



BNP PARIBAS

The bank
for a changing
world

BNP PARIBAS PRIME SERVICES

Marlin Naidoo

Global Head of Capital Introduction

Lloyd Mendonca

Capital Introduction, Asia Pacific

Murray Jallands

Capital Introduction, Europe

CAPITAL INTRODUCTION | JANUARY 2025

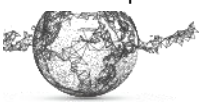
DECEMBER 2024 HEDGE FUND PERFORMANCE UPDATE

- Hedge funds were up on an average **0.31%** in December outperforming MSCI World which was down **-2.57%** and Bloomberg GlobalAgg index which was down **-2.15%**. BB Global EQ:FI Index was down **-2.41%**
- YTD hedge funds are up **10.19%** underperforming MSCI world which was up **19.22%** and outperforming the Bloomberg GlobalAgg index which was down **-1.69%**. BB Global EQ:FI 60:40 Index was up **10.55%**.
- Top quartile managers were up **1.24%** for the month and **14.17%** YTD.
- Multi Manager and Quant Multi Strategy was the best performer for the month up **1.20%** and **1.12%** respectively, while Quant Equity Directional was the worst, down **-0.56%**.
- Quant Equity Directional and Statistical Arbitrage are the best performers YTD, up **19.14%** and **17.09%**, respectively.

Strategy		December 2024 %	YTD 2024 %
Quantitative	Quant Equity	0.12%	14.68%
	Quant Equity Directional	-0.56%	19.14%
	Quant Equity Market Neutral	0.49%	13.40%
	Statistical Arbitrage	0.46%	17.09%
	Quant Macro	0.77%	7.65%
	Quant Multi Strategy	1.12%	13.87%
	CTA	0.81%	3.58%
	Alternative Risk Premia	0.44%	7.03%
Discretionary	Equity L/S	-0.13%	11.99%
	Directional	-0.32%	12.91%
	Market Neutral / Low Net	0.53%	8.07%
	Credit	0.50%	10.03%
	Event Driven	0.29%	8.16%
	Convertible Trading	0.19%	11.00%
	Volatility Trading	0.05%	4.08%
	Macro	0.87%	9.53%
	Multi Strategy	0.90%	11.06%
	Multi-PM	1.20%	10.14%
All Funds		0.31%	10.19%
Strategy		December 2024 %	YTD 2024 %
Regional Equity	Global	-0.86%	12.04%
	Americas	-1.25%	16.72%
	Europe	-0.03%	7.69%
	Asia Pacific	2.16%	14.73%
Regional Credit	Global	0.56%	9.70%
	Americas	0.26%	6.94%
	Europe	0.52%	9.61%
	Asia Pacific	0.21%	11.67%

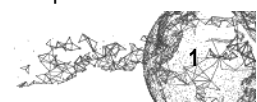
Source: BNP Paribas Capital Introduction. The tables represents 788 total data points. * indicates not enough data reported to calculate the average.

Such data is derived generally from performance updates from hedge funds, conversations with industry practitioners and various news sources. The returns represented above will likely change as we gather more data over the month. Please refer to the latest performance report for updated numbers.



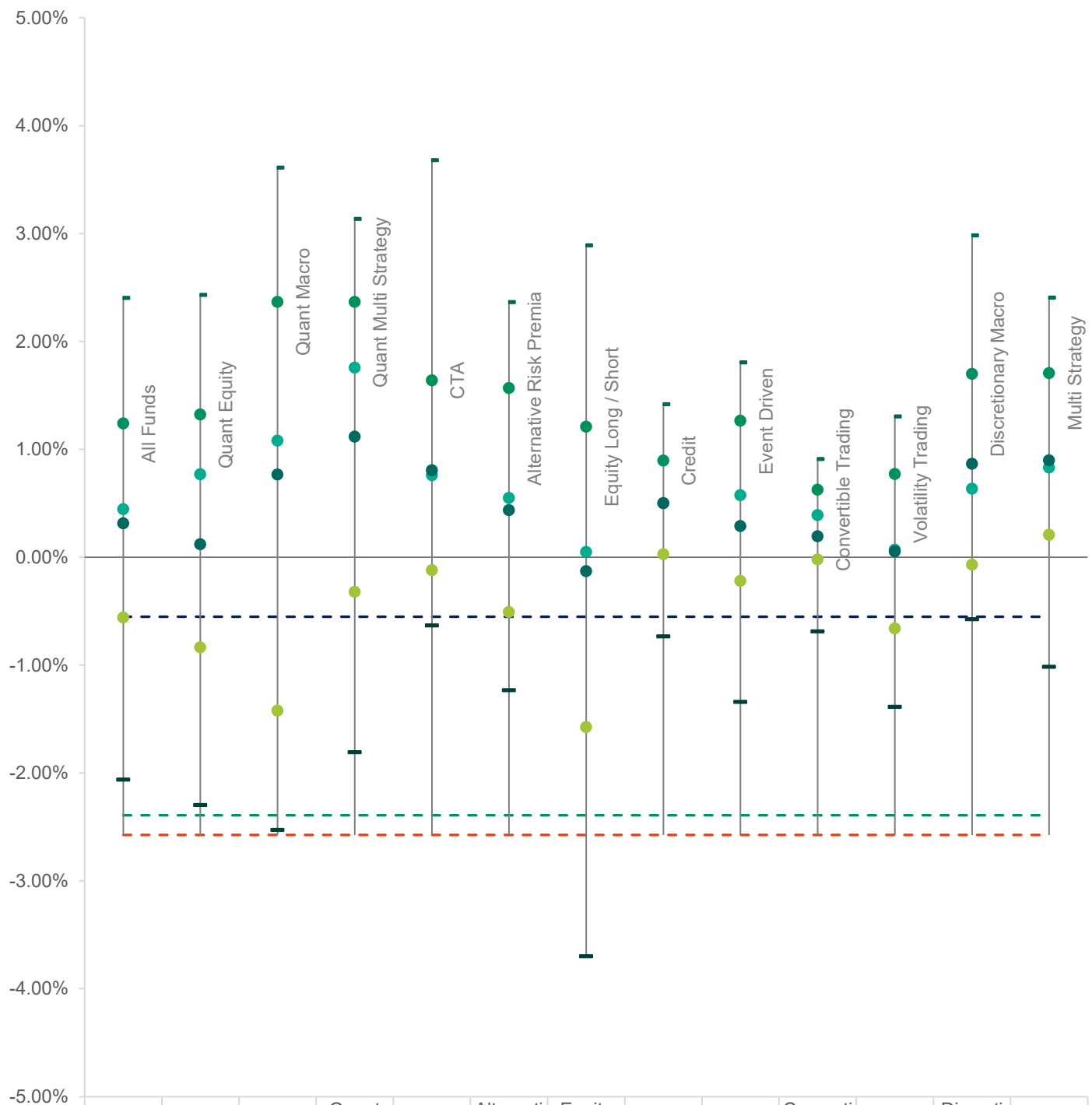
Learn more
ABOUT GLOBAL MARKETS

<https://globalmarkets.cib.bnpparibas/>





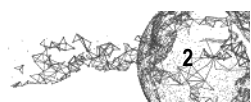
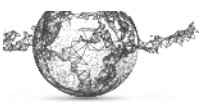
DECEMBER 2024 PERFORMANCE DISPERSION



	All Funds	Quant Equity	Quant Macro	Quant Multi Strategy	CTA	Alternative Risk Premia	Equity Long / Short	Credit	Event Driven	Convertible Trading	Volatility Trading	Discretionary Macro	Multi Strategy
90th	2.40%	2.43%	3.61%	3.14%	3.68%	2.36%	2.89%	1.42%	1.81%	0.91%	1.30%	2.98%	2.40%
75th	1.24%	1.32%	2.37%	2.37%	1.64%	1.57%	1.21%	0.90%	1.27%	0.63%	0.77%	1.70%	1.71%
Median	0.44%	0.77%	1.08%	1.76%	0.76%	0.55%	0.05%	0.50%	0.58%	0.39%	0.07%	0.64%	0.83%
Average	0.31%	0.12%	0.77%	1.12%	0.81%	0.44%	-0.13%	0.50%	0.29%	0.19%	0.05%	0.87%	0.90%
25th	-0.56%	-0.83%	-1.42%	-0.32%	-0.12%	-0.51%	-1.57%	0.03%	-0.22%	-0.02%	-0.66%	-0.07%	0.21%
10th	-2.06%	-2.30%	-2.53%	-1.81%	-0.63%	-1.23%	-3.70%	-0.74%	-1.34%	-0.69%	-1.39%	-0.58%	-1.02%
SPX	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%	-2.39%
MSCI World	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%	-2.57%
BB HY	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%	-0.55%

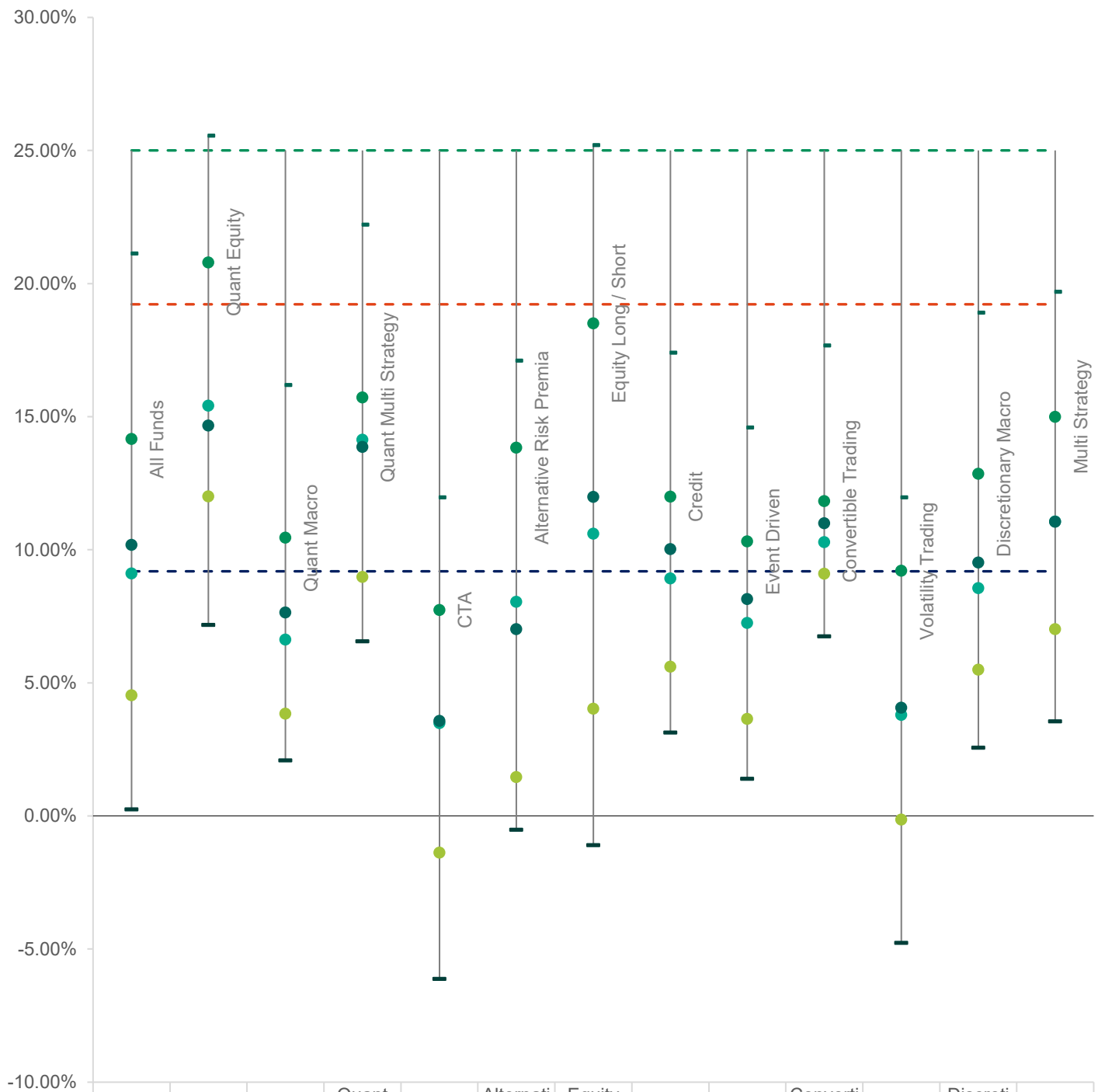
90th 75th Median Average 25th 10th SPX MSCI World BB HY

Source: BNP Paribas Capital Introduction. The tables represents 788 total data points. * indicates not enough data reported to calculate the average.





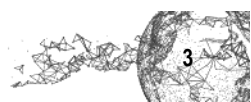
YTD 2024 PERFORMANCE DISPERSION



	All Funds	Quant Equity	Quant Macro	Quant Multi Strategy	CTA	Alternative Risk Premia	Equity Long / Short	Credit	Event Driven	Convertible Trading	Volatility Trading	Discretionary Macro	Multi Strategy
90th	21.14%	25.57%	16.20%	22.22%	11.97%	17.11%	25.21%	17.41%	14.60%	17.68%	11.97%	18.91%	19.70%
75th	14.17%	20.80%	10.46%	15.73%	7.74%	13.85%	18.51%	12.00%	10.32%	11.84%	9.22%	12.86%	15.00%
Median	9.11%	15.42%	6.63%	14.14%	3.49%	8.05%	10.61%	8.92%	7.26%	10.29%	3.80%	8.56%	11.07%
Average	10.19%	14.68%	7.65%	13.87%	3.58%	7.03%	11.99%	10.03%	8.16%	11.00%	4.08%	9.53%	11.06%
25th	4.54%	12.01%	3.85%	8.99%	-1.37%	1.47%	4.04%	5.61%	3.65%	9.11%	-0.13%	5.50%	7.02%
10th	0.25%	7.18%	2.10%	6.56%	-6.12%	-0.51%	-1.09%	3.13%	1.40%	6.75%	-4.76%	2.57%	3.56%
SPX	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
MSCI World	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%	19.22%
BB HY	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%	9.19%

90th 75th Median Average 25th 10th SPX MSCI World BB HY

Source: BNP Paribas Capital Introduction. The tables represents 788 total data points. * indicates not enough data reported to calculate the average.





2024 MONTHLY FUND WEIGHTED PERFORMANCE BY STRATEGY

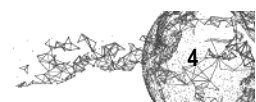
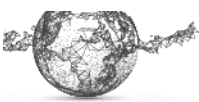
Strategy	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	June 2024	July 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	YTD
Quant Equity	3.37%	0.96%	2.38%	0.27%	0.95%	1.65%	1.07%	1.19%	0.59%	-0.38%	1.66%	0.12%	14.68%
Quant Macro	2.13%	2.45%	3.03%	0.11%	-1.27%	-0.19%	0.03%	-1.63%	1.73%	-1.45%	1.83%	0.77%	7.65%
Quant Multi Strategy	2.64%	2.41%	3.06%	0.06%	0.30%	1.94%	-0.44%	0.78%	0.06%	-0.90%	2.13%	1.12%	13.87%
CTA	1.22%	3.53%	2.44%	1.20%	-0.81%	-1.65%	-1.81%	-1.91%	0.94%	-2.13%	1.90%	0.81%	3.58%
Alt Risk Premia	2.32%	0.68%	2.18%	-0.31%	0.53%	0.26%	0.69%	-0.91%	0.19%	-0.31%	1.10%	0.44%	7.03%
Equity Long / Short	0.96%	2.55%	1.92%	-0.37%	1.62%	0.72%	0.50%	0.60%	1.65%	-0.13%	1.53%	-0.13%	11.99%
Credit	1.10%	0.85%	0.83%	0.36%	1.07%	0.56%	1.16%	0.73%	1.08%	0.58%	0.79%	0.50%	10.03%
Event Driven	-0.13%	0.79%	1.84%	-0.68%	1.59%	0.27%	2.15%	0.34%	1.08%	-0.95%	1.34%	0.29%	8.16%
Convertible Trading	0.72%	1.11%	1.46%	-0.28%	0.79%	0.74%	0.79%	1.10%	2.03%	0.69%	1.16%	0.19%	11.00%
Volatility Trading	0.38%	0.15%	0.53%	0.17%	0.67%	0.50%	0.21%	0.06%	0.31%	0.39%	0.60%	0.05%	4.08%
Discretionary Macro	0.62%	0.60%	1.38%	0.73%	0.57%	0.04%	0.72%	0.02%	1.33%	0.55%	1.72%	0.87%	9.53%
Multi Strategy	1.13%	1.11%	1.56%	0.58%	0.91%	0.64%	0.25%	0.42%	1.13%	0.64%	1.27%	0.90%	11.06%
All Funds	1.08%	1.58%	1.70%	0.05%	1.03%	0.51%	0.66%	0.36%	1.22%	-0.10%	1.36%	0.31%	10.19%

Source: BNP Paribas Capital Introduction.

2024 INDEX MONTHLY PERFORMANCE

Strategy	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	June 2024	July 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	YTD
MSCI World	1.23%	4.28%	3.28%	-3.67%	4.53%	2.07%	1.79%	2.68%	1.88%	-1.96%	4.63%	-2.57%	19.22%
S&P 500	1.68%	5.34%	3.22%	-4.08%	4.96%	3.59%	1.22%	2.43%	2.14%	-0.92%	5.87%	-2.39%	25.00%
STOXX 600	1.49%	2.00%	4.18%	-0.80%	3.54%	-1.13%	1.43%	1.57%	-0.32%	-3.22%	1.15%	-0.43%	9.62%
MSCI Asia Pacific	-1.67%	4.01%	2.89%	-1.43%	1.72%	2.39%	2.03%	1.76%	5.20%	-4.56%	-1.31%	-0.86%	10.16%
Nikkei 225	8.44%	8.00%	3.80%	-4.86%	0.21%	2.95%	-1.21%	-1.09%	-1.23%	3.06%	-2.23%	4.52%	21.28%
MSCI China	-10.51%	8.55%	0.92%	6.53%	2.43%	-2.05%	-1.16%	0.86%	23.41%	-5.83%	-4.34%	2.52%	19.04%
Nifty 50	0.02%	1.33%	1.57%	1.24%	0.03%	6.80%	4.01%	1.38%	2.28%	-6.12%	-0.20%	-2.02%	10.23%
BB Global/Agg Index	-1.38%	-1.26%	0.55%	-2.52%	1.31%	0.14%	2.76%	2.37%	1.70%	-3.35%	0.34%	-2.15%	-1.69%
BB Global High Yield	-0.19%	0.79%	1.51%	-0.84%	1.49%	0.40%	1.96%	2.17%	1.95%	-0.63%	0.82%	-0.55%	9.19%
BB Global EQ:FI 60:40	0.17%	2.13%	2.17%	-3.23%	3.25%	1.31%	2.17%	2.57%	1.78%	-2.48%	2.93%	-2.41%	10.55%

Source: Bloomberg





YEARLY FUND WEIGHTED STRATEGY PERFORMANCE

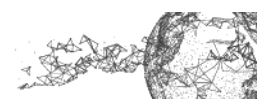
Strategy	2024	2023	2022	2021	2020
Quant Equity	14.68%	11.06%	4.08%	13.72%	-0.74%
Quant Macro	7.65%	2.38%	5.17%	3.92%	2.07%
Quant Multi Strategy	13.87%	12.25%	11.47%	12.12%	2.28%
CTA	3.58%	-0.72%	14.44%	7.50%	5.95%
Alt Risk Premia	7.03%	7.17%	5.68%	10.51%	-6.67%
Equity Long / Short	11.99%	8.43%	-3.58%	10.78%	17.43%
Credit	10.03%	8.58%	-1.74%	8.78%	10.03%
Event Driven	8.16%	10.07%	-1.91%	12.34%	11.71%
Convertible Trading	11.00%	6.71%	-2.59%	8.12%	21.65%
Volatility Trading	4.08%	3.40%	7.57%	4.12%	17.27%
Discretionary Macro	9.53%	4.17%	7.77%	3.63%	11.83%
Multi Strategy	11.06%	7.32%	4.23%	8.75%	16.45%
All funds	10.19%	7.56%	0.92%	9.53%	9.49%

Source: BNP Paribas Capital Introduction.

YEARLY INDEX PERFORMANCE

Strategy	2024	2023	2022	2021	2020
MSCI World	19.22%	24.44%	-17.71%	22.38%	16.53%
S&P 500	25.00%	26.26%	-18.13%	28.68%	18.39%
STOXX 600	9.62%	16.63%	-9.88%	25.82%	-1.44%
MSCI Asia Pacific	10.14%	11.97%	-16.80%	-1.11%	20.08%
Nikkei 225	21.27%	31.01%	-7.35%	6.66%	18.24%
MSCI China	19.04%	-11.01%	-21.72%	-21.23%	29.02%
Nifty 50	10.23%	21.88%	5.79%	25.74%	16.58%
BB GlobalAgg Index	-1.69%	5.72%	-16.25%	-4.71%	9.20%
BB Global High Yield	9.19%	14.04%	-12.70%	0.99%	7.03%
BB Global EQ:FI 60:40	10.55%	16.67%	-17.02%	10.78%	14.08%

Source: Bloomberg

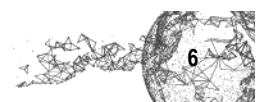
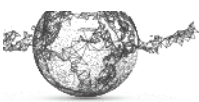


**DISCLAIMER****Disclaimer for EMEA**

Legal Notice: This document is for discussion purposes only. It is not a recommendation to engage in any action, does not constitute or form any part of any offer, nor shall it or any part of it be relied on in connection with any contract or investment decision. None of BNP Paribas, its members, directors, officers, agents or employees accepts any responsibility or liability in respect of the contents of this document and it should not be used in place of professional advice. BNP Paribas offers no investment, financial, legal, tax or any other type of advice to, and has no fiduciary duty towards, recipients and makes no representation and gives no warranty as to any investment, strategy or transaction, described herein. This document/communication may contain "research" as defined in MiFID II. This document is being communicated by BNP Paribas and in the UK by BNP Paribas London Branch. BNP Paribas is incorporated in France with Limited Liability. Registered Office: 16 boulevard des Italiens, 75009 Paris, France. 662 042 449 RCS Paris. BNP Paribas is authorised and regulated by the European Central Bank and the Autorité de contrôle prudentiel et de résolution. Deemed Authorised by the Prudential Regulation Authority and with deemed variation of permission. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details of the Temporary Permissions Regime, which allows EEA-based firms to operate in the UK for a limited period while seeking full authorisation, are available on the Financial Conduct Authority's website. BNP Paribas London Branch is registered in England and Wales under number FC13447. Registered office in the UK: 10 Harewood Avenue, London NW1 6AA; tel: +44 (0)20 7595 2000; fax: +44 (0)20 7595 2555 (www.bnpparibas.com). © BNP Paribas 2021. All rights reserved.

Disclaimer for U.S. and Canada

Legal Notice: This document is CONFIDENTIAL AND FOR DISCUSSION PURPOSES ONLY; it constitutes a marketing communication and has been prepared by a Sales and Marketing function within BNP Paribas and/or its subsidiaries or affiliates (collectively "we" or "BNP Paribas"). As a confidential document it is submitted to selected recipients only and it may not be made available (in whole or in part) to any other person without BNP Paribas' written consent. This document is not a recommendation to engage in any action, does not constitute or form any part of any offer to sell or issue and is not a solicitation of any offer to purchase any financial instrument, nor shall it or any part of it nor the fact of its distribution form the basis of, or be relied on in connection with, any contract or investment decision. To the extent that any transaction is subsequently entered into between the recipient and BNP Paribas, such transaction will be entered into upon such terms as may be agreed by the parties in the relevant documentation. This document is not a solicitation, offer or an indication of the creation or formation of a partnership, joint venture or other business or fiduciary relationship of any kind. The information contained in this document has been obtained from sources believed to be reliable, but there is no guarantee of the accuracy, completeness or suitability for any particular purpose of such information or that such information has been independently verified by BNP Paribas or by any person. None of BNP Paribas, its members, directors, officers, agents or employees accepts any responsibility or liability whatsoever or makes any representation or warranty, express or implied, as to the accuracy or completeness of the information, or any opinions based thereon, contained in this document and it should not be used in place of professional advice. Additional information may be provided on request, at our discretion. Any scenarios, assumptions, historical or simulated performances, indicative prices or examples of potential transactions or returns are included for illustrative purposes only. Past performance is not indicative of future results. Investors may get back less than they invested. BNP Paribas gives no assurance that any favourable scenarios described are likely to happen, that it is possible to trade on the terms described herein or that any potential returns illustrated can be achieved. This document is current as at the date of its production and BNP Paribas is under no obligation to update or keep current the information herein. In providing this document, BNP Paribas offers no investment, financial, legal, tax or any other type of advice to, and has no fiduciary duty towards, recipients. Certain strategies and/or potential transactions discussed in this document may involve the use of derivatives which may be complex in nature and may give rise to substantial risks, including the risk of total or partial loss of any investment or losses without limitation and which should only be undertaken by those with the requisite knowledge and experience. BNP Paribas makes no representation and gives no warranty as to the results to be obtained from any investment, strategy or transaction, or as to whether any strategy, security or transaction described herein may be suitable for recipients' financial needs, circumstances or requirements. Recipients must make their own assessment of strategies, securities and/or potential transactions detailed herein, using such professional advisors as they deem appropriate. BNP Paribas accepts no liability for any direct or consequential losses arising from any action taken in connection with or reliance on the information contained in this document even where advised of the possibility of such losses. As an investment bank with a wide range of activities, BNP Paribas may face conflicts of interest and you should be aware that BNP Paribas and/or any of its affiliates may be long or short, for their own account or as agent, in investments, transactions or strategies referred to in this document or related products before the material is published to clients and that it may engage in transactions in a manner inconsistent with the views expressed in this document, either for their own account or for the account of their clients. Additionally, BNP Paribas may have acted as an investment banker or may have provided significant advice or investment services to companies or in relation to investments mentioned in this document. The information in this document is not intended for distribution to, or use by, any person or entity in any jurisdiction where (a) the distribution or use of such information would be contrary to law or regulations, or (b) BNP Paribas or a BNP Paribas affiliate would become subject to new or additional legal or regulatory requirements. Persons in possession of this document should inform themselves about possible legal restrictions and observe them accordingly. Each fiduciary of a pension, profit-sharing or other employee benefit plan subject to the Employee Retirement Income Security Act of 1974, as amended ("ERISA") (a "Plan"), should consider the fiduciary standards of ERISA in the context of the Plan's particular circumstances before authorizing any investment. Accordingly, among other factors, the fiduciary should consider whether an investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the Plan. The U.S. Department of Labor has issued five prohibited transaction class exemptions ("PTCEs") that may provide exemptive relief for direct or indirect prohibited transactions resulting from the purchase or holding of financial products. Those class exemptions are PTCE 96-23 (for certain transactions determined by in-house asset managers), PTCE 95-60 (for certain transactions involving insurance company general accounts), PTCE 91-38 (for certain transactions involving bank collective investment funds), PTCE 90-1 (for certain transactions involving insurance company separate accounts) and PTCE 84-14 (for certain transactions determined by independent qualified professional asset managers). Due to the complexity of these rules and the penalties that may be imposed upon persons involved in non-exempt prohibited transactions, it is particularly important that fiduciaries or other persons considering purchases on behalf of or with "plan assets" of any Plan consult with their counsel regarding the availability of exemptive relief. The information in this document is not intended for distribution to, or use by, any person or entity in any jurisdiction where (a) the distribution or use of such information would be contrary to law or regulations, or (b) BNP Paribas or a BNP Paribas affiliate would become subject to new or additional legal or regulatory requirements. This document is intended only for those defined under U.S. securities laws as "institutional investors" and/or "major institutional investors". Securities transactions with BNP Paribas that result from the provision of this document will be effected by or through BNP Paribas Securities Corp., a U.S. registered broker-dealer and member of FINRA, the New York Stock Exchange and other principal exchanges. © BNP Paribas 2021. All rights reserved. BNP Paribas Securities Corp., an affiliate of BNP Paribas, is a U.S. registered broker-dealer and a member of FINRA, the NYSE and other principal exchanges. Securities products offered by BNP Paribas Securities Corp. are not FDIC insured, are not bank deposits or bank guaranteed, and are subject to investment risk, including possible loss of the principal invested. This particular section applies to recipients who are located within or otherwise represent or are connected to and doing business within Canada. In the event of a direct conflict or inconsistency between the above and this section, this section will prevail to supplement the above as it applies to Canada, and shall be interpreted to supplement and not restrict the application of the above to the fullest extent possible. BNP Paribas is incorporated in France with limited liability (Registered Office: 16 boulevard des Italiens, 75009 Paris, France, 662 042 449 RCS Paris) and is established in various jurisdictions. It operates in Canada as a Schedule III Bank (under the Bank Act (Canada)), and equally under an International Dealer Exemption as applicable in various Canadian provinces. In Canada it has a Quebec office located at 2001, Robert-Bourassa Blvd, Montreal, Qc, H3A 2A6, and an Ontario office located at 155 Wellington Street West, Suite 3110, Toronto, Ontario, M5V 3H1, Canada. For recipients located in Québec, upon receipt of this document, each recipient hereby confirms that it has expressly requested that it be drawn up in the English language only. Pour les résidents du Québec, par la réception de ce document, chaque destinataire confirme par les présentes qu'il a expressément exigé que celui-ci soit rédigé en anglais seulement. BNP Paribas Securities Corp. (the "Company") relies on the International Dealer Exemption pursuant to National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations in Canada. To the extent that you have an account with the Company or deal with representatives of the Company, please note that: 1) the Company is not registered in Canada to trade in securities; 2) the Company's jurisdiction of residence is the United States of America; 3) all or substantially all of the assets of the Company may be situated outside of Canada; 4) there may be difficulty enforcing legal rights against the Company because of the above; and; 5) the names and addresses of the Company's agents for service of process in the local jurisdictions may be obtained upon request. This presentation has been prepared by BNP PARIBAS for informational purposes only. Although the information contained in this presentation has been obtained from sources which BNP PARIBAS believes to be reliable, it has not been independently verified and no representation or warranty, express or implied, is made and no responsibility is or will be accepted by BNP PARIBAS as to or in relation to the accuracy, reliability or completeness of any such information. Opinions expressed herein reflect the judgement of BNP PARIBAS as of the date of this presentation and may be subject to change without notice if BNP PARIBAS becomes aware of any information, whether specific or general, which may have a material impact on any such opinions. BNP PARIBAS will not be responsible for any consequences resulting from the use of this presentation as well as the reliance upon any opinion or statement contained herein or for any omission. This presentation is confidential and may not be reproduced (in whole or in part) nor summarized or distributed without the prior written permission of BNP PARIBAS.

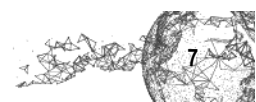
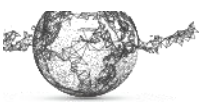




DISCLAIMER

Disclaimer for Asia-Pacific

Legal Notice: This communication may contain "Research" as defined under MiFID II unbundling rules; any such Research is intended either (i) for those firms who are in scope of the MiFID II unbundling rules and have signed up to a BNP Paribas Global Markets Research package, or (ii) for firms that are out of scope of the MiFID II unbundling rules and therefore are not required to pay for Research under MiFID II. Please note that it is your firm's responsibility to ensure that you do not view or use any Research in this communication if your firm has not signed up to a BNP Paribas Global Markets Research package, unless your firm is out of scope of the MiFID II unbundling rules. Please note that MiFID II also imposes rules regarding receipt of monetary and minor non-monetary benefits under the broader inducements regime. This communication may also be regarded as a minor non-monetary benefit (MNMB) and it is your firm's responsibility to consider its own regulatory obligations in relation to inducements and accepting MNMBs. This material is CONFIDENTIAL AND FOR DISCUSSION PURPOSES ONLY; it constitutes a marketing communication and has been prepared by a Sales and Marketing function within BNP Paribas and/or its subsidiaries or affiliates (collectively "we" or "BNP Paribas"). As a confidential communication it is submitted to selected recipients only and it may not be made available (in whole or in part) to any other person without BNP Paribas' written consent. This communication is not a recommendation to engage in any action, does not constitute or form any part of any offer to sell or issue and is not a solicitation of any offer to purchase any financial instrument, nor shall it or any part of it nor the fact of its distribution form the basis of, or be relied on in connection with, any contract or investment decision. To the extent that any transaction is subsequently entered into between the recipient and BNP Paribas, such transaction will be entered into upon such terms as may be agreed by the parties in the relevant documentation. The information contained in this communication has been obtained from sources believed to be reliable, but there is no guarantee of the accuracy, completeness or suitability for any particular purpose of such information or that such information has been independently verified by BNP Paribas or by any person. None of BNP Paribas, its members, directors, officers, agents or employees accepts any responsibility or liability whatsoever or makes any representation or warranty, express or implied, as to the accuracy or completeness of the information, or any opinions based thereon, contained in this communication and it should not be used in place of professional advice. Additional information may be provided on request, at our discretion. Any scenarios, assumptions, historical or simulated performances, indicative prices or examples of potential transactions or returns are included for illustrative purposes only. Past performance is not indicative of future results. Investors may get back less than they invested. BNP Paribas gives no assurance that any favourable scenarios described are likely to happen, that it is possible to trade on the terms described herein or that any potential returns illustrated can be achieved. This communication is current as at the date of its production and BNP Paribas is under no obligation to update or keep current the information herein. In providing this communication, BNP Paribas offers no investment, financial, legal, tax or any other type of advice to, and has no fiduciary duty towards, recipients. Certain strategies and/or potential transactions discussed in this communication may involve the use of derivatives which may be complex in nature and may give rise to substantial risks, including the risk of total or partial loss of any investment or losses without limitation and which should only be undertaken by those with the requisite knowledge and experience. BNP Paribas makes no representation and gives no warranty as to the results to be obtained from any investment, strategy or transaction, or as to whether any strategy, security or transaction described herein may be suitable for recipients' financial needs, circumstances or requirements. Recipients must make their own assessment of strategies, securities and/or potential transactions detailed herein, using such professional advisors as they deem appropriate. BNP Paribas accepts no liability for any direct or consequential losses arising from any action taken in connection with or reliance on the information contained in this communication even where advised of the possibility of such losses. As an investment bank with a wide range of activities BNP Paribas may face conflicts of interest and you should be aware that BNP Paribas and/or any of its affiliates may be long or short, for their own account or as agent, in investments, transactions or strategies referred to in this communication or related products before the material is published to clients and that it may engage in transactions in a manner inconsistent with the views expressed in this communication, either for their own account or for the account of their clients. Additionally, BNP Paribas may have acted as an investment banker or may have provided significant advice or investment services to companies or in relation to investments mentioned in this communication. The information in this communication is not intended for distribution to, or use by, any person or entity in any jurisdiction where (a) the distribution or use of such information would be contrary to law or regulations, or (b) BNP Paribas or a BNP Paribas affiliate would become subject to new or additional legal or regulatory requirements. Persons in possession of this communication should inform themselves about possible legal restrictions and observe them accordingly. Executive Order 13959: BNPP clients and counterparties are responsible for ensuring that they comply with applicable provisions of Executive Order 13959 (and any subsequent official guidance). France: BNP Paribas, incorporated in France with Limited Liability (Registered Office: 16 boulevard des Italiens, 75009 Paris, France, 662 042 449 RCS Paris, www.bnpparibas.com) is authorized and supervised by European Central Bank (ECB) and by Autorité de Contrôle Prudentiel et de Résolution (ACPR) in respect of supervisions for which the competence remains at national level, in terms of Council Regulation n° 1024/2013 of 15 October 2013 conferring specific tasks on the ECB concerning policies relating to the prudential supervision of credit institutions. Australia: This material, and any information in related marketing presentations (the Material), is being distributed in Australia by BNP Paribas ABN 23 000 000 117, a branch of BNPP 662 042 449 R.C.S., a licensed bank whose head office is in Paris, France. BNP Paribas is licensed in Australia as a Foreign Approved Deposit-taking Institution by the Australian Prudential Regulation Authority (APRA) and delivers financial services to Wholesale clients under its Australian Financial Services Licence (AFSL) No. 238043 which is regulated by the Australian Securities & Investments Commission (ASIC). The Material is directed to Wholesale clients only and is not intended for Retail clients (as both terms are defined by the Corporations Act 2001, sections 761G and 761GA). The Material is subject to change without notice and BNP Paribas is under no obligation to update the information or correct any inaccuracy that may appear at a later date. China: This document/communication is being distributed in the People's Republic of China ("PRC", which for these purposes excludes the Hong Kong or Macau Special Administrative Regions or Taiwan) by BNP Paribas (China) Limited ("BNPP China"), a subsidiary of BNP Paribas. BNPP China is a commercial bank regulated by the China Banking and Insurance Regulatory Commission. Where the document/communication is also provided in both English and Chinese, the Chinese version shall prevail in the event of discrepancies between the two versions. Hong Kong – Branch: This communication is prepared and/or distributed by BNP Paribas, acting through its Hong Kong branch. BNP Paribas is a public limited company (société anonyme) incorporated in France. The liability of its members is limited. BNP Paribas, acting through its Hong Kong branch, is registered as a Licensed Bank under the Banking Ordinance and regulated by the Hong Kong Monetary Authority. It is also a Registered Institution regulated by the Securities and Futures Commission for the conduct of Regulated Activity Types 1, 4, 6 and 9 under the Securities and Futures Ordinance. Furthermore, where the content relates to regulated products/activities, this communication is directed at "professional investors" as defined in the Securities and Futures Ordinance. Hong Kong – Securities: This communication is prepared and/or distributed by BNP Paribas Securities (Asia) Limited. BNP Paribas Securities (Asia) Limited is a Licensed Corporation regulated by the Securities and Futures Commission for the conduct of Regulated Activity Types 1, 2, 4, and 6 under the Securities and Futures Ordinance. This communication is intended only for the Professional Investors in Hong Kong. Some products or transactions described in this communication may not be authorised in Hong Kong and may not be available to Hong Kong investors. India – Securities: In India, this communication is being distributed by BNP Paribas Securities India Pvt. Ltd. ("BNPPSIPL"), having its registered office at 8th floor, BNP Paribas House, 1 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai 400 051, INDIA (Tel. no. +91 22 4672 5000 / 6196 4000, Fax no. +91 22 6196 4363). BNPPSIPL is registered with the Securities and Exchange Board of India ("SEBI") as a research analyst; and as a stockbroker in the Equities and the Futures & Options segments of National Stock Exchange of India Ltd. ("NSE") and BSE Ltd. and in the Currency Derivatives segment of NSE (SEBI Regn. Nos.: INZ000161834, INH000000792; CIN: U74920MH2008FTC182807; Website: www.bnpparibas.co.in). Indonesia: PT Bank BNP Paribas Indonesia is regulated and supervised by Otoritas Jasa Keuangan as a commercial bank. The products or transactions described in this document/communication may not be authorised in Indonesia and may not be available to the Indonesian investors of PT Bank BNP Paribas Indonesia. The information in this document/communication is not intended for distribution to, or use by, or does not constitute any offer to, any person or entity in any jurisdiction where (a) the distribution or use or offer of such information would be contrary to law or regulations, or (b) PT Bank BNP Paribas Indonesia would become subject to the applicable legal or regulatory requirements. Malaysia: This communication is distributed in Malaysia by BNP Paribas Malaysia Berhad (Company No. 918091-T) which is incorporated in Malaysia under the Companies Act of Malaysia, 2016 (first enacted 1965) and a subsidiary of BNP Paribas. It is a licensed institution under the Financial Services Act 2013 and is regulated by Bank Negara Malaysia. This communication is directed only to accredited investors and high networth entities as defined under Schedules 6 and 7 of the Capital Markets Services Act 2007. BNP Paribas Capital (Malaysia) Sdn Bhd (Company No. 247454-M) is incorporated in Malaysia under the Companies Act of Malaysia, 1965. It is a licensed institution under the Capital Markets and Services Act 2007 and is regulated by Securities Commission Malaysia. Malaysia Labuan Branch: BNPP, a company registered under the laws of France (with company number 662 042 449 RCS PARIS / its registered office at (Paris) etc) ("BNPP" or "the Bank"), acting through its Labuan branch (licensed Labuan bank (license no. 930012C)) at Level 9 (D), Main Office Tower, Financial Park Labuan, Jalan Merdeka, 87000 F.T. Labuan, Malaysia. Singapore – Branch: This communication is distributed in Singapore by BNP Paribas, Singapore Branch, a licensed bank regulated by the Monetary Authority of Singapore. This communication is directed at Institutional Investors and Accredited Investors within the meaning of the Securities and Futures Act, Chapter 289 of Singapore. Some products or transactions described in this communication may not be authorised in Singapore and may not be available to Singapore investors. This communication may constitute a product advertisement within the meaning of the Financial Advisers Regulations or the Securities and Futures (Licensing and Conduct of Business) Regulations of Singapore, in which case this advertisement has not been reviewed by the Monetary Authority of Singapore. Where this communication is a research report: In relation to the distribution to such categories of investors, BNP Paribas, acting through its Singapore Branch, and its representatives are exempted under Regulation 35 of the Financial Advisers Regulations of Singapore from the requirements in Section 36 of the Financial Advisers Act of Singapore, regarding the disclosure of certain interests in, or certain interests in the acquisition or disposal of, securities, securities-based derivatives contracts or units in a collective investment scheme, referred to in this report. For Institutional and Accredited Investors in Singapore, please



**DISCLAIMER****Disclaimer for Asia-Pacific**

contact BNP Paribas, acting through its Singapore Branch (company registration number: S71FC2142G; address: 10 Collyer Quay, 34/F Ocean). South Korea – Securities: BNP Paribas Securities Korea is registered as a Licensed Financial Investment Business Entity under the Financial Investment Business and Capital Markets Act and regulated by the Financial Supervisory Service and Financial Services Commission. This document/communication is distributed by BNP Paribas Securities Korea Co., Ltd. in the Republic of Korea to Professional Investors only and is not intended for investors in Korea who are not Professional Investor within the meaning of the Article 9 (5) (professional investor) of the Financial Investment Business and Capital Markets Act and should not be passed on to any such persons. Some products or transactions described in this document/communication may not be authorised in Korea and may not be available to Korean investors. Information in this document/communication is for general circulation to the intended recipients only and is not a recommendation or investment advice to recipients hereof since it does not take into account the specific investment objectives, financial situation and the particular needs of any particular recipient ("Specific Requirements"). A recipient of this document/communication should seek advice from its/his own financial adviser regarding the suitability of the products or transactions (taking into account the recipient's Specific Requirements) as well as the risks involved in such products or transactions before a commitment to purchase or enter into any product or transaction is made. This document/communication is being provided in accordance with the procedures required under applicable laws and regulations as well as internal control standards of BNP Paribas Securities Korea. Taiwan – Branch: This communication is being distributed in Taiwan by BNP Paribas Taipei Branch, Taichung Branch, Kaohsiung Branch and/or Offshore Banking Unit, branches of BNP Paribas and are regulated by the Financial Supervisory Commission, R.O.C under the Banking Act and Offshore Banking Act. This communication is directed only at Taiwanese counterparties who are licensed or who have the capacities to purchase or transact in such products. Some products or transactions described in this communication may not be authorised in Taiwan and may not be available to Taiwan investors. Taiwan – Securities: This communication is being distributed in Taiwan by BNP Paribas Securities (Taiwan) Co. Ltd who is regulated by the Financial Supervisory Commission, R.O.C. This communication is being distributed to professional investors only. Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decision. Information on securities that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities. BNP Paribas Securities (Taiwan) Co., Ltd. may not execute transactions for clients in these securities. This publication may not be distributed to the public media or quoted or used by the public media without the express written consent of BNP Paribas. Thailand: BNP Paribas Bangkok branch is regulated in Thailand by the Bank of Thailand and the Securities and Exchange Commission. This communication does not constitute an offer to sell to or solicitation of an offer to buy from any person any financial products where it is unlawful to make the offer or solicitation in Thailand.

