

Asia Pac Earnings Revision Ratio

India Ratio = three-year high

APxJ Earnings Revision Ratio

In December, the Asia Pac ex-Japan Earnings Revision Ratio improved from 0.49 to 0.69 to reach the highest level in six months. The improvement was bolstered by India where the Ratio jumped to a three-year high (1.02 to 1.26) and improved broadly in nine of 13 countries. The Ratio also improved in 13 of 16 sectors and is now highest for Insurance, Banks, and Energy. If the Ratio in Asia continues to improve in conjunction with the improving Developed Markets Ratio, this would be an encouraging sign for equity returns in Asia Pac ex-Japan in 2024.

India Ratio highest in three years, China Ratio off lows

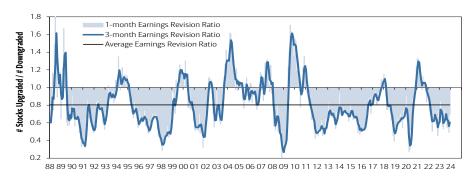
In addition to a multi-year high in India, the China Ratio bounced off one of the lowest monthly levels since the 2008 Global Financial Crisis (0.38 to 0.62). Across the region, the Ratio is highest in Philippines (1.63) and Singapore (1.38) and lowest in New Zealand (0.14), Hong Kong (0.31), and Thailand (0.35). The Australia Ratio improved from 068 to 0.72 to be near the regional average.

Broad sector improvement

Although no Asia Pacific <u>sector</u> has a Ratio above 1.00 (net upgrades), there was a broad improvement as the rate of downgrades slowed last month. The Ratio is currently highest for <u>Insurance</u> (0.93), <u>Banks</u> (0.88), and <u>Energy</u> (0.88). In contrast, the Ratio is lowest for <u>Software</u> (0.49) and <u>Media & Entertainment</u> (0.54).

Chart 1: Trend in Asia Pacific ex-Japan Earnings Expectations

1-month Ratio improved from 0.49 to 0.69, 3-month Ratio also advanced from 0.56 to 0.61



Source: BofA Asia Pacific Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

02 January 2024

Quant Strategy Asia Pacific

Nigel Tupper >> Quant Strategist Merrill Lynch (Australia) +61 2 9226 5735 nigel.tupper@bofa.com

Amar Vashi >> Quant Strategist Merrill Lynch (Australia) amar.vashi@bofa.com

Sumuhan Shanmugalingam >> Quant Strategist Merrill Lynch (Australia) sumuhan.shanmugalingam@bofa.com

Unless otherwise noted, all links on the front page of this report refer to sections in this research report.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst

under the FINRA rules.
Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers 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.

Refer to important disclosures on page 27 to 29.

Timestamp: 02 January 2024 04:04AM EST

Contents

Asia Pac ex-Japan Earnings Expectations								
Asia Pac ex-Japan Countries Earnings Revision Ratio	5							
Asia Pac ex-Japan Sectors Earnings Revisions Ratio	8							
Earnings Revision Ratio: Quantessential Styles	12							
Sales Revision Ratio	15							
Sales Revision Ratio: Asia Pac ex-Japan Countries	15							
Sales Revision Ratio: Asia Pac ex-Japan Sectors	18							
Appendix A: Country-Sector Earnings Revision Ratio Matrix	22							
Global Quant Publications	25							



Notice to Readers:

The various screens identified in this report are intended to be indicative metrics only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. These screens were not created to act as a benchmark.

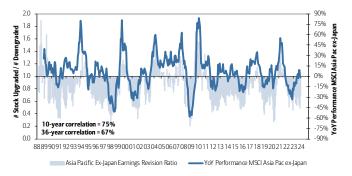
The screens in this report are not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances/objectives before making any investment decisions.



Asia Pac ex-Japan Earnings Expectations

Chart 2: APxJ: YoY Market Perf vs Earnings Revisions Ratio

YoY APxJ Equity Market Performance vs APxJ ERR has correlation of 0.67



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES, Exshare

BofA GLOBAL RESEARCH

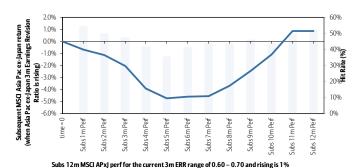
Chart 4: Subs 12m MSCI APxJ perf for the current 3m ERR range Subs 12m MSCI APxJ perf for the current 3m ERR range of 0.60 – 0.70 is 2%



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 6: Subs 12m APxJ perf for the current 3m ERR range & rising Subs 12m MSCI APxJ perf for the current 3m ERR range of 0.60-0.70 and rising is 1%

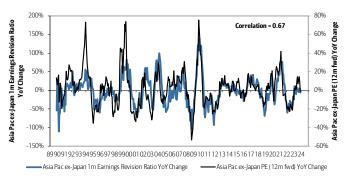


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 3: APxJ: YoY change in ERR vs YoY change in Forward PE YoY change in APxJ FRR vs YoY change in Asia Pac ex-Japan PE has

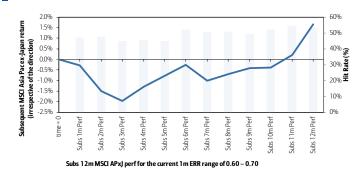
YoY change in APxJ ERR vs YoY change in Asia Pac ex-Japan PE has correlation of 0.67



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES, Exshare

BofA GLOBAL RESEARCH

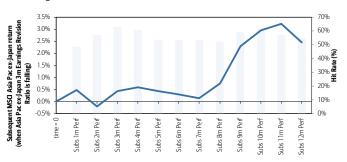
Chart 5: Subs 12m MSCI APxJ perf for the current 1m ERR range Subs 12m MSCI APxJ perf for the current 1m ERR range of 0.60 – 0.70 is



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 7: Subs 12m APxJ perf for the current 3m ERR range & falling Subs 12m MSCI APxJ perf for the current 3m ERR range of 0.60-0.70 and falling is 2%



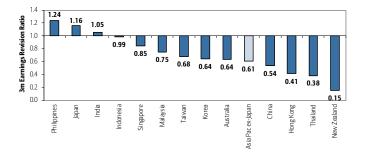
Subs 12m MSCI APxJ perf for the current 3m ERR range of 0.60 – 0.70 and falling is 2%

Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Asia Pac ex-Japan Countries Earnings Revision Ratio

Chart 8: Earnings Revision Ratio By Country - Last 3 Months

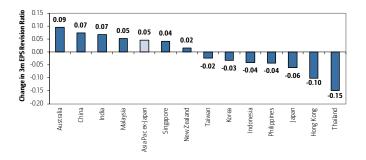
Philippines has the highest 3-month ERR among countries



 $\textbf{Source:} Bof A \ Asia \ Pac \ Quantitative \ Strategy, \ MSCI, IBES$

RofA GLOBAL RESEARCH

Chart 9: 1-month change in three-Month Earnings Revision Ratio Australia 3-month ERR improved the most



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Table 1: Asia Pac ex-Japan Country Earnings Revision Ratios

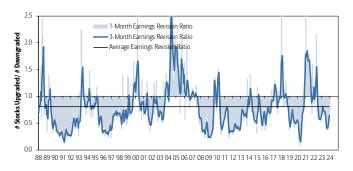
Philippines has the highest 3-month ERR among countries

Country	Oct-23	Nov-23	Dec-23	Last 3 Months
Australia	0.56	0.64	0.72	0.64
China	0.65	0.38	0.63	0.54
Hong Kong	0.53	0.42	0.31	0.41
India	0.91	1.02	1.26	1.05
Indonesia	1.04	0.78	1.17	0.99
Japan	1.19	1.05	1.25	1.16
Korea	0.54	0.63	0.78	0.64
Malaysia	0.79	0.80	0.69	0.75
New Zealand	0.11	0.20	0.14	0.15
Philippines	0.63	2.00	1.63	1.24
Singapore	0.73	0.69	1.38	0.85
Taiwan	0.67	0.69	0.69	0.68
Thailand	0.51	0.30	0.35	0.38
Asia Pac ex-Japan	0.66	0.49	0.69	0.61

Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Chart 10: AUSTRALIA Earnings Revision Ratio

Earnings trend improved in Australia in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

BofA GLOBAL RESEARCH

Chart 11: CHINA Earnings Revision Ratio

Earnings trend improved in China in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 12: CHINA - A Earnings Revision Ratio

Earnings trend improved in China-A in the last three months

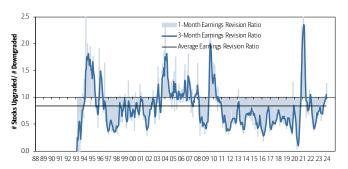


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 14: INDIA Earnings Revision Ratio

Earnings trend improved in India in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 16: JAPAN Earnings Revision Ratio

Earnings revisions improved in Japan last month



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 13: HONG KONG Earnings Revision Ratio

ERR fell in Hong Kong last month and the trend moderated

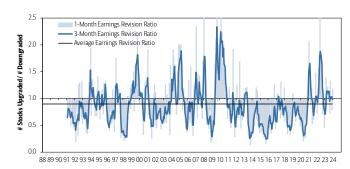


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 15: INDONESIA Earnings Revision Ratio

Earnings revisions improved for Indonesia last month and remains above long-term average

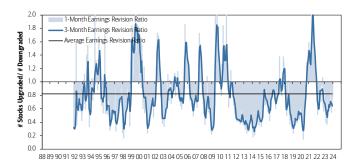


 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy, MSCI, IBES$

BofA GLOBAL RESEARCH

Chart 17: KOREA Earnings Revision Ratio

Earnings revisions improved in Korea last month

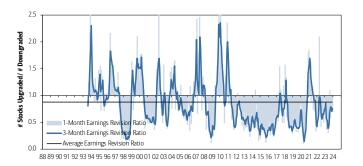


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 18: MALAYSIA Earnings Revision Ratio

Earnings revisions for Malaysia fell last month and remains below long term trend



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 20: PHILIPPINES Earnings Revision Ratio

ERR fell in Philippines last month and the trend moderated

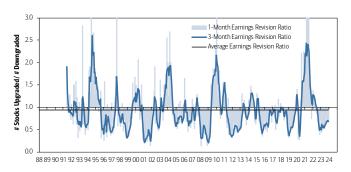


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 22: TAIWAN Earnings Revision Ratio

Earnings revisions improved in Taiwan last month



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 19: NEW ZEALAND Earnings Revision Ratio

Earnings revisions fell in New Zealand last month

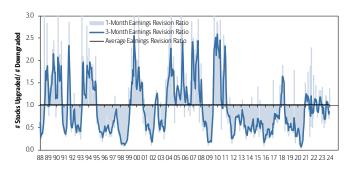


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 21: SINGAPORE Earnings Revision Ratio

 $\label{thm:continuous} Earnings\ revisions\ improved\ for\ Singapore\ last\ month\ and\ remains\ above\ long-term\ average$

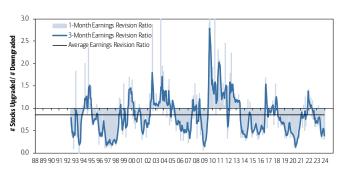


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 23: THAILAND Earnings Revision Ratio

Earnings revisions improved in Thailand last month but remains below long term average

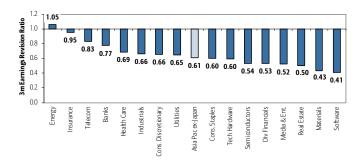


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Asia Pac ex-Japan Sectors Earnings Revisions Ratio

Chart 24: 3-month Earnings Revision Ratio by APxJ Sectors

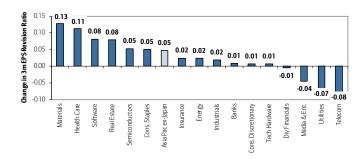
Energy has the highest 3-month ERR among sectors



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 25: 1m change in 3m Earnings Revision Ratio by APxJ Sectors Materials 3-month ERR improved the most



Source : BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Table 2: Asia Pac ex-Japan Sector Earnings Revision Ratios

Energy has the highest 3-month ERR among sectors

Sector	Oct-23	Nov-23	Dec-23	Last 3 Months
Energy	1.30	1.03	0.88	1.05
Materials	0.44	0.27	0.65	0.43
Industrials	0.71	0.55	0.76	0.66
Cons. Discretionary	0.83	0.55	0.61	0.66
Cons. Staples	0.65	0.50	0.66	0.60
Health Care	0.66	0.57	0.86	0.69
Banks	0.70	0.75	0.88	0.77
Div Financials	0.47	0.42	0.73	0.53
Insurance	1.33	0.69	0.93	0.95
Software	0.54	0.26	0.49	0.41
Tech Hardware	0.74	0.46	0.61	0.60
Semiconductors	0.59	0.36	0.69	0.54
Telecom	0.84	0.85	0.80	0.83
Media & Ent.	0.59	0.44	0.54	0.52
Utilities	0.94	0.45	0.63	0.65
Real Estate	0.41	0.57	0.56	0.50
Asia Pac ex-Japan	0.66	0.49	0.69	0.61

 $\textbf{Source:} Bof A \ Asia \ Pac \ Quantitative \ Strategy, \ MSCI, IBES$



Chart 26: APxJ Banks Earnings Revision Ratio

Earnings revisions improved in Banks last month but remains below long term average

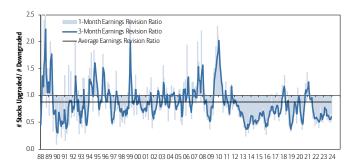


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 28: APxJ Consumer Staples Earnings Revision Ratio

Earnings revisions improved in Cons. Staples last month but remains below long term average



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 30: APxJ Energy Earnings Revision Ratio

Earnings revisions fell in Energy last month



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 27: APxJ Consumer Discretionary Earnings Revision Ratio

Earnings revisions improved in Cons. Discretionary last month but remains below long term average

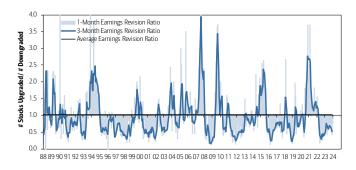


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 29: APxJ Diversified Financials Earnings Revision Ratio

Earnings revisions improved in Div Financials last month



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 31: APxJ Health Care Earnings Revision Ratio

Earnings trend improved in Health Care in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 32: APxJ Industrials Earnings Revision Ratio

Earnings trend improved in Industrials in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 34: APxJ Materials Earnings Revision Ratio

Earnings revisions improved in Materials last month but remains below long term average

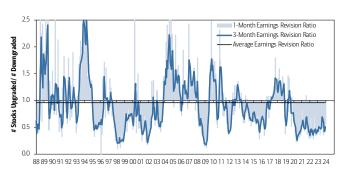


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 36: APxJ Real Estate Earnings Revision Ratio

Earnings revisions fell in Real Estate last month, but the trend remains strong

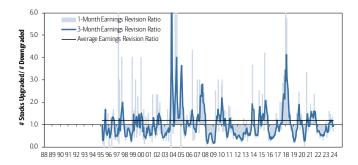


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 33: APxJ Insurance Earnings Revision Ratio

Earnings revisions improved in Insurance last month

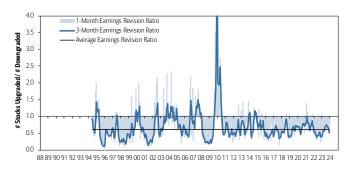


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 35: APxJ Media & Ent. Earnings Revision Ratio

Earnings revisions improved in Media & Ent. last month but remains below long term average

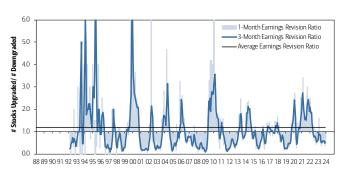


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 37: APxJ Semiconductors Earnings Revision Ratio

Earnings revisions improved in Semiconductors last month but remains below long term average

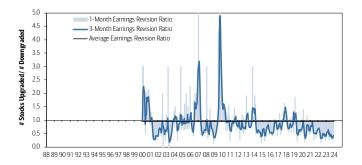


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 38: APxJ Software Earnings Revision Ratio

Earnings trend improved in Software in the last three months

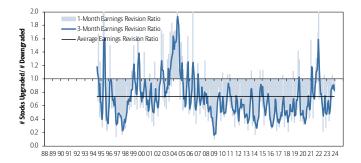


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 40: APxJ Telecom Earnings Revision Ratio

ERR fell in Telecom last month and the trend moderated

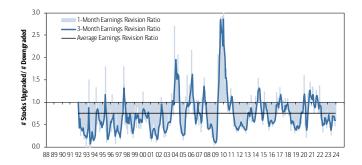


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 39: APxJ Tech Hardware Earnings Revision Ratio

Earnings revisions improved in Tech Hardware last month

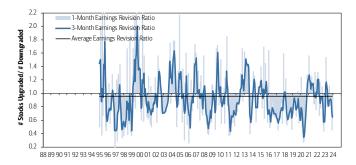


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 41: APxJ Utilities Earnings Revision Ratio

Earnings revisions improved in Utilities last month

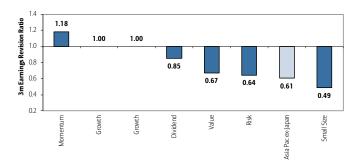


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Earnings Revision Ratio: Quantessential Styles

Chart 42: 3m Earnings Revision Ratio by Asia Pac ex-Japan Styles

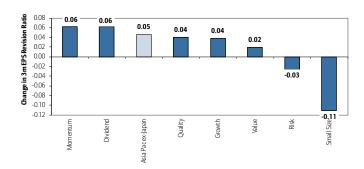
Among Styles, Momentum has the highest 3-month ERR



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES, Exshare

BofA GLOBAL RESEARCH

Chart 43: 1m change in 3m Earnings Revision Ratio by APxJ StylesMomentum 3-month ERR improved the most



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES, Exshare

BofA GLOBAL RESEARCH

Table 3: Asia Pac ex-Japan Style Earnings Revision Ratio

Among Styles, Momentum has the highest 3-month ERR

				Last 3
Style	Oct-23	Nov-23	Dec-23	Months
Value	0.81	0.51	0.71	0.67
Growth	1.28	0.80	0.97	1.00
Quality	1.15	0.81	1.06	1.00
Risk	0.63	0.66	0.64	0.64
Momentum	1.18	1.12	1.25	1.18
Dividend	1.00	0.70	0.88	0.85
Small Size	0.57	0.47	0.43	0.49
Asia Pac ex-Japan	0.66	0.49	0.69	0.61

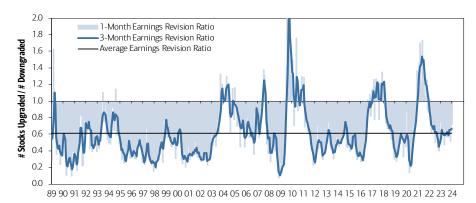
Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES, ExShare

BofA GLOBAL RESEARCH

1 --+ 2

Chart 44: Quantessential Value: Earnings Revision Ratio

Earnings trend improved in Value in the last three months



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare



Chart 45: Quantessential Growth: Earnings Revision Ratio

Earnings revisions improved in Growth last month but remains below long term average



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare

BofA GLOBAL RESEARCH

Chart 46: Quantessential Momentum: Earnings Revision Ratio

Earnings revisions improved in Momentum last month but remains below long term average

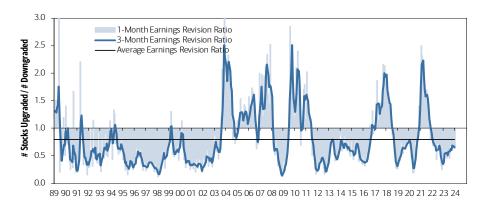


 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy, IBES, MSCI,\ Exshare$

BofA GLOBAL RESEARCH

Chart 47: Quantessential Risk: Earnings Revision Ratio

Earnings revisions for Risk fell last month and remains below long term trend

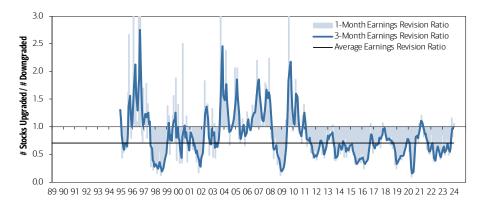


Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare



Chart 48: Quantessential Quality: Earnings Revision Ratio

Earnings trend improved in Quality in the last three months



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare

BofA GLOBAL RESEARCH

Chart 49: Quantessential Dividends: Earnings Revision Ratio

Earnings revisions improved in Dividend last month



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare

BofA GLOBAL RESEARCH

Chart 50: Quantessential Small Size: Earnings Revision Ratio

ERR fell in Small Size last month and the trend moderated



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI, Exshare



Sales Revision Ratio

Sales Revision Ratio: Asia Pac ex-Japan Countries

Chart 51: Sales Revision Ratio - Asia Pac ex-Japan

Sales trend improved in Asia Pac ex-Japan in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 52: Sales Revisions Ratio vs. YoY Market Perf

YoY APxJ Equity Market Performance vs APxJ SRR has correlation of 0.69



 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy,\ MSCI,\ IBES,\ Exshare$

BofA GLOBAL RESEARCH

Table 4: Sales Revision Ratio - Asia Pac ex-Japan Countries

Among countries, Philippines has the highest 3-month SRR

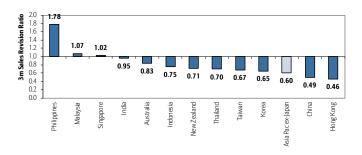
	Oct-23	Nov-23	Dec-23	Last 3 Months
Australia	0.96	0.71	0.84	0.83
China	0.55	0.37	0.60	0.49
Hong Kong	0.47	0.39	0.51	0.46
India	0.93	0.97	0.96	0.95
Indonesia	0.61	0.82	0.85	0.75
Korea	0.76	0.52	0.70	0.65
Malaysia	0.82	1.14	1.23	1.07
New Zealand	1.00	0.56	0.67	0.71
Philippines	2.00	2.71	1.00	1.78
Singapore	1.08	0.76	1.36	1.02
Taiwan	0.65	0.55	0.86	0.67
Thailand	0.91	0.48	0.78	0.70
Asia Pac ex-Japan	0.65	0.49	0.70	0.60

Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 53: Sales Revision Ratio by Asia Pac ex-Japan Countries - Last 3 months

Among countries, Philippines has the highest 3-month SRR

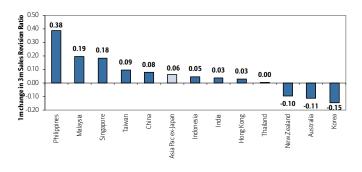


 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy, MSCI, IBES$

BofA GLOBAL RESEARCH

Chart 54: 1-month change in three-month Sales Revision Ratio by Asia Pac ex-Japan Countries

Philippines 3-month SRR improved the most



 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy,\ MSCI,\ IBES$

Chart 55: Sales Revision Ratio - Australia

The trend is weak but Sales revisions improved in Australia last month

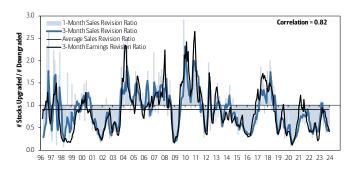


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 57: Sales Revision Ratio - Hong Kong

Sales revisions improved in Hong Kong last month

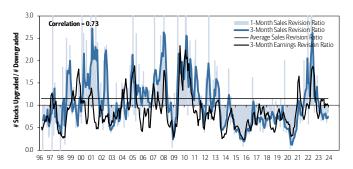


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 59: Sales Revision Ratio - Indonesia

Sales revisions improved in Indonesia last month

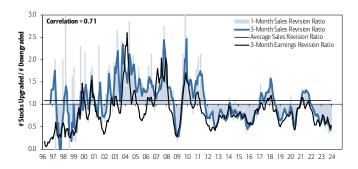


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 56: Sales Revision Ratio - China

Sales revisions improved in China last month

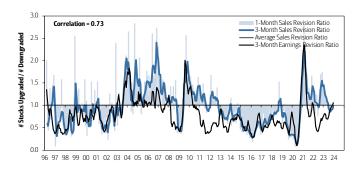


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 58: Sales Revision Ratio - India

Sales revisions for India fell last month and remains below long term trend

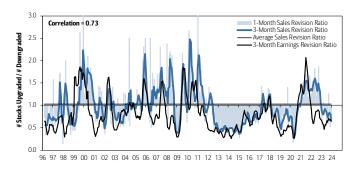


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 60: Sales Revision Ratio - Korea

The trend is weak but Sales revisions improved in Korea last month

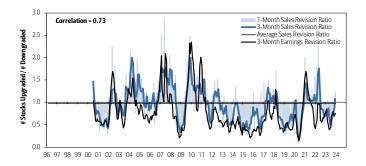


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 61: Sales Revision Ratio - Malaysia

Sales revisions improved for Malaysia last month and remains above long-term average

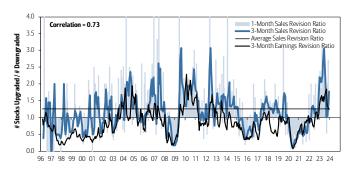


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 63: Sales Revision Ratio - Philippines

Sales revisions for Philippines fell last month and remains below long term trend

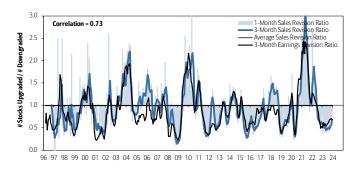


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 65: Sales Revision Ratio - Taiwan

Sales revisions improved in Taiwan last month but remains below long term average

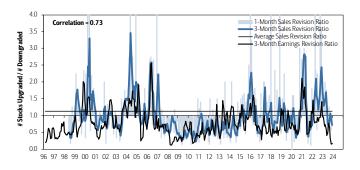


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 62: Sales Revision Ratio - New Zealand

The trend is weak but Sales revisions improved in New Zealand last month

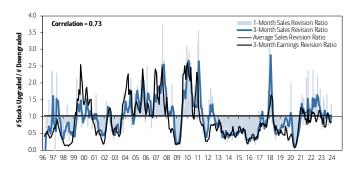


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 64: Sales Revision Ratio - Singapore

Sales revisions improved in Singapore last month

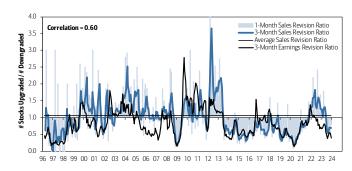


 $\textbf{Source:} Bof A \ Asia \ Pac \ Quantitative \ Strategy, \ MSCI, IBES$

BofA GLOBAL RESEARCH

Chart 66: Sales Revision Ratio - Thailand

Sales revisions improved in Thailand last month but remains below long term average



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Sales Revision Ratio: Asia Pac ex-Japan Sectors

Table 5: Sales Revision Ratio - Asia Pac ex-Japan Sectors

Among sectors, Energy has the highest 3-month SRR

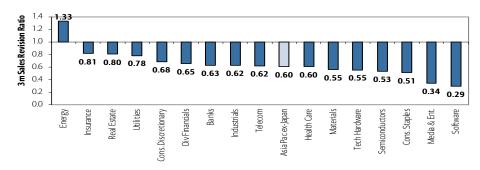
	Oct-23	Nov-23	Dec-23	Last 3 Months
Energy	1.42	2.05	0.77	1.33
Materials	0.58	0.45	0.67	0.55
Industrials	0.71	0.48	0.74	0.62
Cons. Discretionary	0.81	0.54	0.73	0.68
Cons. Staples	0.51	0.39	0.65	0.51
Health Care	0.68	0.43	0.75	0.60
Banks	0.61	0.58	0.70	0.63
Div Financials	0.58	0.54	0.89	0.65
Insurance	1.00	0.82	0.62	0.81
Software	0.26	0.27	0.36	0.29
Tech Hardware	0.62	0.38	0.72	0.55
Semiconductors	0.53	0.35	0.79	0.53
Telecom	0.64	0.29	1.20	0.62
Media & Ent.	0.32	0.36	0.33	0.34
Utilities	1.00	0.60	0.81	0.78
Real Estate	0.82	0.84	0.76	0.80
Asia Pac ex-Japan	0.65	0.49	0.70	0.60

 $\textbf{Source:} Bof A \ Asia \ Pac \ Quantitative \ Strategy, \ MSCI, IBES$

BofA GLOBAL RESEARCH

Chart 67: Sales Revision Ratio by Asia Pac ex-Japan Sectors - Last 3 months

Among sectors, Energy has the highest 3-month SRR

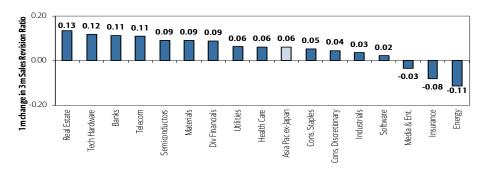


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 68: Sales Revision Ratio by Asia Pac ex-Japan Sectors - 1-month change in 3-month Ratio

Real Estate 3-month SRR improved the most



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

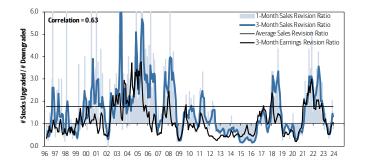
BofA GLOBAL RESEARCH



18

Chart 69: Sales Revision Ratio - Energy

Sales revisions for Energy fell last month and remains below long term trend

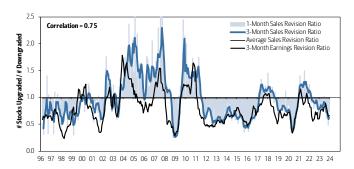


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 71: Sales Revision Ratio - Industrials

Sales trend improved in Industrials in the last three months

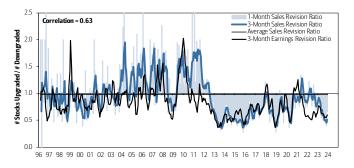


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 73: Sales Revision Ratio - Consumer Staples

Sales trend improved in Cons. Staples in the last three months

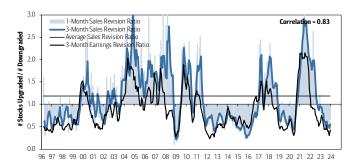


 $\textbf{Source:} Bof A \ Asia \ Pac \ Quantitative \ Strategy, \ MSCI, IBES$

BofA GLOBAL RESEARCH

Chart 70: Sales Revision Ratio - Materials

Sales revisions improved in Materials last month but remains below long term average



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 72: Sales Revision Ratio - Consumer Discretionary

Sales trend improved in Cons. Discretionary in the last three months

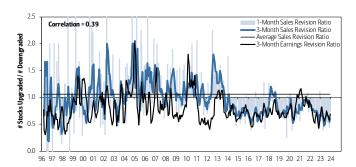


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 74: Sales Revision Ratio - Health Care

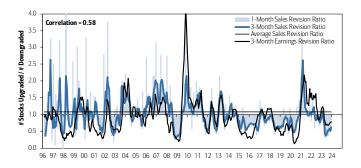
Sales trend improved in Health Care in the last three months



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Chart 75: Sales Revision Ratio - Banks

Sales revisions improved in Banks last month

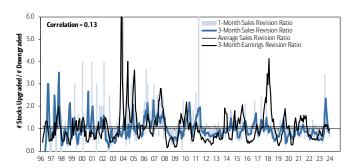


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 77: Sales Revision Ratio - Insurance

SRR fell in Insurance last month and the trend moderated

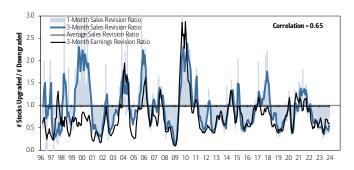


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 79: Sales Revision Ratio - Tech Hardware

Sales revisions improved in Tech Hardware last month but remains below long term average

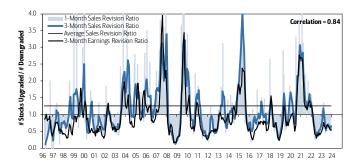


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 76: Sales Revision Ratio - Diversified Financials

Sales trend improved in Div Financials in the last three months

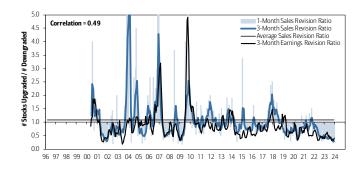


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 78: Sales Revision Ratio - Software

Sales revisions improved in Software last month

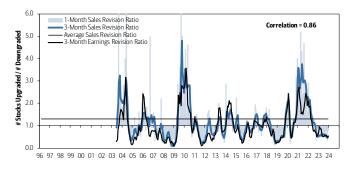


Source : BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 80: Sales Revision Ratio - Semiconductors

Sales revisions improved in Semiconductors last month

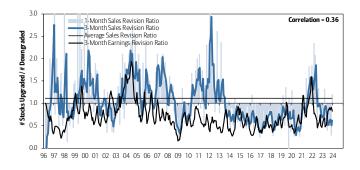


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES



Chart 81: Sales Revision Ratio - Telecom

Sales revisions improved in Telecom last month

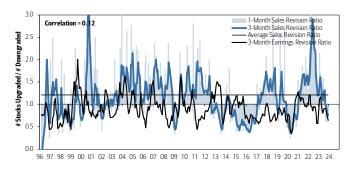


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 83: Sales Revision Ratio - Utilities

Sales trend improved in Utilities in the last three months

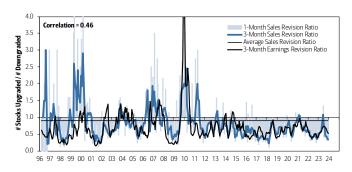


 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy,\ MSCI,\ IBES$

BofA GLOBAL RESEARCH

Chart 82: Sales Revision Ratio - Media & Entertainment

Sales revisions for Media & Ent. fell last month and remains below long term trend

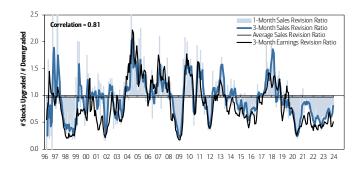


Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

BofA GLOBAL RESEARCH

Chart 84: Sales Revision Ratio - Real Estate

Sales revisions fell in Real Estate last month



Source: BofA Asia Pac Quantitative Strategy, MSCI, IBES

Appendix A: Country-Sector Earnings Revision Ratio Matrix

Table 6: Asia Pac ex-Japan Country-Sector 1-month Earnings Revision Ratios

Majority of APxJ country-sector 1-month Earnings Revision Ratio below 1.0

	gy	Materials	Industrials	. Discretionary	. Staples	th Care	S	Financials	Insurance	Software	Tech Hardware	Semiconductors	Telecom	ia & Ent.	ties	Estate	ıtry
	Energy	Mate	ng n	Cons.	Cons.	Health	Banks	Div F	nsu	Soft	Tech	Sem	Tele	Media	Utilities	Real	Country
Australia	0.20	1.86	0.80	0.75	0.50	0.67	3.00	0.17	2.00	-	-	-	1.00	-	0.50	0.33	0.72
China	0.73	0.57	0.66	0.54	0.57	0.93	0.71	0.59	1.00	0.45	0.71	0.53	4.00	0.47	0.52	0.57	0.63
Hong Kong	-	-	1.67	0.11	0.33	-	0.50	1.00	-	-	-	-	-	-	0.25	-	0.31
India	3.00	1.15	1.75	1.00	1.80	1.50	0.50	1.13	1.00	0.50	1.00	-	1.00	2.00	2.50	4.00	1.26
Indonesia	1.00	0.50	1.00	3.00	0.80	-	2.00	-	-	-	-	-	1.00	1.00	-	-	1.17
Korea	2.00	0.27	0.69	1.00	0.86	0.71	1.67	1.00	2.00	2.00	0.13	0.50	1.00	1.17	1.00	-	0.78
Malaysia	1.00	0.50	1.00	1.33	0.60	-	1.00	-	-	-	-	-	0.67	-	0.67	1.00	0.69
New Zealand	-	-	-	-	-	0.50	-	-	-	-	-	-	-	-	-	-	0.14
Philippines	-	-	-	-	0.33	-	3.00	-	-	-	-	-	0.50	-	-	0.50	1.63
Singapore	-	-	3.00	-	-	-	0.50	-	-	-	-	-	-	-	-	0.50	1.38
Taiwan	-	0.57	0.63	0.63	-	-	1.00	-	-	-	0.57	1.45	0.50	-	-	-	0.69
Thailand	1.00	0.40	0.25	-	0.60	1.00	0.40	0.50	-	-	-	-	-	-	0.17	1.00	0.35
Asia Pac ex-Japan	0.88	0.65	0.76	0.61	0.66	0.86	0.88	0.73	0.93	0.49	0.61	0.69	0.80	0.54	0.63	0.56	

Key:

1-month Earnings Revision Ratio greater than 1.00

 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy,\ IBES,\ MSCI$

BofA GLOBAL RESEARCH

Table 7: Asia Pac ex-Japan Country-Sector 3-month Earnings Revision Ratios

Majority of APxJ country-sector 3-month Earnings Revision Ratio below 1.0

	Energy	Materials	Industrials	Cons. Discretionary	Cons. Staples	Health Care	Banks	Div Financials	Insurance	Software	Tech Hardware	Semiconductors	elecom	Media & Ent.	Utilities	Real Estate	Country
Australia	0.80	0.85	ک 0.54	0.33	0.56	1.00	0.11	<u>트</u> 2.00	<u>گ</u> 0.67	<u>"</u>	Ŋ	1.00	≥ 0.20	0.50	2 0.56	ك 0.64
China	0.86	0.40	0.55	0.63	0.57	0.73	0.43	0.11	0.73	0.40	0.59	0.41	4.00	0.20	0.51	0.30	0.54
Hong Kong	- 0.00	-	0.75	0.50	0.43	-	1.00	0.50	-	-	2.00	0.50	0.33	1.00	0.22	0.18	0.41
India	2.13	0.73	1.40	1.13	1.39	1.04	1.24	0.92	1.40	0.30	0.25	-	0.63	1.25	2.14	1.00	1.05
Indonesia	1.18	0.42	5.00	1.40	0.80	-	1.00	-	-	-	-	_	0.80	0.50		5.00	0.99
Korea	2.00	0.15	0.68	0.86	0.77	0.48	1.00	1.18	2.00	1.00	0.08	0.80	1.00	0.63	0.50	-	0.64
Malaysia	1.33	0.33	2.20	0.50	0.64	0.14	0.69	-		-	-	0.20	1.00	-	0.83	3.00	0.75
New Zealand	-	0.50	-	-	-	0.17	-	-	-	-	-	-	-	-	0.67	-	0.15
Philippines	-	-	1.71	1.50	0.44	-	2.00	-	-	-	-	-	0.29	-	-	2.67	1.24
Singapore	-	-	1.75	1.00	0.67	-	0.80	_	_	_	0.50	-	2.00	_	_	0.25	0.85
Taiwan	0.50	0.29	0.82	0.48	0.20	0.17	1.00	0.67	0.13	-	0.80	1.00	0.80	_	_	-	0.68
Thailand	1.00	0.31	0.14	0.09	0.20	2.00	0.75	0.38	-	-	1.33	-	0.29	-	0.25	0.60	0.38
Asia Pac ex-Japan	1.05	0.43	0.66	0.66	0.60	0.69	0.77	0.53	0.95	0.41	0.60	0.54	0.83	0.52	0.65	0.50	2.30
Kov:		2. 10	2.00	2.00	2.00	2.03	2.77	2.55	2.55	2	2.00	5	2.05		2.00	2.50	

Key:

3-month Earnings Revision Ratio greater than 1.00

 $\textbf{Source:} BofA\ Asia\ Pac\ Quantitative\ Strategy,\ IBES,\ MSCI$



Table 8: Asia Pac ex-Japan Country-Sector - Earnings Upgrades / DowngradesMajority of APxJ country-sectors' downgrades outnumber upgrades

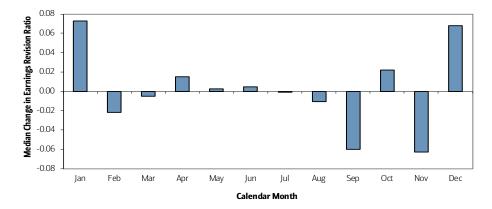
	Energy	Materials	Industrials	Cons. Discretionary	Cons. Staples	Health Care	Banks	Div Financials	Insurance	Software	Tech Hardware	Semiconductors	Telecom	Media & Ent.	Utilities	Real Estate	Country
Australia	1/5	13 / 7	4/5	3/4	2/4	2/3	3/1	1/6	2/1	0/1	0/0	0/0	1/1	0/4	1/2	1/3	34 / 47
China	11 / 15	55 / 96	80 / 121	44 / 81	31 / 54	63 / 68	12 / 17	13 / 22	4/4	15 / 33	34 / 48	25 / 47	4/1	14 / 30	13 / 25	16 / 28	434 / 690
Hong Kong	0/0	0/0	5/3	1/9	1/3	0/0	1/2	1/1	0/1	0/0	0/1	1/0	0/2	1/0	1/4	0/13	12 / 39
India	6/2	15 / 13	14 / 8	13 / 13	9/5	9/6	4/8	9/8	2/2	3/6	1/1	0/0	2/2	2/1	5/2	4/1	98 / 78
Indonesia	4/4	2/4	1/1	3/1	4/5	0/2	4/2	0/0	0/0	0/0	0/0	0/0	3/3	1/1	1/0	4/0	27 / 23
Korea	2/1	3/11	18 / 26	9/9	6/7	5/7	5/3	4/4	4/2	2/1	1/8	1/2	1/1	7/6	1/1	0/0	69 / 89
Malaysia	1/1	1/2	3/3	4/3	3/5	0/3	5/5	0/0	0/0	0/0	0/0	0/2	2/3	0/1	2/3	1/1	22 / 32
New Zealand	0/0	0/1	0/3	0/0	0/0	1/2	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/7
Philippines	0/0	0/0	5/0	1/0	1/3	0/0	3/1	0/0	0/0	0/0	0/0	0/0	1/2	0/0	1/0	1/2	13 / 8
Singapore	0/0	0/0	3/1	0/0	1/0	0/0	1/2	1/0	0/0	0/0	1/0	0/0	1/0	0/1	1/0	2/4	11 / 8
Taiwan	0/1	4/7	5/8	5/8	0/2	0/2	3/3	2/0	0/3	0/0	13 / 23	16 / 11	1/2	0/0	0/0	0/1	49 / 71
Thailand	3/3	2/5	1/4	0/8	3/5	1/1	2/5	2/4	1/0	0/0	0/1	0/0	0/3	0/2	1/6	1/1	17 / 48
Asia Pac ex-Japan	28 / 32	95 / 146	139 / 183	83 / 136	61 / 93	81 / 94	43 / 49	33 / 45	13 / 14	20 / 41	50 / 82	43 / 62	16 / 20	25 / 46	27 / 43	30 / 54	

Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI



Chart 85: Seasonality of Asia Pac ex-Japan Earnings Revision Ratio

Median change in ERR the highest in January

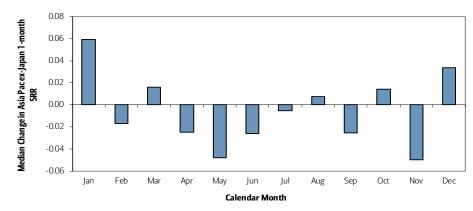


Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI

BofA GLOBAL RESEARCH

Chart 86: Seasonality of Asia Pac ex-Japan Sales Revision Ratio

Median change in SRR the highest in January



Source: BofA Asia Pac Quantitative Strategy, IBES, MSCI



Global Quant Publications

Monthly reports schedule

Day 1: Contenders & Defenders

A popular visual model. For each stock, this report graphically shows how consensus earnings expectations have changed over the long term versus the market, and whether recent earnings revisions appear to have been reflected in relative share price performance. Popular ways of using this analysis include 1) reviewing the Contenders and Defenders, 2) perusing individual stock charts, 3) monitoring region, country and sector themes using the "quadrant charts", and 4) reviewing stock rankings. Regional versions are published monthly in these linked reports for Global Contenders & Defenders and Asia Pac ex-Japan Contenders & Defenders.

Day 1: Global Performance Monitor

The above linked monthly report analysing the performance of global regions, countries, sectors and identifying the major stock contributors to global equity market performance.

Day 2/3: Quantessential Style

Style rotation. Different investment styles outperform at various stages of the cycle. This investment style analysis relates performance of seven Quantessential Styles (Value, Growth, Quality, Risk, Momentum, Dividend and Size) to trends in global macro data. Popular uses include 1) when to buy "Deep Value", "Growthiest of Growth", and other styles, 2) identifying stocks with various style characteristics, 3) monitoring style performance, and 4) explaining out/under-performance due to style tilts. Regional versions are published in these linked monthly reports for Global Quantessential Style and Asia Pac ex-Japan Quantessential Style.

Week 1: Global Fund Performance Monitor

The above linked monthly report analysing the relative returns of large long-only equity funds in order to help fund managers understand how returns have been affected by fund characteristics. Funds are grouped by Region, Investment Style, Active/Passive, Active Share Ratio, Funds Under Management, Stock Size, Number of Stocks, and Portfolio Turnover.

Week 2: Global Wave

The Global Wave (report link above) quantifies turning points and multi-year trends in global economic activity. The direction of the global cycle influences equity market performance, regional allocation, country allocation, style allocation, and stock selection. The Bunkers are stocks for a downturn and the Boosters are stocks for an upturn.

Week 2: NewsAlpha

The above linked monthly report: 1) quantifies alpha opportunities using news for both short-term and long-term investors, 2) Leverages big data – a) to identify the most significant news events, b) to highlight which stocks are driven by news and c) to create an indicator- The Global News Pulse - to monitor trends in news sentiment globally.

Week 2: Positioning in Stocks

Quantifies how large investors are positioned in terms of stocks, regions, countries and sectors. Popular uses include 1) identifying extreme positioning for contrarian trade ideas, and 2) identifying developing trends in investor positioning. Regional versions are published in these linked monthly reports for <u>Global Positioning in Stocks</u> and <u>Pacific Positioning</u>.

Week 3: Quant Panorama

Summary report. In this monthly report, we present all our views and recent research on regional allocation, country and sector allocation, style allocation, and stock selection.



One-stop shopping. Regional versions are published in these linked monthly reports for Global Quant Panorama and Asia Pac ex-Japan Quant Panorama.

Week 4: Earnings Revision Ratio

Shows trends in earnings expectations at the regional, country and sector level. Regional versions are published in these linked monthly reports for <u>Global Earnings</u> <u>Revision Ratio</u> and <u>Asia Pac ex-Japan Earnings Revision Ratio</u>.

Weekly: <u>High Frequency Monitor</u>

In this above linked weekly report, we monitor high frequency data to help equity investors track short-term changes in market-moving data in order to swiftly identify hot topics and turning points.

Occasional: Focus Point

The report above contains brief comments on topical issues and new research.



Disclosures

Important Disclosures

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperformstocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating Total return expectation (within 12-month period of date of initial Ratings dispersion guidelines for coverage cluster^{R1} rating)

Buy $\geq 10\%$ $\leq 70\%$ Neutral $\geq 0\%$ $\leq 30\%$ Underperform N/A $\geq 20\%$

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Due to the nature of quantitative analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments. Refer to BofA Global Research policies relating to conflicts of interest.

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI, BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.Á. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS



R1 Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services or other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the Electronic Communications Disclaimers for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, intended in any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content



information.

contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this

