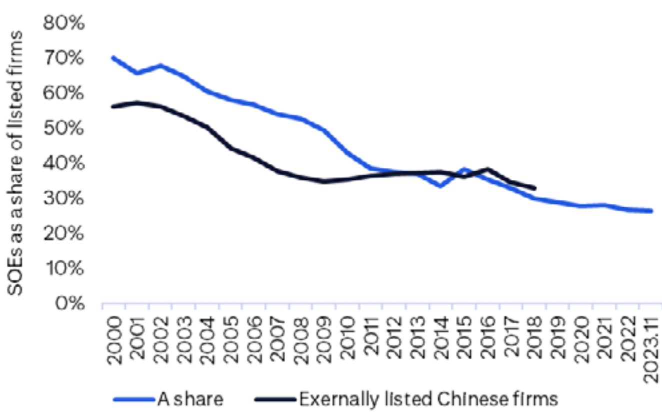
2) Corporate governance

One of the main objectives to re-establish China's equity market in the early 1990s was to help solve the over-indebtedness of State-Owned Enterprises (SOE). This is the reason SOEs often dominate the stock market in early days of the Chinese equity developments (**Figure 15**). With large and concentrated state share ownership, they continue to behave as non-listed ones in making corporate decisions. Based on four measurement criteria (ownership concentration, executive holdings, board size, and CEO duality), China's corporate governance index overall is lower than the global average, though those Hong Kong listed firms uphold higher corporate governance standards (**Figure 16**). In addition, studies show non-SOEs tend to have better corporate governance than SOEs, while smaller firms are better than large firms.

3) Over investment and low investment efficiency

One of the notable features of this overly concentrated ownership structure is that Chinese listed firms often engage in excessive investment, resulting in high level of debt and low level of cash (**Figure 17-18**). Even as the share of SOEs dropped to present 30%, this pattern hasn't change much. Certain privately listed firms also have concentrated, though connected shareholding structure (via relatives and others), to engage over investment. This is perhaps a way to dilute profitability and divert profits to large shares holders, often at the expense of the minority shareholders.

Figure 15: Number of SOEs as a share of listed firms



Source: China Association for Public Companies and Citi Private Bank, as of 3 Jan 2024.

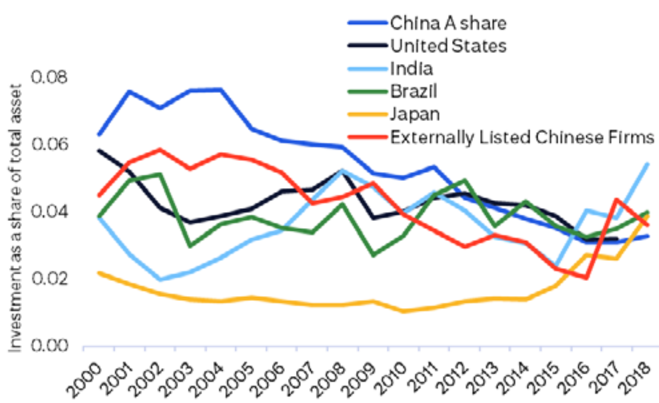
Figure 16: Institutional quality index measures

G-Index-I		
China A share	2.035	Considered: Ownership concentration, Executive holdings, Board size, CEO duality
Hong Kong	2.836	
US	2.355	
Other Countries	2.433	
G-Index-A		
China A share	2.671	Considered: Ownership concentration, Executive holdings, Board size, CEO duality, State ownership, Extent of insider 'tunneling'
Small	2.77	
Large	2.661	
SOE	2.211	
Non-SOE	2.91	

Source: Dissecting the Long-term Performance of the Chinese Stock Market and Citi Private Bank, as of 3 Jan 2024.

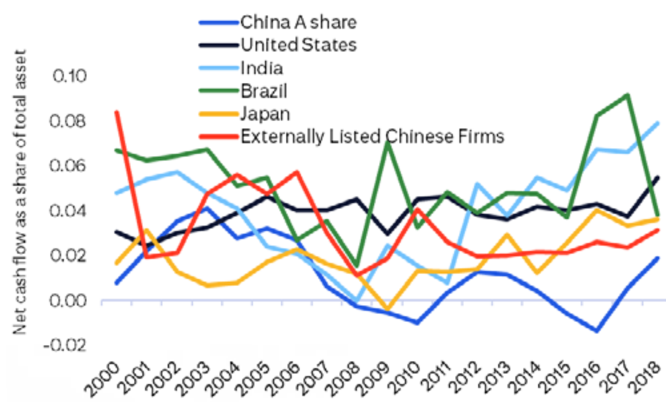
Past performance is no guarantee of future results. Real results may vary.

Figure 17: A share listed firms have higher level of investment compared to listed firms from other countries



Source: Dissecting the Long-term Performance of the Chinese Stock Market, as of 3 Jan 2024.

Figure 18: A share listed firms generate lower net cash flows



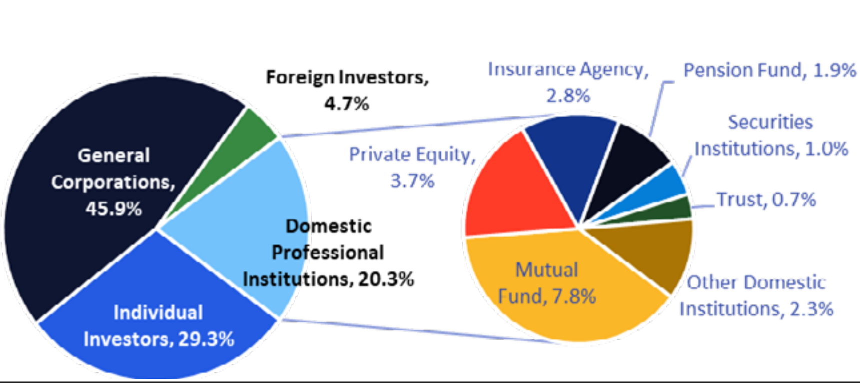
Source: Dissecting the Long-term Performance of the Chinese Stock Market, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

4) A lack of institutional investor culture

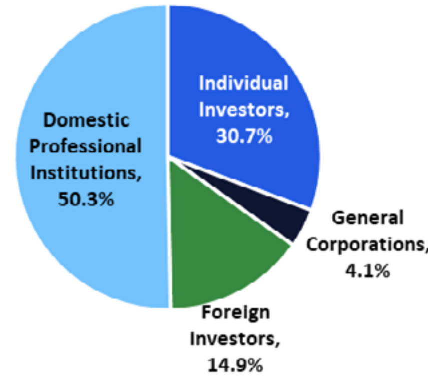
A lack of corporate governance culture might be attributable to insufficient institutional participation in China's equities market. As shown in **Figure 19-20**, general corporations and individual investors took a lion share of China's investor base, at 75.2%, while that of the US market is only 34.8%. With majority of shares primarily held in its own and retail investor hands, there is little pressure to improve corporate governance other than regulatory push. Meanwhile, the number of listed companies on China's stock exchanges over the last 30 years are as much as those listed in the US markets over more than 150 years history. With increasing firms under regulation and resource constrains devoted in enforcement, the market regulation on listed firms might come under challenges.

Figure 19: China A-share market investor structure



Source: Bloomberg, as of 3 Jan 2024.

Figure 20: US equity market investor structure



Source: Fed website, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary.

Implications for Asset Allocations

These features, together with those institutional deficiencies, suggest that China equities are more compatible to tactical investment opportunities beyond its strategic benchmark weights[5] until important regulatory reforms can be undertaken to support a structural bull market.

For those investors with large home bias already, our efficient-frontier analysis demonstrates the merits of diversifying towards a more globally based portfolio to enhance returns and hedge against regulatory caprice and the uncertainty left by a possibly prolonged property market drag to China's long-term growth, if Japan's balance-sheet recession (1990-2013) experiences offer any lessons.

Figure 21: Efficient Frontier: 60/40 Mix, with and without Home Bias (Trailing 10 Years)

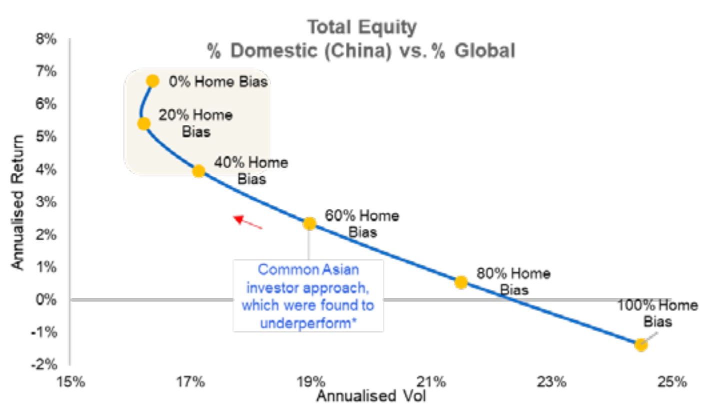


Figure 22: Strategic allocation of Global USD and Asia-Biased profiles

	Global USD		Asia-Biased	
	L3	L4	L3	L4
Bonds + Cash	40%	21%	44%	24%
Equities	40%	57%	36%	54%
China EQ	2%[5]	3%	9%[5]	13%
EM ex-China	4%	5%	6%	9%
DM EQ	35%	49%	22%	32%
Hedge Funds	10%	12%	10%	12%
Private Equity & Real Estate	10%	10%	10%	10%

Source: Citi Private Bank, Global Investment Lab, through to End-2023, based on Global USD and Asia-biased profiles of traditional + HFs + 10% PERE. Balanced Portfolio based on 40% in developed market bonds and 60% in equity mix, composed of varied allocation between Global equity (MSCI World) and China equity (MSCI China); net performance results reflect a deduction of 2.5% annual maximum fee that can be charged in connection with advisory services that covers advisory fees and transaction costs.

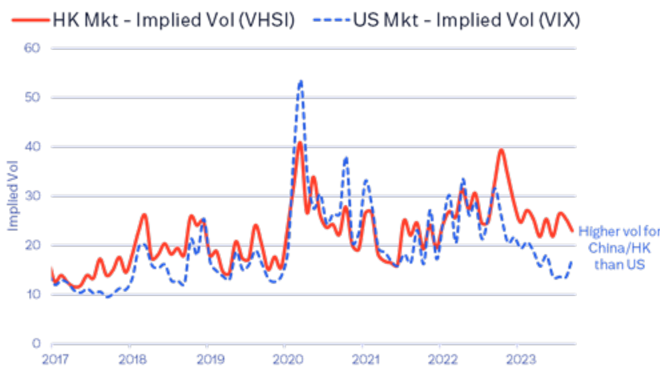
Past performance is no guarantee of future results. Real results may vary. *"Quantifying the Cost of Home Bias – A Japan Perspective" by MSCI Barra (2009).

[5] For a balanced objective (risk level-3), the strategic allocation to China equities is 2% (Global USD profile) and 9% (Asia-biased profile), respectively.

However, this doesn't mean China's equity should be excluded in global investors' asset allocation. Rather, we advocate for **more thoughtful and alpha-oriented participation** in China investments. For global investors, China is vested with its economic and market size, as well as leading positions in global supply chains and technology of the future (e.g., new energy, EV, batteries), which can't be ignored. After 5 years in bear market, the Chinese market valuation has become quite inexpensive (**Figure 23**). The overall market valuation has a discount of 54% relative to the US market valuation, implying a double-digit earnings yield. Some sectors such as financials, real estate, industrials even have a discount at a range of 62-76%. Meanwhile, we believe, its forward earning yield starts to look attractive relative to the US market. In addition, given the latest policy uncertainties, China's equity market volatilities have become larger than the US one, which may also offer trading-based opportunities, such as stock-selection alpha capture, sector/factor dispersions, range-trading, and volatility monetization activities.

Figure 23: But for global investors, we believe China/HK's equity market could present opportunity given it's already inexpensive relative to the US market.

As of 12/2023	China	Fwd P/E	PEG	Div Yield	US Fwd P/E	Dis-count to US
	Total Market	9.6	0.9	2.7%	20.7	-54%
Growth	Tech	17.9	1.1	1.3%	28.4	-37%
	Consumer Disc	13.7	0.8	0.9%	25.8	-47%
	Comm Services	13.2	1.4	1.0%	18.1	-27%
Value	Financials	4.0	0.7	7.1%	15.2	-73%
	Real Estate	9.2	0.4	4.7%	38.5	-76%
	Industrials	8.0	0.9	4.5%	21.4	-62%
	Energy	6.1	6.1	9.3%	10.9	-44%
	Materials	10.8	0.7	2.7%	20.5	-48%
Defensive	Healthcare	28.5	1.1	1.3%	19.0	N/A
	Consumer Staples	20.1	1.2	2.4%	19.5	3%
	Utilities	7.2	0.7	4.8%	16.2	-55%
	10Y Yield	2.6%			3.9%	
	Earning Yield	10.4%			4.8%	



Source: Bloomberg, Global Investment Lab and Citi Private Bank, as of 3 Jan 2024.

Past performance is no guarantee of future results. Real results may vary. All forecasts are expressions of opinion and are subject to change without notice, are not intended to be a guarantee of future events. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results. Real results may vary.

Chinese equities do present some tactical opportunities among its short policy cycles. MSCI China index is trading at just 8.8x forward earnings, about one standard deviation below historical mean (**Figure 24**). This is in the context of earnings estimates being revised down 10% in the past two years, while multiples contracted from 12x. This de-rating had taken Chinese equity valuations to just 45% that of the S&P 500 (**Figure 25**).

At some point, even Chinese equities can experience a reversion to mean. The question is what is the opportunity cost of waiting? As we noted in Outlook 2024, strategic return estimates for many asset classes have been lifted by the valuation reset we saw in 2022-23. We believe building a core portfolio, with appropriate allocation to China would be more productive for long term investors.

Figure 24: MSCI China forward PE is again more than 1 standard deviation below historical average

Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Figure 25: Chinese equity valuations are just 45% of the US

Source: Global Investment Lab and Bloomberg, as of 31 Dec 2023.

Past performance is no guarantee of future results. Real results may vary. All forecasts are expressions of opinion and are subject to change without notice, are not intended to be a guarantee of future events. 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. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results. Real results may vary.

Important Information

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 affiliates of Citigroup. Not all products and services are provided by all affiliates 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 Alternatives, 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 affiliated 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.

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.

None of the financial instruments or other products mentioned in this Communication (unless expressly stated otherwise) is (i) insured by the Federal Deposit Insurance Corporation or any other governmental authority, or (ii) deposits or other obligations of, or guaranteed by Citi or any other insured depository institution.

Citi often acts as an issuer of financial instruments and other products, acts as a market maker and trades as principal in many different financial instruments and other products, and can be expected to perform or seek to perform investment banking and other services for the issuer of such financial instruments or other products. The author of this Communication may have discussed the information contained therein with others within or outside Citi, and the author and/or such other Citi personnel may have already acted on the basis of this information (including by trading for Citi's proprietary accounts or communicating the information contained herein to other customers of Citi). Citi, Citi's personnel (including those with whom the author may have consulted in the preparation of this communication), and other customers of Citi may be long or short the financial instruments or other products referred to in this Communication, may have acquired such positions at prices and market conditions that are no longer available, and may have interests different from or adverse to your interests.

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.

Neither Citi nor any of its affiliates can accept responsibility for the tax treatment of any investment product, whether or not the investment is purchased by a trust or company administered by an affiliate of Citi. Citi assumes that, before making any commitment to invest, the investor and (where applicable, its beneficial owners) have taken whatever tax, legal or other advice the investor/beneficial owners consider necessary and have arranged to account for any tax lawfully due on the income or gains arising from any investment product provided by Citi.

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.

RISKS

Investments in financial instruments or other products carry significant risk, including the possible loss of the principal amount invested. Financial instruments or other products denominated in a foreign currency are subject to exchange rate fluctuations, which may have an adverse effect on the price or value of an investment in such products. This Communication does not purport to identify all risks or material considerations which may be associated with entering into any transaction.

Structured products can be highly illiquid and are not suitable for all investors. Additional information can be found in the disclosure documents of the issuer for each respective structured product described herein. Investing in structured products is intended only for experienced and sophisticated investors who are willing and able to bear the high economic risks of such an investment. Investors should carefully review and consider potential risks before investing.

OTC derivative transactions involve risk and are not suitable for all investors. Investment products are not insured, carry no bank or government guarantee, and may lose value. Before entering into these transactions, you should: (i) ensure that you have obtained and considered relevant information from independent reliable sources concerning the financial, economic and political conditions of the relevant markets; (ii) determine that you have the necessary knowledge, sophistication and experience in financial, business and investment matters to be able to evaluate the risks involved, and that you are financially able to bear such risks; and (iii) determine, having considered the foregoing points, that capital markets transactions are suitable and appropriate for your financial, tax, business and investment objectives.

This material may mention options regulated by the US Securities and Exchange Commission. Before buying or selling options you should obtain and review the current version of the Options Clearing Corporation booklet, Characteristics and Risks of Standardized Options. A copy of the booklet can be obtained upon request from Citigroup Global Markets Inc., 390 Greenwich Street, 3rd Floor, New York, NY 10013.

If you buy options, the maximum loss is the premium. If you sell put options, the risk is the entire notional below the strike. If you sell call options, the risk is unlimited. The actual profit or loss from any trade will depend on the price at which the trades are executed. The prices used herein are historical and may not be available when you order is entered. Commissions and other transaction costs are not considered in these examples. Option trades in general and these trades in particular may not be appropriate for every investor. Unless noted otherwise, the source of all graphs and tables in this report is Citi. Because of the importance of tax considerations to all option transactions, the investor considering options should consult with his/her tax advisor as to how their tax situation is affected by the outcome of contemplated options transactions.

Bonds are affected by a number of risks, including fluctuations in interest rates, credit risk and prepayment risk. In general, as prevailing interest rates rise, fixed income securities prices will fall. Bonds face credit risk if a decline in an issuer's credit rating, or creditworthiness, causes a bond's price to decline. High yield bonds are subject to additional risks such as increased risk of default and greater volatility because of the lower credit quality of the issues. Finally, bonds can be subject to prepayment risk. When interest rates fall, an issuer may choose to borrow money at a lower interest rate, while paying off its previously issued bonds. As a consequence, underlying bonds will lose the interest payments from the investment and will be forced to reinvest in a market where prevailing interest rates are lower than when the initial investment was made.

Bond rating equivalence

Alpha and/or numeric symbols used to give indications of relative credit quality. In the municipal market, these designations are published by the rating services. Internal ratings are also used by other market participants to indicate credit quality.

Bond credit quality ratings	Rating agencies		
Credit risk	**Moody's[1]**	**Standard and Poor's[2]**	**Fitch Ratings[2]**
Investment Grade			
Highest quality	Aaa	AAA	AAA
High quality (very strong)	Aa	AA	AA
Upper medium grade (Strong)	A	A	A
Medium grade	Baa	BBB	BBB
Not Investment Grade			
Lower medium grade (somewhat speculative)	Ba	BB	BB
Low grade (speculative)	B	B	B
Poor quality (may default)	Caa	CCC	CCC
Most speculative	Ca	CC	CC
No interest being paid or bankruptcy petition filed	C	D	C
In default	C	D	D

1 The ratings from Aa to Ca by Moody's may be modified by the addition of a 1, 2, or 3 to show relative standing within the category.
2 The ratings from AA to CC by Standard and Poor's and Fitch Ratings may be modified by the addition of a plus or a minus to show relative standing within the category.

(MLP's) - Energy Related MLPs May Exhibit High Volatility. While not historically very volatile, in certain market environments Energy Related MLPS may exhibit high volatility.

Changes in Regulatory or Tax Treatment of Energy Related MLPs. If the IRS changes the current tax treatment of the master limited partnerships included in the Basket of Energy Related MLPs thereby subjecting them to higher rates of taxation, or if other regulatory authorities enact regulations which negatively affect the ability of the master limited partnerships to generate income or distribute dividends to holders of common units, the return on the Notes, if any, could be dramatically reduced. Investment in a basket of Energy Related MLPs may expose the investor to concentration risk due to industry, geographical, political, and regulatory concentration.

Mortgage-backed securities ("MBS"), which include collateralized mortgage obligations ("CMOs"), also referred to as real estate mortgage investment conduits ("REMICs"), may not be suitable for all investors. There is the possibility of early return of principal due to mortgage prepayments, which can reduce expected yield and result in reinvestment risk. Conversely, return of principal may be slower than initial prepayment speed assumptions, extending the average life of the security up to its listed maturity date (also referred to as extension risk).

Additionally, the underlying collateral supporting non-Agency MBS may default on principal and interest payments. In certain cases, this could cause the income stream of the security to decline and result in loss of principal. Further, an insufficient level of credit support may result in a downgrade of a mortgage bond's credit rating and lead to a higher probability of principal loss and increased price volatility. Investments in subordinated MBS involve greater credit risk of default than the senior classes of the same issue. Default risk may be pronounced in cases where the MBS security is secured by, or evidencing an interest in, a relatively small or less diverse pool of underlying mortgage loans.

MBS are also sensitive to interest rate changes which can negatively impact the market value of the security. During times of heightened volatility, MBS can experience greater levels of illiquidity and larger price movements. Price volatility may also occur from other factors including, but not limited to, prepayments, future prepayment expectations, credit concerns, underlying collateral performance and technical changes in the market.

Alternative investments referenced in this report are speculative and entail significant risks that can include losses due to leveraging or other speculative investment practices, lack of liquidity, volatility of returns, restrictions on transferring interests in the fund, potential lack of diversification, absence of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than mutual funds and advisor risk.

Asset allocation does not assure a profit or protect against a loss in declining financial markets.

The indexes 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. Index returns do not include any expenses, fees or sales charges, which would lower performance.

Past performance is no guarantee of future results.

International investing entails greater risk, as well as greater potential rewards compared to US investing. These risks include political and economic uncertainties of foreign countries as well as the risk of currency fluctuations. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economics.

Investing in smaller companies involves greater risks not associated with investing in more established companies, such as business risk, significant stock price fluctuations and illiquidity.

Factors affecting commodities generally, index components composed of futures contracts on nickel or copper, which are industrial metals, may be subject to a number of additional factors specific to industrial metals that might cause price volatility. These include changes in the level of industrial activity using industrial metals (including the availability of substitutes such as manmade or synthetic substitutes); disruptions in the supply chain, from mining to storage to smelting or refining; adjustments to inventory; variations in production costs, including storage, labor and energy costs; costs associated with regulatory compliance, including environmental regulations; and changes in industrial, government and consumer demand, both in individual consuming nations and internationally. Index components concentrated in futures contracts on agricultural products, including grains, may be subject to a number of additional factors specific to agricultural products that might cause price volatility. These include weather conditions, including floods, drought and freezing conditions; changes in government policies; planting decisions; and changes in demand for agricultural products, both with end users and as inputs into various industries.

The information contained herein is not intended to be an exhaustive discussion of the strategies or concepts mentioned herein or tax or legal advice. Readers interested in the strategies or concepts should consult their tax, legal, or other advisors, as appropriate.

Diversification does not guarantee a profit or protect against loss. Different asset classes present different risks.

COUNTRY DISCLOSURES

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 2023/588).

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.

Citi may offer, issue, distribute or provide other services in relation to certain unsecured financial instruments issued or entered into by BRRD Entities (i.e., EU entities within the scope of Directive 2014/59/EU (the BRRD), including EU credit institutions, certain EU investment firms and / or their EU subsidiaries or parents) (BRRD Financial Instruments).

In various jurisdictions (including, without limitation, the European Union and the United States) national authorities have certain powers to manage and resolve banks, broker dealers and other financial institutions (including, but not limited to, Citi) when they are failing or likely to fail. There is a risk that the use, or anticipated use, of such powers, or the manner in which they are exercised, may materially adversely affect (i) your rights under certain types of unsecured financial instruments (including, without limitation, BRRD Financial Instruments), (ii) the value, volatility or liquidity of certain unsecured financial instruments (including, without limitation, BRRD Financial Instruments) that you hold and / or (iii) the ability of an institution (including, without limitation, a BRRD Entity) to satisfy any liabilities or obligations it has to you. In the event of resolution, the value of BRRD Financial Instruments may be reduced to zero and or liabilities may be converted into ordinary shares or other instruments of ownership for the purposes of stabilisation and loss absorption. The terms of existing BRRD Financial Instruments (e.g., date of maturity or interest rates payable) could be altered and payments could be suspended.

There can be no assurance that the use of any BRRD resolution tools or powers by the BRRD Resolution Authority or the manner in which they are exercised will not materially adversely affect your rights as a holder of BRRD Financial Instruments, the market value of any investment you may have in BRRD Financial Instruments and/or a BRRD Entity's ability to satisfy any liabilities or obligations it has to you. You may have a right to compensation from the relevant authorities if the exercise of such resolution powers results in less favourable treatment for you than the treatment that you would have received under normal insolvency proceedings. By accepting any services from Citi, you confirm that you are aware of these risks.

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 Canadian Investment Regulatory Organization ("CIRO"); consequently, clients of CCIFL will not have available to them investor protection benefits that would otherwise derive from membership of CCIFL in the CIRO, including coverage under any investor protection plan for clients of members of the CIRO.

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).

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.

MARKET SPECIFIC DISCLOSURES

Hong Kong: This 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.

CHKL 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.

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.